

Steroidogenesis, Reactive Oxygen Species and Female Reproduction

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Doctor of Philosophy

by

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Abbreviations

ATP - Adenosine triphosphate
ATSS - Alternative transcription start site
ATTS - Alternative transcription termination site
ART - Assisted reproductive technology
BCAN - Brevican
BMP15 - Bone morphogenetic protein 15
BSA - Bovine serum albumin
BUBR1 - Budding uninhibited by benzimidazoles 1 homolog β
CAT - Catalase
cAMP - Cyclic adenosine monophosphate
CCNB1- Cyclin B1
CCNE1 - Cyclin E1
CdCl₂ - Cadmium chloride
CDK1/2 - Cyclin-dependent kinases 1 and 2
CDK2AP2 - Cyclin dependent kinase 2 associated protein 2
cGMP - Cyclic guanosine monophosphate
CLBP - ClpB family mitochondrial disaggregase
CL-P - Corpus luteum-progressing
CLPP - Caseinolytic mitochondrial matrix peptidase proteolytic subunit
CL-R - Corpus luteum-regressing
COCs - Cumulus oocyte complexes
COQ10A - Coenzyme Q10A
COQ10B - Coenzyme Q10B
COL19A1 - Collagen type XIX alpha 1 chain
CYP11A1 - Cytochrome P450 family 11 subfamily A member 1
CYP17A1 - Cytochrome P450 family 17 subfamily A member 1
CYP19A1 - Cytochrome P450 family 19 subfamily A member 1
dbcAMP - Dibutyryl cyclic-AMP
DEGs - Differential expression genes
DEPC - Diethyl pyrocarbonate
DGE - Differential gene expression

DPBS - Dulbecco's phosphate-buffered saline
 DTU - Differential transcript usage
 DTNBP1 - Dystrobrevin binding protein 1
 EGA - Embryonic genome activation
 EGF - Epidermal growth factor
 ER - Endoplasmic reticulum
 ES - Exon skipping
 ETC - Electron transport chain
 FDR - False discovery rate
 FDX1 - Ferredoxin 1
 FDXR - Ferredoxin reductase
 FN1 - Fibronectin 1
 FSH - Follicle stimulating hormone
 GDF9 - Growth differentiation factor 9
 gDTUs - Genes with differential transcript usage
 GEO - Gene expression Omnibus
 GFM2 - GTP dependent ribosome recycling factor mitochondrial 2
 GLRX3 - Glutaredoxin 3
 GO - Gene ontology
 GPX1/2/3/4/5/6/7/8 - Glutathione peroxidase 1/2/3/4/5/6/7/8
 GRX - Glutaredoxin
 GSR - Glutathione-disulfide reductase
 GSH - Glutathione
 GSSG - Glutathione disulfide
 GV - Germinal vesicle
 γ H2AX - Phosphorylated H2A histone family member X on serine 139
 H_2O_2 - Hydrogen peroxide
 HBSS - Hank's balanced-salt solution
 HCG - Human chorionic gonadotropin
 HAS2 - Hyaluronan synthase 2
 IPA - Ingenuity pathway analysis
 IVF - In vitro fertilisation
 IVM - In vitro maturation
 LAMA2 - Laminin subunit alpha 2

LAMB1 - Laminin subunit beta 1
 LH - Luteinizing hormone
 LONP1 - Lon peptidase 1, mitochondrial
 LRP2/8 - LDL receptor related protein 2/8
 MII - Metaphase II
 MAPK - Mitogen-activated protein kinase
 MPF - Maturation promoting factor
 MRPL12/14/44 - Mitochondrial ribosomal protein L 12/14/44
 MAD1/2 - Mitotic arrest deficient 1/2
 MPS1 - Monopolar spindle 1
 NADPH - Nicotinamide adenine dinucleotide phosphate
 NRF2 - Nuclear factor erythroid 2-related factor 2
 NSUN3 - NOP2/Sun RNA methyltransferase 3
 NUBPL - NUBP iron-sulfur cluster assembly factor, mitochondrial
 NXN - Nucleoredoxin
 OXPHOS - Oxidative phosphorylation
 PBS - Phosphate buffered saline
 PCA - Principle component analysis
 PMSG - Pregnant mare serum gonadotropin
 POR - Cytochrome p450 oxidoreductase
 POU5F1 - POU class 5 homeobox 1
 PRDX1/2/3/4/5/6 - Peroxiredoxin 1/2/3/4/5/6
 RAB4B/5B - Ras-related Protein
 RIGI - Retinoid acid-inducible gene 1
 ROS - Reactive oxygen species
 RPL8/10/27/28/32 - Ribosomal protein L 8/10/27/28/32
 RT – Room temperature
 PTX3 - Pentraxin 3
 siRNA - Small interfering RNA
 SOD1/2 - Superoxide dismutase 1/2
 STAR - Steroidogenic acute regulatory protein
 TXN1/2 - Thioredoxin 1/2
 TXNRD1/2/3 - Thioredoxin reductase 1/2/3
 VCAN - Versican

Abstract

Ovarian steroidogenesis is the process of synthesising the steroid hormones oestradiol and progesterone in granulosa cells (GCs) and thecal cells (TCs) of the follicle, and is crucial for female reproduction. Follicle stimulating hormone (FSH) and luteinizing hormone (LH) from the pituitary gland regulate follicle growth and differentiation, follicular steroidogenesis as well as oocyte maturation and release (ovulation) for fertilisation. The synthesis of oestradiol and progesterone involves enzymes, cytochrome P450 enzymes, which require electron transport chains for their reactions and can therefore lead to the production of reactive oxygen species (ROS) and if not scavenged by antioxidants to oxidative stress. Aging has been connected to increased oxidative stress in the cells, and previous studies have shown that the main enzyme for the oestradiol production, cytochrome P450 aromatase, is increased in advanced aged women (> 40 years). Furthermore, oocyte quality and therefore fertility declines with a woman's age. On these grounds, it was imperative to study the interplay between ovarian steroidogenesis, ROS and antioxidants for my thesis, especially regarding oocyte maturation and ovarian aging.

The tumor-like granulosa cell line KGN is widely used as model for granulosa cell steroidogenesis, even so hormone levels are 100 times lower than in the primary cells. KGN show also an extremely high expression of thioredoxin reductase 1 (*TXNRD1*), an enzyme involved in scavenging reactive oxygen species, compared to granulosa cells. This opened up the question whether KGN cells regulate the mRNA expression of their antioxidant enzymes differently to granulosa cells in response to increased steroidogenesis. We showed that dibutyl cyclic adenosine monophosphate or forskolin induced steroidogenesis in KGN cells resulted in steroidogenesis related genes and antioxidant enzyme genes being differentially expressed. Knockdown of *TXNRD1* led to changes in the expression of other antioxidant enzyme classes. Our analysis indicated that KGN cells have a different regulation of steroidogenic and antioxidant genes during steroidogenesis compared to human GCs. However, on the other hand KGN cells are similar to primary GCs, and show a downregulation of steroidogenic activity when their antioxidant system is impaired.

Granulosa cells are the nurturing cells of the oocyte in the follicle, and regulate its development in a paracrine fashion. Oocytes have been shown to be susceptible to damage by ROS, especially during oocyte maturation. Maturation is characterised by the transition of germinal vesicle (GV) oocytes to meiosis I (MI) oocytes and finally MII oocytes. However, the key genes and transcripts required for this process are still not known. Furthermore, the antioxidant

enzymes available in the oocyte at the GV and MII stage to protect itself against ROS from surrounding granulosa cells and follicular fluid are not fully identified either. We generated and studied the RNA sequencing profiles of pig oocytes at three major developmental stages, the GV stage and MII stage as well as oocytes, which did not complete the transition to MII ('damaged'), therefore suggesting a lower oocyte quality or developmental delay. No differences in gene expression were identified between MII and the 'damaged' pig oocytes. Additionally, we compared our findings for the pig oocyte with public human oocyte data. This identified conserved regulators that ensure correct chromosome segregation in the first meiosis and therefore provide an overview of molecular regulation of oocyte maturation.

Women's aging is associated with a decline in fertility as result of a decline in oocyte quality and developmental competence. This is problematic as more women decide to become a mother later in life. Using public spatial RNA sequencing data from young and advanced aged mouse ovaries, we tried to decipher how ovarian aging affects the expression of steroidogenic and antioxidant genes in follicular cells, especially immature and mature GCs and the oocytes. Ovarian aging results in an impaired antioxidant system in different cell type in the advanced aged ovary including vascular, lymphatic, thecal, and granulosa cells. Simultaneously, ovarian aging also significantly increased steroidogenic gene *Cyp19a1* expression in mature granulosa cells and resulted in increased aneuploidy rates in oocytes from advanced aged ovaries compared to younger counterparts. Our results suggests that ageing impairs the antioxidant response in the follicular environment and leads to increased steroidogenesis in mature granulosa cells. This imbalance of antioxidant and ROS might account for the poor oocyte health observed during ageing.

In conclusion, our findings confirm firstly that KGN cells can be a good model for some aspects of primary granulosa cell behaviour. However, scientist have to be aware of the limitations and differences of this cell line. Secondly, oocyte which have not completely transitioned into MII oocytes show no gene expression differences compared with MII oocytes suggesting that these oocyte might be still able to fully mature but in a delayed time frame. And we identified key regulators involved in important oocyte maturation events including chromosome segregation, spindle assembly and mitochondrial oxidative phosphorylation at both gene and isoform transcript level. Lastly, ovarian aging seems connected with changes to main antioxidant enzymes in the cell populations related to follicles, which could result in ROS damage due to increased steroidogenesis.

Thesis Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

I give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library Search and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

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List of Publications

Contributing to this thesis:

1. **Feng Tang**, Katja Hummitzsch, Raymond J Rodgers. Unique features of KGN granulosa cells in the regulation of steroidogenic and antioxidant genes.; *Molecular Human Reproduction*; 2023. (Currently under revision)
2. **Feng Tang**, Katja Hummitzsch, Raymond J. Rodgers. RNA sequencing analysis of oocytes maturation from GV to MII stage in pig and human.; *Human Reproduction*, 2023. (To be submitted)
3. **Feng Tang**, Katja Hummitzsch, Raymond J. Rodgers. The interplay of ovarian aging, steroidogenesis and oocyte quality.; *BMC Genomics*, 2023. (To be submitted)

Additionally generated throughout PhD candidature:

1. TianYu Wu, Simon I R Lane, Stephanie L Morgan, **Feng Tang**, Keith T Jones. Loss of centromeric RNA activates the spindle assembly checkpoint in mammalian female meiosis I.; *J Cell Bio*, 2021

Poster Presentations

1. **Feng Tang**, Katja Hummitzsch, Raymond J Rodgers. Unique features of KGN granulosa cells in the regulation of steroidogenic and antioxidant genes. Florey Postgraduate Conference, Adelaide, 2nd August 2023

Chapter 1

Literature Review

Background

Reactive oxygen species (ROS), a group of chemically reactive oxygen molecules, including peroxides, superoxide anion, hydroxyl radical, singlet oxygen and alpha oxygen, can be produced by steroidogenesis and oxidative phosphorylation. It has been discovered that ROS can act as a second messenger, allowing transcription of developmental genes, whereas excessive ROS production would impair homeostasis via oxidative stress. This literature review discusses how ROS are generated in the ovary, what types of ROS and for what purpose ROS are generated, as well as the correlation between ROS and advanced maternal age.

1.1 General Sources of ROS

1.1.1 By-Product of ATP Production

As the main by-product of metabolic reactions, ROS is predominantly produced in the electron transport chain of mitochondria, which includes four complexes (Chance *et al.* , 1979). Mitochondria are involved in oxidative phosphorylation by transferring electrons from complex I to complex IV. Initially, in complex I, reduced nicotinamide adenine dinucleotide dehydrogenase (NADH) is oxidised to NAD^+ with the removal of two electrons from itself as the onset of the tricarboxylic acid cycle (Dutton *et al.* , 1998). The two electrons transfer to ubiquinone (coenzyme Q) followed by one dehydrogenation and one reduction, sequentially, resulting in the translocation of four protons (H^+) from the mitochondrial matrix to the intermembrane space (Dutton *et al.*, 1998) and thus contributing to the establishment of an intermembrane proton gradient. However, during this process, precocious leakage of electrons occurs frequently and reduces oxygen to superoxide anion (O_2^-), making complex I a potential major site of production of superoxide *in vivo* (Koopman *et al.* , 2010). Besides NADH, reduced flavin adenine dinucleotide (FADH) in complex II can also be an electron donor but without the transfer of protons to the intermembrane space (Muller, 2000). Compared to complex I, complex II was previously not considered as a main contributor of electron leakage but a recent report challenged this opinion and found ROS could be produced at complex II (Goncalves *et al.* , 2015). Once electrons transferred to complex III, they pass to cytochrome c, the transient electron carrier, with expulsion of four protons into the intermembrane space (Crofts and Wang, 1989). In complex IV, two electrons together with two protons and half molecular oxygen produce one molecule of water (Handy and Loscalzo, 2012). Electron leakage also happens at complex III resulting in superoxide formation (Rigoulet *et al.* , 2011).

Finally, the established proton gradient is used by complex V for the synthesis of adenosine triphosphate (ATP) from adenosine diphosphate in the presence of ATP synthase. Although ROS can be generated by different complexes, a comparison of the amounts of ROS produced by each was not achieved until recently. Goncalves *et al.* discovered a new approach to test the rate at each mitochondrial site that produces ROS in rat skeletal muscle and revealed that around 50% ROS were generated from the quinol site in complex I (site IQ) and the flavin site in complex II (site IIF) during rest or mild aerobic exercise, while the flavin site in complex I (site IF) dominated if aerobic exercise was intense (Goncalves *et al.*, 2015). This indicates that the rate of ROS generation at each site in the mitochondria is dynamic.

1.1.2 By-Product of P450 Enzymes and Steroidogenesis

Cytochrome P450 enzymes are a large family of enzymes that regulate substantial biological functions, including biotransformation of drugs, bioactivation/deactivation of chemical compounds and steroidogenesis (Guengerich *et al.* , 2019, Rodriguez Castano *et al.* , 2019). Many cytochrome P450 enzymes are expressed in the liver, normally classified into three families (CYP1, CYP2 and CYP3), and are involved in drug metabolism. For instance, in human, hepatic P450 enzymes such as CYP1A2, CYP2C8, CYP2C9, CYP2E1 and CYP3A4 are involved in phase I drug metabolism to protect the body from potential toxic compounds like anti-psychotic medicine quetiapine and anti-rhythmic drug amiodarone (Le Dare *et al.* , 2020, Zahno *et al.* , 2011).

Five cytochrome P450 enzymes, namely CYP11A1, CYP17A1, CYP11B1, CYP11B2 and CYP21A2, are involved in adrenal steroidogenesis and CYP11A1, CYP17A1 and CYP19A1 are essential for steroidogenesis in the ovary (Miller, 2005). The steroidogenic cytochrome P450 enzymes are found in the endoplasmic reticulum and mitochondria. CYP17A1, CYP21A2 and CYP19A1 are located in the endoplasmic reticulum and have an electron transfer chain characterised by transition of electrons from NADPH to cytochrome P450 via cytochrome P450 reductase (also called cytochrome P450 oxidoreductase), which contains flavodoxin (FAD) and flavin mononucleotide (FMN) domains (Hannemann *et al.* , 2007). CYP11A1, CYP11B1 and CYP11B2 are located in the inner mitochondrial membrane and electrons sequentially pass from nicotinamide adenine dinucleotide phosphate (NADPH) to adrenodoxin reductase (a FAD containing flavin adenine), then to adrenodoxin (an iron-sulfur [2Fe-2S] protein) and finally to cytochrome P450 enzymes (Hanukoglu *et al.* , 1993). Mitochondrial cytochrome P450s are thought to have arisen from a common microsomal P450

ancestor. The electron transport chain in mitochondria differs from that in the endoplasmic reticulum, where cytochrome P450 enzymes evolved earlier and appear to be less efficient (Hartz *et al.* , 2021). Less than 50%-60% of electrons transferred from NADPH reach the destination-P450 enzymes (Rapoport *et al.* , 1995), and sometimes this efficiency can be as low as 0.5%-3% (Hanukoglu, 2006). This electron leakage most likely leads to the production of superoxide (Hanukoglu, 2006).

1.1.3 ROS Production by NADPH Oxidases

The NADPH oxidase (NOX) complex is a multiple-protein electron transfer system composed of five components including gp91^{phox}, p22^{phox}, p40^{phox}, p47^{phox} and p67^{phox}, which is found in various cells such as macrophages, vascular smooth muscle cells, neutrophils and endothelial cells (Panday *et al.* , 2015). A glycosylated subunit gp91^{phox} and a non-glycosylated subunit p22^{phox} form together the catalytic core of NOX, which is referred to as flavocytochrome b558 and localises to the plasma membrane, phagosomes and specific granules. Phosphorylation of protein kinase C upon exposure to chemotactic peptides or phorbol myristate acetate (PMA) induces NOX2 assembly on the surface membrane and subsequent transfers electrons from NADPH across the membrane to oxygen. This results in extracellular superoxide/hydrogen peroxide production (Dahlgren *et al.* , 2007) leading to death of nearby microorganisms (Kovacs *et al.* , 2015). It has been reported that in human neutrophils NOX has a functional relationship with cytochrome b, which is a component of complex III in the respiratory electron transport chain in mitochondria (Gabig *et al.* , 1982). In unstimulated human neutrophils, approximate 90% of cytochrome b was observed in specific granules, but 40%-75% of cytochrome b would transfer to the plasma membrane when neutrophils were stimulated by PMA. This suggests a dynamic localisation of cytochrome b is the basis of NOX assembly in neutrophils and that these specific granules in unstimulated neutrophil could be a potential source of intracellular ROS (Borregaard *et al.* , 1983).

1.1.4 By-Product of Other Enzymatic Reactions

Fatty acid oxidation driven by peroxisomal oxidases has been shown to be a major source of ROS (Cardoso *et al.* , 2013). Like P450 enzymes, most of these enzymes are flavoproteins that produce hydrogen peroxide by transferring hydrogen from their substrates to oxygen. In rat, three liver peroxisomal acyl-CoA oxidases are found, palmitoyl-CoA oxidase, pristanoyl-CoA oxidase, and trihydroxycoprostanoyl-CoA oxidase. These are involved in hydrogen peroxide production as they respectively oxidise different substrates such as long-chain fatty acids or 2-

methyl-branched fatty acids, with electron leakage to oxygen (Van Veldhoven *et al.*, 1992). A recent study reported that a long-chain acyl-CoA dehydrogenase in mouse liver mitochondria directly produces hydrogen peroxide and its hydrogen peroxide generation rate is approximately 15-fold more than that of the very long-chain acyl-CoA dehydrogenase that has also previously been identified as a source of hydrogen peroxide (Kakimoto *et al.*, 2015, Zhang *et al.*, 2019). Xanthine oxidoreductase exists in two interconvertible forms, xanthine oxidase (XO) and xanthine dehydrogenase (XDH), and can generate hydrogen peroxide as by-product during oxidation of hypoxanthine to xanthine and xanthine to uric acid in the purine degradation pathway (Fridovich, 1970, Hille and Nishino, 1995, Hunt *et al.*, 1993). The major source of ROS and relevant biological consequences in the ovary has been summarised in Table 1.

Table 1. The major source of ROS and relevant consequences in the ovary and testicle

ROS	Cell type	Effect on steroidogenic enzymes	Biological consequence	Reference
Hydrogen peroxide	Granulosa cells	NA	Inhibition of FSH/LH-sensitive cAMP accumulation and progesterone production	(Margolin <i>et al.</i> , 1990)
	Luteal cells	NA	Inhibition of FSH-induced progesterone production; Blocking intracellular transport of cholesterol to mitochondria	(Behrman and Aten, 1991, Endo <i>et al.</i> , 1993, Musicki <i>et al.</i> , 1994)
	Leydig cells	Inhibition of Hsd3b1 activity	Inhibition of cholesterol transport to mitochondria	(Stocco <i>et al.</i> , 1993)
Lipid hydroperoxide (generated by depletion of Sod2)	Granulosa cells	Inhibition of Cyp11a1, Cyp17a1, Cyp19a1 and Star expression	Inhibition of progesterone secretion and estradiol production	(Zaidi <i>et al.</i> , 2021)
Lipid hydroperoxide	Luteal cells	NA	Inhibition of FSH-induced progesterone production	(Kodaman <i>et al.</i> , 1994)

Superoxide anion (xanthine/xanthine oxidase)	Luteal cells	NA	Reduction of progesterone synthesis and secretion	(Sawada and Carlson, 1996)
	Leydig cells	Inhibition of StAR expression	Inhibition of mitochondrial import and processing	(Diemer <i>et al.</i> , 2003)

1.2 The ROS Scavenging System

Cellular ROS levels are not only determined by the amount of ROS production, but also by the level of ROS degradation carried out by the antioxidant defence system. There are two major defence systems based on their activity: enzymatic and non-enzymatic. Enzymatic antioxidants break down and remove free radicals, whereas non-enzymatic antioxidants interrupt free radical chain reaction and therefore prevent oxidative damage to proteins, lipids and DNA.

1.2.1 Enzymes

The best studied family of enzymes for ROS degradation are the superoxide dismutases (SOD), consisting of three isoforms: cytosolic SOD1 (contains copper/zinc), mitochondrial SOD2 (contains manganese) and extracellular SOD3 (contains copper/zinc). When molecular oxygen reacts with a single electron to form superoxide radicals, a SOD-dominated dismutase reaction converts the radicals into oxygen and hydrogen peroxide that can be further catalysed to generate water and oxygen when catalase is present (Dikalov *et al.* , 2008, Kirkman and Gaetani, 2007). Another group of enzymes are the glutathione peroxidases (GPxs), which are selenoproteins that contain the rare amino acid selenocysteine in their active site. There are eight family members (GPX1-GPX8) in mammals (Chabory *et al.* , 2010). Glutathione peroxidases convert hydrogen peroxide into two molecules of water, while two glutathione (GSH), the reducing equivalents, are oxidised into glutathione disulfide (GSSG). These can be recycled to their reduced state (GSH) by using NADPH as reducing equivalents in the presence of glutathione reductase (GSR) (Esposito *et al.* , 2000, Flohe *et al.* , 1972). Therefore, the ratio of GSSG/GSH is an indicator of the redox state within the cell. Peroxiredoxins (Prxs) are a family of thiol-dependent peroxidases, which reduce peroxides. They possess cysteine residues at their active site, which are highly sensitive to oxidation by peroxides including hydrogen peroxide, lipid hydroperoxides and peroxynitrite (Rhee and Kil, 2017). There are six isoforms (encoded by PRDX1-6) with different subcellular localisations including mitochondria, cytosol, nucleus, plasma membrane and centrosome. Thioredoxin (Trxs; encoded by TXN and TXN2),

which can be reduced by thioredoxin reductase (Trxrs; encoded by TXNRD1, TXNRD2 and TXNRD3) , can reduce oxidised cysteine residues and cleave disulfide bonds formed by oxidation by Prxs, thereby facilitating ROS elimination (Rhee *et al.* , 2012). The interplay of above-mentioned antioxidant enzymes has been summarised in Figure 1.

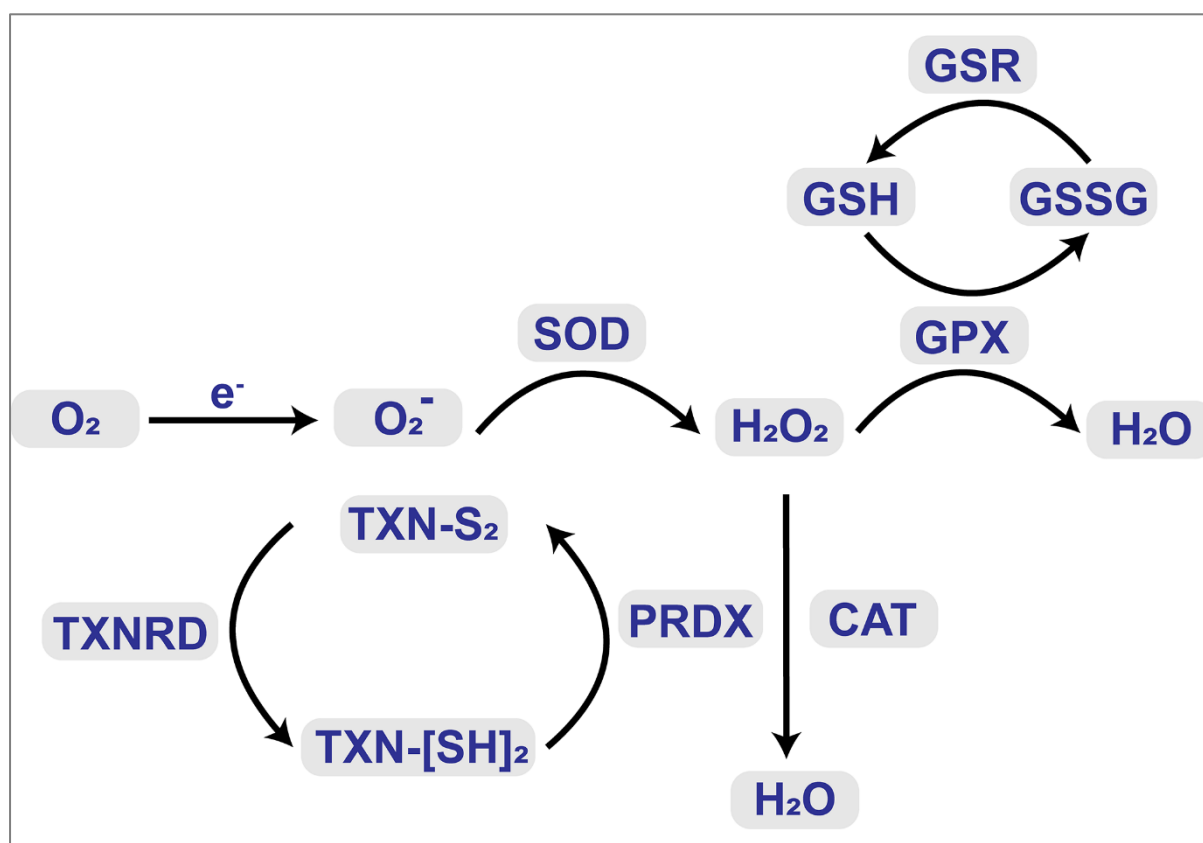


Figure 1. Schematic of the interplay of antioxidant enzymes. The reduction of molecular oxygen produces superoxide, which will be converted into hydrogen peroxide by dismutation in the presence of superoxide dismutases (SOD). Glutathione peroxidase (GPX) converts hydrogen peroxide into water, while glutathione (GSH), are oxidised into glutathione disulfide (GSSG) that could be reduced back to GSH under the assistance of glutathione reductase (GSR). Alternatively, catalase (CAT) could also directly reduce hydrogen peroxide into water. Thioredoxin reductase (TXNRD) can reduce oxidized thioredoxin (TXN), which can then be used by peroxiredoxin (PRDX) to convert hydrogen peroxide into water resulting in oxidised TXN again.

1.2.2 Antioxidant Molecules

Non-enzymatic antioxidants can be naturally obtained, including synthesised by the body or taken up with food, or synthetically derived, and interrupt mostly the chain reactions induced

by free radicals, therefore preventing damage to lipids, DNA and proteins. Natural antioxidants mainly contain a phenol structure and include vitamins (e.g. vitamin E, vitamin C, and vitamin A1), phytochemicals such as bioflavonoids (e.g. quercetin, genistein), carotenoids (e.g. β -carotene, lutein), hydroxycinnamates (e.g. caffeic acid, ferulic acid), allicin and piperine, as well as antioxidant minerals (antioxidant enzymes cofactors like selenium, copper, iron, zinc, and manganese) (Nimse and Pal, 2015), and physiological antioxidants such as uric acid (plasma), GSH and melatonin. The latter is able to act directly as a scavenger for ROS and reactive nitrogen species (RNS), and indirectly by stimulation of antioxidant enzymes, such as SOD, GPxs, CAT, GSR, nitric oxide synthase, paraoxonase, myeloperoxidase, lipoxigenase, cyclooxygenase, heme oxygenase and glutamyl-cysteine-ligase, via the nuclear factor-erythroid factor 2-related factor 2 (Nrf2)/ Keap1 antioxidant response element (Keap1) - nuclear factor erythroid 2-related factor 2-antioxidant response element (ARE) pathway (Reiter *et al.*, 2016, Vriend and Reiter, 2015). Melatonin can further act as chelating agent sequestering the metal ions (aluminum, cadmium, copper, iron, lead, and zinc) that catalyse oxidation reactions. It also seems to be able to accumulate in the mitochondria, where free radical production is maximal, and might therefore be more powerful in oxidative stress defence compared to other antioxidants (Reiter *et al.*, 2016).

Synthetic antioxidants have been developed as stable small molecules, which are constantly active and completely controlled. These phenolic compounds are widely used in the pharmaceutical and food industry as preservatives because of their antioxidant activity. Examples are butylated hydroxyl anisole (BHA), butylated hydroxytoluene (BHT), propyl gallate (PG), metal chelating agent (EDTA), tertiary butyl hydroquinone (TBHQ), and nordihydroguaiaretic acid (NDGA). Synthetically conjugating vitamin E with the lipophilic triphenyl phosphonium cation (TPP) enabled it to rapidly cross the cell and mitochondrial membranes and then accumulate in the mitochondrial matrix (Reiter *et al.*, 2016, Vriend and Reiter, 2015). This conjugation achieved better protection of the mitochondria than the unconjugated vitamin E.

1.3 ROS in the Ovary

1.3.1 ROS in Follicle Growth

The ovary contains a reserve of primordial follicles, which is formed before birth. These follicles are about 30 μm in diameter and contain an inactive oocyte at their centre surrounded by non-dividing granulosa cells and all enclosed by the follicular basal lamina. Each day a

number of these follicles are activated to grow. Once activated, the oocyte begins to enlarge and produces a zona pellucida and the granulosa cells begin to replicate from about 24 cells to 50 million cells at the time of ovulation in the cow (Rodgers *et al.* , 1999). Whilst growing, a fluid-filled antrum or cavity develops in the middle of the follicle (Rodgers and Irving-Rodgers, 2010). At about that time, specialised stromal layers develop externally to the follicular basal lamina, called the theca interna and theca externa. The theca interna is vascularised, whilst the area inside the follicular basal lamina is not. Expansion of the antrum enables bovine follicles to enlarge to over 10 mm in diameter before ovulation. Ovulation occurs only once per oestrous cycle and the time from activation to ovulation is of the order of 6 months. It is not possible to identify at the current state of knowledge when the greatest production of ROS occurs during follicular growth and development, but since steroidogenesis increases and the follicle is still expanding leading up to ovulation, it is likely that this is the time of greatest ROS production.

1.3.2 ROS in Follicle Ovulation

Ovulation of pre-ovulatory-size follicles is triggered by a series of processes in response to the surge release of luteinizing hormone (LH) from the anterior pituitary, including dissolution of the follicular basal lamina, neovascularisation of the membrana granulosa, oocyte meiotic resumption, cumulus expansion, follicular rupture and expulsion of follicular fluid and the cumulus-oocyte-complex from the follicle (Robker *et al.* , 2018). Cumulus expansion is a process whereby the cumulus cells detach from each other and the oocyte with the production of hyaluronan, allowing the oocyte and its associated cumulus cells embedded in a hyaluronan matrix to detach from the follicle wall and to be ovulated. Administration of antioxidant drugs such as butylated hydroxyanisole or N-acetyl-L-cysteine in mice ovarian bursa severely reduces the ovulation rate via suppression of cumulus expansion, whereas cumulus expansion has been shown to be triggered *in vitro* by the supplementation of hydrogen peroxide in the culture medium (Shkolnik *et al.* , 2011). Prdx2 has been proposed to play a role during cumulus expansion and ovulation as *Prdx2*-deficient mice showed reduced cumulus expansion and oocyte maturation due to suppressed expression of expansion-inducing genes *Has2*, *Ptx3*, *Tnfaip6* and *Ptgs2*, and oocyte-derived factors *Gdf9* and *Bmp15*, but no change in ovulation rate (Jang *et al.* , 2020). In sheep, treatment with antioxidant melatonin not only upregulated the cumulus expansion-associated genes (*PTX3*, *HAS2* and *PTGS2*) at ovulation but also antioxidant genes (*SOD1*, *GPX4* and *CAT*) (Fang *et al.* , 2019). These studies, whilst not identifying any source of ROS, indicate that ROS could be important for ovulation.

Follicular rupture is a key step to a successful ovulation. This process is highly dependent on the function of metalloproteinases (MMPs), which degrade the extracellular matrix to facilitate follicular rupture (Deady *et al.* , 2015, Riley *et al.* , 2004). MMP2 activation is required for successful ovulation in *Drosophila* and this activation is regulated by the neuronal octopamine (OA)/ octopamine receptor (OAMB)/ Ca^{2+} -signalling pathway (Deady and Sun, 2015). However, another study by the same group suggested that hydrogen peroxide produced by NOX and SOD3 is an essential signalling molecule for follicular rupture independently of MMP2. Interestingly, both, NOX and SOD3, are in this scenario also regulated by the OA/OAMB/ Ca^{2+} -signalling pathway (Li *et al.* , 2018).

At ovulation, neovascularisation of the membrana granulosa originates from the theca interna and thus commences the transformation of a follicle into a corpus luteum. The angiogenesis is regulated by the release of vascular endothelial growth factor (VEGF) from granulosa cells or macrophages (Guimera *et al.* , 2009, Walz *et al.* , 2005). Inhibition of VEGF expression attenuates vascular sprout formation, thereby leading to ovulation failure (Trau *et al.* , 2016). In mouse granulosa cells, VEGF expression in turn can be up- or downregulated, respectively, by treatment with hydrogen peroxide or a broad-range ROS scavenger, butylated hydroxyanisole (Liu *et al.* , 2006, Yalu *et al.* , 2015). Thus, ROS appear to be important for three events at ovulation namely cumulus expansion, follicular rupture and neovascularisation that occurs for formation of the corpus luteum.

1.3.3 ROS and Follicular Steroid Hormone Production

The production of steroid hormones changes daily and reflects the stages of development of follicles and the corpora lutea that develop from ovulated follicles. Large follicles with a large fluid-filled antrum secrete principally oestradiol and corpora lutea secrete principally progesterone. Corpora lutea produce a lot more steroid hormones than follicles do, and hence progesterone concentrations in the blood are in ng/ml compared to pg/ml for oestradiol. There are two steroidogenic cell types in follicles (Figure 2), the inner epithelial granulosa cells and the outer thecal cells of the theca interna. In many species, both these cell types change phenotype at ovulation to contribute to two populations of luteal cells. Much of this has been reviewed elsewhere and the reader is referred to them (Abedel-Majed *et al.* , 2019, Hummitzsch *et al.* , 2015).

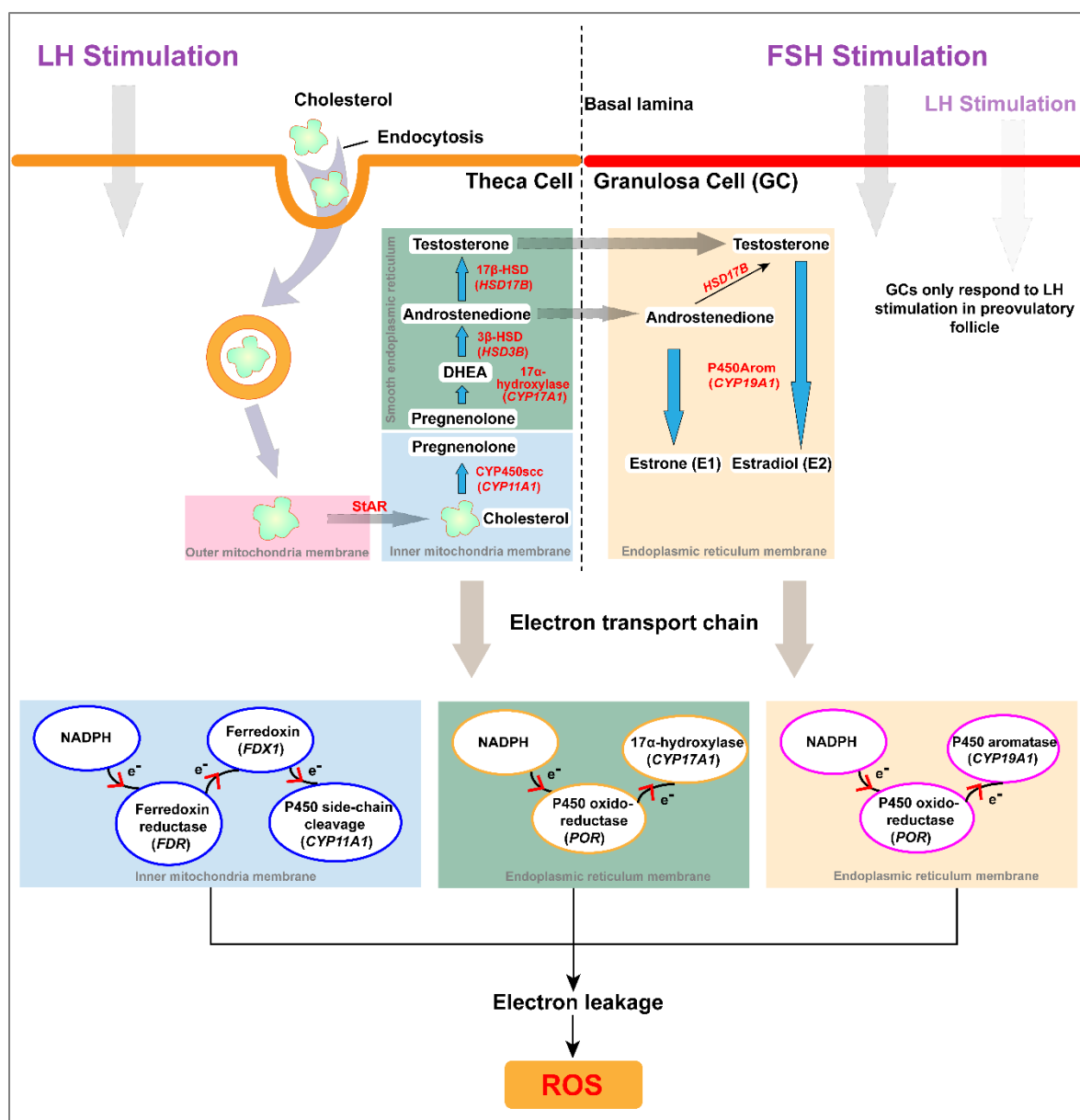


Figure 2. Schematic of the steroidogenesis in follicular thecal and granulosa cells. The activity of the mitochondrial P450 side-chain cleavage enzyme and the endoplasmic reticulum located P450 17 α -hydroxylase and P450 aromatase require the involvement of electron transport chains, which can cause the leakage of electrons and therefore the generation of reactive oxygen species (ROS).

The production of oestradiol by the follicle involves two cell types as shown in Figure 2. The thecal cells can metabolise cholesterol to androgens and the granulosa cells can then convert these androgens to oestrogens. For this to occur, cholesterol enters thecal cells via endocytosis of lipoproteins, and moves from the outer mitochondrial membrane into the inner mitochondrial membrane under the control of steroid acute regulator (StAR) protein (Bose *et*

257 *al.* , 2002). Within the inner mitochondrial membrane, the cytochrome P450 cholesterol side-
 258 chain cleavage enzyme (P450_{scc} which is encoded by *CYP11A1*), catalyses cholesterol into
 259 pregnenolone that is further converted into dehydroepiandrosterone (DHEA), which is a
 260 precursor of androgen, in the presence of another P450 enzyme, cytochrome P450 17 α -
 261 hydroxylase/17,20-lyase (encoded by *CYP17A1*) (Mak *et al.* , 2015, Su *et al.* , 2019). DHEA
 262 is then converted into androstenedione by 3 β -hydroxysteroid dehydrogenase (encoded by
 263 *HSD3B*). Androstenedione diffuses across the follicular basal lamina and into granulosa cells
 264 and is converted to oestrone by cytochrome P450 aromatase (encoded by *CYP19A1*) and then
 265 to oestradiol by a 17 β -hydroxysteroid dehydrogenase (encoded by *HSD17B*). This elevation of
 266 the steroidogenesis in the weeks leading to ovulation, the so-called follicular phase of the
 267 menstrual cycle, is likely to elevate the production of ROS by the cytochrome P450 enzymes
 268 and their electron transport chains. Interestingly, high levels of ROS appear to suppress
 269 steroidogenesis by their inhibitory effect on gonadotropin-stimulated cyclic adenosine
 270 monophosphate (cAMP) production and steroidogenic enzymes activity. Exposure of rat
 271 granulosa cells to hydrogen peroxide blocks steroidogenesis stimulated by LH, cholera toxin,
 272 and 8-bromo-cAMP (Margolin *et al.*, 1990). A similar phenomenon was observed in rat luteal
 273 cells upon treatment of xanthine oxidase-generated superoxide (Gatzuli *et al.* , 1991), lipid
 274 hydroperoxide (Kodaman *et al.*, 1994) or hydrogen peroxide (Musicki *et al.*, 1994). All these
 275 studies have in common that this inhibition could not be observed by induction of
 276 steroidogenesis with forskolin and the mechanism for this is still unclear. However, further
 277 investigation in rat luteal cells identified disturbed transport of cholesterol to mitochondria or
 278 translocation across the outer mitochondrial membrane as a reason for the inhibition of
 279 steroidogenesis by ROS (Behrman and Aten, 1991). In contrast, in human luteal cells, hydrogen
 280 peroxide not only interferes with human chorionic gonadotrophin (hCG)-stimulated cAMP
 281 accumulation, but also inhibits progesterone and oestrogen synthesis by inhibiting *CYP11A1*,
 282 *HSD3B1*, *HSD17B1* and *CYP19A1* (Endo *et al.*, 1993). Moreover, Sod2-deficiency resulted in
 283 oxidative stress and led to inhibition of steroidogenic genes including *Star*, *Cyp11a1*, *Cyp17a1*
 284 and *Cyp19a1* in mouse ovarian cells (Zaidi *et al.*, 2021). The suppression of cholesterol
 285 transport and processing, such as *HSD3B1* and *StAR*, has also been shown in male Leydig
 286 cells under hydrogen peroxide treatment (Diemer *et al.*, 2003, Stocco *et al.*, 1993).
 287 Supplementation with antioxidants such as MnTMPyP (Mn(III)tetrakis(1-methyl-4-
 288 pyridyl)porphyrin pentachloride) and N-acetyl-L-cysteine can reverse the inhibitory effect of
 289 hydrogen peroxide and lipid peroxidation, certainly on adrenal steroidogenesis (Abidi *et al.* ,

2008). All findings suggest that maintaining redox balance is essential not only for avoiding cellular damage by ROS but also for steroidogenesis itself.

1.3.4 ROS in Follicle Atresia

In humans, at birth the ovary has approximate 1 million follicles (Oktem and Urman, 2010). However, this number decreases substantially to 300,000-400,000 at puberty, with less than 1% of them ovulating during a females reproductive years and the rest undergoing atresia (Oktem and Urman, 2010). Atresia involves death of follicular cells, and different follicular cells preferentially die first at different stages of follicle growth and development. In the bovine, the order of susceptibility to cell death is first the oocyte, particularly at the preantral stages when the oocyte is enlarging considerably, then cells in both the theca interna and membrana granulosa, and finally just the granulosa cells (Clark *et al.* , 2004). The granulosa cells die by apoptosis with DNA fragmentation and the thecal cells die by another mechanism involving switching off DNA repair genes (Hatzirodos *et al.* , 2014a, Hatzirodos *et al.* , 2014b, Tilly *et al.* , 1991). Granulosa cells can also die by autophagy (Zhou *et al.* , 2019b), necrosis and cornification (Van Wezel *et al.* , 1999). What initiates the decision of one follicle to undergo atresia is not really known but it does depend on the levels of follicle stimulating hormone (FSH), with higher levels inhibiting atresia, and locally on the production of growth factors (Kaipia and Hsueh, 1997). One of the mechanisms by which FSH inhibits atresia is its ability to inhibit autophagy (Shen *et al.* , 2017). It has been reported that decreased GSH significantly increased the number of atretic follicles (Lopez and Luderer, 2004). Moreover, depletion of GSH could compromise the anti-apoptotic effect of FSH on pre-ovulatory follicles in rats, indicating that suppression of ROS production is required to prevent apoptosis in a hormone-dependent manner (Tsai-Turton and Luderer, 2006). Another study also claimed that GSH synthesis in rat granulosa cells and follicles mainly relies on the interaction between FSH and oestradiol, even though FSH could only moderately enhance expression of the glutamate-cysteine ligase (GCL) subunit involved in GSH synthesis (Hoang *et al.* , 2009). Similar observations suggest that antagonism of follicle atresia is regulated by FSH-stimulated accumulation of SODs that safeguard granulosa cells and follicles from ROS damage (Dharmarajan *et al.* , 1999, Tilly and Tilly, 1995).

1.3.5 ROS and Oocyte Development

In mammalian fetal life, oogonia divide and subsequently mature into oocytes where they enter meiosis but then arrest at the dictyate stage in prophase I in meiosis I. This process ensures that

no further mitosis can occur and a finite pool of these oocytes in primordial follicles must last all of the reproductive life. On activation of a primordial follicle, its oocyte grows and at some stage of follicle growth the oocyte develops the ability to resume meiosis but is prevented from progressing further by a high concentration of cAMP/cyclic guanosine monophosphate (cGMP) transported from cumulus cells into the oocyte via gap junctions. This inhibits maturation promoting factor (MPF) required for meiosis resumption (Jones, 2004). Once the oocyte is ready to ovulate at the onset of surge release of LH from the anterior pituitary gland the gap junctions between the cumulus cells and the oocyte break down. Cyclic AMP then significantly declines in the oocyte, with simultaneous breakdown of its nucleus or germinal vesicle (GV). This maturation process from GV to metaphase II (MII) requires the production of a substantial amount of ATP as energy, resulting in increased ROS levels as by-products (Dalton *et al.* , 2014, Tiwari and Chaube, 2017). Additionally, steroid hormone production by granulosa cells is at its peak before ovulation and it contributes to ROS production. At this time, events in oocytes can be particularly susceptible to ROS damage as discussed below.

SOD is highly expressed in human and bovine cumulus cells affording protection of the oocyte from dysregulated ROS (Cetica *et al.* , 2001, Matos *et al.* , 2009). Several studies have indicated that meiotic defects caused by high ROS levels could be partially rescued by the supplementation of antioxidants (He *et al.* , 2019, Zhou *et al.* , 2019a), which is in line with the previous finding that PRDX2 was indispensable for spindle assembly and chromosome organisation during meiotic progression (Jeon *et al.* , 2017). Further studies in bovine demonstrated that prolonging meiotic arrest during *in vitro* maturation of oocytes increased the amount of time that gap junction communication between cumulus cells and oocyte occurred. This allowed accumulation of GSH and reduced hydrogen peroxide in the oocytes contributing to better oocyte developmental competence (Li *et al.* , 2016). However, an optimal level of ROS is likely to be crucial for meiosis resumption as intra-oocyte hydrogen peroxide concentration significantly increases after meiotic resumption, which may arise from a reduction of catalase activity (Pandey and Chaube, 2014, Tripathi *et al.* , 2009). If the ROS balance in oocytes is interrupted and becomes too high, it could induce apoptosis even if those oocytes are still able to complete GV breakdown (Chaube *et al.* , 2005). Thus, ROS levels must be regulated during this critical time of oocyte meiosis.

1.3.6 ROS and Oocyte Damage

The main determinants of normal meiosis progression are spindle organisation, chromosome segregation and extrusion of the first polar body and they are susceptible to ROS damage (Figure 3) (Sasaki *et al.* , 2019). For instance, porcine oocytes subject to ROS accumulation by benzo(a)pyrene (Bap) exposure, develop abnormal spindle morphology because of decreased α -tubulin acetylation (Miao *et al.* , 2018a). Tubulin acetylation is generally regarded as an indicator of microtubule stabilisation in the meiotic cell and is modulated by sirtuins, a family of NAD⁺-dependent deacetylases (Zhang *et al.* , 2014). It was shown that mice fed with a high-fat diet (HFD) had elevated levels of ROS in the oocytes and reduced Sirtuin 3 expression, leading to spindle assembly defects and chromosome misalignment (Zhang *et al.* , 2015b). These studies collectively suggest a possible mechanism of microtubule destabilisation caused by ROS accumulation as a result of dysregulated sirtuins. This leads to the failure of spindle assembly and chromosome alignment, and subsequent errors during chromosome segregation.

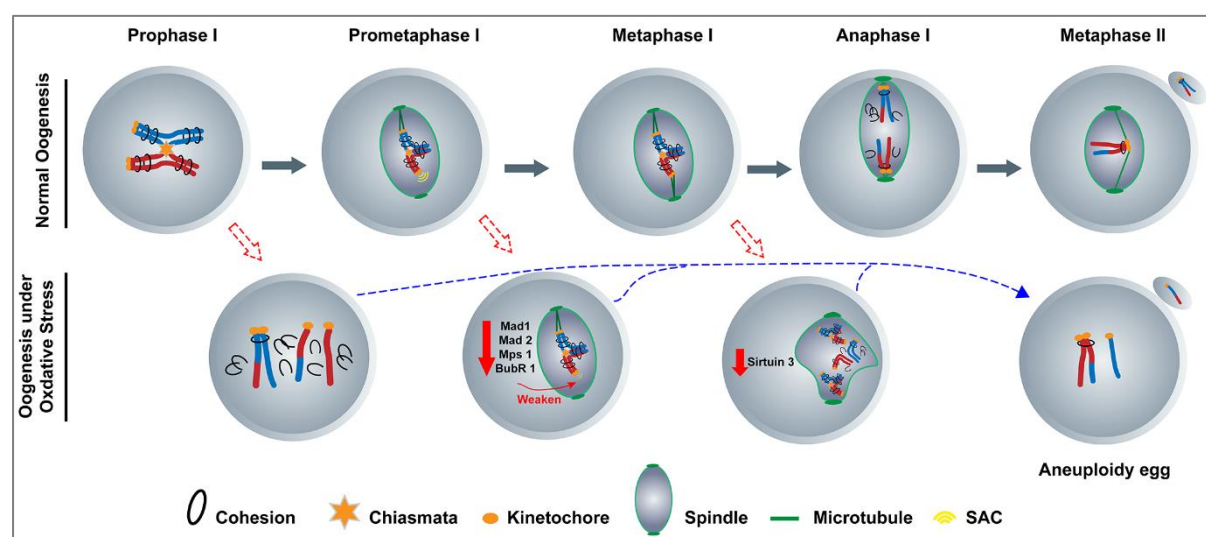


Figure 3. The oocyte maturation process under normal and oxidative stress condition.

During normal oogenesis, oocyte resumes its meiosis and gradually progresses into prometaphase I and metaphase I with spindle formation and activation of spindle assembly checkpoint (SAC), allowing to fix moderate microtubule-kinetochore attachment errors. Once oocyte enters anaphase I or telophase I, the spindle moves to the cortex and chromosome segregation takes place, consequently ejecting the first polar body, an indicator of the onset of meiosis II. During meiosis II, the oocyte arrests at metaphase (MII) until fertilisation. However, if oocyte maturation occurs under oxidative stress conditions, it could result in severe damage such as precocious chromosome segregation, weakened SAC by downregulation of SAC

components including mitotic arrest deficient 1 (Mad1), mitotic arrest deficient 2 (Mad2), monopolar spindle 1 (Mps1), and budding uninhibited by benzimidazoles 1 homolog β (BubR1), and spindle disassembly due to impaired Sirtuin3. This could then result in aneuploid oocytes.

Another meiotic event prone to disrupted ROS levels is the regulation of cohesion function. Cohesins are ring-shaped protein complexes that maintain the physical linkage between sister chromatids and between recombinant homologous chromosomes in meiotic cells to prevent premature segregation (McNicoll *et al.* , 2013). In meiosis I, cohesins are located at the chromosome arms and the centromere region until anaphase I when cohesins in the chromosome arms are cleaved while the rest in the centromere remains intact, allowing homologous chromosomes to separate (reductional segregation) and ensuring sister chromatids are tethered after the first cell division. However, if arm cohesins are lost prior to canonical anaphase I, premature chromosome segregation occurs, producing segregation errors (Lane and Kauppi, 2019). A recent study in *Drosophila* oocytes found that knockdown of SOD1 or SOD2 lead to increased mis-segregation of recombinant homologs during meiosis I due to increased nondisjunction of chromosomes caused by premature loss of arm cohesion (Perkins *et al.* , 2016). Perkins *et al.* also identified that the enhanced expression of SOD1 and SOD2, caused by age-related oxidative damage in *Drosophila* oocytes, could significantly reduce the proportion of chromosome nondisjunction and destabilisation of chiasmata (the cross-talk between homologs) (Perkins *et al.* , 2019). Overall, this evidence suggests that over-accumulation of ROS can cause meiotic chromosome segregation errors via a negative effect on cohesin maintenance and chiasmata stabilisation.

One severe pregnancy complication is due to errors in chromosome segregation resulting in aneuploidy (cell with an abnormal number of chromosomes) and possibly miscarriage. Compared to somatic cells, the oocyte is more prone to aneuploidy because of its weaker spindle assembly checkpoint (SAC). The relatively larger cell volume of the oocyte, in contrast with somatic cells, may be the key to this, because nuclear factors such as the ones inhibiting the anaphase-promoting complex (APC), required for metaphase-anaphase transition, become diluted (Kyogoku and Kitajima, 2017, Lane and Jones, 2017). This weaker SAC allows then oocytes with minor chromosome defects to escape the checkpoint control and proceed to anaphase (Jones and Lane, 2013). Plus, oxidative stress commonly accompanies aneuploidy (Cai *et al.* , 2020). A mild increase of ROS is sufficient to turn on the SAC and causes mouse

oocyte arrest at MI (Hamdan *et al.* , 2016). However, excessive ROS accumulation induced by the vitrification in the mouse oocyte significantly reduced the expression of SAC-associated genes such as *Mad1*, *Mad2*, *Mps1* and *BubR1*, which could be ameliorated at the GV and MII stage through the addition of melatonin (Wu *et al.* , 2019b). This suggests that a critical imbalance of antioxidants and ROS can be detrimental to SAC and hence a primary cause of aneuploidy.

1.3.7 Antioxidant Defence in the Ovary

To protect the ovary against excessive ROS accumulation, ROS scavenger systems are required. Both Cu/Zn-SOD and Mn-SOD are located in distinct regions of the ovary such as theca interna, oocyte, corpus luteum and granulosa cells. However, their localisations in the ovary change with different developmental stages. For example, in humans, Mn-SOD is distributed in granulosa and thecal cells of preantral, non-dominant, dominant and atretic follicles while Cu/Zn-SOD were mainly observed in theca interna of these follicles and in granulosa cells of dominant follicles, the ones likely to ovulate. All SODs can be found in corpora lutea up to the regressed stage (Suzuki *et al.* , 1999). Similar SOD expression profiles were observed in the bovine ovary, with all three SOD isoforms being compartmentalised and showing varying distribution. Follicular fluid in smaller antral follicles displayed higher expression of the SODs compared to in larger antral follicles (Combelles *et al.* , 2010). Additionally, catalase activity has also been detected in bovine cumulus cells and oocytes (Cetica *et al.*, 2001). Furthermore, GPxs are detected in the mice ovary, and the rat corpus luteum (Lim and Luderer, 2011, Shimamura *et al.* , 1995). A positive association between GPX1 and selenium expression has been identified in the bovine ovary (Ceko *et al.* , 2015). Ovarian GSH expression changes during the estrous cycle in rat (Clague *et al.* , 1992) and gonadotropins can promote GSH accumulation via its positive effect on glutamate cysteine ligase regulatory subunit (Hoang *et al.*, 2009, Luderer *et al.* , 2001). This is consistent with the observation that GSH is abundant in antral follicles following FSH and LH stimulation (Hoang *et al.*, 2009). The antioxidant β -carotene is abundant in bovine corpus luteum and appears to protect cholesterol side-chain cleavage cytochrome P450 and adrenodoxin against damage from the ROS that they generate (Young *et al.* , 1995). Taken together these findings suggest that the greatest antioxidant defence is deployed when steroidogenesis is at its highest, suggesting that steroidogenesis might be the greatest source of production of ROS.

1.4 ROS and Advanced Maternal Age

It is well established that advanced maternal age (AMA; women ≥ 35 years) impacts oocyte quality and fertility potential (te Velde and Pearson, 2002). As women age, fertility declines due to the decrease of the ovarian reserve (Wallace and Kelsey, 2010). Age-related fertility loss becomes more rapid when women reach their mid-30s, and chances of falling pregnant naturally drops to under 5% for women over 40 years (Chetkowski *et al.*, 1991). Furthermore, AMA is associated with lower success rates in assisted reproductive technology (ART) and live birth outcomes (Bhattacharya *et al.*, 2013, Devroey *et al.*, 1996).

Ovarian aging is associated with increased ROS levels and mitochondrial degeneration (impaired ATP production, reduced mitochondrial DNA copy number) in oocytes of pig (Miao *et al.*, 2018b), cow (Goto *et al.*, 2013, Iwata *et al.*, 2011, Takeo *et al.*, 2017), horse (Rambags *et al.*, 2014), hamster and mice (Mihalas *et al.*, 2017, Simsek-Duran *et al.*, 2013). Additionally, the expression of antioxidant genes declines (e.g. at 18 months old mice and 34 years old human). These include SOD (Matos *et al.*, 2009), glutaredoxin 1 (*Glr1*), glutathione S-transferase mu 2 (*Gstm2*), *Txn2*, *Prdx3* (Lim and Luderer, 2011) and *Prdx4* (Qian *et al.*, 2016), and this in turn can lead to increased ROS levels. Surprisingly, *Gpx1* increased in aging mice ovaries (Lim and Luderer, 2011).

There is an optimal time window for fertilisation of the oocyte after reaching MII stage. If this is delayed, it also results in oxidative stress, impairing the cytoskeleton established by actin and microtubules and also reducing the fertility potential of oocytes by negatively regulating ovastacin, a cortical granule protease involved in blockage of sperm binding (Miao *et al.*, 2018b). Elevated ROS levels have been associated with reduced meiotic completion (Chaube *et al.*, 2005, Tamura *et al.*, 2008), altered spindle microtubules, chromosomal misalignment (Miao *et al.*, 2018b), aneuploidy (Tarin *et al.*, 1996) and reduced embryonic developmental competency (Miao *et al.*, 2020) in various animal models and in human (Miao *et al.*, 2020, Miao *et al.*, 2018b). It was also suggested that oxidative stress might cause damage to other pathways in human, such as spindle assembly, microtubule attachment and spindle assembly checkpoint.

Oxidative stress also damages lipids with the formation of lipid peroxyl radicals and hydroperoxides. These then further form electrophilic aldehydes such as 4-hydroxynonenal (4-HNE), which can modify and damage proteins (Li *et al.*, 2021) and accumulates with aging in animal models and human (Asselin *et al.*, 2006, Gil *et al.*, 2006, Kim *et al.*, 2006). 4-HNE

has been shown in aged mice to decrease oocyte quality by suppression of polar body extrusion and to increase chromosomal misalignments and meiotic spindle abnormalities. It also causes the formation of abnormal microtubule spindle asters due to α -, β - and γ -tubulins being vulnerable to 4-HNE, and it increases the rates of aneuploidy (Mihalas *et al.*, 2017). Penicillamine, a trifunctional amino acid and free radical scavenger with the ability to form metal complexes (Ciuffi *et al.*, 1992), was able to reverse the damaging effects of ROS and 4-HNE (Mihalas *et al.*, 2017).

Telomeres, constituting of repetitive TTAGGG sequences, are critical for maintaining genomic stability by regulating their equilibrium of attrition and re-addition. As telomeres shorten in each cell division and finally become uncapped (dramatically short length), it could result in chromosomal instability due to chromosome end-to-end fusion (Xu *et al.*, 2021). Moreover, since the G-rich repeat sequence, telomeres are also vulnerable to cellular ROS produced by physiological processes including aging (von Zglinicki, 2002, Xu *et al.*, 2021). In mice models for reproductive aging (referred to as a maternal age-dependent deterioration on the oocyte exposed to aged ovarian microenvironment during growth and final maturation) and postovulatory aging (referred to as a time-dependent deterioration *in vivo* and *in vitro* when the time window of fertilization at MII oocyte is delayed), the increased ROS levels were associated with reduced expression of mRNA and protein levels for telomerase. However, only with reproductive aging models was there reduced telomerase activity and shortened telomeres (Yamada-Fukunaga *et al.*, 2013). Ge *et al.* showed in aged mice that oocytes had shortened telomeres in conjunction with decreased levels of the nicotinamide adenine dinucleotide (NAD)-dependent deacetylase Sirtuin 6 (Sirt6) (Ge *et al.*, 2019). Overexpression of *Sirt6* promoted telomere elongation in 2-cell embryos and decreased apoptosis in blastomeres, whereas depletion of *Sirt6* resulted in decreased blastocyst formation, decreased telomere length and increased DNA lesions (Ge *et al.*, 2019).

Zhang *et al.* showed that oocytes in aged mice had lower levels of Sirt2, which is mostly expressed in the cytoplasm during meiosis (Zhang *et al.*, 2014). Specific depletion of Sirt2 resulted in meiotic spindle defects and chromosome disorganisation with disturbed microtubule-kinetochore interaction. These meiotic effects could be improved by overexpression of Sirt2 (Zhang *et al.*, 2014). Further studies dissecting the mechanism of SIRT2 action during meiosis in *in vitro*-aged bovine oocytes revealed that specific inhibition of SIRT2-induced spindle and chromosome abnormalities, hyperacetylation of α -tubulin and histone 4 lysine 16 (H4K16), increased ROS levels, and reduced ATP production and

mitochondrial membrane potential (Xu *et al.* , 2019a, Xu *et al.* , 2019b). Additionally, mitochondria biogenesis was impaired, because of the decrease in *MFN2* (mitofuscin; a GTPase in the outer membrane) expression and the increase in *DRP1* (dynamin-related protein 1; promotor of mitochondrial fission) expression. The increase in ROS accumulation in this model was probably due to hyperacetylation of FoxO3a, which blocks its translocation to the nucleus and the FoxO3a-dependent transcription of the two antioxidant genes, *SOD* and *CAT* (Xu *et al.*, 2019b). Additionally, SIRT2 has also been implicated in autophagy and apoptosis. SIRT2 inhibition leads to increased levels of the autophagosomal marker microtubule-associated proteins 1A/1B light chain 3B (LC3-II) and decreased levels of sequestosome 1 (SQSTM1), which is an indicator of autophagic degradation. The induced autophagy in the oocytes seems to subsequently trigger apoptosis as shown by increased cleaved caspase 3, which could be reversed in *in vitro*-aged bovine oocytes by treatment with an autophagy inhibitor (Xu *et al.*, 2019a). This indicates that the decline in SIRT2 in aging oocytes is involved in the elevation of oxidative stress and their decline in quality.

Wu *et al.* identified the nicotinamide mononucleotide adenylyltransferase 2 (NMNAT2)-NAD⁺-SIRT1 pathway as important in mediating age-related effects on oocyte quality in aging mice (Wu *et al.* , 2019a). It was observed that the increment of ROS levels in aging oocytes was associated with decreased NMNAT2 expression, further resulting in significantly lower NAD⁺ content as well as Sirt1 expression (Wu *et al.*, 2019a). Sirt1 was postulated as a likely downstream mediator of NMNAT2 in controlling oocyte quality. Knockdown of NMNAT2 clearly reduced polar body protrusion, increased spindle and chromosomal abnormalities and mitochondrial dysfunction. Either nicotinic acid as well as NMNAT2 or Sirt1 overexpression eased the age-related effects on the oocyte (Wu *et al.*, 2019a). ROS has been shown to directly or indirectly control Sirt1 activity, for example by oxidative modification of its cysteine residues which results in inhibition of Sirt1 and subsequent activation of inflammatory response [The connection between ROS and Sirt1 is reviewed in detail (Salminen *et al.* , 2013)]. In contrast, Kansaku *et al.* found increased ATP production and SIRT1 levels in the oocytes of aged cows (Kansaku *et al.* , 2017). Even so, the ROS levels were higher compared to oocytes from younger cows (Kansaku *et al.*, 2017).

Oxidative stress during ovarian aging does not only affect the oocyte, but also the surrounding granulosa cells and stroma, which in turn influence ovulation rates and oocyte quality. Aged granulosa cells show abnormalities in mitochondrial ultrastructure, such as increased mitochondrial membrane rupture (de Bruin *et al.* , 2004), and changes in mitochondrial

integrity, metabolism, dynamics, and mitochondrial DNA (mtDNA) [reviewed in (Alberico and Woods, 2021)]. Additionally, DNA double breaks increase and DNA repair mechanisms decrease in granulosa cells with age (Zhang *et al.* , 2015a). Excessive ROS has been shown to induce such DNA damage and apoptosis in granulosa cells resulting subsequently in follicular atresia and therefore oocyte death (Sha *et al.* , 2021). Autophagy is also involved in the ROS-mediated aging process in granulosa cells as the autophagic activity declines with age resulting in the accumulation of damaged macromolecules and organelles, which leads lastly to apoptosis [reviewed in (Barbosa *et al.* , 2018)]. Lin *et al.* suggested that increased ROS levels in granulosa cells activate tumor protein p53, which then upregulates Siah E3 ubiquitin-protein ligase 1 (SIAH1), which in turn promotes the degradation of telomeric repeat binding factor 2 (TERF2) resulting in telomere shortening and lastly granulosa cell senescence (Lin *et al.* , 2022a). Furthermore, another study identified in aging granulosa cells an oxidative stress-related gene signature of differentially expressed genes, which consists of *MAPK1* (mitogen-activated protein kinase 1), *STK24* (Serine/Threonine Kinase 24), *AREG* (amphiregulin), *ATG7* (autophagy related 7), *ANXA1* (annexin 1) and *PON2* (para-oxonase 2) (Lin *et al.* , 2022b). The ovarian stroma of aged mice ovaries shows altered metabolism, increased ROS levels, lipid peroxidation and DNA damage, inflammation, and increased collagen deposition (Umehara *et al.* , 2022). Interestingly, treatment of these mice with BGP-15, an anti-fibrotic drug, was able to reverse the changes and prolong fertility (Umehara *et al.*, 2022).

Long-term treatment of female mice with melatonin was able to slow down ovarian aging as shown by an increase in litter size, follicle numbers, telomere length and oocyte quantity and quality (Song *et al.* , 2016). It also decreased ROS levels, reduced mitochondrial dysfunction, and decreased apoptosis in the ovary. Melatonin also increased SIRT3 activity and the binding activity of FoxO3a to the promotor of *SOD* and *CAT*, therefore indirectly inducing the expression of antioxidants (Song *et al.*, 2016). N-acetyl-L-cysteine effectively rescued mice oocytes and embryos from ROS-induced telomere shortening and apoptosis *in vitro* (Liu *et al.* , 2003, Liu *et al.* , 2002). Short-term treatment of mice with N-acetyl-L-cysteine improved oocyte and embryo quality, and long-term treatment resulted in increased litter sizes, upregulation of sirt1 and sirt2, and increases in telomere length and telomerase activity (Liu *et al.* , 2012). Aging in mice (Ben-Meir *et al.* , 2015) and human (Miles *et al.* , 2004) is also associated with a decline in coenzyme Q levels resulting in mitochondrial dysfunction. Supplementation with coenzyme Q of aged mice was able to restore the mitochondrial function by increasing mitochondrial gene expression (*Ndufs3*, *Sdha*, *Sod1*, *Smarca2*) and activity (ATP

production, oxygen consumption), and fertility by increasing oocyte numbers and litter sizes similar to that of young mice (Ben-Meir *et al.*, 2015). The antioxidant effect of nicotinamide mononucleotide (NMN) could restore mitochondrial function, recover meiotic maturation and fertility potential and subsequent embryonic development potential in aged mice oocytes (Miao *et al.*, 2020). Administration of dimethyl fumarate, in aged mice was able to delay ovarian aging by activating the Nrf2/Keap1 pathway, which resulted in increased antioxidant levels (Sod1, Cat), decreased DNA damage, increased oocyte and primordial follicle numbers and AMH levels (Akino *et al.*, 2019). A pilot study in women > 39 years undergoing IVF, which tested the effect of a commercial micronutrient compound containing vitamins B1/2/3/6/12, C, D and E as well as copper, manganese, zinc and selenium on total antioxidant capacity and fertility, revealed that total antioxidant capacity in serum and follicular fluid could be significantly increased and the number of oocytes of bad-quality significantly reduced (Luddi *et al.*, 2016). Furthermore, restricting the caloric diet intake of adult female mice to 40% prevented aging-related increases in oocyte aneuploidy, chromosomal misalignment, meiotic spindle abnormalities and mitochondrial dysfunction (Selesniemi *et al.*, 2011). Oocyte quality could be maintained by the supplementation with melatonin or N-acetyl-L-cysteine to downregulate ROS level in the postovulatory aging oocyte (Wang *et al.*, 2017, Wang *et al.*, 2019).

All these findings suggest that there is not only a relationship between aging and redox status, but also with the sirtuin-mediated deacetylation process. This controls the Nrf2-regulated antioxidant pathway as well as DNA repair, telomerase function, genomic stability, and cell senescence, all of which play an important role in the age-associated decline in oocyte quality and reduced fertility.

1.5 Research Aims

Understanding the underlying mechanisms of ovarian physiology is extremely important for female reproduction, especially under the background of worldwide declining birth rate (Bellieni, 2016). Steroidogenesis and oocyte maturation are two essential events, contributing to healthy female reproductive functions. The former synthesises indispensable steroid hormones such as androgens in thecal cells or oestrogens in granulosa cells, while the latter provides a metaphase II oocyte with fertilisation capability. During steroidogenesis, steroidogenic enzymes such as P450 side-chain cleavage (gene *CYP11A1*), P450 17- α hydroxylase 17,20 lyase (gene *CYP17A1*) and P450 aromatase (gene *CYP19A1*) rely on

corresponding electron transport chains to be functional. This is associated with leakage of electrons and the formation of dangerous reactive oxygen species (ROS) as seen with oxidative phosphorylation in mitochondria. Also, to protect cells from ROS, cells have non-enzymatic and enzymatic antioxidant systems. However, when the balance between antioxidant systems and ROS is perturbed, such as during oxidative stress in the ovary, the follicular oocyte quality may be impaired. Furthermore, a positive correlation between ovarian aging and steroidogenesis activity has been observed (Shaw *et al.* , 2015), indicating a potentially higher risk of exposing the follicular oocyte to oxidative stress in old ovaries due to steroidogenesis-induced ROS. So far, there are few studies showing the interplay between steroidogenesis, ROS and antioxidants in granulosa cells and the follicle. Furthermore, KGN, granulosa cell-like tumor cells, is usually considered as the equivalent of human primary granulosa cells (GCs) since its similar characteristics like primary GCs and has been widely used for steroidogenesis study *in vitro*. However, few studies evidence whether KGN could be an appropriate model from the perspective of the connection between steroidogenesis, ROS and antioxidant enzymes. Thus, the aims of this study are:

1. To identify if the human granulosa cell line KGN is a useful model for studying the interplay of steroidogenesis, ROS and antioxidant enzymes *in vitro* (Chapter 2).
2. To identify key regulators of pig oocyte maturation at gene and isoform transcript level, and to compile comprehensive expression data related to mitochondria, steroidogenesis and antioxidant enzymes, and to compare these findings with published human oocyte data (Chapter 3).
3. To examine how ovarian aging affects steroidogenesis and the antioxidant defence system in the ovarian follicle environment and the oocyte quality (Chapter 4).

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Chapter 2

Unique Features of KGN Granulosa Cells in the Regulation of Steroidogenic and Antioxidant Genes

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By signing the Statement of Authorship, each author certifies that:

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Unique features of KGN granulosa cells in the regulation of steroidogenic and antioxidant genes

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Running title: Steroidogenesis and antioxidant system in KGN cells

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ABSTRACT: The main enzymes for oestradiol and progesterone production in the ovary, namely cytochrome P450 side-chain cleavage (gene *CYP11A1*) and cytochrome P450 aromatase (gene *CYP19A1*) require electron transport chains for their activity. However, electron leakage can occur leading to the production of reactive oxygen species (ROS). Antioxidant enzymes protect against ROS. The ovarian granulosa-like tumour cell line, KGN, is commonly used as the model for human steroidogenesis. However, whether the antioxidant response to stimulated steroidogenesis in KGN is similar to human granulosa cells remains unclear. Therefore, we treated KGN cells with 1 mM dibutyryl cAMP (dbcAMP) or 10 μ M forskolin and measured steroidogenic and antioxidant gene expression by qRT-PCR. *CYP11A1* and *CYP19A1* were significantly increased, whereas *FDX1* and *FDXR*, the electron donors for *CYP11A1*, remained unchanged or decreased. *POR*, the electron donor for *CYP19A1*, significantly increased only with forskolin. Most antioxidant genes were unaffected. *SOD2*, *GSR* and *TXN* significantly decreased and *PRDX2* increased with dbcAMP treatment, while forskolin significantly decreased *GPX3* and *PRDX6*. Both treatments significantly downregulated *LRP8* and *TXNRD1*. Stimulation of steroidogenesis resulted in no significant extracellular ROS levels or DNA damage. Public RNA sequencing data identified much higher *TXNRD1* expression in KGN cells compared to human granulosa cells. *TXNRD1*-knockdown in KGN inhibited the stimulatory effect of dbcAMP on *CYP11A1* and *CYP19A1*. *GSR* and *TXN* significantly increased, whereas *GPX8* significantly decreased irrespective of dbcAMP. *GPX3*, *SOD2* and *PRDX6* only significantly increased in *TXNRD1*-deficient cells without dbcAMP. Our findings indicate that KGN cells, with higher *TXNRD1* expression, might not be the most appropriate model of granulosa cells for studying the interplay between ovarian steroidogenesis, ROS and antioxidants.

Introduction

The human granulosa-like tumour cell line KGN was originally established in 2001 by Nishi and colleagues and has since been used widely as a model for primary granulosa cells (Nishi *et al.*, 2001). Compared to the five human ovarian granulosa cell lines developed before 2001 (Hosokawa *et al.*, 1998, Ishiwata *et al.*, 1984, Lie *et al.*, 1996, Rainey *et al.*, 1994, van den Berg-Bakker *et al.*, 1993), KGN cells not only retain most of the physiological activities but also express the FSH receptor, like primary granulosa cells (Nishi *et al.*, 2001). The steroidogenic activity of KGN cells was confirmed by increased *CYP19A1* (gene for P450 aromatase/ short P450arom) expression and production of oestradiol and progesterone after stimulation with either FSH, forskolin or dibutyryl cAMP (dbcAMP) (Ernst *et al.*, 2016, Nishi *et al.*, 2001, Tremblay and Sirard, 2020). Such dbcAMP/forskolin-induced steroidogenesis in KGN cells was also completed by activating PKA and then phosphorylating proteins involved in steroidogenesis (Fang *et al.*, 2022). However, the basal activity of P450arom in KGN cells was only 0.84 ± 0.23 pmol/mg protein, which is 50-100 times less than in human granulosa cells where the P450arom activity was 41.5 ± 8.3 pmol/mg protein (Nishi *et al.*, 2001, Steinkampf *et al.*, 1987). Nevertheless, the mechanism of steroidogenesis in KGN cells is quite similar to human granulosa cells. Such intrinsically low activity of P450arom in KGN cells may affect the cells' behaviours. The production of oestradiol and progesterone in granulosa cells depends on cytochrome P450 enzymes, namely P450 side-chain cleavage (P450scc; encoded by *CYP11A1*) and P450 arom, which rely on electron transport chains for their activity (Miller, 2005). This potentially results in the production of reactive oxygen species (ROS) due to electron leakage. A previous study showed that electrons were transferred from NADPH to P450scc at approximately 85% during their catalytic function of steroid hydroxylation (Rapoport *et al.*, 1995). Hence, 15% leaked and possibly formed ROS.

Granulosa cells normally express antioxidant enzymes including glutathione peroxidases (GPX1-8), superoxide dismutases (SOD1/2), catalase (CAT), peroxiredoxins (PRDX1-6), glutathione disulphide reductase (GSR), thioredoxins (TXN and TXN2) and thioredoxin reductases (TXNRD1-3) to counteract ROS. Interestingly overexpression of thioredoxins and thioredoxin reductases is common in different tumours and is associated with aggressive tumour growth and cancer progression (Berggren *et al.*, 1996, Lee *et al.*, 2019, Lincoln *et al.*, 2003, Zhang *et al.*, 2015). Thioredoxin reductases can reduce thioredoxins, consequently maintaining redox homeostasis. For instance, TXNRD1 reduces TXN and then TXN further reduces other enzymes, such as peroxiredoxins or methionine sulfoxide reductases, for ROS

scavenging (Oien and Moskovitz, 2007, Rhee *et al.* , 2005). Notably, keeping reasonable production of steroid hormones in granulosa cells thus requires a proper antioxidant defence system. Deficiencies in antioxidants such as the mitochondrial Sod2 have resulted in decreased progesterone and oestradiol production due to decreased expression of StAR, the protein responsible for cholesterol transport into mitochondria, and of steroidogenic enzymes (Zaidi *et al.* , 2021). Since KGN cells are capable of steroidogenesis, it is important to understand the mechanisms through which they regulate the interplay of steroidogenesis and antioxidant defence system.

In this study of KGN cells *in vitro*, we found that of the antioxidant genes *TXNRD1*, *TXN* and *PRDX1* were the most highly expressed. Furthermore, using public RNA sequencing data we compared KGN cells to human granulosa cells and confirmed that KGN cells had extremely higher expression levels of *TXNRD1* compared to human granulosa cells, suggesting that overexpression of *TXNRD1* is a unique feature of KGN cells compared to human granulosa cells. To examine this further we studied the expression of steroidogenic genes, antioxidant genes and the response to treatments with cAMP in both KGN cells and KGN cells in which we knocked down the expression of *TXNRD1*.

Materials and methods

Cell Culture and Drug Stimulation

The human granulosa-like tumour cell line, KGN, was gifted by Dr. Carmela Ricciardelli from The University of Adelaide, SA, Australia. To induce steroidogenesis in the KGN cell line, 2-3x10⁴ cells (passages: 10 - 20) were cultured in Dulbecco's modified Eagle medium / Nutrient Mixture F-12 (DMEM/F12) (GIBCO/ Life Technologies) supplemented with 10% fetal calf serum (SAFC, Brooklyn, VC, Australia), 100 U/ml penicillin, 100 mg/ml streptomycin and 0.25 µg/ml fungizone (both Thermo-Fisher Scientific, Waltham, MA, USA) at 37 °C, 5% CO₂. 24 h after seeding, the cells were cultured for another 48 h with the media as above including 100 nM androstenedione (A4) and were untreated or treated with either 1 mM dbcAMP (dissolved in DMSO) or 10 µM forskolin (dissolved in EtOH). 1 mM DMSO and 10 µM EtOH were used as negative control for dbcAMP or forskolin treatment respectively. To induce ROS production, KGN cells were additionally treated with cadmium chloride (2, 5 or 10 µM; Sigma-Aldrich/Merck, St. Louis, MO, USA) for 48 h. Each treatment was repeated five times

independently. The concentrations of dbcAMP and forskolin were chosen based on previous reports (Nishi *et al.*, 2001, Tremblay and Sirard, 2020).

RNA Isolation and Semi-Quantitative Real Time-PCR

After 48 h of treatment, the cells were washed with ice-cold phosphate-buffered saline (PBS) two times and directly lysed in the TRIzol™ Reagent (Thermo-Fisher Scientific, Waltham, MA, USA), followed by the RNA isolation procedure according to manufacturer's instructions. Two µl glycogen (Thermo-Fisher Scientific, Waltham, MA, USA) were used during the isopropanol precipitation step to improve the RNA yield. DNaseI (Promega/Life Technologies Australia Pty Ltd, Tullamarine, VIC, Australia) was also employed to eliminate the potential genomic DNA contamination in the RNA.

One hundred ng high-quality (determined by RNA agarose gel running) DNase-treated RNA was used to synthesise cDNA with 250 ng random hexamer primers (Sigma-Aldrich/Merck, St. Louis, MO, USA) and 200 U Superscript III reverse transcriptase (Thermo Fisher Scientific, Waltham, MA, USA), followed by quantitative real time-PCR (qRT-PCR) using Power SYBR™ Green PCR Master Mix (Applied Biosystems, Foster City, CA, USA). Each 10 µl reaction contained 1 ng cDNA, 5 µl of Power SYBR™ Green PCR Master Mix, 1 or 3 pM forward and reverse primers for target genes and 2.7–2.9 µl of DEPC-treated water. The amplification conditions were 95°C for 15 sec, then 60°C for 60 sec for 40 cycles using a Rotor Gene 6000 cycler (Qseries, Qiagen GmbH, Hilden, Germany), followed by running melt curve. Threshold cycle (Ct) values were determined using Rotor Gene 6000 software at a threshold of 0.05 normalised fluorescent unit. Gene expression was represented by the mean of $2^{-\Delta Ct}$. The primers are listed in Supplementary Table SI and each primer pair efficiency was tested as described previously (Hartanti *et al.*, 2020).

RNA-sequencing (RNA-seq) analysis

Public RNA-seq data sets (accession GSE161341 (Man *et al.*, 2020); accession GSE130664 (Wang *et al.*, 2020); accession GSE193123 (Liao *et al.*, 2022)) were downloaded from the Gene Expression Omnibus (GEO) database. Adapters and low-quality bases (length less than 50 bp and PHRED score less than 20) were removed from the FASTQ files using AdapterRemoval tool (version: 2.2.2), followed by quality control check by FastQC (version: 0.11.7). Only FASTQ files that passed quality control were quantified at transcript level by Kallisto (version: 0.43.1) using default settings.

For differential gene expression analysis, we used R package tximport to summarise Kallisto transcript level estimates to gene level with the recommended scaling method lengthScaledTPM for limma-voom pipeline (Law *et al.* , 2016, Sonesson *et al.* , 2015). Using gene level counts, a DGEList object was created by DGEList function in R package edgeR (Robinson *et al.* , 2010) and filtered with filterByexpression function with specifying the group argument. The filtered DGEList object was transformed by voom function from R package limma (Law *et al.* , 2014) and then the voom object was processed with linear fit and Bayes correction to detect differentially-expressed genes (DEGs) which were identified using the criteria $|\log_2(\text{fold change})| > 1$ and false-discovery rate (FDR) < 0.05 . Since those RNA-seq datasets were sequenced on different platform, the platform acted as covariate to remove potential batch effect. For gene set enrichment analysis, all remaining genes after filtering were ranked by $\log_2(\text{fold change})$ and used as input for the gseGO function in R clusterProfiler package (Wu *et al.* , 2021). Only pathways with FDR < 0.05 , $|\text{enrichmentScore}| > 0.5$ and above 40 core enrichment genes were considered to be significant. The TMM normalised expression counts of all genes in the clean dataset and relevant differential gene expression analysis are listed in Supplementary Table SII.

Hydrogen peroxide (H₂O₂) measurement

Extracellular H₂O₂ was measured with the Amplex[®] Red Hydrogen Peroxidase/Peroxide Assay Kit (Invitrogen/Thermo-Fisher Scientific). In brief, supernatants (50 μ l) from cells after 48 h treatments were mixed with freshly prepared Amplex[®] Red working solution containing 100 μ M Amplex[®] Red dye and 0.2 U/ml horseradish peroxidase. Then, the mixture was incubated at room temperature for 30 min and the fluorescence of the product resorufin (excitation: 535nm, emission: 595nm) was measured with a plate reader (Dynex Technologies, Chantilly, VA, USA). The standard curve was linear in the range of 0-5 μ M H₂O₂ and all samples were within that range.

Immunostaining for DNA damage

To determine early signs of DNA damage, we performed immunofluorescence staining for the phosphorylated H2A histone family member X (γ H2Ax), which identifies double-strand breaks in the DNA. Therefore, 25,000 KGN cells were cultured on coverslips in 24 well plates. After 48 h of treatment, the cells were fixed with 4% paraformaldehyde in PBS at room temperature for 20 min, followed by permeabilisation with 0.1% Triton X-100 in PBS for 25 min at room temperature. To reduce the nonspecific binding of antibodies, cells were blocked in 2% BSA

in PBS for 1 h at room temperature. Then, cells were incubated with rabbit monoclonal Anti- γ H2Ax (Sigma-Aldrich/Merck, St. Louis, MO, USA) at 1:1,000 at 4 °C overnight. After three washes in PBS, cells were incubated with goat-anti-rabbit Alexa flour 488 antibody (Abcam, Melbourne, VIC, Australia) at 1:1,000 at room temperature for 1 h and then washed with PBS/0.1% Tween 20 three times, each at 5 mins. Then, cell nuclei were counterstained with DAPI (Molecular Probes, Eugene, OR, USA) for 15 min at room temperature. Finally, cells were mounted on glass slides using DAKO mount medium (Agilent, Santa Clara, CA, USA) and imaged with a confocal laser-scanning microscope (FV3000, OLYMPUS, Adelaide, SA, Australia). Image J was used to quantify the number of γ H2Ax foci per nucleus in each sample. On average, twenty-five to thirty cells per treatment, biological repeat and image were quantified and then the mean γ H2Ax foci for each group was used for statistical analysis. Three biological replicates were performed. A non-targeting negative control (only incubating cells with secondary antibody) was also implemented.

Silencing of *TXNRD1*

Commercial negative control (Catalogue #: 4390843) and *TXNRD1* (Catalogue #: 4390824; siRNA ID: s757) siRNAs with Locked nucleic acid (LNA) chemical modifications were purchased from Thermo Fisher Scientific. siRNA transfection was performed following the manual of Lipofectamine™ RNAiMAX Transfection Reagent (Thermo-Fisher Scientific, Waltham, MA, USA). In brief, 20,000 KGN cells were seeded in 24-well plates for 24 h in complete culture medium (see above) without antibiotics. Then, 50 μ l lipofectamine-RNAi duplex was added to cells to achieve the 10 nM final concentration of siRNA per well. For lipofectamine control, 50 μ l lipofectamine dilution was added to cells. After 6 h incubation, the culture medium containing the siRNA/lipofectamine was removed and cells were either then not treated or incubated with 1 mM dbcAMP for 48 h. Then cells were collected for RNA extraction and qPCR as described above. Each treatment was repeated five times independently.

Statistical analyses

Results are presented as mean $\pm$ SEM. Normality and stochasticity were tested before statistical analysis. Statistical comparisons were conducted using one-way ANOVA, two-way ANOVA or Welch's t test as specifically indicated in each figure legend. As one-way or two-way ANOVA were applied, the differences between each comparison were assessed by Tukey's post-hoc test. All statistical analyses were carried out using both Prism9 (GraphPad Software, La Jolla, CA, USA) and R software.

Results

Effect of dbcAMP and forskolin on steroidogenic enzymes in KGN cells

To induce steroidogenesis, we firstly stimulated KGN cells with 1 mM dbcAMP or 10 μ M forskolin respectively for 48 h. Compared to the control, both dbcAMP and forskolin significantly increased the expression of *CYP11A1* (dbcAMP: $P = 0.0004$; forskolin: $P = 0.0120$) and *CYP19A1* (dbcAMP: $P = 0.0001$; forskolin: $P = 0.0111$) whereby the effect appeared stronger with dbcAMP (Figs. 1C and E). Furthermore, forskolin stimulation significantly reduced the expression of *FDX1* ($P = 0.0114$) (Fig. 1A) and increased *POR* ($P = 0.0350$) (Fig. 1D), whereas dbcAMP had no effect on both genes (*FDX1*: $P = 0.0777$; *POR*: $P = 0.6362$). The expression of *FDXR* remained unchanged with both treatments (dbcAMP: $P = 0.4300$; forskolin: $P = 0.5157$) (Fig. 1B).

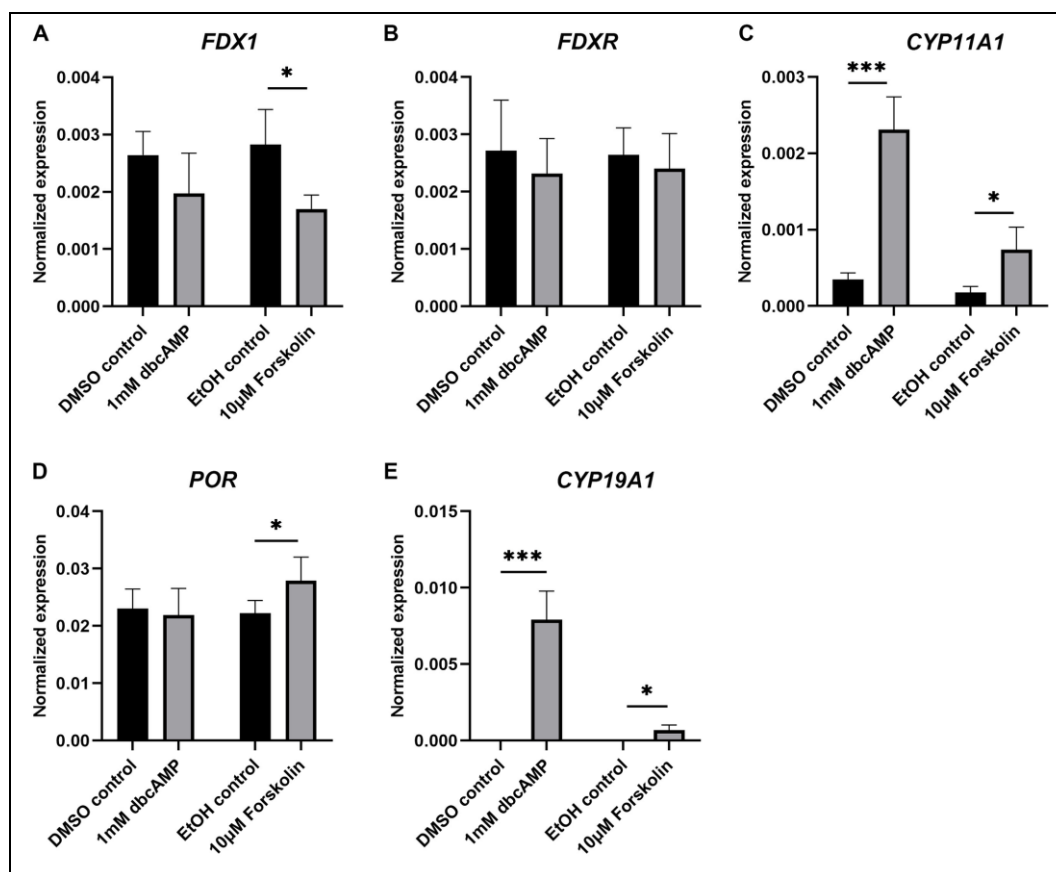


Figure 1. mRNA expression of steroidogenic enzymes and their electron transport components after induction of steroidogenesis in KGN cells *in vitro*. Cells were treated for 48 h with 1 mM dbcAMP or 10 μ M forskolin and then mRNA expression levels determined ($n = 5$). mRNA expression for *FDX1* (A), *FDXR* (B), *CYP11A1* (C), *POR* (D) and *CYP19A1* (E) were normalised to *GAPDH* expression. Data are presented as mean $\pm$ SEM. Welch's t test was

used to analyse the pairwise comparison between DMSO control and 1 mM dbcAMP or between ethanol control and 10 μ M forskolin. * $P < 0.05$, *** $P < 0.001$.

ROS production and DNA damage

To measure ROS production after steroidogenesis induction with dbcAMP or forskolin, we determined H_2O_2 levels in the culture supernatant after 48 h. Stimulation of the steroidogenesis did not result in changes in the extracellular H_2O_2 levels (dbcAMP: $P = 0.9941$; forskolin: $P = 0.9977$). However, treatment of KGN cells with different doses of cadmium chloride ($CdCl_2$) as positive control clearly induced H_2O_2 levels. The treatment with 5 μ M and 10 μ M $CdCl_2$ caused morphological changes with cells rounding up and detaching (Fig. 2A). As expected, the levels of H_2O_2 were significantly increased with 5 μ M $CdCl_2$ ($P = 0.0122$) but not with 2 μ M $CdCl_2$ ($P = 0.0625$) even though an increasing tendency was observed (Fig. 2B). However, 10 μ M $CdCl_2$ ($P = 0.9757$) did not show any effect on H_2O_2 , which might be due to the majority of cells being dead or dying during the 48 h.

One major consequence of excessive ROS accumulation is DNA damage. Therefore, immunostaining for $\gamma H2Ax$ (Fig. 2C), an indicator of DNA damage, was carried out and the $\gamma H2Ax$ positive foci per nucleus were counted (Fig. 2D). A significant increase in the number of $\gamma H2Ax$ foci per nucleus could be observed with both 5 μ M ($P = 0.00001$) and 10 μ M $CdCl_2$ ($P = 0.00001$), whereas a 2 μ M concentration did not show a significant effect ($P = 0.8871$). Neither dbcAMP nor forskolin treatment resulted in increased $\gamma H2Ax$ foci per nucleus (dbcAMP: $P = 0.9999$; forskolin: $P = 0.9999$).

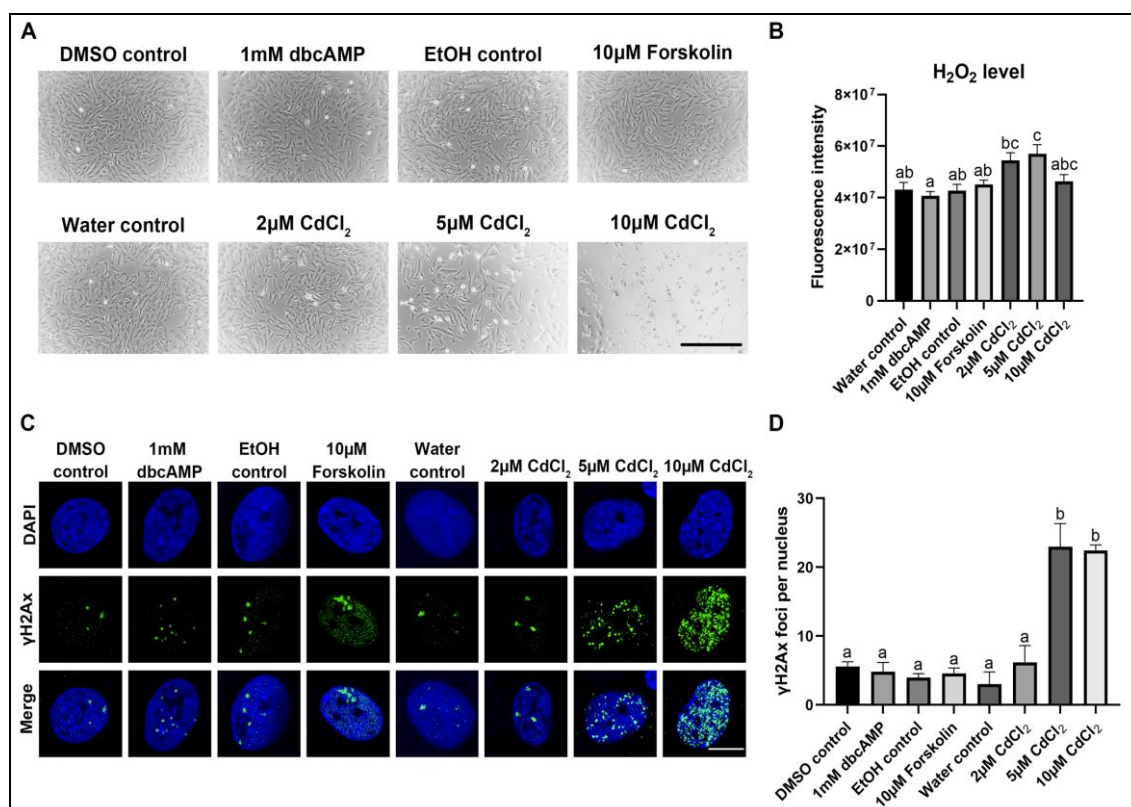


Figure 2. ROS production and DNA damage in KGN cells in vitro. (A) Representative brightfield images of KGN cells treated with 1 mM dbcAMP, 10 µM forskolin and different doses of cadmium chloride after 48 h. Scale bar: 300 µm. (B) H₂O₂ levels measured by Amplex[®] Red assay after 48 h of treatment (n = 5). (C) Representative images of DNA damage in KGN cells shown by staining for γH2Ax (green) and counterstain of nuclei with DAPI (blue). Scale bar: 10 µm. (D) Quantification of DNA damage by using Image J (n=3). One way ANOVA with Tukey post-hoc test were used to analyse the data. Bars with different letters are statistically significantly different from each other ($P < 0.05$).

Antioxidant gene expression after steroidogenesis induction

To examine the effect of steroidogenesis on the expression of antioxidant genes, we analysed candidate genes from several gene families including glutathione peroxidases (GPX; Figs. 3A-C), superoxide dismutases (SOD; Figs. 3 E and F), catalase (CAT; Fig. 3G), peroxiredoxins (PRDX; Fig. 4), glutathione disulphide reductase (GSR; Fig. 5A), thioredoxins (TXN; Fig. 5B and C) and thioredoxin reductases (TXNRD; Figs. 5D-F). We also analysed the expression of LDL receptor-related protein 8 (LRP8; Fig. 3D), which functions as selenium uptake receptor and plays a role for selenium-containing antioxidants such as the GPXs. We only present the expression data for *GPX1*, *GPX3* and *GPX8* as the expression of the remaining GPXs (*GPX2*,

250 4, 5, 6 and 7) was very low to nil (Supplementary Table SIII). *GPX3* was significantly reduced
 251 after forskolin stimulation but unchanged after dbcAMP (dbcAMP: $P = 0.2203$; forskolin: $P =$
 252 0.0103) (Fig. 3B). *GPX1* (dbcAMP: $P = 0.4944$; forskolin: $P = 0.2743$) and *GPX8* (dbcAMP:
 253 $P = 0.1023$; forskolin: $P = 0.2973$) were not affected by either stimulation (Figs. 3A and C).
 254 The expression of *LRP8* was significantly reduced with both stimulations (dbcAMP: $P =$
 255 0.0167 ; forskolin: $P = 0.0003$) (Fig. 3D). Treatment with dbcAMP significantly decreased the
 256 expression of *SOD2* ($P = 0.0378$) (Fig. 3F), but had no effect on *SOD1* ($P = 0.4226$) or *CAT*
 257 ($P = 0.2943$) (Figs. 3E and G). Forskolin treatment did not affect *SOD1* ($P = 0.1717$), *SOD2*
 258 ($P = 0.2976$) or *CAT* ($P = 0.1976$) (Figs. 3E-G). *PRDX2* ($P = 0.0131$) expression significantly
 259 increased with dbcAMP (Fig. 4B), whereas *PRDX6* ($P = 0.0049$) significantly decreased with
 260 forskolin treatment (Fig. 4F). Both stimulations showed no effect on *PRDX1* (dbcAMP: $P =$
 261 0.0693 ; forskolin: $P = 0.0613$) (Fig. 4A), *PRDX3* (dbcAMP: $P = 0.7596$; forskolin: $P = 0.5093$)
 262 (Fig. 4C), *PRDX4* (dbcAMP: $P = 0.9385$; forskolin: $P = 0.0962$) (Fig. 4D) or *PRDX5* (dbcAMP:
 263 $P = 0.0609$; forskolin: $P = 0.6673$) (Fig. 4E). Treatment with dbcAMP resulted in significant
 264 reduction of *GSR* ($P = 0.0448$) (Fig. 5A) and *TXN* ($P = 0.0174$) (Fig. 5B). Both stimulation
 265 drugs significantly reduced *TXNRD1* (dbcAMP: $P = 0.0494$; forskolin: $P = 0.0119$) (Fig. 5D).
 266 *TXN2* (dbcAMP: $P = 0.3365$; forskolin: $P = 0.5911$) (Fig. 5C), *TXNRD2* (dbcAMP: $P = 0.2779$;
 267 forskolin: $P = 0.2210$) (Fig. 5E) and *TXNRD3* (dbcAMP: $P = 0.0551$; forskolin: $P = 0.1756$)
 268 (Fig. 5F) were unchanged in their expression. *PRDX1* (Fig. 4A), *TXN* (Fig. 5B) and *TXNRD1*
 269 (Fig. 5D) were the highest expressed antioxidant genes in cultured KGN cells.

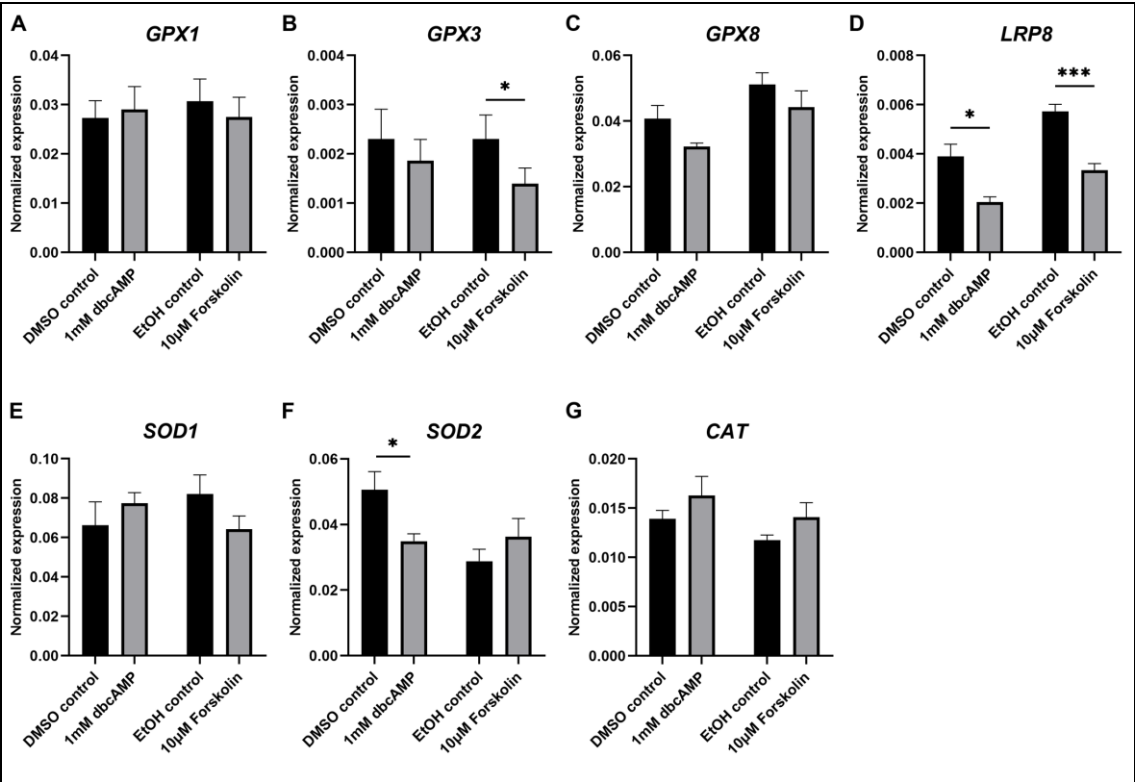


Figure 3. mRNA expression levels for glutathione peroxidases (GPX), low density lipoprotein receptor 8 (LRP8), superoxide dismutases (SOD) and catalase (CAT) in KGN cells after stimulation with 1 mM dbcAMP or 10 µM forskolin for 48 h. mRNA expression for *GPX1* (A), *GPX3* (B), *GPX8* (C), *LRP8* (D), *SOD1* (E), *SOD2* (F) and *CAT* (G) was normalised to the expression of *GAPDH* (n = 5). Data are presented as mean ± SEM. Welch's t test was used to analyse the pairwise comparison between DMSO control and 1 mM dbcAMP or between ethanol control and 10 µM forskolin. **P* < 0.05, ****P* < 0.001.

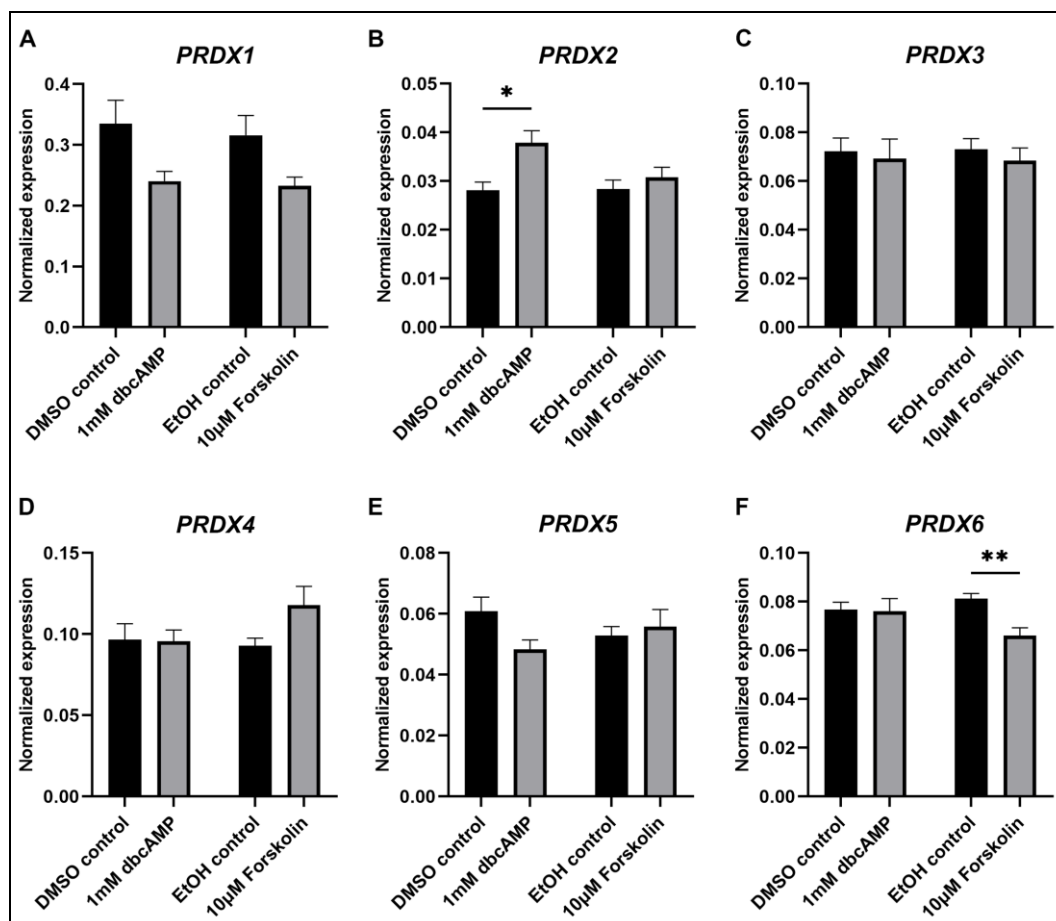


Figure 4. mRNA expression levels for peroxiredoxins (PRDX) in KGN cells after stimulation with 1 mM dbcAMP or 10 µM forskolin for 48 h. mRNA expression for *PRDX1* (A), *PRDX2* (B), *PRDX3* (C), *PRDX4* (D), *PRDX5* (E) and *PRDX6* (F) was normalised to the expression of *GAPDH* ($n = 5$). Data are presented as mean $\pm$ SEM. Welch's t test was used to analyse the pairwise comparison between DMSO control and 1 mM dbcAMP or between ethanol control and 10 µM forskolin. * $P < 0.05$, ** $P < 0.01$.

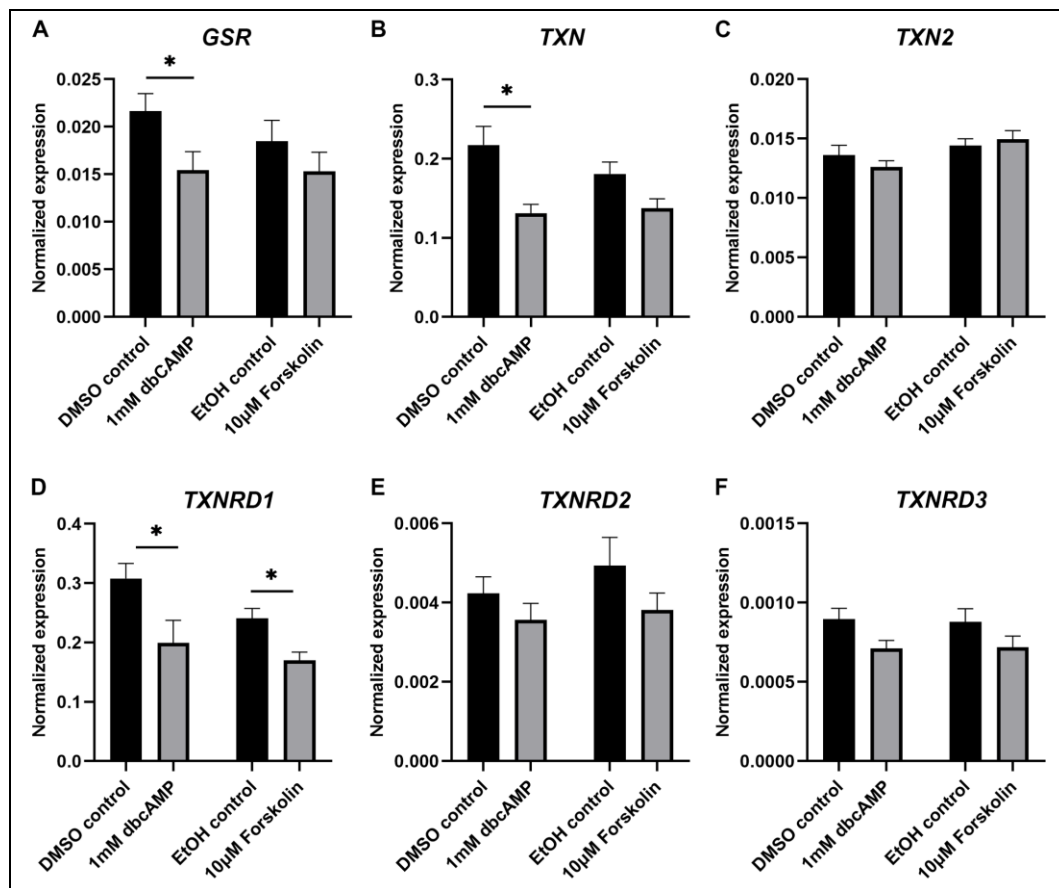


Figure 5. mRNA expression levels for glutathione-disulfide reductase (GSR), thioredoxins (TXN) and thioredoxin reductases (TXNRD) in KGN cells after stimulation with 1 mM dbcAMP or 10 µM forskolin for 48 h. mRNA expression for *GSR* (A), *TXN* (B), *TXN2* (C), *TXNRD1* (D), *TXNRD2* (E) and *TXNRD3* (F) was normalised to the expression of *GAPDH* (n = 5). Data are presented as mean ± SEM. Welch's t test was used to analyse the pairwise comparison between DMSO control and 1 mM dbcAMP or between ethanol control and 10 µM forskolin. **P* < 0.05.

Comparison of gene expression data between KGN and primary granulosa cells

Using public RNA-seq data, we compared three KGN datasets with three human granulosa cell datasets. Differential gene expression (DGE) analysis using $|\log_2(\text{fold change})| > 1$ and $\text{FDR} < 0.05$ revealed 2,220 genes being upregulated and 2,823 genes being downregulated in KGN cells versus human granulosa cells (Fig. 6A and Supplementary Table SII). *TXNRD1* was the only gene on our candidate list regarding steroidogenesis and antioxidants, which was upregulated in KGN cells (Fig. 6A). Steroidogenic genes *CYP11A1* ($\text{FDR} = 0.00003$) and *CYP19A1* ($\text{FDR} = 0.00158$), their electron transport chain members *FDXR* ($\text{FDR} = 0.0004$), *FDX1* ($\text{FDR} = 0.00006$) and *POR* ($\text{FDR} = 0.00029$), as well as the antioxidants *GPX7* ($\text{FDR} =$

0.0003), *SOD2* (FDR = 0.0019) and *TXN2* (FDR = 0.00505) were all downregulated in KGN cells (Fig. 6A). Comparing the expression levels in detail using the trimmed mean of M values (TMM) from the RNAseq data revealed that all steroidogenic genes and relevant electron transport chain genes were expressed at significantly higher levels in human granulosa cells compared to KGN cells (Fig. 6B). In the GPX family, only *GPX7* was differentially expressed and significantly lower in KGN cells (FDR = 0.0003), whereas *GPX1* (FDR = 0.5613), *GPX3* (FDR = 0.4046), *GPX4* (FDR = 0.563) and *GPX8* (FDR = 0.16) were unchanged (Fig. 6C). *GPX2*, *GPX5* and *GPX6* were removed from DGE analysis due to their low expression. Both selenium-uptake receptors, *LRP2* (FDR = 0.642) and *LRP8* (FDR = 0.195), were not differentially expressed between human granulosa cells and KGN cells (Fig. 6C). *SOD2* was also significantly lower expressed in KGN cells (FDR = 0.0019) (Fig. 6D). However, *SOD1* (FDR = 0.211), *CAT* (FDR = 0.797) and *GSR* (FDR = 0.671) (Fig. 6D) as well as the members of the PRDX family (*PRDX1*: FDR = 0.719; *PRDX2*: FDR = 0.109; *PRDX3*: FDR = 0.242; *PRDX4*: FDR = 0.327; *PRDX5*: FDR = 0.614; *PRDX6*: FDR = 0.951) (Fig. 6E) were unchanged. *TXN2* (FDR = 0.0051) was significantly lower expressed in KGN cells, whereas *TXN* (FDR = 0.796), *TXNRD2* (FDR = 0.555) and *TXNRD3* (FDR = 0.859) were unchanged (Fig. 6F). Interestingly, *TXNRD1* was not only the only antioxidant gene significantly higher expressed in KGN cells, it was also extremely highly expressed - ten times higher than any other antioxidants in KGN cells and two times higher than *SOD2*, the highest antioxidant in human granulosa cells. Gene set enrichment analysis also showed that highly expressed genes and pathways in primary granulosa cells included steroid biosynthetic process and cholesterol metabolic process (Fig. 7A), while genes enriched in KGN cells were connected with DNA processing, chromosome segregation and kinetochore pathways (Fig. 7B). Those genes involved in the top 10 Gene Ontology (GO) terms in either KGN cells or primary granulosa cells were shown in the Supplementary Table SIV.

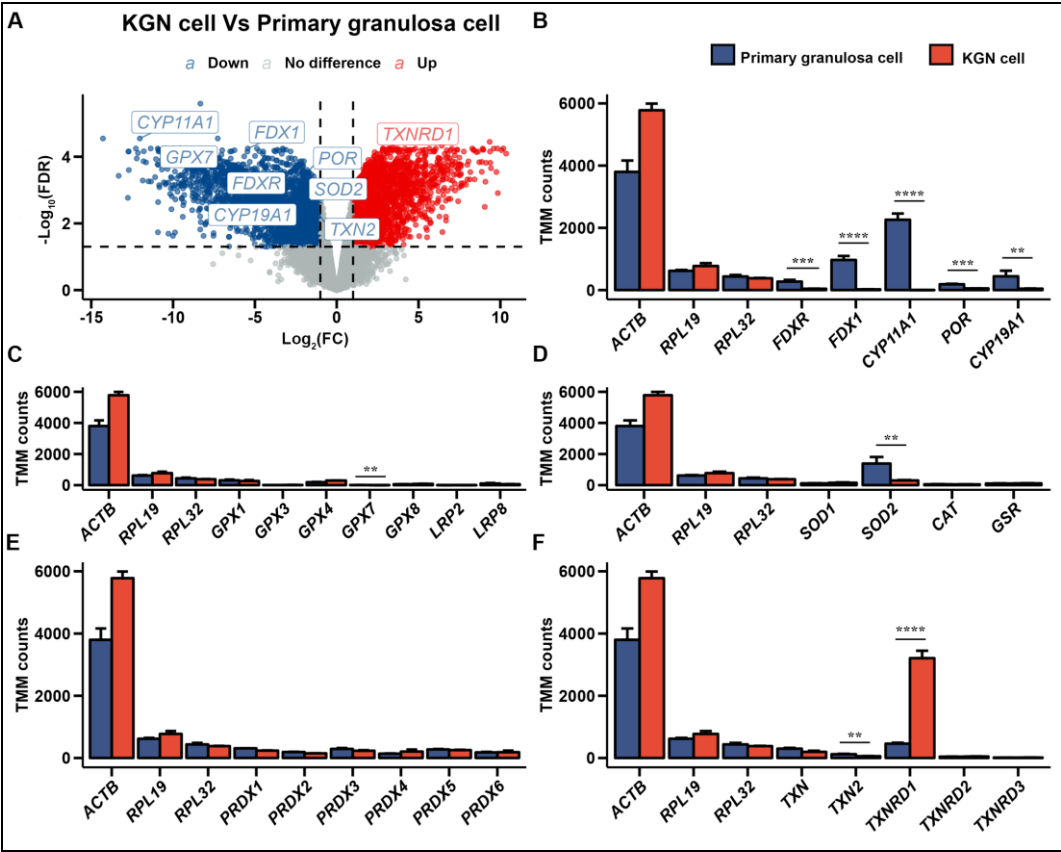


Figure 6. Comparison of RNA-seq expression data between KGN cells and human primary granulosa cells. (A) Differentially expressed genes in KGN versus primary granulosa cells. Upregulated genes (fold change > 2, FDR < 0.05) in KGN cells are shown in red, downregulated genes (fold change < -2, FDR < 0.05) in blue. (B) Expression of steroidogenic genes, (C) glutathione peroxidases (*GPX1*, *GPX3*, *GPX4*, *GPX7* and *GPX8*) and low density lipoprotein receptors (*LRP2*, *LRP8*), (D) glutathione-disulfide reductase (*GSR*), sodium dismutases (*SOD1-2*) and catalase (*CAT*), (E) peroxiredoxins (*PRDX1-6*), (F) thioredoxins (*TXN1-2*) and thioredoxin reductases (*TXNRD1-3*). Each gene expression graph additionally shows the expression of the house-keeping genes *ACTB*, *RPL19* and *RPL32* (n = 3). Data are presented as mean ± SEM. A gene expression of |fold change| > 2 and FDR < 0.05 was considered significant. **P < 0.01, ***P < 0.001 and ****P < 0.0001.

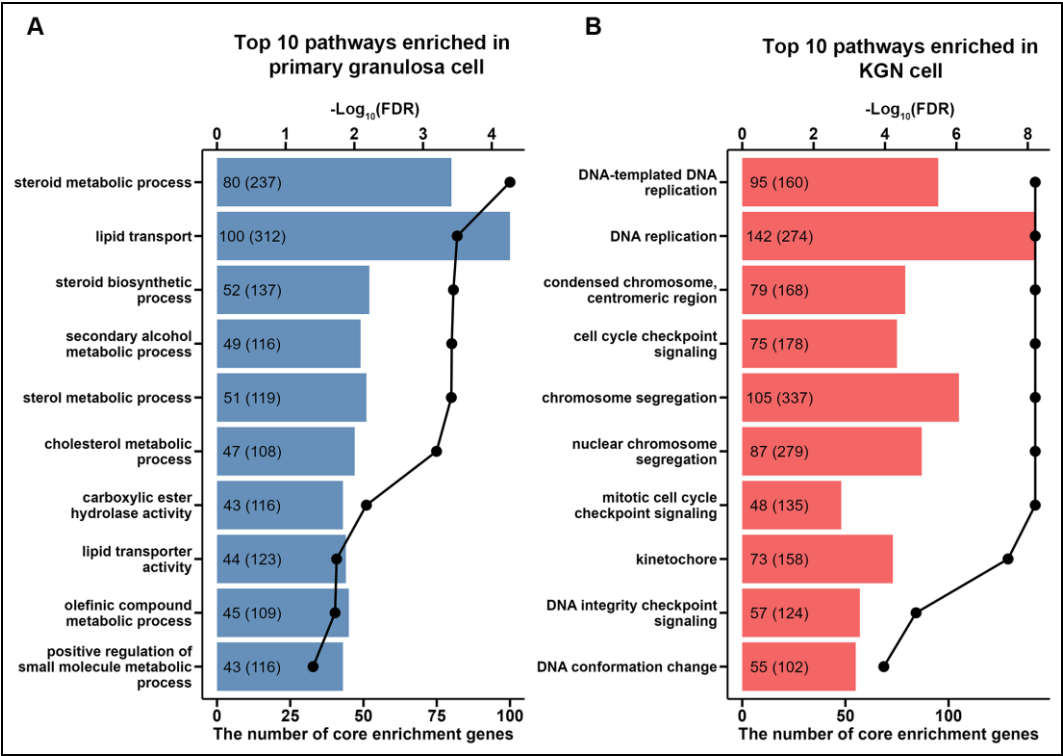


Figure 7. Geneset enrichment analysis of differentially expressed genes in KGN and primary granulosa cells. (A) Top 10 differential Gene Ontology (GO) pathways enriched in primary granulosa cells. (B) Top 10 differential GO pathways enriched in KGN cells. The dot line represents the FDR of each differential GO pathway. The bar with text outside the parentheses represents the number of core enrichment genes that contribute most to the GO pathway. The text inside the parentheses indicates the total number of genes enriched for the pathway in the dataset. Only pathways with $FDR < 0.05$, $|enrichmentScore| > 0.5$ and > 40 core enrichment genes were considered significant.

Steroidogenic and antioxidant gene expression in *TXNRD1*-deficient KGN cells

TXNRD1 siRNA transfection of KGN cells resulted in a significant inhibition of *TXNRD1* expression and a knockdown efficiency above 80% (*TXNRD1* siRNA: $P = 0.0053$; *TXNRD1* siRNA & dbcAMP: $P = 0.00031$) (Fig. 11D). Knockdown of *TXNRD1* had no effect on the expression of electron transport chain genes *FDX1* (*TXNRD1* siRNA: $P = 0.99$; *TXNRD1* siRNA & dbcAMP: $P = 0.99$) and *FDXR* (*TXNRD1* siRNA: $P = 0.051$; *TXNRD1* siRNA & dbcAMP: $P = 0.73$) (Fig. 8A and B), but resulted in significant inhibition of the stimulatory effect of dbcAMP on *CYP11A1* (*TXNRD1* siRNA: $P = 0.99$; *TXNRD1* siRNA & dbcAMP: $P = 0.0018$) (Fig. 8C) and *CYP19A1* (*TXNRD1* siRNA: $P = 0.99$; *TXNRD1* siRNA & dbcAMP: $P = 0.0026$) (Fig. 8E) expression. *POR*, on the other hand, was significantly increased

358 (TXNRD1 siRNA: $P = 0.000097$; TXNRD1 siRNA & dbcAMP: $P = 0.20$) (Fig. 8D).
 359 Knockdown of *TXNRD1* only significantly increased the expression of *GPX3* (TXNRD1 siRNA:
 360 $P = 3.2e^{-7}$; TXNRD1 siRNA & dbcAMP: $P = 0.24$) (Fig. 9B) and *SOD2* (TXNRD1 siRNA: $P =$
 361 $1.93e^{-6}$; TXNRD1 siRNA & dbcAMP: $P = 0.99$) (Fig. 9F) in the cells without dbcAMP
 362 stimulation but significantly reduced the expression of *GPX8* (TXNRD1 siRNA: $P = 3.91e^{-12}$;
 363 TXNRD1 siRNA & dbcAMP: $P = 2.04e^{-10}$) regardless of dbcAMP treatment (Fig. 9C). *GPX1*
 364 (TXNRD1 siRNA: $P = 0.99$; TXNRD1 siRNA & dbcAMP: $P = 0.88$) (Fig. 9A), *LRP8* (TXNRD1
 365 siRNA: $P = 0.097$; TXNRD1 siRNA & dbcAMP: $P = 0.76$) (Fig. 9D), *SOD1* (TXNRD1 siRNA:
 366 $P = 0.15$; TXNRD1 siRNA & dbcAMP: $P = 0.093$) (Fig. 9E) and *CAT* (TXNRD1 siRNA: $P =$
 367 0.99 ; TXNRD1 siRNA & dbcAMP: $P = 0.58$) (Fig. 9G) were not affected by *TXNRD1*
 368 knockdown. Furthermore, *TXNRD1* knockdown showed no effect on *PRDX1* (TXNRD1 siRNA:
 369 $P = 0.99$; TXNRD1 siRNA & dbcAMP: $P = 0.29$) (Fig. 10A), *PRDX2* (TXNRD1 siRNA: $P =$
 370 0.89 ; TXNRD1 siRNA & dbcAMP: $P = 0.99$) (Fig. 10B), *PRDX4* (TXNRD1 siRNA: $P = 0.77$;
 371 TXNRD1 siRNA & dbcAMP: $P = 0.53$) (Fig. 10D) and *PRDX5* (TXNRD1 siRNA: $P = 0.95$;
 372 TXNRD1 siRNA & dbcAMP: $P = 0.97$) (Fig. 10E), whereas *PRDX3* (TXNRD1 siRNA: $P =$
 373 0.99 ; TXNRD1 siRNA & dbcAMP: $P = 0.00073$) (Fig. 10C) and *PRDX6* (TXNRD1 siRNA: $P =$
 374 0.0050 ; TXNRD1 siRNA & dbcAMP: $P = 0.17$) (Fig. 10F) were significantly elevated with
 375 *TXNRD1* knockdown in cells with or without dbcAMP stimulation, respectively. Similarly,
 376 *TXN2* (TXNRD1 siRNA: $P = 0.75$; TXNRD1 siRNA & dbcAMP: $P = 0.60$) (Fig. 11C),
 377 *TXNRD2* (TXNRD1 siRNA: $P = 0.98$; TXNRD1 siRNA & dbcAMP: $P = 0.94$) (Fig. 11E) and
 378 *TXNRD3* (TXNRD1 siRNA: $P = 0.56$; TXNRD1 siRNA & dbcAMP: $P = 0.85$) (Fig. 11F) were
 379 not changed after the knockdown of *TXNRD1*, but a significant increase of *GSR* (TXNRD1
 380 siRNA: $P = 0.00033$; TXNRD1 siRNA & dbcAMP: $P = 0.017$) (Fig. 11A) and *TXN* (TXNRD1
 381 siRNA: $P = 1.8e^{-4}$; TXNRD1 siRNA & dbcAMP: $P = 5.6e^{-5}$) (Fig. 11B) was observed in cells
 382 with *TXNRD1* knockdown with or without dbcAMP treatment.

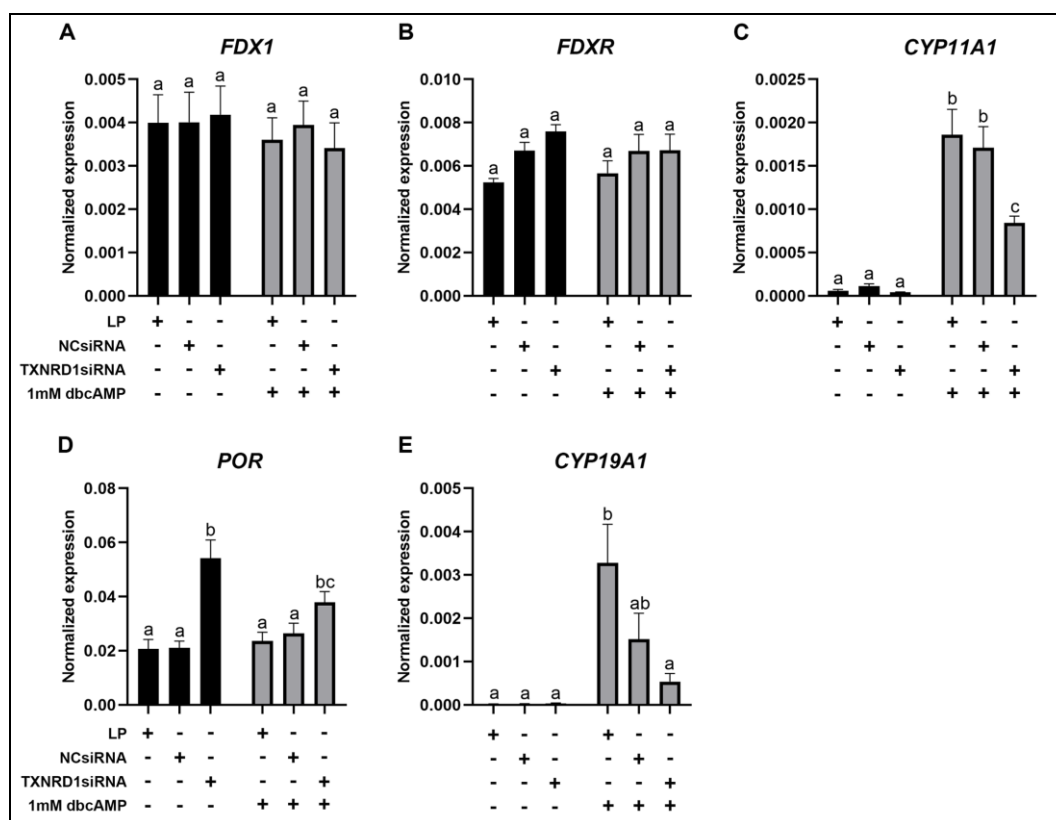


Figure 8. mRNA expression of steroidogenic enzymes and their electron transport chain components in KGN cells after knockdown of *TXNRD1* followed by 1mM dbcAMP stimulation for 48 h. mRNA expression for *FDX1* (A), *FDXR* (B), *CYP11A1* (C), *POR* (D), *CYP19A1* (E) was normalised to the expression of *GAPDH* (n=5). Data are presented as mean $\pm$ SEM. Two way ANOVA with Tukey post-hoc test were used to analyse the data. Bars with different letters are statistically significantly different from each other ($P < 0.05$). LP – lipofectamine only control; NCsiRNA - negative control siRNA.

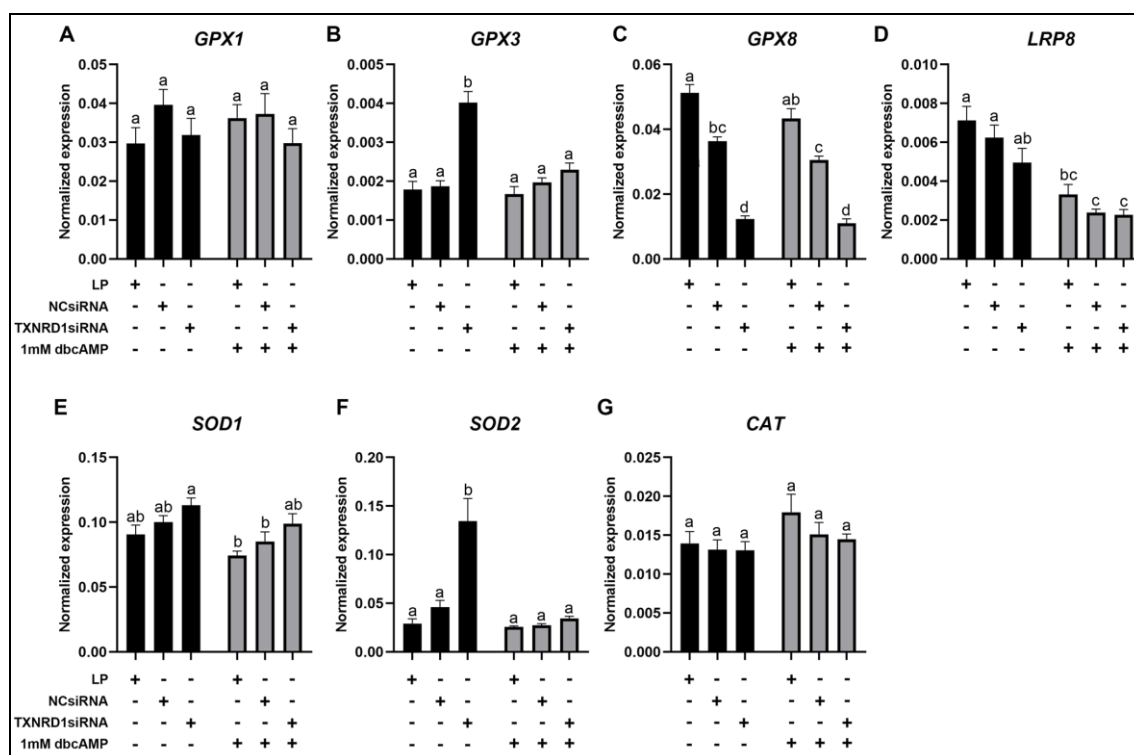


Figure 9. mRNA expression levels for glutathione peroxidases (GPX), low density lipoprotein receptor 8 (LRP8), superoxide dismutases (SOD) and catalase (CAT) in KGN cells after knockdown of TXNRD1 followed by 1mM dbcAMP stimulation for 48 h. mRNA expression for *GPX1* (A), *GPX3* (B), *GPX8* (C), *LRP8* (D), *SOD1* (E), *SOD2* (F) and *CAT* (G) was normalised to the expression of *GAPDH* (n=5). Data are presented as mean $\pm$ SEM. Two way ANOVA with Tukey post-hoc test were used to analyse the data. Bars with different letters are statistically significantly different from each other ($P < 0.05$). LP – lipofectamine only control; NCsiRNA - negative control siRNA.

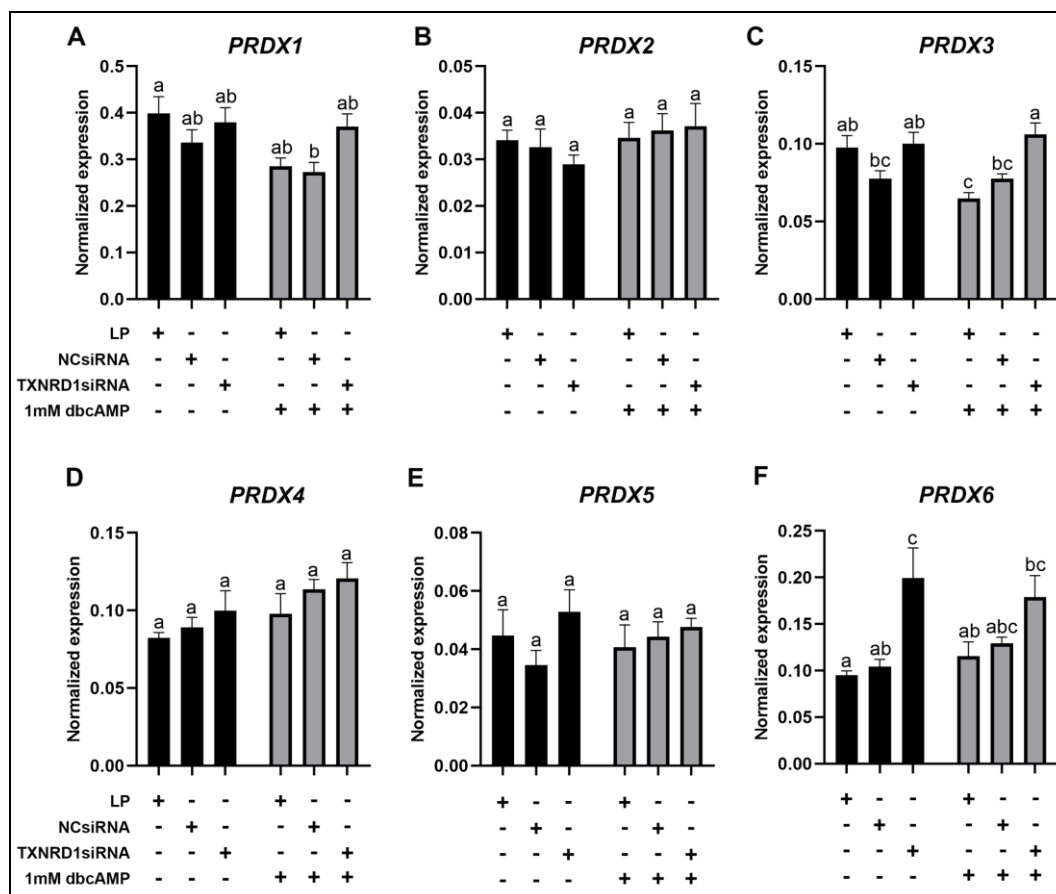


Figure 10. mRNA expression levels for peroxiredoxins (PRDX) in KGN cells after knockdown of *TXNRD1* followed by 1mM dbcAMP stimulation for 48 h. mRNA expression for *PRDX1* (A), *PRDX2* (B), *PRDX3* (C), *PRDX4* (D), *PRDX5* (E) and *PRDX6* (F) was normalised to the expression of *GAPDH* (n =5). Data are presented as mean $\pm$ SEM. Two way ANOVA with Tukey post-hoc test were used to analyse the data. Bars with different letters are statistically significantly different from each other ($P < 0.05$). LP – lipofectamine only control; NCsiRNA - negative control siRNA.

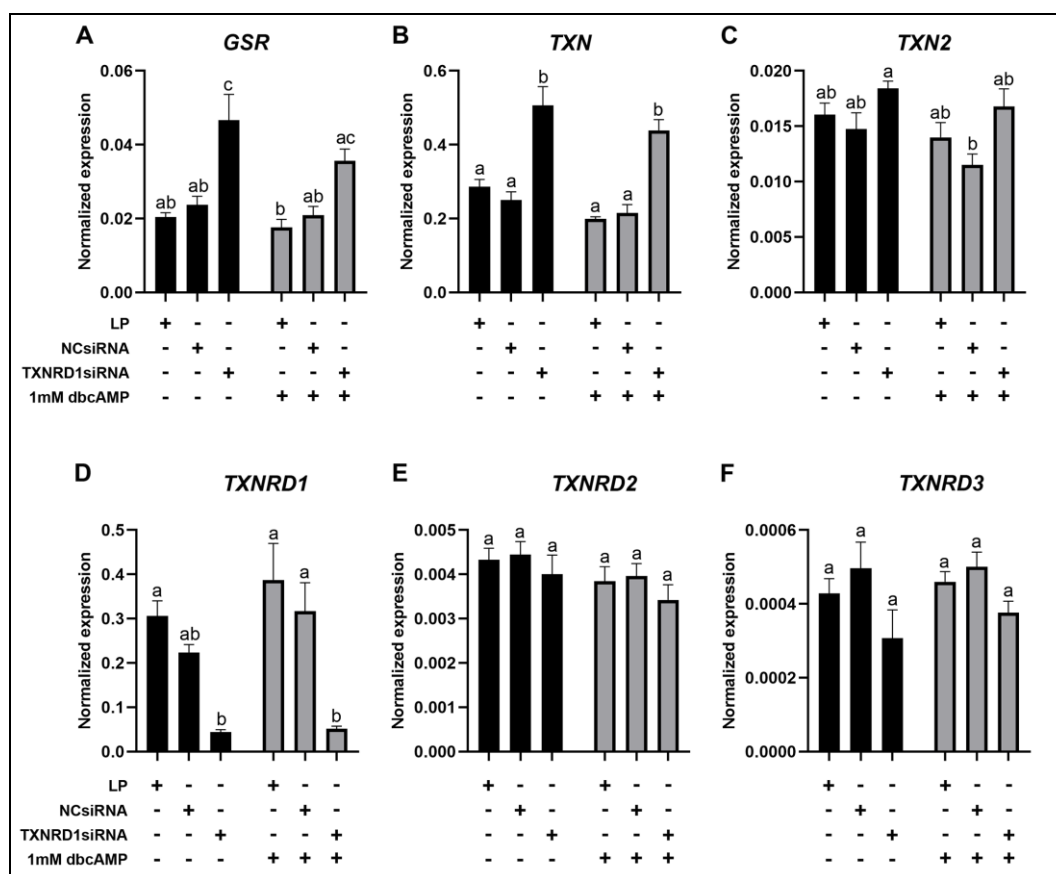


Figure 11. mRNA expression levels for glutathione-disulfide reductase (GSR), thioredoxins (TXN) and thioredoxin reductases (TXNRD) in KGN cells after knockdown of TXNRD1 followed by 1mM dbcAMP stimulation for 48 h. mRNA expression for *GSR* (A), *TXN* (B), *TXN2* (C), *TXNRD1* (D), *TXNRD2* (E) and *TXNRD3* (F) was normalised to the expression of *GAPDH* ($n = 5$). Data are presented as mean $\pm$ SEM. Two way ANOVA with Tukey post-hoc test were used to analyse the data. Bars with different letters are statistically significantly different from each other ($P < 0.05$). LP – lipofectamine only control; NCsiRNA – negative control siRNA.

Discussion

In this study, we explored the interplay in the expression of steroidogenic enzymes, their electron transport chain members and antioxidant genes in KGN cells *in vitro*. We compared the expression of these genes with human granulosa cells. The effects on these genes in KGN cells were also examined when the level of expression of *TXNRD1* was manipulated. We additionally examined ROS production and DNA damage after stimulation of steroidogenesis in KGN cells *in vitro*.

Folliculogenesis is associated with increased production of oestrogen by granulosa cells until ovulation, after which granulosa cells luteinise and secrete increasing amounts of progesterone. The main steroidogenic enzymes in granulosa cells, P450 side chain-cleavage (P450scc; gene *CYP11A1*) and P450 aromatase (P450arom; gene *CYP19A1*), rely on their corresponding electron transport chain components to be functional and their catalytic rate is mainly determined by the rate of electron transfer from their redox partners (Miller, 2005). An earlier study in pig ovaries found that a significant increase in the concentration of P450 enzymes was accompanied by an increase in the concentration of electron transport chain components (Tuckey *et al.*, 1988). In bovine granulosa cells, not only were *CYP11A1* and *CYP19A1* expressed at higher levels in large follicles (>10 mm) compared to granulosa cells from small follicles (4-6 mm), so too were their redox partners, *FDXR* and *POR* (Hummitzsch *et al.*, unpublished data). However, in the current study, we found that KGN cells treated with dbcAMP/forskolin whilst increasing in *CYP11A1* and *CYP19A1* expression, *FDX1* and *FDXR* expression was not affected or even negatively regulated. Moreover, *POR* expression was only stimulated by forskolin but not by dbcAMP. Such different effect on *POR* between forskolin and dbCAMP in KGN cells may be explained that forskolin has stronger effect on protein kinase A (PKA), the core regulator triggering steroidogenesis, than dbCAMP (Koyuncu *et al.*, 2017). Another reason for lack of stimulation of electron transport chain components in KGN cells may be due to the much lower amounts of oestrogen produced by KGN cells (Nishi *et al.*, 2001) compared to primary granulosa cells (Lie *et al.*, 1996). Redox partners are generally expressed in excess and therefore induction of steroidogenesis in KGN cells might still not require upregulation of *FDXR*, *FDX* and *POR* to increase enzymatic activity.

Since ROS production due to electron leakage is the unavoidable by-product of steroidogenesis, steroidogenic cells must have a ROS scavenging system to counteract underlying ROS damage. *TXN* has been shown to be more highly expressed in human granulosa cells from large follicles (> 15 mm) compared to those from smaller follicles (< 15 mm) (Kishi *et al.*, 2016). Similarly, *GPX1* was more highly expressed in granulosa cells from bovine large follicles (> 10 mm) compared to those from small follicles (4-6 mm) (Ceko *et al.*, 2015). This suggests that granulosa cells increase the expression of specific antioxidants to counterbalance increased ROS produced by increased oestrogen synthesis. In contrast, in KGN cells, we found that most antioxidant genes were unchanged or even downregulated after inducing steroidogenesis, suggesting that KGN cells behave differently to primary granulosa cells. The expression of the selenium-uptake receptor, *LRP8*, also decreased after stimulation, which could be due to the

unchanged or decreased expression levels of selenium-dependent GPXs and TXNRDs. Furthermore, we did not find changes in the extracellular hydrogen peroxide levels after stimulation of steroidogenesis. Even though *CYP11A1* and *CYP19A1* were significantly increased after dbcAMP and forskolin stimulation, their expression levels were still much lower than in primary granulosa cells (Nishi *et al.*, 2001, Steinkampf *et al.*, 1987). Taken together these observations are consistent with the suggestion that any additional ROS produced in the KGN cells under stimulation could still be adequately scavenged by the existing levels of antioxidants.

In terms of antioxidants, we found that the KGN cells had a much higher expression of *TXNRD1* compared to primary granulosa cells. The TXNRD family is NADPH-dependent and mainly located in cytosol and mitochondria (Gromer *et al.*, 2004). Since TXNRDs are the major reducer of TXNs, they are required for activating TXNs and maintaining the redox homeostasis (Short and Williams, 2017). For instance, TXNRD1 reduces TXN, which further reduces a number of enzymes, such as PRDXs or methionine sulfoxide reductases for ROS scavenging (Oien and Moskovitz, 2007, Rhee *et al.*, 2005) and ribonucleotide reductase for DNA synthesis (Nordlund and Reichard, 2006). In this study, we found that such antioxidant defence system consisting of *TXNRD1*, *TXN* and *PRDX1*, showed the highest mRNA expression in KGN cells. Other tumour cell lines, such as A549 (Eriksson *et al.*, 2009), FaDu and HeLa cells (Javvadi *et al.*, 2010), also express high levels of TXNRD1. Cells of solid tumours have been shown to not only express high levels of *TXNRD1* but also *GPX4* to avoid oxidative stress and protect against ferroptosis, an iron-mediated cell death [reviewed in (Shimada *et al.*, 2022)]. Cancer cells appear to be able to promote the uptake of selenium by increasing the expression of *LRP8*. TXNRD1, in the presence of glutathione, reduces selenium, which is then, as selenocysteine, incorporated into selenoproteins such as TXNRDs and GPXs. Surprisingly; in our study, we were not able to detect *GPX4* expression in the KGN cells. Interestingly, knockdown of *TXNRD1* in KGN cells did not decrease *TXN* but significantly upregulated its expression with or without dbcAMP. The possible reason for this may be that TXN can be reduced by other molecules, and still act as one of the major antioxidants in *TXNRD1*-deficient cells. Previous studies have shown TXN can also be reduced by the glutathione (GSH)- and glutaredoxin (Grx)-dependent pathways (Du *et al.*, 2013, Prigge *et al.*, 2012). Knockdown of mitochondrial *Txnrd2* in mouse embryonic fibroblasts resulted in compensatory upregulation of mitochondrial *Grx2*, which is also able to reduce Txn and Txn2 instead of *Txnrd2* (Hellfritsch *et al.*, 2015). We also observed that *GSR*, *GPX3*, *SOD2* and

PRDX6 were significantly increased after *TXNRD1* knockdown in KGN cells without dbcAMP treatment. The increase in *PRDX6* in *TXNRD1*-deficient KGN cells might substitute for *PRDX1* as the major downstream factor of TXN for ROS elimination in KGN cells. In addition, the concomitant upregulation of *GPX3* and *SOD2* is understandable, since the SOD-GPX system is another classical antioxidant regulatory system. Thereby, SOD converts superoxide radicals into hydrogen peroxide that is subsequently neutralised by GPX by using hydrogen from two GSH molecules resulting in two H₂O molecules and one glutathione disulphide (GSSG) (Beyer *et al.* , 1991, Esposito *et al.* , 2000). As GSR regenerates GSH from GSSG (Deneke and Fanburg, 1989), the upregulation of *GSR* after knockdown of *TXNRD1* in KGN cells can also be explained. These results together illustrate that TXN-*PRDX6* and *GPX3*-*SOD2* in *TXNRD1*-deficient KGN cells might serve as predominant antioxidant systems instead of *TXNRD1*-TXN-*PRDX1* in normal KGN cells.

Interestingly, we observed that knockdown of *TXNRD1* made KGN cells less responsive to dbcAMP stimulation resulting in a significant reduction of *CYP11A1* and *CYP19A1*. Similar observations have been made by Zaidi *et al.*, where a deficiency in *Sod2* in mice ovaries resulted in decreased steroidogenesis caused by interference with the cholesterol transport into the mitochondria and downregulation of *Star*, *Cyp11a1*, *Cyp17a1* and *Cyp19a1* (Zaidi *et al.*, 2021). Moreover, exposure to hydrogen peroxide inhibited progesterone production in rat granulosa cells stimulated with LH, cholera toxin, forskolin or 8-bromo-cAMP (Margolin *et al.* , 1990). A similar phenomenon was observed in rat luteal cells upon treatment with xanthine oxidase-generated superoxide (Gatzuli *et al.* , 1991), lipid hydroperoxide (Kodaman *et al.* , 1994) or hydrogen peroxide (Musicki *et al.* , 1994). In human luteal cells, hydrogen peroxide not only altered hCG-stimulated cAMP accumulation, but also inhibited progesterone and oestrogen synthesis by blocking P450_{scc}, 3 beta-hydroxysteroid dehydrogenase, 17 beta-hydroxysteroid dehydrogenase and P450_{arom} (Endo *et al.* , 1993). Collectively all of these observations suggest that steroidogenic cells, including KGN cells, have a system, which recognises when the antioxidant system is or is likely to be overwhelmed, leading then to a shutdown of steroidogenesis as a protective measure to avoid additional production of ROS.

The mechanism by which the shutdown of steroidogenesis to avoid ROS is under investigation. Knockdown of nuclear factor erythroid 2-related factor 2 (NRF2), the key regulator of cellular antioxidant response, resulted in downregulation of *CYP11A1* in bovine granulosa cells (Taqi *et al.* , 2021). Aside from inducing TXNs, TXRDs, sulfiredoxin, PRDXs, GPXs, SOD1, CAT and several glutathione S-transferases (He *et al.* , 2020), NRF2 also regulates other

transcription factor networks such as the sterol regulatory element binding transcription factors (SREBFs/ SREBPs) (Taqi *et al.*, 2021), which is involved in cholesterol biosynthesis. Abidi *et al.* have shown in the steroidogenic adrenocortical cell line Y1-BS1, that inhibition of steroidogenesis as a result of excessive oxidative stress (superoxide, hydrogen peroxide, 4-hydroxy-2-nonenal) is mediated by the activated mitogen-activated protein kinase (MAPK) p38 (Abidi *et al.* , 2008). However, the specific mechanism behind the downregulation of steroidogenic genes after knockdown of *TXNRD1* in KGN cells is not completely clear at this stage.

In summary, our study clearly revealed that KGN cells are different in their antioxidant profile and responses compared to primary granulosa cells. However, an imbalance in the antioxidant/ROS- system as caused by knock down of *TXNRD1*, led to the inhibition of steroidogenic enzymes similar to the phenomenon seen in primary granulosa cells. Depending on which aspect a study focuses on, KGN cells might or might not be a good model for primary granulosa cells.

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Supplementary data

Supplementary data are available online.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Authors' roles

F.T., K.H. and R.J.R. designed the research; F.T. performed the experiments; F.T., and K.H. analysed the data; and F.T., K.H. and R.R. wrote the paper. All authors have seen and approved the final version.

549 **Conflicts of interest**

550 The authors declare no conflicts of interest.

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Supplementary tables SI to SIV

Table SI. Primers for quantitative RT-PCR

Gene	Forward Primer (5'-3')	Reverse Primer (5'-3')	Amplicon size [bp]
<i>GAPDH</i>	TCCTCTGACTTCAACAGCGAC	GTGGTCCAGGGGTCTTACTC	176
<i>POR</i>	TTTCGCTCATCGTGGGTCTC	GTCTGGGAGCCGTAGAACAC	172
<i>CYP19A1</i>	TCGAGTTTTTCCCAAACCCA	GGCGATGTACTTTCCTGCAC	157
<i>FDX1</i>	AACCCTGGCTTGTTC AACCT	TGGCATCAGCCACTGTTTCA	200
<i>FDXR</i>	CCTGGAGAGAACGGACATCAC	AGCCACACTGTCTTCACTCG	72
<i>CYP11A1</i>	GGGAGACAGCAAGATGTCCTT	GCGTGCCATCTCATACAAGT	115
<i>GPX1</i>	CAACCAGTTTGGGCATCAG	TCTCGAAGAGCATGAAGTTGG	126
<i>GPX2</i>	ATTGAGAATGTGGCTTCGCTC	ACCCCCAGGACGGACATAC	183
<i>GPX3</i>	AAGTCGAAGATGGACTGCCA	TGGTGCAAGCTCTTCCTGTAG	195
<i>GPX4</i>	ATTGGTCGGCTGGACGAG	TCGATGTCCTTGGCGGAAAA	199
<i>GPX5</i>	CACCTACTGTGGTCTGACAGC	GGTTGCAGGGAAAGCCCAAC	98
<i>GPX6</i>	CTCAACGGCGAGGAGTACAT	GGCCAACACAATGACACCAA	153
<i>GPX7</i>	TCAACATCCGGGGCAAACCTG	GGGAAGGCGAGCACGTAAAA	163
<i>GPX8</i>	TCAGCGTGTGGCTTTTCCC	TTCCACCTTGGTTCCTTCTTTG	193
<i>LRP8</i>	CGCACTCTCTTCAGCCGTAA	ACACCGTTGAGCCCAGATTT	125
<i>SOD1</i>	AGAGGCATGTTGGAGACTTGG	TCCAGCGTTTCCTGTCTTTGT	191
<i>SOD2</i>	AGAAGTACCAGGAGGCGTTG	AGTCACGTTTGATGGCTTCCA	174
<i>CAT</i>	CTTCGACCCAAGCAACATGC	GCGGTGAGTGTGAGGATAGG	91
<i>GSR</i>	GGAGGTGCTGAAGTTCTCCCA	CGGTTTGAATCCCCAGTTTGT	194
<i>TXN</i>	TTCCATCGGTCCTTACAGCC	ACGTTGGAATACTTTTCAGAGAGG	199
<i>TXN2</i>	TGAGACACCAGTGGTTGTGG	ACTCAATGGCGAGGTCTGTG	152
<i>TXNRD1</i>	AGAGCGAAAGGTGGTCGAGT	AGTCTGCCCTCCTGATAAGC	191
<i>TXNRD2</i>	AAGATGCCCCCAACTATGGC	CCGTGTGCTCGTCAACAAAG	177
<i>TXNRD3</i>	TTGTTGTCCCGTCACCTCAG	AGTCACATAATGCCTGCCCC	120
<i>PRDX1</i>	CCCCACGGAGATCATTGCTT	CGCTTCGGGTCTGATACCAA	174
<i>PRDX2</i>	AAGGGTGTCTTCGCCAGAT	ACGTTGGGCTTAATCGTGTC	158
<i>PRDX3</i>	ATTCCCCGAGACTACGGTGTG	GAGGGTTTCTTCCACGCTTC	138
<i>PRDX4</i>	GCTTTTGGCGACAGACTTGA	TCCTCCTTGTCTTCGAGGGG	117
<i>PRDX5</i>	ACGCTCAGCGGGCTATATACT	GGCTCCCCTTCAAACACCTC	186
<i>PRDX6</i>	ACCACTGGCAGGAACTTTGAT	AGGACCATCACACTATCCCCA	116

Table SII. The TMM normalised expression counts of differentially expression genes in the RNAseq dataset and relevant differential gene expression analysis results. (Log2FC - log2 fold change; FDR - false discovery rate; Mean_KGN - average normalised counts for all KGN samples; Mean_primary_granulosa - average normalised counts for all primary granulosa samples)

GeneID	GeneSymbol	Mean_KGN	Mean_primary_granulosa	Log2FC	FDR
Upregulated DEGs					
ENSG00000150556	<i>LYPD6B</i>	105.97	0.11	10.35	8.07E-05
ENSG00000164093	<i>PITX2</i>	39.15	0.01	10.18	5.67E-05
ENSG00000145934	<i>TENM2</i>	557.66	0.51	10.07	6.37E-05
ENSG00000170442	<i>KRT86</i>	34.22	0.01	9.85	1.23E-03
ENSG00000154678	<i>PDE1C</i>	304.58	0.36	9.82	5.67E-05
ENSG00000221867	<i>MAGEA3</i>	21.42	0.00	9.76	2.89E-04
ENSG00000197172	<i>MAGEA6</i>	19.83	0.00	9.59	5.67E-05
ENSG00000198542	<i>ITGBL1</i>	74.89	0.13	9.43	2.21E-04
ENSG00000143355	<i>LHX9</i>	59.68	0.14	9.39	1.52E-04
ENSG00000213401	<i>MAGEA12</i>	17.76	0.00	9.37	6.99E-05
ENSG00000129038	<i>LOXL1</i>	951.46	1.59	9.35	3.60E-05
ENSG00000170381	<i>SEMA3E</i>	52.64	0.14	9.12	1.53E-04
ENSG00000205426	<i>KRT81</i>	28.03	0.03	9.09	5.62E-04
ENSG00000128510	<i>CPA4</i>	1364.47	1.75	9.05	3.20E-03
ENSG00000156395	<i>SORCS3</i>	11.89	0.00	8.96	6.19E-05
ENSG00000185652	<i>NTF3</i>	12.55	0.00	8.95	6.19E-05
ENSG00000198930	<i>CSAG1</i>	11.75	0.00	8.92	5.67E-05
ENSG00000162706	<i>CADM3</i>	25.32	0.03	8.87	1.43E-04
ENSG00000149972	<i>CNTN5</i>	11.48	0.00	8.86	2.85E-04
ENSG00000102468	<i>HTR2A</i>	16.80	0.02	8.71	1.46E-04
ENSG00000238243	<i>OR2W3</i>	9.42	0.00	8.64	6.99E-05
ENSG00000123364	<i>HOXC13</i>	13.62	0.02	8.54	7.31E-05
ENSG00000264230	<i>ANXA8L1</i>	58.87	0.20	8.42	4.79E-04
ENSG00000123388	<i>HOXC11</i>	8.53	0.00	8.38	6.40E-05
ENSG00000278299	<i>TBC1D3C</i>	7.96	0.00	8.36	6.19E-05
ENSG00000111186	<i>WNT5B</i>	207.81	0.66	8.28	5.67E-05
ENSG00000203805	<i>PLPP4</i>	69.63	0.20	8.17	2.90E-04
ENSG00000079841	<i>RIMS1</i>	19.62	0.05	8.13	4.79E-04
ENSG00000011677	<i>GABRA3</i>	6.32	0.00	8.05	1.38E-04
ENSG00000185860	<i>CCDC190</i>	17.11	0.08	7.99	1.75E-04
ENSG00000268606	<i>MAGEA2</i>	8.41	0.00	7.98	4.83E-04
ENSG00000260027	<i>HOXB7</i>	18.45	0.11	7.90	6.93E-04
ENSG00000128683	<i>GAD1</i>	56.66	0.27	7.77	6.99E-05
ENSG00000165072	<i>MAMDC2</i>	15.68	0.08	7.74	6.25E-04
ENSG00000170689	<i>HOXB9</i>	5.52	0.00	7.63	7.46E-04
ENSG00000065325	<i>GLP2R</i>	5.63	0.00	7.62	1.78E-04
ENSG00000251493	<i>FOXD1</i>	72.29	0.30	7.61	7.54E-04
ENSG00000180287	<i>PLD5</i>	13.91	0.05	7.60	6.26E-04
ENSG00000163485	<i>ADORA1</i>	56.29	0.33	7.60	3.21E-04
ENSG00000169760	<i>NLGN1</i>	32.72	0.14	7.56	2.03E-04
ENSG00000221818	<i>EBF2</i>	14.15	0.10	7.56	3.53E-04
ENSG00000144339	<i>TMEFF2</i>	4.59	0.00	7.53	1.76E-04
ENSG00000162722	<i>TRIM58</i>	115.62	0.64	7.52	1.66E-04
ENSG00000142623	<i>PADI1</i>	5.17	0.01	7.50	1.07E-04
ENSG00000261115	<i>TMEM178B</i>	82.58	0.40	7.49	3.61E-04
ENSG00000112837	<i>TBX18</i>	76.63	1.46	7.48	8.39E-04
ENSG00000106484	<i>MEST</i>	1116.98	6.30	7.43	2.39E-04
ENSG00000105894	<i>PTN</i>	63.58	0.35	7.42	1.66E-04
ENSG00000009709	<i>PAX7</i>	7.11	0.00	7.42	2.17E-03

ENSG00000198910	<i>L1CAM</i>	401.58	2.64	7.39	2.30E-04
ENSG00000134762	<i>DSC3</i>	188.62	1.13	7.37	6.19E-05
ENSG00000265190	<i>ANXA8</i>	225.26	1.42	7.34	6.19E-05
ENSG00000144355	<i>DLX1</i>	12.18	0.09	7.31	3.27E-04
ENSG00000164112	<i>SMIM43</i>	18.36	0.11	7.30	2.09E-04
ENSG00000170214	<i>ADRA1B</i>	5.53	0.02	7.24	1.44E-04
ENSG00000273294	<i>C1QTNF3-AMACR</i>	4.87	0.00	7.23	1.03E-03
ENSG00000176692	<i>FOXC2</i>	4.99	0.00	7.22	6.44E-04
ENSG00000186897	<i>C1QL4</i>	3.65	0.00	7.22	9.09E-05
ENSG00000108511	<i>HOXB6</i>	19.72	0.11	7.19	6.99E-05
ENSG00000268916	<i>CSAG3</i>	4.41	0.00	7.18	3.52E-04
ENSG00000112246	<i>SIM1</i>	4.66	0.02	7.08	1.70E-04
ENSG00000167165	<i>UGT1A6</i>	3.53	0.00	7.08	5.23E-04
ENSG00000150051	<i>MKX</i>	46.07	0.39	7.07	1.37E-04
ENSG00000138771	<i>SHROOM3</i>	121.81	0.91	7.04	5.67E-05
ENSG00000151418	<i>ATP6V1G3</i>	3.56	0.00	7.04	1.82E-04
ENSG00000179242	<i>CDH4</i>	24.79	0.32	7.02	8.77E-04
ENSG00000082497	<i>SERTAD4</i>	3.88	0.01	6.99	2.71E-04
ENSG00000129354	<i>AP1M2</i>	28.37	0.21	6.96	6.40E-05
ENSG00000183305	<i>MAGEA2B</i>	4.86	0.00	6.95	1.86E-03
ENSG00000157064	<i>NMNAT2</i>	33.91	0.28	6.93	4.94E-04
ENSG00000154493	<i>C10orf90</i>	2.93	0.00	6.92	1.10E-04
ENSG00000290966	<i>KRT87P</i>	2.73	0.00	6.83	1.42E-04
ENSG00000179546	<i>HTR1D</i>	8.83	0.07	6.82	1.82E-03
ENSG00000078725	<i>BRINP1</i>	10.12	0.10	6.80	3.35E-04
ENSG00000158516	<i>CPA2</i>	4.48	0.03	6.79	2.52E-04
ENSG00000163827	<i>LRRC2</i>	60.81	0.54	6.78	7.78E-05
ENSG00000141750	<i>STAC2</i>	38.04	0.41	6.78	1.86E-04
ENSG00000114200	<i>BCHE</i>	23.07	0.21	6.77	1.07E-04
ENSG00000112414	<i>ADGRG6</i>	14.49	0.22	6.76	1.06E-03
ENSG00000135477	<i>KRT87P</i>	2.75	0.00	6.74	2.23E-04
ENSG00000149596	<i>JPH2</i>	76.16	0.74	6.73	6.40E-05
ENSG00000110092	<i>CCND1</i>	611.63	5.59	6.70	4.50E-04
ENSG00000138675	<i>FGF5</i>	16.16	0.07	6.68	8.27E-03
ENSG00000065609	<i>SNAP91</i>	4.50	0.00	6.68	6.29E-03
ENSG00000165323	<i>FAT3</i>	27.78	0.29	6.67	2.09E-03
ENSG00000118523	<i>CCN2</i>	1894.03	23.51	6.66	1.10E-04
ENSG00000144810	<i>COL8A1</i>	259.47	3.16	6.60	8.18E-05
ENSG00000128714	<i>HOXD13</i>	2.65	0.00	6.57	8.53E-04
ENSG00000168505	<i>GBX2</i>	2.64	0.00	6.57	2.80E-04
ENSG00000067715	<i>SYT1</i>	14.19	0.16	6.56	2.93E-04
ENSG00000171346	<i>KRT15</i>	39.62	0.54	6.54	1.62E-04
ENSG00000165300	<i>SLITRK5</i>	41.27	0.43	6.52	4.84E-04
ENSG00000109705	<i>NKX3-2</i>	3.86	0.03	6.52	3.28E-04
ENSG00000159184	<i>HOXB13</i>	2.18	0.00	6.51	1.97E-04
ENSG00000170891	<i>CYTL1</i>	17.04	0.20	6.51	1.42E-03
ENSG00000104059	<i>FAM189A1</i>	11.71	0.22	6.49	1.00E-03
ENSG00000166482	<i>MFAP4</i>	71.66	0.83	6.48	4.11E-04
ENSG00000117600	<i>PLPPR4</i>	16.88	0.12	6.46	1.82E-02
ENSG00000070182	<i>SPTB</i>	15.79	0.31	6.44	3.27E-03
ENSG00000156096	<i>UGT2B4</i>	3.28	0.02	6.44	4.92E-04
ENSG00000234602	<i>MCIDAS</i>	2.28	0.00	6.42	2.44E-04
ENSG00000164764	<i>SBSPON</i>	171.27	1.99	6.42	4.70E-05
ENSG00000253293	<i>HOXA10</i>	16.23	0.22	6.41	2.27E-04
ENSG00000106031	<i>HOXA13</i>	2.84	0.01	6.40	2.90E-04
ENSG00000072195	<i>SPEG</i>	362.15	4.33	6.33	1.13E-04
ENSG00000099822	<i>HCN2</i>	95.73	1.14	6.32	2.05E-04
ENSG00000164099	<i>PRSS12</i>	37.43	0.59	6.30	1.75E-04

ENSG00000172379	<i>ARNT2</i>	336.59	5.07	6.29	2.60E-04
ENSG00000290398	<i>ASNSP1</i>	4.89	0.05	6.28	6.24E-03
ENSG00000183087	<i>GAS6</i>	1823.36	24.13	6.27	1.30E-04
ENSG00000183775	<i>KCTD16</i>	20.31	0.25	6.24	1.13E-04
ENSG00000265763	<i>ZNF488</i>	3.51	0.03	6.23	5.90E-04
ENSG00000007372	<i>PAX6</i>	18.44	0.34	6.22	1.08E-03
ENSG00000109255	<i>NMU</i>	4.44	0.11	6.21	1.79E-03
ENSG00000131094	<i>C1QL1</i>	21.41	0.26	6.21	2.14E-03
ENSG00000164362	<i>TERT</i>	6.54	0.06	6.20	1.72E-04
ENSG00000137203	<i>TFAP2A</i>	34.09	0.48	6.20	1.07E-04
ENSG00000111700	<i>SLCO1B3</i>	1.84	0.00	6.15	3.71E-04
ENSG00000112183	<i>RBM24</i>	12.33	0.16	6.15	1.40E-04
ENSG00000126778	<i>SIX1</i>	11.76	0.15	6.15	7.67E-04
ENSG00000158525	<i>CPA5</i>	7.99	0.21	6.12	2.43E-03
ENSG00000110427	<i>KIAA1549L</i>	32.05	0.67	6.12	2.78E-04
ENSG00000173546	<i>CSPG4</i>	84.77	1.41	6.11	1.82E-04
ENSG00000043355	<i>ZIC2</i>	3.32	0.03	6.09	3.68E-04
ENSG00000132561	<i>MATN2</i>	447.22	7.07	6.06	5.67E-05
ENSG00000072657	<i>TRHDE</i>	25.23	0.31	6.04	6.96E-04
ENSG00000198807	<i>PAX9</i>	4.22	0.05	6.01	4.38E-04
ENSG00000149294	<i>NCAM1</i>	490.25	7.60	5.98	6.99E-05
ENSG00000185567	<i>AHNAK2</i>	127.40	2.17	5.97	4.42E-04
ENSG00000149256	<i>TENM4</i>	39.38	0.61	5.97	6.37E-05
ENSG00000147676	<i>MAL2</i>	17.99	0.35	5.96	7.10E-04
ENSG00000153233	<i>PTPRR</i>	3.99	0.05	5.95	6.72E-04
ENSG00000214429	<i>CYCSP6</i>	1.72	0.00	5.95	4.43E-04
ENSG00000153684	<i>GOLGA8F</i>	1.45	0.00	5.94	2.05E-04
ENSG00000130720	<i>FIBCD1</i>	20.22	0.46	5.94	4.76E-04
ENSG00000125378	<i>BMP4</i>	104.09	1.87	5.92	6.99E-05
ENSG00000154096	<i>THY1</i>	395.18	10.48	5.88	2.71E-04
ENSG00000058335	<i>RASGRF1</i>	13.66	0.20	5.87	2.49E-03
ENSG00000116183	<i>PAPPA2</i>	22.51	0.39	5.86	3.60E-03
ENSG00000109674	<i>NEIL3</i>	15.02	0.36	5.83	8.29E-04
ENSG00000249853	<i>HS3ST5</i>	6.17	0.09	5.82	2.88E-04
ENSG00000131737	<i>KRT34</i>	1.37	0.00	5.81	4.95E-04
ENSG00000183840	<i>GPR39</i>	12.40	0.39	5.79	4.20E-03
ENSG00000249967		1.32	0.00	5.79	3.45E-04
ENSG00000105880	<i>DLX5</i>	6.07	0.10	5.77	5.13E-04
ENSG00000186832	<i>KRT16</i>	2.03	0.02	5.76	4.97E-04
ENSG00000122592	<i>HOXA7</i>	11.91	0.21	5.76	1.91E-04
ENSG00000101306	<i>MYLK2</i>	2.37	0.04	5.75	1.21E-03
ENSG00000183549	<i>ACSM5</i>	4.08	0.12	5.75	9.42E-03
ENSG00000162624	<i>LHX8</i>	1.60	0.00	5.75	7.73E-04
ENSG00000108448	<i>TRIM16L</i>	4.72	0.36	5.71	9.99E-03
ENSG00000138759	<i>FRAS1</i>	225.87	4.85	5.70	6.99E-05
ENSG00000248698	<i>LINC01085</i>	2.37	0.04	5.69	1.61E-03
ENSG00000142700	<i>DMRTA2</i>	8.43	0.26	5.68	8.52E-04
ENSG00000178031	<i>ADAMTSL1</i>	40.91	0.83	5.67	7.79E-03
ENSG00000115507	<i>OTX1</i>	1.94	0.03	5.67	5.54E-04
ENSG00000111799	<i>COL12A1</i>	1006.59	21.23	5.66	5.67E-05
ENSG00000115363	<i>EVA1A</i>	25.26	1.06	5.63	3.76E-03
ENSG00000127863	<i>TNFRSF19</i>	79.84	1.86	5.62	6.15E-04
ENSG00000139304	<i>PTPRQ</i>	2.63	0.04	5.62	2.09E-03
ENSG00000198774	<i>RASSF9</i>	18.35	0.38	5.61	3.53E-04
ENSG00000180914	<i>OXTR</i>	178.00	4.35	5.59	1.87E-03
ENSG00000148735	<i>PLEKHS1</i>	5.92	0.12	5.57	3.10E-03
ENSG00000184363	<i>PKP3</i>	7.83	0.15	5.54	1.43E-03
ENSG00000136542	<i>GALNT5</i>	11.19	0.40	5.52	2.61E-02

ENSG00000179772	<i>FOXS1</i>	7.21	0.23	5.51	1.59E-02
ENSG00000231924	<i>PSG1</i>	13.06	0.26	5.51	7.40E-03
ENSG00000021645	<i>NRXN3</i>	63.48	1.80	5.50	3.18E-04
ENSG00000170044	<i>ZPLD1</i>	6.94	0.10	5.46	1.36E-02
ENSG00000152669	<i>CCNO</i>	8.88	0.20	5.45	3.78E-04
ENSG00000271127		3.50	0.13	5.44	6.47E-03
ENSG00000167355	<i>OR51B5</i>	3.88	0.09	5.44	1.05E-03
ENSG00000197565	<i>COL4A6</i>	31.12	0.71	5.44	1.80E-03
ENSG00000180777	<i>ANKRD30B</i>	10.37	0.25	5.43	3.68E-04
ENSG00000142149	<i>HUNK</i>	31.06	0.69	5.43	1.45E-04
ENSG00000275140	<i>SEC22B3P</i>	1.21	0.00	5.43	6.96E-04
ENSG00000135480	<i>KRT7</i>	50.87	1.24	5.43	8.28E-05
ENSG00000078053	<i>AMPH</i>	55.11	1.44	5.42	1.75E-04
ENSG00000144227	<i>NXPH2</i>	6.53	0.25	5.42	2.41E-03
ENSG00000188015	<i>S100A3</i>	30.84	0.73	5.42	9.31E-05
ENSG00000184347	<i>SLIT3</i>	48.07	1.11	5.41	1.91E-04
ENSG00000107984	<i>DKK1</i>	181.46	4.03	5.41	2.47E-04
ENSG00000157168	<i>NRG1</i>	88.15	2.11	5.41	1.70E-04
ENSG00000013297	<i>CLDN11</i>	188.41	4.71	5.40	6.19E-05
ENSG00000047617	<i>ANO2</i>	8.41	0.16	5.39	3.72E-04
ENSG00000178752	<i>ERFE</i>	7.87	0.19	5.39	5.26E-04
ENSG00000180537	<i>RNF182</i>	20.30	0.50	5.39	3.41E-04
ENSG00000147642	<i>SYBU</i>	26.27	0.57	5.38	6.00E-03
ENSG00000124260	<i>MAGEA10</i>	17.39	0.29	5.37	4.64E-03
ENSG00000130176	<i>CNN1</i>	47.08	1.20	5.36	1.03E-04
ENSG00000182272	<i>B4GALNT4</i>	22.12	0.96	5.36	1.83E-03
ENSG00000173705	<i>SUSD5</i>	48.25	1.29	5.34	1.24E-04
ENSG00000125726	<i>CD70</i>	33.23	0.80	5.33	3.02E-04
ENSG00000164220	<i>F2RL2</i>	26.66	0.99	5.33	1.14E-03
ENSG00000140416	<i>TPM1</i>	2122.57	54.19	5.32	2.92E-05
ENSG00000143469	<i>SYT14</i>	40.96	1.03	5.29	7.76E-05
ENSG00000183873	<i>SCN5A</i>	22.56	0.70	5.28	8.29E-04
ENSG00000102452	<i>NALCN</i>	19.14	0.61	5.28	3.29E-04
ENSG00000146530	<i>VWDE</i>	10.29	0.32	5.28	1.89E-03
ENSG00000011426	<i>ANLN</i>	234.70	6.43	5.28	6.37E-05
ENSG00000100626	<i>GALNT16</i>	29.55	0.90	5.27	2.20E-04
ENSG00000163064	<i>EN1</i>	1.01	0.00	5.27	6.91E-04
ENSG00000136231	<i>IGF2BP3</i>	67.31	1.64	5.27	1.79E-03
ENSG00000178401	<i>DNAJC22</i>	34.65	1.68	5.26	1.08E-03
ENSG00000101938	<i>CHRD1</i>	86.86	1.88	5.25	6.42E-03
ENSG00000204335	<i>SP5</i>	0.92	0.00	5.25	5.39E-04
ENSG00000153253	<i>SCN3A</i>	19.71	1.01	5.24	1.83E-03
ENSG00000006377	<i>DLX6</i>	7.57	0.20	5.24	1.62E-03
ENSG00000142910	<i>TINAGL1</i>	107.42	2.84	5.23	2.05E-04
ENSG00000108821	<i>COL1A1</i>	14143.53	691.27	5.20	1.94E-03
ENSG00000069011	<i>PITX1</i>	16.55	0.57	5.20	4.88E-04
ENSG00000198074	<i>AKR1B10</i>	5.35	0.16	5.20	1.55E-03
ENSG00000170166	<i>HOXD4</i>	4.16	0.19	5.19	3.20E-03
ENSG00000151090	<i>THRB</i>	13.59	0.48	5.17	6.50E-04
ENSG00000187398	<i>LUZP2</i>	3.77	0.11	5.16	2.26E-03
ENSG00000052850	<i>ALX4</i>	4.19	0.10	5.15	5.27E-03
ENSG00000240694	<i>PNMA2</i>	92.81	2.49	5.15	1.35E-03
ENSG00000150551	<i>LYPD1</i>	20.18	0.44	5.14	1.70E-03
ENSG00000163430	<i>FSTL1</i>	3195.34	90.22	5.13	6.52E-05
ENSG00000253569	<i>VENTXP5</i>	0.82	0.00	5.12	6.15E-04
ENSG00000136267	<i>DGKB</i>	11.14	0.40	5.11	8.78E-04
ENSG00000181544	<i>FANCB</i>	2.84	0.07	5.11	1.05E-03
ENSG00000197977	<i>ELOVL2</i>	28.64	0.82	5.11	5.22E-04

ENSG00000283283		3.71	0.13	5.09	2.17E-03
ENSG00000291133		18.78	0.57	5.08	1.95E-04
ENSG00000119771	<i>KLHL29</i>	39.74	1.12	5.06	1.25E-04
ENSG00000151892	<i>GFRA1</i>	48.82	1.67	5.04	5.56E-03
ENSG00000112379	<i>ARFGEF3</i>	63.91	2.13	5.04	1.28E-04
ENSG00000272410		4.06	0.91	5.04	2.40E-02
ENSG00000187123	<i>LYPD6</i>	9.62	0.47	5.03	2.57E-03
ENSG00000177462	<i>OR2T8</i>	1.51	0.03	5.01	4.22E-03
ENSG00000152377	<i>SPOCK1</i>	365.25	13.60	4.99	2.93E-04
ENSG00000196876	<i>SCN8A</i>	60.52	1.94	4.97	1.28E-04
ENSG00000129514	<i>FOXA1</i>	5.09	0.12	4.97	8.27E-04
ENSG00000115107	<i>STEAP3</i>	347.16	12.40	4.97	8.71E-05
ENSG00000149403	<i>GRIK4</i>	6.72	0.20	4.94	3.53E-04
ENSG00000184838	<i>PRR16</i>	46.58	1.58	4.94	3.22E-04
ENSG00000055813	<i>CCDC85A</i>	22.32	0.73	4.93	3.08E-04
ENSG00000066032	<i>CTNNA2</i>	6.52	0.26	4.93	8.29E-04
ENSG00000186847	<i>KRT14</i>	0.92	0.01	4.92	6.17E-04
ENSG00000179292	<i>TMEM151A</i>	4.44	0.24	4.92	3.97E-03
ENSG00000188848	<i>BEND4</i>	14.71	0.45	4.91	1.42E-03
ENSG00000124785	<i>NRN1</i>	29.34	1.04	4.91	1.95E-04
ENSG00000081051	<i>AFP</i>	2.27	0.06	4.90	5.59E-04
ENSG00000115297	<i>TLX2</i>	1.67	0.04	4.89	1.18E-03
ENSG00000100302	<i>RASD2</i>	17.34	0.56	4.89	1.62E-04
ENSG00000066279	<i>ASPM</i>	95.17	3.89	4.89	4.21E-04
ENSG00000174945	<i>AMZ1</i>	69.49	1.95	4.87	2.88E-03
ENSG00000254818		4.96	0.18	4.87	1.18E-03
ENSG00000103056	<i>SMPD3</i>	64.58	3.31	4.85	6.26E-04
ENSG00000138311	<i>ZNF365</i>	15.89	0.56	4.84	2.17E-04
ENSG00000167105	<i>TMEM92</i>	1.45	0.07	4.84	3.74E-03
ENSG00000105974	<i>CAV1</i>	416.52	13.42	4.83	2.09E-04
ENSG00000102466	<i>FGF14</i>	5.04	0.22	4.83	1.11E-02
ENSG00000161896	<i>IP6K3</i>	1.63	0.09	4.81	7.24E-03
ENSG00000132692	<i>BCAN</i>	6.40	0.27	4.81	9.58E-04
ENSG00000186193	<i>SAPCD2</i>	32.59	1.18	4.81	1.57E-04
ENSG00000111057	<i>KRT18</i>	2401.43	83.46	4.81	5.67E-05
ENSG00000150625	<i>GPM6A</i>	3.15	0.12	4.79	1.06E-03
ENSG00000122691	<i>TWIST1</i>	59.10	2.24	4.79	4.72E-04
ENSG00000150782	<i>IL18</i>	47.64	1.97	4.76	2.82E-03
ENSG00000206538	<i>VGLL3</i>	139.16	5.08	4.73	6.40E-04
ENSG00000119280	<i>C1orf198</i>	398.62	15.20	4.71	6.19E-05
ENSG00000177098	<i>SCN4B</i>	9.37	0.35	4.71	8.67E-04
ENSG00000144152	<i>FBLN7</i>	21.40	0.83	4.70	2.70E-04
ENSG00000215030	<i>RPL13P12</i>	2.16	0.07	4.70	4.64E-03
ENSG00000266265	<i>KLF14</i>	3.28	0.11	4.69	7.68E-03
ENSG00000240661	<i>LRRC58-DT</i>	2.33	0.07	4.69	4.29E-03
ENSG00000178999	<i>AURKB</i>	20.48	1.06	4.67	6.50E-04
ENSG00000134198	<i>TSPAN2</i>	19.58	0.87	4.66	3.09E-04
ENSG00000119946	<i>CNNM1</i>	34.45	1.51	4.66	2.39E-04
ENSG00000128713	<i>HOXD11</i>	1.79	0.08	4.66	2.75E-03
ENSG00000196549	<i>MME</i>	251.35	11.10	4.66	2.87E-04
ENSG00000158104	<i>HPD</i>	5.89	0.25	4.65	4.18E-03
ENSG00000241104	<i>CEACAMP10</i>	1.62	0.04	4.63	2.95E-03
ENSG00000166396	<i>SERPINB7</i>	2.01	0.05	4.63	6.76E-03
ENSG00000176399	<i>DMRTA1</i>	5.41	0.27	4.62	1.26E-03
ENSG00000172927	<i>MYEOV</i>	3.97	0.18	4.61	1.22E-03
ENSG00000254471		0.85	0.02	4.61	1.35E-03
ENSG00000139209	<i>SLC38A4</i>	15.75	0.65	4.61	6.60E-04
ENSG00000103888	<i>CEMIP</i>	1214.10	44.76	4.59	2.55E-03

ENSG00000144908	<i>ALDH1L1</i>	17.55	0.82	4.59	8.24E-04
ENSG00000112902	<i>SEMA5A</i>	172.40	8.86	4.59	3.43E-04
ENSG00000227120		1.32	0.05	4.58	1.95E-03
ENSG00000235959		1.32	0.05	4.58	1.95E-03
ENSG00000183856	<i>IQGAP3</i>	47.94	2.21	4.57	7.13E-04
ENSG00000055732	<i>MCOLN3</i>	23.95	1.07	4.57	3.52E-04
ENSG00000099260	<i>PALMD</i>	76.75	4.10	4.56	1.08E-03
ENSG00000174136	<i>RGMB</i>	141.57	6.16	4.54	6.19E-05
ENSG00000154864	<i>PIEZO2</i>	427.27	19.67	4.54	1.62E-04
ENSG00000123485	<i>HJURP</i>	39.87	1.81	4.53	1.50E-04
ENSG00000267281	<i>ATF7-NPFF</i>	0.96	0.03	4.53	2.41E-03
ENSG00000135549	<i>PKIB</i>	7.67	0.29	4.52	4.87E-04
ENSG00000079931	<i>MOXD1</i>	28.81	1.79	4.52	1.34E-03
ENSG00000278662	<i>GOLGA6L10</i>	2.10	0.34	4.51	2.54E-02
ENSG00000168994	<i>PXDC1</i>	226.37	10.72	4.50	1.70E-04
ENSG00000138798	<i>EGF</i>	6.38	0.35	4.49	1.49E-03
ENSG00000170537	<i>TMC7</i>	8.30	0.40	4.48	1.25E-03
ENSG00000186185	<i>KIF18B</i>	31.21	1.72	4.48	5.75E-04
ENSG00000144891	<i>AGTR1</i>	8.62	0.45	4.48	1.15E-03
ENSG00000162591	<i>MEGF6</i>	227.76	10.16	4.46	3.90E-04
ENSG00000165480	<i>SKA3</i>	19.66	0.99	4.46	2.90E-04
ENSG00000104321	<i>TRPA1</i>	34.39	1.60	4.46	4.78E-03
ENSG00000048052	<i>HDAC9</i>	65.79	2.97	4.46	6.19E-05
ENSG00000131747	<i>TOP2A</i>	185.77	9.85	4.45	6.15E-04
ENSG00000259316		13.68	0.55	4.45	6.26E-04
ENSG00000178860	<i>MSC</i>	217.00	9.89	4.44	2.44E-04
ENSG00000286015		0.78	0.02	4.44	1.92E-03
ENSG00000092969	<i>TGFB2</i>	74.74	3.78	4.43	1.99E-04
ENSG00000150938	<i>CRIM1</i>	785.74	35.37	4.42	6.99E-05
ENSG00000005884	<i>ITGA3</i>	2103.47	94.48	4.42	8.03E-05
ENSG00000161040	<i>FBXL13</i>	5.78	0.31	4.42	2.48E-03
ENSG00000104432	<i>IL7</i>	8.48	0.43	4.41	4.87E-04
ENSG00000156535	<i>CD109</i>	91.56	4.51	4.41	1.93E-04
ENSG00000226065	<i>ZBTB45P2</i>	6.00	0.60	4.41	1.60E-02
ENSG00000115648	<i>MLPH</i>	25.71	1.27	4.40	7.13E-04
ENSG00000092758	<i>COL9A3</i>	13.37	0.63	4.40	3.14E-04
ENSG00000290778		0.85	0.03	4.40	2.73E-03
ENSG00000166106	<i>ADAMTS15</i>	23.63	1.10	4.40	1.37E-04
ENSG00000165887	<i>ANKRD2</i>	2.37	0.18	4.40	7.10E-03
ENSG00000147027	<i>TMEM47</i>	116.68	6.33	4.39	2.71E-04
ENSG00000163531	<i>NFASC</i>	66.84	2.39	4.39	2.47E-02
ENSG00000074211	<i>PPP2R2C</i>	3.44	0.10	4.38	6.17E-03
ENSG00000154736	<i>ADAMTS5</i>	79.24	3.86	4.38	1.10E-03
ENSG00000169184	<i>MN1</i>	45.02	2.24	4.37	2.02E-04
ENSG00000134259	<i>NGF</i>	20.61	1.02	4.35	1.76E-04
ENSG00000104369	<i>JPH1</i>	4.49	0.18	4.35	1.30E-03
ENSG00000106772	<i>PRUNE2</i>	173.96	8.70	4.35	6.37E-05
ENSG00000165244	<i>ZNF367</i>	21.37	1.05	4.35	2.04E-03
ENSG00000139220	<i>PPFIA2</i>	1.96	0.15	4.35	6.45E-03
ENSG00000147041	<i>SYTL5</i>	9.96	0.50	4.34	7.76E-04
ENSG00000111341	<i>MGP</i>	63.67	4.40	4.34	1.40E-03
ENSG00000159556	<i>ISL2</i>	2.98	0.14	4.34	1.08E-03
ENSG00000148948	<i>LRRC4C</i>	2.57	0.11	4.32	1.00E-03
ENSG00000136153	<i>LMO7</i>	259.05	12.49	4.32	1.01E-04
ENSG00000172260	<i>NEGR1</i>	34.51	1.75	4.32	2.28E-04
ENSG00000129195	<i>PIMREG</i>	26.04	1.47	4.31	6.97E-04
ENSG00000117399	<i>CDC20</i>	64.10	3.71	4.30	1.41E-03
ENSG00000112984	<i>KIF20A</i>	42.19	2.46	4.29	1.06E-03

ENSG00000154553	<i>PDLIM3</i>	72.61	5.03	4.29	7.92E-04
ENSG00000214076	<i>CPSF1P1</i>	2.57	0.13	4.29	1.53E-03
ENSG00000145386	<i>CCNA2</i>	83.24	4.40	4.29	2.02E-04
ENSG00000164741	<i>DLC1</i>	129.99	7.37	4.28	2.71E-04
ENSG00000128591	<i>FLNC</i>	845.75	41.75	4.28	1.08E-04
ENSG00000151789	<i>ZNF385D</i>	20.85	1.29	4.28	7.94E-03
ENSG00000112499	<i>SLC22A2</i>	1.80	0.09	4.28	5.41E-03
ENSG00000129173	<i>E2F8</i>	7.89	0.40	4.27	3.57E-04
ENSG00000138669	<i>PRKG2</i>	9.76	0.46	4.26	3.75E-03
ENSG00000114019	<i>AMOTL2</i>	515.68	27.94	4.26	6.59E-05
ENSG00000144278	<i>GALNT13</i>	7.58	0.37	4.25	1.47E-02
ENSG00000164619	<i>BMPER</i>	39.97	2.63	4.24	1.34E-03
ENSG00000181019	<i>NQO1</i>	822.12	47.17	4.23	4.47E-04
ENSG00000169607	<i>CKAP2L</i>	24.09	1.54	4.23	1.11E-03
ENSG00000126785	<i>RHOJ</i>	20.30	1.90	4.23	2.30E-03
ENSG00000204941	<i>PSG5</i>	10.67	0.51	4.23	2.46E-03
ENSG00000101447	<i>FAM83D</i>	28.17	1.56	4.22	5.26E-04
ENSG00000144366	<i>GULP1</i>	52.76	2.85	4.22	1.70E-04
ENSG00000169129	<i>AFAP1L2</i>	39.44	2.29	4.21	1.70E-04
ENSG00000120075	<i>HOXB5</i>	3.55	0.18	4.21	7.22E-04
ENSG00000158089	<i>GALNT14</i>	9.92	0.49	4.20	5.75E-04
ENSG00000144476	<i>ACKR3</i>	110.76	6.86	4.20	1.82E-04
ENSG00000182492	<i>BGN</i>	245.14	16.94	4.20	4.43E-04
ENSG00000111319	<i>SCNN1A</i>	14.44	0.85	4.20	1.34E-03
ENSG00000138772	<i>ANXA3</i>	99.77	6.02	4.19	3.92E-04
ENSG00000168078	<i>PBK</i>	27.88	1.73	4.18	7.50E-04
ENSG00000138685	<i>FGF2</i>	142.83	7.87	4.18	5.67E-05
ENSG00000177459	<i>ERICH5</i>	10.41	0.70	4.17	1.15E-03
ENSG00000167900	<i>TK1</i>	58.76	4.01	4.17	4.16E-04
ENSG00000007933	<i>FMO3</i>	2.14	0.11	4.17	2.00E-02
ENSG00000188549	<i>CCDC9B</i>	144.89	8.15	4.16	7.63E-04
ENSG00000174899	<i>SLC66A1L</i>	1.99	0.09	4.16	1.84E-03
ENSG00000138395	<i>CDK15</i>	2.77	0.08	4.16	1.47E-02
ENSG00000135069	<i>PSAT1</i>	329.07	17.44	4.16	6.14E-04
ENSG00000072163	<i>LIMS2</i>	32.59	2.20	4.14	6.91E-04
ENSG00000137804	<i>NUSAP1</i>	40.88	2.31	4.14	2.90E-04
ENSG00000156463	<i>SH3RF2</i>	67.12	3.52	4.13	6.00E-04
ENSG00000182667	<i>NTM</i>	3.20	0.26	4.12	1.95E-02
ENSG00000177106	<i>EPS8L2</i>	70.28	4.01	4.12	1.04E-04
ENSG00000146147	<i>MLIP</i>	3.26	0.16	4.12	3.76E-03
ENSG00000105290	<i>APLP1</i>	25.69	1.56	4.12	2.17E-04
ENSG00000251664	<i>PCDHA12</i>	1.56	0.09	4.11	7.11E-03
ENSG00000106034	<i>CPED1</i>	62.50	3.62	4.11	1.28E-04
ENSG00000145632	<i>PLK2</i>	283.01	14.87	4.10	4.51E-04
ENSG00000105011	<i>ASF1B</i>	21.35	1.18	4.10	3.78E-04
ENSG00000171848	<i>RRM2</i>	91.99	5.38	4.09	6.99E-05
ENSG00000198929	<i>NOS1AP</i>	4.45	0.26	4.09	2.02E-03
ENSG00000169851	<i>PCDH7</i>	36.51	1.46	4.09	4.31E-02
ENSG00000204060	<i>FOXO6</i>	1.99	0.15	4.08	8.87E-03
ENSG00000147100	<i>SLC16A2</i>	123.15	7.71	4.08	6.79E-04
ENSG00000065328	<i>MCM10</i>	17.17	1.03	4.08	1.08E-03
ENSG00000135451	<i>TROAP</i>	21.89	1.37	4.08	8.81E-04
ENSG00000147509	<i>RGS20</i>	4.37	0.25	4.08	9.80E-03
ENSG00000089685	<i>BIRC5</i>	47.73	3.68	4.08	1.09E-03
ENSG00000184349	<i>EFNA5</i>	11.96	0.74	4.08	3.70E-04
ENSG00000227051	<i>C14orf132</i>	62.95	3.78	4.07	2.36E-04
ENSG00000143228	<i>NUF2</i>	22.16	1.57	4.07	8.11E-04
ENSG00000253910	<i>PCDHGB2</i>	13.61	0.92	4.07	1.46E-03

ENSG00000127324	<i>TSPAN8</i>	32.77	2.13	4.07	1.48E-03
ENSG00000276023	<i>DUSP14</i>	2.16	0.11	4.07	2.24E-02
ENSG00000180801	<i>ARSJ</i>	31.69	1.90	4.06	1.66E-04
ENSG00000126016	<i>AMOT</i>	21.55	1.31	4.05	7.10E-04
ENSG00000241186	<i>TDGF1</i>	1.34	0.20	4.05	2.91E-02
ENSG00000117152	<i>RGS4</i>	312.72	18.34	4.05	9.01E-05
ENSG00000121690	<i>DEPDC7</i>	7.57	0.43	4.04	3.51E-04
ENSG00000116254	<i>CHD5</i>	1.72	0.12	4.04	8.75E-03
ENSG00000145242	<i>EPHA5</i>	28.50	2.39	4.04	3.28E-03
ENSG00000081923	<i>ATP8B1</i>	102.31	6.79	4.04	3.08E-04
ENSG00000117069	<i>ST6GALNAC5</i>	31.07	1.61	4.04	1.32E-03
ENSG00000128610	<i>FEZF1</i>	0.91	0.04	4.04	4.90E-03
ENSG00000107282	<i>APBA1</i>	18.96	0.98	4.04	7.69E-03
ENSG00000112378	<i>PERP</i>	66.37	3.79	4.04	1.24E-03
ENSG00000106688	<i>SLC1A1</i>	102.52	6.66	4.04	4.28E-04
ENSG00000126787	<i>DLGAP5</i>	33.19	2.02	4.03	1.95E-03
ENSG00000168077	<i>SCARA3</i>	23.63	1.68	4.03	5.55E-04
ENSG00000090889	<i>KIF4A</i>	26.08	1.90	4.03	1.08E-03
ENSG00000173210	<i>ABLIM3</i>	94.72	5.73	4.03	1.99E-04
ENSG00000168497	<i>CAVIN2</i>	33.41	2.68	4.03	2.27E-03
ENSG00000068489	<i>PRR11</i>	65.40	3.96	4.01	7.49E-04
ENSG00000185742	<i>C11orf87</i>	1.79	0.15	4.01	9.02E-03
ENSG00000162458	<i>FBLIM1</i>	265.31	18.14	4.00	4.87E-04
ENSG00000227992		1.28	0.08	4.00	8.38E-03
ENSG00000135324	<i>MRAP2</i>	8.98	0.46	3.99	1.27E-02
ENSG00000088726	<i>TMEM40</i>	4.20	0.23	3.99	1.27E-03
ENSG00000138180	<i>CEP55</i>	52.03	3.25	3.99	2.71E-03
ENSG00000155816	<i>FMN2</i>	68.28	4.30	3.97	3.43E-04
ENSG00000117650	<i>NEK2</i>	12.94	0.84	3.97	8.24E-04
ENSG00000109805	<i>NCAPG</i>	56.08	3.66	3.97	1.43E-04
ENSG00000180806	<i>HOXC9</i>	12.56	0.96	3.96	1.17E-03
ENSG00000169903	<i>TM4SF4</i>	1.18	0.09	3.96	8.72E-03
ENSG00000118193	<i>KIF14</i>	23.51	1.84	3.96	1.11E-03
ENSG00000239887	<i>C1orf226</i>	7.84	0.51	3.95	3.65E-04
ENSG00000135116	<i>HRK</i>	3.95	0.18	3.95	1.77E-02
ENSG00000154319	<i>FAM167A</i>	9.02	0.68	3.95	1.17E-03
ENSG00000214357	<i>NEURL1B</i>	31.10	2.25	3.95	6.15E-04
ENSG00000148773	<i>MKI67</i>	142.69	9.51	3.95	1.34E-04
ENSG00000148848	<i>ADAM12</i>	315.71	20.64	3.94	1.63E-04
ENSG00000184661	<i>CDCA2</i>	15.88	1.19	3.94	8.87E-04
ENSG00000121039	<i>RDH10</i>	278.12	13.86	3.94	3.73E-03
ENSG00000182379	<i>NXPH4</i>	13.44	0.78	3.93	7.01E-04
ENSG00000137273	<i>FOXF2</i>	1.72	0.10	3.93	2.75E-03
ENSG00000054793	<i>ATP9A</i>	116.53	7.89	3.92	1.45E-04
ENSG00000166546	<i>BEAN1</i>	6.77	0.43	3.91	5.07E-04
ENSG00000177283	<i>FZD8</i>	58.37	4.41	3.91	4.51E-04
ENSG00000111665	<i>CDCA3</i>	26.61	2.03	3.91	1.38E-03
ENSG00000078018	<i>MAP2</i>	62.72	4.17	3.91	9.65E-04
ENSG00000196526	<i>AFAP1</i>	195.40	13.13	3.90	6.19E-05
ENSG00000283154	<i>IQCJ-SCHIP1</i>	42.30	2.90	3.90	1.34E-04
ENSG00000127564	<i>PKMYT1</i>	22.84	1.42	3.90	5.96E-04
ENSG00000120149	<i>MSX2</i>	4.26	0.31	3.89	1.70E-03
ENSG00000111206	<i>FOXM1</i>	76.02	5.08	3.89	8.06E-04
ENSG00000100625	<i>SIX4</i>	15.46	1.11	3.89	3.71E-04
ENSG00000107249	<i>GLIS3</i>	54.88	4.01	3.86	2.09E-04
ENSG00000144583	<i>MARCHF4</i>	8.03	0.61	3.86	3.29E-03
ENSG00000138944	<i>SHISAL1</i>	5.79	0.40	3.86	6.60E-03
ENSG00000187642	<i>PERM1</i>	0.91	0.06	3.86	6.13E-03

ENSG00000146267	<i>FAXC</i>	5.85	0.70	3.86	5.51E-03
ENSG00000189184	<i>PCDH18</i>	23.83	1.82	3.85	4.51E-04
ENSG00000074047	<i>GLI2</i>	38.23	3.70	3.85	4.76E-03
ENSG00000128606	<i>LRRC17</i>	32.69	2.94	3.84	3.86E-03
ENSG00000176092	<i>CRYBG2</i>	3.66	0.25	3.84	1.08E-03
ENSG00000150687	<i>PRSS23</i>	1846.38	133.48	3.83	6.37E-05
ENSG00000187720	<i>THSD4</i>	51.55	3.41	3.83	3.39E-03
ENSG00000152137	<i>HSPB8</i>	58.71	4.16	3.82	2.11E-04
ENSG00000158246	<i>TENT5B</i>	6.55	0.45	3.82	3.76E-04
ENSG00000129116	<i>PALLD</i>	906.71	69.22	3.82	1.53E-04
ENSG00000115718	<i>PROC</i>	4.10	0.28	3.82	1.16E-03
ENSG00000085276	<i>MECOM</i>	33.53	2.33	3.82	5.47E-04
ENSG00000197415	<i>VEPH1</i>	17.75	1.31	3.81	2.70E-04
ENSG00000157456	<i>CCNB2</i>	35.04	2.57	3.81	5.86E-03
ENSG00000169126	<i>ODAD2</i>	6.44	0.89	3.81	2.34E-02
ENSG00000230650		3.65	0.23	3.80	2.54E-02
ENSG00000157680	<i>DGKI</i>	23.93	1.46	3.80	1.29E-02
ENSG00000141433	<i>ADCYAP1</i>	2.00	0.16	3.80	6.12E-03
ENSG00000185090	<i>MANEAL</i>	24.90	1.78	3.79	1.44E-04
ENSG00000183668	<i>PSG9</i>	2.35	0.10	3.79	2.17E-02
ENSG00000151693	<i>ASAP2</i>	88.66	6.48	3.79	7.31E-05
ENSG00000198796	<i>ALPK2</i>	125.08	9.42	3.78	7.24E-05
ENSG00000174371	<i>EXO1</i>	15.23	1.23	3.78	7.15E-04
ENSG00000284956		0.87	0.06	3.77	5.84E-03
ENSG00000143476	<i>DTL</i>	19.77	1.71	3.77	3.52E-03
ENSG00000115163	<i>CENPA</i>	12.49	1.19	3.77	6.29E-03
ENSG00000175063	<i>UBE2C</i>	36.20	2.99	3.77	1.22E-03
ENSG00000112186	<i>CAP2</i>	86.82	6.41	3.76	1.77E-04
ENSG00000156970	<i>BUB1B</i>	29.26	2.20	3.76	1.82E-04
ENSG00000189337	<i>KAZN</i>	50.86	3.77	3.76	1.07E-04
ENSG00000115361	<i>ACADL</i>	6.23	0.53	3.75	1.34E-03
ENSG00000109819	<i>PPARGC1A</i>	13.42	1.14	3.74	2.89E-03
ENSG00000080493	<i>SLC4A4</i>	17.04	0.88	3.74	1.20E-02
ENSG00000133216	<i>EPHB2</i>	101.60	7.56	3.74	6.19E-05
ENSG00000164330	<i>EBF1</i>	40.86	3.23	3.74	1.82E-04
ENSG00000241634		1.05	0.10	3.74	1.04E-02
ENSG00000128652	<i>HOXD3</i>	4.93	0.65	3.73	1.68E-02
ENSG00000087245	<i>MMP2</i>	211.99	18.01	3.72	2.68E-04
ENSG00000120913	<i>PDLIM2</i>	200.42	16.26	3.72	1.56E-04
ENSG00000124766	<i>SOX4</i>	220.70	16.78	3.71	5.67E-05
ENSG00000116035	<i>VAX2</i>	1.47	0.17	3.71	1.50E-02
ENSG00000186340	<i>THBS2</i>	302.19	21.46	3.71	6.55E-03
ENSG00000237649	<i>KIFC1</i>	30.44	2.74	3.71	1.07E-03
ENSG00000007062	<i>PROM1</i>	4.48	0.34	3.71	1.32E-02
ENSG00000140451	<i>PIF1</i>	13.86	1.36	3.70	1.36E-03
ENSG00000076344	<i>RGS11</i>	2.87	0.17	3.70	1.77E-02
ENSG00000182809	<i>CRIP2</i>	51.70	4.62	3.70	3.74E-04
ENSG00000142945	<i>KIF2C</i>	38.56	3.36	3.70	1.63E-03
ENSG00000099864	<i>PALM</i>	19.89	1.61	3.70	2.60E-03
ENSG00000130768	<i>SMPDL3B</i>	5.10	0.46	3.69	1.87E-03
ENSG00000184497	<i>TMEM255B</i>	56.07	4.04	3.68	6.18E-04
ENSG00000159231	<i>CBR3</i>	14.81	1.40	3.68	1.16E-03
ENSG00000047936	<i>ROS1</i>	3.66	0.24	3.68	5.13E-03
ENSG00000172403	<i>SYNPO2</i>	62.85	4.83	3.67	1.18E-04
ENSG00000133816	<i>MICAL2</i>	631.33	50.61	3.66	6.19E-05
ENSG00000234409	<i>CCDC188</i>	5.40	0.44	3.66	9.52E-04
ENSG00000196139	<i>AKR1C3</i>	80.66	7.23	3.66	1.15E-03
ENSG00000093009	<i>CDC45</i>	19.06	1.73	3.65	6.05E-04

ENSG00000122786	<i>CALD1</i>	1476.89	110.66	3.65	2.36E-04
ENSG00000101057	<i>MYBL2</i>	40.40	4.03	3.63	7.06E-04
ENSG00000140538	<i>NTRK3</i>	8.33	0.51	3.63	5.51E-03
ENSG00000139874	<i>SSTR1</i>	41.09	3.41	3.62	1.05E-02
ENSG00000124212	<i>PTGIS</i>	278.48	28.84	3.62	2.26E-03
ENSG00000198901	<i>PRC1</i>	69.71	5.86	3.61	2.95E-04
ENSG00000101115	<i>SALL4</i>	2.09	0.28	3.61	3.31E-02
ENSG00000105997	<i>HOXA3</i>	7.15	0.60	3.61	7.00E-04
ENSG00000140945	<i>CDH13</i>	141.92	12.47	3.61	1.52E-04
ENSG00000161714	<i>PLCD3</i>	167.79	14.73	3.61	1.37E-04
ENSG00000148082	<i>SHC3</i>	9.32	0.69	3.60	1.22E-02
ENSG00000142611	<i>PRDM16</i>	8.24	0.83	3.60	2.51E-03
ENSG00000167601	<i>AXL</i>	773.79	63.36	3.59	6.37E-05
ENSG00000171533	<i>MAP6</i>	1.92	0.23	3.59	3.18E-02
ENSG00000180340	<i>FZD2</i>	47.24	4.27	3.58	2.60E-04
ENSG00000112139	<i>MDGA1</i>	77.64	7.13	3.58	6.89E-03
ENSG00000167767	<i>KRT80</i>	284.23	26.00	3.58	5.68E-04
ENSG00000136010	<i>ALDH1L2</i>	135.93	11.30	3.58	1.06E-03
ENSG00000166450	<i>PRTG</i>	17.82	1.40	3.57	4.19E-04
ENSG00000105929	<i>ATP6V0A4</i>	6.62	0.99	3.57	7.70E-03
ENSG00000131080	<i>EDA2R</i>	38.65	3.32	3.55	1.44E-04
ENSG00000165152	<i>PGAP4</i>	28.22	2.79	3.55	1.55E-03
ENSG00000138829	<i>FBN2</i>	94.45	11.05	3.55	1.59E-03
ENSG00000106006	<i>HOXA6</i>	0.66	0.05	3.55	6.29E-03
ENSG00000100526	<i>CDKN3</i>	20.25	1.89	3.55	4.83E-03
ENSG00000091622	<i>PITPNM3</i>	75.83	6.25	3.54	3.43E-04
ENSG00000134874	<i>DZIP1</i>	42.37	3.79	3.54	1.76E-04
ENSG00000269113	<i>TRABD2B</i>	1.58	0.18	3.54	3.11E-02
ENSG00000182010	<i>RTKN2</i>	25.01	2.30	3.54	3.10E-04
ENSG00000112742	<i>TTK</i>	19.52	1.85	3.54	1.95E-03
ENSG00000013588	<i>GPRC5A</i>	77.92	7.08	3.53	2.30E-04
ENSG00000165105	<i>RASEF</i>	19.60	1.57	3.53	1.51E-03
ENSG00000290445	<i>CCNYL2</i>	2.71	0.25	3.53	3.12E-03
ENSG00000164176	<i>EDIL3</i>	770.79	67.70	3.53	5.67E-05
ENSG00000189127	<i>ANKRD34B</i>	1.03	0.13	3.53	2.48E-02
ENSG00000115884	<i>SDC1</i>	48.11	4.35	3.52	1.62E-04
ENSG00000134690	<i>CDCA8</i>	27.27	2.47	3.52	7.66E-04
ENSG00000065054	<i>SLC9A3R2</i>	59.45	5.85	3.52	3.43E-04
ENSG00000164142	<i>FHIP1A</i>	18.19	1.52	3.52	2.32E-03
ENSG00000002746	<i>HECW1</i>	1.28	0.16	3.52	1.92E-02
ENSG00000139200	<i>PIANP</i>	4.46	0.44	3.52	3.32E-03
ENSG00000185760	<i>KCNQ5</i>	22.80	1.89	3.51	4.19E-04
ENSG00000187079	<i>TEAD1</i>	394.16	34.20	3.51	5.67E-05
ENSG00000171320	<i>ESCO2</i>	11.83	1.02	3.50	4.43E-04
ENSG00000088325	<i>TPX2</i>	100.25	8.70	3.49	6.59E-04
ENSG00000139174	<i>PRICKLE1</i>	25.07	3.18	3.49	3.06E-03
ENSG00000163577	<i>EIF5A2</i>	70.40	7.08	3.49	3.71E-04
ENSG00000138778	<i>CENPE</i>	31.37	3.51	3.49	1.46E-03
ENSG00000144230	<i>GPR17</i>	1.82	0.15	3.49	4.66E-03
ENSG00000104899	<i>AMH</i>	19.56	1.77	3.49	5.00E-04
ENSG00000167513	<i>CDT1</i>	19.45	1.90	3.48	1.27E-03
ENSG00000123843	<i>C4BPB</i>	33.23	3.82	3.48	1.27E-03
ENSG00000272398	<i>CD24</i>	120.94	11.32	3.48	5.41E-04
ENSG00000170390	<i>DCLK2</i>	41.88	3.84	3.47	2.02E-04
ENSG00000157613	<i>CREB3L1</i>	153.13	13.56	3.46	5.15E-04
ENSG00000145861	<i>C1QTNF2</i>	3.56	0.27	3.46	2.55E-03
ENSG00000121743	<i>GJA3</i>	1.17	0.14	3.45	1.79E-02
ENSG00000153993	<i>SEMA3D</i>	11.07	1.17	3.45	2.50E-03

ENSG00000188153	<i>COL4A5</i>	174.76	17.36	3.44	2.27E-04
ENSG00000130762	<i>ARHGEF16</i>	28.69	2.81	3.44	2.30E-03
ENSG00000167779	<i>IGFBP6</i>	28.96	2.83	3.42	2.64E-04
ENSG00000100079	<i>LGALS2</i>	2.50	0.21	3.42	1.24E-03
ENSG00000257207		1.45	0.24	3.42	3.04E-02
ENSG00000188130	<i>MAPK12</i>	66.08	6.55	3.41	2.17E-04
ENSG00000168952	<i>STXBP6</i>	11.02	1.19	3.41	1.90E-03
ENSG00000243137	<i>PSG4</i>	1.56	0.13	3.40	1.19E-02
ENSG00000129474	<i>AJUBA</i>	154.64	14.80	3.40	6.37E-05
ENSG00000092853	<i>CLSPN</i>	31.14	2.39	3.40	5.26E-03
ENSG00000151725	<i>CENPU</i>	24.15	2.34	3.40	4.79E-04
ENSG00000178690	<i>DYNAP</i>	8.58	0.82	3.40	1.71E-03
ENSG00000079102	<i>RUNX1T1</i>	14.57	1.26	3.39	2.14E-02
ENSG00000075218	<i>GTSE1</i>	32.59	3.27	3.39	2.47E-04
ENSG00000249240		7.34	0.48	3.39	4.09E-02
ENSG00000129810	<i>SGO1</i>	7.88	0.84	3.39	1.91E-03
ENSG00000186871	<i>ERCC6L</i>	7.98	0.86	3.39	1.78E-03
ENSG00000138160	<i>KIF11</i>	52.95	5.18	3.38	1.70E-04
ENSG00000276043	<i>UHRF1</i>	81.86	7.36	3.38	5.53E-04
ENSG00000135454	<i>B4GALNT1</i>	18.83	2.19	3.38	1.27E-03
ENSG00000120093	<i>HOXB3</i>	23.92	2.47	3.37	6.13E-04
ENSG00000124839	<i>RAB17</i>	6.61	0.68	3.37	3.83E-03
ENSG00000158402	<i>CDC25C</i>	5.29	0.59	3.37	1.44E-02
ENSG00000107281	<i>NPDC1</i>	76.53	7.15	3.36	2.05E-04
ENSG00000253368	<i>TRNP1</i>	14.96	1.35	3.36	5.65E-04
ENSG00000165304	<i>MELK</i>	44.70	4.22	3.36	1.70E-03
ENSG00000120820	<i>GLT8D2</i>	10.24	1.00	3.35	1.87E-03
ENSG00000153132	<i>CLGN</i>	34.95	3.67	3.34	2.17E-03
ENSG00000225968	<i>ELFN1</i>	3.40	0.21	3.34	3.86E-02
ENSG00000137968	<i>SLC44A5</i>	11.31	1.35	3.34	1.63E-03
ENSG00000176697	<i>BDNF</i>	86.23	9.14	3.33	5.62E-04
ENSG00000139973	<i>SYT16</i>	11.96	1.03	3.33	2.91E-02
ENSG00000136999	<i>CCN3</i>	6.98	0.70	3.33	1.95E-03
ENSG00000169548	<i>ZNF280A</i>	1.25	0.12	3.33	3.81E-03
ENSG00000143195	<i>ILDR2</i>	23.24	1.88	3.33	9.90E-03
ENSG00000197956	<i>S100A6</i>	1372.65	138.07	3.33	6.19E-05
ENSG00000172458	<i>IL17D</i>	7.07	0.75	3.33	1.01E-03
ENSG00000214290	<i>COLCA2</i>	1.36	0.17	3.32	4.36E-02
ENSG00000169744	<i>LDB2</i>	20.99	3.56	3.32	7.11E-03
ENSG0000018625	<i>ATP1A2</i>	1.15	0.12	3.31	8.54E-03
ENSG00000137807	<i>KIF23</i>	72.12	7.53	3.31	1.96E-04
ENSG00000166073	<i>GPR176</i>	179.61	17.93	3.31	7.31E-05
ENSG00000175879	<i>HOXD8</i>	6.08	0.78	3.31	2.35E-02
ENSG00000147862	<i>NFIB</i>	60.48	6.93	3.30	3.98E-04
ENSG00000092621	<i>PHGDH</i>	311.40	29.70	3.30	8.99E-04
ENSG00000169085	<i>VXN</i>	1.76	0.24	3.30	1.29E-02
ENSG00000113361	<i>CDH6</i>	70.33	5.43	3.30	3.24E-02
ENSG00000008441	<i>NFIX</i>	198.87	20.79	3.29	2.23E-04
ENSG00000164930	<i>FZD6</i>	131.92	13.35	3.29	6.19E-05
ENSG00000142731	<i>PLK4</i>	16.99	1.79	3.29	4.80E-04
ENSG00000164181	<i>ELOVL7</i>	13.26	1.38	3.29	3.69E-04
ENSG00000128709	<i>HOXD9</i>	5.76	0.67	3.29	2.03E-03
ENSG00000111110	<i>PPM1H</i>	73.87	7.65	3.29	1.04E-04
ENSG00000064042	<i>LIMCH1</i>	367.85	39.94	3.29	3.61E-04
ENSG00000108797	<i>CNTNAP1</i>	91.04	9.12	3.28	2.50E-04
ENSG00000164743	<i>C8orf48</i>	5.16	0.55	3.28	1.97E-03
ENSG00000163520	<i>FBLN2</i>	207.86	22.38	3.28	2.20E-04
ENSG00000124920	<i>MYRF</i>	351.94	36.47	3.27	5.67E-05

ENSG00000111907	<i>TPD52L1</i>	42.64	5.07	3.27	8.22E-04
ENSG00000145147	<i>SLIT2</i>	79.11	9.11	3.27	6.10E-03
ENSG00000108854	<i>SMURF2</i>	284.29	29.60	3.27	5.67E-05
ENSG00000109610	<i>SOD3</i>	24.65	6.68	3.26	3.85E-02
ENSG00000155974	<i>GRIP1</i>	32.31	2.87	3.26	1.79E-02
ENSG00000113721	<i>PDGFRB</i>	181.36	23.63	3.26	1.99E-03
ENSG00000111339	<i>ART4</i>	2.01	0.16	3.26	2.62E-02
ENSG00000126603	<i>GLIS2</i>	59.02	5.85	3.26	3.84E-04
ENSG00000065534	<i>MYLK</i>	335.30	32.45	3.25	5.44E-04
ENSG00000077782	<i>FGFR1</i>	250.76	27.03	3.25	7.47E-04
ENSG00000162755	<i>KLHDC9</i>	2.85	0.26	3.24	3.22E-02
ENSG00000021826	<i>CPS1</i>	22.08	2.46	3.23	1.37E-03
ENSG00000176532	<i>PRR15</i>	6.97	0.65	3.23	1.63E-02
ENSG00000188620	<i>HMX3</i>	1.12	0.10	3.22	1.02E-02
ENSG00000188869	<i>TMC3</i>	14.94	1.41	3.22	1.14E-03
ENSG00000116039	<i>ATP6V1B1</i>	1.13	0.19	3.21	4.45E-02
ENSG00000133812	<i>SBF2</i>	312.58	28.80	3.21	1.22E-03
ENSG00000166803	<i>PCLAF</i>	32.31	3.70	3.21	1.59E-03
ENSG00000111247	<i>RAD51AP1</i>	18.09	2.03	3.21	3.57E-04
ENSG00000150471	<i>ADGRL3</i>	11.67	1.84	3.20	8.33E-03
ENSG00000164185	<i>ZNF474</i>	1.43	0.13	3.20	2.32E-02
ENSG00000153531	<i>ADPRHL1</i>	15.58	1.75	3.20	2.27E-03
ENSG00000114251	<i>WNT5A</i>	122.52	14.57	3.20	2.93E-04
ENSG00000089472	<i>HEPH</i>	35.59	4.03	3.19	2.83E-02
ENSG00000140044	<i>JDP2</i>	50.63	5.52	3.19	4.80E-04
ENSG00000137962	<i>ARHGAP29</i>	57.74	6.34	3.19	1.66E-04
ENSG00000082781	<i>ITGB5</i>	572.05	63.62	3.17	5.67E-05
ENSG00000134057	<i>CCNB1</i>	72.46	8.30	3.17	1.56E-03
ENSG00000133055	<i>MYBPH</i>	18.53	1.98	3.17	3.89E-02
ENSG00000080986	<i>NDC80</i>	22.74	2.59	3.16	3.63E-03
ENSG00000187244	<i>BCAM</i>	83.50	9.31	3.16	8.62E-04
ENSG00000149970	<i>CNKSR2</i>	22.98	2.27	3.16	8.65E-04
ENSG00000162643	<i>DNAI3</i>	1.28	0.18	3.16	1.07E-02
ENSG00000099957	<i>P2RX6</i>	27.61	4.33	3.15	4.71E-03
ENSG00000061455	<i>PRDM6</i>	6.13	0.93	3.14	8.88E-03
ENSG00000170775	<i>GPR37</i>	6.77	0.72	3.14	2.52E-03
ENSG00000156475	<i>PPP2R2B</i>	17.53	2.07	3.14	5.75E-04
ENSG00000132031	<i>MATN3</i>	4.71	0.53	3.14	5.04E-03
ENSG00000147036	<i>LANCL3</i>	6.19	0.67	3.14	3.73E-02
ENSG00000161888	<i>SPC24</i>	9.55	1.06	3.14	1.98E-03
ENSG00000121621	<i>KIF18A</i>	16.64	1.97	3.14	3.56E-03
ENSG00000072571	<i>HMMR</i>	26.73	3.14	3.13	1.25E-02
ENSG00000188611	<i>ASAH2</i>	6.29	0.69	3.13	8.84E-04
ENSG00000151388	<i>ADAMTS12</i>	60.18	7.50	3.12	4.34E-03
ENSG00000158856	<i>DMTN</i>	20.65	2.50	3.12	4.98E-04
ENSG00000178295	<i>GEN1</i>	57.59	7.11	3.12	5.22E-04
ENSG00000026559	<i>KCNG1</i>	18.06	2.07	3.11	2.02E-02
ENSG00000150627	<i>WDR17</i>	16.03	2.07	3.11	1.55E-03
ENSG00000234231	<i>ANAPC1P4</i>	11.51	1.50	3.11	7.76E-03
ENSG00000101871	<i>MID1</i>	99.86	11.99	3.10	1.82E-04
ENSG00000087586	<i>AURKA</i>	35.58	4.20	3.10	2.80E-04
ENSG00000291110	<i>TRIM16L</i>	43.47	5.15	3.10	6.80E-04
ENSG00000146670	<i>CDCA5</i>	24.15	2.98	3.10	3.82E-04
ENSG00000170312	<i>CDK1</i>	61.18	8.00	3.10	1.72E-03
ENSG00000165655	<i>ZNF503</i>	88.72	10.48	3.10	7.78E-05
ENSG00000150764	<i>DIXDC1</i>	43.77	5.42	3.09	5.47E-04
ENSG00000196369	<i>SRGAP2B</i>	61.51	7.76	3.09	3.63E-04
ENSG00000146006	<i>LRRTM2</i>	1.61	0.18	3.09	3.81E-03

ENSG00000169247	<i>SH3TC2</i>	7.38	0.77	3.09	1.82E-03
ENSG00000130635	<i>COL5A1</i>	1009.44	141.93	3.07	2.07E-03
ENSG00000125657	<i>TNFSF9</i>	29.31	3.90	3.07	1.22E-03
ENSG00000139880	<i>CDH24</i>	36.83	3.73	3.06	2.92E-03
ENSG00000105971	<i>CAV2</i>	167.25	20.13	3.05	8.03E-05
ENSG00000163431	<i>LMOD1</i>	9.31	0.90	3.05	1.30E-02
ENSG00000162576	<i>MXRA8</i>	120.40	15.16	3.05	3.07E-03
ENSG00000189057	<i>FAM111B</i>	23.77	2.44	3.04	4.70E-03
ENSG00000173641	<i>HSPB7</i>	34.29	4.68	3.04	3.11E-02
ENSG00000160200	<i>CBS</i>	97.74	12.04	3.04	7.97E-03
ENSG00000158458	<i>NRG2</i>	6.50	1.03	3.04	5.25E-03
ENSG00000118898	<i>PPL</i>	29.56	3.52	3.03	3.77E-04
ENSG00000148120	<i>AOPEP</i>	68.86	8.27	3.03	2.09E-04
ENSG00000105991	<i>HOXA1</i>	3.82	0.58	3.01	7.69E-03
ENSG00000008256	<i>CYTH3</i>	181.13	23.30	3.01	1.62E-04
ENSG00000275832	<i>ARHGAP23</i>	114.14	11.66	3.01	5.60E-03
ENSG00000070159	<i>PTPN3</i>	21.46	2.61	3.00	8.54E-04
ENSG00000117724	<i>CENPF</i>	93.43	12.11	3.00	6.84E-03
ENSG00000131711	<i>MAP1B</i>	261.97	32.78	3.00	6.99E-05
ENSG00000115041	<i>KCNIP3</i>	19.16	2.31	3.00	1.06E-03
ENSG00000183760	<i>ACP7</i>	1.30	0.17	3.00	8.70E-03
ENSG00000177707	<i>NECTIN3</i>	46.72	6.04	3.00	6.65E-04
ENSG00000185386	<i>MAPK11</i>	18.87	2.40	3.00	4.19E-04
ENSG00000251537		1.33	0.15	3.00	1.56E-02
ENSG00000146072	<i>TNFRSF21</i>	108.56	14.82	2.99	4.10E-04
ENSG00000101333	<i>PLCB4</i>	38.97	4.90	2.99	1.15E-03
ENSG00000221890	<i>NPTXR</i>	23.11	2.89	2.98	4.95E-03
ENSG00000166173	<i>LARP6</i>	111.50	14.14	2.98	6.19E-05
ENSG00000142279	<i>WTIP</i>	75.14	9.32	2.97	1.76E-03
ENSG00000111961	<i>SASH1</i>	56.20	7.27	2.97	1.74E-04
ENSG00000106070	<i>GRB10</i>	124.05	16.45	2.97	1.76E-04
ENSG00000064692	<i>SNCAIP</i>	4.53	0.67	2.97	5.19E-03
ENSG00000054598	<i>FOXC1</i>	29.61	3.90	2.97	3.68E-04
ENSG00000163888	<i>CAMK2N2</i>	6.59	0.66	2.97	3.01E-02
ENSG00000135540	<i>NHSL1</i>	18.45	3.25	2.97	6.62E-03
ENSG00000160207	<i>HSF2BP</i>	6.76	0.90	2.95	1.26E-03
ENSG00000049192	<i>ADAMTS6</i>	44.11	5.48	2.95	2.85E-04
ENSG00000151276	<i>MAGI1</i>	110.32	14.03	2.95	3.89E-04
ENSG00000225108	<i>ZBTB45P1</i>	8.12	1.15	2.95	3.52E-03
ENSG00000141682	<i>PMAIP1</i>	96.30	11.34	2.95	7.65E-03
ENSG00000197106	<i>SLC6A17</i>	10.28	0.94	2.95	1.60E-02
ENSG00000095752	<i>IL11</i>	15.06	2.51	2.95	5.77E-03
ENSG00000175305	<i>CCNE2</i>	10.96	1.36	2.95	2.37E-03
ENSG00000170745	<i>KCNS3</i>	9.58	1.47	2.94	5.79E-03
ENSG00000213222	<i>TOMM40P4</i>	4.04	0.43	2.94	1.00E-02
ENSG00000166840	<i>GLYATL1</i>	1.31	0.21	2.94	3.11E-02
ENSG00000091656	<i>ZFHX4</i>	28.69	4.02	2.94	6.80E-03
ENSG00000109576	<i>AADAT</i>	17.49	2.59	2.94	2.17E-03
ENSG00000130751	<i>NPAS1</i>	12.66	1.51	2.94	1.89E-03
ENSG00000198826	<i>ARHGAP11A</i>	56.11	7.41	2.94	1.99E-04
ENSG00000138835	<i>RGS3</i>	163.54	21.57	2.94	1.89E-04
ENSG00000166035	<i>LIPC</i>	5.51	0.72	2.93	2.23E-03
ENSG00000122952	<i>ZWINT</i>	38.61	5.79	2.93	1.21E-03
ENSG00000122591	<i>FAM126A</i>	187.77	24.64	2.93	1.18E-04
ENSG00000234537		1.92	0.26	2.93	5.78E-03
ENSG00000290923	<i>PGM5P2</i>	7.76	0.99	2.92	1.92E-03
ENSG00000153814	<i>JAZF1</i>	136.26	17.04	2.92	4.68E-04
ENSG00000136114	<i>THSD1</i>	8.07	0.98	2.92	1.83E-03

ENSG00000254681	<i>PKD1P5</i>	51.88	10.80	2.92	1.09E-02
ENSG00000120896	<i>SORBS3</i>	203.63	28.49	2.91	2.03E-04
ENSG00000134222	<i>PSRC1</i>	13.53	2.03	2.91	1.62E-03
ENSG00000121152	<i>NCAPH</i>	26.03	3.55	2.90	3.21E-04
ENSG00000113578	<i>FGF1</i>	6.09	0.67	2.90	2.26E-02
ENSG00000151474	<i>FRMD4A</i>	93.14	13.24	2.90	3.63E-04
ENSG00000205476	<i>CCDC85C</i>	107.13	14.17	2.90	2.56E-04
ENSG00000163808	<i>KIF15</i>	6.00	0.88	2.90	6.31E-03
ENSG00000135318	<i>NT5E</i>	160.30	22.92	2.89	3.00E-04
ENSG00000105928	<i>GSDME</i>	199.18	27.18	2.89	2.07E-04
ENSG00000164855	<i>TMEM184A</i>	9.08	1.34	2.89	1.98E-03
ENSG00000097096	<i>SYDE2</i>	12.50	1.73	2.88	1.85E-03
ENSG00000151067	<i>CACNA1C</i>	32.21	4.69	2.88	1.27E-02
ENSG00000224594	<i>RPL29P19</i>	1.38	0.18	2.88	1.33E-02
ENSG00000177602	<i>HASPIN</i>	7.29	1.00	2.88	9.18E-04
ENSG00000085552	<i>IGSF9</i>	1.71	0.26	2.88	8.84E-03
ENSG00000100162	<i>CENPM</i>	12.93	1.78	2.87	5.31E-04
ENSG00000253846	<i>PCDHGA10</i>	16.38	2.28	2.87	8.28E-04
ENSG00000285218		3.29	0.42	2.87	2.69E-03
ENSG00000156113	<i>KCNMA1</i>	88.97	12.44	2.87	1.66E-04
ENSG00000051180	<i>RAD51</i>	9.10	1.25	2.87	6.22E-04
ENSG00000152953	<i>STK32B</i>	2.47	0.39	2.87	2.03E-02
ENSG00000096433	<i>ITPR3</i>	203.96	27.94	2.87	1.07E-04
ENSG00000182901	<i>RGS7</i>	7.29	1.01	2.86	9.71E-04
ENSG00000165490	<i>DDIAS</i>	9.36	1.33	2.86	3.07E-03
ENSG00000275591	<i>XKR5</i>	1.63	0.22	2.86	1.23E-02
ENSG00000144369	<i>FAM171B</i>	26.79	3.66	2.85	2.17E-04
ENSG00000105976	<i>MET</i>	174.32	29.16	2.84	2.46E-03
ENSG00000119938	<i>PPP1R3C</i>	25.17	4.25	2.84	1.73E-02
ENSG00000050165	<i>DKK3</i>	266.10	37.17	2.84	5.67E-05
ENSG00000173068	<i>BNC2</i>	72.89	9.96	2.84	2.49E-04
ENSG00000196155	<i>PLEKHG4</i>	116.72	15.30	2.83	9.65E-04
ENSG00000132321	<i>IQCA1</i>	7.32	1.03	2.83	1.66E-03
ENSG00000128283	<i>CDC42EP1</i>	229.49	32.54	2.83	1.78E-04
ENSG00000156218	<i>ADAMTSL3</i>	5.85	0.78	2.83	2.32E-03
ENSG00000286614		2.31	0.28	2.83	2.83E-02
ENSG00000121753	<i>ADGRB2</i>	27.65	3.24	2.82	5.87E-03
ENSG00000151414	<i>NEK7</i>	460.18	65.05	2.82	5.67E-05
ENSG00000120833	<i>SOCS2</i>	23.37	3.72	2.82	4.43E-03
ENSG00000244486	<i>SCARF2</i>	44.28	5.23	2.82	1.62E-02
ENSG00000149554	<i>CHEK1</i>	23.98	3.72	2.82	2.14E-03
ENSG00000203724	<i>C1orf53</i>	13.65	1.91	2.82	7.02E-04
ENSG00000243156	<i>MICAL3</i>	131.50	17.35	2.82	7.96E-04
ENSG00000134243	<i>SORT1</i>	255.33	35.98	2.81	7.24E-05
ENSG00000163751	<i>CPA3</i>	3.78	0.52	2.81	6.72E-03
ENSG00000149380	<i>P4HA3</i>	15.66	2.99	2.81	1.53E-02
ENSG00000206527	<i>HACD2</i>	206.54	28.66	2.81	2.03E-04
ENSG00000291071	<i>FAM86JP</i>	0.87	0.10	2.81	1.02E-02
ENSG00000178038	<i>ALS2CL</i>	23.66	4.78	2.81	6.36E-03
ENSG00000115419	<i>GLS</i>	1156.28	161.02	2.81	1.70E-04
ENSG00000170820	<i>FSHR</i>	15.02	2.06	2.80	1.54E-03
ENSG00000113083	<i>LOX</i>	947.47	139.74	2.80	3.72E-04
ENSG00000198431	<i>TXNRD1</i>	3208.63	460.64	2.80	6.40E-05
ENSG00000175592	<i>FOSL1</i>	119.68	16.61	2.80	1.92E-04
ENSG00000181649	<i>PHLDA2</i>	26.70	2.52	2.79	4.52E-02
ENSG00000148737	<i>TCF7L2</i>	49.04	7.08	2.79	3.17E-04
ENSG00000143867	<i>OSR1</i>	47.56	8.06	2.79	2.46E-03
ENSG00000182963	<i>GJC1</i>	31.75	4.91	2.79	5.57E-04

ENSG00000057294	<i>PKP2</i>	135.87	19.12	2.79	3.29E-04
ENSG00000144821	<i>MYH15</i>	2.48	0.30	2.79	2.11E-02
ENSG00000139734	<i>DIAPH3</i>	44.64	6.96	2.79	6.19E-04
ENSG00000162614	<i>NEXN</i>	89.67	13.21	2.79	1.37E-04
ENSG00000168672	<i>LRATD2</i>	47.78	6.81	2.79	3.63E-03
ENSG00000189129	<i>PLAC9</i>	2.57	0.30	2.79	2.00E-02
ENSG00000164237	<i>CMBL</i>	65.42	8.71	2.78	4.42E-03
ENSG00000161682	<i>FAM171A2</i>	5.03	0.79	2.78	4.16E-03
ENSG00000158023	<i>CFAP251</i>	18.13	3.20	2.78	2.99E-03
ENSG00000128805	<i>ARHGAP22</i>	52.91	7.80	2.78	2.86E-04
ENSG00000203797	<i>DDO</i>	5.99	0.95	2.77	2.82E-03
ENSG00000170396	<i>ZNF804A</i>	8.33	1.49	2.77	4.68E-03
ENSG00000183496	<i>MEX3B</i>	49.88	7.14	2.76	2.34E-04
ENSG00000179455	<i>MKRN3</i>	4.70	0.72	2.76	3.72E-03
ENSG00000138758	<i>SEPTIN11</i>	360.08	51.58	2.76	1.58E-04
ENSG00000128965	<i>CHAC1</i>	43.78	10.36	2.76	3.01E-02
ENSG00000141314	<i>RHBDL3</i>	4.96	0.77	2.76	8.05E-03
ENSG00000169583	<i>CLIC3</i>	11.99	1.82	2.76	3.39E-03
ENSG00000125864	<i>BFSP1</i>	3.69	0.49	2.76	1.64E-02
ENSG00000040275	<i>SPDL1</i>	69.03	10.64	2.76	2.47E-04
ENSG00000151364	<i>KCTD14</i>	4.30	0.65	2.75	3.88E-03
ENSG00000136193	<i>SCRN1</i>	310.25	45.75	2.75	1.43E-04
ENSG00000107438	<i>PDLIM1</i>	188.67	27.18	2.74	3.32E-04
ENSG00000050405	<i>LIMA1</i>	383.09	56.95	2.74	1.03E-04
ENSG00000159176	<i>CSRP1</i>	532.73	78.93	2.74	1.70E-04
ENSG00000073670	<i>ADAM11</i>	2.17	0.34	2.74	2.70E-02
ENSG00000122778	<i>KIAA1549</i>	44.93	6.78	2.74	1.70E-04
ENSG00000185483	<i>ROR1</i>	53.31	7.74	2.74	3.33E-04
ENSG00000109452	<i>INPP4B</i>	38.66	5.89	2.74	3.75E-04
ENSG00000291027	<i>UBE2Q2P1</i>	7.18	1.19	2.73	3.06E-03
ENSG00000290856		1.42	0.17	2.73	1.78E-02
ENSG00000152217	<i>SETBP1</i>	11.26	1.61	2.73	1.78E-03
ENSG00000154654	<i>NCAM2</i>	21.93	4.54	2.73	1.51E-02
ENSG00000256500		13.37	1.88	2.73	2.24E-02
ENSG00000180332	<i>KCTD4</i>	1.06	0.13	2.73	2.13E-02
ENSG00000104368	<i>PLAT</i>	40.65	7.86	2.72	7.31E-03
ENSG00000153237	<i>CCDC148</i>	2.42	0.44	2.72	1.33E-02
ENSG00000146918	<i>NCAPG2</i>	74.64	11.44	2.72	1.31E-04
ENSG00000076716	<i>GPC4</i>	83.49	13.82	2.72	6.39E-04
ENSG00000039068	<i>CDH1</i>	6.25	0.62	2.72	2.67E-02
ENSG00000188157	<i>AGRN</i>	978.81	145.28	2.72	1.62E-04
ENSG00000142871	<i>CCN1</i>	888.59	138.10	2.70	2.05E-04
ENSG00000022267	<i>FHL1</i>	78.38	12.21	2.70	2.02E-04
ENSG00000135476	<i>ESPL1</i>	29.58	4.12	2.70	9.65E-04
ENSG00000138193	<i>PLCE1</i>	26.02	4.11	2.70	2.99E-03
ENSG00000020181	<i>ADGRA2</i>	27.29	5.30	2.69	3.58E-03
ENSG00000155324	<i>GRAMD2B</i>	220.25	33.05	2.69	3.68E-04
ENSG00000005243	<i>COPZ2</i>	37.00	5.79	2.69	3.03E-04
ENSG00000091986	<i>CCDC80</i>	383.50	69.12	2.69	5.01E-03
ENSG00000109472	<i>CPE</i>	265.04	46.65	2.69	2.02E-03
ENSG00000204381	<i>LAYN</i>	34.63	5.48	2.69	6.14E-04
ENSG00000196872	<i>CRACDL</i>	4.68	0.82	2.68	4.76E-03
ENSG00000076356	<i>PLXNA2</i>	37.08	4.54	2.68	8.74E-03
ENSG00000109265	<i>CRACD</i>	21.10	3.50	2.68	6.43E-03
ENSG00000138028	<i>CGREF1</i>	11.98	1.97	2.68	2.87E-03
ENSG00000125966	<i>MMP24</i>	19.67	2.80	2.67	6.20E-03
ENSG00000162520	<i>SYNC</i>	99.50	15.71	2.67	2.02E-04
ENSG00000146648	<i>EGFR</i>	226.26	35.73	2.67	1.03E-04

ENSG00000124942	<i>AHNAK</i>	2259.94	350.50	2.67	1.07E-04
ENSG00000188483	<i>IER5L</i>	62.77	10.30	2.66	1.26E-03
ENSG00000141655	<i>TNFRSF11A</i>	5.85	0.86	2.66	2.12E-02
ENSG00000153902	<i>LGI4</i>	2.32	0.35	2.66	3.24E-02
ENSG00000071539	<i>TRIP13</i>	20.78	3.51	2.66	7.26E-04
ENSG00000137812	<i>KNL1</i>	21.07	3.81	2.65	2.11E-03
ENSG00000133687	<i>TMTC1</i>	93.09	15.32	2.65	2.03E-04
ENSG00000143153	<i>ATP1B1</i>	131.48	21.25	2.64	8.18E-05
ENSG00000144218	<i>AFF3</i>	24.13	3.72	2.64	7.02E-04
ENSG00000180447	<i>GAS1</i>	26.21	5.28	2.64	4.47E-03
ENSG00000176974	<i>SHMT1</i>	21.46	3.52	2.63	2.25E-03
ENSG00000092964	<i>DPYSL2</i>	150.77	22.19	2.63	2.62E-03
ENSG00000196482	<i>ESRRG</i>	0.68	0.11	2.63	1.66E-02
ENSG00000197461	<i>PDGFA</i>	6.59	0.80	2.63	2.97E-02
ENSG00000131153	<i>GIN5</i>	13.19	2.21	2.63	2.12E-03
ENSG00000161800	<i>RACGAP1</i>	58.35	9.59	2.63	3.71E-04
ENSG00000243232	<i>PCDHAC2</i>	15.22	2.64	2.63	5.19E-03
ENSG00000135842	<i>NIBAN1</i>	226.65	37.59	2.63	4.50E-04
ENSG00000177425	<i>PAWR</i>	158.96	23.62	2.62	1.06E-03
ENSG00000172318	<i>B3GALT1</i>	1.71	0.26	2.62	7.86E-03
ENSG00000197381	<i>ADARB1</i>	70.88	10.86	2.62	5.61E-04
ENSG00000102384	<i>CENPI</i>	13.36	2.29	2.62	1.12E-03
ENSG00000278053	<i>DDX52</i>	36.39	10.23	2.62	3.95E-02
ENSG00000105281	<i>SLC1A5</i>	587.59	91.88	2.61	2.95E-03
ENSG00000171903	<i>CYP4F11</i>	3.45	0.62	2.61	7.14E-03
ENSG00000174667	<i>OR7D4</i>	1.07	0.19	2.61	1.62E-02
ENSG00000213186	<i>TRIM59</i>	25.00	4.29	2.61	6.54E-04
ENSG00000248905	<i>FMN1</i>	66.57	11.03	2.61	4.23E-04
ENSG00000289027		5.06	0.98	2.61	2.98E-02
ENSG00000116962	<i>NID1</i>	139.96	29.29	2.61	5.12E-03
ENSG00000179954	<i>SSC5D</i>	23.61	4.94	2.61	1.07E-02
ENSG00000145431	<i>PDGFC</i>	254.45	42.59	2.61	1.70E-04
ENSG00000128849	<i>CGNL1</i>	27.62	4.41	2.61	2.93E-04
ENSG00000184371	<i>CSF1</i>	167.12	26.99	2.60	5.21E-03
ENSG00000164920	<i>OSR2</i>	1.02	0.15	2.60	9.29E-03
ENSG00000170624	<i>SGCD</i>	18.59	4.15	2.60	1.99E-02
ENSG00000092470	<i>WDR76</i>	17.34	2.84	2.60	5.18E-04
ENSG00000144642	<i>RBMS3</i>	51.40	8.70	2.60	2.33E-04
ENSG00000285082		1.22	0.18	2.60	2.71E-02
ENSG00000080823	<i>MOK</i>	39.65	5.29	2.59	8.47E-03
ENSG00000137285	<i>TUBB2B</i>	17.32	2.98	2.59	1.33E-02
ENSG00000163083	<i>INHBB</i>	42.53	6.93	2.58	2.95E-02
ENSG00000105613	<i>MAST1</i>	3.26	0.51	2.57	2.67E-02
ENSG00000123892	<i>RAB38</i>	9.92	1.71	2.57	1.30E-03
ENSG00000072422	<i>RHOBTB1</i>	104.93	15.51	2.57	5.31E-03
ENSG00000156103	<i>MMP16</i>	39.02	7.47	2.56	5.46E-03
ENSG00000099849	<i>RASSF7</i>	21.26	3.76	2.56	7.86E-04
ENSG00000225100	<i>DPY19L2P5</i>	1.30	0.21	2.56	7.53E-03
ENSG00000170153	<i>RNF150</i>	24.99	3.59	2.56	1.12E-02
ENSG00000173852	<i>DPY19L1</i>	203.45	34.99	2.56	1.34E-04
ENSG00000198331	<i>HYLS1</i>	15.74	2.82	2.55	7.37E-03
ENSG00000171241	<i>SHCBP1</i>	31.21	5.22	2.55	2.60E-04
ENSG00000135063	<i>FAM189A2</i>	1.81	0.33	2.55	1.39E-02
ENSG00000164197	<i>RNF180</i>	10.60	1.72	2.54	1.46E-03
ENSG00000166225	<i>FRS2</i>	108.26	17.88	2.54	6.89E-04
ENSG00000203727	<i>SAMD5</i>	7.23	1.34	2.54	3.88E-03
ENSG00000035862	<i>TIMP2</i>	1641.08	297.02	2.54	3.43E-04
ENSG00000136379	<i>ABHD17C</i>	38.33	6.72	2.54	4.03E-04

ENSG00000174099	<i>MSRB3</i>	86.55	15.34	2.54	2.25E-04
ENSG00000087116	<i>ADAMTS2</i>	15.73	3.44	2.54	6.12E-03
ENSG00000173218	<i>VANGL1</i>	60.46	10.66	2.53	5.61E-04
ENSG00000198739	<i>LRRTM3</i>	0.80	0.13	2.52	2.29E-02
ENSG00000131650	<i>KREMEN2</i>	2.99	0.40	2.52	3.75E-02
ENSG00000187800	<i>PEAR1</i>	13.19	2.60	2.52	1.60E-02
ENSG00000099204	<i>ABLIM1</i>	216.04	37.55	2.52	1.07E-04
ENSG00000143013	<i>LMO4</i>	214.11	37.50	2.52	3.70E-04
ENSG00000158220	<i>ESYT3</i>	6.13	1.08	2.52	2.02E-03
ENSG00000197256	<i>KANK2</i>	164.69	32.00	2.51	1.63E-03
ENSG00000177570	<i>SAMD12</i>	21.32	3.38	2.51	1.54E-03
ENSG00000211455	<i>STK38L</i>	127.99	21.32	2.51	6.57E-04
ENSG00000233327	<i>USP32P2</i>	1.80	0.38	2.51	2.21E-02
ENSG00000164109	<i>MAD2L1</i>	36.25	6.42	2.51	2.41E-04
ENSG00000196628	<i>TCF4</i>	105.27	18.33	2.51	2.09E-04
ENSG00000163545	<i>NUAK2</i>	27.62	4.93	2.50	6.29E-04
ENSG00000243566	<i>UPK3B</i>	3.18	0.54	2.50	2.46E-02
ENSG00000149948	<i>HMGA2</i>	56.69	10.06	2.50	4.66E-04
ENSG00000197852	<i>INKA2</i>	51.84	10.40	2.50	3.87E-03
ENSG00000109738	<i>GLRB</i>	43.61	7.75	2.49	5.71E-04
ENSG00000019549	<i>SNAI2</i>	45.18	8.16	2.49	1.25E-03
ENSG00000198756	<i>COLGALT2</i>	15.54	2.81	2.49	8.22E-04
ENSG00000035499	<i>DEPDC1B</i>	6.40	1.52	2.49	1.34E-02
ENSG00000003249	<i>DBNDD1</i>	11.30	2.17	2.49	2.33E-03
ENSG00000213949	<i>ITGA1</i>	287.57	51.96	2.49	1.42E-04
ENSG00000116774	<i>OLFML3</i>	8.64	1.23	2.49	3.35E-02
ENSG00000138376	<i>BARD1</i>	19.56	3.43	2.49	6.60E-04
ENSG00000183671	<i>CMKLR2</i>	62.11	10.74	2.48	1.27E-02
ENSG00000107957	<i>SH3PXD2A</i>	205.98	35.36	2.48	3.61E-04
ENSG00000162062	<i>TEDC2</i>	8.79	1.50	2.48	3.42E-03
ENSG00000058085	<i>LAMC2</i>	11.34	2.39	2.47	1.06E-02
ENSG00000138356	<i>AOX1</i>	87.69	17.38	2.47	2.02E-03
ENSG00000110237	<i>ARHGEF17</i>	235.47	41.27	2.47	4.16E-04
ENSG00000122870	<i>BICC1</i>	136.94	25.53	2.47	2.09E-04
ENSG00000124243	<i>BCAS4</i>	14.65	2.78	2.47	1.56E-03
ENSG00000167034	<i>NKX3-1</i>	24.31	4.55	2.47	5.12E-04
ENSG00000164251	<i>F2RL1</i>	79.65	14.37	2.47	3.77E-04
ENSG00000144681	<i>STAC</i>	29.48	5.40	2.46	3.92E-03
ENSG00000179104	<i>TMTC2</i>	7.17	1.32	2.46	3.04E-03
ENSG00000164086	<i>DUSP7</i>	72.64	12.51	2.46	6.28E-04
ENSG00000142207	<i>URB1</i>	327.14	51.55	2.46	4.86E-03
ENSG00000121101	<i>TEX14</i>	1.10	0.20	2.45	2.50E-02
ENSG00000123080	<i>CDKN2C</i>	45.64	8.55	2.45	2.93E-04
ENSG00000070882	<i>OSBPL3</i>	81.09	14.39	2.45	3.58E-04
ENSG00000149571	<i>KIRREL3</i>	15.86	2.36	2.45	3.80E-02
ENSG00000139263	<i>LRIG3</i>	21.79	4.00	2.45	3.63E-03
ENSG00000248672	<i>LY75-CD302</i>	5.07	0.88	2.45	4.14E-02
ENSG00000109062	<i>SLC9A3R1</i>	379.85	69.81	2.45	8.18E-05
ENSG00000266302		2.72	0.40	2.44	2.47E-02
ENSG00000136546	<i>SCN7A</i>	1.98	0.40	2.44	1.05E-02
ENSG00000119333	<i>DYNC2I2</i>	68.15	12.89	2.44	2.80E-04
ENSG00000198208	<i>RPS6KL1</i>	7.56	1.51	2.44	5.57E-03
ENSG00000198947	<i>DMD</i>	129.50	23.89	2.44	1.13E-04
ENSG00000265690		6.94	1.22	2.43	3.32E-03
ENSG00000137834	<i>SMAD6</i>	35.11	5.10	2.43	2.10E-02
ENSG00000100739	<i>BDKRB1</i>	8.61	1.15	2.43	2.97E-02
ENSG00000121957	<i>GPSM2</i>	25.76	4.94	2.43	2.59E-03
ENSG00000284906		14.16	2.59	2.43	4.46E-03

ENSG00000167588	<i>GPD1</i>	1.47	0.28	2.43	1.25E-02
ENSG00000079337	<i>RAPGEF3</i>	16.09	2.70	2.42	5.25E-03
ENSG00000101003	<i>GINS1</i>	16.52	3.02	2.42	7.86E-04
ENSG00000164761	<i>TNFRSF11B</i>	50.96	10.22	2.42	2.55E-03
ENSG00000137266	<i>SLC22A23</i>	105.84	18.11	2.42	4.31E-03
ENSG00000171004	<i>HS6ST2</i>	8.56	1.43	2.42	3.13E-03
ENSG00000140525	<i>FANCI</i>	51.34	9.52	2.42	2.66E-04
ENSG00000180347	<i>ITPRID1</i>	0.76	0.14	2.42	1.92E-02
ENSG00000162437	<i>RAVER2</i>	44.14	8.35	2.42	1.13E-03
ENSG00000142627	<i>EPHA2</i>	192.18	34.01	2.41	1.63E-03
ENSG00000204442	<i>NALF1</i>	4.99	1.02	2.41	9.20E-03
ENSG00000113739	<i>STC2</i>	366.97	72.08	2.41	4.81E-04
ENSG00000215784	<i>FAM72D</i>	4.08	0.78	2.41	4.54E-03
ENSG00000126822	<i>PLEKHG3</i>	51.66	9.92	2.41	2.36E-04
ENSG00000073464	<i>CLCN4</i>	53.61	9.49	2.40	8.24E-04
ENSG00000171914	<i>TLN2</i>	76.76	14.86	2.40	5.47E-04
ENSG00000117632	<i>STMN1</i>	158.49	28.21	2.40	1.12E-02
ENSG00000071967	<i>CYBRD1</i>	201.63	49.20	2.40	1.06E-02
ENSG00000188610	<i>FAM72B</i>	4.01	0.77	2.39	1.08E-02
ENSG00000139354	<i>GAS2L3</i>	23.00	4.13	2.39	3.07E-03
ENSG00000186281	<i>GPAT2</i>	3.88	0.65	2.39	9.42E-03
ENSG00000161249	<i>DMKN</i>	19.37	3.71	2.38	4.82E-04
ENSG00000167693	<i>NXN</i>	62.84	13.26	2.38	7.88E-03
ENSG00000019144	<i>PHLDB1</i>	276.13	53.25	2.38	6.28E-04
ENSG00000230863		1.65	0.31	2.38	1.50E-02
ENSG00000115423	<i>DNAH6</i>	2.73	0.53	2.38	6.07E-03
ENSG00000134369	<i>NAV1</i>	231.76	45.15	2.37	5.77E-04
ENSG00000165434	<i>PGM2L1</i>	28.74	5.22	2.37	3.60E-03
ENSG00000169213	<i>RAB3B</i>	58.28	11.34	2.37	1.44E-04
ENSG00000224881		4.78	0.98	2.36	4.44E-03
ENSG00000122966	<i>CIT</i>	27.27	5.53	2.35	5.26E-04
ENSG00000007968	<i>E2F2</i>	3.95	0.66	2.35	1.94E-02
ENSG00000138162	<i>TACC2</i>	18.72	3.90	2.35	9.38E-03
ENSG00000130702	<i>LAMA5</i>	397.00	78.48	2.34	1.69E-03
ENSG00000156510	<i>HKDC1</i>	53.40	10.99	2.34	5.12E-04
ENSG00000132613	<i>MTSS2</i>	117.02	23.51	2.34	1.98E-04
ENSG00000116299	<i>ELAPOR1</i>	9.99	2.15	2.34	3.18E-03
ENSG00000124225	<i>PMEPA1</i>	57.59	11.35	2.34	3.28E-04
ENSG00000115194	<i>SLC30A3</i>	2.28	0.37	2.33	2.51E-02
ENSG00000183853	<i>KIRREL1</i>	182.37	35.89	2.33	1.38E-04
ENSG00000134013	<i>LOXL2</i>	978.43	207.99	2.33	4.02E-03
ENSG00000134780	<i>DAGLA</i>	44.20	8.12	2.32	1.62E-03
ENSG00000130413	<i>STK33</i>	23.53	4.74	2.32	1.01E-03
ENSG00000288031		2.88	0.62	2.32	1.28E-02
ENSG00000173166	<i>RAPH1</i>	151.11	29.84	2.32	4.20E-04
ENSG00000130283	<i>GDF1</i>	0.73	0.15	2.32	3.47E-02
ENSG00000213347	<i>MXD3</i>	22.48	4.88	2.32	2.33E-03
ENSG00000169504	<i>CLIC4</i>	1113.44	223.38	2.32	7.31E-05
ENSG00000145246	<i>ATP10D</i>	197.78	40.08	2.32	1.69E-04
ENSG00000156298	<i>TSPAN7</i>	24.11	4.40	2.32	1.94E-03
ENSG00000128567	<i>PODXL</i>	106.89	21.25	2.31	2.93E-04
ENSG00000159363	<i>ATP13A2</i>	204.89	41.17	2.31	9.93E-05
ENSG00000121900	<i>TMEM54</i>	25.14	5.00	2.31	3.84E-04
ENSG00000268043	<i>NBPF12</i>	10.41	2.30	2.31	1.33E-02
ENSG00000184451	<i>CCR10</i>	1.77	0.53	2.31	4.83E-02
ENSG00000166851	<i>PLK1</i>	28.65	6.53	2.30	1.16E-02
ENSG00000163507	<i>CIP2A</i>	20.28	4.28	2.30	1.26E-03
ENSG00000101311	<i>FERMT1</i>	12.98	3.04	2.30	5.19E-03

ENSG00000174871	<i>CNIH2</i>	2.47	0.56	2.30	1.69E-02
ENSG00000062370	<i>ZNF112</i>	18.28	3.78	2.30	1.78E-02
ENSG00000077152	<i>UBE2T</i>	15.14	3.20	2.30	1.96E-03
ENSG00000135622	<i>SEMA4F</i>	44.25	8.86	2.30	4.11E-04
ENSG00000205856	<i>C22orf42</i>	0.95	0.19	2.28	1.83E-02
ENSG00000137831	<i>UACA</i>	117.65	24.20	2.28	9.52E-05
ENSG00000242338	<i>BMS1P4</i>	1.05	0.25	2.28	3.59E-02
ENSG00000166483	<i>WEE1</i>	51.58	10.78	2.27	1.44E-03
ENSG00000162814	<i>SPATA17</i>	7.91	2.13	2.27	2.87E-02
ENSG00000128607	<i>KLHDC10</i>	152.85	31.94	2.26	1.66E-04
ENSG00000029993	<i>HMGB3</i>	49.74	9.66	2.26	1.87E-02
ENSG00000175294	<i>CATSPER1</i>	6.22	1.20	2.26	7.88E-03
ENSG00000135919	<i>SERPINE2</i>	784.11	124.82	2.26	1.77E-02
ENSG00000177469	<i>CAVIN1</i>	813.18	165.46	2.26	3.43E-04
ENSG00000115556	<i>PLCD4</i>	3.60	0.85	2.26	2.77E-02
ENSG00000137801	<i>THBS1</i>	4270.05	926.33	2.26	8.77E-04
ENSG00000100311	<i>PDGFB</i>	13.93	3.17	2.26	1.32E-02
ENSG00000138182	<i>KIF20B</i>	32.47	6.86	2.25	5.75E-04
ENSG00000103260	<i>METRN</i>	28.96	4.59	2.25	4.93E-02
ENSG00000185305	<i>ARL15</i>	59.65	12.56	2.25	2.37E-03
ENSG00000158887	<i>MPZ</i>	7.16	1.68	2.25	3.08E-02
ENSG00000290733		0.60	0.12	2.25	2.54E-02
ENSG00000108813	<i>DLX4</i>	0.89	0.16	2.25	1.86E-02
ENSG00000176890	<i>TYMS</i>	58.75	12.82	2.25	4.34E-04
ENSG00000103257	<i>SLC7A5</i>	523.68	124.39	2.25	3.38E-03
ENSG00000151458	<i>ANKRD50</i>	73.93	15.84	2.25	2.27E-04
ENSG00000106211	<i>HSPB1</i>	671.17	143.52	2.24	1.82E-04
ENSG00000109654	<i>TRIM2</i>	138.07	30.52	2.24	6.92E-04
ENSG00000162073	<i>PAQR4</i>	27.34	5.78	2.24	3.36E-03
ENSG00000163145	<i>C1QTNF7</i>	3.34	0.83	2.23	4.96E-02
ENSG00000050628	<i>PTGER3</i>	9.56	1.62	2.23	2.00E-02
ENSG00000170779	<i>CDCA4</i>	37.74	7.74	2.23	9.56E-04
ENSG00000153044	<i>CENPH</i>	14.16	3.04	2.22	1.83E-02
ENSG00000102854	<i>MSLN</i>	3.15	0.58	2.21	3.73E-02
ENSG00000146592	<i>CREB5</i>	55.52	12.90	2.21	1.69E-03
ENSG00000290453		7.70	1.56	2.21	7.39E-03
ENSG00000204174	<i>NPY4R</i>	2.29	0.48	2.21	1.28E-02
ENSG00000122707	<i>RECK</i>	101.48	20.55	2.21	1.22E-03
ENSG00000154102	<i>C16orf74</i>	2.14	0.48	2.21	1.30E-02
ENSG00000169083	<i>AR</i>	50.76	11.30	2.21	4.82E-04
ENSG00000151612	<i>ZNF827</i>	64.46	14.05	2.20	1.79E-04
ENSG00000224287	<i>MSL3P1</i>	9.13	2.01	2.20	1.38E-02
ENSG00000153071	<i>DAB2</i>	304.79	69.22	2.20	5.97E-04
ENSG00000145536	<i>ADAMTS16</i>	6.34	0.95	2.20	4.73E-02
ENSG00000088836	<i>SLC4A11</i>	5.85	1.38	2.20	9.54E-03
ENSG00000105810	<i>CDK6</i>	141.20	31.34	2.20	2.12E-04
ENSG00000110811	<i>P3H3</i>	30.97	8.23	2.20	6.38E-03
ENSG00000135636	<i>DYSF</i>	244.19	53.24	2.20	1.18E-04
ENSG00000290879		2.18	0.52	2.19	2.08E-02
ENSG00000113368	<i>LMNB1</i>	66.64	16.10	2.19	1.57E-03
ENSG00000241935	<i>HOGA1</i>	3.22	0.71	2.19	4.16E-02
ENSG00000137941	<i>TTLL7</i>	25.43	5.99	2.19	1.75E-03
ENSG00000183010	<i>PYCR1</i>	155.69	35.14	2.18	3.57E-04
ENSG00000181104	<i>F2R</i>	259.95	61.52	2.18	1.09E-03
ENSG00000162733	<i>DDR2</i>	415.12	91.25	2.18	1.84E-04
ENSG00000180354	<i>MTURN</i>	37.01	8.24	2.18	3.17E-04
ENSG00000168811	<i>IL12A</i>	2.57	0.60	2.18	1.99E-02
ENSG00000159259	<i>CHAF1B</i>	18.16	3.89	2.17	9.53E-04

ENSG00000178078	<i>STAP2</i>	18.04	4.04	2.17	7.49E-04
ENSG00000003147	<i>ICA1</i>	15.85	3.54	2.17	1.29E-02
ENSG00000137404	<i>NRM</i>	12.38	3.53	2.17	2.57E-02
ENSG00000129353	<i>SLC44A2</i>	231.11	52.49	2.17	3.05E-04
ENSG00000197576	<i>HOXA4</i>	3.09	0.78	2.17	2.74E-02
ENSG00000111077	<i>TNS2</i>	112.13	25.70	2.17	3.72E-04
ENSG00000137821	<i>LRRC49</i>	10.04	2.37	2.17	4.90E-03
ENSG00000187987	<i>ZSCAN23</i>	3.10	0.60	2.17	1.23E-02
ENSG00000184500	<i>PROS1</i>	201.56	46.69	2.16	5.03E-04
ENSG00000128487	<i>SPECC1</i>	107.19	24.13	2.16	5.44E-04
ENSG00000148204	<i>CRB2</i>	1.01	0.28	2.16	5.00E-02
ENSG00000145244	<i>CORIN</i>	5.34	1.13	2.15	3.65E-02
ENSG00000131773	<i>KHDRBS3</i>	4.22	0.92	2.15	6.93E-03
ENSG00000075702	<i>WDR62</i>	17.66	3.75	2.15	1.71E-02
ENSG00000094804	<i>CDC6</i>	32.72	6.91	2.15	1.72E-03
ENSG00000168785	<i>TSPAN5</i>	99.20	22.80	2.14	2.25E-04
ENSG00000177990	<i>DPY19L2</i>	9.61	2.31	2.14	4.76E-03
ENSG00000196196	<i>HRCT1</i>	2.81	0.66	2.14	9.28E-03
ENSG00000102554	<i>KLF5</i>	16.95	4.17	2.14	6.03E-03
ENSG00000213780	<i>GTF2H4</i>	6.10	1.99	2.14	4.86E-02
ENSG00000219481	<i>NBPF1</i>	94.73	21.83	2.14	2.01E-04
ENSG00000129521	<i>EGLN3</i>	8.63	2.36	2.13	1.18E-02
ENSG0000029153	<i>ARNTL2</i>	54.78	11.91	2.13	1.34E-03
ENSG00000102385	<i>DRP2</i>	1.03	0.26	2.13	3.30E-02
ENSG00000237172	<i>B3GNT9</i>	53.57	12.59	2.13	5.21E-04
ENSG00000162552	<i>WNT4</i>	5.63	1.14	2.13	1.40E-02
ENSG00000172985	<i>SH3RF3</i>	19.50	4.70	2.13	2.59E-03
ENSG00000116717	<i>GADD45A</i>	172.42	40.35	2.13	2.74E-04
ENSG00000288920	<i>RPSAP58</i>	19.14	4.42	2.13	7.24E-04
ENSG00000133119	<i>RFC3</i>	25.72	5.75	2.12	6.33E-04
ENSG00000130707	<i>ASS1</i>	262.28	59.72	2.12	1.42E-04
ENSG00000164649	<i>CDCA7L</i>	53.98	12.57	2.12	1.18E-03
ENSG00000085840	<i>ORC1</i>	7.68	1.60	2.11	5.52E-03
ENSG00000290415		3.18	0.62	2.11	2.54E-02
ENSG00000151835	<i>SACS</i>	182.33	40.03	2.11	1.67E-03
ENSG00000133069	<i>TMCC2</i>	8.51	1.98	2.11	2.25E-03
ENSG00000112852	<i>PCDHB2</i>	2.14	0.60	2.11	3.03E-02
ENSG00000072110	<i>ACTN1</i>	728.65	168.60	2.11	4.46E-04
ENSG00000106483	<i>SFRP4</i>	25.87	6.73	2.10	4.22E-03
ENSG0000011638	<i>LDAF1</i>	27.96	6.42	2.10	1.66E-02
ENSG00000111371	<i>SLC38A1</i>	396.40	95.37	2.10	4.98E-04
ENSG00000165886	<i>UBTD1</i>	56.65	13.26	2.10	2.30E-04
ENSG00000123473	<i>STIL</i>	19.98	5.00	2.10	3.72E-03
ENSG00000070614	<i>NDST1</i>	761.15	166.53	2.09	2.90E-03
ENSG00000024526	<i>DEPDC1</i>	21.95	5.89	2.09	8.81E-03
ENSG00000130402	<i>ACTN4</i>	1055.58	247.51	2.09	1.81E-03
ENSG00000198363	<i>ASPH</i>	601.14	143.28	2.09	2.17E-04
ENSG00000183023	<i>SLC8A1</i>	10.35	2.48	2.08	1.59E-03
ENSG00000106003	<i>LFNG</i>	76.29	17.87	2.08	2.13E-04
ENSG00000122644	<i>ARL4A</i>	67.44	16.07	2.08	5.23E-04
ENSG00000117016	<i>RIMS3</i>	25.19	6.29	2.08	3.15E-03
ENSG00000109944	<i>JHY</i>	10.74	2.76	2.08	2.66E-02
ENSG00000179348	<i>GATA2</i>	7.72	1.80	2.08	1.24E-02
ENSG00000137868	<i>STRA6</i>	2.44	0.53	2.08	4.50E-02
ENSG00000172889	<i>EGFL7</i>	32.60	9.11	2.08	6.60E-03
ENSG00000166451	<i>CENPN</i>	37.80	9.18	2.07	6.23E-04
ENSG00000144824	<i>PHLDB2</i>	80.06	19.09	2.07	1.89E-04
ENSG00000291273		1.19	0.25	2.07	2.92E-02

ENSG00000104738	<i>MCM4</i>	99.08	21.61	2.07	2.78E-03
ENSG00000157510	<i>AFAP1L1</i>	11.40	3.28	2.06	1.43E-02
ENSG00000271254		70.68	16.40	2.06	2.26E-03
ENSG00000154447	<i>SH3RF1</i>	61.06	14.64	2.06	3.38E-04
ENSG00000154277	<i>UCHL1</i>	984.36	226.05	2.06	7.02E-04
ENSG00000133135	<i>RNF128</i>	8.52	1.75	2.05	9.89E-03
ENSG00000143816	<i>WNT9A</i>	2.33	0.50	2.05	4.92E-02
ENSG00000081052	<i>COL4A4</i>	36.09	7.00	2.05	4.96E-02
ENSG00000012048	<i>BRCA1</i>	22.56	5.38	2.05	1.04E-03
ENSG00000124787	<i>RPP40</i>	16.66	4.32	2.05	7.39E-03
ENSG00000165996	<i>HACD1</i>	26.65	6.64	2.05	7.11E-04
ENSG00000198892	<i>SHISA4</i>	54.69	13.00	2.05	4.29E-03
ENSG00000135312	<i>HTR1B</i>	0.78	0.20	2.05	3.38E-02
ENSG00000112276	<i>BVES</i>	14.44	3.63	2.05	2.95E-03
ENSG00000204767	<i>INSYN2B</i>	7.56	1.85	2.05	6.59E-03
ENSG00000136982	<i>DSCC1</i>	9.71	2.42	2.04	6.03E-03
ENSG00000102024	<i>PLS3</i>	664.53	167.73	2.04	8.29E-04
ENSG00000163535	<i>SGO2</i>	18.62	4.68	2.04	3.41E-03
ENSG00000266066	<i>POLRMTP1</i>	1.34	0.36	2.03	3.18E-02
ENSG00000087253	<i>LPCAT2</i>	39.05	11.68	2.03	1.37E-02
ENSG00000174307	<i>PHLDA3</i>	86.88	20.07	2.03	1.22E-03
ENSG00000164087	<i>POC1A</i>	13.45	3.53	2.03	1.67E-02
ENSG00000162616	<i>DNAJB4</i>	95.94	23.60	2.03	6.15E-04
ENSG00000251503	<i>CENPS-CORT</i>	1.11	0.29	2.03	4.12E-02
ENSG00000141736	<i>ERBB2</i>	73.79	18.43	2.03	3.69E-04
ENSG00000203760	<i>CENPW</i>	8.29	2.11	2.02	5.19E-03
ENSG00000168502	<i>MTCL1</i>	40.32	9.88	2.02	8.37E-04
ENSG00000171016	<i>PYGO1</i>	11.79	2.95	2.02	1.64E-03
ENSG00000213694	<i>S1PR3</i>	93.21	23.62	2.02	1.04E-02
ENSG00000203668	<i>CHML</i>	40.09	9.35	2.02	9.95E-04
ENSG00000112029	<i>FBXO5</i>	20.19	5.16	2.02	1.31E-03
ENSG00000141542	<i>RAB40B</i>	13.00	3.18	2.02	3.89E-03
ENSG00000143797	<i>MBOAT2</i>	51.29	13.65	2.02	2.37E-03
ENSG00000146038	<i>DCDC2</i>	3.51	1.16	2.02	4.36E-02
ENSG00000115129	<i>TP53I3</i>	56.02	13.66	2.01	1.54E-02
ENSG00000130147	<i>SH3BP4</i>	161.19	40.82	2.01	6.26E-03
ENSG00000221968	<i>FADS3</i>	288.66	71.04	2.01	2.03E-04
ENSG00000170579	<i>DLGAP1</i>	18.93	4.44	2.01	2.96E-02
ENSG00000137269	<i>LRRC1</i>	61.84	15.39	2.01	2.36E-04
ENSG00000177697	<i>CD151</i>	795.11	197.56	2.01	1.45E-04
ENSG00000186638	<i>KIF24</i>	7.57	1.93	2.00	4.98E-03
ENSG00000277639		0.65	0.14	2.00	2.65E-02
ENSG00000198354	<i>DCAF12L2</i>	80.26	20.68	2.00	6.53E-04
ENSG00000143367	<i>TUFT1</i>	36.32	9.56	2.00	1.18E-03
ENSG00000136108	<i>CKAP2</i>	70.83	17.92	2.00	5.93E-04
ENSG00000104728	<i>ARHGEF10</i>	34.76	8.75	2.00	8.98E-04
ENSG00000154175	<i>ABI3BP</i>	101.48	28.67	1.99	5.86E-03
ENSG00000115159	<i>GPD2</i>	107.05	26.46	1.99	5.62E-04
ENSG00000183722	<i>LHFPL6</i>	40.00	9.97	1.99	4.16E-04
ENSG00000168398	<i>BDKRB2</i>	15.43	5.83	1.99	3.76E-02
ENSG00000152804	<i>HHEX</i>	11.93	3.28	1.99	5.19E-03
ENSG00000088538	<i>DOCK3</i>	15.77	2.87	1.99	4.15E-02
ENSG00000121989	<i>ACVR2A</i>	20.73	4.38	1.99	1.15E-02
ENSG00000140836	<i>ZFH3</i>	95.95	21.41	1.99	1.04E-02
ENSG00000165801	<i>ARHGEF40</i>	166.48	41.52	1.99	5.43E-04
ENSG00000160007	<i>ARHGAP35</i>	241.83	61.21	1.98	2.93E-04
ENSG00000153904	<i>DDAH1</i>	172.83	43.80	1.98	2.62E-04
ENSG00000145604	<i>SKP2</i>	51.63	12.95	1.98	1.42E-03

ENSG00000150630	<i>VEGFC</i>	108.82	26.50	1.98	2.95E-03
ENSG00000172380	<i>GNG12</i>	448.30	113.37	1.98	1.62E-04
ENSG00000117020	<i>AKT3</i>	88.41	22.30	1.98	8.86E-04
ENSG00000163171	<i>CDC42EP3</i>	176.09	45.46	1.98	3.31E-04
ENSG00000166473	<i>PKD1L2</i>	4.52	1.12	1.98	1.36E-02
ENSG00000115844	<i>DLX2</i>	1.81	0.50	1.97	3.24E-02
ENSG00000070371	<i>CLTCL1</i>	43.63	10.97	1.97	9.85E-04
ENSG00000100320	<i>RBFOX2</i>	192.32	49.94	1.97	8.52E-04
ENSG00000100065	<i>CARD10</i>	51.33	13.43	1.97	6.96E-04
ENSG00000198598	<i>MMP17</i>	10.16	2.66	1.97	3.61E-02
ENSG00000119227	<i>PIGZ</i>	6.55	1.58	1.97	4.39E-03
ENSG00000106617	<i>PRKAG2</i>	83.75	21.79	1.97	7.48E-04
ENSG00000011028	<i>MRC2</i>	499.88	131.11	1.97	8.49E-04
ENSG00000154511	<i>DIPK1A</i>	34.59	9.05	1.96	6.62E-04
ENSG00000181588	<i>MEX3D</i>	31.04	7.75	1.96	4.43E-03
ENSG00000163596	<i>ICA1L</i>	11.00	3.45	1.96	2.24E-02
ENSG00000163697	<i>APBB2</i>	162.82	42.94	1.96	5.13E-04
ENSG00000244694	<i>PTCHD4</i>	5.69	1.39	1.96	1.11E-02
ENSG00000219607	<i>PPP1R3G</i>	13.61	3.63	1.96	5.03E-03
ENSG00000213047	<i>DENND1B</i>	28.98	7.38	1.95	7.04E-04
ENSG00000124134	<i>KCNS1</i>	40.95	9.92	1.95	5.83E-03
ENSG00000079459	<i>FDFT1</i>	38.29	10.00	1.95	5.83E-03
ENSG00000073712	<i>FERMT2</i>	198.46	51.13	1.95	2.12E-04
ENSG00000225526	<i>MKRN2OS</i>	0.87	0.23	1.95	3.41E-02
ENSG00000110660	<i>SLC35F2</i>	44.88	11.94	1.95	8.54E-04
ENSG00000146410	<i>MTFR2</i>	4.55	1.19	1.95	1.43E-02
ENSG00000142794	<i>NBPF3</i>	33.37	8.64	1.94	5.41E-04
ENSG00000204956	<i>PCDHGA1</i>	2.44	0.59	1.94	3.46E-02
ENSG00000078795	<i>PKD2L2</i>	1.68	0.41	1.94	2.43E-02
ENSG00000110723	<i>EXPH5</i>	3.05	0.71	1.94	4.79E-02
ENSG00000145990	<i>GFOD1</i>	40.64	9.75	1.93	9.61E-03
ENSG00000070087	<i>PFN2</i>	321.27	83.86	1.93	2.01E-03
ENSG00000091436	<i>MAP3K20</i>	308.07	80.70	1.93	1.25E-04
ENSG00000073111	<i>MCM2</i>	67.23	16.25	1.93	7.64E-03
ENSG00000182263	<i>FIGN</i>	18.26	4.79	1.93	1.92E-03
ENSG00000139915	<i>MDGA2</i>	5.06	1.31	1.93	4.62E-03
ENSG00000205746	<i>PKD1P4</i>	53.25	13.79	1.93	3.52E-03
ENSG00000075618	<i>FSCN1</i>	1303.36	339.83	1.93	7.98E-03
ENSG00000107731	<i>UNC5B</i>	296.32	82.34	1.93	1.84E-03
ENSG00000167106	<i>FAM102A</i>	197.08	46.05	1.93	1.60E-02
ENSG00000075223	<i>SEMA3C</i>	343.16	83.66	1.93	1.53E-02
ENSG00000154639	<i>CXADR</i>	32.75	8.57	1.93	4.82E-04
ENSG00000185697	<i>MYBL1</i>	27.17	7.65	1.93	3.91E-03
ENSG00000123975	<i>CKS2</i>	38.30	10.29	1.93	2.30E-03
ENSG00000164114	<i>MAP9</i>	45.39	11.87	1.93	3.37E-04
ENSG00000113810	<i>SMC4</i>	130.80	34.13	1.92	3.85E-04
ENSG00000285542		1.32	0.34	1.92	2.60E-02
ENSG00000041515	<i>MYO16</i>	1.94	0.48	1.92	1.74E-02
ENSG00000131470	<i>PSMC3IP</i>	11.38	2.85	1.92	2.79E-03
ENSG00000165626	<i>BEND7</i>	17.20	4.75	1.92	8.03E-03
ENSG00000138336	<i>TET1</i>	3.93	1.00	1.91	1.63E-02
ENSG00000152104	<i>PTPN14</i>	296.97	84.52	1.91	3.18E-03
ENSG00000144283	<i>PKP4</i>	121.10	32.11	1.91	1.93E-04
ENSG00000020577	<i>SAMD4A</i>	59.45	14.06	1.91	6.59E-03
ENSG00000074590	<i>NUAK1</i>	246.40	66.21	1.91	4.47E-04
ENSG00000132434	<i>LANCL2</i>	60.65	16.52	1.91	1.46E-03
ENSG00000173848	<i>NET1</i>	40.39	10.91	1.91	1.08E-03
ENSG00000152779	<i>SLC16A12</i>	0.94	0.25	1.91	4.82E-02

ENSG00000184986	<i>TMEM121</i>	2.24	0.72	1.91	4.41E-02
ENSG00000196498	<i>NCOR2</i>	346.79	80.38	1.90	1.25E-02
ENSG00000180263	<i>FGD6</i>	30.29	8.13	1.90	6.60E-04
ENSG00000067798	<i>NAV3</i>	37.00	8.49	1.90	1.34E-02
ENSG00000070669	<i>ASNS</i>	114.09	31.56	1.90	2.66E-02
ENSG00000146242	<i>TPBG</i>	48.05	13.55	1.90	1.53E-03
ENSG00000168487	<i>BMP1</i>	195.37	49.62	1.90	3.10E-03
ENSG00000186854	<i>TRABD2A</i>	70.25	19.15	1.90	4.73E-04
ENSG00000156427	<i>FGF18</i>	1.76	0.46	1.90	1.99E-02
ENSG00000136378	<i>ADAMTS7</i>	31.72	8.41	1.90	1.48E-03
ENSG00000166780	<i>BMERB1</i>	49.98	14.13	1.90	2.15E-03
ENSG00000198121	<i>LPAR1</i>	25.32	7.07	1.89	1.99E-03
ENSG00000172819	<i>RARG</i>	28.50	8.11	1.89	5.47E-03
ENSG00000213626	<i>LBH</i>	184.76	40.31	1.89	2.52E-02
ENSG00000169379	<i>ARL13B</i>	31.20	8.46	1.89	5.77E-04
ENSG00000185551	<i>NR2F2</i>	124.93	35.55	1.89	2.17E-03
ENSG00000172301	<i>COPRS</i>	84.41	21.86	1.89	8.29E-04
ENSG00000160298	<i>C21orf58</i>	8.91	2.60	1.89	9.38E-03
ENSG00000164111	<i>ANXA5</i>	1364.42	367.40	1.88	2.49E-04
ENSG00000134253	<i>TRIM45</i>	6.65	2.10	1.88	2.46E-02
ENSG00000105855	<i>ITGB8</i>	52.18	13.70	1.88	7.69E-03
ENSG00000158623	<i>COPG2</i>	91.89	25.86	1.88	1.19E-03
ENSG00000035403	<i>VCL</i>	830.43	224.40	1.88	2.87E-04
ENSG00000164104	<i>HMGB2</i>	112.70	30.25	1.88	3.14E-03
ENSG00000103187	<i>COTL1</i>	447.18	124.43	1.87	4.43E-04
ENSG00000151491	<i>EPS8</i>	155.20	43.05	1.87	4.52E-04
ENSG00000178665	<i>ZNF713</i>	5.13	1.36	1.87	2.25E-02
ENSG00000164828	<i>SUN1</i>	355.55	97.90	1.87	2.20E-04
ENSG00000011332	<i>DPF1</i>	3.81	0.86	1.87	3.13E-02
ENSG00000049759	<i>NEDD4L</i>	60.73	16.60	1.87	2.87E-04
ENSG00000135362	<i>PRR5L</i>	29.24	7.74	1.87	1.29E-02
ENSG00000218336	<i>TENM3</i>	227.89	87.98	1.87	4.11E-02
ENSG00000163491	<i>NEK10</i>	7.33	1.83	1.86	1.16E-02
ENSG00000168916	<i>ZNF608</i>	23.79	7.15	1.86	5.81E-03
ENSG00000168938	<i>PPIC</i>	71.15	20.08	1.86	1.68E-03
ENSG00000151150	<i>ANK3</i>	63.09	18.66	1.86	4.63E-03
ENSG00000123146	<i>ADGRE5</i>	140.53	40.68	1.86	1.16E-03
ENSG00000197879	<i>MYO1C</i>	484.73	132.04	1.86	3.32E-04
ENSG00000145362	<i>ANK2</i>	53.70	15.50	1.86	3.28E-03
ENSG00000116132	<i>PRRX1</i>	50.00	13.99	1.86	1.17E-03
ENSG00000114786	<i>ABHD14A-ACY1</i>	3.29	0.97	1.86	1.97E-02
ENSG00000175602	<i>CCDC85B</i>	101.69	28.26	1.86	1.11E-02
ENSG00000196584	<i>XRCC2</i>	9.42	2.70	1.85	5.27E-03
ENSG00000196754	<i>S100A2</i>	9.41	2.56	1.85	4.65E-03
ENSG00000141510	<i>TP53</i>	99.92	28.55	1.85	9.27E-04
ENSG00000204580	<i>DDR1</i>	100.32	25.91	1.85	1.65E-02
ENSG00000132122	<i>SPATA6</i>	6.09	1.83	1.85	1.94E-02
ENSG00000081026	<i>MAGI3</i>	20.41	5.77	1.85	9.22E-04
ENSG00000164045	<i>CDC25A</i>	10.05	2.42	1.84	1.39E-02
ENSG00000240445	<i>FOXO3B</i>	8.69	3.06	1.84	4.48E-02
ENSG00000185761	<i>ADAMTSL5</i>	9.49	2.70	1.84	2.71E-03
ENSG00000196159	<i>FAT4</i>	143.33	39.93	1.84	1.90E-04
ENSG00000087077	<i>TRIP6</i>	210.46	59.59	1.84	3.79E-04
ENSG0000019485	<i>PRDM11</i>	14.79	4.01	1.84	2.15E-03
ENSG00000171680	<i>PLEKHG5</i>	12.32	3.79	1.84	2.04E-02
ENSG00000150347	<i>ARID5B</i>	122.29	34.67	1.84	6.03E-04
ENSG00000205208	<i>C4orf46</i>	19.63	5.64	1.84	5.97E-03
ENSG00000119943	<i>PYROXD2</i>	33.42	9.75	1.84	6.20E-03

ENSG00000173706	<i>HEG1</i>	490.14	137.03	1.84	1.86E-04
ENSG00000131187	<i>F12</i>	2.35	0.64	1.84	1.38E-02
ENSG00000137135	<i>ARHGEF39</i>	7.99	2.27	1.84	3.61E-03
ENSG00000266885		5.79	1.96	1.84	4.78E-02
ENSG00000138119	<i>MYOF</i>	630.21	182.64	1.83	7.82E-04
ENSG00000118257	<i>NRP2</i>	423.08	118.46	1.83	1.71E-04
ENSG00000107130	<i>NCS1</i>	101.26	26.01	1.83	4.01E-03
ENSG00000186591	<i>UBE2H</i>	521.07	148.32	1.83	5.89E-04
ENSG00000076382	<i>SPAG5</i>	33.75	9.84	1.83	1.13E-03
ENSG00000036672	<i>USP2</i>	4.08	1.13	1.83	2.82E-02
ENSG00000143179	<i>UCK2</i>	85.93	24.08	1.82	2.36E-04
ENSG00000151136	<i>ABTB3</i>	6.85	2.04	1.82	1.57E-02
ENSG00000142303	<i>ADAMTS10</i>	50.59	14.32	1.82	4.66E-03
ENSG00000033122	<i>LRRC7</i>	7.48	2.43	1.82	2.35E-02
ENSG00000104450	<i>SPAG1</i>	21.36	6.05	1.82	2.17E-03
ENSG00000187583	<i>PLEKHN1</i>	7.39	2.09	1.82	8.18E-03
ENSG00000172878	<i>METAP1D</i>	20.47	5.96	1.82	1.29E-03
ENSG00000156026	<i>MCU</i>	51.04	14.53	1.82	2.09E-03
ENSG00000146263	<i>MMS22L</i>	22.23	5.73	1.81	3.83E-03
ENSG00000284946		14.79	4.31	1.81	2.42E-03
ENSG00000172345	<i>STARD5</i>	20.25	5.68	1.81	1.89E-03
ENSG00000104356	<i>POP1</i>	40.68	11.84	1.81	1.82E-03
ENSG00000188486	<i>H2AX</i>	91.52	26.21	1.81	5.12E-04
ENSG00000110841	<i>PPFIBP1</i>	165.78	47.57	1.81	2.21E-04
ENSG00000139926	<i>FRMD6</i>	240.91	79.02	1.81	1.23E-02
ENSG00000094755	<i>GABRP</i>	8.96	2.49	1.81	3.86E-02
ENSG00000175600	<i>SUGCT</i>	10.26	2.69	1.81	2.22E-02
ENSG00000137309	<i>HMGA1</i>	174.45	51.01	1.80	8.29E-04
ENSG00000176720	<i>BOK</i>	69.27	19.11	1.80	8.99E-04
ENSG00000116675	<i>DNAJC6</i>	23.55	6.47	1.80	1.16E-02
ENSG00000168528	<i>SERINC2</i>	76.52	21.99	1.80	1.32E-03
ENSG00000181619	<i>GPR135</i>	14.01	3.46	1.80	1.29E-02
ENSG00000050438	<i>SLC4A8</i>	16.96	3.63	1.79	4.86E-02
ENSG00000007384	<i>RHBDF1</i>	49.49	14.83	1.79	1.24E-03
ENSG00000276550	<i>HERC2P2</i>	15.84	3.45	1.79	4.27E-02
ENSG00000167191	<i>GPRC5B</i>	50.09	14.37	1.79	4.58E-03
ENSG00000134779	<i>TPGS2</i>	140.04	40.85	1.79	5.55E-04
ENSG00000151553	<i>FHIP2A</i>	106.15	29.81	1.78	8.48E-04
ENSG00000128602	<i>SMO</i>	34.30	10.57	1.78	2.90E-03
ENSG00000101412	<i>E2F1</i>	28.33	7.51	1.78	6.72E-03
ENSG00000115365	<i>LANCL1</i>	116.57	35.21	1.78	1.29E-03
ENSG00000164604	<i>GPR85</i>	5.74	1.83	1.78	1.93E-02
ENSG00000187942	<i>LDLRAD2</i>	7.69	2.09	1.78	1.61E-02
ENSG00000125319	<i>HROB</i>	4.21	1.25	1.78	2.13E-02
ENSG00000164542	<i>KIAA0895</i>	22.54	6.77	1.78	3.67E-03
ENSG00000221926	<i>TRIM16</i>	93.45	28.24	1.78	4.04E-03
ENSG00000138092	<i>CENPO</i>	31.87	9.65	1.77	2.22E-03
ENSG00000146842	<i>TMEM209</i>	57.90	16.75	1.77	5.51E-04
ENSG00000070950	<i>RAD18</i>	40.23	11.47	1.77	9.27E-04
ENSG00000114698	<i>PLSCR4</i>	116.09	32.24	1.77	3.94E-03
ENSG00000100297	<i>MCM5</i>	74.27	20.58	1.77	3.02E-03
ENSG00000127423	<i>AUNIP</i>	2.79	0.90	1.77	2.82E-02
ENSG00000123219	<i>CENPK</i>	15.45	4.67	1.77	2.24E-03
ENSG00000130529	<i>TRPM4</i>	33.95	9.85	1.77	1.08E-03
ENSG00000225210	<i>DUXAP9</i>	75.26	21.96	1.76	2.78E-04
ENSG00000172164	<i>SNTB1</i>	78.73	22.92	1.76	1.11E-03
ENSG00000182247	<i>UBE2E2</i>	72.04	20.71	1.76	2.46E-03
ENSG00000141905	<i>NFIC</i>	400.33	118.08	1.76	2.87E-04

ENSG00000172731	<i>LRRC20</i>	11.83	4.16	1.76	3.68E-02
ENSG00000174028	<i>FAM3C2P</i>	21.59	7.14	1.76	8.56E-03
ENSG00000162599	<i>NFIA</i>	12.77	4.01	1.76	1.55E-02
ENSG00000108846	<i>ABCC3</i>	535.94	158.68	1.76	1.75E-04
ENSG00000160789	<i>LMNA</i>	753.18	228.23	1.76	6.53E-04
ENSG00000118762	<i>PKD2</i>	141.38	41.31	1.75	3.52E-04
ENSG00000186767	<i>SPIN4</i>	12.62	3.73	1.75	3.76E-03
ENSG00000178209	<i>PLEC</i>	1996.69	578.57	1.75	9.11E-03
ENSG00000123096	<i>SSPN</i>	16.15	4.92	1.75	3.39E-03
ENSG00000120875	<i>DUSP4</i>	43.73	13.57	1.75	3.96E-03
ENSG00000169031	<i>COL4A3</i>	9.40	2.51	1.75	1.08E-02
ENSG00000177508	<i>IRX3</i>	11.70	3.41	1.75	1.90E-02
ENSG00000225264	<i>ZNRF2P2</i>	2.26	0.72	1.75	4.47E-02
ENSG00000259726	<i>CSPG4P11</i>	3.58	1.04	1.75	1.83E-02
ENSG00000149798	<i>CDC42EP2</i>	16.85	5.14	1.75	1.79E-03
ENSG00000171492	<i>LRRC8D</i>	78.35	23.51	1.74	4.35E-04
ENSG00000175471	<i>MCTP1</i>	28.16	8.99	1.74	1.41E-02
ENSG00000164023	<i>SGMS2</i>	104.60	26.90	1.74	2.21E-02
ENSG00000213185	<i>FAM24B</i>	3.70	1.11	1.74	1.94E-02
ENSG00000172667	<i>ZMAT3</i>	92.07	24.67	1.74	1.09E-02
ENSG00000125744	<i>RTN2</i>	18.53	5.76	1.74	4.43E-03
ENSG00000184304	<i>PRKD1</i>	34.62	10.36	1.74	2.56E-03
ENSG00000114423	<i>CBLB</i>	155.20	46.70	1.74	3.64E-03
ENSG00000154920	<i>EME1</i>	6.83	2.10	1.74	7.72E-03
ENSG00000072201	<i>LNK1</i>	4.98	1.47	1.74	1.27E-02
ENSG00000118965	<i>WDR35</i>	38.96	12.10	1.73	1.75E-03
ENSG00000143147	<i>GPR161</i>	28.52	8.70	1.73	1.26E-02
ENSG00000160957	<i>RECQL4</i>	31.09	9.45	1.73	2.77E-02
ENSG00000179456	<i>ZBTB18</i>	64.91	20.01	1.73	1.70E-03
ENSG00000039139	<i>DNAH5</i>	3.07	0.99	1.73	2.35E-02
ENSG00000067191	<i>CACNB1</i>	5.36	1.59	1.73	2.85E-02
ENSG00000109756	<i>RAPGEF2</i>	115.94	35.15	1.73	2.49E-04
ENSG00000146707	<i>POMZP3</i>	7.29	2.08	1.73	3.79E-02
ENSG00000197077	<i>KIAA1671</i>	68.27	21.51	1.73	1.73E-03
ENSG00000077942	<i>FBLN1</i>	10.17	3.32	1.72	1.38E-02
ENSG00000075711	<i>DLG1</i>	140.11	42.45	1.72	2.09E-04
ENSG00000155755	<i>TMEM237</i>	55.82	17.17	1.72	7.46E-04
ENSG00000108947	<i>EFNB3</i>	9.87	3.07	1.72	1.11E-02
ENSG00000151632	<i>AKR1C2</i>	3.96	1.21	1.72	1.49E-02
ENSG00000154127	<i>UBASH3B</i>	72.14	19.09	1.72	1.47E-02
ENSG00000128596	<i>CCDC136</i>	13.06	4.18	1.71	1.67E-02
ENSG00000114346	<i>ECT2</i>	63.32	19.03	1.71	2.70E-03
ENSG00000155760	<i>FZD7</i>	12.98	4.13	1.71	6.26E-03
ENSG00000128872	<i>TMOD2</i>	27.53	8.63	1.71	3.43E-03
ENSG00000033170	<i>FUT8</i>	43.68	13.81	1.71	1.46E-03
ENSG00000168765	<i>GSTM4</i>	54.17	19.80	1.71	2.07E-02
ENSG00000123737	<i>EXOSC9</i>	77.67	23.61	1.71	3.61E-04
ENSG00000173156	<i>RHOD</i>	46.09	13.93	1.71	1.11E-03
ENSG00000156802	<i>ATAD2</i>	62.37	18.92	1.70	4.82E-04
ENSG00000083857	<i>FAT1</i>	504.16	153.42	1.70	3.54E-04
ENSG00000158315	<i>RHBDL2</i>	4.69	1.49	1.70	1.18E-02
ENSG00000166508	<i>MCM7</i>	146.54	44.90	1.70	2.90E-04
ENSG00000117266	<i>CDK18</i>	97.33	28.12	1.70	3.94E-03
ENSG00000006327	<i>TNFRSF12A</i>	449.14	133.26	1.70	7.88E-03
ENSG00000182199	<i>SHMT2</i>	351.56	103.77	1.70	2.14E-03
ENSG00000173207	<i>CKS1B</i>	47.73	14.44	1.70	6.24E-03
ENSG00000101665	<i>SMAD7</i>	80.76	23.63	1.70	2.04E-03
ENSG00000005189	<i>REXO5</i>	9.80	3.15	1.70	8.01E-03

ENSG00000162063	<i>CCNF</i>	23.56	7.32	1.70	2.38E-03
ENSG00000049130	<i>KITLG</i>	70.95	21.41	1.70	6.95E-03
ENSG00000213465	<i>ARL2</i>	79.31	24.50	1.69	5.75E-04
ENSG00000285816		11.01	3.51	1.69	4.58E-02
ENSG00000141391	<i>PRELID3A</i>	9.39	3.00	1.69	8.70E-03
ENSG00000264522	<i>OTUD7B</i>	74.86	22.34	1.69	3.89E-03
ENSG00000170017	<i>ALCAM</i>	534.89	198.95	1.69	2.20E-02
ENSG00000113645	<i>WWC1</i>	92.79	30.90	1.69	4.18E-03
ENSG00000010292	<i>NCAPD2</i>	101.51	31.39	1.69	5.78E-04
ENSG00000124795	<i>DEK</i>	253.52	79.42	1.68	8.06E-04
ENSG00000183779	<i>ZNF703</i>	46.66	13.28	1.68	6.33E-03
ENSG00000165338	<i>HECTD2</i>	27.15	8.79	1.67	4.16E-03
ENSG00000125848	<i>FLRT3</i>	26.42	9.12	1.67	9.63E-03
ENSG00000072840	<i>EVC</i>	75.90	22.50	1.67	1.12E-02
ENSG00000184584	<i>STING1</i>	30.51	10.10	1.67	1.14E-02
ENSG00000047597	<i>XK</i>	1.93	0.60	1.67	3.70E-02
ENSG00000136261	<i>BZW2</i>	64.19	20.28	1.67	6.73E-04
ENSG00000145545	<i>SRD5A1</i>	47.41	15.25	1.67	3.76E-03
ENSG00000099889	<i>ARVCF</i>	17.16	4.79	1.67	3.24E-02
ENSG00000154473	<i>BUB3</i>	207.19	65.57	1.67	2.93E-04
ENSG00000011105	<i>TSPAN9</i>	140.33	45.93	1.66	1.39E-03
ENSG00000171132	<i>PRKCE</i>	24.07	7.41	1.66	6.22E-03
ENSG00000143079	<i>CTTNBP2NL</i>	60.04	19.30	1.66	7.39E-04
ENSG00000184220	<i>CMSS1</i>	49.97	15.66	1.66	2.48E-03
ENSG00000100605	<i>ITPK1</i>	82.01	25.83	1.66	7.98E-04
ENSG00000235162	<i>C12orf75</i>	43.73	14.05	1.66	7.48E-04
ENSG00000102898	<i>NUTF2</i>	40.12	12.86	1.66	9.61E-04
ENSG00000103319	<i>EEF2K</i>	5.22	1.61	1.65	4.46E-02
ENSG00000048342	<i>CC2D2A</i>	24.11	8.39	1.65	9.72E-03
ENSG00000139324	<i>TMTC3</i>	84.83	25.61	1.65	2.07E-03
ENSG00000117525	<i>F3</i>	429.72	137.55	1.65	3.98E-03
ENSG00000140600	<i>SH3GL3</i>	23.16	8.17	1.65	2.06E-02
ENSG00000087842	<i>PIR</i>	25.40	8.33	1.65	4.11E-02
ENSG00000291006		5.37	1.78	1.64	1.23E-02
ENSG00000115310	<i>RTN4</i>	1049.89	334.96	1.64	4.53E-04
ENSG00000175455	<i>CCDC14</i>	119.88	38.14	1.64	4.99E-04
ENSG00000183763	<i>TRAIP</i>	6.53	2.14	1.64	9.60E-03
ENSG00000065308	<i>TRAM2</i>	338.56	108.54	1.64	2.41E-04
ENSG00000100300	<i>TSPO</i>	175.99	56.88	1.64	4.43E-04
ENSG00000143157	<i>POGK</i>	88.77	27.81	1.64	5.69E-04
ENSG00000172728	<i>FUT10</i>	13.54	4.57	1.64	5.08E-03
ENSG00000076043	<i>REXO2</i>	198.20	60.84	1.64	3.11E-03
ENSG00000089327	<i>FXD5</i>	120.98	38.74	1.64	1.16E-02
ENSG00000008311	<i>AASS</i>	55.14	17.61	1.64	1.33E-02
ENSG00000146963	<i>LUC7L2</i>	235.69	75.77	1.64	6.18E-04
ENSG00000133393	<i>CEP20</i>	36.82	11.77	1.63	7.48E-03
ENSG00000163923	<i>RPL39L</i>	14.24	4.91	1.63	9.46E-03
ENSG00000137691	<i>CFAP300</i>	8.09	2.66	1.63	8.56E-03
ENSG00000179542	<i>SLITRK4</i>	47.45	16.72	1.63	1.97E-02
ENSG00000064666	<i>CNN2</i>	304.22	97.68	1.63	1.53E-03
ENSG00000069869	<i>NEDD4</i>	79.27	25.74	1.63	3.22E-04
ENSG00000143248	<i>RGS5</i>	29.79	8.68	1.62	3.35E-02
ENSG00000011201	<i>ANOS1</i>	39.36	12.74	1.62	7.48E-04
ENSG00000091732	<i>ZC3HC1</i>	38.67	12.75	1.62	8.58E-04
ENSG00000177679	<i>SRRM3</i>	37.95	12.40	1.62	6.63E-04
ENSG00000041880	<i>PARP3</i>	41.84	13.74	1.61	6.88E-04
ENSG00000105137	<i>SYDE1</i>	84.09	27.24	1.61	3.28E-03
ENSG00000143369	<i>ECM1</i>	51.53	17.94	1.61	3.95E-03

ENSG00000163071	<i>SPATA18</i>	11.66	3.82	1.61	2.10E-02
ENSG00000133433	<i>GSTT2B</i>	45.72	15.66	1.61	3.20E-03
ENSG00000165891	<i>E2F7</i>	81.59	27.61	1.61	4.01E-03
ENSG00000171208	<i>NETO2</i>	81.08	26.81	1.61	1.24E-02
ENSG00000162627	<i>SNX7</i>	48.65	15.83	1.60	1.14E-02
ENSG00000110047	<i>EHD1</i>	357.44	97.90	1.60	3.89E-02
ENSG00000119042	<i>SATB2</i>	29.15	10.20	1.60	6.42E-03
ENSG00000078269	<i>SYNJ2</i>	99.36	27.67	1.60	2.55E-02
ENSG00000291080	<i>ZNF252P</i>	8.25	2.84	1.60	1.04E-02
ENSG00000134470	<i>IL15RA</i>	19.38	6.76	1.60	5.89E-03
ENSG00000154027	<i>AK5</i>	7.30	2.54	1.60	1.74E-02
ENSG00000103335	<i>PIEZO1</i>	351.76	109.23	1.60	5.57E-03
ENSG00000112655	<i>PTK7</i>	136.41	43.44	1.60	2.15E-03
ENSG00000154153	<i>RETREG1</i>	11.94	3.80	1.59	5.18E-03
ENSG00000155016	<i>CYP2U1</i>	22.40	7.88	1.59	5.31E-03
ENSG00000164818	<i>DNAAF5</i>	74.68	23.97	1.59	3.06E-03
ENSG00000211584	<i>SLC48A1</i>	68.95	24.00	1.59	4.24E-03
ENSG00000101928	<i>MOSPD1</i>	63.04	21.04	1.59	4.51E-04
ENSG00000145014	<i>TMEM44</i>	29.52	10.60	1.59	9.38E-03
ENSG00000066629	<i>EML1</i>	7.84	2.73	1.59	1.10E-02
ENSG00000125170	<i>DOK4</i>	25.13	8.75	1.59	1.08E-02
ENSG00000114790	<i>ARHGEF26</i>	16.41	5.53	1.59	5.79E-03
ENSG00000139405	<i>RITA1</i>	33.81	11.34	1.59	2.01E-03
ENSG00000180198	<i>RCC1</i>	79.11	26.20	1.59	2.14E-03
ENSG00000267648		2.77	1.04	1.58	4.88E-02
ENSG00000139514	<i>SLC7A1</i>	244.73	83.23	1.58	1.72E-03
ENSG00000196715	<i>VKORC1L1</i>	96.43	32.05	1.58	3.49E-04
ENSG00000108387	<i>SEPTIN4</i>	3.46	1.17	1.58	1.63E-02
ENSG00000176014	<i>TUBB6</i>	257.64	81.41	1.58	8.42E-03
ENSG00000136122	<i>BORA</i>	12.11	4.04	1.58	8.45E-03
ENSG00000120802	<i>TMPO</i>	128.19	43.07	1.58	6.17E-04
ENSG00000109762	<i>SNX25</i>	54.25	18.28	1.58	9.50E-04
ENSG00000065923	<i>SLC9A7</i>	65.81	21.51	1.58	2.15E-03
ENSG00000100479	<i>POLE2</i>	6.09	2.03	1.58	4.69E-02
ENSG00000113272	<i>THG1L</i>	27.22	9.28	1.57	2.77E-03
ENSG00000157800	<i>SLC37A3</i>	74.82	25.06	1.57	3.40E-03
ENSG00000116191	<i>RALGPS2</i>	69.04	23.38	1.57	6.49E-04
ENSG00000140743	<i>CDR2</i>	66.59	23.00	1.57	1.96E-03
ENSG00000105792	<i>CFAP69</i>	8.07	3.01	1.57	3.43E-02
ENSG00000138741	<i>TRPC3</i>	3.77	1.26	1.57	2.27E-02
ENSG00000225840		1479.39	480.47	1.57	1.02E-02
ENSG00000160062	<i>ZBTB8A</i>	13.91	4.76	1.57	2.88E-03
ENSG00000119969	<i>HELLS</i>	6.23	2.14	1.57	2.01E-02
ENSG00000174501	<i>ANKRD36C</i>	9.52	3.19	1.57	2.38E-02
ENSG00000163132	<i>MSX1</i>	9.12	2.90	1.56	1.09E-02
ENSG00000091651	<i>ORC6</i>	24.28	7.93	1.56	3.72E-03
ENSG00000285920		28.75	9.90	1.56	1.35E-03
ENSG00000106686	<i>SPATA6L</i>	9.00	2.83	1.56	3.10E-02
ENSG00000078246	<i>TULP3</i>	49.98	16.52	1.56	1.19E-02
ENSG00000137124	<i>ALDH1B1</i>	115.23	35.03	1.56	1.95E-02
ENSG00000137501	<i>SYTL2</i>	39.62	12.88	1.56	2.75E-03
ENSG00000100116	<i>GCAT</i>	31.72	10.82	1.56	1.48E-03
ENSG00000223459	<i>TCAF1P1</i>	47.66	15.63	1.55	1.20E-02
ENSG00000104147	<i>OIP5</i>	3.44	1.18	1.55	4.07E-02
ENSG00000244405	<i>ETV5</i>	60.34	20.28	1.55	4.20E-03
ENSG00000125868	<i>DSTN</i>	402.23	136.94	1.55	8.63E-04
ENSG00000165912	<i>PACSIN3</i>	13.65	4.79	1.55	3.55E-02
ENSG00000104756	<i>KCTD9</i>	98.95	33.44	1.55	1.78E-03

ENSG00000164877	<i>MICALL2</i>	61.32	19.23	1.55	1.75E-02
ENSG00000171951	<i>SCG2</i>	9.48	3.66	1.55	3.99E-02
ENSG00000083720	<i>OXCT1</i>	58.18	20.51	1.55	2.44E-03
ENSG00000127603	<i>MACF1</i>	643.68	216.67	1.55	2.25E-03
ENSG00000173898	<i>SPTBN2</i>	29.46	10.04	1.55	5.00E-03
ENSG00000188312	<i>CENPP</i>	10.37	3.73	1.55	1.00E-02
ENSG00000143322	<i>ABL2</i>	148.40	51.14	1.55	9.04E-03
ENSG00000165259	<i>HDX</i>	6.02	2.12	1.54	1.65E-02
ENSG00000156398	<i>SFXN2</i>	14.06	4.64	1.54	1.77E-02
ENSG00000162409	<i>PRKAA2</i>	23.37	8.67	1.54	2.19E-02
ENSG00000108679	<i>LGALS3BP</i>	1332.90	462.35	1.54	4.20E-04
ENSG00000112319	<i>EYA4</i>	78.97	28.75	1.54	9.78E-03
ENSG00000175573	<i>C11orf68</i>	71.58	24.65	1.54	9.01E-04
ENSG00000172716	<i>SLFN11</i>	58.96	20.26	1.53	3.04E-03
ENSG00000185480	<i>PARPBP</i>	10.72	3.87	1.53	1.13E-02
ENSG00000213199	<i>ASIC3</i>	9.81	3.54	1.53	1.04E-02
ENSG00000183048	<i>SLC25A10</i>	22.81	8.08	1.53	1.33E-02
ENSG00000166833	<i>NAV2</i>	93.47	28.82	1.53	2.87E-02
ENSG00000227855	<i>DPY19L2P3</i>	3.04	1.10	1.53	4.49E-02
ENSG00000076067	<i>RBMS2</i>	65.70	22.70	1.53	5.17E-04
ENSG00000187676	<i>B3GLCT</i>	23.93	8.41	1.53	3.15E-03
ENSG00000198353	<i>HOXC4</i>	10.03	3.60	1.53	8.67E-03
ENSG00000155099	<i>PIP4P2</i>	22.26	7.86	1.53	1.78E-02
ENSG00000130881	<i>LRP3</i>	36.75	14.65	1.52	2.06E-02
ENSG00000111875	<i>ASF1A</i>	36.36	12.75	1.52	1.14E-02
ENSG00000128944	<i>KNSTRN</i>	23.40	8.50	1.52	5.03E-03
ENSG00000128881	<i>TTBK2</i>	55.26	19.40	1.52	1.17E-03
ENSG00000148019	<i>CEP78</i>	38.31	13.36	1.52	3.44E-03
ENSG00000105426	<i>PTPRS</i>	144.24	49.62	1.52	1.31E-02
ENSG00000144036	<i>EXOC6B</i>	69.98	25.43	1.52	3.08E-03
ENSG00000008735	<i>MAPK8IP2</i>	4.30	1.54	1.52	4.92E-02
ENSG00000115183	<i>TANC1</i>	145.83	51.22	1.52	5.60E-04
ENSG00000138587	<i>MNS1</i>	5.09	1.80	1.52	2.38E-02
ENSG00000271793		413.03	147.24	1.51	1.01E-03
ENSG00000108106	<i>UBE2S</i>	149.14	47.81	1.51	2.46E-02
ENSG00000156172	<i>CFAP418</i>	7.15	2.67	1.51	2.07E-02
ENSG00000188522	<i>FAM83G</i>	43.37	15.39	1.51	2.55E-03
ENSG00000127337	<i>YEATS4</i>	25.06	8.83	1.51	8.81E-03
ENSG00000143970	<i>ASXL2</i>	129.12	42.44	1.51	5.64E-03
ENSG00000167123	<i>CERCAM</i>	155.04	61.59	1.51	2.05E-02
ENSG00000065150	<i>IPO5</i>	403.46	142.33	1.51	5.88E-04
ENSG00000089682	<i>RBM41</i>	34.53	12.57	1.51	5.12E-03
ENSG00000137942	<i>FNBP1L</i>	45.80	15.99	1.51	8.91E-03
ENSG00000119408	<i>NEK6</i>	115.43	40.72	1.51	9.04E-03
ENSG00000134030	<i>CTIF</i>	162.40	58.36	1.50	9.56E-04
ENSG00000119599	<i>DCAF4</i>	25.87	9.40	1.50	8.90E-03
ENSG00000101752	<i>MIB1</i>	139.75	49.26	1.50	3.86E-04
ENSG00000183458	<i>PKD1P3</i>	78.04	26.68	1.50	1.41E-02
ENSG00000273136	<i>NBPF26</i>	59.87	21.32	1.50	2.27E-03
ENSG00000141447	<i>OSBPL1A</i>	75.41	26.75	1.50	1.49E-03
ENSG00000119403	<i>PHF19</i>	45.22	16.22	1.50	9.16E-04
ENSG00000128203	<i>ASPHD2</i>	12.55	4.85	1.50	1.57E-02
ENSG00000134250	<i>NOTCH2</i>	494.56	175.79	1.50	3.92E-04
ENSG0000013619	<i>MAMLD1</i>	23.52	8.32	1.50	6.06E-03
ENSG00000151623	<i>NR3C2</i>	8.44	2.89	1.49	7.57E-03
ENSG00000164236	<i>ANKRD33B</i>	13.86	5.37	1.49	1.67E-02
ENSG00000280987	<i>MATR3</i>	36.20	13.48	1.49	4.82E-03
ENSG00000181027	<i>FKRP</i>	58.48	19.85	1.49	1.88E-03

ENSG00000170558	<i>CDH2</i>	345.09	123.44	1.49	5.55E-04
ENSG00000170365	<i>SMAD1</i>	23.67	8.62	1.49	2.15E-02
ENSG00000118263	<i>KLF7</i>	70.08	25.17	1.49	1.25E-03
ENSG00000185189	<i>NRBP2</i>	84.21	30.36	1.49	1.25E-03
ENSG00000163644	<i>PPM1K</i>	72.97	26.23	1.49	1.47E-03
ENSG00000198056	<i>PRIM1</i>	9.01	3.34	1.49	4.88E-02
ENSG00000230373	<i>GOLGA6L5P</i>	16.09	6.06	1.49	1.16E-02
ENSG00000152492	<i>CCDC50</i>	116.12	41.76	1.49	5.33E-04
ENSG00000143630	<i>HCN3</i>	9.41	3.49	1.49	2.97E-02
ENSG00000270231	<i>NBPF8</i>	26.28	9.63	1.49	5.94E-03
ENSG00000290737		6.28	1.89	1.48	4.83E-02
ENSG00000031691	<i>CENPQ</i>	9.83	3.66	1.48	9.39E-03
ENSG00000206149	<i>HERC2P9</i>	5.57	1.82	1.48	2.21E-02
ENSG00000178184	<i>PARD6G</i>	8.44	3.05	1.48	8.25E-03
ENSG00000183111	<i>ARHGEF37</i>	8.02	3.25	1.48	4.11E-02
ENSG00000071282	<i>LMCD1</i>	51.97	20.75	1.48	1.28E-02
ENSG00000106069	<i>CHN2</i>	4.58	1.74	1.48	3.15E-02
ENSG00000073150	<i>PANX2</i>	24.71	8.95	1.48	1.29E-03
ENSG00000100196	<i>KDELR3</i>	48.73	19.58	1.48	2.06E-02
ENSG00000085999	<i>RAD54L</i>	6.55	2.57	1.47	3.55E-02
ENSG00000143702	<i>CEP170</i>	125.57	45.24	1.47	1.44E-03
ENSG00000108370	<i>RGS9</i>	4.45	1.69	1.47	3.00E-02
ENSG00000168807	<i>SNTB2</i>	116.04	38.90	1.47	9.18E-03
ENSG00000076248	<i>UNG</i>	45.36	16.77	1.47	1.87E-03
ENSG00000186567	<i>CEACAM19</i>	11.70	4.39	1.47	7.86E-03
ENSG00000138735	<i>PDE5A</i>	53.29	21.33	1.47	1.34E-02
ENSG00000087494	<i>PTHLH</i>	10.43	3.73	1.47	5.63E-03
ENSG00000136492	<i>BRIP1</i>	18.28	6.33	1.47	3.88E-03
ENSG00000205726	<i>ITSN1</i>	153.22	56.36	1.47	1.08E-03
ENSG00000080561	<i>MID2</i>	22.09	8.48	1.46	9.91E-03
ENSG00000101298	<i>SNPH</i>	21.87	8.02	1.46	1.98E-03
ENSG00000039560	<i>RAI14</i>	133.84	49.03	1.46	1.44E-03
ENSG00000134318	<i>ROCK2</i>	86.08	31.46	1.46	8.69E-04
ENSG00000106853	<i>PTGR1</i>	109.76	37.54	1.46	2.42E-02
ENSG00000214022	<i>REPIN1</i>	292.93	105.56	1.46	6.13E-04
ENSG00000127586	<i>CHTF18</i>	40.62	13.95	1.46	6.34E-03
ENSG00000214063	<i>TSPAN4</i>	110.14	40.43	1.46	1.15E-03
ENSG00000154146	<i>NRGN</i>	4.52	1.54	1.46	3.31E-02
ENSG00000155970	<i>MICU3</i>	11.82	3.75	1.45	2.60E-02
ENSG00000126705	<i>AHDC1</i>	75.22	27.69	1.45	8.83E-04
ENSG00000187840	<i>EIF4EBP1</i>	112.78	40.93	1.45	1.08E-03
ENSG00000205309	<i>NT5M</i>	3.27	1.23	1.45	4.94E-02
ENSG00000186174	<i>BCL9L</i>	294.33	101.65	1.45	8.93E-03
ENSG00000196730	<i>DAPK1</i>	137.25	50.93	1.45	7.48E-04
ENSG00000167535	<i>CACNB3</i>	29.10	10.97	1.45	3.83E-03
ENSG00000136824	<i>SMC2</i>	47.53	17.64	1.45	1.24E-03
ENSG00000054277	<i>OPN3</i>	39.70	14.89	1.45	1.46E-02
ENSG00000184166	<i>OR1D2</i>	4.22	1.62	1.44	2.68E-02
ENSG00000158352	<i>SHROOM4</i>	15.86	6.31	1.44	1.77E-02
ENSG00000129534	<i>MIS18BP1</i>	42.75	16.51	1.44	2.18E-02
ENSG00000142178	<i>SIK1</i>	22.65	8.14	1.44	9.26E-03
ENSG00000155034	<i>FBXL18</i>	60.91	20.40	1.44	1.16E-02
ENSG00000174442	<i>ZWILCH</i>	25.30	9.40	1.44	3.16E-03
ENSG00000147231	<i>RADX</i>	7.68	2.76	1.44	1.29E-02
ENSG00000290386		14.03	4.45	1.44	4.01E-02
ENSG00000180182	<i>MED14</i>	109.99	40.39	1.44	6.71E-04
ENSG00000182240	<i>BACE2</i>	56.34	21.45	1.44	3.23E-03
ENSG00000144677	<i>CTDSPL</i>	52.83	19.73	1.44	1.63E-03

ENSG00000198034	<i>RPS4X</i>	1495.60	554.37	1.44	4.59E-04
ENSG00000160208	<i>RRP1B</i>	101.53	37.10	1.44	6.79E-04
ENSG00000234127	<i>TRIM26</i>	18.93	7.71	1.44	3.49E-02
ENSG00000169641	<i>LUZP1</i>	120.57	44.81	1.44	1.18E-03
ENSG00000164506	<i>STXBP5</i>	62.09	23.15	1.44	1.77E-03
ENSG00000176842	<i>IRX5</i>	23.72	7.35	1.43	3.03E-02
ENSG00000183814	<i>LIN9</i>	6.32	2.44	1.43	1.80E-02
ENSG00000118508	<i>RAB32</i>	79.54	30.27	1.43	7.83E-03
ENSG00000140534	<i>TICRR</i>	12.27	5.27	1.43	4.96E-02
ENSG00000153786	<i>ZDHHC7</i>	170.41	62.75	1.43	5.99E-04
ENSG00000157657	<i>ZNF618</i>	40.19	15.18	1.43	1.95E-03
ENSG00000079482	<i>OPHN1</i>	43.82	15.94	1.43	1.74E-03
ENSG00000175183	<i>CSRP2</i>	15.30	5.96	1.43	6.90E-03
ENSG00000176619	<i>LMNB2</i>	202.80	73.82	1.43	1.55E-03
ENSG00000148516	<i>ZEB1</i>	37.67	14.30	1.43	4.98E-03
ENSG00000157654	<i>PALM2AKAP2</i>	275.51	104.19	1.43	1.13E-03
ENSG00000240184	<i>PCDHGC3</i>	60.82	24.23	1.43	2.40E-02
ENSG00000064225	<i>ST3GAL6</i>	18.79	7.39	1.43	8.49E-03
ENSG00000058804	<i>NDC1</i>	45.17	16.94	1.43	1.69E-03
ENSG00000091127	<i>PUS7</i>	42.95	16.73	1.43	8.26E-03
ENSG00000151929	<i>BAG3</i>	93.99	34.69	1.43	9.73E-04
ENSG00000071205	<i>ARHGAP10</i>	31.13	11.77	1.42	1.40E-03
ENSG00000154845	<i>PPP4R1</i>	164.16	61.06	1.42	4.16E-04
ENSG00000147454	<i>SLC25A37</i>	232.44	90.18	1.42	1.77E-02
ENSG00000108479	<i>GALK1</i>	31.53	11.76	1.42	2.59E-03
ENSG00000100345	<i>MYH9</i>	3434.60	1228.53	1.42	7.60E-03
ENSG00000277443	<i>MARCKS</i>	708.60	267.75	1.42	1.51E-03
ENSG00000073792	<i>IGF2BP2</i>	72.16	27.49	1.42	1.91E-03
ENSG00000004139	<i>SARM1</i>	113.77	41.25	1.42	1.26E-02
ENSG00000132846	<i>ZBED3</i>	26.82	10.23	1.42	2.27E-03
ENSG00000204176	<i>SYT15</i>	8.34	3.11	1.42	1.88E-02
ENSG00000163629	<i>PTPN13</i>	44.87	17.27	1.42	2.55E-03
ENSG00000140682	<i>TGFB1I1</i>	37.97	14.30	1.42	2.99E-03
ENSG00000155545	<i>MIER3</i>	50.31	16.17	1.42	3.35E-02
ENSG00000186283	<i>TOR3A</i>	60.74	22.71	1.42	1.70E-03
ENSG00000158445	<i>KCNB1</i>	4.34	1.63	1.42	3.84E-02
ENSG00000158163	<i>DZIP1L</i>	17.92	6.28	1.42	1.95E-02
ENSG00000198369	<i>SPRED2</i>	54.06	20.56	1.42	1.63E-03
ENSG00000152818	<i>UTRN</i>	141.25	53.02	1.42	5.47E-04
ENSG00000120837	<i>NFYB</i>	49.11	18.51	1.42	1.16E-03
ENSG00000197603	<i>CPLANE1</i>	51.88	19.81	1.41	1.37E-03
ENSG00000033867	<i>SLC4A7</i>	110.49	40.25	1.41	3.58E-03
ENSG00000152601	<i>MBNL1</i>	246.05	93.09	1.41	5.79E-04
ENSG00000091136	<i>LAMB1</i>	356.87	142.82	1.41	1.51E-02
ENSG00000196975	<i>ANXA4</i>	90.41	33.79	1.41	4.59E-03
ENSG00000168575	<i>SLC20A2</i>	95.63	33.14	1.41	1.14E-02
ENSG00000114853	<i>ZBTB47</i>	51.26	19.01	1.41	2.10E-03
ENSG00000187735	<i>TCEA1</i>	244.60	77.73	1.41	3.92E-02
ENSG00000197757	<i>HOXC6</i>	17.39	6.74	1.41	4.35E-03
ENSG00000188070	<i>ZFTA</i>	36.24	13.69	1.41	8.27E-03
ENSG00000182481	<i>KPNA2</i>	151.41	56.48	1.41	3.37E-03
ENSG00000158528	<i>PPP1R9A</i>	19.22	7.34	1.41	5.00E-03
ENSG00000166452	<i>AKIP1</i>	57.88	22.39	1.41	6.00E-03
ENSG00000162607	<i>USP1</i>	77.90	29.54	1.41	2.37E-03
ENSG00000141519	<i>CCDC40</i>	7.07	2.77	1.41	3.41E-02
ENSG00000110619	<i>CARS1</i>	92.02	34.00	1.41	1.43E-02
ENSG00000106392	<i>C1GALT1</i>	75.86	28.44	1.40	3.52E-03
ENSG00000161692	<i>DBF4B</i>	12.20	5.07	1.40	3.41E-02

ENSG00000143156	<i>NME7</i>	27.25	10.42	1.40	1.69E-02
ENSG00000151746	<i>BICD1</i>	33.74	11.41	1.40	1.43E-02
ENSG00000169604	<i>ANTXR1</i>	298.79	123.34	1.40	2.11E-02
ENSG00000156265	<i>MAP3K7CL</i>	8.94	3.29	1.40	1.76E-02
ENSG00000137393	<i>RNF144B</i>	19.75	7.93	1.40	2.34E-02
ENSG00000112078	<i>KCTD20</i>	233.90	88.00	1.40	5.50E-04
ENSG00000018510	<i>AGPS</i>	140.45	53.81	1.40	1.14E-03
ENSG00000162825	<i>NBPF20</i>	35.93	12.86	1.40	4.34E-03
ENSG00000264343	<i>NOTCH2NLA</i>	34.23	10.91	1.40	3.76E-02
ENSG00000270392	<i>PFN1P2</i>	16.24	5.47	1.40	2.65E-02
ENSG00000011114	<i>BTBD7</i>	34.21	11.38	1.40	3.04E-02
ENSG00000114999	<i>TTL</i>	108.72	41.02	1.40	7.92E-04
ENSG00000146373	<i>RNF217</i>	34.29	11.56	1.40	1.56E-02
ENSG00000172167	<i>MTBP</i>	6.61	2.51	1.39	4.29E-02
ENSG00000148660	<i>CAMK2G</i>	73.95	28.33	1.39	6.62E-04
ENSG00000177119	<i>ANO6</i>	172.06	66.53	1.39	1.95E-03
ENSG00000166398	<i>GARRE1</i>	64.79	24.14	1.39	1.15E-02
ENSG00000163069	<i>SGCB</i>	93.62	35.82	1.39	1.44E-03
ENSG00000123179	<i>EBPL</i>	33.89	11.77	1.39	3.36E-02
ENSG00000108468	<i>CBX1</i>	130.37	49.34	1.39	1.11E-03
ENSG00000149260	<i>CAPN5</i>	53.61	19.75	1.39	2.65E-03
ENSG00000065057	<i>NTHL1</i>	13.75	5.46	1.39	8.36E-03
ENSG00000181396	<i>OGFOD3</i>	80.57	30.48	1.39	3.13E-03
ENSG00000115266	<i>APC2</i>	15.86	6.15	1.39	4.49E-03
ENSG00000106823	<i>ECM2</i>	11.64	4.99	1.38	4.33E-02
ENSG00000167325	<i>RRM1</i>	100.88	38.13	1.38	1.71E-03
ENSG00000176148	<i>TCP11L1</i>	30.57	11.77	1.38	1.71E-03
ENSG00000006534	<i>ALDH3B1</i>	73.31	25.95	1.38	8.54E-03
ENSG00000008405	<i>CRY1</i>	40.55	15.14	1.38	3.88E-03
ENSG00000160447	<i>PKN3</i>	10.73	4.13	1.38	7.86E-03
ENSG00000076706	<i>MCAM</i>	780.44	303.31	1.38	1.22E-03
ENSG00000119900	<i>OGFRL1</i>	173.33	67.71	1.38	7.07E-03
ENSG00000171793	<i>CTPS1</i>	91.81	36.04	1.38	1.93E-03
ENSG00000130962	<i>PRRG1</i>	31.77	12.37	1.38	5.69E-03
ENSG00000111962	<i>UST</i>	32.91	12.97	1.38	5.45E-03
ENSG00000117411	<i>B4GALT2</i>	100.90	38.76	1.38	1.08E-03
ENSG00000013810	<i>TACC3</i>	63.15	24.49	1.38	1.45E-03
ENSG00000033178	<i>UBA6</i>	173.04	69.52	1.38	2.21E-02
ENSG00000187498	<i>COL4A1</i>	1547.30	613.89	1.37	2.95E-03
ENSG00000228716	<i>DHFR</i>	53.73	21.03	1.37	1.33E-03
ENSG00000026025	<i>VIM</i>	3771.44	1472.34	1.37	3.64E-02
ENSG00000120334	<i>CENPL</i>	10.98	4.34	1.37	1.43E-02
ENSG00000132563	<i>REEP2</i>	15.49	5.93	1.37	3.85E-03
ENSG00000038382	<i>TRIO</i>	354.77	123.81	1.37	3.00E-02
ENSG00000116117	<i>PARD3B</i>	63.15	25.26	1.37	7.90E-03
ENSG00000133657	<i>ATP13A3</i>	604.54	223.28	1.36	1.29E-02
ENSG00000105849	<i>POLR1F</i>	49.19	19.02	1.36	1.34E-02
ENSG00000164050	<i>PLXNB1</i>	29.41	11.09	1.36	1.43E-02
ENSG00000205593	<i>DENND6B</i>	12.53	4.86	1.36	1.88E-02
ENSG00000198780	<i>FAM169A</i>	8.55	3.59	1.36	2.40E-02
ENSG00000187231	<i>SESTD1</i>	40.40	16.08	1.36	6.29E-03
ENSG00000269190	<i>FBXO17</i>	13.27	5.24	1.36	6.49E-03
ENSG00000205542	<i>TMSB4X</i>	2475.38	979.89	1.36	1.08E-03
ENSG00000001461	<i>NIPAL3</i>	60.69	23.68	1.36	2.01E-03
ENSG00000026508	<i>CD44</i>	393.13	162.78	1.36	1.62E-02
ENSG00000143776	<i>CDC42BPA</i>	125.42	47.88	1.35	6.20E-03
ENSG00000151240	<i>DIP2C</i>	59.22	22.62	1.35	4.14E-03
ENSG00000148411	<i>NACC2</i>	71.75	26.47	1.35	1.15E-02

ENSG00000001460	<i>STPG1</i>	11.47	4.64	1.35	2.41E-02
ENSG00000128340	<i>RAC2</i>	139.93	55.26	1.35	2.30E-03
ENSG00000152894	<i>PTPRK</i>	76.49	29.44	1.35	4.76E-03
ENSG00000140262	<i>TCF12</i>	100.70	40.25	1.35	1.96E-03
ENSG00000173548	<i>SNX33</i>	61.38	24.24	1.35	2.20E-03
ENSG00000100711	<i>ZFYVE21</i>	52.05	20.27	1.35	1.64E-03
ENSG00000071189	<i>SNX13</i>	111.46	42.35	1.35	4.27E-03
ENSG00000203485	<i>INF2</i>	173.18	67.15	1.35	3.97E-03
ENSG00000189007	<i>ADAT2</i>	20.42	7.67	1.35	1.08E-02
ENSG00000204138	<i>PHACTR4</i>	65.91	26.16	1.35	2.63E-03
ENSG00000164070	<i>HSPA4L</i>	23.45	8.85	1.35	1.43E-02
ENSG00000176472	<i>ZNF575</i>	2.89	1.09	1.35	3.79E-02
ENSG00000196781	<i>TLE1</i>	62.19	24.88	1.35	2.21E-03
ENSG00000166147	<i>FBN1</i>	974.63	383.64	1.34	1.86E-03
ENSG00000290418	<i>TPTEP1</i>	35.09	14.34	1.34	3.76E-03
ENSG00000092820	<i>EZR</i>	631.46	253.17	1.34	2.83E-03
ENSG00000163939	<i>PBRM1</i>	124.76	49.42	1.34	1.49E-03
ENSG00000140104	<i>CLBA1</i>	20.10	8.09	1.34	3.54E-03
ENSG00000111145	<i>ELK3</i>	55.86	22.17	1.33	1.26E-03
ENSG00000111843	<i>TMEM14C</i>	96.61	38.92	1.33	2.00E-03
ENSG00000162714	<i>ZNF496</i>	64.89	25.91	1.33	1.29E-03
ENSG00000138448	<i>ITGAV</i>	527.37	209.39	1.33	4.66E-04
ENSG00000198113	<i>TOR4A</i>	38.33	13.92	1.33	1.71E-02
ENSG00000160949	<i>TONSL</i>	28.54	10.95	1.33	1.14E-02
ENSG00000143126	<i>CELSR2</i>	33.90	13.05	1.33	2.56E-03
ENSG00000121644	<i>DESI2</i>	94.40	37.67	1.33	6.44E-04
ENSG00000084774	<i>CAD</i>	107.23	42.11	1.32	2.88E-03
ENSG00000145217	<i>SLC26A1</i>	10.57	3.99	1.32	3.64E-02
ENSG00000151778	<i>SERP2</i>	7.35	3.04	1.32	1.84E-02
ENSG00000102781	<i>KATNAL1</i>	46.02	18.97	1.32	1.25E-02
ENSG00000074964	<i>ARHGEF10L</i>	37.26	15.67	1.32	2.10E-02
ENSG00000109685	<i>NSD2</i>	127.90	52.16	1.32	4.65E-03
ENSG00000006576	<i>PHTF2</i>	76.47	30.55	1.32	1.37E-03
ENSG00000168779	<i>SHOX2</i>	18.39	7.33	1.32	2.08E-02
ENSG00000240342	<i>RPS2P5</i>	133.61	52.30	1.32	4.08E-02
ENSG00000160602	<i>NEK8</i>	11.33	4.76	1.31	2.17E-02
ENSG00000077044	<i>DGKD</i>	55.66	20.87	1.31	4.58E-02
ENSG00000169679	<i>BUB1</i>	32.06	13.65	1.31	3.43E-02
ENSG00000198176	<i>TFDP1</i>	141.04	55.90	1.31	2.20E-03
ENSG00000148341	<i>SH3GLB2</i>	122.58	49.20	1.31	8.23E-04
ENSG00000137809	<i>ITGA11</i>	102.57	43.83	1.31	1.78E-02
ENSG00000061273	<i>HDAC7</i>	249.26	98.89	1.31	2.25E-03
ENSG00000165501	<i>LRR1</i>	13.96	5.55	1.31	6.57E-03
ENSG00000197121	<i>PGAP1</i>	23.26	9.15	1.31	3.96E-03
ENSG00000159840	<i>ZYX</i>	199.39	75.47	1.30	1.41E-02
ENSG00000187838	<i>PLSCR3</i>	28.81	11.86	1.30	3.13E-03
ENSG00000140464	<i>PML</i>	114.73	46.85	1.30	1.16E-03
ENSG00000172123	<i>SLFN12</i>	18.46	7.23	1.30	8.56E-03
ENSG00000106665	<i>CLIP2</i>	57.92	23.70	1.30	1.32E-03
ENSG00000072134	<i>EPN2</i>	43.01	17.62	1.30	2.62E-03
ENSG00000134531	<i>EMP1</i>	105.18	40.67	1.30	4.11E-02
ENSG00000116874	<i>WARS2</i>	21.18	9.03	1.30	1.67E-02
ENSG00000182095	<i>TNRC18</i>	338.74	137.58	1.29	1.41E-03
ENSG00000291075		16.16	6.74	1.29	5.25E-03
ENSG00000137177	<i>KIF13A</i>	95.85	39.18	1.29	8.80E-04
ENSG00000064309	<i>CDON</i>	19.10	8.09	1.29	6.34E-03
ENSG00000167670	<i>CHAF1A</i>	29.04	11.17	1.29	8.59E-03
ENSG00000197702	<i>PARVA</i>	196.12	81.91	1.29	3.54E-03

ENSG00000069966	<i>GNB5</i>	51.50	22.01	1.29	7.53E-03
ENSG00000083312	<i>TNPO1</i>	328.16	136.99	1.29	1.86E-03
ENSG00000079462	<i>PAFAH1B3</i>	33.32	14.16	1.29	7.93E-03
ENSG000000139350	<i>NEDD1</i>	38.71	16.13	1.29	2.60E-03
ENSG000000150054	<i>MPP7</i>	10.76	4.04	1.28	4.50E-02
ENSG000000100439	<i>ABHD4</i>	153.40	64.82	1.28	3.52E-03
ENSG000000105948	<i>TTC26</i>	17.09	7.33	1.28	1.08E-02
ENSG000000114744	<i>COMMD2</i>	57.22	23.37	1.28	4.13E-03
ENSG000000104427	<i>ZC2HC1A</i>	12.27	5.13	1.28	1.29E-02
ENSG00000080839	<i>RBL1</i>	20.45	8.37	1.28	2.28E-02
ENSG000000104881	<i>PPP1R13L</i>	101.57	42.49	1.28	3.76E-03
ENSG000000175213	<i>ZNF408</i>	20.15	8.00	1.28	4.18E-03
ENSG000000170275	<i>CRTAP</i>	291.83	121.83	1.28	1.45E-03
ENSG000000136603	<i>SKIL</i>	91.41	36.80	1.28	1.16E-02
ENSG000000225614	<i>ZNF469</i>	162.87	65.16	1.28	2.24E-02
ENSG000000123552	<i>USP45</i>	23.95	10.07	1.28	3.28E-03
ENSG000000140280	<i>LYSMD2</i>	24.78	10.34	1.28	6.60E-03
ENSG000000256053	<i>COA8</i>	44.93	18.73	1.28	1.53E-03
ENSG000000107104	<i>KANK1</i>	85.70	36.18	1.28	2.70E-03
ENSG000000157693	<i>TMEM268</i>	33.77	14.16	1.27	2.55E-03
ENSG000000165995	<i>CACNB2</i>	8.74	3.66	1.27	2.60E-02
ENSG000000076513	<i>ANKRD13A</i>	219.68	82.74	1.27	2.55E-02
ENSG000000101000	<i>PROCR</i>	22.61	9.26	1.27	9.18E-03
ENSG000000149503	<i>INCENP</i>	40.83	16.92	1.27	1.62E-03
ENSG000000244306	<i>DUXAP10</i>	315.96	131.00	1.27	6.62E-04
ENSG000000107614	<i>TRDMT1</i>	16.37	6.81	1.27	2.77E-02
ENSG000000197712	<i>FAM114A1</i>	129.88	55.79	1.27	6.60E-03
ENSG000000130559	<i>CAMSAP1</i>	76.80	32.29	1.27	3.57E-03
ENSG000000162734	<i>PEA15</i>	328.17	136.04	1.26	7.28E-04
ENSG000000143479	<i>DYRK3</i>	29.85	12.77	1.26	1.34E-02
ENSG000000241852	<i>C8orf58</i>	23.56	10.00	1.26	1.05E-02
ENSG000000233056	<i>ERVH48-1</i>	2.54	1.06	1.26	4.41E-02
ENSG000000010803	<i>SCMH1</i>	33.90	14.50	1.26	8.71E-03
ENSG000000162909	<i>CAPN2</i>	772.45	321.26	1.26	1.89E-03
ENSG000000183049	<i>CAMK1D</i>	34.92	14.56	1.25	3.81E-03
ENSG000000137267	<i>TUBB2A</i>	81.97	33.81	1.25	1.48E-03
ENSG000000206053	<i>JPT2</i>	115.37	49.52	1.25	2.97E-03
ENSG000000123352	<i>SPATS2</i>	72.76	30.46	1.25	7.39E-03
ENSG000000197728	<i>RPS26</i>	346.65	138.88	1.25	9.30E-03
ENSG000000145349	<i>CAMK2D</i>	84.45	36.44	1.25	5.86E-03
ENSG000000101966	<i>XIAP</i>	74.51	32.39	1.25	1.47E-02
ENSG000000183508	<i>TENT5C</i>	13.87	6.16	1.25	2.83E-02
ENSG000000108239	<i>TBC1D12</i>	23.84	10.28	1.25	5.27E-03
ENSG000000198920	<i>KIAA0753</i>	29.17	12.79	1.24	1.10E-02
ENSG000000129250	<i>KIF1C</i>	250.11	103.88	1.24	1.93E-03
ENSG000000164603	<i>BMT2</i>	36.94	15.14	1.24	3.75E-03
ENSG000000165410	<i>CFL2</i>	134.24	57.26	1.24	3.83E-03
ENSG000000277462	<i>ZNF670</i>	5.98	2.44	1.24	2.75E-02
ENSG000000134363	<i>FST</i>	215.21	97.20	1.24	1.53E-02
ENSG00000020256	<i>ZFP64</i>	26.21	11.60	1.24	1.31E-02
ENSG000000185347	<i>TEDC1</i>	14.30	5.86	1.24	1.55E-02
ENSG000000118922	<i>KLF12</i>	72.75	31.98	1.24	6.86E-03
ENSG000000151376	<i>ME3</i>	37.01	15.68	1.24	2.15E-02
ENSG000000085662	<i>AKR1B1</i>	475.45	205.94	1.24	4.02E-03
ENSG000000112851	<i>ERBIN</i>	185.69	75.43	1.24	1.43E-02
ENSG000000102189	<i>EEA1</i>	66.96	26.99	1.24	9.02E-03
ENSG000000180957	<i>PITPNB</i>	161.84	68.84	1.24	6.89E-04
ENSG000000285382		8.52	3.26	1.23	4.37E-02

ENSG00000151338	<i>MIPOL1</i>	9.77	4.27	1.23	1.90E-02
ENSG00000047230	<i>CTPS2</i>	27.80	12.14	1.23	1.11E-02
ENSG00000105968	<i>H2AZ2</i>	196.30	83.94	1.23	7.46E-04
ENSG00000181827	<i>RFX7</i>	50.91	21.91	1.23	1.82E-03
ENSG00000099282	<i>TSPAN15</i>	6.82	3.02	1.23	4.02E-02
ENSG00000140105	<i>WARS1</i>	274.77	117.42	1.23	1.24E-02
ENSG00000175220	<i>ARHGAP1</i>	144.51	61.02	1.23	1.28E-03
ENSG00000138658	<i>ZGRF1</i>	9.93	4.41	1.23	2.22E-02
ENSG00000221838	<i>AP4M1</i>	21.76	9.78	1.23	1.41E-02
ENSG00000196247	<i>ZNF107</i>	25.39	11.13	1.23	1.03E-02
ENSG00000196912	<i>ANKRD36B</i>	9.77	4.59	1.23	4.49E-02
ENSG00000196576	<i>PLXNB2</i>	607.09	252.60	1.23	1.07E-02
ENSG00000112118	<i>MCM3</i>	72.71	30.90	1.23	2.41E-03
ENSG00000115282	<i>TTC31</i>	57.42	23.60	1.22	4.30E-03
ENSG00000115902	<i>SLC1A4</i>	91.36	39.01	1.22	3.16E-03
ENSG00000087448	<i>KLHL42</i>	67.88	28.09	1.22	1.22E-02
ENSG00000076604	<i>TRAF4</i>	91.18	36.90	1.22	1.65E-02
ENSG00000134871	<i>COL4A2</i>	1731.28	761.80	1.22	6.11E-03
ENSG00000100814	<i>CCNB1IP1</i>	32.27	13.87	1.22	2.32E-02
ENSG00000104447	<i>TRPS1</i>	24.75	10.73	1.22	3.89E-03
ENSG00000147459	<i>DOCK5</i>	256.04	109.93	1.22	1.42E-02
ENSG00000198517	<i>MAFK</i>	117.53	48.69	1.22	7.81E-03
ENSG00000133318	<i>RTN3</i>	260.08	111.10	1.22	3.07E-03
ENSG00000133315	<i>MACROD1</i>	19.82	7.24	1.22	4.27E-02
ENSG00000115325	<i>DOK1</i>	44.97	18.91	1.22	6.19E-03
ENSG00000115295	<i>CLIP4</i>	121.55	51.45	1.22	3.79E-03
ENSG00000139793	<i>MBNL2</i>	113.86	48.96	1.22	1.51E-03
ENSG00000104442	<i>ARMC1</i>	49.35	21.36	1.21	1.17E-03
ENSG00000064199	<i>SPA17</i>	10.79	4.66	1.21	4.48E-02
ENSG00000178397	<i>FAM220A</i>	26.56	11.66	1.21	2.14E-02
ENSG00000131899	<i>LLGL1</i>	41.20	16.24	1.21	1.49E-02
ENSG00000143537	<i>ADAM15</i>	97.55	42.44	1.21	2.01E-03
ENSG00000093010	<i>COMT</i>	272.87	117.77	1.21	4.53E-03
ENSG00000196550	<i>FAM72A</i>	4.10	1.71	1.21	4.25E-02
ENSG00000138346	<i>DNA2</i>	10.96	4.50	1.21	2.25E-02
ENSG00000163006	<i>CCDC138</i>	6.32	2.75	1.21	3.21E-02
ENSG00000182628	<i>SKA2</i>	43.84	18.69	1.21	2.29E-02
ENSG00000139998	<i>RAB15</i>	22.22	10.25	1.21	1.92E-02
ENSG00000271601	<i>LIX1L</i>	71.38	31.11	1.21	1.26E-03
ENSG00000126226	<i>PCID2</i>	83.79	36.18	1.20	2.89E-03
ENSG00000138801	<i>PAPSS1</i>	100.11	43.31	1.20	1.79E-03
ENSG00000138172	<i>CALHM2</i>	33.11	14.96	1.20	2.17E-02
ENSG00000117461	<i>PIK3R3</i>	28.93	12.12	1.20	2.60E-02
ENSG00000007866	<i>TEAD3</i>	29.27	12.99	1.20	7.75E-03
ENSG00000204172	<i>AGAP9</i>	14.86	6.54	1.20	9.27E-03
ENSG00000184162	<i>NR2C2AP</i>	17.54	7.79	1.20	5.84E-03
ENSG00000164024	<i>METAP1</i>	92.17	39.58	1.20	5.01E-03
ENSG00000133818	<i>RRAS2</i>	70.79	31.33	1.20	6.14E-03
ENSG00000184575	<i>XPOT</i>	318.14	130.39	1.20	2.06E-02
ENSG00000111252	<i>SH2B3</i>	149.63	63.48	1.20	4.50E-03
ENSG00000099814	<i>CEP170B</i>	117.72	50.46	1.20	6.20E-03
ENSG00000179833	<i>SERTAD2</i>	77.51	33.98	1.20	2.88E-03
ENSG00000196923	<i>PDLIM7</i>	263.68	111.53	1.19	6.79E-03
ENSG00000167747	<i>C19orf48</i>	53.26	23.83	1.19	6.17E-03
ENSG00000102996	<i>MMP15</i>	28.65	12.83	1.19	6.11E-03
ENSG00000137449	<i>CPEB2</i>	38.63	16.92	1.19	4.76E-03
ENSG00000152944	<i>MED21</i>	42.91	19.34	1.19	1.71E-02
ENSG00000161013	<i>MGAT4B</i>	165.32	71.76	1.19	1.46E-03

ENSG00000104361	<i>NIPAL2</i>	24.67	11.19	1.19	1.76E-02
ENSG00000126773	<i>PCNX4</i>	147.44	64.20	1.19	2.55E-03
ENSG00000132356	<i>PRKAA1</i>	110.02	48.64	1.19	1.54E-03
ENSG00000172175	<i>MALT1</i>	69.34	29.52	1.19	2.43E-02
ENSG00000144560	<i>VGLL4</i>	144.10	63.04	1.19	1.24E-02
ENSG00000135046	<i>ANXA1</i>	383.84	156.06	1.19	2.41E-02
ENSG00000154237	<i>LRRK1</i>	99.99	42.21	1.18	6.55E-03
ENSG00000197275	<i>RAD54B</i>	7.10	3.21	1.18	2.86E-02
ENSG00000122550	<i>KLHL7</i>	54.36	24.43	1.18	1.03E-02
ENSG00000009335	<i>UBE3C</i>	240.53	105.73	1.18	1.63E-03
ENSG00000100097	<i>LGALS1</i>	1010.34	451.09	1.18	2.29E-03
ENSG00000183955	<i>KMT5A</i>	49.48	21.57	1.18	1.95E-02
ENSG00000120885	<i>CLU</i>	162.80	75.72	1.18	1.60E-02
ENSG00000158427	<i>TMSB15B</i>	5.22	2.39	1.18	4.49E-02
ENSG00000137845	<i>ADAM10</i>	337.47	151.01	1.18	2.18E-03
ENSG00000146376	<i>ARHGAP18</i>	85.76	37.93	1.18	2.40E-03
ENSG00000088305	<i>DNMT3B</i>	8.69	3.78	1.18	2.99E-02
ENSG00000145391	<i>SETD7</i>	149.79	66.63	1.18	1.94E-03
ENSG00000106524	<i>ANKMY2</i>	37.55	16.53	1.17	1.21E-02
ENSG00000123091	<i>RNF11</i>	133.86	59.67	1.17	1.33E-03
ENSG00000198648	<i>STK39</i>	52.74	22.49	1.17	6.63E-03
ENSG00000111678	<i>C12orf57</i>	62.29	27.76	1.17	1.27E-03
ENSG00000163814	<i>CDCP1</i>	63.56	25.83	1.17	3.68E-02
ENSG00000164342	<i>TLR3</i>	16.82	7.75	1.17	2.83E-02
ENSG00000083844	<i>ZNF264</i>	47.12	21.12	1.17	1.67E-02
ENSG00000197150	<i>ABCB8</i>	87.08	38.81	1.17	3.76E-03
ENSG00000170836	<i>PPM1D</i>	34.45	15.44	1.17	2.16E-03
ENSG00000175334	<i>BANF1</i>	166.09	74.41	1.16	1.08E-03
ENSG00000166750	<i>SLFN5</i>	109.08	49.40	1.16	4.38E-02
ENSG00000013563	<i>DNASE1L1</i>	28.92	13.70	1.16	1.67E-02
ENSG00000166845	<i>C18orf54</i>	9.73	4.51	1.16	2.37E-02
ENSG00000116885	<i>OSCP1</i>	7.67	3.52	1.16	2.30E-02
ENSG00000090097	<i>PCBP4</i>	37.06	17.03	1.16	6.50E-03
ENSG00000100592	<i>DAAM1</i>	63.38	28.86	1.16	1.92E-02
ENSG00000135446	<i>CDK4</i>	190.08	85.26	1.16	1.11E-03
ENSG00000111445	<i>RFC5</i>	21.41	10.10	1.16	1.93E-02
ENSG00000126790	<i>L3HYPDH</i>	50.84	22.91	1.16	1.82E-03
ENSG00000288558	<i>DUS4L-BCAP29</i>	10.55	4.94	1.16	3.34E-02
ENSG00000058091	<i>CDK14</i>	30.40	13.69	1.16	3.84E-02
ENSG00000291146	<i>RP9P</i>	11.09	5.25	1.16	2.37E-02
ENSG00000172331	<i>BPGM</i>	28.21	12.76	1.16	4.12E-02
ENSG00000182158	<i>CREB3L2</i>	181.62	81.34	1.16	1.11E-03
ENSG00000152382	<i>TADA1</i>	13.49	6.23	1.16	1.33E-02
ENSG00000092036	<i>HAUS4</i>	25.49	11.70	1.16	3.43E-02
ENSG00000137760	<i>ALKBH8</i>	15.04	7.03	1.15	1.76E-02
ENSG00000111328	<i>CDK2AP1</i>	100.60	45.43	1.15	2.97E-03
ENSG00000168496	<i>FEN1</i>	55.11	23.32	1.15	1.08E-02
ENSG00000104689	<i>TNFRSF10A</i>	14.02	6.48	1.15	1.58E-02
ENSG00000168615	<i>ADAM9</i>	835.99	377.14	1.15	8.56E-04
ENSG00000109771	<i>LRP2BP</i>	6.29	2.93	1.15	3.30E-02
ENSG00000106144	<i>CASP2</i>	40.54	18.07	1.15	2.04E-03
ENSG00000197958	<i>RPL12</i>	851.48	384.15	1.15	3.56E-03
ENSG00000119285	<i>HEATR1</i>	102.85	46.23	1.15	5.43E-03
ENSG00000140950	<i>MEAK7</i>	34.70	15.59	1.15	1.09E-02
ENSG00000135299	<i>ANKRD6</i>	22.10	9.24	1.15	1.81E-02
ENSG00000136240	<i>KDELR2</i>	394.28	180.04	1.14	4.25E-03
ENSG00000100522	<i>GPNPAT1</i>	65.83	30.04	1.14	2.81E-03
ENSG00000011405	<i>PIK3C2A</i>	127.94	58.57	1.14	3.07E-03

ENSG00000135722	<i>FBXL8</i>	13.37	6.09	1.14	1.47E-02
ENSG00000147164	<i>SNX12</i>	99.69	45.26	1.14	1.71E-03
ENSG00000079150	<i>FKBP7</i>	18.69	8.89	1.14	1.63E-02
ENSG00000108654	<i>DDX5</i>	1643.04	697.09	1.14	1.59E-02
ENSG00000120053	<i>GOT1</i>	70.16	31.24	1.14	1.13E-02
ENSG00000242498	<i>ARPIN</i>	38.83	18.19	1.14	7.89E-03
ENSG00000005100	<i>DHX33</i>	58.63	25.69	1.14	9.88E-03
ENSG00000198162	<i>MAN1A2</i>	128.44	57.03	1.14	1.05E-02
ENSG00000171552	<i>BCL2L1</i>	139.48	63.07	1.14	5.07E-03
ENSG00000164402	<i>SEPTIN8</i>	57.91	26.62	1.14	3.94E-03
ENSG00000068305	<i>MEF2A</i>	104.15	46.50	1.14	3.16E-03
ENSG00000141198	<i>TOM1L1</i>	51.57	22.87	1.14	3.02E-02
ENSG00000204130	<i>RUFY2</i>	35.56	16.29	1.14	5.08E-03
ENSG00000197056	<i>ZMYM1</i>	15.55	7.25	1.13	1.28E-02
ENSG00000072832	<i>CRMP1</i>	17.63	8.20	1.13	6.97E-03
ENSG00000106080	<i>FKBP14</i>	67.68	27.70	1.13	3.68E-02
ENSG00000106571	<i>GLI3</i>	28.98	13.39	1.13	6.10E-03
ENSG00000012171	<i>SEMA3B</i>	123.82	56.63	1.13	1.07E-03
ENSG00000006530	<i>AGK</i>	58.04	26.56	1.13	5.41E-03
ENSG00000102302	<i>FGD1</i>	24.60	11.50	1.13	7.69E-03
ENSG00000115750	<i>TAF1B</i>	25.60	11.34	1.13	5.56E-03
ENSG00000132849	<i>PATJ</i>	27.86	13.15	1.13	1.31E-02
ENSG00000072415	<i>PALS1</i>	61.08	28.10	1.13	2.45E-03
ENSG00000186815	<i>TPCN1</i>	122.89	54.78	1.13	3.63E-02
ENSG00000131788	<i>PIAS3</i>	63.70	29.07	1.13	2.24E-03
ENSG00000147224	<i>PRPS1</i>	107.48	47.79	1.13	3.24E-02
ENSG00000163322	<i>ABRAXAS1</i>	16.37	7.76	1.13	4.70E-02
ENSG00000198554	<i>WDHD1</i>	18.46	9.04	1.13	2.46E-02
ENSG00000040199	<i>PHLPP2</i>	38.58	17.44	1.13	8.59E-03
ENSG00000198720	<i>ANKRD13B</i>	12.01	5.56	1.13	1.74E-02
ENSG00000266338	<i>NBPF15</i>	73.91	33.86	1.13	3.60E-03
ENSG00000146416	<i>AIG1</i>	53.01	24.20	1.12	3.07E-03
ENSG00000196914	<i>ARHGEF12</i>	254.18	117.01	1.12	2.02E-03
ENSG00000114544	<i>SLC41A3</i>	42.33	19.60	1.12	3.32E-03
ENSG00000132646	<i>PCNA</i>	96.29	45.12	1.12	5.32E-03
ENSG00000134758	<i>RNF138</i>	26.69	11.75	1.12	9.22E-03
ENSG00000143493	<i>INTS7</i>	28.49	13.52	1.12	9.66E-03
ENSG00000085382	<i>HACE1</i>	31.43	13.86	1.12	6.20E-03
ENSG00000136732	<i>GYPC</i>	77.34	36.93	1.12	1.83E-02
ENSG00000084731	<i>KIF3C</i>	55.08	26.05	1.12	2.07E-02
ENSG00000125484	<i>GTF3C4</i>	62.26	28.93	1.12	4.16E-03
ENSG00000040341	<i>STAU2</i>	55.23	25.65	1.12	2.58E-03
ENSG00000131759	<i>RARA</i>	72.87	33.60	1.11	5.71E-03
ENSG00000185088	<i>RPS27L</i>	209.29	97.01	1.11	4.90E-03
ENSG00000160753	<i>RUSC1</i>	38.32	18.17	1.11	7.56E-03
ENSG00000198860	<i>TSEN15</i>	51.85	24.31	1.11	5.72E-03
ENSG00000067141	<i>NEO1</i>	67.05	30.50	1.11	7.09E-03
ENSG00000138686	<i>BBS7</i>	34.16	15.63	1.11	3.82E-03
ENSG00000112699	<i>GMDS</i>	25.53	12.83	1.11	4.81E-02
ENSG00000244462	<i>RBM12</i>	120.60	54.21	1.11	1.24E-02
ENSG00000149639	<i>SOGA1</i>	171.78	82.18	1.11	2.78E-02
ENSG00000135862	<i>LAMC1</i>	749.89	346.50	1.11	1.17E-03
ENSG00000128245	<i>YWHAH</i>	121.84	57.23	1.10	2.73E-03
ENSG00000006282	<i>SPATA20</i>	157.23	74.25	1.10	9.56E-03
ENSG00000291194		17.07	7.72	1.10	1.08E-02
ENSG00000156675	<i>RAB11FIP1</i>	115.09	54.34	1.10	4.16E-03
ENSG00000163513	<i>TGFBR2</i>	105.43	49.68	1.10	2.99E-03
ENSG00000170417	<i>TMEM182</i>	10.20	4.67	1.10	1.99E-02

ENSG00000106305	<i>AIMP2</i>	46.76	22.73	1.10	2.75E-02
ENSG00000144228	<i>SPOPL</i>	49.13	21.20	1.10	2.22E-02
ENSG00000290689		36.63	18.79	1.10	3.64E-02
ENSG00000213782	<i>DDX47</i>	91.07	42.70	1.10	2.02E-03
ENSG00000110108	<i>TMEM109</i>	122.66	56.89	1.10	1.61E-03
ENSG00000073536	<i>NLE1</i>	24.32	12.33	1.10	3.79E-02
ENSG00000113580	<i>NR3C1</i>	126.41	59.75	1.10	2.54E-03
ENSG00000168393	<i>DTYMK</i>	50.64	23.90	1.10	2.75E-03
ENSG00000180881	<i>CAPS2</i>	10.79	5.12	1.10	1.94E-02
ENSG00000274211	<i>SOCS7</i>	46.18	21.23	1.10	3.24E-03
ENSG00000290709		5.66	2.68	1.10	4.38E-02
ENSG00000128294	<i>TPST2</i>	96.58	42.29	1.09	3.68E-02
ENSG00000159884	<i>CCDC107</i>	34.86	16.36	1.09	3.32E-03
ENSG00000111602	<i>TIMELESS</i>	48.68	22.54	1.09	2.93E-03
ENSG00000103540	<i>CCP110</i>	17.65	8.69	1.09	2.80E-02
ENSG00000172638	<i>EFEMP2</i>	137.59	61.45	1.09	1.98E-02
ENSG00000143933	<i>CALM2</i>	805.72	362.15	1.09	1.04E-02
ENSG00000006634	<i>DBF4</i>	20.88	10.17	1.09	1.61E-02
ENSG00000215012	<i>RTL10</i>	43.72	20.23	1.09	6.71E-03
ENSG00000175279	<i>CENPS</i>	17.00	8.37	1.09	1.99E-02
ENSG00000101868	<i>POLA1</i>	21.24	10.05	1.09	1.04E-02
ENSG00000138738	<i>PRDM5</i>	10.01	4.91	1.09	2.75E-02
ENSG00000122642	<i>FKBP9</i>	199.73	94.94	1.08	2.01E-03
ENSG00000151729	<i>SLC25A4</i>	55.29	25.07	1.08	9.72E-03
ENSG00000177082	<i>WDR73</i>	44.30	21.13	1.08	3.43E-03
ENSG00000134294	<i>SLC38A2</i>	727.30	334.36	1.08	2.66E-02
ENSG00000157212	<i>PAXIP1</i>	30.94	14.84	1.08	6.05E-03
ENSG00000111358	<i>GTF2H3</i>	46.10	21.75	1.08	8.11E-03
ENSG00000085982	<i>USP40</i>	104.18	45.65	1.08	4.23E-02
ENSG00000151503	<i>NCAPD3</i>	53.06	24.76	1.08	2.95E-03
ENSG00000162545	<i>CAMK2N1</i>	14.35	7.16	1.08	2.53E-02
ENSG00000181472	<i>ZBTB2</i>	28.78	13.90	1.08	6.20E-03
ENSG00000172840	<i>PDP2</i>	37.52	17.98	1.08	1.41E-02
ENSG00000088543	<i>C3orf18</i>	19.61	9.64	1.08	1.51E-02
ENSG00000175115	<i>PACS1</i>	227.37	105.27	1.08	9.88E-03
ENSG00000134644	<i>PUM1</i>	130.56	62.79	1.08	1.09E-02
ENSG00000105722	<i>ERF</i>	103.91	49.67	1.08	9.81E-03
ENSG00000213397	<i>HAUS7</i>	23.96	10.96	1.08	1.99E-02
ENSG00000064393	<i>HIPK2</i>	196.57	88.08	1.07	2.25E-02
ENSG00000137955	<i>RABGGTB</i>	118.61	56.41	1.07	1.68E-03
ENSG00000161647	<i>MPP3</i>	7.68	3.76	1.07	4.26E-02
ENSG00000171877	<i>FRMD5</i>	47.57	24.18	1.07	2.65E-02
ENSG00000169857	<i>AVEN</i>	49.44	23.79	1.07	3.33E-03
ENSG00000096092	<i>TMEM14A</i>	30.45	15.34	1.07	4.02E-02
ENSG00000184979	<i>USP18</i>	12.79	6.00	1.07	1.24E-02
ENSG00000119139	<i>TJP2</i>	45.21	19.87	1.07	2.68E-02
ENSG00000082014	<i>SMARCD3</i>	75.42	33.86	1.07	1.86E-02
ENSG00000265491	<i>RNF115</i>	66.34	31.38	1.07	2.49E-03
ENSG00000056277	<i>ZNF280C</i>	8.58	4.13	1.07	2.44E-02
ENSG00000092929	<i>UNC13D</i>	229.92	109.87	1.07	1.50E-02
ENSG00000122507	<i>BBS9</i>	18.52	8.91	1.07	2.63E-02
ENSG00000213551	<i>DNAJC9</i>	45.33	21.87	1.07	2.81E-03
ENSG00000120800	<i>UTP20</i>	53.25	25.01	1.07	1.92E-02
ENSG00000132475	<i>H3-3B</i>	740.13	351.47	1.07	2.46E-03
ENSG00000137770	<i>CTDSPL2</i>	52.83	26.30	1.06	2.19E-02
ENSG00000136052	<i>SLC41A2</i>	35.44	16.06	1.06	1.88E-02
ENSG00000204344	<i>STK19</i>	10.14	5.00	1.06	2.50E-02
ENSG00000198682	<i>PAPSS2</i>	346.13	166.23	1.06	1.98E-03

ENSG00000172339	<i>ALG14</i>	22.58	11.14	1.06	4.23E-02
ENSG00000138814	<i>PPP3CA</i>	96.48	46.96	1.06	6.76E-03
ENSG00000143799	<i>PARP1</i>	203.07	94.57	1.06	1.03E-02
ENSG00000134987	<i>WDR36</i>	59.54	27.17	1.06	9.89E-03
ENSG00000109089	<i>CDR2L</i>	15.05	7.51	1.06	3.34E-02
ENSG00000106991	<i>ENG</i>	166.03	88.74	1.06	4.91E-02
ENSG00000024422	<i>EHD2</i>	400.70	194.68	1.06	2.54E-02
ENSG00000106723	<i>SPIN1</i>	160.49	77.68	1.06	7.61E-03
ENSG00000165644	<i>COMTD1</i>	11.46	5.57	1.05	1.74E-02
ENSG00000164308	<i>ERAP2</i>	88.06	44.60	1.05	3.77E-02
ENSG00000181852	<i>RNF41</i>	95.57	45.16	1.05	1.31E-02
ENSG00000278259	<i>MYO19</i>	33.80	15.94	1.05	6.68E-03
ENSG00000144840	<i>RABL3</i>	42.02	21.35	1.05	2.19E-02
ENSG00000130396	<i>AFDN</i>	113.99	54.23	1.05	7.74E-03
ENSG00000103994	<i>ZNF106</i>	159.29	75.84	1.05	4.09E-03
ENSG00000165102	<i>HGSNAT</i>	140.21	68.07	1.05	4.88E-03
ENSG00000100744	<i>GSKIP</i>	33.71	16.50	1.05	4.29E-03
ENSG00000135269	<i>TES</i>	166.68	80.15	1.05	4.04E-03
ENSG00000086015	<i>MAST2</i>	108.39	51.57	1.05	2.88E-03
ENSG00000171456	<i>ASXL1</i>	163.75	79.42	1.05	1.99E-03
ENSG00000169193	<i>CCDC126</i>	11.78	5.78	1.05	2.77E-02
ENSG00000153558	<i>FBXL2</i>	12.66	6.46	1.05	4.00E-02
ENSG00000187109	<i>NAP1L1</i>	673.80	310.15	1.05	2.16E-02
ENSG00000153721	<i>CNKSRR3</i>	27.73	13.96	1.05	3.51E-02
ENSG00000065154	<i>OAT</i>	127.47	62.63	1.04	3.89E-03
ENSG00000156052	<i>GNAQ</i>	141.57	66.87	1.04	9.20E-03
ENSG00000170035	<i>UBE2E3</i>	86.85	41.39	1.04	1.07E-02
ENSG00000112893	<i>MAN2A1</i>	156.00	77.00	1.04	5.14E-03
ENSG00000171792	<i>RHNO1</i>	26.36	13.18	1.04	2.38E-02
ENSG00000103966	<i>EHD4</i>	71.21	35.29	1.04	7.35E-03
ENSG00000124831	<i>LRRFIP1</i>	243.49	118.42	1.04	1.22E-03
ENSG00000070018	<i>LRP6</i>	29.33	13.67	1.04	2.68E-02
ENSG00000167969	<i>ECI1</i>	45.39	22.06	1.04	3.66E-03
ENSG00000147650	<i>LRP12</i>	59.49	28.44	1.04	9.46E-03
ENSG00000196639	<i>HRH1</i>	15.37	7.43	1.04	1.74E-02
ENSG00000128973	<i>CLN6</i>	48.06	21.51	1.04	3.42E-02
ENSG00000186908	<i>ZDHHC17</i>	72.63	34.58	1.03	9.03E-03
ENSG00000188725	<i>SMIM15</i>	80.42	38.26	1.03	2.31E-02
ENSG00000291211		8.12	3.99	1.03	3.73E-02
ENSG00000119912	<i>IDE</i>	76.85	37.61	1.03	3.95E-03
ENSG00000108021	<i>TASOR2</i>	123.50	59.16	1.03	2.43E-02
ENSG00000042753	<i>AP2S1</i>	248.02	121.06	1.03	4.41E-03
ENSG00000170113	<i>NIPA1</i>	42.27	20.53	1.03	6.60E-03
ENSG00000051128	<i>HOMER3</i>	99.41	47.26	1.03	1.74E-02
ENSG00000169439	<i>SDC2</i>	112.27	56.40	1.03	1.09E-02
ENSG00000033050	<i>ABCF2</i>	87.20	41.00	1.03	3.85E-02
ENSG00000012983	<i>MAP4K5</i>	73.64	36.31	1.02	2.16E-03
ENSG00000241399	<i>CD302</i>	17.82	9.27	1.02	3.24E-02
ENSG00000061938	<i>TNK2</i>	71.79	34.04	1.02	1.78E-02
ENSG00000009413	<i>REV3L</i>	75.53	35.81	1.02	2.53E-02
ENSG00000170734	<i>POLH</i>	38.85	18.14	1.02	1.38E-02
ENSG00000103064	<i>SLC7A6</i>	65.58	30.20	1.02	2.07E-02
ENSG00000106628	<i>POLD2</i>	161.24	81.22	1.02	7.41E-03
ENSG00000124641	<i>MED20</i>	26.71	13.59	1.02	1.73E-02
ENSG00000175550	<i>DRAP1</i>	220.47	106.48	1.02	7.98E-03
ENSG00000087903	<i>RFX2</i>	17.56	8.86	1.02	4.63E-02
ENSG00000133612	<i>AGAP3</i>	163.67	80.43	1.02	2.25E-02
ENSG00000115380	<i>EFEMP1</i>	540.64	267.96	1.02	2.14E-03

ENSG00000119383	<i>PTPA</i>	204.18	103.46	1.02	1.18E-02
ENSG00000140995	<i>DEF8</i>	84.90	39.82	1.01	1.98E-02
ENSG00000163950	<i>SLBP</i>	74.27	36.72	1.01	1.76E-03
ENSG00000196456	<i>ZNF775</i>	11.66	5.96	1.01	2.58E-02
ENSG00000131016	<i>AKAP12</i>	27.05	12.90	1.01	4.02E-02
ENSG00000121775	<i>TMEM39B</i>	22.84	11.05	1.01	9.05E-03
ENSG00000100994	<i>PYGB</i>	221.39	109.56	1.01	2.81E-03
ENSG00000186522	<i>SEPTIN10</i>	142.46	69.96	1.01	7.31E-03
ENSG00000164889	<i>SLC4A2</i>	349.66	172.25	1.01	5.06E-03
ENSG00000130150	<i>MOSPD2</i>	54.28	26.92	1.01	2.65E-02
ENSG00000163918	<i>RFC4</i>	17.55	9.05	1.01	2.06E-02
ENSG00000088387	<i>DOCK9</i>	48.28	24.19	1.01	5.91E-03
ENSG00000144161	<i>ZC3H8</i>	20.96	9.98	1.01	2.67E-02
ENSG00000144674	<i>GOLGA4</i>	82.00	37.63	1.01	4.38E-02
ENSG00000115756	<i>HPCAL1</i>	74.48	36.55	1.01	3.06E-02
ENSG00000182504	<i>CEP97</i>	24.38	12.02	1.00	1.25E-02
ENSG00000092140	<i>G2E3</i>	28.39	13.96	1.00	9.14E-03
ENSG00000183474	<i>GTF2H2C</i>	11.56	6.05	1.00	3.74E-02
ENSG00000177200	<i>CHD9</i>	90.61	44.82	1.00	7.01E-03
ENSG00000135976	<i>ANKRD36</i>	17.33	8.81	1.00	2.82E-02
ENSG00000105647	<i>PIK3R2</i>	122.22	60.57	1.00	7.95E-03
ENSG00000178033	<i>CALHM5</i>	18.06	9.31	1.00	2.01E-02
ENSG00000198087	<i>CD2AP</i>	103.78	52.34	1.00	3.76E-03
ENSG00000172292	<i>CERS6</i>	71.73	36.05	1.00	2.98E-03
ENSG00000007341	<i>ST7L</i>	24.36	11.61	1.00	1.73E-02
Downregulated DEGs					
ENSG00000163735	<i>CXCL5</i>	0.00	855.31	-14.29	2.84E-05
ENSG00000170801	<i>HTRA3</i>	0.05	1089.10	-13.32	3.74E-04
ENSG00000106236	<i>NPTX2</i>	0.00	405.03	-12.76	1.71E-03
ENSG00000138039	<i>LHCGR</i>	0.00	304.01	-12.73	6.99E-05
ENSG00000197632	<i>SERPINE2</i>	0.00	298.82	-12.71	6.96E-05
ENSG00000198300	<i>PEG3</i>	0.00	317.45	-12.70	2.52E-04
ENSG0000010327	<i>STAB1</i>	0.00	214.01	-12.27	5.67E-05
ENSG00000100985	<i>MMP9</i>	0.04	303.57	-12.22	1.13E-04
ENSG00000162511	<i>LAPTM5</i>	0.02	290.90	-12.14	7.73E-05
ENSG00000140459	<i>CYP11A1</i>	0.49	2260.17	-12.03	2.84E-05
ENSG00000198502	<i>HLA-DRB5</i>	0.00	185.40	-11.85	5.18E-04
ENSG00000170315	<i>UBB</i>	0.47	642.63	-11.81	1.37E-04
ENSG00000163220	<i>S100A9</i>	0.00	156.22	-11.79	6.87E-05
ENSG00000121966	<i>CXCR4</i>	0.03	213.54	-11.65	1.48E-04
ENSG00000260314	<i>MRC1</i>	0.00	147.18	-11.51	5.46E-04
ENSG00000203859	<i>HSD3B2</i>	1.30	3109.62	-11.37	5.67E-05
ENSG00000124102	<i>PI3</i>	0.02	190.52	-11.35	5.54E-04
ENSG00000103569	<i>AQP9</i>	0.00	106.27	-11.10	4.10E-04
ENSG00000011600	<i>TYROBP</i>	0.00	94.16	-11.04	1.18E-04
ENSG00000155926	<i>SLA</i>	0.00	89.72	-10.95	1.70E-04
ENSG00000163736	<i>PPBP</i>	0.00	84.13	-10.93	5.67E-05
ENSG00000206172	<i>HBA1</i>	0.00	178.64	-10.93	1.85E-02
ENSG00000134042	<i>MRO</i>	0.48	1091.35	-10.91	2.30E-03
ENSG00000187479	<i>C11orf96</i>	0.07	175.94	-10.90	1.76E-04
ENSG00000204103	<i>MAFB</i>	0.00	82.92	-10.90	6.19E-05
ENSG00000182463	<i>TSHZ2</i>	0.03	135.84	-10.88	6.99E-05
ENSG00000114771	<i>AADAC</i>	0.05	144.26	-10.85	7.13E-04
ENSG00000090382	<i>LYZ</i>	0.04	163.58	-10.83	8.24E-04
ENSG00000110324	<i>IL10RA</i>	0.00	79.45	-10.83	6.60E-05
ENSG00000197629	<i>MPEG1</i>	0.03	126.63	-10.73	6.37E-05
ENSG00000051523	<i>CYBA</i>	0.09	168.44	-10.72	1.25E-04
ENSG00000043462	<i>LCP2</i>	0.00	76.68	-10.68	2.42E-04

ENSG00000141506	<i>PIK3R5</i>	0.00	70.28	-10.64	8.71E-05
ENSG00000117594	<i>HSD11B1</i>	0.31	247.15	-10.57	5.88E-04
ENSG00000082397	<i>EPB41L3</i>	0.00	63.75	-10.49	9.37E-05
ENSG00000082074	<i>FYB1</i>	0.01	96.59	-10.47	6.75E-04
ENSG00000131435	<i>PDLIM4</i>	0.02	78.59	-10.47	5.67E-05
ENSG00000167895	<i>TMC8</i>	0.00	60.47	-10.46	5.67E-05
ENSG00000167580	<i>AQP2</i>	0.00	67.64	-10.44	6.15E-04
ENSG00000182636	<i>NDN</i>	0.00	59.72	-10.41	7.73E-05
ENSG00000101336	<i>HCK</i>	0.00	61.87	-10.40	1.82E-04
ENSG00000167244	<i>IGF2</i>	0.02	86.21	-10.34	2.33E-04
ENSG00000093072	<i>ADA2</i>	0.00	56.45	-10.30	1.38E-04
ENSG00000170458	<i>CD14</i>	0.16	157.33	-10.29	5.97E-04
ENSG00000188536	<i>HBA2</i>	0.23	385.98	-10.28	2.03E-02
ENSG00000088827	<i>SIGLEC1</i>	0.00	60.38	-10.18	1.30E-03
ENSG00000180353	<i>HCLS1</i>	0.03	81.75	-10.17	1.08E-04
ENSG00000159189	<i>C1QC</i>	0.00	55.71	-10.15	8.80E-04
ENSG00000115523	<i>GNLY</i>	0.06	111.32	-10.13	4.07E-04
ENSG00000073737	<i>DHRS9</i>	0.02	85.19	-10.10	3.77E-03
ENSG00000135929	<i>CYP27A1</i>	0.25	159.75	-10.09	4.36E-04
ENSG00000203747	<i>FCGR3A</i>	0.00	47.08	-10.07	6.99E-05
ENSG00000108691	<i>CCL2</i>	2.71	443.29	-10.07	1.53E-03
ENSG00000163958	<i>ZDHHC19</i>	0.00	46.26	-10.03	1.10E-04
ENSG00000163823	<i>CCR1</i>	0.07	102.35	-10.02	7.20E-04
ENSG00000244734	<i>HBB</i>	0.04	152.37	-10.01	2.37E-02
ENSG00000130208	<i>APOC1</i>	0.26	231.28	-10.00	8.92E-04
ENSG00000155659	<i>VSIG4</i>	0.00	45.67	-10.00	1.34E-04
ENSG00000175445	<i>LPL</i>	0.00	43.68	-9.99	5.67E-05
ENSG00000117091	<i>CD48</i>	0.00	45.10	-9.97	1.76E-04
ENSG00000133317	<i>LGALS12</i>	0.07	77.39	-9.96	1.62E-04
ENSG00000140379	<i>BCL2A1</i>	0.00	46.60	-9.89	7.04E-04
ENSG00000146070	<i>PLA2G7</i>	0.08	120.16	-9.89	2.78E-04
ENSG00000129538	<i>RNASE1</i>	0.00	80.99	-9.88	1.87E-02
ENSG00000140274	<i>DUOXA2</i>	0.04	68.15	-9.86	1.91E-03
ENSG00000185811	<i>IKZF1</i>	0.00	39.62	-9.85	6.19E-05
ENSG00000160593	<i>JAML</i>	0.00	39.60	-9.79	1.52E-04
ENSG00000122122	<i>SASH3</i>	0.00	38.06	-9.79	6.19E-05
ENSG00000138964	<i>PARVG</i>	0.00	38.92	-9.78	1.15E-04
ENSG00000167641	<i>PPP1R14A</i>	0.00	41.01	-9.76	4.47E-04
ENSG00000105122	<i>RASAL3</i>	0.00	38.18	-9.76	1.07E-04
ENSG00000074370	<i>ATP2A3</i>	0.36	113.09	-9.73	1.11E-03
ENSG00000179344	<i>HLA-DQB1</i>	0.00	40.78	-9.70	7.88E-04
ENSG00000166920	<i>C15orf48</i>	0.03	56.03	-9.65	6.22E-04
ENSG00000167851	<i>CD300A</i>	0.00	37.31	-9.64	3.74E-04
ENSG00000162892	<i>IL24</i>	0.00	33.79	-9.60	8.18E-05
ENSG00000166927	<i>MS4A7</i>	0.11	116.43	-9.55	5.67E-05
ENSG00000137491	<i>SLCO2B1</i>	0.09	106.99	-9.54	1.80E-04
ENSG00000110934	<i>BIN2</i>	0.00	32.66	-9.53	1.07E-04
ENSG00000184730	<i>APOBR</i>	0.06	69.80	-9.52	3.54E-04
ENSG00000114013	<i>CD86</i>	0.00	35.61	-9.50	7.49E-04
ENSG00000131042	<i>LILRB2</i>	0.00	35.69	-9.50	6.54E-04
ENSG00000180644	<i>PRF1</i>	0.00	34.74	-9.49	6.77E-04
ENSG00000137726	<i>FXRD6</i>	0.09	83.68	-9.47	1.72E-03
ENSG00000109321	<i>AREG</i>	1.34	1345.95	-9.47	1.84E-03
ENSG00000000938	<i>FGR</i>	0.07	52.09	-9.47	3.65E-04
ENSG00000143119	<i>CD53</i>	0.22	105.26	-9.42	5.77E-04
ENSG00000198851	<i>CD3E</i>	0.00	29.99	-9.42	9.08E-05
ENSG00000165025	<i>SYK</i>	0.04	42.64	-9.41	1.76E-04
ENSG00000134028	<i>ADAMDEC1</i>	0.00	44.47	-9.41	6.34E-03

ENSG00000196329	<i>GIMAP5</i>	0.00	29.98	-9.40	1.23E-04
ENSG00000147872	<i>PLIN2</i>	2.22	1024.59	-9.40	6.19E-05
ENSG00000015133	<i>CCDC88C</i>	0.01	37.67	-9.39	6.19E-05
ENSG00000140678	<i>ITGAX</i>	0.49	149.09	-9.39	8.86E-04
ENSG00000211899	<i>IGHM</i>	0.00	36.58	-9.38	2.85E-03
ENSG00000178947	<i>SMIM10L2A</i>	0.00	29.21	-9.38	1.07E-04
ENSG00000012124	<i>CD22</i>	0.26	84.97	-9.35	6.15E-04
ENSG00000131471	<i>AOC3</i>	0.08	63.31	-9.34	2.30E-03
ENSG00000140279	<i>DUOX2</i>	0.97	286.83	-9.32	1.41E-03
ENSG00000115956	<i>PLEK</i>	0.09	90.30	-9.31	7.23E-04
ENSG00000119457	<i>SLC46A2</i>	0.04	49.96	-9.29	9.52E-05
ENSG00000130829	<i>DUSP9</i>	0.00	27.43	-9.28	1.07E-04
ENSG00000106565	<i>TMEM176B</i>	0.00	29.83	-9.28	4.53E-04
ENSG00000077420	<i>APBB1IP</i>	0.00	28.68	-9.28	2.78E-04
ENSG00000133574	<i>GIMAP4</i>	0.00	30.62	-9.26	7.46E-04
ENSG00000066336	<i>SPI1</i>	0.11	68.32	-9.25	4.85E-04
ENSG00000204472	<i>AIF1</i>	0.00	26.86	-9.25	1.37E-04
ENSG00000020633	<i>RUNX3</i>	0.05	42.07	-9.23	1.03E-04
ENSG00000165168	<i>CYBB</i>	0.53	199.51	-9.23	6.17E-04
ENSG00000179144	<i>GIMAP7</i>	0.00	27.54	-9.20	3.21E-04
ENSG00000211751	<i>TRBC1</i>	0.00	25.85	-9.16	2.17E-04
ENSG00000178163	<i>ZNF518B</i>	0.00	24.21	-9.13	6.99E-05
ENSG00000104972	<i>LILRB1</i>	0.00	25.29	-9.11	2.34E-04
ENSG00000101445	<i>PPP1R16B</i>	0.00	23.50	-9.02	2.04E-04
ENSG00000158869	<i>FCER1G</i>	0.24	122.88	-9.01	4.94E-04
ENSG00000165757	<i>JCAD</i>	1.38	308.67	-8.94	6.74E-04
ENSG00000167642	<i>SPINT2</i>	0.24	132.44	-8.92	6.99E-05
ENSG00000140968	<i>IRF8</i>	0.00	23.69	-8.92	7.71E-04
ENSG00000154269	<i>ENPP3</i>	0.07	47.65	-8.91	6.37E-05
ENSG00000171303	<i>KCNK3</i>	4.14	1161.99	-8.90	1.08E-04
ENSG00000123329	<i>ARHGAP9</i>	0.12	71.33	-8.86	4.25E-04
ENSG00000087250	<i>MT3</i>	0.05	30.19	-8.84	3.42E-04
ENSG00000105374	<i>NKG7</i>	0.00	20.92	-8.84	2.74E-04
ENSG00000175899	<i>A2M</i>	0.00	27.73	-8.83	4.02E-03
ENSG00000144843	<i>ADPRH</i>	0.02	27.54	-8.82	6.19E-05
ENSG00000084628	<i>NKAIN1</i>	0.00	23.63	-8.82	1.56E-03
ENSG00000211592	<i>IGKC</i>	0.00	20.59	-8.81	2.65E-04
ENSG00000124731	<i>TREM1</i>	0.00	19.45	-8.81	8.28E-05
ENSG00000229644	<i>NAMPTP1</i>	0.03	32.45	-8.81	9.65E-04
ENSG00000108551	<i>RASD1</i>	0.26	110.11	-8.80	3.72E-04
ENSG00000185187	<i>SIGIRR</i>	0.00	19.48	-8.79	1.08E-04
ENSG00000130592	<i>LSP1</i>	0.62	91.64	-8.79	1.24E-03
ENSG00000165140	<i>FBP1</i>	0.00	20.09	-8.78	2.41E-04
ENSG00000166825	<i>ANPEP</i>	0.29	102.24	-8.78	6.15E-04
ENSG00000108688	<i>CCL7</i>	0.00	22.48	-8.74	2.04E-03
ENSG00000168004	<i>PLAAT5</i>	0.00	18.89	-8.74	1.58E-04
ENSG00000137841	<i>PLCB2</i>	0.04	34.50	-8.72	2.36E-04
ENSG00000134121	<i>CHL1</i>	0.00	17.93	-8.71	6.19E-05
ENSG00000148795	<i>CYP17A1</i>	0.04	27.77	-8.71	1.70E-04
ENSG00000130755	<i>GMFG</i>	0.04	36.98	-8.69	1.04E-04
ENSG00000123999	<i>INHA</i>	2.14	916.06	-8.68	1.34E-04
ENSG00000177575	<i>CD163</i>	1.05	129.22	-8.67	1.31E-03
ENSG00000189186	<i>DCAF8L2</i>	0.02	24.39	-8.67	1.74E-04
ENSG00000132514	<i>CLEC10A</i>	0.00	18.79	-8.67	2.66E-04
ENSG00000156738	<i>MS4A1</i>	0.00	21.54	-8.67	1.76E-03
ENSG00000100968	<i>NFATC4</i>	0.02	26.05	-8.65	1.58E-04
ENSG00000196557	<i>CACNA1H</i>	0.00	17.74	-8.63	1.90E-04
ENSG00000158714	<i>SLAMF8</i>	0.06	34.90	-8.63	2.66E-04

ENSG00000130822	<i>PNCK</i>	0.21	56.21	-8.63	2.67E-04
ENSG00000170430	<i>MGMT</i>	0.00	17.23	-8.62	1.12E-04
ENSG00000204851	<i>PNMA8B</i>	0.00	17.89	-8.59	3.86E-04
ENSG00000275302	<i>CCL4</i>	0.00	19.54	-8.58	8.95E-04
ENSG00000126353	<i>CCR7</i>	0.06	35.39	-8.57	6.15E-04
ENSG00000119401	<i>TRIM32</i>	0.00	16.82	-8.56	1.55E-04
ENSG00000167434	<i>CA4</i>	0.03	26.32	-8.56	1.48E-03
ENSG00000127084	<i>FGD3</i>	0.08	44.62	-8.55	8.71E-05
ENSG00000173110	<i>HSPA6</i>	0.17	51.22	-8.53	5.57E-04
ENSG00000186074	<i>CD300LF</i>	0.00	16.56	-8.51	2.18E-04
ENSG00000213203	<i>GIMAP1</i>	0.00	15.98	-8.49	1.50E-04
ENSG00000229183	<i>PGA4</i>	0.00	19.22	-8.48	2.18E-03
ENSG00000157884	<i>CIB4</i>	0.00	15.22	-8.47	6.37E-05
ENSG00000173369	<i>C1QB</i>	0.00	18.23	-8.47	1.69E-03
ENSG00000128815	<i>WDFY4</i>	0.00	17.62	-8.47	8.69E-04
ENSG00000225217	<i>HSPA7</i>	0.00	15.42	-8.47	9.52E-05
ENSG00000169442	<i>CD52</i>	0.00	15.06	-8.46	6.37E-05
ENSG00000152270	<i>PDE3B</i>	0.08	39.41	-8.45	2.51E-04
ENSG00000147883	<i>CDKN2B</i>	0.05	31.84	-8.44	1.25E-03
ENSG00000115085	<i>ZAP70</i>	0.10	30.57	-8.44	4.79E-04
ENSG00000205362	<i>MT1A</i>	0.00	21.33	-8.43	4.20E-03
ENSG00000138316	<i>ADAMTS14</i>	0.71	163.40	-8.42	3.65E-04
ENSG00000167261	<i>DPEP2</i>	0.02	19.00	-8.42	1.38E-04
ENSG00000110148	<i>CCKBR</i>	0.00	14.55	-8.41	6.37E-05
ENSG00000136250	<i>AOAH</i>	0.00	15.03	-8.41	1.40E-04
ENSG00000189369	<i>GSPT2</i>	0.00	14.77	-8.41	1.07E-04
ENSG00000151692	<i>RNF144A</i>	0.06	29.33	-8.37	1.40E-04
ENSG00000138615	<i>CILP</i>	0.05	37.62	-8.37	3.74E-03
ENSG00000090376	<i>IRAK3</i>	0.23	74.79	-8.36	2.98E-04
ENSG00000119535	<i>CSF3R</i>	0.41	151.13	-8.35	3.52E-03
ENSG00000150337	<i>FCGR1A</i>	0.00	22.40	-8.34	6.19E-03
ENSG00000158050	<i>DUSP2</i>	0.00	14.11	-8.34	9.93E-05
ENSG00000091879	<i>ANGPT2</i>	0.20	66.41	-8.34	1.52E-02
ENSG00000073060	<i>SCARB1</i>	42.97	13717.29	-8.33	2.56E-06
ENSG00000077984	<i>CST7</i>	0.03	20.40	-8.32	2.20E-04
ENSG00000116824	<i>CD2</i>	0.00	15.28	-8.31	6.18E-04
ENSG00000170369	<i>CST2</i>	0.00	20.75	-8.31	9.21E-03
ENSG00000166501	<i>PRKCB</i>	0.14	56.11	-8.28	1.18E-04
ENSG00000155629	<i>PIK3AP1</i>	0.33	90.33	-8.27	5.42E-04
ENSG00000198879	<i>SFMBT2</i>	0.00	13.13	-8.26	6.40E-05
ENSG00000130203	<i>APOE</i>	4.79	1622.11	-8.25	1.89E-04
ENSG00000009790	<i>TRAF3IP3</i>	0.15	36.76	-8.24	2.52E-04
ENSG00000118971	<i>CCND2</i>	0.10	45.30	-8.23	1.25E-04
ENSG00000090659	<i>CD209</i>	0.00	13.22	-8.21	1.82E-04
ENSG00000173372	<i>C1QA</i>	0.00	15.72	-8.21	2.33E-03
ENSG00000178726	<i>THBD</i>	0.18	31.03	-8.20	9.69E-04
ENSG00000204291	<i>COL15A1</i>	0.53	187.03	-8.19	7.48E-04
ENSG00000180440	<i>SERTM1</i>	0.00	13.29	-8.19	2.41E-04
ENSG00000163563	<i>MNDA</i>	0.00	14.11	-8.19	4.99E-04
ENSG00000173714	<i>WFIKN2</i>	0.00	13.20	-8.19	2.30E-04
ENSG00000169896	<i>ITGAM</i>	0.45	60.48	-8.18	1.87E-03
ENSG00000103742	<i>IGDCC4</i>	0.10	29.87	-8.17	2.51E-04
ENSG00000182866	<i>LCK</i>	0.09	21.41	-8.16	2.87E-04
ENSG00000120057	<i>SFRP5</i>	0.06	26.57	-8.14	5.19E-04
ENSG00000131203	<i>IDO1</i>	0.01	35.79	-8.14	2.37E-02
ENSG00000101265	<i>RASSF2</i>	0.17	54.84	-8.09	2.27E-04
ENSG00000133636	<i>NTS</i>	0.00	14.32	-8.09	1.26E-03
ENSG00000142615	<i>CELA2A</i>	0.20	53.69	-8.09	5.59E-04

ENSG00000133800	<i>LYVE1</i>	0.00	12.67	-8.08	4.24E-04
ENSG00000173762	<i>CD7</i>	0.00	12.77	-8.07	4.51E-04
ENSG00000268500	<i>SIGLEC5</i>	0.00	13.16	-8.06	5.99E-04
ENSG00000160791	<i>CCR5</i>	0.02	18.20	-8.06	4.98E-04
ENSG00000102962	<i>CCL22</i>	0.20	62.89	-8.05	1.85E-03
ENSG00000278318	<i>ZNF229</i>	0.00	11.34	-8.05	7.31E-05
ENSG00000149781	<i>FERMT3</i>	0.19	44.39	-8.04	3.55E-04
ENSG00000153820	<i>SPHKAP</i>	0.03	16.82	-8.04	2.78E-04
ENSG00000203858	<i>HSD3BP2</i>	0.02	17.17	-8.04	2.03E-04
ENSG00000103512	<i>NOMO1</i>	1.06	102.45	-8.03	1.09E-02
ENSG00000138061	<i>CYP1B1</i>	1.33	285.84	-8.03	1.26E-04
ENSG00000255398	<i>HCAR3</i>	0.05	28.85	-8.02	9.90E-03
ENSG00000160883	<i>HK3</i>	0.07	30.73	-8.01	1.58E-03
ENSG00000136286	<i>MYO1G</i>	0.18	35.06	-8.01	6.96E-04
ENSG00000114115	<i>RBP1</i>	1.78	401.80	-8.00	8.18E-05
ENSG00000060558	<i>GNA15</i>	0.04	15.87	-7.97	3.18E-04
ENSG00000215187	<i>FAM166B</i>	0.10	39.81	-7.97	2.10E-03
ENSG00000267368	<i>UPK3BL1</i>	0.00	11.52	-7.95	3.39E-04
ENSG00000290838	<i>NCF1B</i>	0.00	11.65	-7.94	3.57E-04
ENSG00000170955	<i>CAVIN3</i>	0.00	15.03	-7.94	3.51E-03
ENSG00000135838	<i>NPL</i>	0.39	108.40	-7.93	4.20E-04
ENSG00000144847	<i>IGSF11</i>	0.00	10.49	-7.93	8.71E-05
ENSG00000153563	<i>CD8A</i>	0.04	22.06	-7.93	1.00E-03
ENSG00000111679	<i>PTPN6</i>	0.33	71.02	-7.92	1.11E-03
ENSG00000107742	<i>SPOCK2</i>	2.71	259.13	-7.92	2.93E-04
ENSG00000123610	<i>TNFAIP6</i>	0.21	58.06	-7.91	8.91E-03
ENSG00000141968	<i>VAV1</i>	0.28	36.98	-7.90	1.10E-03
ENSG00000167772	<i>ANGPTL4</i>	1.22	296.76	-7.90	6.19E-05
ENSG00000133256	<i>PDE6B</i>	0.00	10.24	-7.90	7.73E-05
ENSG00000183019	<i>MCEMP1</i>	0.05	17.69	-7.89	5.08E-04
ENSG00000130222	<i>GADD45G</i>	0.25	70.94	-7.89	6.37E-05
ENSG00000205744	<i>DENND1C</i>	0.07	23.97	-7.89	1.66E-04
ENSG00000186818	<i>LILRB4</i>	0.00	10.50	-7.89	1.79E-04
ENSG00000139626	<i>ITGB7</i>	0.10	21.10	-7.88	7.59E-04
ENSG00000135077	<i>HAVCR2</i>	0.05	15.72	-7.88	5.46E-04
ENSG00000100055	<i>CYTH4</i>	0.98	35.93	-7.86	3.66E-03
ENSG00000171115	<i>GIMAP8</i>	0.00	11.02	-7.85	3.85E-04
ENSG00000131355	<i>ADGRE3</i>	0.00	9.96	-7.84	1.18E-04
ENSG00000184828	<i>ZBTB7C</i>	0.46	45.76	-7.83	1.10E-03
ENSG00000054356	<i>PTPRN</i>	0.47	51.15	-7.83	8.29E-04
ENSG00000110448	<i>CD5</i>	0.04	13.46	-7.79	1.78E-04
ENSG00000126759	<i>CFP</i>	0.38	62.61	-7.79	8.06E-04
ENSG00000118137	<i>APOA1</i>	0.08	24.34	-7.78	2.93E-04
ENSG00000080573	<i>COL5A3</i>	0.40	66.14	-7.77	1.49E-03
ENSG00000002933	<i>TMEM176A</i>	0.07	18.44	-7.77	1.17E-03
ENSG00000181847	<i>TIGIT</i>	0.02	15.47	-7.75	3.80E-03
ENSG00000253958	<i>CLDN23</i>	0.03	17.08	-7.74	1.27E-03
ENSG00000166928	<i>MS4A14</i>	0.00	9.63	-7.74	1.95E-04
ENSG00000161640	<i>SIGLEC11</i>	0.08	21.55	-7.74	7.02E-04
ENSG00000164283	<i>ESM1</i>	0.00	11.75	-7.74	2.40E-03
ENSG00000168995	<i>SIGLEC7</i>	0.00	10.24	-7.73	6.41E-04
ENSG0000010671	<i>BTK</i>	0.00	9.83	-7.71	4.51E-04
ENSG00000131398	<i>KCNC3</i>	0.00	9.13	-7.71	1.25E-04
ENSG00000244682	<i>FCGR2C</i>	0.01	12.25	-7.71	1.30E-04
ENSG00000115607	<i>IL18RAP</i>	0.00	9.22	-7.69	1.78E-04
ENSG00000243955	<i>GSTA1</i>	0.31	59.71	-7.68	5.73E-03
ENSG00000165178	<i>NCF1C</i>	0.02	15.65	-7.68	8.78E-04
ENSG00000125810	<i>CD93</i>	0.19	27.87	-7.68	5.99E-04

ENSG00000167286	<i>CD3D</i>	0.00	9.08	-7.66	2.00E-04
ENSG00000115155	<i>OTOF</i>	0.02	12.88	-7.66	2.09E-04
ENSG00000099985	<i>OSM</i>	0.00	11.58	-7.65	2.15E-03
ENSG00000174946	<i>GPR171</i>	0.00	8.62	-7.64	1.10E-04
ENSG00000101017	<i>CD40</i>	0.00	9.28	-7.64	4.13E-04
ENSG00000023892	<i>DEF6</i>	0.10	20.75	-7.63	1.75E-04
ENSG00000170262	<i>MRAP</i>	0.64	96.61	-7.63	1.83E-04
ENSG00000105825	<i>TFPI2</i>	0.39	36.20	-7.62	7.69E-04
ENSG00000170370	<i>EMX2</i>	0.05	16.14	-7.61	2.05E-04
ENSG00000185274	<i>GALNT17</i>	0.08	21.00	-7.59	2.77E-03
ENSG00000149328	<i>GLB1L2</i>	0.00	8.25	-7.57	1.34E-04
ENSG00000102760	<i>RGCC</i>	0.00	8.13	-7.56	1.04E-04
ENSG00000204161	<i>TMEM273</i>	0.00	8.27	-7.56	1.43E-04
ENSG00000162747	<i>FCGR3B</i>	0.00	15.96	-7.53	2.36E-02
ENSG00000213178	<i>RPL22P1</i>	0.00	16.66	-7.52	1.96E-02
ENSG00000073861	<i>TBX21</i>	0.00	8.19	-7.52	1.92E-04
ENSG00000076944	<i>STXBP2</i>	1.27	148.21	-7.52	1.98E-04
ENSG00000135094	<i>SDS</i>	0.17	28.17	-7.52	5.84E-03
ENSG00000072694	<i>FCGR2B</i>	0.11	29.11	-7.51	2.64E-03
ENSG00000283787	<i>PRR33</i>	0.00	8.19	-7.51	2.20E-04
ENSG00000183918	<i>SH2D1A</i>	0.00	8.02	-7.50	1.78E-04
ENSG00000140479	<i>PCSK6</i>	0.69	141.57	-7.50	7.31E-03
ENSG00000100453	<i>GZMB</i>	0.00	10.28	-7.49	3.12E-03
ENSG00000185559	<i>DLK1</i>	0.00	8.66	-7.49	5.26E-04
ENSG00000145649	<i>GZMA</i>	0.00	7.88	-7.49	1.48E-04
ENSG00000129991	<i>TNNI3</i>	0.01	11.29	-7.49	3.66E-04
ENSG00000100365	<i>NCF4</i>	0.18	26.24	-7.49	3.37E-03
ENSG00000115165	<i>CYTIP</i>	0.71	28.50	-7.48	4.04E-03
ENSG00000213654	<i>GPSM3</i>	0.05	21.11	-7.47	2.55E-03
ENSG00000178922	<i>HYI</i>	0.14	19.55	-7.44	2.90E-04
ENSG00000140030	<i>GPR65</i>	0.13	14.98	-7.43	9.95E-04
ENSG00000053918	<i>KCNQ1</i>	0.10	22.59	-7.43	1.81E-03
ENSG00000162493	<i>PDPN</i>	0.05	14.27	-7.42	3.05E-04
ENSG00000124882	<i>EREG</i>	0.62	53.27	-7.42	3.20E-03
ENSG00000143110	<i>C1orf162</i>	0.12	27.98	-7.40	4.73E-04
ENSG00000105639	<i>JAK3</i>	0.38	75.23	-7.40	6.65E-04
ENSG00000258227	<i>CLEC5A</i>	0.00	7.29	-7.38	1.55E-04
ENSG00000147443	<i>DOK2</i>	0.12	18.90	-7.38	3.12E-04
ENSG00000198829	<i>SUCNR1</i>	0.10	18.05	-7.38	4.36E-04
ENSG0000012779	<i>ALOX5</i>	0.00	7.86	-7.37	5.43E-04
ENSG00000188404	<i>SELL</i>	0.84	42.74	-7.36	2.03E-03
ENSG00000089199	<i>CHGB</i>	0.18	19.41	-7.35	3.84E-04
ENSG00000254521	<i>SIGLEC12</i>	0.00	10.39	-7.34	6.11E-03
ENSG00000182782	<i>HCAR2</i>	0.15	35.73	-7.32	1.85E-03
ENSG00000104921	<i>FCER2</i>	0.00	7.10	-7.32	2.07E-04
ENSG00000180190	<i>TDRP</i>	0.11	16.91	-7.31	5.26E-04
ENSG00000066294	<i>CD84</i>	0.34	47.18	-7.30	1.97E-04
ENSG00000170956	<i>CEACAM3</i>	0.00	7.51	-7.29	4.51E-04
ENSG00000137033	<i>IL33</i>	2.33	382.69	-7.28	1.14E-04
ENSG00000157502	<i>PWWP3B</i>	0.00	6.85	-7.28	1.79E-04
ENSG00000169403	<i>PTAFR</i>	0.35	60.76	-7.28	1.53E-03
ENSG00000149418	<i>ST14</i>	0.03	13.02	-7.28	1.18E-03
ENSG00000147465	<i>STAR</i>	43.12	6638.85	-7.27	2.84E-05
ENSG00000100450	<i>GZMH</i>	0.00	9.96	-7.26	6.45E-03
ENSG00000164687	<i>FABP5</i>	0.60	34.23	-7.24	1.60E-03
ENSG00000157303	<i>SUSD3</i>	0.00	6.66	-7.23	2.05E-04
ENSG00000129450	<i>SIGLEC9</i>	0.13	17.80	-7.22	7.13E-04
ENSG00000064205	<i>CCN5</i>	3.54	555.46	-7.20	1.83E-03

ENSG00000125845	<i>BMP2</i>	0.02	9.10	-7.20	1.08E-04
ENSG00000172020	<i>GAP43</i>	0.02	9.48	-7.19	2.12E-04
ENSG00000180061	<i>TMEM150B</i>	0.00	6.46	-7.19	2.01E-04
ENSG00000131459	<i>GFPT2</i>	1.86	217.94	-7.19	1.14E-04
ENSG00000178538	<i>CA8</i>	0.02	8.42	-7.16	3.73E-04
ENSG00000108798	<i>ABI3</i>	0.00	6.33	-7.15	1.97E-04
ENSG00000172243	<i>CLEC7A</i>	0.18	29.52	-7.13	2.17E-03
ENSG00000066382	<i>MPPED2</i>	0.03	10.00	-7.12	3.23E-04
ENSG00000290720	<i>ZNF542P</i>	0.05	11.29	-7.12	1.82E-04
ENSG00000188803	<i>SHISA6</i>	0.00	6.20	-7.12	2.05E-04
ENSG00000165929	<i>TC2N</i>	0.04	11.70	-7.12	9.32E-04
ENSG00000166523	<i>CLEC4E</i>	0.33	59.93	-7.11	6.78E-03
ENSG00000197057	<i>DTHD1</i>	0.00	6.36	-7.11	3.09E-04
ENSG00000079263	<i>SP140</i>	0.09	10.35	-7.09	5.88E-04
ENSG00000196562	<i>SULF2</i>	0.67	109.56	-7.09	1.74E-03
ENSG00000125144	<i>MT1G</i>	0.00	6.33	-7.09	3.95E-04
ENSG00000169413	<i>RNASE6</i>	0.00	7.18	-7.08	1.23E-03
ENSG00000196090	<i>PTPRT</i>	0.00	5.78	-7.07	1.30E-04
ENSG00000211829	<i>TRDC</i>	0.02	8.85	-7.07	2.33E-04
ENSG00000135144	<i>DTX1</i>	0.00	6.03	-7.07	2.78E-04
ENSG00000110077	<i>MS4A6A</i>	0.29	35.64	-7.05	2.06E-03
ENSG00000065675	<i>PRKCQ</i>	0.02	8.20	-7.05	8.67E-05
ENSG00000123360	<i>PDE1B</i>	0.12	11.75	-7.04	5.12E-04
ENSG00000112799	<i>LY86</i>	0.00	7.08	-7.04	2.12E-03
ENSG00000124203	<i>ZNF831</i>	0.00	6.11	-7.04	4.11E-04
ENSG00000137441	<i>FGFBP2</i>	0.00	5.88	-7.03	2.47E-04
ENSG00000143851	<i>PTPN7</i>	0.37	48.28	-7.03	2.60E-04
ENSG00000169508	<i>GPR183</i>	0.13	16.46	-7.03	1.76E-03
ENSG00000285420	<i>PDGFRL2P</i>	0.00	6.34	-7.02	7.05E-04
ENSG00000290735		0.04	10.32	-7.02	2.64E-04
ENSG00000109107	<i>ALDOC</i>	1.03	137.26	-7.01	2.75E-04
ENSG00000185477	<i>GPRIN3</i>	0.09	16.39	-7.00	2.79E-04
ENSG00000274615	<i>NPEPPSP1</i>	0.00	5.67	-7.00	2.07E-04
ENSG00000175164	<i>ABO</i>	1.25	157.28	-7.00	6.40E-05
ENSG00000235568	<i>NFAM1</i>	0.32	22.93	-7.00	5.15E-03
ENSG00000163131	<i>CTSS</i>	1.75	234.65	-6.99	2.05E-04
ENSG00000136689	<i>IL1RN</i>	0.06	16.34	-6.97	3.65E-03
ENSG00000124875	<i>CXCL6</i>	0.07	10.83	-6.94	5.33E-04
ENSG00000088882	<i>CPXM1</i>	0.00	7.52	-6.94	2.90E-03
ENSG00000151948	<i>GLT1D1</i>	0.00	5.54	-6.94	2.60E-04
ENSG00000116157	<i>GPX7</i>	0.03	9.35	-6.93	3.03E-04
ENSG00000164659	<i>ELAPOR2</i>	0.06	11.36	-6.92	3.10E-04
ENSG00000027869	<i>SH2D2A</i>	0.07	14.26	-6.92	6.44E-04
ENSG00000167613	<i>LAIR1</i>	0.00	7.01	-6.91	2.27E-03
ENSG00000132199	<i>ENOSF1</i>	2.01	177.06	-6.90	1.40E-04
ENSG00000178789	<i>CD300LB</i>	0.00	5.87	-6.90	7.13E-04
ENSG00000174640	<i>SLCO2A1</i>	0.00	5.71	-6.90	5.81E-04
ENSG00000271503	<i>CCL5</i>	0.61	55.43	-6.89	1.49E-03
ENSG00000147180	<i>ZNF711</i>	0.00	5.12	-6.89	1.65E-04
ENSG00000148344	<i>PTGES</i>	1.13	115.73	-6.89	1.77E-03
ENSG00000156127	<i>BATF</i>	0.00	5.31	-6.88	2.96E-04
ENSG00000177191	<i>B3GNT8</i>	0.03	8.31	-6.87	2.90E-04
ENSG00000102032	<i>RENBP</i>	0.42	23.17	-6.86	2.74E-03
ENSG00000076826	<i>CAMSAP3</i>	0.31	43.28	-6.86	1.18E-03
ENSG00000085265	<i>FCN1</i>	0.93	72.44	-6.85	3.25E-04
ENSG00000105695	<i>MAG</i>	0.00	5.44	-6.85	4.94E-04
ENSG00000007312	<i>CD79B</i>	0.00	5.51	-6.85	6.23E-04
ENSG00000198576	<i>ARC</i>	0.04	9.09	-6.82	5.26E-04

ENSG00000196735	<i>HLA-DQA1</i>	0.71	88.58	-6.81	8.47E-04
ENSG00000204577	<i>LILRB3</i>	0.12	17.29	-6.80	3.57E-03
ENSG00000234224	<i>TMEM229A</i>	0.00	5.01	-6.80	2.80E-04
ENSG00000153283	<i>CD96</i>	0.09	14.94	-6.80	2.19E-04
ENSG00000110848	<i>CD69</i>	0.00	5.04	-6.79	2.90E-04
ENSG00000227507	<i>LTB</i>	0.08	10.94	-6.79	5.47E-04
ENSG00000233441	<i>CYP2AB1P</i>	0.00	6.45	-6.79	3.85E-03
ENSG00000291233		0.00	5.30	-6.79	4.99E-04
ENSG00000111344	<i>RASAL1</i>	0.15	23.85	-6.79	2.17E-03
ENSG00000068831	<i>RASGRP2</i>	0.29	24.98	-6.78	6.14E-04
ENSG00000221866	<i>PLXNA4</i>	0.31	26.71	-6.76	6.79E-04
ENSG00000181617	<i>FDCSP</i>	0.00	4.96	-6.76	3.22E-04
ENSG00000163017	<i>ACTG2</i>	0.05	13.18	-6.76	7.67E-03
ENSG00000277734	<i>TRAC</i>	0.26	24.61	-6.75	4.92E-04
ENSG00000175857	<i>GAPT</i>	0.00	5.28	-6.74	6.83E-04
ENSG00000171766	<i>GATM</i>	0.18	10.73	-6.73	8.49E-04
ENSG00000215218	<i>UBE2QL1</i>	0.00	4.83	-6.73	3.27E-04
ENSG00000181444	<i>ZNF467</i>	0.03	7.53	-6.73	1.44E-04
ENSG00000050767	<i>COL23A1</i>	0.02	7.81	-6.73	2.03E-03
ENSG00000197249	<i>SERPINA1</i>	0.71	95.01	-6.72	3.46E-03
ENSG00000174807	<i>CD248</i>	0.00	5.80	-6.72	1.59E-03
ENSG00000101194	<i>SLC17A9</i>	0.18	26.63	-6.72	1.41E-03
ENSG00000104894	<i>CD37</i>	0.48	54.74	-6.70	7.92E-04
ENSG00000122824	<i>NUDT10</i>	0.00	4.45	-6.70	1.50E-04
ENSG00000186517	<i>ARHGAP30</i>	0.81	64.72	-6.70	3.08E-04
ENSG00000003989	<i>SLC7A2</i>	3.78	223.36	-6.70	2.66E-04
ENSG00000118640	<i>VAMP8</i>	0.22	26.41	-6.69	5.04E-04
ENSG00000140368	<i>PSTPIP1</i>	0.10	12.71	-6.69	4.53E-04
ENSG00000162676	<i>GFI1</i>	0.05	8.86	-6.68	2.90E-04
ENSG00000163519	<i>TRAT1</i>	0.00	4.77	-6.68	4.28E-04
ENSG00000100385	<i>IL2RB</i>	0.22	15.19	-6.68	2.92E-03
ENSG00000126264	<i>HCST</i>	0.03	7.75	-6.68	2.78E-04
ENSG00000186407	<i>CD300E</i>	0.23	23.44	-6.67	1.86E-03
ENSG00000153707	<i>PTPRD</i>	0.53	21.11	-6.67	4.46E-03
ENSG00000136634	<i>IL10</i>	0.00	4.77	-6.66	4.79E-04
ENSG00000090104	<i>RGS1</i>	0.00	6.32	-6.64	3.74E-03
ENSG00000152467	<i>ZSCAN1</i>	0.00	4.20	-6.62	1.49E-04
ENSG00000185101	<i>ANO9</i>	0.05	9.28	-6.62	1.24E-03
ENSG00000130294	<i>KIF1A</i>	0.00	5.10	-6.62	1.63E-03
ENSG00000137265	<i>IRF4</i>	0.08	12.62	-6.61	3.63E-03
ENSG00000102575	<i>ACP5</i>	1.19	93.57	-6.59	2.54E-02
ENSG00000277632	<i>CCL3</i>	0.00	17.57	-6.57	4.93E-02
ENSG00000180113	<i>TDRD6</i>	0.80	25.02	-6.57	5.00E-03
ENSG00000108700	<i>CCL8</i>	0.00	11.93	-6.57	2.53E-02
ENSG00000129465	<i>RIPK3</i>	0.00	4.06	-6.56	1.77E-04
ENSG00000120280	<i>TASL</i>	0.00	4.48	-6.55	5.65E-04
ENSG00000276578		0.00	4.05	-6.54	2.02E-04
ENSG00000127152	<i>BCL11B</i>	0.07	10.58	-6.54	2.29E-04
ENSG00000132205	<i>EMILIN2</i>	0.97	81.14	-6.54	1.82E-04
ENSG00000235034	<i>C19orf81</i>	0.00	3.99	-6.54	1.82E-04
ENSG00000174600	<i>CMKLR1</i>	0.32	29.80	-6.54	4.92E-04
ENSG00000152128	<i>TMEM163</i>	0.07	9.38	-6.52	1.76E-04
ENSG00000227191	<i>TRGC2</i>	0.00	4.33	-6.51	5.12E-04
ENSG00000206052	<i>DOK6</i>	0.04	7.28	-6.51	6.26E-04
ENSG00000181631	<i>P2RY13</i>	0.03	12.45	-6.51	1.39E-02
ENSG00000116833	<i>NR5A2</i>	2.48	219.01	-6.51	6.99E-05
ENSG00000125931	<i>CITED1</i>	0.02	6.43	-6.51	4.63E-04
ENSG00000211689	<i>TRGC1</i>	0.00	4.25	-6.50	5.26E-04

ENSG00000164266	<i>SPINK1</i>	0.17	9.63	-6.48	2.59E-03
ENSG00000170542	<i>SERPINB9</i>	0.29	24.77	-6.48	2.03E-04
ENSG00000171236	<i>LRG1</i>	0.26	15.58	-6.48	8.38E-03
ENSG00000102879	<i>CORO1A</i>	0.78	61.72	-6.47	1.13E-04
ENSG00000224982	<i>TMEM233</i>	0.04	5.99	-6.47	1.16E-03
ENSG00000127951	<i>FGL2</i>	0.17	10.92	-6.47	5.84E-03
ENSG00000256713	<i>PGA5</i>	0.03	7.24	-6.47	9.95E-04
ENSG00000102970	<i>CCL17</i>	0.00	4.99	-6.47	1.95E-03
ENSG00000211895	<i>IGHA1</i>	0.00	3.96	-6.46	3.43E-04
ENSG00000152766	<i>ANKRD22</i>	0.10	13.45	-6.46	1.11E-02
ENSG00000171551	<i>ECEL1</i>	0.00	3.88	-6.46	2.42E-04
ENSG00000175463	<i>TBC1D10C</i>	0.39	27.61	-6.46	3.13E-04
ENSG00000106624	<i>AEBP1</i>	0.80	27.24	-6.45	1.02E-02
ENSG00000139572	<i>GPR84</i>	0.04	9.29	-6.45	1.91E-03
ENSG00000104951	<i>IL4I1</i>	0.32	26.06	-6.44	8.88E-04
ENSG00000147168	<i>IL2RG</i>	0.58	42.31	-6.44	3.24E-04
ENSG00000123338	<i>NCKAP1L</i>	1.83	48.24	-6.44	3.79E-03
ENSG00000070190	<i>DAPP1</i>	0.08	12.17	-6.43	4.51E-03
ENSG00000276231	<i>PIK3R6</i>	0.00	3.96	-6.43	4.43E-04
ENSG00000167208	<i>SNX20</i>	0.17	12.09	-6.43	1.52E-03
ENSG00000150045	<i>KLRF1</i>	0.00	3.72	-6.43	2.02E-04
ENSG00000007129	<i>CEACAM21</i>	0.00	3.74	-6.42	2.33E-04
ENSG00000196208	<i>GREB1</i>	2.78	242.61	-6.42	6.86E-05
ENSG00000172116	<i>CD8B</i>	0.15	10.83	-6.42	2.30E-03
ENSG00000163879	<i>DNALI1</i>	0.13	11.69	-6.42	3.61E-04
ENSG00000244482	<i>LILRA6</i>	0.02	7.44	-6.41	4.29E-03
ENSG00000100351	<i>GRAP2</i>	0.07	8.28	-6.40	9.52E-04
ENSG00000100346	<i>CACNA1I</i>	0.05	7.08	-6.40	3.31E-04
ENSG00000111796	<i>KLRB1</i>	0.03	6.23	-6.40	1.76E-04
ENSG00000168918	<i>INPP5D</i>	0.17	16.78	-6.40	2.07E-04
ENSG00000136859	<i>ANGPTL2</i>	0.03	7.88	-6.39	4.73E-03
ENSG00000117090	<i>SLAMF1</i>	0.00	4.03	-6.39	6.54E-04
ENSG00000177614	<i>PGBD5</i>	0.12	9.45	-6.39	5.36E-04
ENSG00000203963	<i>C1orf141</i>	0.15	14.08	-6.39	2.90E-03
ENSG00000162738	<i>VANGL2</i>	0.10	8.89	-6.38	7.45E-04
ENSG00000176293	<i>ZNF135</i>	0.05	5.58	-6.38	6.93E-04
ENSG00000279956		0.13	7.27	-6.37	2.07E-03
ENSG00000147408	<i>CSGALNACT1</i>	1.73	99.08	-6.36	1.96E-04
ENSG00000159618	<i>ADGRG5</i>	0.00	3.73	-6.36	3.72E-04
ENSG00000174885	<i>NLRP6</i>	0.00	3.73	-6.36	3.57E-04
ENSG00000162981	<i>LRATD1</i>	0.10	13.13	-6.36	2.88E-03
ENSG00000130038	<i>CRACR2A</i>	0.27	21.53	-6.35	2.66E-04
ENSG00000166676	<i>TVP23A</i>	0.52	33.97	-6.34	1.75E-04
ENSG00000177455	<i>CD19</i>	0.00	3.94	-6.34	7.20E-04
ENSG00000170074	<i>FAM153A</i>	0.00	3.49	-6.34	2.03E-04
ENSG00000163508	<i>EOMES</i>	0.06	7.34	-6.34	7.02E-03
ENSG00000171777	<i>RASGRP4</i>	0.07	8.26	-6.33	7.73E-04
ENSG00000189420	<i>ZFP92</i>	0.04	5.01	-6.33	4.92E-04
ENSG00000095370	<i>SH2D3C</i>	0.06	6.83	-6.32	3.03E-04
ENSG00000133246	<i>PRAM1</i>	0.18	11.01	-6.32	7.99E-04
ENSG00000198915	<i>RASGEF1A</i>	0.00	3.62	-6.31	4.43E-04
ENSG0000010610	<i>CD4</i>	0.30	13.98	-6.30	2.77E-03
ENSG00000196092	<i>PAX5</i>	0.00	3.71	-6.30	6.72E-04
ENSG00000186654	<i>PRR5</i>	0.13	11.82	-6.30	1.17E-03
ENSG00000170837	<i>GPR27</i>	0.00	3.38	-6.29	2.05E-04
ENSG00000198185	<i>ZNF334</i>	0.08	7.44	-6.29	4.82E-04
ENSG00000198680	<i>TUSC1</i>	0.09	9.80	-6.29	2.12E-04
ENSG00000204482	<i>LST1</i>	0.00	3.48	-6.29	2.93E-04

ENSG00000133116	<i>KL</i>	0.00	4.14	-6.29	1.90E-03
ENSG0000015285	<i>WAS</i>	0.29	29.07	-6.29	1.03E-03
ENSG00000100505	<i>TRIM9</i>	0.00	3.40	-6.28	2.78E-04
ENSG00000167850	<i>CD300C</i>	0.00	3.62	-6.28	5.62E-04
ENSG00000236136	<i>ADORA2BP1</i>	0.00	3.88	-6.28	1.16E-03
ENSG00000138823	<i>MTTP</i>	0.20	14.86	-6.27	2.43E-03
ENSG00000128268	<i>MGAT3</i>	0.00	3.96	-6.26	1.70E-03
ENSG00000166148	<i>AVPR1A</i>	0.09	6.24	-6.25	6.75E-04
ENSG00000155307	<i>SAMSN1</i>	1.74	57.93	-6.25	6.20E-03
ENSG00000140403	<i>DNAJA4</i>	0.34	22.32	-6.25	3.70E-04
ENSG00000148926	<i>ADM</i>	7.53	479.37	-6.25	6.40E-05
ENSG00000101134	<i>DOK5</i>	4.65	115.22	-6.24	2.12E-03
ENSG00000095970	<i>TREM2</i>	0.00	5.82	-6.22	8.59E-03
ENSG00000177096	<i>PHETA2</i>	0.08	7.55	-6.22	1.09E-03
ENSG00000187481	<i>HSD3BP1</i>	0.00	3.15	-6.21	1.82E-04
ENSG00000212916	<i>MAP10</i>	0.00	3.14	-6.21	1.82E-04
ENSG00000291115	<i>ZNF300P1</i>	0.00	3.94	-6.19	1.59E-03
ENSG00000159761	<i>C16orf86</i>	0.03	4.25	-6.18	4.43E-04
ENSG00000113088	<i>GZMK</i>	0.00	3.44	-6.18	5.57E-04
ENSG00000203710	<i>CR1</i>	0.36	25.45	-6.18	7.20E-04
ENSG00000196611	<i>MMP1</i>	0.34	28.39	-6.18	4.68E-04
ENSG00000172137	<i>CALB2</i>	0.22	16.53	-6.18	1.82E-04
ENSG00000112782	<i>CLIC5</i>	0.29	13.44	-6.18	7.47E-03
ENSG00000166405	<i>RIC3</i>	0.00	3.10	-6.17	2.21E-04
ENSG00000143226	<i>FCGR2A</i>	1.08	76.56	-6.17	7.95E-04
ENSG00000095713	<i>CRTAC1</i>	0.00	3.96	-6.17	2.90E-03
ENSG00000165474	<i>GJB2</i>	0.03	4.96	-6.17	1.11E-03
ENSG00000105205	<i>CLC</i>	0.12	6.80	-6.16	1.91E-03
ENSG00000019169	<i>MARCO</i>	0.11	7.91	-6.16	1.08E-03
ENSG00000291132		0.22	11.07	-6.16	1.92E-03
ENSG00000127954	<i>STEAP4</i>	0.67	54.91	-6.16	1.00E-03
ENSG00000067840	<i>PDZD4</i>	0.00	3.38	-6.15	6.65E-04
ENSG00000132182	<i>NUP210</i>	2.12	104.14	-6.15	4.82E-04
ENSG00000248099	<i>INSL3</i>	0.10	10.49	-6.14	1.34E-02
ENSG00000162739	<i>SLAMF6</i>	0.16	9.27	-6.13	1.49E-03
ENSG00000173114	<i>LRRN3</i>	0.06	7.60	-6.11	4.09E-04
ENSG00000163564	<i>PYHIN1</i>	0.19	9.55	-6.11	1.95E-03
ENSG00000229314	<i>ORM1</i>	0.05	6.24	-6.09	1.11E-03
ENSG00000146192	<i>FGD2</i>	0.27	10.46	-6.09	1.66E-03
ENSG00000128383	<i>APOBEC3A</i>	0.04	7.15	-6.09	1.73E-02
ENSG00000182931	<i>WFDC10B</i>	0.00	3.08	-6.09	4.66E-04
ENSG00000132688	<i>NES</i>	0.05	6.45	-6.08	1.92E-03
ENSG00000160191	<i>PDE9A</i>	0.00	2.96	-6.08	2.93E-04
ENSG00000259749	<i>NCAPGP2</i>	0.03	4.46	-6.08	8.32E-04
ENSG00000153064	<i>BANK1</i>	0.06	6.98	-6.07	6.96E-03
ENSG00000276070	<i>CCL4L2</i>	0.00	3.55	-6.07	1.36E-03
ENSG00000198795	<i>ZNF521</i>	0.16	10.20	-6.06	1.27E-03
ENSG00000140287	<i>HDC</i>	0.00	2.86	-6.06	2.21E-04
ENSG00000188730	<i>VWC2</i>	0.09	5.64	-6.06	1.06E-03
ENSG00000112562	<i>SMOC2</i>	0.00	3.16	-6.06	5.98E-04
ENSG00000139737	<i>SLAIN1</i>	0.09	4.98	-6.05	9.28E-04
ENSG00000125910	<i>S1PR4</i>	0.06	5.85	-6.05	2.39E-04
ENSG00000197540	<i>GZMM</i>	0.02	4.34	-6.04	3.70E-04
ENSG00000215704	<i>CELA2B</i>	0.03	5.18	-6.04	7.13E-04
ENSG00000130300	<i>PLVAP</i>	0.00	3.99	-6.04	5.79E-03
ENSG00000162639	<i>HENMT1</i>	0.05	6.24	-6.03	1.70E-04
ENSG00000160185	<i>UBASH3A</i>	0.00	2.89	-6.02	3.43E-04
ENSG00000123500	<i>COL10A1</i>	2.64	30.60	-6.02	1.59E-02

ENSG00000134571	<i>MYBPC3</i>	0.00	2.98	-6.01	5.26E-04
ENSG00000169429	<i>CXCL8</i>	27.97	1029.72	-6.01	2.17E-03
ENSG00000166145	<i>SPINT1</i>	0.32	10.19	-6.00	2.21E-03
ENSG00000181790	<i>ADGRB1</i>	0.00	3.18	-6.00	1.12E-03
ENSG00000183837	<i>PNMA3</i>	0.02	4.10	-5.99	2.33E-04
ENSG00000156414	<i>TDRD9</i>	0.00	2.68	-5.98	2.09E-04
ENSG00000196684	<i>HSH2D</i>	0.12	7.68	-5.98	1.99E-03
ENSG00000213809	<i>KLRK1</i>	0.58	38.52	-5.98	2.21E-04
ENSG00000163833	<i>FBXO40</i>	0.00	2.84	-5.98	4.52E-04
ENSG00000133110	<i>POSTN</i>	0.08	7.10	-5.97	3.77E-03
ENSG00000160683	<i>CXCR5</i>	0.00	2.87	-5.96	5.91E-04
ENSG00000181374	<i>CCL13</i>	0.00	4.87	-5.96	9.49E-03
ENSG00000141524	<i>TMC6</i>	0.83	41.48	-5.96	2.93E-04
ENSG00000130988	<i>RGN</i>	0.27	19.21	-5.96	2.17E-04
ENSG00000255819	<i>KLRC4-KLRK1</i>	0.04	6.05	-5.95	3.27E-03
ENSG00000152213	<i>ARL11</i>	0.20	8.39	-5.94	1.19E-03
ENSG00000163421	<i>PROK2</i>	0.00	2.96	-5.93	8.67E-04
ENSG00000290427		0.04	4.47	-5.92	2.09E-04
ENSG00000133561	<i>GIMAP6</i>	0.42	20.20	-5.91	1.04E-03
ENSG00000060566	<i>CREB3L3</i>	0.19	14.26	-5.91	4.41E-03
ENSG00000011465	<i>DCN</i>	10.13	286.38	-5.91	8.32E-04
ENSG00000147138	<i>GPR174</i>	0.23	9.10	-5.90	1.66E-03
ENSG00000179593	<i>ALOX15B</i>	0.00	2.82	-5.90	7.95E-04
ENSG00000182511	<i>FES</i>	0.36	22.39	-5.90	6.45E-04
ENSG00000259660	<i>DNM1P47</i>	0.00	2.86	-5.90	7.95E-04
ENSG00000073756	<i>PTGS2</i>	0.24	17.16	-5.89	4.80E-04
ENSG00000171659	<i>GPR34</i>	0.12	9.44	-5.89	6.43E-04
ENSG00000183542	<i>KLRC4</i>	0.00	3.46	-5.88	3.65E-03
ENSG00000130540	<i>SULT4A1</i>	0.00	2.93	-5.87	1.10E-03
ENSG00000177272	<i>KCNA3</i>	0.00	2.49	-5.86	2.62E-04
ENSG00000198821	<i>CD247</i>	0.05	5.27	-5.86	9.65E-04
ENSG00000175489	<i>LRRC25</i>	0.50	30.83	-5.86	2.30E-04
ENSG00000180815	<i>MAP3K15</i>	0.30	14.50	-5.85	2.98E-04
ENSG00000116574	<i>RHOA</i>	1.28	82.03	-5.84	2.15E-03
ENSG00000110852	<i>CLEC2B</i>	0.99	30.61	-5.84	2.79E-03
ENSG00000164691	<i>TAGAP</i>	0.33	17.18	-5.84	1.92E-03
ENSG00000165457	<i>FOLR2</i>	0.00	4.24	-5.84	8.04E-03
ENSG00000121413	<i>ZSCAN18</i>	0.98	44.38	-5.84	2.62E-04
ENSG00000174156	<i>GSTA3</i>	0.20	13.62	-5.83	5.01E-04
ENSG00000168032	<i>ENTPD3</i>	0.37	20.31	-5.82	1.74E-02
ENSG00000163154	<i>TNFAIP8L2</i>	0.17	5.20	-5.81	2.63E-03
ENSG00000103154	<i>NECAB2</i>	0.37	25.16	-5.80	7.05E-03
ENSG00000288258		0.00	2.55	-5.79	5.88E-04
ENSG00000110492	<i>MDK</i>	0.71	36.60	-5.79	3.74E-04
ENSG00000197558	<i>SSPOP</i>	0.13	9.71	-5.79	2.93E-04
ENSG00000105369	<i>CD79A</i>	0.10	7.74	-5.78	1.62E-03
ENSG00000108342	<i>CSF3</i>	0.05	3.98	-5.77	2.26E-03
ENSG00000166257	<i>SCN3B</i>	0.55	29.03	-5.77	1.70E-04
ENSG00000166183	<i>ASPG</i>	0.00	2.65	-5.77	1.21E-03
ENSG00000185897	<i>FFAR3</i>	0.00	2.96	-5.76	2.15E-03
ENSG00000172824	<i>CES4A</i>	0.08	6.55	-5.76	2.42E-04
ENSG00000114812	<i>VIPR1</i>	0.00	2.29	-5.76	2.51E-04
ENSG00000136305	<i>CIDEA</i>	0.00	2.30	-5.76	2.60E-04
ENSG00000170909	<i>OSCAR</i>	0.11	6.93	-5.76	8.96E-03
ENSG0000012504	<i>NR1H4</i>	0.07	6.10	-5.75	5.41E-04
ENSG00000184408	<i>KCND2</i>	0.64	22.67	-5.74	5.38E-04
ENSG0000017483	<i>SLC38A5</i>	0.26	13.56	-5.74	2.50E-04
ENSG0000028137	<i>TNFRSF1B</i>	2.65	151.05	-5.74	2.63E-04

ENSG00000163600	<i>ICOS</i>	0.00	2.48	-5.74	6.23E-04
ENSG00000054938	<i>CHRD12</i>	0.01	3.18	-5.74	3.72E-04
ENSG00000090339	<i>ICAM1</i>	2.55	126.52	-5.74	4.28E-04
ENSG00000181634	<i>TNFSF15</i>	0.15	8.69	-5.74	1.63E-03
ENSG00000105642	<i>KCNN1</i>	0.18	12.64	-5.73	7.94E-03
ENSG00000237289	<i>CKMT1B</i>	0.00	2.86	-5.73	2.51E-03
ENSG00000143340	<i>FAM163A</i>	0.09	7.22	-5.72	1.01E-03
ENSG00000004776	<i>HSPB6</i>	0.37	17.39	-5.72	3.34E-03
ENSG00000122254	<i>HS3ST2</i>	0.11	9.79	-5.71	8.38E-03
ENSG00000135409	<i>AMHR2</i>	0.21	13.83	-5.71	5.41E-04
ENSG00000213402	<i>PTPRCAP</i>	0.46	13.57	-5.70	1.22E-03
ENSG00000106952	<i>TNFSF8</i>	0.01	3.25	-5.70	7.04E-04
ENSG00000122025	<i>FLT3</i>	0.00	3.16	-5.69	3.89E-03
ENSG00000173200	<i>PARP15</i>	0.40	21.42	-5.69	1.70E-04
ENSG00000186049	<i>KRT73</i>	0.00	2.23	-5.69	3.52E-04
ENSG00000121207	<i>LRAT</i>	0.71	40.79	-5.68	6.62E-04
ENSG00000007350	<i>TKTL1</i>	0.00	2.35	-5.68	5.88E-04
ENSG00000116701	<i>NCF2</i>	2.07	115.76	-5.68	6.90E-04
ENSG00000269242		0.00	2.43	-5.66	8.21E-04
ENSG00000188818	<i>ZDHHC11</i>	0.02	2.64	-5.65	4.72E-04
ENSG00000108950	<i>FAM20A</i>	0.26	12.58	-5.65	2.36E-03
ENSG00000130303	<i>BST2</i>	2.81	146.74	-5.65	9.78E-05
ENSG00000284874		0.00	2.33	-5.65	8.02E-04
ENSG00000291143		0.31	14.92	-5.65	2.30E-03
ENSG00000162594	<i>IL23R</i>	0.00	2.34	-5.64	8.12E-04
ENSG00000188060	<i>RAB42</i>	0.37	8.23	-5.63	4.01E-03
ENSG00000050555	<i>LAMC3</i>	0.10	7.10	-5.62	3.56E-03
ENSG00000182885	<i>ADGRG3</i>	0.17	7.58	-5.62	8.31E-03
ENSG00000174697	<i>LEP</i>	0.02	3.09	-5.61	3.35E-04
ENSG00000165215	<i>CLDN3</i>	0.06	5.37	-5.61	5.36E-04
ENSG00000254827	<i>SLC22A18AS</i>	0.00	2.26	-5.61	7.04E-04
ENSG00000178821	<i>TMEM52</i>	0.02	3.11	-5.60	3.61E-04
ENSG00000129226	<i>CD68</i>	8.39	423.12	-5.60	2.90E-04
ENSG00000162894	<i>FCMR</i>	1.06	46.47	-5.60	3.74E-04
ENSG00000170231	<i>FABP6</i>	0.25	9.43	-5.60	9.46E-04
ENSG00000140563	<i>MCTP2</i>	0.37	16.21	-5.60	7.88E-04
ENSG00000211898	<i>IGHD</i>	0.00	2.78	-5.59	3.92E-03
ENSG00000149527	<i>PLCH2</i>	0.01	2.94	-5.59	1.80E-03
ENSG00000163082	<i>SGPP2</i>	1.22	51.66	-5.57	2.68E-04
ENSG00000166527	<i>CLEC4D</i>	0.00	3.17	-5.57	7.45E-03
ENSG00000136160	<i>EDNRB</i>	0.00	2.13	-5.57	6.06E-04
ENSG00000232780	<i>GAPDHP74</i>	0.02	3.15	-5.56	3.49E-04
ENSG00000157551	<i>KCNJ15</i>	1.69	50.07	-5.56	1.88E-02
ENSG00000161940	<i>BCL6B</i>	0.01	3.59	-5.56	2.63E-03
ENSG00000087076	<i>HSD17B14</i>	0.19	10.56	-5.55	4.90E-03
ENSG00000112559	<i>MDF1</i>	0.02	2.94	-5.55	3.33E-04
ENSG00000085563	<i>ABCB1</i>	0.63	7.47	-5.54	1.36E-02
ENSG00000025708	<i>TYMP</i>	3.83	156.42	-5.54	2.33E-03
ENSG00000122012	<i>SV2C</i>	0.06	4.47	-5.54	1.26E-03
ENSG00000243323	<i>PTPRVP</i>	0.46	18.45	-5.54	5.76E-04
ENSG00000121594	<i>CD80</i>	0.00	2.05	-5.53	5.04E-04
ENSG00000283886		0.00	2.04	-5.53	4.84E-04
ENSG00000101638	<i>ST8SIA5</i>	0.54	24.03	-5.53	1.69E-03
ENSG00000231925	<i>TAPBP</i>	2.00	93.85	-5.53	4.59E-04
ENSG00000183734	<i>ASCL2</i>	0.00	2.05	-5.53	5.10E-04
ENSG00000085514	<i>PILRA</i>	0.85	33.87	-5.53	1.22E-03
ENSG00000186583	<i>SPATC1</i>	0.12	4.69	-5.52	4.08E-03
ENSG00000260075	<i>NSFP1</i>	0.00	2.20	-5.52	9.32E-04

ENSG00000014257	<i>ACP3</i>	0.39	18.53	-5.52	5.35E-04
ENSG00000138795	<i>LEF1</i>	0.73	11.07	-5.52	6.91E-03
ENSG00000172673	<i>THEMIS</i>	0.00	2.07	-5.51	6.06E-04
ENSG00000267369	<i>TAF5LP1</i>	0.00	2.34	-5.51	1.98E-03
ENSG00000122224	<i>LY9</i>	0.47	20.30	-5.50	4.74E-04
ENSG00000162777	<i>DENND2D</i>	1.11	53.13	-5.50	2.68E-04
ENSG00000219438	<i>TAFA5</i>	0.00	2.09	-5.50	7.04E-04
ENSG00000100285	<i>NEFH</i>	0.71	32.26	-5.50	3.21E-04
ENSG00000197471	<i>SPN</i>	0.54	17.17	-5.49	5.54E-04
ENSG00000159212	<i>CLIC6</i>	0.00	2.22	-5.49	1.67E-03
ENSG00000198963	<i>RORB</i>	0.02	3.30	-5.48	1.71E-03
ENSG00000188820	<i>CALHM6</i>	0.44	13.30	-5.48	1.32E-03
ENSG00000113296	<i>THBS4</i>	0.74	22.38	-5.48	7.58E-03
ENSG00000171714	<i>ANO5</i>	0.28	7.18	-5.48	3.85E-03
ENSG00000103313	<i>MEFV</i>	0.23	8.64	-5.48	1.58E-02
ENSG00000247746	<i>USP51</i>	0.05	3.60	-5.47	3.70E-04
ENSG00000169169	<i>CPT1C</i>	0.32	7.30	-5.47	5.19E-03
ENSG00000168229	<i>PTGDR</i>	0.00	1.92	-5.47	4.28E-04
ENSG00000062282	<i>DGAT2</i>	0.99	51.56	-5.47	2.33E-03
ENSG00000171724	<i>VAT1L</i>	0.00	2.11	-5.46	1.02E-03
ENSG00000115138	<i>POMC</i>	0.00	1.95	-5.46	5.52E-04
ENSG00000163803	<i>PLB1</i>	2.36	102.09	-5.46	2.71E-03
ENSG00000115009	<i>CCL20</i>	0.44	26.19	-5.46	6.40E-03
ENSG00000166278	<i>C2</i>	0.13	8.41	-5.46	5.59E-03
ENSG00000198624	<i>CCDC69</i>	7.02	324.87	-5.45	6.99E-05
ENSG00000137310	<i>TCF19</i>	0.00	2.33	-5.45	2.21E-03
ENSG00000184905	<i>TCEAL2</i>	0.28	10.48	-5.44	6.44E-04
ENSG00000092067	<i>CEBPE</i>	0.00	1.88	-5.44	4.03E-04
ENSG00000262187		0.00	1.93	-5.44	5.75E-04
ENSG00000197599	<i>CCDC154</i>	0.17	5.40	-5.44	1.08E-03
ENSG00000137714	<i>FDX1</i>	23.43	968.47	-5.44	5.67E-05
ENSG00000141639	<i>MAPK4</i>	0.47	22.57	-5.43	1.34E-03
ENSG00000105697	<i>HAMP</i>	0.25	10.30	-5.42	6.73E-04
ENSG00000115290	<i>GRB14</i>	1.27	49.44	-5.42	2.05E-04
ENSG00000240747	<i>KRBOX1</i>	0.00	1.85	-5.42	4.23E-04
ENSG00000162723	<i>SLAMF9</i>	0.03	2.96	-5.41	3.68E-04
ENSG00000171812	<i>COL8A2</i>	0.30	14.15	-5.41	6.41E-04
ENSG00000211695	<i>TRGV9</i>	0.00	1.79	-5.41	3.37E-04
ENSG00000135447	<i>PPP1R1A</i>	0.00	2.28	-5.40	3.29E-03
ENSG00000168961	<i>LGALS9</i>	2.42	96.03	-5.40	8.48E-04
ENSG00000137462	<i>TLR2</i>	1.34	62.43	-5.40	1.08E-03
ENSG00000198574	<i>SH2D1B</i>	0.10	4.14	-5.40	1.24E-03
ENSG00000186417	<i>GLDN</i>	0.88	38.34	-5.39	4.73E-03
ENSG00000166743	<i>ACSM1</i>	0.08	3.92	-5.38	6.39E-04
ENSG00000007264	<i>MATK</i>	0.17	5.44	-5.38	1.82E-03
ENSG00000107242	<i>PIP5K1B</i>	0.00	1.94	-5.38	1.05E-03
ENSG00000174788	<i>PCP2</i>	0.00	1.81	-5.38	5.18E-04
ENSG00000146285	<i>SCML4</i>	0.17	7.96	-5.38	9.65E-04
ENSG00000198732	<i>SMOC1</i>	0.06	3.87	-5.37	1.36E-03
ENSG00000172005	<i>MAL</i>	0.00	2.03	-5.37	1.32E-03
ENSG00000102924	<i>CBLN1</i>	0.00	2.14	-5.37	2.68E-03
ENSG00000290671	<i>PYY2</i>	0.00	2.08	-5.35	1.78E-03
ENSG00000278195	<i>SSTR3</i>	0.07	4.49	-5.35	7.08E-03
ENSG00000255730		0.00	1.78	-5.35	5.22E-04
ENSG00000139044	<i>B4GALNT3</i>	0.00	1.94	-5.35	1.26E-03
ENSG00000250271		0.00	1.83	-5.34	6.71E-04
ENSG00000104938	<i>CLEC4M</i>	0.00	2.32	-5.34	4.16E-03
ENSG00000139549	<i>DHH</i>	0.08	4.38	-5.33	6.10E-04

ENSG00000110079	<i>MS4A4A</i>	0.77	26.50	-5.33	3.96E-03
ENSG00000276547	<i>PCDHGB5</i>	0.20	5.57	-5.33	2.33E-03
ENSG00000107736	<i>CDH23</i>	0.25	7.92	-5.33	1.47E-03
ENSG00000042493	<i>CAPG</i>	2.24	92.00	-5.33	1.32E-03
ENSG00000165731	<i>RET</i>	0.00	1.76	-5.32	5.57E-04
ENSG00000171608	<i>PIK3CD</i>	1.97	62.13	-5.32	4.70E-04
ENSG00000023171	<i>GRAMD1B</i>	36.15	1215.03	-5.31	1.42E-04
ENSG00000291135	<i>FCGR1BP</i>	0.00	2.36	-5.31	4.16E-03
ENSG00000157554	<i>ERG</i>	0.00	2.51	-5.30	6.07E-03
ENSG00000120949	<i>TNFRSF8</i>	0.09	3.95	-5.30	1.41E-03
ENSG00000180787	<i>ZFP3</i>	0.27	8.61	-5.30	7.04E-04
ENSG00000167083	<i>GNGT2</i>	0.00	1.72	-5.29	5.75E-04
ENSG00000180543	<i>TSPYL5</i>	3.01	22.19	-5.28	2.13E-02
ENSG00000101349	<i>PAK5</i>	0.00	1.66	-5.27	4.79E-04
ENSG00000211897	<i>IGHG3</i>	0.00	2.01	-5.27	2.79E-03
ENSG00000008056	<i>SYN1</i>	0.22	9.65	-5.26	5.47E-04
ENSG00000145107	<i>TM4SF19</i>	0.17	8.57	-5.26	1.53E-03
ENSG00000198346	<i>ZNF813</i>	0.47	8.05	-5.25	6.31E-03
ENSG00000141293	<i>SKAP1</i>	0.07	3.45	-5.25	6.15E-04
ENSG00000165061	<i>ZMAT4</i>	0.00	1.69	-5.25	6.54E-04
ENSG00000151651	<i>ADAM8</i>	1.01	37.38	-5.25	1.48E-03
ENSG00000167207	<i>NOD2</i>	0.83	17.61	-5.25	4.54E-03
ENSG00000130598	<i>TNNI2</i>	0.00	1.83	-5.24	1.66E-03
ENSG00000158428	<i>CATIP</i>	0.03	2.15	-5.24	1.01E-03
ENSG00000290845		0.00	1.63	-5.23	5.39E-04
ENSG00000158859	<i>ADAMTS4</i>	0.67	20.33	-5.22	3.57E-04
ENSG00000185272	<i>RBM11</i>	0.00	1.58	-5.22	4.18E-04
ENSG00000116983	<i>HPCAL4</i>	0.24	7.82	-5.22	1.43E-03
ENSG00000289755		0.00	1.73	-5.22	1.08E-03
ENSG00000108556	<i>CHRNE</i>	0.03	2.36	-5.22	1.08E-03
ENSG00000108405	<i>P2RX1</i>	0.72	18.14	-5.21	4.18E-03
ENSG00000125538	<i>IL1B</i>	1.00	37.04	-5.20	1.25E-03
ENSG00000006740	<i>ARHGAP44</i>	0.16	7.56	-5.19	1.66E-03
ENSG00000137078	<i>SIT1</i>	0.00	1.68	-5.19	1.09E-03
ENSG00000165443	<i>PHYHIPL</i>	0.00	1.73	-5.18	1.45E-03
ENSG00000184925	<i>LCN12</i>	0.15	5.02	-5.18	6.63E-03
ENSG00000105609	<i>LILRB5</i>	0.14	6.35	-5.18	2.48E-04
ENSG00000214212	<i>C19orf38</i>	0.09	3.76	-5.17	2.25E-03
ENSG00000172322	<i>CLEC12A</i>	0.03	3.42	-5.17	5.43E-03
ENSG00000115598	<i>IL1RL2</i>	0.00	1.52	-5.17	4.51E-04
ENSG00000160307	<i>S100B</i>	0.00	1.51	-5.16	4.37E-04
ENSG00000101331	<i>CCM2L</i>	0.00	1.60	-5.14	9.06E-04
ENSG00000169515	<i>CCDC8</i>	1.43	50.33	-5.14	2.39E-04
ENSG00000117560	<i>FASLG</i>	0.00	1.78	-5.14	2.46E-03
ENSG00000163534	<i>FCRL1</i>	0.05	3.91	-5.13	2.56E-03
ENSG00000161021	<i>MAML1</i>	0.44	8.80	-5.13	2.86E-02
ENSG00000089558	<i>KCNH4</i>	0.00	2.04	-5.12	3.89E-03
ENSG00000147570	<i>DNAJC5B</i>	0.03	2.61	-5.12	4.43E-04
ENSG00000116745	<i>RPE65</i>	0.00	1.74	-5.11	1.89E-03
ENSG00000211698	<i>TRGV4</i>	0.00	1.56	-5.11	8.29E-04
ENSG00000213225	<i>NOC2LP1</i>	0.00	1.49	-5.11	5.84E-04
ENSG00000180316	<i>PNPLA1</i>	0.10	2.73	-5.11	3.21E-03
ENSG00000177669	<i>MBOAT4</i>	0.18	9.39	-5.11	2.18E-02
ENSG00000118156	<i>ZNF541</i>	0.12	5.92	-5.10	3.64E-03
ENSG00000145911	<i>N4BP3</i>	0.11	4.52	-5.10	1.09E-03
ENSG00000165272	<i>AQP3</i>	0.49	19.01	-5.10	3.38E-04
ENSG00000172578	<i>KLHL6</i>	0.72	18.71	-5.10	9.95E-04
ENSG00000163464	<i>CXCR1</i>	0.00	2.17	-5.09	5.83E-03

ENSG00000134326	<i>CMPK2</i>	0.49	6.49	-5.08	1.96E-02
ENSG00000196460	<i>RFX8</i>	0.00	1.58	-5.08	1.12E-03
ENSG00000188582	<i>PAQR9</i>	0.02	2.08	-5.08	3.22E-04
ENSG00000163536	<i>SERPINI1</i>	0.33	11.53	-5.08	4.00E-04
ENSG00000214140	<i>PRCD</i>	0.09	3.09	-5.08	2.70E-03
ENSG00000118113	<i>MMP8</i>	0.00	1.64	-5.08	1.88E-03
ENSG00000137731	<i>FXYD2</i>	0.00	1.45	-5.07	5.95E-04
ENSG00000164430	<i>CGAS</i>	0.16	5.02	-5.07	1.97E-03
ENSG00000162444	<i>RBP7</i>	0.07	4.38	-5.07	3.16E-03
ENSG00000139329	<i>LUM</i>	9.22	242.44	-5.06	7.35E-04
ENSG00000291221		0.10	3.77	-5.06	1.04E-03
ENSG00000198734	<i>F5</i>	0.12	6.60	-5.06	8.36E-03
ENSG00000158517	<i>NCF1</i>	0.79	22.49	-5.06	6.06E-03
ENSG00000175556	<i>LONRF3</i>	0.40	13.98	-5.06	4.56E-04
ENSG00000166924	<i>NYAP1</i>	0.07	3.01	-5.05	8.93E-04
ENSG00000104814	<i>MAP4K1</i>	0.17	6.45	-5.05	6.21E-04
ENSG00000166670	<i>MMP10</i>	0.00	1.55	-5.05	1.50E-03
ENSG00000187862	<i>TTC24</i>	0.01	1.89	-5.05	4.79E-04
ENSG00000144868	<i>TMEM108</i>	0.17	5.84	-5.04	6.96E-04
ENSG00000100593	<i>ISM2</i>	0.00	1.50	-5.04	1.08E-03
ENSG00000171649	<i>ZIK1</i>	0.13	5.03	-5.04	5.47E-04
ENSG00000131401	<i>NAPSB</i>	0.00	1.99	-5.04	5.13E-03
ENSG00000147889	<i>CDKN2A</i>	0.02	1.98	-5.04	3.96E-04
ENSG00000120659	<i>TNFSF11</i>	0.06	2.44	-5.03	3.69E-03
ENSG00000063127	<i>SLC6A16</i>	0.08	4.35	-5.03	9.46E-04
ENSG00000114631	<i>PODXL2</i>	0.31	10.46	-5.03	1.48E-03
ENSG00000143546	<i>S100A8</i>	2.28	83.93	-5.03	1.50E-03
ENSG00000146938	<i>NLGN4X</i>	0.11	3.48	-5.03	1.76E-03
ENSG00000154165	<i>GPR15</i>	0.00	1.42	-5.02	6.97E-04
ENSG00000173404	<i>INSM1</i>	0.00	1.57	-5.02	1.52E-03
ENSG00000162745	<i>OLFML2B</i>	1.18	38.77	-5.02	4.79E-04
ENSG00000101276	<i>SLC52A3</i>	0.40	8.51	-5.01	1.43E-02
ENSG00000183833	<i>CFAP91</i>	0.09	4.06	-5.01	1.56E-03
ENSG00000102802	<i>MEDAG</i>	1.10	10.11	-5.01	1.62E-02
ENSG00000160179	<i>ABCG1</i>	0.68	17.03	-5.01	2.80E-03
ENSG00000134321	<i>RSAD2</i>	0.24	14.50	-5.01	4.13E-02
ENSG00000081237	<i>PTPRC</i>	5.48	195.25	-5.01	3.81E-04
ENSG00000142347	<i>MYO1F</i>	1.96	64.02	-5.01	2.76E-04
ENSG00000100427	<i>MLC1</i>	0.16	3.43	-5.01	1.09E-02
ENSG00000284686		0.00	1.44	-5.00	1.02E-03
ENSG00000007237	<i>GAS7</i>	1.41	45.90	-5.00	8.18E-04
ENSG00000134955	<i>SLC37A2</i>	1.17	38.21	-5.00	2.21E-04
ENSG00000249978	<i>TRGV7</i>	0.03	2.33	-4.99	4.65E-03
ENSG00000122378	<i>PRXL2A</i>	1.91	56.97	-4.99	9.52E-05
ENSG00000113504	<i>SLC12A7</i>	0.59	21.03	-4.99	9.38E-04
ENSG00000188886	<i>ASTL</i>	0.00	1.58	-4.98	2.03E-03
ENSG00000152583	<i>SPARCL1</i>	0.10	6.83	-4.98	2.68E-02
ENSG00000256069	<i>A2MP1</i>	0.00	1.37	-4.98	6.79E-04
ENSG00000284057		0.00	1.40	-4.98	8.29E-04
ENSG00000091129	<i>NRCAM</i>	0.38	7.36	-4.98	7.29E-03
ENSG00000172551	<i>MUCL1</i>	0.07	3.45	-4.98	5.83E-03
ENSG00000141526	<i>SLC16A3</i>	26.09	544.74	-4.97	5.93E-04
ENSG00000118160	<i>SLC8A2</i>	0.01	2.34	-4.97	3.11E-03
ENSG00000132704	<i>FCRL2</i>	0.10	2.94	-4.97	5.24E-03
ENSG00000066056	<i>TIE1</i>	0.20	4.79	-4.96	1.01E-02
ENSG00000152785	<i>BMP3</i>	0.21	8.91	-4.96	8.13E-03
ENSG00000161944	<i>ASGR2</i>	0.00	1.37	-4.96	7.76E-04
ENSG00000196407	<i>THEM5</i>	0.00	1.32	-4.95	6.03E-04

ENSG00000162931	<i>TRIM17</i>	0.28	8.38	-4.95	3.25E-04
ENSG00000186265	<i>BTLA</i>	0.01	2.00	-4.95	1.25E-03
ENSG00000173917	<i>HOXB2</i>	0.13	4.30	-4.95	7.20E-04
ENSG00000080854	<i>IGSF9B</i>	0.16	7.07	-4.95	3.36E-03
ENSG00000171811	<i>CFAP46</i>	0.00	1.31	-4.94	6.15E-04
ENSG00000105967	<i>TFEC</i>	1.42	31.08	-4.94	4.78E-03
ENSG00000175538	<i>KCNE3</i>	0.45	15.23	-4.94	3.49E-04
ENSG00000101605	<i>MYOM1</i>	0.32	6.84	-4.93	1.86E-03
ENSG00000184515	<i>BEX5</i>	0.08	3.74	-4.93	6.96E-04
ENSG00000171517	<i>LPAR3</i>	0.29	10.07	-4.93	2.03E-03
ENSG00000167612	<i>ANKRD33</i>	0.00	1.32	-4.92	7.99E-04
ENSG00000161835	<i>TAMALIN</i>	0.17	6.73	-4.92	2.15E-03
ENSG00000164626	<i>KCNK5</i>	0.00	1.51	-4.91	2.50E-03
ENSG0000018280	<i>SLC11A1</i>	3.45	105.89	-4.90	5.35E-04
ENSG00000124257	<i>NEURL2</i>	0.46	3.69	-4.90	1.35E-02
ENSG00000184221	<i>OLIG1</i>	0.00	1.48	-4.90	2.30E-03
ENSG00000081059	<i>TCF7</i>	1.77	39.80	-4.90	2.98E-04
ENSG00000134463	<i>ECHDC3</i>	0.91	21.96	-4.90	1.18E-03
ENSG00000113532	<i>ST8SIA4</i>	0.83	15.81	-4.90	4.69E-03
ENSG00000100842	<i>EFS</i>	0.00	1.28	-4.90	7.22E-04
ENSG00000186891	<i>TNFRSF18</i>	0.06	2.25	-4.89	2.79E-03
ENSG00000261594	<i>TPBGL</i>	0.00	1.44	-4.89	1.94E-03
ENSG00000291095		0.00	1.39	-4.89	1.48E-03
ENSG00000249242	<i>TMEM150C</i>	2.89	91.01	-4.89	2.42E-04
ENSG00000102755	<i>FLT1</i>	0.17	6.47	-4.89	2.11E-03
ENSG00000213145	<i>CRIP1</i>	0.22	7.81	-4.88	6.13E-04
ENSG00000261371	<i>PECAM1</i>	2.20	49.08	-4.88	8.50E-04
ENSG00000196632	<i>WNK3</i>	0.70	8.92	-4.87	5.19E-03
ENSG00000102265	<i>TIMP1</i>	116.30	3549.71	-4.87	5.67E-05
ENSG00000110665	<i>C11orf21</i>	0.57	9.87	-4.87	1.12E-02
ENSG00000228252	<i>COL6A4P2</i>	0.00	1.25	-4.86	7.13E-04
ENSG00000173557	<i>FAM166C</i>	0.00	1.55	-4.86	3.50E-03
ENSG00000075884	<i>ARHGAP15</i>	0.29	10.64	-4.85	1.66E-03
ENSG00000151224	<i>MAT1A</i>	0.03	2.02	-4.85	3.15E-03
ENSG00000143768	<i>LEFTY2</i>	0.02	2.16	-4.84	3.20E-03
ENSG00000160712	<i>IL6R</i>	1.66	29.63	-4.83	1.08E-03
ENSG00000171860	<i>C3AR1</i>	2.28	36.23	-4.83	1.50E-02
ENSG00000158473	<i>CD1D</i>	0.19	5.47	-4.82	4.82E-03
ENSG00000179314	<i>WSCD1</i>	0.00	1.43	-4.82	2.50E-03
ENSG00000101082	<i>SLA2</i>	0.31	8.30	-4.82	2.75E-03
ENSG00000101825	<i>MXRA5</i>	2.69	76.32	-4.82	2.70E-03
ENSG00000168634	<i>WFDC13</i>	0.00	1.20	-4.82	7.29E-04
ENSG00000162373	<i>BEND5</i>	0.28	6.53	-4.81	4.20E-03
ENSG00000186810	<i>CXCR3</i>	0.00	1.23	-4.81	9.03E-04
ENSG00000115919	<i>KYNU</i>	4.69	93.18	-4.81	3.70E-03
ENSG00000176222	<i>ZNF404</i>	0.28	7.52	-4.80	8.74E-04
ENSG00000180871	<i>CXCR2</i>	0.06	2.26	-4.80	3.77E-03
ENSG00000103522	<i>IL21R</i>	0.76	22.55	-4.79	3.13E-04
ENSG00000177875	<i>CCDC184</i>	0.39	10.54	-4.78	1.24E-03
ENSG0000018869	<i>ZNF582</i>	0.15	4.56	-4.78	7.99E-04
ENSG00000130775	<i>THEMIS2</i>	2.16	63.95	-4.78	8.24E-04
ENSG00000166535	<i>A2ML1</i>	0.29	7.80	-4.77	2.71E-03
ENSG00000157766	<i>ACAN</i>	0.04	2.14	-4.77	7.13E-04
ENSG00000049247	<i>UTS2</i>	0.00	1.19	-4.77	9.95E-04
ENSG00000159166	<i>LAD1</i>	0.11	3.82	-4.77	3.14E-03
ENSG00000187513	<i>GJA4</i>	0.00	1.33	-4.77	2.17E-03
ENSG00000101916	<i>TLR8</i>	0.20	10.98	-4.76	2.61E-02
ENSG00000235961	<i>PNMA6A</i>	0.52	5.69	-4.76	9.16E-03

ENSG0000028859	<i>H2AC19</i>	5.14	68.85	-4.76	7.53E-03
ENSG0000004468	<i>CD38</i>	0.22	10.31	-4.76	2.60E-02
ENSG00000198889	<i>DCAF12L1</i>	0.09	3.38	-4.76	7.45E-04
ENSG00000233622	<i>CYP2T1P</i>	0.39	10.35	-4.76	9.23E-03
ENSG00000102245	<i>CD40LG</i>	0.00	1.16	-4.76	8.18E-04
ENSG00000078081	<i>LAMP3</i>	0.29	10.43	-4.75	6.42E-03
ENSG00000152969	<i>JAKMIP1</i>	0.00	1.16	-4.75	8.67E-04
ENSG00000124813	<i>RUNX2</i>	6.87	189.97	-4.74	6.81E-05
ENSG00000095303	<i>PTGS1</i>	0.49	9.86	-4.74	3.52E-03
ENSG00000228594	<i>FNDC10</i>	2.51	65.05	-4.73	1.41E-03
ENSG00000228278	<i>ORM2</i>	0.04	1.59	-4.72	1.71E-03
ENSG00000091106	<i>NLRC4</i>	0.27	6.98	-4.72	3.66E-03
ENSG00000291066		1.03	30.49	-4.72	1.28E-03
ENSG00000130477	<i>UNC13A</i>	0.12	6.00	-4.72	2.44E-02
ENSG00000285171		0.00	1.30	-4.72	2.49E-03
ENSG00000137672	<i>TRPC6</i>	0.16	5.74	-4.71	1.34E-03
ENSG00000170954	<i>ZNF415</i>	0.35	6.87	-4.71	2.71E-03
ENSG00000115841	<i>RMDN2</i>	4.69	113.49	-4.71	1.66E-04
ENSG00000143416	<i>SELENBP1</i>	0.20	4.85	-4.71	1.99E-03
ENSG00000151617	<i>EDNRA</i>	1.64	24.83	-4.71	2.46E-03
ENSG00000189134	<i>NKAPL</i>	0.00	1.16	-4.71	1.17E-03
ENSG00000151062	<i>CACNA2D4</i>	0.02	1.82	-4.71	9.01E-04
ENSG00000134460	<i>IL2RA</i>	0.24	5.06	-4.69	1.87E-02
ENSG00000130234	<i>ACE2</i>	0.98	28.07	-4.68	6.54E-03
ENSG00000078596	<i>ITM2A</i>	0.41	5.04	-4.67	1.01E-02
ENSG00000105717	<i>PBX4</i>	0.11	2.68	-4.67	2.32E-03
ENSG00000187775	<i>DNAH17</i>	1.76	30.14	-4.67	1.31E-03
ENSG00000133083	<i>DCLK1</i>	2.49	29.00	-4.66	1.56E-02
ENSG00000165591	<i>FAAH2</i>	0.00	1.12	-4.66	1.24E-03
ENSG00000197360	<i>ZNF98</i>	0.00	1.17	-4.65	1.78E-03
ENSG00000178562	<i>CD28</i>	0.53	13.41	-4.65	4.87E-04
ENSG00000065320	<i>NTN1</i>	0.22	4.98	-4.65	2.47E-03
ENSG00000187957	<i>DNER</i>	0.43	14.83	-4.65	2.25E-02
ENSG00000172349	<i>IL16</i>	0.88	18.59	-4.65	4.51E-04
ENSG00000062524	<i>LTK</i>	0.03	1.77	-4.65	8.49E-04
ENSG00000250722	<i>SELENOP</i>	2.64	67.99	-4.64	4.94E-04
ENSG00000105371	<i>ICAM4</i>	0.00	1.08	-4.64	9.73E-04
ENSG00000176049	<i>JAKMIP2</i>	3.86	62.73	-4.63	1.83E-03
ENSG00000148600	<i>CDHR1</i>	0.02	1.63	-4.63	1.27E-03
ENSG00000113263	<i>ITK</i>	2.03	36.29	-4.63	2.56E-03
ENSG00000229220		0.00	1.05	-4.62	9.06E-04
ENSG00000137460	<i>FHDC1</i>	4.69	121.58	-4.62	1.11E-03
ENSG00000182107	<i>TMEM30B</i>	0.00	1.05	-4.62	9.21E-04
ENSG00000116690	<i>PRG4</i>	0.06	2.02	-4.62	5.67E-03
ENSG00000144115	<i>THNSL2</i>	3.17	20.96	-4.61	7.23E-03
ENSG00000078589	<i>P2RY10</i>	0.52	14.16	-4.60	3.73E-03
ENSG00000168060	<i>NAALADL1</i>	0.03	1.75	-4.60	1.36E-03
ENSG00000181036	<i>FCRL6</i>	0.17	4.88	-4.60	4.74E-02
ENSG00000225422	<i>RBMS1P1</i>	0.00	1.03	-4.59	8.89E-04
ENSG00000134215	<i>VAV3</i>	0.72	7.41	-4.59	5.06E-03
ENSG00000073734	<i>ABCB11</i>	0.12	3.48	-4.59	5.59E-03
ENSG00000106327	<i>TFR2</i>	0.17	3.76	-4.58	1.97E-03
ENSG00000188001	<i>TPRG1</i>	0.09	3.34	-4.58	7.76E-04
ENSG00000130821	<i>SLC6A8</i>	15.00	346.06	-4.58	1.54E-04
ENSG00000182853	<i>VMO1</i>	0.19	7.44	-4.57	1.53E-02
ENSG00000291170		0.13	3.36	-4.57	1.41E-03
ENSG00000160318	<i>CLDND2</i>	0.04	1.52	-4.56	3.30E-03
ENSG00000129467	<i>ADCY4</i>	0.04	2.04	-4.56	2.27E-03

ENSG00000089820	<i>ARHGAP4</i>	1.91	43.97	-4.56	1.55E-04
ENSG00000171557	<i>FGG</i>	0.00	1.38	-4.55	6.22E-03
ENSG00000102678	<i>FGF9</i>	0.03	1.49	-4.55	2.52E-03
ENSG00000155719	<i>OTOA</i>	0.03	1.74	-4.55	7.23E-04
ENSG00000228903	<i>RASA4CP</i>	0.04	1.50	-4.55	1.72E-03
ENSG00000080007	<i>DDX43</i>	0.00	1.03	-4.54	1.42E-03
ENSG00000211821	<i>TRDV2</i>	0.00	0.99	-4.54	9.11E-04
ENSG00000198814	<i>GK</i>	5.67	160.53	-4.54	4.27E-03
ENSG00000230707		0.03	1.65	-4.54	5.76E-03
ENSG00000131831	<i>RAI2</i>	0.03	1.43	-4.54	1.92E-03
ENSG00000100979	<i>PLTP</i>	1.33	30.63	-4.53	1.53E-03
ENSG00000069702	<i>TGFBR3</i>	8.97	218.58	-4.53	1.37E-04
ENSG00000005844	<i>ITGAL</i>	2.72	61.62	-4.53	9.01E-04
ENSG00000165071	<i>TMEM71</i>	0.30	7.35	-4.53	4.82E-04
ENSG00000161544	<i>CYGB</i>	0.62	15.91	-4.53	8.99E-03
ENSG00000186105	<i>LRRC70</i>	0.20	4.96	-4.52	5.83E-03
ENSG00000177374	<i>HIC1</i>	0.88	16.23	-4.52	8.74E-04
ENSG00000136237	<i>RAPGEF5</i>	0.06	1.73	-4.52	6.38E-03
ENSG00000135750	<i>KCNK1</i>	0.20	2.94	-4.52	5.15E-03
ENSG00000079385	<i>CEACAM1</i>	1.37	16.05	-4.52	2.30E-02
ENSG00000108786	<i>HSD17B1</i>	6.40	135.44	-4.51	8.18E-05
ENSG00000211675	<i>IGLC1</i>	0.00	0.96	-4.51	9.63E-04
ENSG00000189060	<i>H1-0</i>	9.00	206.91	-4.51	1.82E-04
ENSG00000112394	<i>SLC16A10</i>	0.94	21.50	-4.50	1.90E-03
ENSG00000175567	<i>UCP2</i>	2.62	58.88	-4.50	8.37E-04
ENSG00000178342	<i>KCNK2</i>	0.04	1.80	-4.50	1.61E-03
ENSG00000152229	<i>PSTPIP2</i>	3.32	72.18	-4.49	6.99E-05
ENSG00000064787	<i>BCAS1</i>	0.05	1.88	-4.49	1.66E-03
ENSG00000245848	<i>CEBPA</i>	0.34	7.89	-4.48	1.79E-03
ENSG00000149131	<i>SERPING1</i>	1.41	34.80	-4.48	1.94E-03
ENSG00000011347	<i>SYT7</i>	0.70	14.85	-4.47	2.90E-04
ENSG00000183484	<i>GPR132</i>	0.27	5.71	-4.47	2.81E-03
ENSG00000019582	<i>CD74</i>	24.51	642.04	-4.47	4.91E-04
ENSG00000197457	<i>STMN3</i>	1.85	38.41	-4.46	3.52E-04
ENSG00000188897		1.83	39.39	-4.46	9.80E-03
ENSG00000091428	<i>RAPGEF4</i>	2.11	29.56	-4.46	7.59E-03
ENSG00000139946	<i>PELI2</i>	1.33	17.78	-4.46	3.05E-03
ENSG00000198003	<i>ODAD3</i>	0.15	3.65	-4.45	1.30E-03
ENSG00000138378	<i>STAT4</i>	0.86	21.22	-4.45	2.50E-03
ENSG00000005381	<i>MPO</i>	0.00	0.91	-4.45	8.84E-04
ENSG00000290596		0.08	2.39	-4.44	4.62E-03
ENSG00000163359	<i>COL6A3</i>	10.90	279.93	-4.44	7.13E-04
ENSG00000160654	<i>CD3G</i>	0.22	3.99	-4.43	3.87E-03
ENSG00000113303	<i>BTNL8</i>	0.04	1.41	-4.43	2.40E-03
ENSG00000136167	<i>LCP1</i>	10.36	212.70	-4.43	7.69E-04
ENSG00000112195	<i>TREML2</i>	0.11	2.47	-4.43	6.39E-03
ENSG00000165695	<i>AK8</i>	0.05	1.58	-4.43	1.90E-03
ENSG00000099810	<i>MTAP</i>	1.93	34.09	-4.43	1.01E-03
ENSG00000196189	<i>SEMA4A</i>	0.74	17.60	-4.43	1.26E-03
ENSG00000187566	<i>NHLRC1</i>	0.12	2.96	-4.42	1.17E-03
ENSG00000268223	<i>ARL14EPL</i>	0.00	0.96	-4.42	1.82E-03
ENSG00000255330		0.44	9.13	-4.41	3.43E-03
ENSG00000133067	<i>LGR6</i>	0.16	2.71	-4.41	7.83E-03
ENSG00000186827	<i>TNFRSF4</i>	0.07	1.80	-4.41	7.96E-03
ENSG00000274512	<i>TBC1D3L</i>	4.65	88.64	-4.41	1.14E-04
ENSG00000060140	<i>STYK1</i>	0.66	5.32	-4.40	3.19E-02
ENSG00000136490	<i>LIMD2</i>	1.63	35.93	-4.40	2.02E-04
ENSG00000106025	<i>TSPAN12</i>	4.94	114.16	-4.40	5.26E-04

ENSG00000185885	<i>IFITM1</i>	2.55	61.96	-4.40	2.16E-03
ENSG00000242732	<i>RTL5</i>	0.94	6.00	-4.40	2.35E-02
ENSG00000196218	<i>RYR1</i>	0.07	1.98	-4.40	6.91E-03
ENSG00000123496	<i>IL13RA2</i>	0.13	4.25	-4.40	1.23E-02
ENSG00000173208	<i>ABCD2</i>	0.12	1.80	-4.40	9.02E-03
ENSG00000132840	<i>BHMT2</i>	0.35	5.63	-4.39	5.31E-03
ENSG00000290718	<i>FAM95B1</i>	0.85	6.70	-4.38	4.97E-02
ENSG00000182578	<i>CSF1R</i>	2.70	50.08	-4.38	2.01E-04
ENSG00000176387	<i>HSD11B2</i>	0.32	5.62	-4.38	2.21E-02
ENSG00000171189	<i>GRIK1</i>	0.16	4.01	-4.37	8.59E-03
ENSG00000102096	<i>PIM2</i>	4.94	106.87	-4.37	1.08E-04
ENSG00000112303	<i>VNN2</i>	0.94	19.93	-4.37	4.33E-04
ENSG00000198771	<i>RCSD1</i>	1.16	20.46	-4.36	1.16E-03
ENSG00000159307	<i>SCUBE1</i>	0.78	4.66	-4.36	2.77E-02
ENSG00000106546	<i>AHR</i>	1.97	34.73	-4.36	5.41E-04
ENSG00000251623		0.00	0.89	-4.36	1.59E-03
ENSG00000019991	<i>HGF</i>	0.18	4.06	-4.35	4.54E-03
ENSG00000124107	<i>SLPI</i>	1.04	23.88	-4.35	1.87E-03
ENSG00000170382	<i>LRRN2</i>	0.30	5.20	-4.34	8.59E-03
ENSG00000186469	<i>GNG2</i>	3.58	45.17	-4.34	8.19E-03
ENSG00000291188		0.00	0.85	-4.34	1.08E-03
ENSG00000129295	<i>DNAAF11</i>	0.15	1.90	-4.34	6.94E-03
ENSG00000214652	<i>ZNF727</i>	0.33	7.58	-4.34	8.69E-04
ENSG00000142765	<i>SYTL1</i>	0.80	16.98	-4.34	1.92E-04
ENSG00000273213	<i>H3-7</i>	1.28	27.14	-4.34	2.07E-03
ENSG00000023445	<i>BIRC3</i>	14.23	219.50	-4.33	2.21E-04
ENSG00000145569	<i>OTULINL</i>	0.31	7.24	-4.33	3.06E-03
ENSG00000242441	<i>GTF2A1L</i>	0.02	1.72	-4.33	6.26E-03
ENSG00000108375	<i>RNF43</i>	0.15	3.38	-4.32	1.30E-03
ENSG00000166704	<i>ZNF606</i>	0.59	9.56	-4.31	6.66E-04
ENSG00000290514		0.00	0.91	-4.31	2.37E-03
ENSG00000140009	<i>ESR2</i>	0.68	14.11	-4.31	8.78E-04
ENSG00000290985	<i>SLC6A10P</i>	0.04	1.59	-4.31	2.35E-03
ENSG00000196209	<i>SIRPB2</i>	0.11	2.65	-4.30	1.60E-03
ENSG00000121797	<i>CCRL2</i>	3.69	68.46	-4.30	2.50E-03
ENSG00000198885	<i>ITPRIPL1</i>	0.19	4.34	-4.30	1.55E-03
ENSG00000183578	<i>TNFAIP8L3</i>	3.46	73.75	-4.30	5.98E-04
ENSG00000177465	<i>ACOT4</i>	0.67	6.08	-4.29	1.01E-02
ENSG00000250011	<i>HMGB1P3</i>	0.04	1.36	-4.29	6.49E-03
ENSG00000176907	<i>TCIM</i>	0.05	2.07	-4.29	8.67E-03
ENSG00000179331	<i>RAB39A</i>	0.08	1.41	-4.29	5.41E-03
ENSG00000153208	<i>MERTK</i>	1.14	20.52	-4.28	3.69E-04
ENSG00000239998	<i>LILRA2</i>	0.12	2.28	-4.28	1.25E-02
ENSG00000165633	<i>VSTM4</i>	0.68	13.40	-4.28	6.05E-04
ENSG00000172794	<i>RAB37</i>	0.37	5.22	-4.28	2.82E-03
ENSG00000184719	<i>RNLS</i>	0.59	11.38	-4.28	4.84E-04
ENSG00000162543	<i>UBXN10</i>	0.00	0.82	-4.28	1.30E-03
ENSG00000172575	<i>RASGRP1</i>	0.75	15.47	-4.28	6.36E-04
ENSG00000246705	<i>H2AJ</i>	5.17	48.82	-4.27	3.17E-03
ENSG00000141485	<i>SLC13A5</i>	0.14	2.78	-4.27	1.83E-03
ENSG00000122986	<i>HVCN1</i>	0.45	6.40	-4.27	7.57E-03
ENSG00000291129	<i>PPIEL</i>	0.76	13.86	-4.26	2.45E-03
ENSG00000013725	<i>CD6</i>	1.32	23.95	-4.26	2.89E-03
ENSG00000239732	<i>TLR9</i>	0.06	2.02	-4.26	1.06E-03
ENSG00000124406	<i>ATP8A1</i>	5.68	44.14	-4.26	6.68E-03
ENSG00000211694	<i>TRGV10</i>	0.00	0.82	-4.26	1.51E-03
ENSG00000166265	<i>CYYR1</i>	0.13	3.07	-4.25	5.51E-03
ENSG00000137757	<i>CASP5</i>	0.16	4.15	-4.25	3.17E-02

ENSG00000167984	<i>NLRC3</i>	0.85	17.07	-4.24	5.56E-04
ENSG00000174004	<i>NRROS</i>	0.57	7.70	-4.24	5.72E-03
ENSG00000105219	<i>CCNP</i>	0.05	1.57	-4.24	1.21E-03
ENSG00000185905	<i>C16orf54</i>	0.36	7.33	-4.24	1.16E-03
ENSG00000186998	<i>EMID1</i>	0.64	11.16	-4.23	4.99E-02
ENSG00000154930	<i>ACSS1</i>	5.21	103.79	-4.23	4.33E-04
ENSG00000118526	<i>TCF21</i>	0.30	6.96	-4.23	1.05E-02
ENSG00000162630	<i>B3GALT2</i>	0.08	1.95	-4.23	1.59E-03
ENSG00000127249	<i>ATP13A4</i>	0.09	2.97	-4.22	2.00E-02
ENSG00000154016	<i>GRAP</i>	0.15	2.90	-4.22	2.59E-03
ENSG00000158270	<i>COLEC12</i>	0.91	16.99	-4.21	2.62E-02
ENSG00000198865	<i>CCDC152</i>	0.15	3.55	-4.21	6.46E-04
ENSG00000291101		0.03	1.09	-4.21	2.34E-03
ENSG00000090661	<i>CERS4</i>	0.68	12.55	-4.21	6.88E-04
ENSG00000125735	<i>TNFSF14</i>	0.36	8.21	-4.20	2.56E-03
ENSG00000109956	<i>B3GAT1</i>	0.25	5.28	-4.20	9.04E-03
ENSG00000171049	<i>FPR2</i>	0.84	17.31	-4.20	3.52E-02
ENSG00000125895	<i>TMEM74B</i>	0.04	1.35	-4.20	1.18E-03
ENSG00000005249	<i>PRKAR2B</i>	7.50	138.96	-4.20	1.76E-04
ENSG00000169783	<i>LINGO1</i>	0.07	1.75	-4.20	3.44E-03
ENSG00000134539	<i>KLRD1</i>	2.25	49.64	-4.20	1.84E-02
ENSG00000008226	<i>DLEC1</i>	0.17	3.04	-4.20	2.09E-03
ENSG00000140876	<i>NUDT7</i>	0.13	2.66	-4.20	5.70E-03
ENSG00000115255	<i>REEP6</i>	13.98	214.15	-4.20	2.66E-04
ENSG00000150681	<i>RGS18</i>	0.05	1.78	-4.19	6.52E-03
ENSG00000022556	<i>NLRP2</i>	0.83	10.40	-4.19	3.51E-02
ENSG00000144648	<i>ACKR2</i>	0.12	2.03	-4.19	6.33E-03
ENSG00000049283	<i>EPN3</i>	0.50	9.80	-4.19	1.42E-02
ENSG00000126217	<i>MCF2L</i>	0.23	3.82	-4.18	5.57E-03
ENSG00000090530	<i>P3H2</i>	53.83	973.40	-4.18	1.10E-04
ENSG00000164932	<i>CTHRC1</i>	0.32	5.47	-4.18	6.76E-03
ENSG00000215440	<i>NPEPL1</i>	2.59	45.52	-4.17	1.15E-04
ENSG00000103449	<i>SALL1</i>	0.00	0.83	-4.17	2.80E-03
ENSG00000055955	<i>ITIH4</i>	0.39	9.16	-4.17	6.91E-03
ENSG00000115590	<i>IL1R2</i>	0.16	2.41	-4.17	1.14E-02
ENSG00000214814	<i>FER1L6</i>	0.14	2.82	-4.17	5.34E-03
ENSG00000161405	<i>IKZF3</i>	1.47	25.39	-4.17	6.27E-04
ENSG00000064655	<i>EYA2</i>	0.03	1.26	-4.16	1.76E-03
ENSG00000214694	<i>ARHGEF33</i>	0.16	3.58	-4.16	1.07E-03
ENSG00000138606	<i>SHF</i>	0.44	6.17	-4.16	3.44E-03
ENSG00000112299	<i>VNN1</i>	0.61	9.10	-4.16	4.16E-03
ENSG00000134830	<i>C5AR2</i>	0.39	7.61	-4.16	4.92E-04
ENSG00000149599	<i>DUSP15</i>	0.04	1.41	-4.16	2.49E-03
ENSG00000116663	<i>FBXO6</i>	0.42	8.06	-4.15	2.35E-03
ENSG00000185818	<i>NAT8L</i>	1.26	22.52	-4.14	1.06E-03
ENSG00000155465	<i>SLC7A7</i>	1.69	23.72	-4.14	3.74E-03
ENSG00000181652	<i>ATG9B</i>	0.27	3.46	-4.14	1.09E-02
ENSG00000175535	<i>PNLIP</i>	0.06	1.34	-4.13	6.22E-03
ENSG00000181215	<i>C4orf50</i>	0.27	3.52	-4.12	4.43E-03
ENSG00000118946	<i>PCDH17</i>	0.12	2.54	-4.12	4.22E-03
ENSG00000198857	<i>HSD3BP5</i>	0.19	3.13	-4.12	4.25E-03
ENSG00000282608	<i>ADORA3</i>	0.03	1.05	-4.12	2.74E-03
ENSG00000197467	<i>COL13A1</i>	1.72	29.42	-4.12	5.94E-04
ENSG00000272601	<i>EFCAB3P1</i>	0.06	1.50	-4.11	2.40E-03
ENSG00000163412	<i>EIF4E3</i>	1.11	19.26	-4.10	8.46E-04
ENSG00000067606	<i>PRKCZ</i>	0.41	5.75	-4.10	1.71E-03
ENSG00000203814	<i>H2BC18</i>	0.18	3.34	-4.10	3.45E-03
ENSG00000197253	<i>TPSB2</i>	0.00	0.73	-4.10	1.80E-03

ENSG00000139835	<i>GRTP1</i>	0.50	8.30	-4.10	9.81E-04
ENSG00000213658	<i>LAT</i>	1.75	23.83	-4.09	1.96E-03
ENSG00000163219	<i>ARHGAP25</i>	3.14	55.04	-4.09	6.92E-04
ENSG00000206561	<i>COLQ</i>	3.28	51.49	-4.09	2.71E-03
ENSG00000290549		0.22	4.42	-4.08	1.34E-03
ENSG00000229273		0.04	1.34	-4.08	2.41E-03
ENSG00000134061	<i>CD180</i>	0.49	4.31	-4.08	3.97E-02
ENSG00000204252	<i>HLA-DOA</i>	0.15	2.85	-4.08	2.66E-02
ENSG00000114737	<i>CISH</i>	0.67	12.35	-4.08	1.65E-03
ENSG00000254585	<i>MAGEL2</i>	0.19	2.34	-4.07	1.16E-02
ENSG00000145794	<i>MEGF10</i>	0.19	3.32	-4.07	4.30E-03
ENSG00000281406	<i>BLACAT1</i>	0.06	1.30	-4.07	6.86E-03
ENSG00000162595	<i>DIRAS3</i>	3.08	41.17	-4.07	5.65E-04
ENSG00000188227	<i>ZNF793</i>	0.60	11.33	-4.06	1.46E-03
ENSG00000187068	<i>C3orf70</i>	0.15	2.70	-4.06	1.81E-03
ENSG00000135218	<i>CD36</i>	2.61	38.29	-4.05	1.99E-03
ENSG00000121316	<i>PLBD1</i>	0.23	4.42	-4.05	3.27E-03
ENSG00000290577		0.08	1.34	-4.05	7.47E-03
ENSG00000105289	<i>TJP3</i>	0.08	1.92	-4.05	1.16E-02
ENSG00000179583	<i>CIITA</i>	8.53	69.77	-4.05	2.25E-03
ENSG00000135363	<i>LMO2</i>	0.38	6.85	-4.04	1.68E-03
ENSG00000166763	<i>STRCP1</i>	0.00	0.70	-4.04	1.95E-03
ENSG00000175414	<i>ARL10</i>	3.33	51.98	-4.04	1.16E-03
ENSG00000164309	<i>CMYA5</i>	0.46	6.94	-4.04	3.16E-03
ENSG00000179909	<i>ZNF154</i>	0.49	8.31	-4.04	6.96E-04
ENSG00000100767	<i>PAPLN</i>	1.30	22.65	-4.03	1.40E-03
ENSG00000002726	<i>AOC1</i>	0.18	2.84	-4.02	9.09E-03
ENSG00000111644	<i>ACRBP</i>	0.14	2.12	-4.02	1.68E-02
ENSG00000172247	<i>C1QTNF4</i>	0.02	0.86	-4.02	3.16E-03
ENSG00000285897		0.11	1.70	-4.01	5.78E-03
ENSG00000102445	<i>RUBCNL</i>	1.80	11.98	-4.01	1.27E-02
ENSG00000242265	<i>PEG10</i>	1.43	25.52	-4.00	2.35E-03
ENSG00000253651	<i>SOD1P3</i>	0.02	1.00	-4.00	1.11E-03
ENSG00000081985	<i>IL12RB2</i>	0.23	4.58	-4.00	8.95E-04
ENSG00000144668	<i>ITGA9</i>	1.30	20.24	-4.00	2.38E-03
ENSG00000151962	<i>RBM46</i>	0.11	1.24	-3.99	1.06E-02
ENSG00000070731	<i>ST6GALNAC2</i>	0.27	2.32	-3.99	1.24E-02
ENSG00000132749	<i>TESMIN</i>	0.22	3.22	-3.99	2.24E-02
ENSG00000173930	<i>SLCO4C1</i>	0.41	5.30	-3.99	6.09E-03
ENSG00000214456	<i>PLIN5</i>	0.25	4.93	-3.98	9.60E-03
ENSG00000124216	<i>SNAI1</i>	0.44	7.26	-3.98	8.76E-04
ENSG00000186462	<i>NAP1L2</i>	0.08	1.26	-3.98	1.44E-02
ENSG00000171476	<i>HOPX</i>	0.61	8.21	-3.98	9.63E-04
ENSG00000186510	<i>CLCNKA</i>	0.62	5.81	-3.97	1.09E-02
ENSG00000117643	<i>MAN1C1</i>	0.69	12.10	-3.97	5.61E-03
ENSG00000109943	<i>CRTAM</i>	0.13	2.34	-3.97	1.86E-03
ENSG00000105655	<i>ISYNA1</i>	1.56	25.54	-3.97	3.22E-04
ENSG00000260266	<i>PPIAP46</i>	0.76	12.74	-3.96	2.30E-03
ENSG00000171051	<i>FPR1</i>	4.30	71.00	-3.96	4.74E-03
ENSG00000162618	<i>ADGRL4</i>	0.28	3.91	-3.96	1.73E-02
ENSG00000143167	<i>GPA33</i>	0.07	1.40	-3.95	3.56E-03
ENSG00000121895	<i>TMEM156</i>	0.14	1.72	-3.95	5.91E-03
ENSG00000197696	<i>NMB</i>	1.53	5.98	-3.95	4.84E-02
ENSG00000183598	<i>H3C13</i>	0.00	0.64	-3.93	1.91E-03
ENSG00000134755	<i>DSC2</i>	2.69	41.06	-3.93	1.13E-04
ENSG00000204791	<i>SMPD5</i>	0.30	2.94	-3.93	2.97E-02
ENSG00000188629	<i>ZNF177</i>	0.37	3.82	-3.93	8.84E-03
ENSG00000168329	<i>CX3CR1</i>	0.40	2.94	-3.92	3.19E-02

ENSG00000149300	<i>C11orf52</i>	0.07	1.09	-3.91	5.79E-03
ENSG00000132965	<i>ALOX5AP</i>	1.88	29.28	-3.91	4.01E-04
ENSG00000127472	<i>PLA2G5</i>	0.01	0.91	-3.90	2.50E-03
ENSG00000101342	<i>TLDC2</i>	0.25	2.45	-3.90	1.86E-02
ENSG00000137571	<i>SLCO5A1</i>	0.01	0.88	-3.90	1.91E-03
ENSG00000105737	<i>GRIK5</i>	0.45	7.20	-3.90	7.56E-04
ENSG00000160161	<i>CILP2</i>	0.02	0.92	-3.90	1.60E-03
ENSG00000257017	<i>HP</i>	0.08	1.36	-3.90	5.80E-03
ENSG00000139899	<i>CBLN3</i>	0.54	8.14	-3.90	3.10E-03
ENSG00000114654	<i>EFCC1</i>	0.00	0.61	-3.88	1.95E-03
ENSG00000291144		0.25	3.22	-3.88	6.19E-03
ENSG00000126882	<i>FAM78A</i>	1.95	28.71	-3.88	2.02E-04
ENSG00000229474	<i>PATL2</i>	1.06	16.72	-3.88	2.88E-03
ENSG00000186446	<i>ZNF501</i>	0.05	1.35	-3.88	6.02E-03
ENSG00000185565	<i>LSAMP</i>	1.14	5.74	-3.88	1.84E-02
ENSG00000168685	<i>IL7R</i>	20.36	218.61	-3.87	6.05E-04
ENSG00000205307	<i>SAP25</i>	0.77	11.19	-3.87	6.03E-04
ENSG00000196932	<i>TMEM26</i>	2.02	31.32	-3.87	8.24E-04
ENSG00000119714	<i>GPR68</i>	0.25	3.87	-3.86	2.67E-03
ENSG00000116711	<i>PLA2G4A</i>	0.86	12.41	-3.86	4.82E-04
ENSG00000140488	<i>CELF6</i>	0.32	3.61	-3.86	1.09E-02
ENSG00000240505	<i>TNFRSF13B</i>	0.05	1.14	-3.86	2.39E-03
ENSG00000100368	<i>CSF2RB</i>	10.69	96.98	-3.85	2.24E-02
ENSG00000183196	<i>CHST6</i>	0.26	4.31	-3.84	5.73E-03
ENSG00000143502	<i>SUSD4</i>	0.72	10.97	-3.84	2.50E-03
ENSG00000107099	<i>DOCK8</i>	2.75	41.20	-3.84	6.54E-04
ENSG00000177138	<i>FAM9B</i>	0.04	1.27	-3.84	4.41E-03
ENSG00000116194	<i>ANGPTL1</i>	0.71	8.60	-3.83	6.95E-03
ENSG00000142552	<i>RCN3</i>	5.51	83.37	-3.82	3.10E-03
ENSG00000204314	<i>PRRT1</i>	0.13	1.80	-3.82	4.57E-03
ENSG00000138166	<i>DUSP5</i>	16.06	221.78	-3.82	6.60E-05
ENSG00000140873	<i>ADAMTS18</i>	0.09	1.44	-3.81	7.06E-03
ENSG00000196263	<i>ZNF471</i>	1.67	21.28	-3.81	1.25E-03
ENSG00000161281	<i>COX7A1</i>	0.25	3.20	-3.81	4.69E-03
ENSG00000136960	<i>ENPP2</i>	2.30	33.18	-3.81	2.93E-04
ENSG00000127903	<i>ZNF835</i>	0.11	2.09	-3.81	1.11E-03
ENSG00000138080	<i>EMILIN1</i>	2.30	45.45	-3.80	4.83E-02
ENSG00000179862	<i>CITED4</i>	0.92	13.76	-3.80	1.43E-03
ENSG00000196368	<i>NUDT11</i>	0.80	3.43	-3.80	4.34E-02
ENSG00000137270	<i>GCM1</i>	0.17	3.12	-3.80	6.57E-03
ENSG00000216490	<i>IFI30</i>	45.61	652.52	-3.80	2.05E-04
ENSG00000189350	<i>TOGARAM2</i>	0.46	7.54	-3.79	1.90E-03
ENSG00000159753	<i>CARMIL2</i>	0.90	12.61	-3.79	1.53E-03
ENSG00000160321	<i>ZNF208</i>	0.62	5.65	-3.79	8.77E-03
ENSG00000074803	<i>SLC12A1</i>	0.08	1.56	-3.79	4.90E-03
ENSG00000220008	<i>LINGO3</i>	0.25	2.12	-3.78	1.62E-02
ENSG00000179057	<i>IGSF22</i>	0.07	1.24	-3.78	4.16E-03
ENSG00000137747	<i>TMPRSS13</i>	0.14	2.38	-3.78	1.99E-03
ENSG00000124440	<i>HIF3A</i>	0.26	4.50	-3.78	2.24E-02
ENSG00000266714	<i>MYO15B</i>	3.47	45.12	-3.77	1.69E-03
ENSG00000187601	<i>MAGEH1</i>	1.25	17.48	-3.77	3.52E-04
ENSG00000166206	<i>GABRB3</i>	0.19	2.48	-3.77	4.51E-03
ENSG00000167094	<i>TTC16</i>	0.17	2.56	-3.77	1.54E-02
ENSG00000186994	<i>KANK3</i>	0.06	2.21	-3.76	3.38E-02
ENSG00000205755	<i>CRLF2</i>	0.22	4.15	-3.76	2.43E-02
ENSG00000115594	<i>IL1R1</i>	16.11	208.58	-3.76	6.99E-05
ENSG00000176597	<i>B3GNT5</i>	1.36	10.82	-3.76	8.01E-03
ENSG00000141574	<i>SECTM1</i>	0.96	13.50	-3.76	3.31E-02

ENSG00000103355	<i>PRSS33</i>	0.03	0.79	-3.75	6.23E-03
ENSG00000130066	<i>SAT1</i>	71.64	919.47	-3.75	2.56E-03
ENSG00000163221	<i>S100A12</i>	0.30	2.23	-3.74	2.03E-02
ENSG00000179299	<i>NSUN7</i>	0.24	3.66	-3.74	3.81E-03
ENSG00000125740	<i>FOSB</i>	1.67	23.81	-3.74	8.74E-04
ENSG00000158825	<i>CDA</i>	0.11	1.93	-3.73	8.91E-03
ENSG00000160867	<i>FGFR4</i>	0.09	1.69	-3.73	6.17E-03
ENSG00000172817	<i>CYP7B1</i>	0.02	0.83	-3.73	2.06E-03
ENSG00000115604	<i>IL18R1</i>	1.54	8.95	-3.73	1.74E-02
ENSG00000116882	<i>HAO2</i>	0.03	1.00	-3.72	4.73E-03
ENSG00000135127	<i>BICDL1</i>	1.03	13.80	-3.72	5.13E-03
ENSG00000105278	<i>ZFR2</i>	0.05	1.09	-3.72	3.01E-03
ENSG00000144229	<i>THSD7B</i>	0.04	1.20	-3.72	9.88E-03
ENSG00000188322	<i>SBK1</i>	0.47	6.49	-3.72	1.17E-03
ENSG00000213443	<i>NPM1P7</i>	0.65	5.29	-3.71	2.51E-02
ENSG00000139679	<i>LPAR6</i>	1.63	22.32	-3.71	7.48E-04
ENSG00000104267	<i>CA2</i>	0.16	2.92	-3.71	1.14E-02
ENSG00000136383	<i>ALPK3</i>	1.11	14.28	-3.71	7.67E-04
ENSG00000111729	<i>CLEC4A</i>	0.36	5.80	-3.70	8.91E-03
ENSG00000004799	<i>PDK4</i>	2.43	25.77	-3.70	2.56E-03
ENSG00000178222	<i>RNF212</i>	0.09	1.43	-3.70	3.88E-03
ENSG00000135821	<i>GLUL</i>	62.72	827.37	-3.70	1.30E-04
ENSG00000270379	<i>HEATR9</i>	0.01	0.64	-3.70	1.85E-03
ENSG00000154263	<i>ABCA10</i>	0.96	11.75	-3.69	1.09E-03
ENSG00000106123	<i>EPHB6</i>	0.17	1.31	-3.69	2.21E-02
ENSG00000151117	<i>TMEM86A</i>	0.77	9.15	-3.69	1.71E-03
ENSG00000170190	<i>SLC16A5</i>	1.07	8.34	-3.68	8.13E-03
ENSG00000143036	<i>SLC44A3</i>	2.27	29.18	-3.68	2.03E-04
ENSG00000205710	<i>C17orf107</i>	0.33	5.04	-3.68	1.89E-03
ENSG00000007516	<i>BAIAP3</i>	0.85	8.91	-3.67	1.22E-03
ENSG00000166341	<i>DCHS1</i>	0.95	11.25	-3.67	6.93E-04
ENSG00000167363	<i>FN3K</i>	2.78	20.19	-3.67	4.02E-03
ENSG00000182752	<i>PAPPA</i>	35.74	434.68	-3.66	1.28E-04
ENSG00000174123	<i>TLR10</i>	0.26	3.44	-3.66	1.88E-02
ENSG00000148680	<i>HTR7</i>	3.44	47.88	-3.65	1.90E-03
ENSG00000084110	<i>HAL</i>	0.43	5.48	-3.65	1.91E-02
ENSG00000158406	<i>H4C8</i>	0.78	10.46	-3.65	8.69E-04
ENSG00000205436	<i>EXOC3L4</i>	0.23	3.58	-3.65	6.39E-03
ENSG00000129451	<i>KLK10</i>	0.17	2.45	-3.65	2.10E-03
ENSG00000070526	<i>ST6GALNAC1</i>	0.14	1.25	-3.65	3.26E-02
ENSG00000069535	<i>MAOB</i>	0.69	4.77	-3.65	2.08E-02
ENSG00000154548	<i>SRSF12</i>	0.17	2.36	-3.65	2.33E-03
ENSG00000197442	<i>MAP3K5</i>	13.27	168.04	-3.64	6.19E-05
ENSG00000111266	<i>DUSP16</i>	7.80	101.27	-3.64	2.05E-04
ENSG00000144671	<i>SLC22A14</i>	0.02	0.74	-3.63	1.96E-03
ENSG00000107954	<i>NEURL1</i>	0.45	4.99	-3.63	3.60E-03
ENSG00000183943	<i>PRKX</i>	17.24	255.04	-3.63	3.00E-03
ENSG00000151025	<i>GPR158</i>	0.52	6.75	-3.62	1.49E-03
ENSG00000283399		0.10	1.60	-3.62	4.60E-03
ENSG00000188681	<i>TEKT4P2</i>	0.08	1.27	-3.62	1.02E-02
ENSG00000235217	<i>TSPY26P</i>	0.36	4.75	-3.62	2.23E-03
ENSG00000234465	<i>PINLYP</i>	0.96	7.67	-3.61	5.45E-03
ENSG00000182168	<i>UNC5C</i>	0.84	10.58	-3.61	4.12E-04
ENSG00000140254	<i>DUOXA1</i>	0.07	1.41	-3.61	1.86E-02
ENSG00000149634	<i>SPATA25</i>	0.08	1.27	-3.61	3.07E-03
ENSG00000123342	<i>MMP19</i>	3.04	34.94	-3.60	2.20E-04
ENSG00000274290	<i>H2BC6</i>	0.15	1.87	-3.60	5.94E-03
ENSG00000145287	<i>PLAC8</i>	1.01	8.97	-3.60	7.60E-03

ENSG00000205002	<i>AARD</i>	0.10	1.10	-3.60	2.03E-02
ENSG00000175497	<i>DPP10</i>	0.52	7.11	-3.59	4.22E-03
ENSG00000070193	<i>FGF10</i>	0.07	1.04	-3.59	9.76E-03
ENSG00000139629	<i>GALNT6</i>	0.64	5.04	-3.59	6.36E-03
ENSG00000221994	<i>ZNF630</i>	0.28	3.82	-3.58	1.68E-03
ENSG00000153404	<i>PLEKHG4B</i>	0.20	2.19	-3.58	6.45E-03
ENSG00000249884	<i>RNF103-CHMP3</i>	0.20	2.49	-3.58	6.84E-03
ENSG00000124249	<i>KCNK15</i>	1.73	17.76	-3.58	2.66E-03
ENSG00000223865	<i>HLA-DPB1</i>	0.03	0.88	-3.57	2.39E-03
ENSG00000105538	<i>RASIP1</i>	0.56	5.02	-3.57	6.22E-03
ENSG00000165959	<i>CLMN</i>	0.96	11.65	-3.57	3.30E-02
ENSG00000103485	<i>QPRT</i>	2.61	32.03	-3.56	3.32E-04
ENSG00000180730	<i>SHISA2</i>	0.14	1.76	-3.56	8.56E-03
ENSG00000103037	<i>SETD6</i>	2.10	18.31	-3.56	1.44E-03
ENSG00000057704	<i>TMCC3</i>	1.30	15.86	-3.56	7.02E-04
ENSG00000254122	<i>PCDHGB7</i>	0.84	6.71	-3.56	1.95E-02
ENSG00000234284	<i>ZNF879</i>	0.44	4.16	-3.55	1.16E-02
ENSG00000118513	<i>MYB</i>	0.43	5.06	-3.55	1.06E-02
ENSG00000283511		0.09	1.19	-3.55	1.41E-02
ENSG00000071246	<i>VASH1</i>	12.69	150.48	-3.54	6.59E-05
ENSG00000141505	<i>ASGR1</i>	0.28	3.54	-3.54	2.71E-03
ENSG00000110042	<i>DTX4</i>	0.60	6.12	-3.54	1.98E-02
ENSG00000171798	<i>KNDC1</i>	0.51	7.39	-3.54	1.38E-02
ENSG00000167483	<i>NIBAN3</i>	1.10	11.14	-3.54	1.09E-02
ENSG00000150048	<i>CLEC1A</i>	0.05	0.93	-3.54	3.99E-03
ENSG00000185947	<i>ZNF267</i>	2.76	35.79	-3.54	2.46E-03
ENSG00000253953	<i>PCDHGB4</i>	0.17	1.88	-3.54	6.49E-03
ENSG00000100060	<i>MFNG</i>	1.01	10.81	-3.54	1.41E-03
ENSG00000110876	<i>SELPLG</i>	3.64	39.97	-3.53	1.55E-03
ENSG00000103489	<i>XYLT1</i>	9.52	84.79	-3.53	6.53E-04
ENSG00000290995		0.07	1.26	-3.53	3.52E-03
ENSG00000105464	<i>GRIN2D</i>	0.19	2.65	-3.53	3.21E-03
ENSG00000183682	<i>BMP8A</i>	0.82	8.20	-3.53	3.45E-03
ENSG00000134594	<i>RAB33A</i>	0.21	2.64	-3.52	3.96E-03
ENSG00000242779	<i>ZNF702P</i>	0.98	7.06	-3.52	1.33E-02
ENSG00000267120		0.68	4.56	-3.52	2.60E-02
ENSG00000179813	<i>FAM216B</i>	0.03	0.68	-3.52	6.24E-03
ENSG00000206199	<i>ANKUB1</i>	0.09	1.08	-3.52	1.27E-02
ENSG00000203855	<i>HSD3BP4</i>	0.10	1.23	-3.52	1.28E-02
ENSG00000171219	<i>CDC42BPG</i>	0.66	6.18	-3.51	2.81E-03
ENSG00000129946	<i>SHC2</i>	1.56	11.25	-3.51	1.41E-02
ENSG00000147614	<i>ATP6V0D2</i>	0.71	9.63	-3.51	2.10E-02
ENSG00000171817	<i>ZNF540</i>	0.34	2.87	-3.51	4.97E-03
ENSG00000065618	<i>COL17A1</i>	0.17	1.85	-3.51	1.42E-02
ENSG00000159674	<i>SPON2</i>	1.83	23.62	-3.50	2.36E-02
ENSG00000128564	<i>VGF</i>	0.46	6.72	-3.50	1.09E-02
ENSG00000184368	<i>MAP7D2</i>	0.25	2.96	-3.50	2.60E-03
ENSG00000150637	<i>CD226</i>	0.81	8.38	-3.50	5.79E-03
ENSG00000173578	<i>XCR1</i>	0.59	3.75	-3.50	3.76E-02
ENSG00000153956	<i>CACNA2D1</i>	61.49	658.76	-3.50	7.76E-04
ENSG00000156711	<i>MAPK13</i>	4.76	44.26	-3.49	3.61E-04
ENSG00000291174		0.73	8.62	-3.49	1.34E-03
ENSG00000143217	<i>NECTIN4</i>	0.21	2.96	-3.49	4.28E-03
ENSG00000147144	<i>CCDC120</i>	0.66	7.00	-3.49	3.67E-03
ENSG00000131480	<i>AOC2</i>	0.58	8.58	-3.48	1.85E-02
ENSG00000290717		0.22	1.95	-3.48	9.38E-03
ENSG00000137474	<i>MYO7A</i>	2.59	32.23	-3.47	4.22E-03
ENSG00000008118	<i>CAMK1G</i>	0.33	3.30	-3.47	6.26E-03

ENSG00000159958	<i>TNFRSF13C</i>	0.57	6.90	-3.47	1.54E-03
ENSG00000120669	<i>SOHLH2</i>	0.30	2.91	-3.47	7.10E-03
ENSG00000270149		1.13	11.17	-3.47	2.00E-02
ENSG00000197016	<i>ZNF470</i>	1.44	13.76	-3.47	1.70E-03
ENSG00000203811	<i>H3C14</i>	0.17	1.00	-3.46	3.16E-02
ENSG00000259856	<i>RAB43P1</i>	0.05	0.99	-3.46	4.34E-03
ENSG00000162645	<i>GBP2</i>	22.85	263.11	-3.45	4.39E-04
ENSG00000175003	<i>SLC22A1</i>	0.25	2.88	-3.45	2.41E-02
ENSG00000254979		0.29	2.79	-3.45	2.01E-02
ENSG00000163734	<i>CXCL3</i>	6.38	33.92	-3.45	2.68E-02
ENSG00000116741	<i>RGS2</i>	3.16	37.12	-3.44	9.32E-03
ENSG00000189269	<i>DRICH1</i>	0.03	0.75	-3.44	3.06E-03
ENSG00000134242	<i>PTPN22</i>	1.55	17.49	-3.44	1.48E-03
ENSG00000122035	<i>RASL11A</i>	1.47	7.96	-3.43	2.51E-02
ENSG00000182749	<i>PAQR7</i>	2.12	23.83	-3.43	2.56E-04
ENSG00000178175	<i>ZNF366</i>	0.16	1.70	-3.43	7.49E-03
ENSG00000140285	<i>FGF7</i>	3.62	33.44	-3.43	7.63E-04
ENSG00000157782	<i>CABP1</i>	0.14	1.93	-3.42	5.21E-03
ENSG00000134285	<i>FKBP11</i>	5.57	59.83	-3.42	1.48E-04
ENSG00000225492	<i>GBP1P1</i>	0.10	2.23	-3.42	4.01E-02
ENSG00000077157	<i>PPP1R12B</i>	29.53	284.37	-3.42	7.73E-04
ENSG00000131634	<i>TMEM204</i>	0.61	6.03	-3.42	4.54E-03
ENSG00000158373	<i>H2BC5</i>	1.40	15.57	-3.42	1.14E-03
ENSG00000074966	<i>TXK</i>	0.47	5.26	-3.41	1.68E-03
ENSG00000196972	<i>SMIM10L2B</i>	0.36	4.09	-3.41	5.12E-03
ENSG00000178623	<i>GPR35</i>	1.02	9.23	-3.41	5.36E-03
ENSG00000178199	<i>ZC3H12D</i>	1.01	6.58	-3.41	1.47E-02
ENSG00000160255	<i>ITGB2</i>	18.45	158.37	-3.40	1.59E-03
ENSG00000224831	<i>TMEM183BP</i>	0.18	0.93	-3.40	3.12E-02
ENSG00000198216	<i>CACNA1E</i>	0.02	0.69	-3.40	3.29E-03
ENSG00000139910	<i>NOVA1</i>	1.04	8.71	-3.39	1.98E-03
ENSG00000289604	<i>CTAGE8</i>	0.58	2.06	-3.39	4.63E-02
ENSG00000151715	<i>TMEM45B</i>	0.20	2.93	-3.38	1.51E-02
ENSG00000174718	<i>RESF1</i>	14.46	167.53	-3.38	1.01E-03
ENSG00000183813	<i>CCR4</i>	0.24	2.96	-3.38	3.74E-03
ENSG00000204531	<i>POU5F1</i>	0.08	0.95	-3.38	7.69E-03
ENSG00000253305	<i>PCDHGB6</i>	0.38	3.68	-3.38	7.69E-03
ENSG00000071073	<i>MGAT4A</i>	5.04	52.12	-3.37	2.98E-04
ENSG00000172183	<i>ISG20</i>	1.72	20.07	-3.37	3.39E-03
ENSG00000142405	<i>NLRP12</i>	0.21	2.35	-3.36	2.70E-03
ENSG00000226443	<i>GAPDHP32</i>	0.19	1.40	-3.36	2.89E-02
ENSG00000139832	<i>RAB20</i>	13.24	139.88	-3.36	8.18E-05
ENSG00000152207	<i>CYSLTR2</i>	0.90	5.94	-3.35	3.43E-02
ENSG00000127920	<i>GNG11</i>	1.57	15.40	-3.35	1.34E-02
ENSG00000291008		0.39	2.93	-3.35	2.21E-02
ENSG00000100721	<i>TCL1A</i>	0.07	1.22	-3.35	1.01E-02
ENSG00000260729		0.40	4.38	-3.35	1.48E-03
ENSG00000250138		0.68	7.88	-3.35	2.27E-02
ENSG00000166922	<i>SCG5</i>	2.07	18.09	-3.34	2.36E-03
ENSG00000179399	<i>GPC5</i>	0.26	1.53	-3.34	4.10E-02
ENSG00000115008	<i>IL1A</i>	0.38	4.50	-3.34	2.10E-03
ENSG00000187474	<i>FPR3</i>	2.80	29.76	-3.34	1.27E-03
ENSG00000186652	<i>PRG2</i>	0.07	0.95	-3.34	1.04E-02
ENSG00000112486	<i>CCR6</i>	0.13	1.25	-3.34	2.57E-02
ENSG00000290692		0.59	2.62	-3.33	3.97E-02
ENSG00000198046	<i>ZNF667</i>	2.44	24.73	-3.33	3.27E-04
ENSG00000187796	<i>CARD9</i>	0.26	3.02	-3.33	6.50E-03
ENSG00000164796	<i>CSMD3</i>	0.31	4.17	-3.32	1.67E-02

ENSG00000184313	<i>MROH7</i>	0.19	1.96	-3.32	7.52E-03
ENSG00000140481	<i>CCDC33</i>	0.22	2.63	-3.32	1.55E-02
ENSG00000112149	<i>CD83</i>	5.67	57.62	-3.32	1.46E-03
ENSG00000135525	<i>MAP7</i>	1.03	9.69	-3.32	7.06E-04
ENSG00000119927	<i>GPAM</i>	16.48	154.87	-3.31	1.53E-04
ENSG00000116133	<i>DHCR24</i>	653.74	6481.22	-3.31	5.67E-05
ENSG00000129244	<i>ATP1B2</i>	0.23	1.43	-3.31	3.24E-02
ENSG00000133454	<i>MYO18B</i>	0.31	4.49	-3.30	3.27E-02
ENSG00000198932	<i>GPRASP1</i>	3.59	25.22	-3.30	1.17E-03
ENSG00000159337	<i>PLA2G4D</i>	0.21	1.94	-3.30	1.19E-02
ENSG00000104043	<i>ATP8B4</i>	1.23	8.17	-3.30	6.08E-03
ENSG00000249624		2.26	18.22	-3.29	9.73E-04
ENSG00000240038	<i>AMY2B</i>	1.34	13.71	-3.29	7.71E-04
ENSG00000143333	<i>RGS16</i>	0.30	2.40	-3.28	2.34E-02
ENSG00000105707	<i>HPN</i>	0.10	0.80	-3.28	2.06E-02
ENSG00000206503	<i>HLA-A</i>	10.00	75.58	-3.28	8.51E-04
ENSG00000135114	<i>OASL</i>	0.88	9.74	-3.28	5.27E-03
ENSG00000124126	<i>PREX1</i>	10.26	106.08	-3.28	4.11E-04
ENSG00000167703	<i>SLC43A2</i>	1.36	14.31	-3.28	5.96E-03
ENSG00000173269	<i>MMRN2</i>	0.74	6.07	-3.28	1.36E-02
ENSG00000148803	<i>FUOM</i>	1.12	7.15	-3.28	1.67E-02
ENSG00000267022		0.26	1.47	-3.28	3.65E-02
ENSG00000136425	<i>CIB2</i>	0.37	4.01	-3.27	1.41E-03
ENSG00000129757	<i>CDKN1C</i>	0.42	1.85	-3.27	4.60E-02
ENSG00000090539	<i>CHRD</i>	0.24	1.18	-3.27	2.63E-02
ENSG00000173868	<i>PHOSPHO1</i>	0.07	1.02	-3.26	4.19E-03
ENSG00000126878	<i>AIF1L</i>	0.62	6.58	-3.26	2.23E-02
ENSG00000180535	<i>BHLHA15</i>	0.19	1.14	-3.25	2.77E-02
ENSG00000205277	<i>MUC12</i>	0.07	0.96	-3.25	8.81E-03
ENSG00000108960	<i>MMD</i>	8.38	87.45	-3.25	4.54E-03
ENSG00000243811	<i>APOBEC3D</i>	1.21	5.49	-3.25	4.77E-02
ENSG00000243696		0.59	4.49	-3.24	3.05E-02
ENSG00000197903	<i>H2BC12</i>	5.06	50.07	-3.24	5.20E-04
ENSG00000182326	<i>C1S</i>	74.10	713.33	-3.24	6.19E-05
ENSG00000233381	<i>AK4P3</i>	0.19	1.78	-3.24	1.99E-02
ENSG00000141540	<i>TTYH2</i>	1.38	13.54	-3.24	2.56E-03
ENSG00000253873	<i>PCDHGA11</i>	0.38	3.54	-3.24	1.68E-02
ENSG00000185291	<i>IL3RA</i>	2.53	19.12	-3.23	3.17E-02
ENSG00000224081	<i>SLC44A3-AS1</i>	3.90	37.81	-3.23	6.22E-04
ENSG00000119888	<i>EPCAM</i>	0.12	1.45	-3.23	7.46E-03
ENSG00000196104	<i>SPOCK3</i>	0.29	4.15	-3.23	2.73E-02
ENSG00000007174	<i>DNAH9</i>	0.06	0.99	-3.22	1.49E-02
ENSG00000163810	<i>TGM4</i>	0.05	0.86	-3.22	9.34E-03
ENSG00000074276	<i>CDHR2</i>	0.11	1.35	-3.22	3.81E-03
ENSG00000179403	<i>VWA1</i>	3.59	25.20	-3.22	3.76E-02
ENSG00000184678	<i>H2BC21</i>	2.68	25.97	-3.22	5.88E-04
ENSG00000205978	<i>NYNRIN</i>	0.14	1.48	-3.22	1.97E-02
ENSG00000067445	<i>TRO</i>	9.73	27.02	-3.21	4.49E-02
ENSG00000187193	<i>MT1X</i>	16.20	188.84	-3.21	6.54E-03
ENSG00000127507	<i>ADGRE2</i>	2.04	20.71	-3.21	1.04E-02
ENSG00000161681	<i>SHANK1</i>	0.31	1.60	-3.21	4.44E-02
ENSG00000119686	<i>FLVCR2</i>	1.97	11.05	-3.21	1.33E-02
ENSG00000180096	<i>SEPTIN1</i>	1.86	17.60	-3.21	3.33E-04
ENSG00000111726	<i>CMAS</i>	28.19	277.62	-3.21	2.82E-04
ENSG00000243056	<i>EIF4EBP3</i>	0.51	4.53	-3.20	8.69E-03
ENSG00000161905	<i>ALOX15</i>	0.09	1.19	-3.20	2.43E-02
ENSG00000184489	<i>PTP4A3</i>	0.15	1.59	-3.20	1.06E-02
ENSG00000071575	<i>TRIB2</i>	35.07	321.81	-3.20	4.63E-04

ENSG00000182472	<i>CAPN12</i>	0.81	4.35	-3.20	1.26E-02
ENSG00000099139	<i>PCSK5</i>	2.26	20.87	-3.20	2.51E-02
ENSG00000147434	<i>CHRNA6</i>	0.47	3.87	-3.20	3.86E-02
ENSG00000053524	<i>MCF2L2</i>	1.02	8.60	-3.20	2.31E-03
ENSG00000151650	<i>VENTX</i>	0.14	1.82	-3.19	7.39E-03
ENSG00000137880	<i>GCHFR</i>	1.09	6.03	-3.19	3.78E-02
ENSG00000145945	<i>FAM50B</i>	0.94	7.64	-3.18	3.07E-03
ENSG00000167077	<i>MEI1</i>	0.26	2.79	-3.17	3.06E-03
ENSG00000142512	<i>SIGLEC10</i>	1.06	10.78	-3.17	3.92E-03
ENSG00000120278	<i>PLEKHG1</i>	1.08	8.73	-3.17	1.36E-03
ENSG00000154262	<i>ABCA6</i>	1.01	10.07	-3.17	5.20E-03
ENSG00000128250	<i>RFPL1</i>	0.18	2.11	-3.16	1.24E-02
ENSG00000141338	<i>ABCA8</i>	4.18	26.04	-3.16	5.63E-03
ENSG00000123700	<i>KCNJ2</i>	0.78	9.99	-3.16	4.58E-02
ENSG00000006555	<i>TTC22</i>	0.17	1.94	-3.16	8.52E-03
ENSG00000119514	<i>GALNT12</i>	1.87	13.91	-3.15	9.95E-04
ENSG00000009950	<i>MLXIPL</i>	0.28	3.89	-3.15	2.82E-02
ENSG00000164591	<i>MYOZ3</i>	0.12	0.96	-3.14	2.11E-02
ENSG00000127252	<i>PLAAT1</i>	0.14	1.12	-3.14	3.53E-02
ENSG00000198453	<i>ZNF568</i>	2.45	22.33	-3.14	5.32E-03
ENSG00000197405	<i>C5AR1</i>	6.31	56.57	-3.14	3.65E-04
ENSG00000136040	<i>PLXNC1</i>	14.24	133.62	-3.14	8.49E-04
ENSG00000113749	<i>HRH2</i>	0.41	2.78	-3.14	3.03E-02
ENSG00000145681	<i>HAPLN1</i>	0.91	7.75	-3.14	3.50E-02
ENSG00000133805	<i>AMPD3</i>	11.84	110.85	-3.13	7.29E-04
ENSG00000006210	<i>CX3CL1</i>	0.24	2.21	-3.13	4.17E-02
ENSG00000074706	<i>IPCEF1</i>	1.20	5.81	-3.13	3.22E-02
ENSG00000137869	<i>CYP19A1</i>	44.32	442.47	-3.13	1.58E-03
ENSG00000250479	<i>CHCHD10</i>	3.89	30.17	-3.13	8.77E-04
ENSG00000135253	<i>KCP</i>	2.96	26.54	-3.13	7.08E-03
ENSG00000172215	<i>CXCR6</i>	0.67	3.51	-3.12	1.44E-02
ENSG00000149922	<i>TBX6</i>	0.09	1.05	-3.12	5.83E-03
ENSG00000109906	<i>ZBTB16</i>	1.06	9.63	-3.12	9.23E-04
ENSG00000161958	<i>FGF11</i>	1.45	13.80	-3.12	4.66E-03
ENSG00000104537	<i>ANXA13</i>	0.50	4.79	-3.11	6.71E-03
ENSG00000116661	<i>FBXO2</i>	0.21	2.52	-3.11	1.89E-02
ENSG00000183914	<i>DNAH2</i>	1.39	14.29	-3.11	2.51E-02
ENSG00000163606	<i>CD200R1</i>	0.07	0.77	-3.11	1.17E-02
ENSG00000162069	<i>BICDL2</i>	0.22	1.80	-3.11	3.43E-02
ENSG00000155093	<i>PTPRN2</i>	1.66	14.42	-3.11	1.71E-03
ENSG00000198553	<i>KCNRG</i>	0.15	0.81	-3.10	3.96E-02
ENSG00000025434	<i>NR1H3</i>	3.99	36.28	-3.10	8.67E-04
ENSG00000148671	<i>ADIRF</i>	0.34	3.27	-3.10	1.39E-02
ENSG00000152661	<i>GJA1</i>	362.47	3131.11	-3.10	6.19E-05
ENSG00000026751	<i>SLAMF7</i>	22.93	160.27	-3.10	1.21E-02
ENSG00000168454	<i>TXNDC2</i>	0.36	3.40	-3.09	2.65E-03
ENSG00000132386	<i>SERPINF1</i>	1.67	14.00	-3.09	2.57E-03
ENSG00000163689	<i>CFAP20DC</i>	2.95	26.11	-3.08	8.99E-04
ENSG00000111348	<i>ARHGDIB</i>	8.13	71.45	-3.08	1.75E-04
ENSG00000167992	<i>VWCE</i>	0.65	5.44	-3.07	5.50E-03
ENSG00000141527	<i>CARD14</i>	3.98	34.52	-3.07	3.22E-04
ENSG00000163661	<i>PTX3</i>	28.20	242.50	-3.07	2.14E-03
ENSG00000168334	<i>XIRP1</i>	0.09	0.86	-3.07	2.69E-02
ENSG00000206432	<i>TMEM200C</i>	0.14	0.78	-3.07	3.90E-02
ENSG00000288649	<i>ACTL10</i>	0.26	1.27	-3.07	2.55E-02
ENSG00000165949	<i>IFI27</i>	6.87	59.34	-3.07	5.41E-04
ENSG00000121552	<i>CSTA</i>	1.21	7.17	-3.07	2.09E-02
ENSG00000100027	<i>YPEL1</i>	1.30	10.11	-3.06	3.36E-03

ENSG00000164199	<i>ADGRV1</i>	2.84	18.35	-3.06	3.88E-03
ENSG00000135914	<i>HTR2B</i>	0.29	2.75	-3.06	1.43E-02
ENSG00000161929	<i>SCIMP</i>	1.17	8.76	-3.06	1.19E-02
ENSG00000090238	<i>YPEL3</i>	6.20	47.99	-3.06	2.90E-03
ENSG00000198673	<i>TAFA2</i>	1.35	9.50	-3.05	2.92E-03
ENSG00000162944	<i>RFTN2</i>	0.83	5.28	-3.05	1.59E-02
ENSG00000143554	<i>SLC27A3</i>	0.81	6.41	-3.05	1.86E-02
ENSG00000170899	<i>GSTA4</i>	13.27	110.28	-3.05	1.58E-04
ENSG00000166394	<i>CYB5R2</i>	0.85	4.09	-3.04	2.72E-02
ENSG00000162882	<i>HAAO</i>	0.22	2.02	-3.04	5.83E-03
ENSG00000241404	<i>EGFL8</i>	0.18	1.52	-3.04	2.90E-02
ENSG00000005187	<i>ACSM3</i>	3.43	26.39	-3.03	3.75E-03
ENSG00000172201	<i>ID4</i>	13.91	86.00	-3.03	8.23E-03
ENSG00000002587	<i>HS3ST1</i>	1.38	6.79	-3.03	1.49E-02
ENSG00000197928	<i>ZNF677</i>	1.23	10.40	-3.03	2.51E-03
ENSG00000290758		0.36	2.48	-3.03	1.58E-02
ENSG00000124334	<i>IL9R</i>	0.16	1.19	-3.03	3.00E-02
ENSG00000106178	<i>CCL24</i>	0.22	1.90	-3.02	1.24E-02
ENSG00000112137	<i>PHACTR1</i>	8.86	71.38	-3.02	3.34E-03
ENSG00000166126	<i>AMN</i>	0.27	1.16	-3.02	4.97E-02
ENSG00000165895	<i>ARHGAP42</i>	20.40	172.90	-3.02	1.70E-04
ENSG00000037280	<i>FLT4</i>	0.50	3.85	-3.01	3.60E-03
ENSG00000244617	<i>ASPRV1</i>	0.17	1.91	-3.01	1.37E-02
ENSG00000212864	<i>RNF208</i>	2.48	20.59	-3.01	2.40E-03
ENSG00000188559	<i>RALGAPA2</i>	10.90	92.11	-3.01	6.19E-04
ENSG00000153303	<i>FRMD1</i>	0.03	0.60	-3.00	5.65E-03
ENSG00000158769	<i>F11R</i>	7.62	61.10	-3.00	4.43E-04
ENSG00000266094	<i>RASSF5</i>	5.98	44.91	-2.99	1.34E-03
ENSG00000274933	<i>TBC1D3I</i>	0.20	0.99	-2.99	3.26E-02
ENSG00000174669	<i>SLC29A2</i>	0.91	7.85	-2.99	1.79E-03
ENSG00000139438	<i>FAM222A</i>	2.07	12.20	-2.99	4.49E-03
ENSG00000214575	<i>CPEB1</i>	0.63	4.52	-2.99	1.05E-02
ENSG00000142185	<i>TRPM2</i>	4.49	33.71	-2.99	2.86E-03
ENSG00000067992	<i>PDK3</i>	10.26	68.40	-2.99	7.90E-04
ENSG00000196136	<i>SERPINA3</i>	1.59	10.98	-2.98	6.01E-03
ENSG00000138449	<i>SLC40A1</i>	9.03	67.37	-2.98	6.93E-03
ENSG00000081041	<i>CXCL2</i>	5.24	29.35	-2.97	2.82E-02
ENSG00000221970	<i>OR2A1</i>	0.17	1.27	-2.97	1.55E-02
ENSG00000168477	<i>TNXB</i>	0.87	6.54	-2.97	8.81E-03
ENSG00000115602	<i>IL1RL1</i>	0.76	5.95	-2.97	5.75E-03
ENSG00000184261	<i>KCNK12</i>	0.18	1.78	-2.96	7.82E-03
ENSG00000243422	<i>RPL23AP49</i>	0.16	1.15	-2.96	2.00E-02
ENSG00000142621	<i>FHAD1</i>	0.35	2.59	-2.96	1.04E-02
ENSG00000118308	<i>IRAG2</i>	1.19	10.03	-2.95	2.78E-03
ENSG00000100092	<i>SH3BP1</i>	6.71	35.52	-2.95	4.29E-03
ENSG00000140749	<i>IGSF6</i>	0.42	3.78	-2.95	8.04E-03
ENSG00000111728	<i>ST8SIA1</i>	0.91	7.54	-2.95	2.72E-03
ENSG00000165917	<i>RAPSN</i>	0.20	1.73	-2.94	4.73E-02
ENSG00000290387	<i>SORD2P</i>	1.55	10.93	-2.94	3.43E-03
ENSG00000135547	<i>HEY2</i>	0.85	3.16	-2.93	3.85E-02
ENSG00000286237	<i>ARMCX5-GPRASP2</i>	0.32	2.04	-2.93	3.92E-02
ENSG00000130164	<i>LDLR</i>	217.04	1656.01	-2.93	1.10E-04
ENSG00000137101	<i>CD72</i>	0.56	4.55	-2.93	6.10E-03
ENSG00000182557	<i>SPNS3</i>	0.08	0.89	-2.93	1.01E-02
ENSG00000182983	<i>ZNF662</i>	0.72	5.85	-2.93	3.58E-03
ENSG00000171840	<i>NINJ2</i>	0.29	1.98	-2.92	1.84E-02
ENSG00000146094	<i>DOK3</i>	5.55	30.71	-2.91	3.01E-03
ENSG00000256235	<i>SMIM3</i>	9.14	67.78	-2.91	2.01E-03

ENSG00000165376	<i>CLDN2</i>	0.77	4.30	-2.90	1.03E-02
ENSG00000156966	<i>B3GNT7</i>	1.18	11.42	-2.90	2.81E-02
ENSG00000197748	<i>CFAP43</i>	0.06	0.75	-2.90	6.49E-03
ENSG00000069399	<i>BCL3</i>	12.81	88.68	-2.89	1.76E-04
ENSG00000277149	<i>TYW1B</i>	0.82	6.42	-2.89	3.82E-02
ENSG00000142661	<i>MYOM3</i>	0.38	3.40	-2.89	9.29E-03
ENSG00000140470	<i>ADAMTS17</i>	0.31	2.74	-2.89	6.24E-03
ENSG00000055163	<i>CYFIP2</i>	12.47	77.09	-2.89	8.05E-04
ENSG00000125384	<i>PTGER2</i>	3.45	23.83	-2.89	8.44E-03
ENSG00000187764	<i>SEMA4D</i>	8.50	61.98	-2.89	3.96E-03
ENSG00000197837	<i>H4-16</i>	0.56	3.33	-2.89	3.03E-02
ENSG00000176681	<i>LRRC37A</i>	0.35	2.83	-2.88	3.73E-03
ENSG00000196724	<i>ZNF418</i>	0.25	2.04	-2.88	9.84E-03
ENSG00000073067	<i>CYP2W1</i>	1.07	9.32	-2.88	1.28E-02
ENSG00000290706	<i>FAM238C</i>	0.32	2.74	-2.88	4.92E-03
ENSG00000107518	<i>ATRNL1</i>	11.43	91.92	-2.88	1.32E-03
ENSG00000290958		0.73	6.06	-2.88	4.16E-03
ENSG00000143674	<i>MAP3K21</i>	0.89	4.66	-2.88	1.76E-02
ENSG00000150995	<i>ITPR1</i>	30.00	227.17	-2.87	4.98E-04
ENSG00000118292	<i>C1orf54</i>	0.67	5.76	-2.87	1.75E-02
ENSG00000170500	<i>LONRF2</i>	6.21	37.76	-2.86	1.19E-02
ENSG00000141068	<i>KSR1</i>	70.08	500.80	-2.86	7.13E-04
ENSG00000213445	<i>SIPA1</i>	16.74	96.82	-2.86	8.22E-04
ENSG00000184557	<i>SOCS3</i>	20.38	166.90	-2.85	3.66E-03
ENSG00000142494	<i>SLC47A1</i>	25.12	196.70	-2.85	6.79E-04
ENSG00000163959	<i>SLC51A</i>	1.55	9.61	-2.85	2.48E-03
ENSG00000169047	<i>IRS1</i>	21.59	140.42	-2.85	2.93E-04
ENSG00000106868	<i>SUSD1</i>	7.23	52.27	-2.85	2.90E-04
ENSG00000102057	<i>KCND1</i>	0.49	3.74	-2.85	4.18E-02
ENSG00000105650	<i>PDE4C</i>	0.36	2.79	-2.84	6.43E-03
ENSG00000215845	<i>TSTD1</i>	3.85	20.21	-2.84	5.87E-03
ENSG00000064201	<i>TSPAN32</i>	0.86	4.16	-2.84	9.93E-03
ENSG00000175040	<i>CHST2</i>	3.46	23.67	-2.84	5.05E-03
ENSG00000163013	<i>FBXO41</i>	3.99	11.94	-2.84	3.91E-02
ENSG00000154217	<i>PITPNC1</i>	2.76	19.94	-2.84	2.04E-03
ENSG00000118514	<i>ALDH8A1</i>	0.62	3.29	-2.84	1.08E-02
ENSG00000123358	<i>NR4A1</i>	8.31	50.62	-2.83	5.94E-04
ENSG00000138623	<i>SEMA7A</i>	94.01	622.77	-2.83	5.62E-04
ENSG00000184060	<i>ADAP2</i>	1.66	10.86	-2.83	2.19E-03
ENSG00000102312	<i>PORCN</i>	36.22	270.28	-2.83	2.93E-04
ENSG00000171631	<i>P2RY6</i>	1.97	15.67	-2.82	7.63E-03
ENSG00000162510	<i>MATN1</i>	0.29	1.84	-2.82	2.15E-02
ENSG00000182196	<i>ARL6IP4</i>	28.86	196.49	-2.82	6.99E-05
ENSG00000145824	<i>CXCL14</i>	0.41	3.39	-2.82	1.10E-02
ENSG00000162873	<i>KLHDC8A</i>	1.41	6.66	-2.82	2.67E-02
ENSG00000165810	<i>BTNL9</i>	0.40	2.81	-2.81	5.45E-03
ENSG00000130584	<i>ZBTB46</i>	1.07	4.79	-2.80	2.97E-02
ENSG00000178718	<i>RPP25</i>	1.61	12.51	-2.80	1.20E-02
ENSG00000141497	<i>ZMYND15</i>	1.67	9.07	-2.80	1.28E-02
ENSG00000161643	<i>SIGLEC16</i>	0.99	6.51	-2.80	2.32E-03
ENSG00000059377	<i>TBXAS1</i>	2.63	17.90	-2.80	2.52E-03
ENSG00000285043		6.14	37.68	-2.79	4.71E-03
ENSG00000110799	<i>VWF</i>	3.86	21.61	-2.79	3.57E-02
ENSG00000188305	<i>PEAK3</i>	0.48	2.44	-2.78	2.84E-02
ENSG00000069188	<i>SDK2</i>	0.39	3.41	-2.78	3.13E-02
ENSG00000119508	<i>NR4A3</i>	1.16	7.87	-2.78	3.99E-02
ENSG00000177932	<i>ZNF354C</i>	1.30	7.37	-2.77	9.97E-03
ENSG00000099219	<i>ERMP1</i>	49.10	337.20	-2.77	1.10E-04

ENSG00000076641	<i>PAG1</i>	12.51	83.51	-2.77	3.26E-03
ENSG00000185669	<i>SNAI3</i>	0.58	3.88	-2.76	1.44E-02
ENSG00000198939	<i>ZFP2</i>	0.28	1.51	-2.76	3.50E-02
ENSG00000131686	<i>CA6</i>	0.07	0.72	-2.76	8.67E-03
ENSG00000154645	<i>CHODL</i>	0.21	1.46	-2.76	2.29E-02
ENSG00000027075	<i>PRKCH</i>	17.89	122.40	-2.76	5.77E-04
ENSG00000169291	<i>SHE</i>	0.24	1.93	-2.76	4.90E-03
ENSG00000081138	<i>CDH7</i>	0.45	2.97	-2.75	3.58E-03
ENSG00000099958	<i>DERL3</i>	0.09	0.78	-2.75	1.21E-02
ENSG00000172922	<i>RNASEH2C</i>	22.54	148.96	-2.75	2.71E-04
ENSG00000158747	<i>NBL1</i>	26.73	184.23	-2.74	2.68E-04
ENSG00000142549	<i>IGLON5</i>	0.09	0.83	-2.74	1.08E-02
ENSG00000128594	<i>LRRC4</i>	0.60	3.46	-2.74	1.43E-02
ENSG00000232818	<i>RPS2P32</i>	0.25	1.45	-2.74	2.31E-02
ENSG00000231859		0.11	1.06	-2.73	8.96E-03
ENSG00000102230	<i>PCYT1B</i>	1.06	7.33	-2.73	1.82E-03
ENSG00000187994	<i>RINL</i>	0.70	4.34	-2.73	3.79E-03
ENSG00000290544		0.23	1.58	-2.73	3.88E-02
ENSG00000107562	<i>CXCL12</i>	2.39	16.86	-2.73	4.97E-02
ENSG00000179630	<i>LACC1</i>	13.34	92.18	-2.73	5.75E-04
ENSG00000198890	<i>PRMT6</i>	4.84	28.13	-2.73	2.06E-03
ENSG00000171596	<i>NMUR1</i>	0.34	2.53	-2.72	3.59E-03
ENSG00000102886	<i>GDPD3</i>	0.59	4.08	-2.72	1.08E-02
ENSG00000135604	<i>STX11</i>	2.60	16.68	-2.72	1.49E-02
ENSG00000171223	<i>JUNB</i>	40.65	255.30	-2.72	5.41E-04
ENSG00000125827	<i>TMX4</i>	51.41	384.50	-2.72	7.05E-03
ENSG00000176909	<i>MAMSTR</i>	1.04	6.96	-2.72	1.49E-03
ENSG00000261740	<i>BOLA2-SMG1P6</i>	3.50	23.16	-2.70	7.72E-04
ENSG00000161513	<i>FDXR</i>	41.95	272.88	-2.69	4.00E-04
ENSG00000187554	<i>TLR5</i>	1.10	5.26	-2.69	1.64E-02
ENSG00000132334	<i>PTPRE</i>	12.91	85.31	-2.69	3.68E-03
ENSG00000086730	<i>LAT2</i>	2.94	18.41	-2.69	3.70E-03
ENSG00000152127	<i>MGAT5</i>	57.86	375.02	-2.68	4.90E-03
ENSG00000079435	<i>LIPE</i>	9.66	64.67	-2.68	6.66E-04
ENSG00000136770	<i>DNAJC1</i>	42.24	303.91	-2.68	2.12E-03
ENSG00000111275	<i>ALDH2</i>	14.49	77.98	-2.68	1.73E-03
ENSG00000109667	<i>SLC2A9</i>	0.41	2.40	-2.68	1.41E-02
ENSG00000009765	<i>IYD</i>	0.21	1.15	-2.67	2.94E-02
ENSG00000204514	<i>ZNF814</i>	4.37	26.94	-2.67	7.72E-04
ENSG00000106948	<i>AKNA</i>	14.60	100.64	-2.67	1.00E-03
ENSG00000164241	<i>C5orf63</i>	0.51	3.23	-2.67	6.29E-03
ENSG00000142235	<i>LMTK3</i>	0.45	2.78	-2.67	8.59E-03
ENSG00000164512	<i>ANKRD55</i>	0.25	1.99	-2.67	1.56E-02
ENSG00000111424	<i>VDR</i>	5.05	31.66	-2.67	1.17E-03
ENSG00000229816	<i>DDX50P1</i>	0.12	0.78	-2.66	2.54E-02
ENSG00000171291	<i>ZNF439</i>	2.07	7.70	-2.66	1.57E-02
ENSG00000160888	<i>IER2</i>	16.05	103.50	-2.66	8.62E-04
ENSG00000159314	<i>ARHGAP27</i>	2.13	11.87	-2.66	4.22E-03
ENSG00000188916	<i>INSYN2A</i>	0.33	2.44	-2.66	6.70E-03
ENSG00000100558	<i>PLEK2</i>	12.33	80.37	-2.66	2.56E-04
ENSG00000114268	<i>PFKFB4</i>	15.05	101.56	-2.66	3.39E-03
ENSG00000212907	<i>MT-ND4L</i>	77.42	482.78	-2.65	1.58E-04
ENSG00000286022		0.28	1.81	-2.64	2.46E-02
ENSG00000130508	<i>PXDN</i>	11.53	56.67	-2.64	8.17E-03
ENSG00000125510	<i>OPRL1</i>	0.23	1.17	-2.64	3.79E-02
ENSG00000092421	<i>SEMA6A</i>	5.10	30.30	-2.64	4.76E-03
ENSG00000133101	<i>CCNA1</i>	1.16	7.29	-2.63	4.89E-03
ENSG00000132932	<i>ATP8A2</i>	0.75	4.46	-2.63	4.59E-03

ENSG00000171522	<i>PTGER4</i>	2.45	15.04	-2.63	1.82E-03
ENSG00000197943	<i>PLCG2</i>	4.67	27.69	-2.63	2.26E-03
ENSG00000176076	<i>KCNE5</i>	0.32	1.89	-2.62	4.52E-02
ENSG00000182986	<i>ZNF320</i>	3.04	18.44	-2.62	1.84E-03
ENSG00000187837	<i>H1-2</i>	11.87	75.80	-2.62	5.47E-04
ENSG00000092096	<i>SLC22A17</i>	5.54	27.81	-2.61	9.76E-03
ENSG00000087085	<i>ACHE</i>	0.29	1.96	-2.61	8.55E-03
ENSG00000259205	<i>PRKXP1</i>	0.22	1.60	-2.61	6.18E-03
ENSG00000063587	<i>ZNF275</i>	32.79	205.96	-2.61	2.28E-04
ENSG00000130558	<i>OLFM1</i>	0.15	0.97	-2.61	3.55E-02
ENSG00000132970	<i>WASF3</i>	18.54	107.97	-2.61	1.31E-03
ENSG00000172216	<i>CEBPB</i>	82.82	476.51	-2.61	8.50E-04
ENSG00000059728	<i>MXD1</i>	14.11	95.75	-2.60	2.46E-03
ENSG00000113209	<i>PCDHB5</i>	0.30	1.73	-2.60	4.49E-02
ENSG00000100344	<i>PNPLA3</i>	2.22	14.85	-2.60	1.33E-02
ENSG00000103490	<i>PYCARD</i>	2.11	13.22	-2.59	9.50E-03
ENSG00000139351	<i>SYCP3</i>	0.33	1.81	-2.59	2.83E-02
ENSG00000106560	<i>GIMAP2</i>	3.23	16.26	-2.59	1.98E-02
ENSG00000291025		1.38	8.78	-2.59	7.50E-03
ENSG00000181045	<i>SLC26A11</i>	22.24	123.20	-2.58	2.41E-04
ENSG00000110002	<i>VWA5A</i>	3.77	23.68	-2.58	2.86E-03
ENSG00000102524	<i>TNFSF13B</i>	1.58	10.32	-2.58	1.05E-02
ENSG00000147255	<i>IGSF1</i>	0.13	0.94	-2.58	1.62E-02
ENSG00000101695	<i>RNF125</i>	1.04	6.23	-2.58	1.01E-02
ENSG00000196405	<i>EVL</i>	15.22	93.40	-2.57	4.50E-04
ENSG00000158296	<i>SLC13A3</i>	0.91	4.86	-2.57	1.71E-02
ENSG00000166963	<i>MAP1A</i>	20.02	81.66	-2.57	6.22E-03
ENSG00000054983	<i>GALC</i>	14.65	60.99	-2.57	3.37E-03
ENSG00000254995	<i>STX16-NPEPL1</i>	1.58	6.81	-2.57	8.67E-03
ENSG00000136867	<i>SLC31A2</i>	2.76	16.78	-2.57	1.25E-03
ENSG00000176723	<i>ZNF843</i>	0.27	1.81	-2.57	6.20E-03
ENSG00000171992	<i>SYNPO</i>	43.86	255.45	-2.57	1.57E-03
ENSG00000166387	<i>PPFIBP2</i>	1.33	7.65	-2.56	2.81E-03
ENSG00000164647	<i>STEAP1</i>	1.64	9.51	-2.56	2.96E-03
ENSG00000110446	<i>SLC15A3</i>	11.87	70.10	-2.56	1.78E-03
ENSG00000202474	<i>RNA5SP283</i>	0.13	0.96	-2.55	1.93E-02
ENSG00000143641	<i>GALNT2</i>	225.51	1336.96	-2.55	1.14E-04
ENSG00000105516	<i>DBP</i>	1.69	8.59	-2.55	4.22E-03
ENSG00000188171	<i>ZNF626</i>	1.87	10.08	-2.54	1.29E-02
ENSG00000181274	<i>FRAT2</i>	2.66	15.63	-2.54	3.18E-03
ENSG00000105963	<i>ADAP1</i>	2.96	15.71	-2.53	5.67E-03
ENSG00000173267	<i>SNCG</i>	0.30	2.01	-2.53	6.38E-03
ENSG00000166002	<i>SMCO4</i>	13.83	81.16	-2.53	2.67E-04
ENSG00000142046	<i>TMEM91</i>	4.43	26.11	-2.53	1.08E-03
ENSG00000196154	<i>S100A4</i>	3.63	21.75	-2.53	8.16E-03
ENSG00000176170	<i>SPHK1</i>	6.94	31.18	-2.53	7.52E-03
ENSG00000096996	<i>IL12RB1</i>	0.71	4.46	-2.52	1.47E-02
ENSG00000122862	<i>SRGN</i>	44.11	239.16	-2.51	1.16E-03
ENSG00000214193	<i>SH3D21</i>	10.08	48.61	-2.51	8.24E-04
ENSG00000179163	<i>FUCA1</i>	32.65	204.09	-2.51	1.84E-03
ENSG00000169495	<i>HTRA4</i>	0.56	3.15	-2.51	4.43E-02
ENSG00000116771	<i>AGMAT</i>	0.74	3.69	-2.51	7.57E-03
ENSG00000104833	<i>TUBB4A</i>	17.52	106.79	-2.51	4.27E-03
ENSG00000105649	<i>RAB3A</i>	1.55	8.71	-2.50	5.62E-03
ENSG00000173198	<i>CYSLTR1</i>	0.60	2.74	-2.50	2.77E-02
ENSG00000166347	<i>CYB5A</i>	17.50	97.89	-2.50	1.98E-04
ENSG00000135899	<i>SP110</i>	5.98	36.25	-2.50	3.22E-03
ENSG00000183336	<i>BOLA2</i>	4.44	23.91	-2.50	4.91E-04

ENSG00000235750	<i>KIAA0040</i>	4.52	16.02	-2.50	3.47E-02
ENSG00000101307	<i>SIRPB1</i>	2.27	9.83	-2.49	1.44E-02
ENSG00000139344	<i>AMDHD1</i>	2.24	8.48	-2.49	3.48E-02
ENSG00000148175	<i>STOM</i>	23.33	108.10	-2.49	1.35E-03
ENSG00000114270	<i>COL7A1</i>	15.86	82.64	-2.49	2.17E-04
ENSG00000063438	<i>AHRR</i>	1.68	8.19	-2.48	7.80E-03
ENSG00000151490	<i>PTPRO</i>	0.71	4.79	-2.48	2.29E-02
ENSG00000122188	<i>LAX1</i>	0.65	3.64	-2.48	1.13E-02
ENSG00000179846	<i>NKPD1</i>	0.16	1.01	-2.48	1.29E-02
ENSG00000270276	<i>H4C15</i>	1.77	10.71	-2.48	2.04E-02
ENSG00000124772	<i>CPNE5</i>	0.26	1.69	-2.47	6.67E-03
ENSG00000145730	<i>PAM</i>	122.33	656.74	-2.46	2.03E-04
ENSG00000119866	<i>BCL11A</i>	0.67	3.86	-2.46	5.24E-03
ENSG00000078328	<i>RBFOX1</i>	0.50	2.26	-2.46	2.60E-02
ENSG00000242866	<i>STRC</i>	0.28	1.73	-2.45	3.93E-02
ENSG00000160932	<i>LY6E</i>	34.33	181.87	-2.45	1.45E-03
ENSG00000102003	<i>SYP</i>	0.68	4.23	-2.45	1.12E-02
ENSG00000187912	<i>CLEC17A</i>	0.46	2.65	-2.45	1.42E-02
ENSG00000215861		2.13	11.12	-2.45	2.71E-03
ENSG00000042980	<i>ADAM28</i>	1.09	5.98	-2.44	4.85E-02
ENSG00000213801	<i>ZNF321P</i>	0.50	2.95	-2.44	2.03E-02
ENSG00000214827	<i>MTCP1</i>	2.35	10.63	-2.44	2.97E-02
ENSG00000205534	<i>SMG1P2</i>	0.89	4.89	-2.44	6.88E-03
ENSG00000117480	<i>FAAH</i>	0.86	3.90	-2.43	1.03E-02
ENSG00000130812	<i>ANGPTL6</i>	0.24	1.42	-2.43	9.20E-03
ENSG00000124006	<i>OBSL1</i>	99.31	515.62	-2.43	3.20E-04
ENSG00000153406	<i>NMRAL1</i>	4.86	26.33	-2.43	7.49E-04
ENSG00000137710	<i>RDX</i>	178.83	969.55	-2.42	1.78E-04
ENSG00000070495	<i>JMJD6</i>	19.46	100.01	-2.42	5.47E-04
ENSG00000084734	<i>GCKR</i>	5.08	28.34	-2.41	4.14E-03
ENSG00000179397	<i>CATSPERE</i>	0.23	1.04	-2.41	3.53E-02
ENSG00000286268		0.23	1.17	-2.40	3.91E-02
ENSG00000175938	<i>ORAI3</i>	12.47	65.11	-2.40	3.52E-03
ENSG00000283632	<i>EXOC3L2</i>	0.29	1.31	-2.40	4.63E-02
ENSG00000121577	<i>POPDC2</i>	0.49	2.73	-2.40	4.76E-02
ENSG00000169026	<i>SLC49A3</i>	2.31	9.64	-2.40	1.34E-02
ENSG00000101197	<i>BIRC7</i>	0.19	0.99	-2.40	3.32E-02
ENSG00000132465	<i>JCHAIN</i>	0.29	1.56	-2.39	3.43E-02
ENSG00000251429	<i>AIDAP2</i>	0.23	1.30	-2.38	1.30E-02
ENSG00000282988		0.32	1.63	-2.38	1.93E-02
ENSG00000182013	<i>PNMA8A</i>	2.41	14.21	-2.38	4.07E-02
ENSG00000128917	<i>DLL4</i>	0.35	2.18	-2.38	2.04E-02
ENSG00000184702	<i>SEPTIN5</i>	1.23	6.14	-2.38	8.01E-03
ENSG00000166816	<i>LDHD</i>	1.13	6.77	-2.38	3.59E-02
ENSG00000069493	<i>CLEC2D</i>	8.33	40.41	-2.38	7.83E-03
ENSG00000129646	<i>QRICH2</i>	1.27	5.19	-2.37	2.72E-02
ENSG00000166532	<i>RIMKLB</i>	10.18	52.52	-2.37	1.76E-03
ENSG00000172350	<i>ABCG4</i>	1.25	5.16	-2.37	3.83E-02
ENSG00000115226	<i>FNDC4</i>	49.61	254.02	-2.37	2.98E-04
ENSG00000119986	<i>AVPI1</i>	19.94	104.41	-2.37	5.42E-04
ENSG00000085465	<i>OVGP1</i>	0.46	2.44	-2.37	2.45E-02
ENSG00000183260	<i>ABHD16B</i>	1.72	7.42	-2.37	6.55E-03
ENSG00000188042	<i>ARL4C</i>	16.15	85.82	-2.37	1.53E-03
ENSG00000197863	<i>ZNF790</i>	1.76	8.77	-2.36	1.24E-02
ENSG00000108932	<i>SLC16A6</i>	1.87	9.14	-2.36	1.44E-02
ENSG00000157322	<i>CLEC18A</i>	0.47	2.55	-2.36	1.29E-02
ENSG00000101347	<i>SAMHD1</i>	28.77	151.94	-2.36	2.09E-04
ENSG00000103811	<i>CTSH</i>	10.81	64.79	-2.36	2.45E-02

ENSG00000164120	<i>HPGD</i>	0.85	3.33	-2.36	2.10E-02
ENSG00000291283		0.40	2.12	-2.35	1.60E-02
ENSG00000145088	<i>EAF2</i>	0.51	2.36	-2.35	2.41E-02
ENSG00000173535	<i>TNFRSF10C</i>	0.78	5.09	-2.35	4.00E-02
ENSG00000136235	<i>GPNMB</i>	57.86	306.28	-2.35	1.38E-02
ENSG00000180155	<i>LYNX1</i>	2.60	14.26	-2.35	6.48E-03
ENSG00000154265	<i>ABCA5</i>	13.99	73.03	-2.34	4.43E-04
ENSG00000084710	<i>EFR3B</i>	1.46	6.64	-2.34	1.25E-02
ENSG00000154529	<i>CNTNAP3B</i>	0.11	0.72	-2.34	2.88E-02
ENSG00000055118	<i>KCNH2</i>	0.84	4.52	-2.34	3.51E-03
ENSG00000197283	<i>SYNGAP1</i>	10.56	58.31	-2.34	1.30E-02
ENSG00000088367	<i>EPB41L1</i>	52.79	270.47	-2.33	2.02E-04
ENSG00000257704	<i>INAFM1</i>	6.71	28.01	-2.33	3.15E-03
ENSG00000038945	<i>MSR1</i>	4.33	16.96	-2.33	1.66E-02
ENSG00000180758	<i>GPR157</i>	3.68	19.47	-2.33	5.69E-03
ENSG00000110777	<i>POU2AF1</i>	1.25	6.65	-2.32	1.48E-02
ENSG00000161921	<i>CXCL16</i>	24.76	114.04	-2.32	6.90E-03
ENSG00000254087	<i>LYN</i>	26.37	127.50	-2.32	9.52E-04
ENSG00000101470	<i>TNNC2</i>	0.44	1.94	-2.32	3.54E-02
ENSG00000121858	<i>TNFSF10</i>	3.89	21.81	-2.32	4.10E-02
ENSG00000008517	<i>IL32</i>	18.46	97.08	-2.32	9.73E-04
ENSG00000154783	<i>FGD5</i>	0.33	1.75	-2.32	2.80E-02
ENSG00000133619	<i>KRBA1</i>	4.48	22.62	-2.31	1.78E-03
ENSG00000181458	<i>TMEM45A</i>	33.65	170.42	-2.31	1.66E-04
ENSG00000154134	<i>ROBO3</i>	3.77	22.50	-2.31	3.69E-02
ENSG00000110031	<i>LPXN</i>	6.76	35.39	-2.31	1.97E-03
ENSG00000290793		1.08	5.58	-2.30	3.50E-03
ENSG00000122223	<i>CD244</i>	1.44	6.40	-2.29	1.08E-02
ENSG00000138670	<i>RASGEF1B</i>	2.28	6.49	-2.29	4.40E-02
ENSG00000109927	<i>TECTA</i>	0.57	2.85	-2.29	9.41E-03
ENSG00000176406	<i>RIMS2</i>	2.14	10.85	-2.29	2.14E-03
ENSG00000132677	<i>RHBG</i>	0.27	1.64	-2.29	4.62E-02
ENSG00000170085	<i>SIMC1</i>	12.69	63.64	-2.29	5.19E-04
ENSG00000198440	<i>ZNF583</i>	1.99	10.68	-2.29	1.12E-02
ENSG00000258989		1.40	7.32	-2.29	6.53E-03
ENSG00000117676	<i>RPS6KA1</i>	8.74	41.90	-2.29	1.32E-03
ENSG00000064687	<i>ABCA7</i>	18.85	80.64	-2.29	1.70E-03
ENSG00000165983	<i>PTER</i>	4.54	21.73	-2.29	6.96E-04
ENSG00000165029	<i>ABCA1</i>	35.31	130.97	-2.28	4.03E-02
ENSG00000147155	<i>EBP</i>	49.71	235.53	-2.28	1.04E-03
ENSG00000144331	<i>ZNF385B</i>	0.51	2.90	-2.28	4.25E-02
ENSG00000234518	<i>PTGES3P1</i>	0.38	1.86	-2.28	3.90E-02
ENSG00000164483	<i>SAMD3</i>	2.23	11.10	-2.27	1.35E-02
ENSG00000136002	<i>ARHGEF4</i>	0.36	1.90	-2.27	1.18E-02
ENSG00000183401	<i>CCDC159</i>	4.75	23.82	-2.27	1.30E-03
ENSG00000113302	<i>IL12B</i>	0.30	1.56	-2.27	2.94E-02
ENSG00000135503	<i>ACVR1B</i>	21.34	102.60	-2.27	1.41E-04
ENSG00000105514	<i>RAB3D</i>	2.11	10.59	-2.27	4.69E-03
ENSG00000111886	<i>GABRR2</i>	1.01	5.55	-2.26	2.48E-02
ENSG00000186635	<i>ARAP1</i>	77.09	377.68	-2.26	1.12E-03
ENSG00000285982		0.72	3.86	-2.26	1.58E-02
ENSG00000115461	<i>IGFBP5</i>	91.29	403.73	-2.26	1.60E-03
ENSG00000123689	<i>G0S2</i>	30.45	142.61	-2.25	5.69E-03
ENSG00000188760	<i>TMEM198</i>	3.22	14.12	-2.25	2.46E-03
ENSG00000111674	<i>ENO2</i>	36.39	163.27	-2.25	1.13E-03
ENSG00000169554	<i>ZEB2</i>	52.88	265.83	-2.25	7.40E-04
ENSG00000167680	<i>SEMA6B</i>	33.26	136.80	-2.25	8.46E-03
ENSG00000171408	<i>PDE7B</i>	5.68	17.56	-2.25	1.73E-02

ENSG00000268041	<i>ERFL</i>	0.55	2.75	-2.24	1.07E-02
ENSG00000077238	<i>IL4R</i>	18.57	89.19	-2.24	3.04E-03
ENSG00000171310	<i>CHST11</i>	54.46	214.54	-2.24	4.22E-03
ENSG00000126561	<i>STAT5A</i>	10.53	48.18	-2.24	6.52E-03
ENSG00000204131	<i>NHSL2</i>	1.71	4.58	-2.24	4.61E-02
ENSG00000104290	<i>FZD3</i>	3.53	15.04	-2.24	4.45E-03
ENSG00000126246	<i>IGFLR1</i>	2.79	14.08	-2.24	5.33E-03
ENSG00000127241	<i>MASP1</i>	3.46	18.08	-2.24	2.57E-02
ENSG00000184574	<i>LPAR5</i>	0.30	1.54	-2.24	1.45E-02
ENSG00000196743	<i>GM2A</i>	29.32	140.22	-2.23	1.53E-03
ENSG00000140332	<i>TLE3</i>	20.66	102.20	-2.23	9.03E-04
ENSG00000164440	<i>TXLNB</i>	0.39	2.06	-2.23	3.96E-02
ENSG00000249437	<i>NAIP</i>	0.60	2.31	-2.22	2.75E-02
ENSG00000114023	<i>FAM162A</i>	23.86	110.75	-2.22	2.12E-03
ENSG00000179094	<i>PER1</i>	17.29	63.91	-2.22	5.82E-03
ENSG00000144597	<i>EAFL</i>	33.90	156.01	-2.22	1.89E-04
ENSG00000173867		0.48	2.68	-2.21	2.70E-02
ENSG00000007402	<i>CACNA2D2</i>	0.91	4.17	-2.21	2.60E-02
ENSG00000163898	<i>LIPH</i>	5.07	22.29	-2.21	6.58E-03
ENSG00000143858	<i>SYT2</i>	0.46	2.19	-2.21	1.07E-02
ENSG00000196793	<i>ZNF239</i>	1.34	6.71	-2.21	1.09E-02
ENSG00000149809	<i>TM7SF2</i>	17.51	86.66	-2.21	4.00E-03
ENSG00000033327	<i>GAB2</i>	17.46	83.93	-2.21	1.42E-03
ENSG00000092068	<i>SLC7A8</i>	7.61	30.21	-2.21	6.26E-03
ENSG00000171316	<i>CHD7</i>	13.64	58.06	-2.21	1.43E-03
ENSG00000164733	<i>CTSB</i>	404.83	1940.92	-2.20	1.17E-03
ENSG00000155265	<i>GOLGA7B</i>	1.33	6.45	-2.20	5.56E-03
ENSG00000198417	<i>MT1F</i>	6.17	29.19	-2.20	2.88E-03
ENSG00000110080	<i>ST3GAL4</i>	59.74	275.28	-2.20	1.76E-04
ENSG00000128512	<i>DOCK4</i>	5.12	26.47	-2.20	1.21E-02
ENSG00000112599	<i>GUCA1B</i>	0.85	3.42	-2.20	3.80E-02
ENSG00000182308	<i>DCAF4L1</i>	0.31	1.65	-2.19	2.20E-02
ENSG00000087053	<i>MTMR2</i>	58.21	270.06	-2.19	7.71E-04
ENSG00000059804	<i>SLC2A3</i>	41.00	197.58	-2.19	8.81E-04
ENSG00000185432	<i>METTL7A</i>	5.54	24.56	-2.19	1.08E-03
ENSG00000028277	<i>POU2F2</i>	4.17	12.81	-2.18	1.75E-02
ENSG00000205078	<i>SYCE1L</i>	0.59	2.40	-2.18	3.47E-02
ENSG00000113269	<i>RNF130</i>	25.44	118.15	-2.18	7.89E-04
ENSG00000113742	<i>CPEB4</i>	41.20	159.44	-2.18	3.92E-03
ENSG00000142634	<i>EFHD2</i>	74.53	314.94	-2.18	6.59E-04
ENSG00000150907	<i>FOXO1</i>	11.66	53.11	-2.17	1.48E-03
ENSG00000161955	<i>TNFSF13</i>	6.35	33.60	-2.17	3.37E-02
ENSG00000162711	<i>NLRP3</i>	1.63	7.40	-2.17	1.31E-02
ENSG00000100580	<i>TMED8</i>	28.52	129.72	-2.17	1.70E-04
ENSG00000182600	<i>SNORC</i>	0.82	2.99	-2.16	4.56E-02
ENSG00000104892	<i>KLC3</i>	0.69	2.19	-2.16	3.76E-02
ENSG00000134775	<i>FHOD3</i>	82.28	368.28	-2.16	1.36E-04
ENSG00000128011	<i>LRFN1</i>	1.08	5.05	-2.15	4.50E-03
ENSG00000128016	<i>ZFP36</i>	15.98	78.80	-2.15	5.43E-03
ENSG00000183762	<i>KREMEN1</i>	14.83	71.81	-2.15	4.79E-03
ENSG00000103942	<i>HOMER2</i>	2.89	12.79	-2.15	1.75E-02
ENSG00000166086	<i>JAM3</i>	13.79	39.46	-2.15	1.73E-02
ENSG00000154258	<i>ABCA9</i>	4.59	22.07	-2.15	1.16E-02
ENSG00000257524	<i>ST6GALNAC6</i>	6.70	28.04	-2.14	3.52E-03
ENSG00000176978	<i>DPP7</i>	41.20	170.65	-2.14	6.74E-04
ENSG00000078114	<i>NEBL</i>	49.60	206.45	-2.14	2.55E-03
ENSG00000164398	<i>ACSL6</i>	0.34	1.63	-2.14	1.81E-02
ENSG00000163638	<i>ADAMTS9</i>	17.43	57.95	-2.14	8.69E-03

ENSG00000262333	<i>HNRNPA1P16</i>	0.26	1.20	-2.14	2.45E-02
ENSG00000143603	<i>KCNN3</i>	0.23	1.20	-2.14	2.81E-02
ENSG00000170667	<i>RASA4B</i>	5.47	24.96	-2.14	5.99E-03
ENSG00000132718	<i>SYT11</i>	16.14	61.58	-2.14	1.35E-03
ENSG00000128918	<i>ALDH1A2</i>	2.12	7.20	-2.13	1.38E-02
ENSG00000183307	<i>TMEM121B</i>	0.49	2.52	-2.13	3.64E-02
ENSG00000099338	<i>CATSPERG</i>	0.34	1.77	-2.13	2.45E-02
ENSG00000243742	<i>RPLP0P2</i>	0.64	2.80	-2.13	1.28E-02
ENSG00000180229	<i>HERC2P3</i>	1.07	5.06	-2.13	4.87E-02
ENSG00000282034		16.83	74.68	-2.12	7.13E-04
ENSG00000196653	<i>ZNF502</i>	0.36	1.77	-2.12	1.02E-02
ENSG00000137496	<i>IL18BP</i>	5.28	24.86	-2.12	3.35E-02
ENSG00000075651	<i>PLD1</i>	10.08	45.26	-2.12	1.17E-03
ENSG00000088992	<i>TESC</i>	1.36	6.23	-2.12	1.27E-02
ENSG00000258461		0.96	4.40	-2.12	1.41E-02
ENSG00000170835	<i>CEL</i>	0.45	2.09	-2.12	1.88E-02
ENSG00000126709	<i>IFI6</i>	24.32	111.12	-2.12	1.34E-03
ENSG00000117298	<i>ECE1</i>	315.07	1397.66	-2.12	3.31E-04
ENSG00000170379	<i>TCAF2</i>	5.58	24.75	-2.11	8.67E-03
ENSG00000130830	<i>MPP1</i>	21.52	97.61	-2.11	1.06E-03
ENSG00000233586		0.32	1.41	-2.11	2.76E-02
ENSG00000176533	<i>GNG7</i>	2.79	12.14	-2.11	3.29E-03
ENSG00000166793	<i>YPEL4</i>	0.94	4.43	-2.11	2.72E-02
ENSG00000165795	<i>NDRG2</i>	13.67	58.25	-2.11	1.24E-03
ENSG00000121769	<i>FABP3</i>	20.57	88.25	-2.10	7.54E-03
ENSG00000175344	<i>CHRNA7</i>	1.56	7.64	-2.10	3.02E-02
ENSG00000072310	<i>SREBF1</i>	116.32	489.23	-2.10	5.56E-04
ENSG00000172543	<i>CTSW</i>	1.02	3.99	-2.10	2.53E-02
ENSG00000131037	<i>EPS8L1</i>	1.17	5.16	-2.10	3.46E-02
ENSG00000135702	<i>CHST5</i>	0.26	1.38	-2.10	4.14E-02
ENSG00000103507	<i>BCKDK</i>	20.46	89.61	-2.10	2.65E-04
ENSG00000189221	<i>MAOA</i>	3.77	16.97	-2.10	6.36E-03
ENSG00000285938		1.07	3.66	-2.10	2.53E-02
ENSG00000079257	<i>LXN</i>	12.58	53.74	-2.09	2.78E-04
ENSG00000215788	<i>TNFRSF25</i>	3.47	15.00	-2.09	4.19E-03
ENSG00000099377	<i>HSD3B7</i>	9.81	37.43	-2.09	1.66E-03
ENSG00000196502	<i>SULT1A1</i>	5.55	20.15	-2.09	3.58E-02
ENSG00000290441		0.41	1.63	-2.08	3.56E-02
ENSG00000183230	<i>CTNNA3</i>	0.50	2.31	-2.08	3.12E-02
ENSG00000291237	<i>SOD2</i>	303.07	1387.54	-2.08	1.90E-03
ENSG00000164300	<i>SERINC5</i>	32.89	134.19	-2.08	5.12E-04
ENSG00000170684	<i>ZNF296</i>	0.34	1.46	-2.08	4.64E-02
ENSG00000154760	<i>SLFN13</i>	2.86	10.25	-2.07	4.41E-02
ENSG00000110721	<i>CHKA</i>	9.96	41.74	-2.07	3.68E-04
ENSG00000163947	<i>ARHGEF3</i>	21.84	94.10	-2.07	2.90E-04
ENSG00000196867	<i>ZFP28</i>	3.09	12.14	-2.07	2.55E-03
ENSG00000198467	<i>TPM2</i>	20.73	86.83	-2.07	4.92E-04
ENSG00000072682	<i>P4HA2</i>	34.03	145.45	-2.07	1.95E-04
ENSG00000162496	<i>DHRS3</i>	14.38	61.53	-2.07	3.18E-04
ENSG00000102359	<i>SRPX2</i>	21.59	97.57	-2.06	4.87E-03
ENSG00000064989	<i>CALCRL</i>	1.52	6.67	-2.06	3.58E-02
ENSG00000159733	<i>ZFYVE28</i>	4.09	17.50	-2.06	1.49E-03
ENSG00000137261	<i>KIAA0319</i>	0.55	2.10	-2.06	4.08E-02
ENSG00000263155	<i>MYZAP</i>	9.21	38.28	-2.06	7.00E-03
ENSG00000189367	<i>KIAA0408</i>	0.59	2.69	-2.06	4.04E-02
ENSG00000160271	<i>RALGDS</i>	30.78	124.86	-2.05	1.82E-04
ENSG00000127022	<i>CANX</i>	60.70	349.64	-2.05	4.16E-02
ENSG00000104870	<i>FCGRT</i>	48.77	199.43	-2.05	1.97E-03

ENSG00000124374	<i>PAIP2B</i>	1.27	5.46	-2.05	4.17E-03
ENSG00000159588	<i>CCDC17</i>	1.37	5.54	-2.05	2.66E-02
ENSG00000113369	<i>ARRDC3</i>	34.61	147.75	-2.05	3.75E-03
ENSG00000196338	<i>NLGN3</i>	1.02	3.26	-2.04	2.86E-02
ENSG00000139289	<i>PHLDA1</i>	89.06	385.10	-2.04	7.73E-04
ENSG00000133958	<i>UNC79</i>	0.15	0.76	-2.04	3.55E-02
ENSG00000140263	<i>SORD</i>	33.12	148.87	-2.04	3.75E-03
ENSG00000182183	<i>SHISAL2A</i>	0.92	3.45	-2.03	3.55E-02
ENSG00000153944	<i>MSI2</i>	62.61	256.27	-2.03	4.09E-04
ENSG00000185869	<i>ZNF829</i>	1.37	5.74	-2.03	4.18E-03
ENSG00000165775	<i>FUNDC2</i>	32.95	130.72	-2.03	2.66E-04
ENSG00000178297	<i>TMPRSS9</i>	2.90	11.18	-2.03	3.44E-02
ENSG00000182621	<i>PLCB1</i>	8.47	27.61	-2.03	4.73E-02
ENSG00000244607	<i>CCDC13</i>	0.54	2.02	-2.03	4.32E-02
ENSG00000290461		0.29	1.32	-2.02	1.87E-02
ENSG00000160282	<i>FTCD</i>	0.43	1.75	-2.02	2.86E-02
ENSG00000102409	<i>BEX4</i>	12.52	53.15	-2.02	9.80E-04
ENSG00000118369	<i>USP35</i>	14.78	63.80	-2.02	2.56E-03
ENSG00000224402	<i>OR6D1P</i>	1.45	6.07	-2.02	5.31E-03
ENSG00000105472	<i>CLEC11A</i>	3.83	12.86	-2.02	4.82E-02
ENSG00000120708	<i>TGFB1</i>	56.76	252.41	-2.02	8.82E-03
ENSG00000134627	<i>PIWIL4</i>	0.88	3.60	-2.01	1.49E-02
ENSG00000290680		1.06	3.82	-2.01	2.46E-02
ENSG00000187037	<i>GPR141</i>	0.77	3.45	-2.01	4.19E-02
ENSG00000064547	<i>LPAR2</i>	2.13	8.72	-2.01	1.88E-02
ENSG00000168743	<i>NPNT</i>	0.66	2.40	-2.01	2.21E-02
ENSG00000105835	<i>NAMPT</i>	176.56	698.75	-2.00	9.59E-03
ENSG00000144040	<i>SFXN5</i>	12.90	41.83	-2.00	9.29E-03
ENSG00000197043	<i>ANXA6</i>	87.14	349.07	-2.00	1.37E-04
ENSG00000185070	<i>FLRT2</i>	37.97	152.93	-2.00	2.33E-03
ENSG00000162144	<i>CYB561A3</i>	54.17	219.12	-2.00	5.99E-04
ENSG00000127311	<i>HELB</i>	1.52	6.01	-2.00	8.82E-03
ENSG00000008513	<i>ST3GAL1</i>	22.45	91.05	-2.00	1.11E-03
ENSG00000267561		0.51	2.04	-2.00	2.78E-02
ENSG00000087237	<i>CETP</i>	0.37	1.54	-2.00	3.07E-02
ENSG00000119326	<i>CTNNAL1</i>	86.63	368.56	-2.00	2.44E-03
ENSG00000198520	<i>ARMH1</i>	0.36	1.76	-2.00	3.87E-02
ENSG00000204219	<i>TCEA3</i>	4.03	16.37	-2.00	2.29E-02
ENSG00000136161	<i>RCBTB2</i>	7.23	28.31	-1.99	2.59E-03
ENSG00000185499	<i>MUC1</i>	5.02	20.09	-1.99	4.18E-03
ENSG00000044446	<i>PHKA2</i>	18.19	68.57	-1.99	3.68E-04
ENSG00000172366	<i>MCRIP2</i>	16.44	54.27	-1.99	2.51E-03
ENSG00000111452	<i>ADGRD1</i>	0.67	2.82	-1.98	4.56E-02
ENSG00000239388	<i>ASB14</i>	0.44	1.75	-1.98	3.86E-02
ENSG00000132801	<i>ZSWIM3</i>	1.92	7.98	-1.98	1.23E-02
ENSG00000176383	<i>B3GNT4</i>	0.43	1.72	-1.98	3.70E-02
ENSG00000163075	<i>CFAP221</i>	0.70	2.48	-1.98	4.41E-02
ENSG00000162804	<i>SNED1</i>	2.55	9.13	-1.98	1.65E-02
ENSG00000167604	<i>NFKBID</i>	2.23	9.72	-1.98	2.19E-02
ENSG00000111837	<i>MAK</i>	0.57	2.38	-1.98	1.25E-02
ENSG00000152689	<i>RASGRP3</i>	2.98	8.48	-1.97	2.10E-02
ENSG00000128045	<i>RASL11B</i>	1.16	4.41	-1.97	9.56E-03
ENSG00000149243	<i>KLHL35</i>	0.72	3.01	-1.97	9.51E-03
ENSG00000056558	<i>TRAF1</i>	7.83	32.02	-1.97	3.61E-03
ENSG00000118503	<i>TNFAIP3</i>	41.33	168.98	-1.97	1.62E-03
ENSG00000139914	<i>FITM1</i>	0.14	0.70	-1.96	3.35E-02
ENSG00000112320	<i>SOBP</i>	3.44	12.72	-1.96	9.33E-03
ENSG00000156804	<i>FBXO32</i>	40.41	128.35	-1.96	8.39E-03

ENSG00000069424	<i>KCNAB2</i>	17.89	68.67	-1.96	3.31E-04
ENSG00000171105	<i>INSR</i>	16.18	65.47	-1.96	8.47E-03
ENSG00000141480	<i>ARRB2</i>	25.89	106.90	-1.95	5.01E-03
ENSG00000011422	<i>PLAUR</i>	43.10	158.30	-1.95	4.58E-03
ENSG00000167874	<i>TMEM88</i>	0.60	2.15	-1.95	1.96E-02
ENSG00000228672	<i>PROB1</i>	2.12	8.26	-1.95	6.62E-03
ENSG00000100292	<i>HMOX1</i>	40.14	160.13	-1.94	1.82E-03
ENSG00000221955	<i>SLC12A8</i>	69.43	270.87	-1.94	3.51E-04
ENSG00000160404	<i>TOR2A</i>	7.19	25.93	-1.94	9.88E-04
ENSG00000135272	<i>MDFIC</i>	54.39	215.22	-1.94	5.88E-04
ENSG00000170293	<i>CMTM8</i>	3.33	13.54	-1.94	2.52E-02
ENSG00000182836	<i>PLCXD3</i>	1.72	6.82	-1.93	7.87E-03
ENSG00000162407	<i>PLPP3</i>	28.03	108.97	-1.93	3.84E-04
ENSG00000140993	<i>TIGD7</i>	1.29	5.13	-1.93	2.62E-02
ENSG00000173890	<i>GPR160</i>	1.78	7.13	-1.93	6.87E-03
ENSG00000157873	<i>TNFRSF14</i>	9.14	37.27	-1.92	1.13E-02
ENSG00000161509	<i>GRIN2C</i>	5.37	18.45	-1.92	2.35E-02
ENSG00000100336	<i>APOL4</i>	1.19	5.04	-1.92	3.19E-02
ENSG00000163060	<i>TEKT4</i>	0.40	1.70	-1.92	4.11E-02
ENSG00000126767	<i>ELK1</i>	43.71	165.19	-1.92	5.47E-04
ENSG00000052802	<i>MSMO1</i>	210.84	668.08	-1.92	3.64E-02
ENSG00000197768	<i>STPG3</i>	0.79	3.23	-1.91	2.83E-02
ENSG00000080224	<i>EPHA6</i>	0.42	1.78	-1.91	2.22E-02
ENSG00000223547	<i>ZNF844</i>	2.40	9.28	-1.91	3.28E-03
ENSG00000159899	<i>NPR2</i>	4.03	15.52	-1.91	1.86E-03
ENSG00000188603	<i>CLN3</i>	22.77	82.74	-1.91	5.07E-04
ENSG00000089639	<i>GMIP</i>	13.43	48.90	-1.90	4.91E-04
ENSG00000137877	<i>SPTBN5</i>	1.62	5.95	-1.90	9.27E-03
ENSG00000184897	<i>H1-10</i>	41.71	153.13	-1.90	3.51E-04
ENSG00000151726	<i>ACSL1</i>	43.98	167.54	-1.90	4.43E-04
ENSG00000160190	<i>SLC37A1</i>	5.71	21.32	-1.90	1.25E-03
ENSG00000143819	<i>EPHX1</i>	159.07	633.15	-1.90	2.86E-03
ENSG00000114650	<i>SCAP</i>	74.81	272.99	-1.90	5.61E-04
ENSG00000188766	<i>SPRED3</i>	4.38	14.36	-1.90	2.38E-02
ENSG00000182870	<i>GALNT9</i>	1.28	4.96	-1.89	2.45E-02
ENSG00000114948	<i>ADAM23</i>	9.67	37.49	-1.89	5.80E-03
ENSG00000113448	<i>PDE4D</i>	7.86	30.91	-1.89	8.91E-03
ENSG00000108830	<i>RND2</i>	1.08	3.93	-1.89	1.69E-02
ENSG00000154556	<i>SORBS2</i>	26.07	103.15	-1.88	3.93E-03
ENSG00000101187	<i>SLCO4A1</i>	2.02	7.06	-1.88	3.35E-02
ENSG00000108669	<i>CYTH1</i>	27.98	102.42	-1.88	1.51E-03
ENSG00000068366	<i>ACSL4</i>	171.61	654.25	-1.88	9.95E-04
ENSG00000174080	<i>CTSF</i>	7.61	29.26	-1.87	4.73E-02
ENSG00000196358	<i>NTNG2</i>	4.74	13.25	-1.87	2.83E-02
ENSG00000138696	<i>BMPRI1B</i>	4.53	16.32	-1.87	4.71E-03
ENSG00000168646	<i>AXIN2</i>	1.27	4.09	-1.87	2.03E-02
ENSG00000139318	<i>DUSP6</i>	14.14	55.62	-1.86	1.19E-02
ENSG00000181061	<i>HIGD1A</i>	78.00	289.99	-1.86	6.03E-04
ENSG00000088826	<i>SMOX</i>	9.86	40.29	-1.86	1.88E-02
ENSG00000197497	<i>ZNF665</i>	0.85	3.13	-1.86	1.72E-02
ENSG00000178607	<i>ERN1</i>	25.54	88.36	-1.86	8.32E-04
ENSG00000164096	<i>C4orf3</i>	53.64	185.60	-1.86	5.80E-04
ENSG00000113916	<i>BCL6</i>	35.31	135.96	-1.86	3.37E-03
ENSG00000157214	<i>STEAP2</i>	3.32	12.03	-1.86	7.46E-03
ENSG00000104518	<i>GSDMD</i>	13.48	47.80	-1.86	1.12E-03
ENSG00000111913	<i>RIPOR2</i>	9.38	34.56	-1.86	7.99E-04
ENSG00000100504	<i>PYGL</i>	18.09	66.96	-1.85	4.47E-04
ENSG00000108175	<i>ZMIZ1</i>	142.47	499.12	-1.85	9.23E-04

ENSG00000124635	<i>H2BC11</i>	0.61	2.54	-1.85	3.75E-02
ENSG00000290578		0.98	3.93	-1.85	4.29E-02
ENSG00000163932	<i>PRKCD</i>	19.86	74.83	-1.85	4.43E-03
ENSG00000183287	<i>CCBE1</i>	44.13	161.57	-1.85	3.02E-04
ENSG00000116544	<i>DLGAP3</i>	0.20	0.87	-1.85	3.97E-02
ENSG00000102271	<i>KLHL4</i>	80.90	301.18	-1.85	1.33E-03
ENSG00000205129	<i>C4orf47</i>	0.95	3.95	-1.85	3.92E-02
ENSG00000156860	<i>FBRS</i>	35.08	128.44	-1.85	2.94E-04
ENSG00000139597	<i>N4BP2L1</i>	3.83	13.79	-1.85	1.81E-02
ENSG00000205629	<i>LCMT1</i>	10.89	40.45	-1.84	3.45E-03
ENSG00000166313	<i>APBB1</i>	11.56	32.93	-1.84	7.49E-03
ENSG00000130202	<i>NECTIN2</i>	93.98	332.54	-1.84	5.75E-04
ENSG00000125869	<i>LAMP5</i>	0.69	2.13	-1.84	3.78E-02
ENSG00000156869	<i>FRRS1</i>	15.58	45.78	-1.84	6.95E-03
ENSG00000160796	<i>NBEAL2</i>	27.92	95.83	-1.84	1.09E-02
ENSG00000163975	<i>MELTF</i>	17.30	53.38	-1.83	6.48E-03
ENSG00000127418	<i>FGFRL1</i>	38.49	135.32	-1.83	7.71E-04
ENSG00000104093	<i>DMXL2</i>	40.39	151.15	-1.83	1.87E-03
ENSG00000176928	<i>GCNT4</i>	1.48	5.45	-1.83	1.07E-02
ENSG00000054654	<i>SYNE2</i>	48.93	172.76	-1.82	1.77E-03
ENSG00000178700	<i>DHFR2</i>	3.68	13.38	-1.82	3.48E-03
ENSG00000072818	<i>ACAP1</i>	3.77	10.68	-1.82	2.24E-02
ENSG00000185404	<i>SP140L</i>	13.51	47.58	-1.82	5.26E-04
ENSG00000117791	<i>MTARC2</i>	15.93	60.11	-1.82	6.05E-03
ENSG00000290816		3.25	12.42	-1.82	2.04E-02
ENSG00000177380	<i>PPFIA3</i>	3.25	11.04	-1.82	1.24E-02
ENSG00000104763	<i>ASAH1</i>	103.03	370.10	-1.82	9.95E-04
ENSG00000149925	<i>ALDOA</i>	545.97	1928.02	-1.81	2.49E-04
ENSG00000125354	<i>SEPTIN6</i>	20.80	73.69	-1.81	5.53E-03
ENSG00000127948	<i>POR</i>	53.36	187.00	-1.81	2.93E-04
ENSG00000164125	<i>GASK1B</i>	133.70	402.39	-1.81	1.30E-02
ENSG00000261052	<i>SULT1A3</i>	5.08	17.88	-1.81	3.65E-03
ENSG00000141469	<i>SLC14A1</i>	1.48	5.47	-1.81	4.72E-02
ENSG00000163755	<i>HPS3</i>	32.91	125.10	-1.81	4.39E-03
ENSG00000144214	<i>LYG1</i>	0.40	1.36	-1.81	4.44E-02
ENSG00000185862	<i>EVI2B</i>	14.74	59.94	-1.80	2.17E-02
ENSG00000164695	<i>CHMP4C</i>	1.39	3.61	-1.80	4.78E-02
ENSG00000248098	<i>BCKDHA</i>	29.97	105.63	-1.80	5.62E-04
ENSG00000147394	<i>ZNF185</i>	6.71	25.80	-1.80	2.20E-02
ENSG00000160111	<i>CPAMD8</i>	0.94	3.37	-1.80	4.07E-02
ENSG00000125772	<i>GPCPD1</i>	26.81	98.02	-1.80	2.66E-03
ENSG00000126368	<i>NR1D1</i>	7.52	26.55	-1.79	1.76E-02
ENSG00000187243	<i>MAGED4B</i>	4.54	16.67	-1.79	4.07E-02
ENSG00000198908	<i>BHLHB9</i>	1.52	4.17	-1.79	4.95E-02
ENSG00000065989	<i>PDE4A</i>	4.91	14.75	-1.79	1.72E-02
ENSG00000181744	<i>DIPK2A</i>	21.29	70.73	-1.79	1.12E-03
ENSG00000146021	<i>KLHL3</i>	14.03	52.07	-1.79	6.20E-03
ENSG00000247595	<i>SPTY2D1OS</i>	0.28	1.12	-1.78	3.10E-02
ENSG00000180509	<i>KCNE1</i>	0.99	3.35	-1.78	4.05E-02
ENSG00000139890	<i>REM2</i>	0.37	1.34	-1.77	3.39E-02
ENSG00000121310	<i>ECHDC2</i>	21.02	73.80	-1.77	1.68E-03
ENSG00000058668	<i>ATP2B4</i>	252.46	850.90	-1.77	1.11E-03
ENSG00000134070	<i>IRAK2</i>	5.30	20.47	-1.77	2.73E-02
ENSG00000228696	<i>ARL17B</i>	2.10	5.66	-1.77	4.94E-02
ENSG00000119684	<i>MLH3</i>	9.73	32.02	-1.77	1.82E-03
ENSG00000156858	<i>PRR14</i>	12.09	42.63	-1.77	2.59E-03
ENSG00000184254	<i>ALDH1A3</i>	13.17	49.26	-1.77	1.02E-02
ENSG00000188372	<i>ZP3</i>	0.81	3.07	-1.77	4.96E-02

ENSG00000198873	<i>GRK5</i>	18.10	63.33	-1.76	2.01E-03
ENSG00000267318		0.22	0.90	-1.76	4.97E-02
ENSG00000099337	<i>KCNK6</i>	10.25	27.88	-1.76	3.99E-02
ENSG00000181029	<i>TRAPPC5</i>	24.56	78.88	-1.76	8.50E-04
ENSG00000283426	<i>SMBD1P</i>	0.72	2.34	-1.75	4.78E-02
ENSG00000104332	<i>SFRP1</i>	17.86	64.07	-1.75	9.20E-03
ENSG00000183621	<i>ZNF438</i>	4.62	17.58	-1.75	4.04E-02
ENSG00000140443	<i>IGF1R</i>	61.20	166.62	-1.75	1.16E-02
ENSG00000102349	<i>KLF8</i>	1.65	5.45	-1.75	2.07E-02
ENSG00000132535	<i>DLG4</i>	12.29	41.93	-1.75	3.14E-03
ENSG00000186088	<i>GSAP</i>	14.72	53.93	-1.75	7.43E-03
ENSG00000129167	<i>TPH1</i>	0.66	2.58	-1.75	4.36E-02
ENSG00000089847	<i>ANKRD24</i>	0.91	3.05	-1.75	3.29E-02
ENSG00000101849	<i>TBL1X</i>	73.54	244.08	-1.75	7.23E-04
ENSG00000120162	<i>MOB3B</i>	1.76	5.98	-1.75	2.98E-02
ENSG00000161642	<i>ZNF385A</i>	9.01	31.38	-1.74	5.23E-03
ENSG00000180739	<i>S1PR5</i>	3.43	12.04	-1.74	1.59E-02
ENSG00000135111	<i>TBX3</i>	4.23	13.61	-1.74	6.70E-03
ENSG00000133985	<i>TTC9</i>	7.54	26.35	-1.74	2.81E-03
ENSG00000174125	<i>TLR1</i>	3.63	13.15	-1.74	2.54E-02
ENSG00000184857	<i>TMEM186</i>	3.56	12.12	-1.74	5.35E-03
ENSG00000137486	<i>ARRB1</i>	20.87	70.08	-1.73	4.60E-04
ENSG00000112406	<i>HECA</i>	22.57	79.29	-1.73	1.05E-02
ENSG00000169955	<i>ZNF747</i>	4.27	13.60	-1.73	4.34E-03
ENSG00000196843	<i>ARID5A</i>	8.21	25.54	-1.73	5.79E-03
ENSG00000243927	<i>MRPS6</i>	19.78	68.07	-1.73	2.45E-03
ENSG00000166432	<i>ZMAT1</i>	7.50	22.24	-1.72	3.70E-02
ENSG00000116852	<i>KIF21B</i>	6.25	21.15	-1.72	6.34E-03
ENSG00000160219	<i>GAB3</i>	4.19	13.84	-1.72	5.30E-03
ENSG00000003402	<i>CFLAR</i>	81.28	275.55	-1.72	1.82E-03
ENSG00000168071	<i>CCDC88B</i>	12.07	44.16	-1.72	1.65E-02
ENSG00000008516	<i>MMP25</i>	3.73	13.22	-1.72	2.32E-02
ENSG00000185909	<i>KLHDC8B</i>	12.06	41.53	-1.71	6.20E-03
ENSG00000129422	<i>MTUS1</i>	13.31	44.51	-1.71	6.19E-03
ENSG00000185345	<i>PRKN</i>	1.97	6.47	-1.71	3.45E-02
ENSG00000069974	<i>RAB27A</i>	32.26	107.55	-1.71	3.94E-04
ENSG00000113389	<i>NPR3</i>	59.27	199.05	-1.71	7.46E-04
ENSG00000185880	<i>TRIM69</i>	4.60	15.72	-1.71	1.48E-02
ENSG00000206077	<i>ZDHHC11B</i>	0.53	1.89	-1.71	3.54E-02
ENSG00000101004	<i>NINL</i>	4.84	16.98	-1.71	1.60E-02
ENSG00000175130	<i>MARCKSL1</i>	28.28	91.38	-1.71	3.14E-04
ENSG00000106415	<i>GLCCI1</i>	4.45	13.97	-1.71	2.06E-02
ENSG00000196387	<i>ZNF140</i>	5.11	16.45	-1.71	2.26E-02
ENSG00000169740	<i>ZNF32</i>	5.00	16.65	-1.71	9.11E-03
ENSG00000256060	<i>TRAPPC2B</i>	2.88	9.19	-1.70	5.57E-03
ENSG00000072071	<i>ADGRL1</i>	8.61	27.68	-1.70	1.41E-03
ENSG00000291156		1.12	3.86	-1.70	2.01E-02
ENSG00000185561	<i>TLCD2</i>	2.62	9.04	-1.70	1.52E-02
ENSG00000184831	<i>APOO</i>	9.46	31.51	-1.70	2.05E-03
ENSG00000198355	<i>PIM3</i>	38.05	115.15	-1.69	1.26E-02
ENSG00000181007	<i>ZFP82</i>	3.47	11.65	-1.69	5.26E-03
ENSG00000281883		0.32	1.13	-1.69	4.64E-02
ENSG00000101489	<i>CELF4</i>	0.38	1.33	-1.69	4.85E-02
ENSG00000185624	<i>P4HB</i>	845.15	2734.98	-1.69	2.90E-04
ENSG00000178115	<i>GOLGA8Q</i>	1.72	5.28	-1.69	4.89E-02
ENSG00000182218	<i>HHIPL1</i>	0.84	2.79	-1.69	2.12E-02
ENSG00000148200	<i>NR6A1</i>	2.15	6.82	-1.69	1.29E-02
ENSG00000083828	<i>ZNF586</i>	3.55	10.53	-1.69	1.12E-02

ENSG00000103496	<i>STX4</i>	28.71	94.03	-1.68	5.24E-04
ENSG00000290792		5.37	17.14	-1.68	3.29E-03
ENSG00000116205	<i>TCEANC2</i>	6.49	21.75	-1.68	7.50E-03
ENSG00000125637	<i>PSD4</i>	11.87	32.20	-1.68	9.32E-03
ENSG00000213793	<i>ZNF888</i>	1.74	5.38	-1.68	2.22E-02
ENSG00000171843	<i>MLLT3</i>	6.70	21.11	-1.68	2.65E-02
ENSG00000198840	<i>MT-ND3</i>	598.32	1921.77	-1.68	4.10E-04
ENSG00000118707	<i>TGIF2</i>	6.44	21.35	-1.67	3.83E-03
ENSG00000132207	<i>SLX1A</i>	19.36	55.66	-1.67	2.55E-03
ENSG00000100906	<i>NFKBIA</i>	50.13	170.31	-1.67	4.56E-03
ENSG00000168675	<i>LDLRAD4</i>	1.50	5.23	-1.67	3.10E-02
ENSG00000170525	<i>PFKFB3</i>	61.59	194.04	-1.67	6.71E-03
ENSG00000221869	<i>CEBPD</i>	24.49	78.51	-1.67	8.80E-03
ENSG00000171488	<i>LRRC8C</i>	12.31	40.27	-1.66	1.77E-03
ENSG00000189120	<i>SP6</i>	1.45	4.74	-1.66	1.48E-02
ENSG00000172803	<i>SNX32</i>	1.59	4.64	-1.65	2.28E-02
ENSG00000184205	<i>TSPYL2</i>	24.14	71.38	-1.65	1.13E-02
ENSG00000204308	<i>RNF5</i>	17.99	55.42	-1.65	8.58E-04
ENSG00000158669	<i>GPAT4</i>	90.33	276.93	-1.65	1.96E-03
ENSG00000169189	<i>NSMCE1</i>	12.08	39.54	-1.65	1.86E-03
ENSG00000115935	<i>WIPF1</i>	34.83	113.88	-1.65	2.32E-03
ENSG00000138433	<i>CIR1</i>	19.98	72.59	-1.65	3.32E-02
ENSG00000147119	<i>CHST7</i>	14.95	45.62	-1.65	2.91E-03
ENSG00000169682	<i>SPNS1</i>	31.11	93.79	-1.65	5.18E-04
ENSG00000128284	<i>APOL3</i>	8.74	28.23	-1.63	6.48E-03
ENSG00000170962	<i>PDGFD</i>	19.80	63.60	-1.63	2.30E-02
ENSG00000006042	<i>TMEM98</i>	9.41	25.49	-1.63	1.03E-02
ENSG00000171606	<i>ZNF274</i>	11.13	35.54	-1.63	6.60E-03
ENSG00000166669	<i>ATF7IP2</i>	7.24	19.59	-1.62	2.08E-02
ENSG00000135049	<i>AGTPBP1</i>	11.88	38.53	-1.62	4.02E-03
ENSG00000100100	<i>PIK3IP1</i>	13.93	42.86	-1.62	6.40E-04
ENSG00000159403	<i>C1R</i>	45.43	145.28	-1.62	1.79E-03
ENSG00000141458	<i>NPC1</i>	109.69	344.91	-1.62	8.90E-04
ENSG00000114784	<i>EIF1B</i>	28.22	92.68	-1.62	9.88E-03
ENSG00000180953	<i>ST20</i>	2.03	6.32	-1.62	1.56E-02
ENSG00000167986	<i>DDB1</i>	228.69	707.05	-1.62	7.71E-04
ENSG00000178537	<i>SLC25A20</i>	12.01	36.17	-1.62	2.75E-03
ENSG00000185000	<i>DGAT1</i>	16.93	47.25	-1.62	4.16E-03
ENSG00000082996	<i>RNF13</i>	31.72	104.16	-1.61	6.71E-03
ENSG00000171813	<i>PWWP2B</i>	9.46	28.94	-1.61	1.48E-03
ENSG00000116991	<i>SIPA1L2</i>	14.51	45.84	-1.61	1.53E-02
ENSG00000150787	<i>PTS</i>	20.77	62.51	-1.61	4.66E-04
ENSG00000079313	<i>REXO1</i>	38.22	115.18	-1.61	1.23E-03
ENSG00000198719	<i>DLL1</i>	2.05	4.92	-1.61	4.83E-02
ENSG00000113657	<i>DPYSL3</i>	464.73	1430.64	-1.61	7.39E-04
ENSG00000135912	<i>TTLL4</i>	15.29	49.33	-1.61	8.32E-03
ENSG00000140548	<i>ZNF710</i>	11.89	35.02	-1.61	1.20E-03
ENSG00000172771	<i>EFCAB12</i>	1.82	4.71	-1.61	4.19E-02
ENSG00000111859	<i>NEDD9</i>	12.20	39.58	-1.61	7.41E-03
ENSG00000100077	<i>GRK3</i>	9.41	29.74	-1.60	1.42E-02
ENSG00000099800	<i>TIMM13</i>	43.32	122.26	-1.60	3.64E-03
ENSG00000132906	<i>CASP9</i>	13.02	41.06	-1.60	2.27E-03
ENSG00000116095	<i>PLEKHA3</i>	18.61	61.43	-1.59	2.83E-02
ENSG00000291155	<i>CT75</i>	0.46	1.56	-1.59	4.89E-02
ENSG00000178980	<i>SELENOW</i>	33.62	96.21	-1.59	2.44E-03
ENSG00000114988	<i>LMAN2L</i>	11.91	36.48	-1.59	1.44E-03
ENSG00000131981	<i>LGALS3</i>	29.79	97.34	-1.59	1.82E-02
ENSG00000174943	<i>KCTD13</i>	12.29	35.61	-1.59	1.90E-03

ENSG00000256683	<i>ZNF350</i>	3.39	9.76	-1.59	8.88E-03
ENSG00000137872	<i>SEMA6D</i>	26.67	85.75	-1.58	6.20E-03
ENSG00000128394	<i>APOBEC3F</i>	4.04	12.15	-1.58	2.31E-02
ENSG00000116285	<i>ERRFI1</i>	73.56	226.43	-1.58	1.22E-03
ENSG00000187624	<i>C17orf97</i>	1.17	3.67	-1.58	2.73E-02
ENSG00000180448	<i>ARHGAP45</i>	29.48	77.89	-1.58	9.48E-03
ENSG00000225871		0.48	1.51	-1.57	4.27E-02
ENSG00000148832	<i>PAOX</i>	1.35	3.65	-1.57	3.63E-02
ENSG00000124570	<i>SERPINB6</i>	69.17	200.69	-1.57	7.46E-03
ENSG00000132003	<i>ZSWIM4</i>	12.61	34.24	-1.57	6.60E-03
ENSG00000164484	<i>TMEM200A</i>	42.55	102.26	-1.57	1.85E-02
ENSG00000089060	<i>SLC8B1</i>	22.52	64.24	-1.57	1.04E-03
ENSG00000109072	<i>VTN</i>	40.03	88.03	-1.57	3.78E-02
ENSG00000100647	<i>SUSD6</i>	33.13	99.67	-1.57	9.14E-04
ENSG00000140740	<i>UQCRC2</i>	95.99	284.22	-1.56	6.62E-04
ENSG00000142102	<i>PGGHG</i>	17.43	53.91	-1.56	9.32E-03
ENSG00000087095	<i>NLK</i>	11.60	36.55	-1.56	8.80E-03
ENSG00000122779	<i>TRIM24</i>	44.75	134.41	-1.56	7.71E-04
ENSG00000197302	<i>KRBOX5</i>	5.95	18.20	-1.55	1.17E-02
ENSG00000198855	<i>FICD</i>	8.75	22.51	-1.55	6.60E-03
ENSG00000244187	<i>TMEM141</i>	20.49	64.75	-1.55	1.20E-02
ENSG00000104660	<i>LEPROTL1</i>	74.09	215.57	-1.55	1.16E-03
ENSG00000168010	<i>ATG16L2</i>	32.69	95.37	-1.55	3.39E-03
ENSG00000061656	<i>SPAG4</i>	10.59	24.41	-1.55	3.61E-02
ENSG00000258405	<i>ZNF578</i>	1.93	5.52	-1.55	1.31E-02
ENSG00000163683	<i>SMIM14</i>	53.64	161.63	-1.54	1.72E-03
ENSG00000119314	<i>PTBP3</i>	78.08	227.42	-1.54	3.43E-04
ENSG00000162636	<i>FAM102B</i>	31.75	94.47	-1.54	7.36E-04
ENSG00000189157	<i>FAM47E</i>	0.91	2.73	-1.54	2.19E-02
ENSG00000179588	<i>ZFPM1</i>	9.83	24.85	-1.54	1.77E-02
ENSG00000186104	<i>CYP2R1</i>	5.45	17.47	-1.54	2.95E-02
ENSG00000156873	<i>PHKG2</i>	14.01	38.03	-1.53	1.95E-03
ENSG00000089127	<i>OAS1</i>	9.37	29.68	-1.53	3.15E-02
ENSG00000198763	<i>MT-ND2</i>	1179.47	3489.94	-1.53	2.26E-03
ENSG00000163328	<i>GPR155</i>	8.33	24.40	-1.53	1.18E-02
ENSG00000149289	<i>ZC3H12C</i>	23.52	67.40	-1.53	2.39E-03
ENSG00000157045	<i>NTAN1</i>	6.16	15.78	-1.53	8.82E-03
ENSG00000165118	<i>C9orf64</i>	4.83	14.62	-1.53	9.45E-03
ENSG00000113161	<i>HMGCR</i>	156.20	488.52	-1.53	1.26E-02
ENSG00000081320	<i>STK17B</i>	55.43	160.40	-1.53	6.91E-04
ENSG00000100147	<i>CCDC134</i>	23.02	55.10	-1.52	1.49E-02
ENSG00000167216	<i>KATNAL2</i>	2.09	6.53	-1.52	3.35E-02
ENSG00000114923	<i>SLC4A3</i>	26.43	79.02	-1.52	2.29E-03
ENSG00000065809	<i>FAM107B</i>	25.87	75.31	-1.52	6.18E-04
ENSG00000113070	<i>HBEGF</i>	6.23	18.19	-1.52	2.21E-02
ENSG00000196372	<i>ASB13</i>	15.49	44.39	-1.52	3.92E-03
ENSG00000143344	<i>RGL1</i>	28.30	81.87	-1.52	7.43E-04
ENSG00000089351	<i>GRAMD1A</i>	48.39	140.51	-1.52	5.84E-04
ENSG00000123560	<i>PLP1</i>	2.26	6.79	-1.52	1.73E-02
ENSG00000096060	<i>FKBP5</i>	57.27	166.67	-1.52	2.33E-03
ENSG00000102144	<i>PGK1</i>	459.87	1313.52	-1.52	3.99E-03
ENSG00000171121	<i>KCNMB3</i>	1.01	3.16	-1.52	4.36E-02
ENSG00000164638	<i>SLC29A4</i>	7.94	23.60	-1.52	1.67E-02
ENSG00000144026	<i>ZNF514</i>	7.85	23.25	-1.52	8.40E-03
ENSG00000122861	<i>PLAU</i>	19.18	59.57	-1.51	2.02E-02
ENSG00000263528	<i>IKBKE</i>	15.62	38.88	-1.51	6.91E-03
ENSG00000106351	<i>AGFG2</i>	15.65	44.03	-1.51	2.83E-02
ENSG00000143158	<i>MPC2</i>	42.50	122.37	-1.51	6.17E-04

ENSG00000054967	<i>RELT</i>	14.26	36.17	-1.51	3.92E-03
ENSG00000166165	<i>CKB</i>	27.90	66.04	-1.50	1.73E-02
ENSG00000160999	<i>SH2B2</i>	2.00	5.11	-1.50	2.32E-02
ENSG00000067066	<i>SP100</i>	36.03	105.42	-1.50	4.92E-03
ENSG00000170485	<i>NPAS2</i>	14.89	44.20	-1.50	1.58E-02
ENSG00000143387	<i>CTSK</i>	6.41	18.70	-1.50	2.64E-02
ENSG00000084070	<i>SMAP2</i>	28.32	80.66	-1.49	7.13E-04
ENSG00000137478	<i>FCHSD2</i>	58.75	168.38	-1.49	9.34E-04
ENSG00000185418	<i>TARS3</i>	7.13	19.66	-1.49	5.56E-03
ENSG00000175470	<i>PPP2R2D</i>	28.45	80.54	-1.49	6.11E-04
ENSG00000181804	<i>SLC9A9</i>	3.46	10.22	-1.49	2.60E-02
ENSG00000290970		1.41	3.72	-1.49	4.25E-02
ENSG00000165389	<i>SPTSSA</i>	35.52	99.20	-1.49	2.86E-03
ENSG00000184922	<i>FMNL1</i>	28.32	82.67	-1.49	2.55E-03
ENSG00000157601	<i>MX1</i>	14.82	48.38	-1.49	4.79E-02
ENSG00000270804		1.00	3.05	-1.48	4.88E-02
ENSG00000145703	<i>IQGAP2</i>	11.22	28.74	-1.48	2.32E-02
ENSG00000104419	<i>NDRG1</i>	59.09	174.50	-1.48	2.80E-02
ENSG00000124098	<i>FAM210B</i>	16.77	48.23	-1.47	4.34E-03
ENSG00000181523	<i>SGSH</i>	68.09	182.19	-1.47	2.38E-03
ENSG00000140264	<i>SERF2</i>	284.77	771.02	-1.47	2.91E-03
ENSG00000142089	<i>IFITM3</i>	88.00	255.93	-1.47	5.96E-03
ENSG00000163703	<i>CRELD1</i>	24.22	66.86	-1.47	7.47E-04
ENSG00000129071	<i>MBD4</i>	43.35	124.85	-1.47	3.74E-03
ENSG00000084764	<i>MAPRE3</i>	16.73	46.40	-1.47	1.38E-03
ENSG00000140199	<i>SLC12A6</i>	19.84	56.90	-1.46	2.90E-03
ENSG00000205517	<i>RGL3</i>	8.98	25.00	-1.46	5.75E-03
ENSG00000204264	<i>PSMB8</i>	5.55	16.14	-1.46	2.62E-02
ENSG00000143067	<i>ZNF697</i>	15.08	43.79	-1.46	6.71E-03
ENSG00000197355	<i>UAP1L1</i>	20.03	51.10	-1.46	2.81E-03
ENSG00000073350	<i>LLGL2</i>	4.75	13.41	-1.46	1.94E-02
ENSG00000196839	<i>ADA</i>	6.10	17.39	-1.46	6.58E-03
ENSG00000168394	<i>TAP1</i>	55.80	164.62	-1.46	1.56E-02
ENSG00000106537	<i>TSPAN13</i>	3.47	8.32	-1.45	3.45E-02
ENSG00000119471	<i>HSDL2</i>	30.30	84.90	-1.45	3.81E-03
ENSG00000068400	<i>GRIPAP1</i>	29.08	81.92	-1.45	1.80E-03
ENSG00000153815	<i>CMIP</i>	53.65	146.30	-1.45	6.71E-04
ENSG00000146278	<i>PNRC1</i>	42.27	113.09	-1.45	4.57E-02
ENSG00000131446	<i>MGAT1</i>	132.49	359.56	-1.45	5.57E-03
ENSG00000004779	<i>NDUFAB1</i>	18.25	49.99	-1.45	7.51E-04
ENSG00000090674	<i>MCOLN1</i>	23.43	56.60	-1.45	8.40E-03
ENSG00000165879	<i>FRAT1</i>	2.51	6.89	-1.45	3.12E-02
ENSG00000105808	<i>RASA4</i>	17.08	44.32	-1.45	3.44E-02
ENSG00000196371	<i>FUT4</i>	5.73	15.52	-1.45	4.02E-03
ENSG00000176658	<i>MYO1D</i>	15.91	36.01	-1.45	1.99E-02
ENSG00000204604	<i>ZNF468</i>	6.83	18.71	-1.45	3.95E-02
ENSG00000213722	<i>DDAH2</i>	5.72	15.72	-1.45	3.37E-02
ENSG00000108352	<i>RAPGEFL1</i>	4.65	12.54	-1.44	2.20E-02
ENSG00000115318	<i>LOXL3</i>	5.39	13.52	-1.44	8.64E-03
ENSG00000103249	<i>CLCN7</i>	98.39	258.26	-1.44	6.20E-03
ENSG00000115525	<i>ST3GAL5</i>	20.38	48.31	-1.44	1.34E-02
ENSG00000135245	<i>HILPDA</i>	7.49	22.55	-1.44	4.80E-02
ENSG00000106799	<i>TGFBR1</i>	40.70	110.24	-1.44	5.93E-04
ENSG00000146232	<i>NFKBIE</i>	13.36	31.09	-1.44	1.65E-02
ENSG00000099365	<i>STX1B</i>	1.65	4.61	-1.44	2.92E-02
ENSG00000198933	<i>TBKBP1</i>	9.89	27.19	-1.44	1.99E-02
ENSG00000124074	<i>ENKD1</i>	3.54	9.59	-1.44	1.33E-02
ENSG00000143891	<i>GALM</i>	12.07	32.41	-1.43	1.91E-03

ENSG00000167395	<i>ZNF646</i>	13.94	32.65	-1.43	5.99E-03
ENSG00000022840	<i>RNF10</i>	102.66	279.43	-1.43	7.77E-04
ENSG00000205336	<i>ADGRG1</i>	48.10	135.94	-1.43	5.40E-03
ENSG00000121104	<i>FAM117A</i>	6.17	17.11	-1.43	8.69E-03
ENSG00000007944	<i>MYLIP</i>	9.93	27.92	-1.43	2.60E-02
ENSG00000179918	<i>SEPHS2</i>	33.65	89.36	-1.43	1.41E-02
ENSG00000107968	<i>MAP3K8</i>	10.85	29.78	-1.42	3.30E-03
ENSG00000173436	<i>MICOS10</i>	38.43	102.70	-1.42	1.58E-03
ENSG00000143382	<i>ADAMTSL4</i>	25.08	55.95	-1.42	4.81E-02
ENSG00000075426	<i>FOSL2</i>	212.26	573.47	-1.42	6.60E-04
ENSG00000122417	<i>ODF2L</i>	10.61	28.61	-1.42	2.89E-03
ENSG00000173588	<i>CEP83</i>	13.13	37.28	-1.42	4.43E-02
ENSG00000291136		11.57	29.74	-1.42	2.49E-03
ENSG00000082212	<i>ME2</i>	62.78	171.21	-1.41	2.28E-03
ENSG00000244274	<i>DBNDD2</i>	6.60	18.08	-1.41	2.28E-02
ENSG00000136147	<i>PHF11</i>	17.30	48.33	-1.41	9.87E-03
ENSG00000072858	<i>SIDT1</i>	1.12	3.09	-1.41	4.00E-02
ENSG00000184613	<i>NELL2</i>	5.94	15.04	-1.41	3.89E-02
ENSG00000168701	<i>TMEM208</i>	27.01	65.98	-1.41	2.76E-03
ENSG00000213853	<i>EMP2</i>	30.87	86.77	-1.41	9.05E-03
ENSG00000181666	<i>ZNF875</i>	12.01	32.24	-1.41	1.70E-03
ENSG00000157350	<i>ST3GAL2</i>	50.48	122.36	-1.41	4.78E-03
ENSG00000183044	<i>ABAT</i>	24.57	57.57	-1.41	1.38E-02
ENSG00000178952	<i>TUFM</i>	75.19	198.81	-1.40	3.86E-04
ENSG00000159208	<i>CIART</i>	2.09	5.40	-1.40	2.74E-02
ENSG00000160752	<i>FDPS</i>	228.75	524.82	-1.40	4.48E-02
ENSG00000149212	<i>SESN3</i>	16.75	44.94	-1.40	1.68E-03
ENSG00000101986	<i>ABCD1</i>	27.19	73.10	-1.40	2.17E-03
ENSG00000137819	<i>PAQR5</i>	7.81	22.50	-1.40	3.77E-02
ENSG00000178096	<i>BOLA1</i>	3.84	9.77	-1.40	1.48E-02
ENSG00000176171	<i>BNIP3</i>	100.82	281.67	-1.39	1.49E-02
ENSG00000138495	<i>COX17</i>	15.66	39.59	-1.39	1.55E-03
ENSG00000130024	<i>PHF10</i>	51.38	131.74	-1.39	1.10E-02
ENSG00000163251	<i>FZD5</i>	8.72	22.97	-1.39	2.19E-02
ENSG00000157617	<i>C2CD2</i>	76.13	192.60	-1.39	9.22E-03
ENSG00000125505	<i>MBOAT7</i>	62.63	172.75	-1.39	1.13E-02
ENSG00000173918	<i>C1QTNF1</i>	16.63	43.39	-1.39	4.47E-03
ENSG00000136169	<i>SETDB2</i>	11.54	33.63	-1.39	4.19E-02
ENSG00000291158	<i>LINC00869</i>	12.17	33.01	-1.38	7.37E-03
ENSG00000226742	<i>HSBP1L1</i>	10.49	29.62	-1.38	2.01E-02
ENSG00000196967	<i>ZNF585A</i>	8.25	22.21	-1.38	1.48E-02
ENSG00000149483	<i>TMEM138</i>	27.13	71.04	-1.38	8.92E-04
ENSG00000269858	<i>EGLN2</i>	56.38	147.00	-1.38	5.26E-04
ENSG00000108179	<i>PPIF</i>	132.15	297.92	-1.38	3.16E-02
ENSG00000229320	<i>KRT8P12</i>	1.88	4.89	-1.38	2.82E-02
ENSG00000150540	<i>HNMT</i>	9.54	25.26	-1.38	5.12E-03
ENSG00000095209	<i>TMEM38B</i>	12.98	35.90	-1.38	1.07E-02
ENSG00000182162	<i>P2RY8</i>	8.32	22.01	-1.37	1.04E-02
ENSG00000116729	<i>WLS</i>	51.16	143.49	-1.37	1.62E-02
ENSG00000101745	<i>ANKRD12</i>	36.56	87.88	-1.37	1.44E-02
ENSG00000166562	<i>SEC11C</i>	22.71	56.89	-1.36	2.59E-03
ENSG00000187049	<i>TMEM216</i>	3.20	8.00	-1.36	4.18E-02
ENSG0000012660	<i>ELOVL5</i>	222.58	592.03	-1.36	5.60E-03
ENSG00000167578	<i>RAB4B</i>	19.09	50.02	-1.36	1.28E-03
ENSG00000185022	<i>MAFF</i>	23.34	61.33	-1.36	3.37E-03
ENSG00000149923	<i>PPP4C</i>	52.43	133.87	-1.36	8.67E-04
ENSG00000106077	<i>ABHD11</i>	10.06	25.13	-1.36	1.39E-02
ENSG00000189077	<i>TMEM120A</i>	22.03	58.59	-1.35	4.83E-03

ENSG00000137038	<i>DMAC1</i>	14.57	38.54	-1.35	3.50E-03
ENSG00000139725	<i>RHOF</i>	8.48	18.97	-1.35	1.41E-02
ENSG00000108469	<i>RECQL5</i>	13.91	34.72	-1.35	3.46E-03
ENSG00000069667	<i>RORA</i>	13.23	34.06	-1.35	4.32E-02
ENSG00000184110	<i>EIF3C</i>	174.71	450.53	-1.35	1.15E-03
ENSG00000160948	<i>VPS28</i>	2.52	6.52	-1.34	2.12E-02
ENSG00000171503	<i>ETFDH</i>	31.13	78.80	-1.34	7.13E-04
ENSG00000136802	<i>LRRC8A</i>	70.37	181.33	-1.34	1.92E-03
ENSG00000111684	<i>LPCAT3</i>	35.54	91.77	-1.34	1.37E-03
ENSG00000102804	<i>TSC22D1</i>	78.74	206.87	-1.34	4.36E-03
ENSG00000198899	<i>MT-ATP6</i>	1053.24	2707.41	-1.34	3.27E-03
ENSG00000054690	<i>PLEKHH1</i>	15.54	34.84	-1.34	2.39E-02
ENSG00000099331	<i>MYO9B</i>	105.61	254.49	-1.34	2.11E-02
ENSG00000132170	<i>PPARG</i>	17.06	45.72	-1.33	1.17E-02
ENSG00000165521	<i>EML5</i>	2.77	7.12	-1.33	4.01E-02
ENSG00000184792	<i>OSBP2</i>	7.23	15.97	-1.33	1.88E-02
ENSG00000196739	<i>COL27A1</i>	11.09	23.95	-1.33	3.79E-02
ENSG00000129675	<i>ARHGEF6</i>	28.22	72.95	-1.33	2.69E-03
ENSG00000119431	<i>HDHD3</i>	11.62	29.00	-1.33	3.39E-03
ENSG00000112715	<i>VEGFA</i>	289.74	722.34	-1.33	1.25E-03
ENSG00000198743	<i>SLC5A3</i>	34.16	84.58	-1.33	7.65E-03
ENSG00000197971	<i>MBP</i>	17.42	44.99	-1.33	2.74E-02
ENSG00000166886	<i>NAB2</i>	33.71	78.55	-1.33	1.46E-02
ENSG00000285901		5.28	12.97	-1.33	3.89E-02
ENSG00000154655	<i>L3MBTL4</i>	3.72	8.87	-1.33	2.31E-02
ENSG00000135932	<i>CAB39</i>	31.32	79.63	-1.33	9.11E-04
ENSG00000161298	<i>ZNF382</i>	3.29	8.18	-1.32	4.11E-02
ENSG00000032444	<i>PNPLA6</i>	67.84	171.01	-1.32	4.16E-03
ENSG00000125629	<i>INSIG2</i>	17.53	45.68	-1.32	1.84E-02
ENSG00000099203	<i>TMED1</i>	27.59	66.97	-1.32	1.30E-03
ENSG00000163686	<i>ABHD6</i>	14.99	38.23	-1.32	1.95E-03
ENSG00000182796	<i>TMEM198B</i>	12.43	31.87	-1.32	3.55E-03
ENSG00000114841	<i>DNAH1</i>	12.14	23.25	-1.32	3.51E-02
ENSG00000188997	<i>KCTD21</i>	13.23	34.42	-1.32	6.02E-03
ENSG00000290927		4.39	10.47	-1.32	1.29E-02
ENSG00000077235	<i>GTF3C1</i>	49.77	126.75	-1.31	2.84E-03
ENSG00000124479	<i>NDP</i>	24.74	62.04	-1.31	3.69E-02
ENSG00000182534	<i>MXRA7</i>	331.48	828.88	-1.31	9.69E-04
ENSG00000197329	<i>PELI1</i>	11.80	31.19	-1.31	4.05E-02
ENSG00000229809	<i>ZNF688</i>	4.28	10.71	-1.31	9.34E-03
ENSG00000173757	<i>STAT5B</i>	54.58	138.67	-1.31	2.57E-03
ENSG00000152484	<i>USP12</i>	39.00	99.02	-1.31	7.45E-03
ENSG00000198189	<i>HSD17B11</i>	28.36	68.77	-1.31	3.43E-02
ENSG00000135452	<i>TSPAN31</i>	19.27	49.42	-1.31	4.51E-03
ENSG00000174705	<i>SH3PXD2B</i>	34.88	90.94	-1.31	1.31E-02
ENSG00000198001	<i>IRAK4</i>	14.31	34.38	-1.30	2.81E-03
ENSG00000053328	<i>METTL24</i>	1.14	2.77	-1.30	4.79E-02
ENSG00000077150	<i>NFKB2</i>	75.16	188.09	-1.30	2.03E-02
ENSG00000147416	<i>ATP6V1B2</i>	90.94	227.47	-1.30	3.13E-03
ENSG00000139178	<i>C1RL</i>	19.44	49.77	-1.30	3.76E-03
ENSG00000164048	<i>ZNF589</i>	6.39	14.98	-1.30	8.96E-03
ENSG00000147894	<i>C9orf72</i>	14.03	36.94	-1.30	3.21E-02
ENSG00000130844	<i>ZNF331</i>	6.00	15.22	-1.30	9.09E-03
ENSG00000149930	<i>TAOK2</i>	37.65	89.43	-1.30	1.93E-03
ENSG00000291159		8.90	22.71	-1.29	1.12E-02
ENSG00000125503	<i>PPP1R12C</i>	77.37	183.48	-1.29	3.80E-03
ENSG00000291100		7.26	17.33	-1.29	2.79E-02
ENSG00000167995	<i>BEST1</i>	13.81	35.05	-1.29	5.01E-03

ENSG00000171700	<i>RGS19</i>	7.17	18.93	-1.29	4.69E-02
ENSG00000103150	<i>MLYCD</i>	12.13	27.56	-1.29	4.66E-03
ENSG00000205138	<i>SDHAF1</i>	5.23	12.51	-1.29	8.57E-03
ENSG00000149577	<i>SIDT2</i>	42.74	108.03	-1.29	8.54E-03
ENSG00000137575	<i>SDCBP</i>	140.56	348.11	-1.29	2.88E-03
ENSG00000072274	<i>TFRC</i>	293.58	762.27	-1.28	1.02E-02
ENSG00000125633	<i>CCDC93</i>	48.70	115.48	-1.28	3.61E-03
ENSG00000008130	<i>NADK</i>	97.74	240.34	-1.28	7.85E-03
ENSG00000101098	<i>RIMS4</i>	2.25	5.70	-1.28	3.37E-02
ENSG00000126860	<i>EVI2A</i>	15.14	40.04	-1.28	3.92E-02
ENSG00000174652	<i>ZNF266</i>	13.30	34.11	-1.28	1.18E-02
ENSG00000122257	<i>RBBP6</i>	35.60	88.82	-1.28	2.81E-03
ENSG00000166949	<i>SMAD3</i>	167.53	395.07	-1.28	1.91E-02
ENSG00000165821	<i>SALL2</i>	6.00	14.98	-1.28	3.40E-02
ENSG00000132635	<i>PCED1A</i>	23.36	55.23	-1.28	1.63E-03
ENSG00000102362	<i>SYTL4</i>	6.40	16.14	-1.28	3.64E-02
ENSG00000109519	<i>GRPEL1</i>	34.03	81.16	-1.28	1.72E-03
ENSG00000070061	<i>ELP1</i>	45.45	112.77	-1.27	6.22E-03
ENSG00000178301	<i>AQP11</i>	9.15	23.63	-1.27	3.95E-02
ENSG00000205085	<i>GARIN1A</i>	2.33	5.87	-1.27	3.00E-02
ENSG00000072401	<i>UBE2D1</i>	16.18	43.46	-1.27	3.63E-02
ENSG00000145020	<i>AMT</i>	3.99	9.71	-1.27	2.66E-02
ENSG00000155189	<i>AGPAT5</i>	14.59	35.73	-1.27	4.27E-02
ENSG00000229833	<i>PET100</i>	10.99	24.76	-1.27	3.57E-02
ENSG00000106992	<i>AK1</i>	34.14	77.82	-1.27	1.35E-02
ENSG00000139508	<i>SLC46A3</i>	47.88	113.62	-1.26	8.11E-03
ENSG00000103356	<i>EARS2</i>	15.86	34.94	-1.26	1.19E-02
ENSG00000169246	<i>NPIPB3</i>	21.25	57.11	-1.26	4.60E-02
ENSG00000178188	<i>SH2B1</i>	34.14	79.97	-1.26	1.87E-03
ENSG00000108509	<i>CAMTA2</i>	40.05	96.80	-1.26	1.82E-02
ENSG00000132819	<i>RBM38</i>	15.95	34.79	-1.26	9.18E-03
ENSG00000070778	<i>PTPN21</i>	41.72	103.31	-1.26	4.52E-03
ENSG00000117410	<i>ATP6V0B</i>	82.01	193.02	-1.26	2.27E-03
ENSG00000177728	<i>TMEM94</i>	63.88	139.69	-1.26	2.88E-02
ENSG00000173926	<i>MARCHF3</i>	30.75	73.79	-1.26	5.81E-03
ENSG00000214435	<i>AS3MT</i>	9.44	23.76	-1.26	1.37E-02
ENSG00000167315	<i>ACAA2</i>	44.44	108.54	-1.26	7.86E-03
ENSG00000184481	<i>FOXO4</i>	9.76	24.05	-1.25	7.03E-03
ENSG00000178104	<i>PDE4DIP</i>	100.04	251.54	-1.25	1.68E-02
ENSG00000158019	<i>BABAM2</i>	29.34	71.04	-1.25	1.14E-02
ENSG00000100644	<i>HIF1A</i>	864.63	2070.99	-1.25	1.08E-03
ENSG00000122971	<i>ACADS</i>	9.49	23.93	-1.25	3.44E-02
ENSG00000147996	<i>CBWD5</i>	17.78	41.13	-1.25	2.59E-03
ENSG00000153485	<i>TMEM251</i>	3.20	7.57	-1.25	3.77E-02
ENSG00000086544	<i>ITPKC</i>	14.55	35.23	-1.25	6.34E-03
ENSG00000112290	<i>WASF1</i>	25.39	60.97	-1.24	1.53E-02
ENSG00000168887	<i>C2orf68</i>	17.33	41.82	-1.24	3.30E-03
ENSG00000232119	<i>MCTS1</i>	12.73	29.30	-1.24	4.98E-03
ENSG00000087157	<i>PGS1</i>	24.86	59.66	-1.24	4.01E-03
ENSG00000001084	<i>GCLC</i>	56.82	133.23	-1.24	8.46E-03
ENSG00000003400	<i>CASP10</i>	5.60	12.97	-1.24	1.95E-02
ENSG00000063180	<i>CA11</i>	5.05	10.64	-1.23	4.83E-02
ENSG00000149932	<i>TMEM219</i>	26.61	64.52	-1.23	1.91E-02
ENSG00000126106	<i>TMEM53</i>	7.01	15.49	-1.23	1.84E-02
ENSG00000081665	<i>ZNF506</i>	9.53	22.43	-1.23	3.99E-03
ENSG00000162086	<i>ZNF75A</i>	7.28	17.20	-1.23	2.60E-02
ENSG00000177946	<i>CENPBD1P</i>	5.20	12.93	-1.23	3.86E-02
ENSG00000181192	<i>DHTKD1</i>	20.62	49.31	-1.23	3.76E-03

ENSG00000026950	<i>BTN3A1</i>	38.74	94.51	-1.23	1.40E-02
ENSG00000075568	<i>TMEM131</i>	71.19	169.97	-1.23	2.86E-03
ENSG00000125388	<i>GRK4</i>	4.36	10.60	-1.23	2.42E-02
ENSG00000163738	<i>MTHFD2L</i>	8.49	21.25	-1.22	3.23E-02
ENSG00000155097	<i>ATP6V1C1</i>	52.54	121.34	-1.22	1.16E-03
ENSG00000134996	<i>OSTF1</i>	18.59	43.65	-1.22	7.36E-03
ENSG00000112297	<i>CRYBG1</i>	29.11	66.74	-1.22	5.08E-03
ENSG00000173020	<i>GRK2</i>	75.36	170.23	-1.22	2.30E-03
ENSG00000290376	<i>HERC2P3</i>	11.33	25.08	-1.21	1.46E-02
ENSG00000196636	<i>SDHAF3</i>	3.90	9.40	-1.21	2.97E-02
ENSG00000010361	<i>FUZ</i>	7.35	17.20	-1.21	2.36E-02
ENSG00000111269	<i>CREBL2</i>	39.37	91.41	-1.21	1.01E-02
ENSG00000135698	<i>MPHOSPH6</i>	26.31	62.09	-1.21	1.38E-02
ENSG00000204310	<i>AGPAT1</i>	24.97	61.22	-1.21	2.18E-02
ENSG00000159023	<i>EPB41</i>	36.11	83.99	-1.21	1.65E-02
ENSG00000255302	<i>EID1</i>	134.43	309.63	-1.21	1.40E-03
ENSG00000290569		4.69	11.05	-1.21	4.77E-02
ENSG00000131748	<i>STARD3</i>	53.33	122.19	-1.20	1.08E-03
ENSG00000290791		3.45	7.90	-1.20	3.23E-02
ENSG00000169087	<i>HSPBAP1</i>	6.26	14.49	-1.20	3.23E-02
ENSG00000162836	<i>ACP6</i>	11.00	26.11	-1.20	2.80E-02
ENSG00000166847	<i>DCTN5</i>	56.49	114.82	-1.20	2.65E-02
ENSG00000068878	<i>PSME4</i>	81.04	190.31	-1.20	5.11E-03
ENSG00000145623	<i>OSMR</i>	156.94	365.53	-1.20	1.98E-03
ENSG00000102547	<i>CAB39L</i>	7.84	17.95	-1.19	2.28E-02
ENSG00000155850	<i>SLC26A2</i>	60.26	138.32	-1.19	9.14E-03
ENSG00000185033	<i>SEMA4B</i>	35.21	82.21	-1.19	2.60E-03
ENSG00000182224	<i>CYB5D1</i>	8.63	20.31	-1.19	3.17E-02
ENSG00000188690	<i>UROS</i>	41.16	95.34	-1.19	1.72E-03
ENSG00000103502	<i>CDIPT</i>	35.46	82.07	-1.19	4.60E-03
ENSG00000058799	<i>YIPF1</i>	16.28	37.82	-1.19	3.09E-03
ENSG00000275074	<i>NUDT18</i>	10.52	22.49	-1.19	2.95E-02
ENSG00000166575	<i>TMEM135</i>	30.18	70.57	-1.19	3.43E-03
ENSG00000142657	<i>PGD</i>	194.54	434.18	-1.19	4.42E-03
ENSG00000173085	<i>COQ2</i>	16.23	38.48	-1.18	7.95E-03
ENSG00000083799	<i>CYLD</i>	82.28	185.71	-1.18	1.36E-03
ENSG00000144935	<i>TRPC1</i>	10.59	22.44	-1.18	2.40E-02
ENSG00000143545	<i>RAB13</i>	105.17	242.10	-1.18	1.01E-02
ENSG00000051009	<i>FHIP1B</i>	23.10	52.83	-1.18	2.33E-03
ENSG00000138496	<i>PARP9</i>	31.30	74.78	-1.18	4.69E-02
ENSG00000169221	<i>TBC1D10B</i>	36.26	80.21	-1.18	3.04E-03
ENSG00000172671	<i>ZFAND4</i>	4.84	11.09	-1.18	4.97E-02
ENSG00000215472	<i>RPL17-C18orf32</i>	20.15	46.49	-1.17	3.63E-03
ENSG00000133872	<i>SARAF</i>	252.38	563.40	-1.17	2.31E-03
ENSG00000163162	<i>RNF149</i>	38.47	87.82	-1.17	3.33E-03
ENSG00000060138	<i>YBX3</i>	127.36	290.64	-1.17	6.76E-03
ENSG00000165494	<i>PCF11</i>	35.84	82.48	-1.17	5.63E-03
ENSG00000197013	<i>ZNF429</i>	5.59	13.11	-1.17	2.80E-02
ENSG00000076662	<i>ICAM3</i>	9.61	21.94	-1.17	1.19E-02
ENSG00000113273	<i>ARSB</i>	21.29	40.86	-1.17	2.01E-02
ENSG00000119950	<i>MXI1</i>	22.97	53.62	-1.17	2.62E-02
ENSG00000167397	<i>VKORC1</i>	55.05	119.70	-1.16	4.17E-03
ENSG00000149311	<i>ATM</i>	64.96	145.88	-1.16	3.64E-03
ENSG00000196776	<i>CD47</i>	93.78	213.44	-1.16	3.44E-03
ENSG00000138111	<i>MFSD13A</i>	5.34	12.40	-1.16	1.76E-02
ENSG00000213928	<i>IRF9</i>	8.83	20.30	-1.16	2.70E-02
ENSG00000079277	<i>MKNK1</i>	26.02	55.51	-1.16	3.79E-03
ENSG00000116679	<i>IVNS1ABP</i>	93.64	212.74	-1.16	6.57E-03

ENSG00000177548	<i>RABEP2</i>	17.98	34.68	-1.16	2.22E-02
ENSG00000099364	<i>FBXL19</i>	17.60	42.03	-1.16	2.98E-02
ENSG00000095794	<i>CREM</i>	16.32	34.79	-1.16	8.70E-03
ENSG00000138439	<i>FAM117B</i>	7.53	16.66	-1.16	1.56E-02
ENSG00000163565	<i>IFI16</i>	103.42	217.86	-1.16	3.78E-02
ENSG00000129667	<i>RHBDF2</i>	22.76	51.57	-1.16	1.31E-02
ENSG00000139636	<i>LMBR1L</i>	23.69	53.31	-1.16	2.49E-03
ENSG00000117616	<i>RSRP1</i>	52.45	120.04	-1.16	9.36E-03
ENSG00000119772	<i>DNMT3A</i>	18.14	38.82	-1.15	4.43E-03
ENSG00000075539	<i>FRYL</i>	38.48	79.79	-1.15	2.56E-02
ENSG00000215305	<i>VPS16</i>	29.25	65.83	-1.15	2.96E-03
ENSG00000135655	<i>USP15</i>	47.92	109.81	-1.15	7.70E-03
ENSG00000120727	<i>PAIP2</i>	58.19	129.74	-1.15	3.13E-03
ENSG00000163344	<i>PMVK</i>	18.19	39.96	-1.15	3.30E-03
ENSG00000141384	<i>TAF4B</i>	3.55	7.48	-1.15	3.12E-02
ENSG00000137806	<i>NDUFAF1</i>	14.48	30.55	-1.15	8.18E-03
ENSG00000131389	<i>SLC6A6</i>	116.99	253.83	-1.15	5.47E-03
ENSG00000169217	<i>CD2BP2</i>	39.57	83.45	-1.15	5.79E-03
ENSG00000176422	<i>SPRYD4</i>	11.11	24.11	-1.15	9.87E-03
ENSG00000100228	<i>RAB36</i>	3.16	6.67	-1.15	3.69E-02
ENSG00000099381	<i>SETD1A</i>	22.45	47.32	-1.15	6.26E-03
ENSG00000140691	<i>ARMC5</i>	8.13	14.87	-1.15	4.81E-02
ENSG00000137094	<i>DNAJB5</i>	15.21	30.13	-1.15	2.11E-02
ENSG00000138185	<i>ENTPD1</i>	16.42	36.49	-1.14	5.98E-03
ENSG00000197147	<i>LRRC8B</i>	25.71	55.84	-1.14	4.16E-03
ENSG00000136717	<i>BIN1</i>	58.17	132.60	-1.14	1.48E-02
ENSG00000168792	<i>ABHD15</i>	7.91	17.87	-1.14	1.18E-02
ENSG00000099250	<i>NRP1</i>	138.49	297.01	-1.14	6.66E-03
ENSG00000205403	<i>CFI</i>	53.57	124.13	-1.14	1.62E-02
ENSG00000181896	<i>ZNF101</i>	6.07	13.49	-1.14	4.91E-02
ENSG00000134255	<i>CEPT1</i>	21.93	50.31	-1.14	1.04E-02
ENSG00000171735	<i>CAMTA1</i>	23.79	51.79	-1.14	4.69E-03
ENSG00000134352	<i>IL6ST</i>	399.30	909.25	-1.14	2.62E-02
ENSG00000011478	<i>QPCTL</i>	16.23	38.10	-1.14	2.70E-02
ENSG00000239713	<i>APOBEC3G</i>	11.11	24.92	-1.14	4.60E-02
ENSG00000157216	<i>SSBP3</i>	37.76	86.64	-1.13	1.35E-02
ENSG00000116704	<i>SLC35D1</i>	41.20	89.11	-1.13	7.38E-03
ENSG00000135828	<i>RNASEL</i>	12.23	26.48	-1.13	6.88E-03
ENSG00000111752	<i>PHC1</i>	23.46	55.17	-1.13	3.54E-02
ENSG00000246922	<i>UBAP1L</i>	4.32	8.98	-1.13	2.59E-02
ENSG00000100348	<i>TXN2</i>	57.20	122.34	-1.13	5.05E-03
ENSG00000120725	<i>SIL1</i>	42.83	94.85	-1.13	1.68E-03
ENSG00000147118	<i>ZNF182</i>	6.84	15.74	-1.13	3.12E-02
ENSG00000111669	<i>TPI1</i>	554.59	1219.94	-1.13	1.53E-03
ENSG00000204220	<i>PFDN6</i>	6.20	13.80	-1.13	2.28E-02
ENSG00000095739	<i>BAMBI</i>	47.03	101.30	-1.13	1.13E-02
ENSG00000183513	<i>COA5</i>	13.61	31.04	-1.13	1.07E-02
ENSG00000006459	<i>KDM7A</i>	17.45	39.56	-1.13	7.47E-03
ENSG00000198888	<i>MT-ND1</i>	1316.64	2854.20	-1.13	2.08E-03
ENSG00000163900	<i>TMEM41A</i>	18.86	40.73	-1.13	4.43E-03
ENSG00000111670	<i>GNPTAB</i>	77.40	159.16	-1.12	1.31E-02
ENSG00000153936	<i>HS2ST1</i>	80.57	174.89	-1.12	2.75E-03
ENSG00000197530	<i>MIB2</i>	48.32	95.28	-1.12	2.61E-02
ENSG00000084444	<i>FAM234B</i>	10.91	21.88	-1.12	1.27E-02
ENSG00000101856	<i>PGRMC1</i>	110.73	244.58	-1.12	3.76E-03
ENSG00000147130	<i>ZMYM3</i>	58.31	127.57	-1.12	5.68E-03
ENSG00000005486	<i>RHBDD2</i>	64.30	139.27	-1.12	1.22E-03
ENSG00000161671	<i>EMC10</i>	117.86	242.66	-1.12	1.84E-02

ENSG00000244119	<i>PDCL3P4</i>	5.44	11.87	-1.12	2.67E-02
ENSG00000075213	<i>SEMA3A</i>	66.24	146.01	-1.11	7.46E-03
ENSG00000135940	<i>COX5B</i>	69.09	150.16	-1.11	1.40E-03
ENSG00000123739	<i>PLA2G12A</i>	27.15	60.35	-1.11	7.97E-03
ENSG00000129636	<i>ITFG1</i>	50.00	106.55	-1.11	1.55E-02
ENSG00000182985	<i>CADM1</i>	10.91	21.94	-1.11	2.10E-02
ENSG00000057252	<i>SOAT1</i>	76.10	169.21	-1.11	7.41E-03
ENSG00000179218	<i>CALR</i>	1031.03	2174.03	-1.11	6.20E-03
ENSG00000127540	<i>UQCR11</i>	67.76	140.16	-1.11	1.96E-02
ENSG00000155256	<i>ZFYVE27</i>	34.93	72.05	-1.11	3.99E-03
ENSG00000083223	<i>TUT7</i>	31.07	70.19	-1.11	1.38E-02
ENSG00000099308	<i>MAST3</i>	11.48	24.08	-1.10	1.32E-02
ENSG00000092020	<i>PPP2R3C</i>	18.09	39.48	-1.10	4.98E-03
ENSG00000103653	<i>CSK</i>	42.52	92.36	-1.10	3.29E-03
ENSG00000183530	<i>PRR14L</i>	29.50	63.54	-1.10	6.26E-03
ENSG00000186222	<i>BLOC1S4</i>	10.80	21.33	-1.10	3.56E-02
ENSG00000159720	<i>ATP6V0D1</i>	71.52	154.14	-1.10	1.32E-03
ENSG00000160014	<i>CALM3</i>	216.49	466.15	-1.10	2.16E-03
ENSG00000164307	<i>ERAP1</i>	73.74	160.27	-1.10	6.39E-03
ENSG00000145979	<i>TBC1D7</i>	9.45	21.03	-1.10	2.05E-02
ENSG00000197948	<i>FCHSD1</i>	20.64	44.24	-1.10	2.55E-03
ENSG00000126777	<i>KTN1</i>	345.40	693.20	-1.10	3.72E-02
ENSG00000100412	<i>ACO2</i>	88.43	196.58	-1.10	1.09E-02
ENSG00000187605	<i>TET3</i>	36.14	81.28	-1.09	1.69E-02
ENSG00000105643	<i>ARRDC2</i>	21.39	42.18	-1.09	1.24E-02
ENSG00000131043	<i>AAR2</i>	35.77	77.36	-1.09	9.93E-03
ENSG00000102921	<i>N4BP1</i>	34.04	74.62	-1.09	1.38E-02
ENSG00000176485	<i>PLAAT3</i>	56.12	117.86	-1.09	4.30E-03
ENSG00000148444	<i>COMMD3</i>	32.70	73.36	-1.09	2.90E-02
ENSG00000169258	<i>GPRIN1</i>	3.84	8.24	-1.09	3.75E-02
ENSG00000213983	<i>AP1G2</i>	42.53	89.55	-1.09	1.95E-03
ENSG00000186376	<i>ZNF75D</i>	9.19	20.04	-1.09	1.02E-02
ENSG00000142669	<i>SH3BGRL3</i>	173.98	371.67	-1.09	1.59E-03
ENSG00000157184	<i>CPT2</i>	21.40	45.68	-1.09	4.67E-03
ENSG00000132541	<i>RIDA</i>	7.78	16.64	-1.09	1.67E-02
ENSG00000169902	<i>TPST1</i>	25.50	55.61	-1.08	1.68E-02
ENSG00000150779	<i>TIMM8B</i>	29.16	59.66	-1.08	5.71E-03
ENSG00000145022	<i>TCTA</i>	19.43	43.06	-1.08	1.94E-02
ENSG00000104812	<i>GYS1</i>	61.73	124.91	-1.08	4.30E-02
ENSG00000179627	<i>ZBTB42</i>	4.78	9.56	-1.08	3.39E-02
ENSG00000118418	<i>HMGN3</i>	41.59	90.41	-1.08	9.88E-03
ENSG00000176953	<i>NFATC2IP</i>	26.02	53.97	-1.08	2.70E-03
ENSG00000142961	<i>MOB3C</i>	13.59	29.82	-1.08	1.75E-02
ENSG00000147010	<i>SH3KBP1</i>	46.50	98.76	-1.08	1.94E-02
ENSG00000131368	<i>MRPS25</i>	24.57	48.00	-1.08	1.41E-02
ENSG00000177628	<i>GBA</i>	59.00	124.87	-1.07	3.31E-03
ENSG00000270170	<i>NCBP2AS2</i>	6.89	14.73	-1.07	2.28E-02
ENSG00000116731	<i>PRDM2</i>	27.80	59.46	-1.07	6.20E-03
ENSG00000213699	<i>SLC35F6</i>	45.74	97.13	-1.07	3.89E-03
ENSG00000235194	<i>PPP1R3E</i>	8.11	17.18	-1.07	1.40E-02
ENSG00000170873	<i>MTSS1</i>	9.06	19.33	-1.07	1.11E-02
ENSG00000103365	<i>GGA2</i>	52.34	95.83	-1.07	4.16E-02
ENSG00000119397	<i>CNTRL</i>	14.82	32.19	-1.07	3.72E-02
ENSG00000111224	<i>PARP11</i>	11.40	24.38	-1.07	3.82E-02
ENSG00000143772	<i>ITPKB</i>	12.52	26.66	-1.06	8.26E-03
ENSG00000126756	<i>UXT</i>	32.39	67.78	-1.06	3.36E-03
ENSG00000178719	<i>GRINA</i>	157.70	337.07	-1.06	6.03E-03
ENSG00000118939	<i>UCHL3</i>	29.12	61.35	-1.06	2.99E-03

ENSG00000034713	<i>GABARAPL2</i>	41.20	86.73	-1.06	6.52E-03
ENSG00000136861	<i>CDK5RAP2</i>	52.04	115.48	-1.06	3.53E-02
ENSG00000176476	<i>SGF29</i>	5.81	12.53	-1.05	3.06E-02
ENSG00000173480	<i>ZNF417</i>	6.56	13.75	-1.05	4.07E-02
ENSG00000052795	<i>FNIP2</i>	36.59	70.43	-1.05	4.33E-02
ENSG00000165527	<i>ARF6</i>	151.00	315.65	-1.05	3.30E-03
ENSG00000168016	<i>TRANK1</i>	46.00	95.94	-1.05	2.06E-03
ENSG00000157600	<i>TMEM164</i>	42.65	88.35	-1.05	8.36E-03
ENSG00000168056	<i>LTBP3</i>	70.21	137.59	-1.05	3.75E-02
ENSG00000138029	<i>HADHB</i>	92.58	194.50	-1.05	7.39E-03
ENSG00000066583	<i>ISOC1</i>	18.09	37.34	-1.05	2.11E-02
ENSG00000197081	<i>IGF2R</i>	364.55	766.58	-1.05	1.04E-02
ENSG00000080031	<i>PTPRH</i>	27.12	56.34	-1.05	1.09E-02
ENSG00000169020	<i>ATP5ME</i>	25.17	47.82	-1.05	2.70E-02
ENSG00000003056	<i>M6PR</i>	101.22	210.66	-1.04	2.72E-03
ENSG00000175895	<i>PLEKHF2</i>	11.87	25.48	-1.04	4.57E-02
ENSG00000197930	<i>ERO1A</i>	71.33	149.48	-1.04	7.83E-03
ENSG00000125454	<i>SLC25A19</i>	6.31	12.58	-1.04	3.63E-02
ENSG00000158985	<i>CDC42SE2</i>	35.50	75.94	-1.04	1.61E-02
ENSG00000141448	<i>GATA6</i>	45.61	92.77	-1.04	5.11E-03
ENSG00000105698	<i>USF2</i>	86.26	179.53	-1.04	1.16E-02
ENSG00000172375	<i>C2CD2L</i>	18.18	33.01	-1.04	3.65E-02
ENSG00000158042	<i>MRPL17</i>	42.49	87.19	-1.04	1.86E-03
ENSG00000086200	<i>IPO11</i>	22.27	49.16	-1.04	4.16E-02
ENSG00000163961	<i>RNF168</i>	18.06	34.85	-1.03	1.57E-02
ENSG00000034677	<i>RNF19A</i>	43.36	91.05	-1.03	7.88E-03
ENSG00000088854	<i>DNAAF9</i>	17.51	36.89	-1.03	3.15E-02
ENSG00000132792	<i>CTNBL1</i>	27.22	56.65	-1.03	1.03E-02
ENSG00000013441	<i>CLK1</i>	60.25	122.03	-1.03	2.70E-02
ENSG00000172594	<i>SMPDL3A</i>	8.93	19.16	-1.03	4.17E-02
ENSG00000131174	<i>COX7B</i>	34.75	71.02	-1.03	1.95E-02
ENSG00000178971	<i>CTC1</i>	20.73	41.91	-1.03	4.73E-03
ENSG00000155115	<i>GTF3C6</i>	33.03	68.80	-1.03	4.88E-03
ENSG00000166024	<i>R3HCC1L</i>	11.54	24.56	-1.03	1.85E-02
ENSG00000198931	<i>APRT</i>	57.40	117.87	-1.03	2.58E-03
ENSG00000277972	<i>CISD3</i>	3.68	7.73	-1.03	4.86E-02
ENSG00000162129	<i>CLPB</i>	19.06	36.07	-1.03	1.42E-02
ENSG00000130669	<i>PAK4</i>	34.81	70.72	-1.03	3.55E-02
ENSG00000164970	<i>FAM219A</i>	39.31	77.64	-1.03	4.16E-03
ENSG00000181924	<i>COA4</i>	31.94	68.90	-1.02	2.68E-02
ENSG00000124191	<i>TOX2</i>	12.80	27.32	-1.02	3.42E-02
ENSG00000103510	<i>KAT8</i>	16.70	34.17	-1.02	7.22E-03
ENSG00000133111	<i>RFXAP</i>	4.37	9.08	-1.02	3.17E-02
ENSG00000198538	<i>ZNF28</i>	9.87	17.66	-1.02	3.39E-02
ENSG00000049239	<i>H6PD</i>	61.39	124.73	-1.02	6.34E-03
ENSG00000145675	<i>PIK3R1</i>	34.65	70.39	-1.02	8.12E-03
ENSG00000138640	<i>FAM13A</i>	19.52	40.24	-1.02	8.38E-03
ENSG00000169241	<i>SLC50A1</i>	26.58	55.46	-1.02	4.27E-02
ENSG00000104635	<i>SLC39A14</i>	196.05	403.72	-1.02	5.85E-03
ENSG00000184634	<i>MED12</i>	39.22	77.80	-1.01	8.59E-03
ENSG00000119705	<i>SLIRP</i>	17.65	35.05	-1.01	1.17E-02
ENSG00000187091	<i>PLCD1</i>	4.89	9.99	-1.01	4.65E-02
ENSG00000173581	<i>CCDC106</i>	12.19	23.52	-1.01	1.56E-02
ENSG00000105339	<i>DENND3</i>	16.49	35.52	-1.01	4.13E-02
ENSG00000291299		12.99	24.83	-1.01	1.62E-02
ENSG00000112304	<i>ACOT13</i>	15.93	33.45	-1.01	3.85E-02
ENSG00000140688	<i>RUSF1</i>	50.09	100.21	-1.01	2.27E-03
ENSG00000163516	<i>ANKZF1</i>	40.79	83.05	-1.01	6.17E-03

ENSG00000111716	<i>LDHB</i>	246.90	497.58	-1.00	1.99E-03
ENSG00000205269	<i>TMEM170B</i>	12.75	25.68	-1.00	1.97E-02
ENSG00000163659	<i>TIPARP</i>	17.22	35.91	-1.00	1.41E-02
ENSG00000169635	<i>HIC2</i>	6.18	11.44	-1.00	3.89E-02
ENSG00000158864	<i>NDUFS2</i>	69.47	138.42	-1.00	8.11E-03
ENSG00000133983	<i>COX16</i>	25.37	49.07	-1.00	6.32E-03
ENSG00000006831	<i>ADIPOR2</i>	38.53	78.56	-1.00	8.28E-03

Table SIII. The normalised expression values (mean $\pm$ SEM) of extremely low-expression glutathione peroxidases (GPX2, GPX4-7).

Gene	DMSO control	1mM dbcAMP	Ethanol control	10 μ M forskolin
GPX2	NA	NA	NA	NA
GPX4	7.96E-05 $\pm$ 1.12E-05	4.56E-05 $\pm$ 3.49E-06	3.77E-05 $\pm$ 5.44E-06	4.29E-05 $\pm$ 4.50E-06
GPX5	2.42E-05 $\pm$ 4.40E-06	1.63E-05 $\pm$ 3.40E-06	3.35E-05 $\pm$ 9.09E-06	1.63E-05 $\pm$ 3.72E-06
GPX6	NA	NA	NA	NA
GPX7	1.36E-05 $\pm$ 7.36E-06	6.66E-06 $\pm$ 2.06E-06	2.31E-05 $\pm$ 4.90E-06	1.35E-05 $\pm$ 1.50E-06

* NA means the mRNA expression of the gene was too low to be detected within 40 PCR cycles; thereby no normalised expression values could be calculated (n = 5).

Table SIV. The genes involved in top 10 Gene Ontology pathways in either KGN cells or primary granulosa cells.

Since the Table SIV is not easy to display in the thesis, it is deposited at Google Drive under the accession link:
https://drive.google.com/drive/folders/1YXAiWFCQhicxgD7g_JhlMGKpVe_Mlu8k?usp=drive_link .

Chapter 3

RNA Sequencing Analysis of Oocyte Maturation from GV to MII Stage in Pig and Human

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Statement of Authorship

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Principal Author

Name of Principal Author (Candidate)	Feng Tang
Contribution to the Paper	Conceptualization, formal analysis, development of method, writing the original draft of the manuscript
Overall percentage (%)	70%
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.
Signature	Date 25/08/2023

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Katja Hummitzsch
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1 **RNA sequencing analysis of oocytes maturation from GV to MII stage in pig and**
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9

ABSTRACT

STUDY QUESTION: What key regulators and pathways drive oocyte maturation from the germinal vesicle (GV) to the metaphase II (MII) stage? Which genes and isoform transcripts are changed during this process? Moreover, are those key regulators required for oocyte maturation conserved in pig and human?

SUMMARY ANSWER: We established a gene expression atlas of pig oocytes from GV and MII stage, identifying the key regulators associated with oocyte maturation processes such as chromosome segregation, oxidative phosphorylation and spindle assembly at both gene and isoform transcript levels.

WHAT IS KNOWN ALREADY: Oocyte maturation involves genes associated with important biological events such as oxidative phosphorylation, spindle formation and chromosome segregation. Understanding how the expression of these genes changes during oocyte maturation is essential to unravel the underlying mechanism of oocyte development. Although the underlying transcriptomic differences between GV and MII oocytes have been studied in different species, no transcriptomic profiles with reliable replicates (≥ 5) had been established so far, especially in large mammals such as the pig. Most importantly, a system-wide analysis of underlying differences especially at isoform transcript level between the two developmental stages of the oocyte or between pig and human oocytes is still lacking.

STUDY DESIGN, SIZE, DURATION: We used ovaries from *Sus scrofa* collected at a local abattoir for the isolation of cumulus oocyte complexes (COCs). Oocytes at three major developmental stages including GV, MII and ‘damaged’ (referring to oocytes without the first polar body after *in vitro* incubation) were collected from fresh COCs or after 42-44h from COCs matured *in vitro*. Five biologically independent collections were performed with 15 oocytes in each stage/group. Those samples were used for RNA isolation, followed by deep RNA sequencing. Besides, a public human oocyte RNA sequencing dataset (GSE164371) was re-analysed in this study to compare with our findings from the pig oocytes.

PARTICIPANTS/MATERIALS, SETTING, METHODS: Follicular fluid including the COC was collected from sow follicles with a size of 5 mm using a vacuum pump. COCs with a uniform cytoplasm and several layers of cumulus cells were separated from the follicular fluid by mouth-pipetting, followed by washing with phosphate buffered saline (PBS) to remove cell debris. For the collection of GV stage oocytes, we removed cumulus cells by

digestion of a subset of fresh COCs with hyaluronidase. Then, the remaining COCs were *in vitro* cultured for 42-44h to induce maturation from GV stage to MII stage. Cumulus cells were again removed with hyaluronidase and the presence of a first polar body was determined by stereo-microscope. Oocytes with a first polar body were classified as ‘MII group’, whereas oocytes lacking a first polar body were classified as ‘damaged’ group. All oocytes were immediately stored at -80°C until preparation for RNA sequencing. Isolated RNA from GV, MII and ‘damaged’ oocytes underwent library preparation using SMART-Seq® HT kit (Takara Bio Inc., Shiga, Japan) and Illumina DNA Prep kit (Illumina, San Diego, USA) followed by deep sequencing. Data processing, quality assessment and bioinformatics analysis were performed using source-software, including FastQC, *Kallisto*, *edgeR*, *limma* and *IsoformSwitchAnalyzeR*, along with network and canonical pathway analysis by IPA as well as enrichment analysis by *clusterProfiler*.

MAIN RESULTS AND THE ROLE OF CHANCE: Several thousand differentially expressed genes (DEGs) were found in both pig and human datasets when the MII oocyte transcriptomes were compared with GV oocyte transcriptomes on gene level. In both species, the most expressed genes in MII oocytes were associated with chromosome segregation and cell cycle processes, while the most expressed genes in GV oocytes were relevant to ribosomal and mitochondrial pathways. Moreover, those genes involved in chromosome segregation during GV to MII transition were conserved in pig and human. As we compared MII and GV oocyte transcriptomes at isoform transcript level in both species, several thousands of genes (e.g. *DTNBP1*, *MAPK1*, *RAB35*, *GOLGA7*, *ATP1A1* and *ATP2B1*) without differences on gene level but differences on isoform transcript level were identified and those genes were involved in ATPase-dependent or GTPase-dependent intracellular transports in pig and human, respectively.

Interestingly, even though in the pig dataset no DEGs were found in the comparison of ‘damaged’ oocytes with MII oocytes on gene level, differential analysis on isoform transcript level revealed that the longest isoform of two genes, *DTNBP1* and *RAB4B*, had decreased transcript usage in ‘damaged’ oocytes. Those results indicate that the analysis of isoform transcript levels is important since it can unravel underlying differences between conditions ignored by traditional gene level analysis. Furthermore, to uncover the potential cause of the change in transcript usage, we also inferred the potential splicing mechanisms associated with transcript usage found in both species datasets. In both species, alternative transcription start site (ATSS), alternative transcription termination site (ATTS), and exon skipping (ES) were

the most frequent splicing events. Further investigation also confirmed that such splicing events associated with transcript change could make isoforms lose coding potential and protein domains. However, the specific role or effect of the reduction in these long isoform transcripts is still unclear.

LARGE SCALE DATA: The RNA sequencing data were deposited in the Gene Expression Omnibus under the accession number: GSE237026.

LIMITATIONS, REASONS FOR CAUTION: The results are limited owing to the maturation of COCs *in vitro*, which may lead to gene changes not observed *in vivo*.

WIDER IMPLICATIONS OF THE FINDINGS: To our knowledge, this is the first study to increase the analysis resolution from gene level to isoform transcript level to unravel the key regulators involved in GV to MII transition and compare underlying differences between mature MII oocytes and oocytes with delayed development ('damaged'; without first polar body). Findings from our pig and human dataset comparisons can highlight conserved modulators driving oocyte maturation in both species, benefiting the knowledge of human fertility and pig reproduction.

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Key words: Pig oocyte; Human oocyte; Oocyte maturation; Germinal vesicle (GV); Metaphase II (MII); RNA sequencing

99 Introduction

100 During prenatal life, immature oocytes in the developing ovary begin meiotic division, but
 101 then arrest as primary oocytes at prophase I of meiosis I until puberty. This meiotic stage is
 102 characterized by an oocyte with a large nucleus (germinal vesicle; GV) and visible nucleolus.
 103 Each primary oocyte is surrounded by pre-granulosa cells and together they constitute a
 104 primordial follicle. Daily, a small proportion of primordial follicles are activated and start
 105 their development via primary follicles, preantral follicles to antral follicles. The latter are so
 106 named as they contain a follicular-fluid-filled antrum. The antrum is bounded by multiple
 107 layers of granulosa cells and two specialized stromal layers, the theca interna and theca
 108 externa. During follicular growth the oocyte enlarges considerably, develops a zona pellucida
 109 and interacts with the surrounding somatic cumulus cells via gap junctions. At this stage the
 110 oocyte is prevented from progressing further into meiosis by high levels of cyclic adenosine
 111 monophosphate (cAMP)/cyclic guanosine monophosphate (cGMP) transported from
 112 surrounding cumulus cells into the oocyte via gap junctions (Grieco et al., 1996, Shuhaibar et
 113 al., 2015). During the reproductive cycle the luteinizing hormone (LH) surge initiates the
 114 process of ovulation of oocytes from large antral follicles and the gap junctions between the
 115 cumulus cells and the oocyte break down, significantly reducing the cAMP/cGMP
 116 concentration in the oocyte (Shuhaibar, et al., 2015). This initiates meiosis resumption and
 117 this progresses to metaphase II (MII) where meiosis stops again. The process of developing
 118 from a GV oocyte to a MII oocyte is called oocyte maturation. The MII oocyte will complete
 119 meiosis II if fertilisation by sperm occurs.

120 During oocyte maturation, a series of biological events have to occur to secure accurate
 121 chromosome segregation and cell division resulting in a healthy MII oocyte with fertilisation
 122 competence. Interruption of spindle formation, which is the major mediator of chromosome
 123 segregation, can lead to meiotic arrest and impairment of the oocyte maturation rate (Tang et
 124 al., 2018, Wan et al., 2018). Moreover, spindle microtubules attachment to chromosomes has
 125 to occur in an amphitelic way, meaning the two sister kinetochores should attach from
 126 opposite spindle poles. Otherwise, it would result in incorrect chromosome segregation, and
 127 the production of aneuploid (abnormal number of chromosomes) oocytes (Cimini et al., 2001,
 128 Davydenko et al., 2013) and subsequent miscarriages or birth defects if fertilised. In addition
 129 to the important function of cytoskeleton, oxidative phosphorylation (OXPHOS) also plays
 130 an essential role in the regulation of energy-intensive oocyte maturation. A positive
 131 correlation between oocyte developmental potential and its ATP content has been confirmed

(Van Blerkom et al., 1995). Oocyte aneuploidy can happen due to mitochondrial dysfunction and a decrease in mitochondria-derived ATP (Grindler and Moley, 2013, Luzzo et al., 2012). Reactive oxygen species (ROS) are an unavoidable by-product of the electron transport chain in mitochondria during OXPHOS. Studies have shown that ROS might cause aneuploidy by premature loss of cohesion and chromosome segregation errors (Perkins et al., 2016). Therefore, maintaining a redox balance puts great constraint on oocyte maturation (Hardy et al., 2021). Aneuploidy events are more prevalent during meiosis I than meiosis II. This could be due to either altered expression of antioxidant and OXPHOS gene or a different oxidative response.

Although the underlying transcriptomic/proteomic differences between GV and MII oocytes have been studied in different species (Sun et al., 2023, Wu et al., 2018, Xu et al., 2019), to the best of our knowledge no transcriptomic profiles with reliable replicates (≥ 5) are established, especially in large mammals such as the pig. Additionally, most oocyte-relevant RNA sequencing data has only been analysed at the gene level in the past. However, with the release of novel analysing software like *Salmon* and *Kallisto* (Bray et al., 2016, Patro et al., 2017), analysing RNA sequencing (RNAseq) data at isoform transcript resolution is no longer a problem and has the potential to reveal significant biological clues otherwise previously missed.

In this study, we collected oocytes at three major developmental stages including GV, MII and damaged (referring to oocytes that did not progress to producing the first polar body after *in vitro* maturation) from pig ovaries to perform RNAseq and identified changes in genes/transcripts required for oocytes to transition from GV to MII stage and main upstream regulators and pathways involved in oocyte maturation. Our focus lay on gene/transcript level alterations regarding oxidative stress response/ antioxidants, oxidative phosphorylation and mitochondria, endoplasmic reticulum (ER) stress, oocyte developmental marker, cell cycle, ribosomal, and cytoskeleton/ extracellular matrix. To identify differences in genes and transcripts, which could lead to a decline in oocyte competence by delay or breakdown of development, we analysed MII oocytes with a polar body and ‘damaged’ oocytes without a polar body following *in vitro* incubation. We also compared our transcriptomic profiles for GV and MII pig oocytes with corresponding human oocyte stages using public human oocyte RNAseq datasets.

Materials and Methods

Oocyte collection and *in vitro* maturation

Sow ovaries were obtained from a local abattoir and transported to the laboratory in warm 0.9% sodium chloride solution (Baxter, Old Toongabbie, NSW, Australia) at 37 °C. Follicular fluid including cumulus oocyte complexes (COCs) was then collected from follicles with a size of 5 mm using a vacuum pump. COCs with a uniform cytoplasm and several layers of cumulus cells were separated from the follicular fluid by mouth-pipetting, followed by washing with phosphate buffered saline (PBS) to remove cell debris. For the collection of GV stage oocytes, we removed cumulus cells by digestion of a subset of fresh COCs with 5 µg/mL hyaluronidase (Sigma-Aldrich/Merck, St. Louis, MO, USA) in PBS (30 oocytes / 500 µl hyaluronidase dilution), followed by 5 mins vortex at RT. Then, the remaining COCs were cultured for 42-44h in Medium 199 (GIBCO/Life Technologies) supplemented with 100 µg/ml sodium pyruvate (Sigma-Aldrich/Merck, St. Louis, MO, USA), 75µg/ml penicillin (Sigma-Aldrich/Merck, St. Louis, MO, USA), 50 µg/ml streptomycin (Sigma-Aldrich/Merck, St. Louis, MO, USA), 1 mM cysteamine (Sigma-Aldrich/Merck, St. Louis, MO, USA), 5 µg/ml insulin (Sigma-Aldrich/Merck, St. Louis, MO, USA), 10 IU/ml pregnant mare serum gonadotrophin (PMSG; Intervet Schering-Plough Animal Health), 10 IU/ml human choriongonadotrophin (HCG; Intervet Schering-Plough Animal Health), 10⁻² µg/ml EGF (Sigma-Aldrich/Merck, St. Louis, MO, USA) and 1 ml sow follicular fluid at 38.5°C and 5% CO₂ to induce maturation from GV stage to MII stage. After *in vitro* maturation for 42-44h, the COCs were treated with 5 µg/ml hyaluronidase (Sigma-Aldrich/Merck, St. Louis, MO, USA) to remove cumulus cells and then observed under a stereomicroscope to determine the presence of a first polar body. Oocytes with a first polar body were classified as ‘MII group’, whereas oocytes lacking a first polar body were classified as ‘damaged group’ (Supplementary Fig. S1). All denuded oocytes were washed by calcium/magnesium-free Dulbecco’s phosphate buffered saline (PBS) buffer (GIBCO/Life Technologies) several times and immediately stored at -80°C until preparation for RNAseq. We performed 5 biologically independent collections, whereby 15 oocytes from each stage/group were collected. Oocyte maturation rate was shown in Supplementary Table 1.

Library construction and sequencing

The SMART-Seq[®] HT kit (Takara Bio Inc., Shiga, Japan) was used for cDNA generation according to the manufacturer’s instructions using 13 PCR cycles across a total of 15 samples.

15 ng cDNAs were then converted to sequencing libraries using the Illumina DNA Prep kit (Illumina, San Diego, USA) according to the manufacturer's instructions with 8 PCR cycles for the final amplification. A 4 nM equimolar pool of libraries was sequenced by single-end RNA sequencing (1 x 75bp) on an Illumina Nextseq 500 at the South Australian Genomics Centre (SAGC; Adelaide, SA).

RNA-seq data collection and processing

Public human oocytes FASTQ sequencing files (accession GSE164371 (Ntostis et al., 2021)) were downloaded from the Gene Expression Omnibus (GEO) database and only young subpopulations from that dataset were used for downstream analysis. All raw FASTQ files were removed adapters and low-quality bases using AfterQC tool (Chen et al., 2017), followed by quality control check by FastQC (version: 0.11.7). Only FASTQ files that can pass quality control were quantified at transcript level by *Kallisto* (Patro, et al., 2017) in default settings. The reference transcriptome files (Sus_scrofa.Sscrofa11.1.cdna.all.fa and Homo_sapiens.genecode.V41.transcripts.fa) used for building *Kallisto* index were downloaded from ENSEMBL and GENECODE database respectively.

For differential gene expression (DGE) analysis, we used R package tximport (Soneson et al., 2015) to summarise *Kallisto* transcript-level estimates to gene level with the recommended scaling method lengthScaledTPM for limma-voom pipeline. Using gene-level counts, a DGEList object was created by DGEList function in R package edgeR (Robinson et al., 2010), and filtered with filterByexpression function with specifying the group argument. The filtered DGEList object was transformed by voom function from R package limma (Law et al., 2014), and then the voom object was processed with linear fit and Bayes correction to detect differentially expressed genes (DEGs). Differentially expressed genes were identified using the criteria $|\log_2(\text{fold change})| > 2$ and $\text{FDR} < 0.01$ in the pig dataset, and $|\log_2(\text{fold change})| > 1.5$ and $\text{FDR} < 0.01$ in the human dataset.

Additionally, we performed a differential transcript usage (DTU) analysis and a differential expression (DE) analysis based on transcript-level estimates (Soneson, et al., 2015). DTU analysis was performed with R package IsoformSwitchAnalyzeR (Vitting-Seerup and Sandelin, 2019). Transcriptome files used in the *Kallisto* alignment and corresponding gene transfer format (GTF) annotation were imported using importRdata function to establish a switchAnalyzeRlist object, followed by filtering out all genes and isoforms that do not suit the survival criteria (gene expression cut off = 1, IF cut off = 0.05, differential isoform

fraction (dIF) cutoff = 0.1, removeSingleIsoformGenes = TRUE) by using preFilter function. The DTU events were tested by isoformSwitchTestDEXseq(reduceToSwitchingGenes = TRUE) function and significant DTU events were identified using the criteria $FDR < 0.01$ and $|dIF| > 0.1$. To predict alternative splicing (AS) and switching consequences, we performed external analyses such as CPC2 (Kang et al., 2017), Pfam (Punta et al., 2012), SignalP (Almagro Armenteros et al., 2019) and IUPred2A (Mészáros et al., 2018) using the fasta files produced by extractSequence(removeLongAAs = TRUE, alsoSplitFastaFile = TRUE, alpha = 0.01, dIFcutoff = 0.1, writeToFile = TRUE) function and then imported back to the switchAnalyzeRlist object using analyzeCPC2(codingCutoff = 0.725, removeNoncodingORFs = TRUE), analyzePFAM, analyzeSignalP and analyzeIUPred2A functions. To predict AS events and relevant switching consequence, analyzeAlternativeSplicing and analyzeSwitchConsequences were performed in default settings. Then, we used extractConsequenceSummary and extractSplicingSummary functions to quantify gain/loss (also shorter/longer, sensitive/insensitive, switch) of predicted functional consequences and gain/loss of splicing events. Also, to detect whether uneven usage of AS and switching consequence, extractSplicingEnrichment(countGenes = FALSE) and extractConsequenceEnrichment(countGenes = FALSE) were employed to do a binomial test and summary plot. Uneven usage was considered significant as $FDR < 0.05$.

Gene ontology (GO) enrichment, canonical pathway and network analysis

The functional annotation for DEGs and genes with at least one significant DTU event (gDTUs) in the pig and human datasets were carried out by R package clusterProfiler (Yu et al., 2012). For DEGs, GO enrichment analysis was done with up- or down-regulated genes respectively. The Benjamini–Hochberg algorithm was employed to control the false discovery rate (FDR) for multiple hypothesis. The GO pathways with $FDR < 0.05$ were considered significant.

Differentially expressed gene data sets determined by corrected p value ($FDR < 0.01$) and $\log_2(\text{fold change}) > 2$ for the pig dataset and > 1.5 for the human dataset, and including up- and downregulated genes were imported into Ingenuity Pathway Analysis (IPA[®], QIAGEN Redwood City, CA, United States). The DEGs were subjected to core analyses focussing on direct and indirect relationships pertaining to canonical pathways (metabolic and cell signalling), upstream regulators and network generation of differentially expressed gene interactions with other molecules within the Ingenuity Knowledge Base.

Fisher exact statistical test

One tail Fisher exact statistical tests were performed by `fisher.test` function (`alternative = "greater"`) in R to investigate whether there was significant overlapping (P value < 0.05) of the DEGs on a specific pathway between pig dataset and human dataset. In the application of `fisher.test` function, the total number of genes on a specific pathway was the sum of the number of genes involved in the pathway (Gene Ontology database) of pig and human datasets.

Data visualization

The scatterplots and bar plots were generated with R package `ggplot2`. Heatmap and Venn diagram were drawn using R package `pheatmap` and `VennDiagram`, respectively. Exon-intron maps were generated using R package `IsoformSwitchAnalyzeR`.

Data and code

Raw sequencing data, images, and processed data have been deposited in the Gene Expression Omnibus (GEO) repository under accession GEO: GSE237026. All original code has been deposited at GitHub: <https://github.com/tf1993614/Pig-Human-RNAseq-analysis/tree/main>.

Results

Transcriptome characterisation of pig and human oocytes

To investigate the gene expression changes across oocyte maturation, we performed RNAseq analysis on isolated and *in vitro* matured pig oocytes and re-analysed public RNAseq data from human oocytes of different development stages for comparison.

Quality control of our pig datasets identified a GV stage oocyte sample, which only comprised 13 million sequencing reads compared to on average 20 million sequencing reads in the other samples. This GV sample was removed from downstream analyses. We detected 22,516 in the pig dataset and 62,610 genes in the human dataset due to the different sequencing platforms used. After filtering out genes with low expression (< 10 counts per million (pm)), 12,962 and 18,998 genes were preserved in pig and human dataset, respectively, for further application. Specifically, there was very little granulosa cell contamination of the COCs as the granulosa cell markers, *StAR*, *CYP19A1* and *INHA*, were very low.

Principle component analysis (PCA) showed that GV oocytes were significantly different from MII oocytes in both datasets (Fig. 1A and C). Surprisingly, in the pig dataset, MII and ‘damaged’ oocytes did not separate in the PCA (Fig. 1A). Therefore, we combined these two groups for further analyses (‘MIX’). Consistent with PCA, the distance matrix (Pearson correlation) across samples also revealed similar relationships between oocytes of a distinct development phase in both species (Supplementary Fig. S2A and C). A significant different gene expression pattern between GV oocytes and MII oocytes was also observed in the heatmaps of both species (Supplementary Fig. S2B and D).

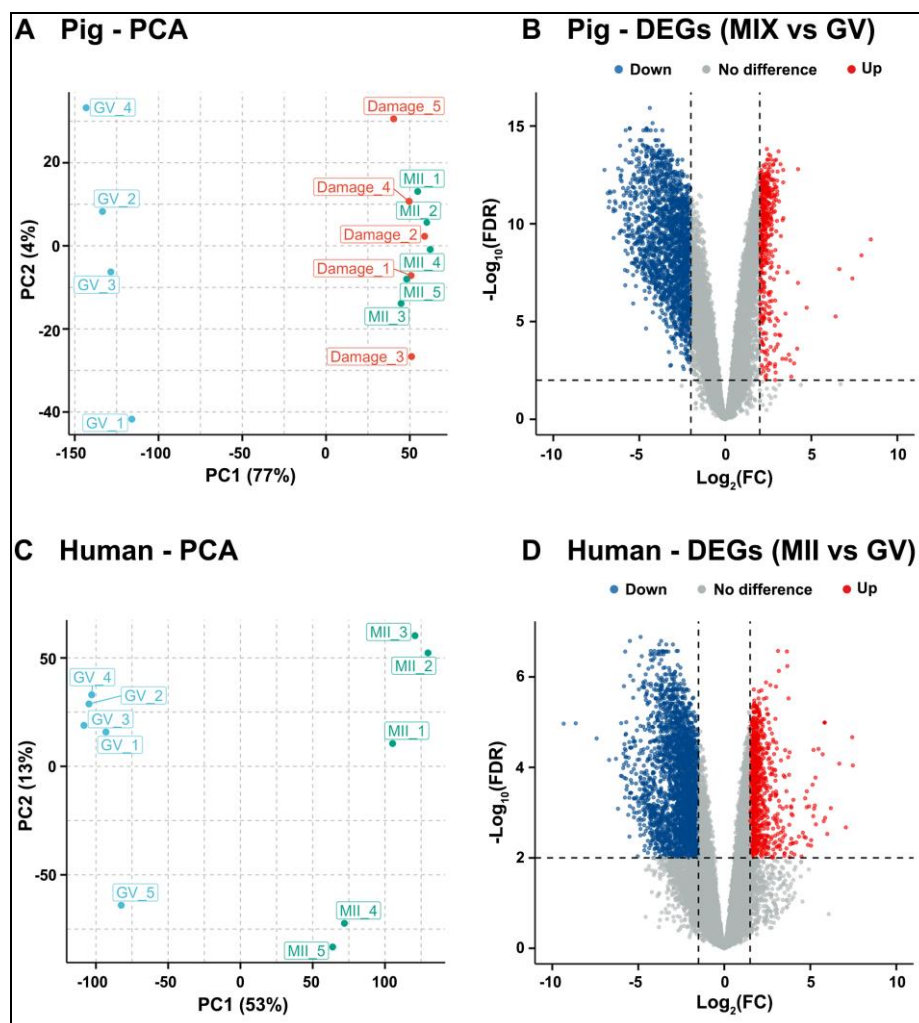


Fig 1. Principal Component Analysis (PCA) and analysis of differentially expressed genes (DEGs) of oocyte samples across different developmental stages in the pig and human datasets. (A) PCA analysis of pig oocytes showing GV oocytes (n = 4) in blue, while ‘damaged’ (n = 5) and MII oocytes (n = 5) are in red and green, respectively. (B) Volcano plot showing the differentially up- and downregulated genes ($\text{FDR} < 0.01$ and $|\log_2(\text{fold change})| > 2$) between pig ‘Mix’ (MII and ‘damaged’ oocytes combined) and GV stage

oocytes. (C) PCA analysis of human oocytes showing GV oocytes (n = 5) in blue and MII oocytes (n = 5) in green. (D) Volcano plot showing the differentially up- and downregulated genes (FDR < 0.01 and $|\log_2(\text{fold change})| > 1.5$) between human MII and GV stage oocytes. Upregulated and downregulated genes are coloured in red and blue, respectively.

The effect of developmental stage on the oocyte gene expression

Differential gene expression analysis comparing MIX (MII + ‘damaged’) versus GV stage oocytes in the pig dataset found 2,654 differentially expressed genes (DEGs), of which 538 genes were upregulated and 2,116 genes were downregulated in MIX (MII + ‘damaged’) oocytes as shown in the Volcano plot (Fig. 1B). In the human dataset, we found 3,969 DEGs, of which 1,118 genes were upregulated and 2,851 downregulated in MII oocytes compared with GV oocytes (Fig. 1D). The complete list of DEGs for both species are presented in Supplementary Tables S2 and S10. We did not find any DEGs comparing ‘MII’ with ‘damaged’ in the pig dataset (Supplementary Fig. S3A) strengthening our decision to combine these two groups.

We found 53 DEGs to be associated with the oocyte and the cell cycle in the comparison of MIX (MII + ‘damaged’) versus GV oocytes in the pig, whereat 36 were up- and 17 downregulated (Supplementary Table S3). In the human comparison, 89 genes related to oocyte and cell cycle were differentially expressed, whereat 51 were up- and 38 downregulated (Supplementary Table S11). Surprisingly, the transcription factor *POU5F1*, which is playing a key role in stem cell pluripotency and embryonic development, is upregulated, whereas another molecule associated with embryonic development, *NODAL*, is downregulated (Supplementary Table S11). DEGs associated with mitochondria and oxidative phosphorylation were mostly downregulated (97 genes) in the pig comparison except for coenzymes *COQ10A* and *COQ10B*, mitochondrial ribosomal protein L44 (*MRPL44*) and the mitochondrial NUBP iron-sulfur cluster assembly factor (*NUBPL*) (Supplementary Table S4). In the human comparison, mitochondrial-associated genes were more evenly up- (38 genes) and downregulated (59 genes) (Supplementary Table S12). Steroidogenesis related genes are mostly unaffected by oocyte maturation in the pig (3 genes up- and 13 genes downregulated) or human (5 genes up- and 5 genes downregulated) (Supplementary Tables S5 and S13, respectively). The transition of GV oocytes into MII oocytes is connected with an upregulation of catalase (*CAT*) and glutathione peroxidase 1

(*GPX1*), whereas other antioxidant enzymes, such as peroxiredoxins *PRDX1*, *PRDX3*, and *PRDX5*, nucleoredoxin (*NXN*), thioredoxin 2 (*TXN2*), *GPX4*, *GPX6*, and glutaredoxin 3 (*GLRX3*) are downregulated in the pig comparison (Supplementary Table S6). In the human, however, *PRDX3* and *PRDX4* are upregulated, whereas thioredoxin reductase 2 (*TXNRD2*), *GLRX*, *GLRX3* and *NXN* are downregulated (Supplementary Table S14). We found some DEGs to be associated with endoplasmic reticulum (ER) stress. The majority of these genes was downregulated in MIX (MII + ‘damaged’) oocytes in the pig (Supplementary Table S7) and in the human (Supplementary Table S15). All DEGs related to ribosomal structure, such as ribosomal proteins for the small and large subunit, were downregulated in MIX (MII + ‘damaged’) versus GV oocytes in the pig (Supplementary Table S8), whereas in human 50% were up- and 50% downregulated (Supplementary Table S16). Overall, 40 genes in the pig MIX (MII + ‘damaged’) oocytes and 53 in the human MII oocytes are differentially expressed and associated with the cytoskeleton and extracellular matrix compared with GV oocytes (Supplementary Tables S9 and S17 respectively). Upregulated DEGs include collagen type XIX alpha 1 (*COL19A1*) and versican (*VCAN*) in the pig (Supplementary Table S9), and *COL1A1*, fibronectin 1 (*FN1*), laminin subunits alpha 2 (*LAMA2*) and beta 1 (*LAMB1*) in the human comparison (Supplementary Table S17). Downregulated genes include, amongst others, *COL28A1*, nidogen 1 (*NID1*), *COL15A1*, *COL23A1*, and brevican (*BCAN*) in the pig (Supplementary Table S9), and *COL4A6*, *COL18A1* as well as *COL23A1* in the human (Supplementary Table S17).

To determine which biological functions are connected with these DEGs, gene ontology (GO) enrichment analysis was carried out using upregulated or downregulated DEGs separately in both datasets (Fig. 2). In the pig dataset, as expected, upregulated DEGs were associated with pathways related to cell division (meiosis) including chromosome structure and segregation, cell cycle, spindle formation and DNA repair mechanisms (Fig. 2A), while downregulated DEGs were involved with organelle structures and biogenesis such as mitochondria, endoplasmic reticulum and ribosomes structural molecule activity (Fig. 2B). Consistent with the pig dataset, the human dataset, revealed upregulated DEGs to be enriched in pathways including chromosome structure and segregation, histone binding and nucleosome organization (Fig. 2C). However, in human also ribosomal organization and processes were enriched by upregulated DEGs. This is contrary to the pig. Interestingly, in the human dataset, only one significant pathway, mitochondrial matrix, was enriched for downregulated DEGs (Fig. 2D). Those genes involved in the differentially expressed pathways in either human or

pig dataset were shown in the Supplementary Table S18. To identify if there is significant overlap between the GO pathways enriched for upregulated/downregulated DEGs between the two species, we performed a Fisher exact test. We found only DEGs involved in the “chromosome segregation” pathway showed a high correlation ($-\log_{10} p$ value > 1.3) (Fig. 3).

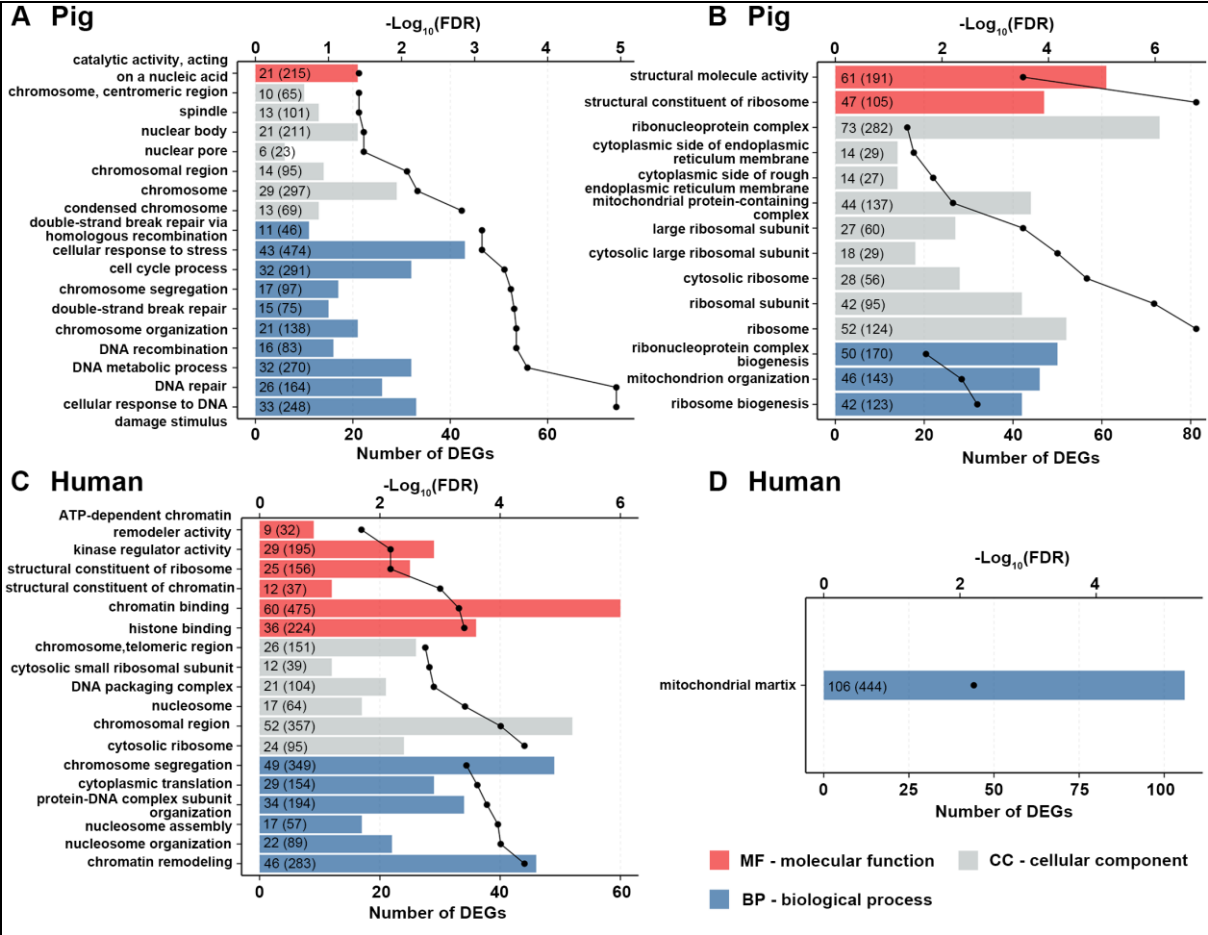


Fig 2. GO enrichment analysis of differentially up- and downregulated genes in the pig and human datasets. Significant GO pathways enriched in differentially upregulated genes (A) and downregulated genes (B) by comparing pig MIX (MII + ‘damaged’) versus GV oocytes. Significant GO pathways enriched in differentially upregulated genes (C) and downregulated genes (D) by comparing human MII versus GV oocytes. The dotted line represents the FDR of each significant GO pathway. The numbers in the bar outside the parentheses represent the number of DEGs involved in the pathway, whereas inside the parentheses indicates the total number of genes associated with the pathway in the GO database. Only pathways with $FDR < 0.05$ were considered significant. Bars are coloured by three GO categories: molecular function (MF) in red, cellular component (CC) in grey and biological process (BP) in blue.

Furthermore, IPA analysis of up- and downregulated genes combined showed relevant and similar canonical pathways (Fig. 4) as found by GO enrichment analysis (Figs. 2 and 3). The top canonical pathways associated with mitochondria dysfunction, chromosome segregation, signalling pathways associated with metabolism such as sirtuin signalling, mTOR signalling and NAD^+ signalling, nucleotide excision repair and oxidative phosphorylation were involved in DEGs identified in both datasets (Fig. 4).

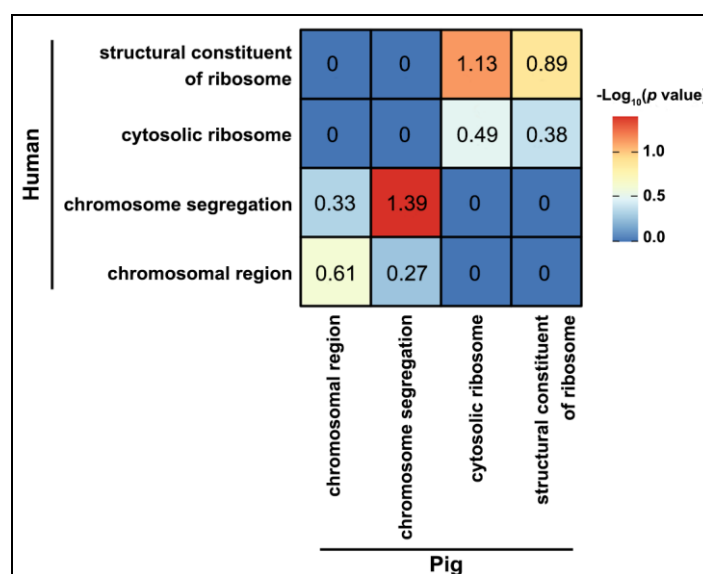


Fig 3. Correlation of differentially expressed genes (DEGs) involved in identical significant GO pathways in the pig and human datasets. Fisher exact tests were conducted to determine a significant overlap of DEGs in a specific pathway between the two datasets. The number and gradient colour of the legend bars represent $-\log_{10}P$ value of each pairwise comparison. Only p value < 0.05 was considered significant.

However, lipid metabolism-relevant pathways, including different cholesterol biosynthesis pathways and geranylgeranyl diphosphate biosynthesis, only appeared in the pig dataset (Fig. 4A). In addition, top upstream regulators associated with DEGs in both datasets were identified using IPA and are shown in Tables 1 and 2, respectively. Biological upstream regulators such as HNF4A, COPS5, TP53 and MAP4K4 were common to both datasets. Chemical upstream regulators included Torin 1, 3,5-dihydroxyphenylglycine, Acyline, LH, Metribolone, ST1926 and sirolimus in the pig dataset, and Actinonin, CD437, GSKJ4 and ST1926 in the human dataset. Interestingly, the upstream regulators for the human include numerous mitochondria-related molecules such as mitochondrial ribosomal protein L12 (MRPL12) and L14 (MRPL14), enzymes lon peptidase 1 (LONP1), NOP2/Sun RNA

methyltransferase 3 (NSUN3) and ClpB family mitochondrial disaggregase (CLBP), GTP dependent ribosome recycling factor mitochondrial 2 (GFM2), and mitochondrially-encoded t-RNAs (MT-TM, MT-TE). Full upstream regulator lists for both species are shown in Supplementary Tables S19 and S22.

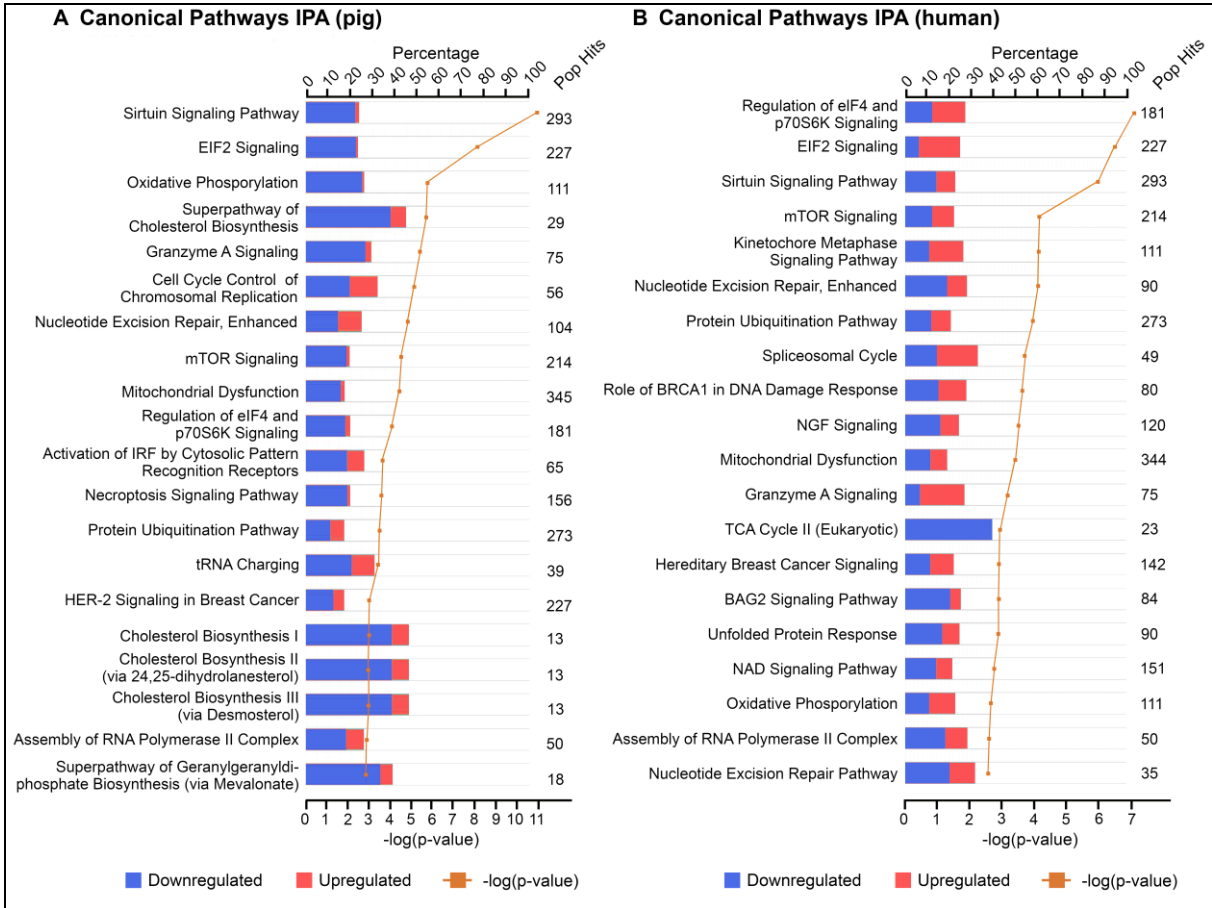


Fig 4. Top 20 canonical pathways associated with differentially expressed genes (DEGs) in the pig and human datasets as identified using IPA. (A) Top 20 canonical pathways involved in DEGs in pig dataset. (B) Top 20 canonical pathways involved in DEGs in human dataset. “Pop Hits” refers to the total number of genes associated with each of the pathways in the database. The bar graphs represent the percentage of genes from the data set that map to each canonical pathway whilst the orange line shows the p -value of overlap between DEGs in each dataset and a given pathway.

418 **Table 1. Top 20 upstream regulators in the pig dataset.** Shown are respective activation z-
 419 score as well as *p*-value of association for the DEGs.

Upstream regulator	Name	z-score	<i>p</i> -value
Torin 1/ mTOR inhibitor XI	1-(4-(4-propionylpiperazin-1-yl)-3-(trifluoromethyl)phenyl)-9-(quinolin-3-yl)benzo[h][1,6]naphthyridin-2(1H)-one	4.683	3.44E-19
LARP1	La ribonucleoprotein 1	6.243	6.11E-18
HNF4A	Hepatocyte nuclear factor 4 alpha	-3.838	7.95E-18
MLXIPL	MLX interacting protein like	-6.202	2.52E-12
COPS5	COP9 signalosome subunit 5	5.077	9.30E-12
RICTOR	RPTOR independent companion of MTOR complex 2	6.647	8.54E-11
MYCN	MYCN proto-oncogene, bHLH transcription factor	-2.92	1.61E-10
TP53	Tumor protein p53	-0.129	1.29E-09
3,5-dihydroxyphenylglycine	-	-5.064	2.41E-09
KDM5A	Lysine demethylase 5A	6.083	3.39E-09
Acyline	-	-	5.53E-09
MYCL	MYCL proto-oncogene, bHLH transcription factor	-1.673	6.07E-09
LH	Luteinizing hormone	-4.234	6.3E-09
TLE3	TLE family member 3	1	1.28E-08
Metribolone/ Androgen receptor agonist	17alpha-Methyltrienolone	-4.281	1.92E-08
ST1926/ Adarotene/	(2E)-3-(4'-hydroxy-3'-tricyclo[3.3.1.1 ^{3,7}]dec-1-yl[1,1'-	5.690	3.27E-08

Apoptosis inducer	biphenyl]-4-yl)-2-propenoic acid		
Sirolimus	-	3.405	5.22E-08
MAP4K4	Mitogen-activated protein kinase kinase kinase kinase 4	4.596	7.35E-08
UQCC3	Ubiquinol-cytochrome c reductase complex assembly factor 3	-	1.12E-07
RB1	RB transcriptional corepressor 1	-4.139	2.1E-07

420 **Table 2. Top 20 upstream regulators in the human dataset.** Shown are respective
421 activation z-score as well as *p*-value of association for the DEGs.

Upstream regulator	Name	z-score	<i>p</i> -value
HNF4A	Hepatocyte nuclear factor 4 alpha	-2.291	2.19E-13
DAP3	Death associated protein 3	3.606	9.32E -13
LONP1	Lon peptidase 1, mitochondrial	2.774	5.14E-12
COPS5	COP9 signalosome subunit 5	4.707	1.44E-11
Actinonin/ antibacterial agent	-	-3.742	5.29E-11
MT-TM	Mitochondrially encoded tRNA methionine	-	7.75E-11
TP53	Tumor protein p53	1.168	2.67E-09
ALKBH7	alkB homolog 7	3.130	2.94E-08
NSUN3	NOP2/Sun RNA methyltransferase 3	2.828	3.97E-08
MT-TE	Mitochondrially encoded tRNA glutamic acid	-	3.35E-07
CD437/ RARγ- selective agonist	6-(4-Hydroxy-3-tricyclo[3.3.1.1 ^{3,7}]dec-1-ylphenyl)-2-naphthalenecarboxylic acid	-0.608	4.83E-07
GSKJ4/ histone lysine demethylase	Ethyl-3-(6-(4,5-dihydro-1H-benzo[d]azepin-3(2H)-yl)-2-(pyridin-2-yl)pyrimidin-4-	-0.392	1.65E-06

inhibitor III	ylamino)propanoate		
ST1926/ Adarotene/ apoptosis inducer	(2E)-3-(4'-hydroxy-3'-tricyclo[3.3.1.1 ^{3,7}]dec-1-yl[1,1'-biphenyl]-4-yl)-2-propenoic acid	-0.206	1.83E-06
MRPL12	Mitochondrial ribosomal protein L12	2.613	2.40E-06
MAP4K4	Mitogen-activated protein kinase kinase kinase kinase 4	4.490	1.42E-05
MRPL14	Mitochondrial ribosomal protein L14	1.633	1.77E-05
HMGXB4	HMG-box containing 4	-1.038	2.27E-05
GFM2	GTP dependent ribosome recycling factor mitochondrial 2	2.236	2.37E-05
CLPB	ClpB family mitochondrial disaggregase	2.309	5.77E-05
miR-2392 (miRNAs w/seed AGGAUGG)	-	-2.441	6.37E-05

Additionally, network analysis was performed in IPA for DEGs in each dataset showing their function. Networks of interest are presented in Fig. 5 for the pig dataset including cell cycle progression (network 3), spindle assembly (network 6), and mitochondrial ribosomal proteins involved in the assembly and stability of nascent mitochondrial polypeptides exiting the ribosome (network 7). Network 1 contains retinoid acid-inducible gene 1 (RIG-I), as central molecule, which is a pattern recognition receptor for the innate immune response.

Important networks from the human dataset are shown in Fig. 6. Mitochondrial processes such as β -fatty acid oxidation pathway (e.g. LACTB/ lactamase B, ACAD9/ acyl-CoA dehydrogenase family member 9, ECHS1/ enoyl-CoA hydratase, short chain 1), oxidative phosphorylation (e.g. ACAD9, ATPAF2/ ATP synthase mitochondrial F1 complex assembly factor 2), and response to oxidative stress (e.g. PYCR1, PRDX3). Caseinolytic mitochondrial matrix peptidase proteolytic subunit (CLPP) is involved in ATP-dependent protein/peptide cleavage via Clp complex and cyclin dependent kinase 2 associated protein 2 (CDK2AP2) is suggested to regulate microtubule organization in MII oocytes. Networks 6 and 18 contain

molecules involved in ribosome function, including rRNA processing (e.g. ribosomal proteins RPL8, RPL28, and RPL10, RPL27, respectively), RNA modification (e.g. MEPCE/ methylphosphate capping enzyme), t-RNA splicing (e.g. RTCB/ RNA 2',3'-cyclic phosphate and 5'-OH ligase), and pre-mRNA splicing (e.g. SRSF6/ serine and arginine rich splicing factor 6; RNF113A/ ring finger protein 113A), as well as chromatin remodelling and transcription (e.g. HMGB2/ high mobility group box 2), and centrosome duplication (e.g. NPM1/ nucleophosmin 1). Network 25 includes molecules involved in DNA damage response and maintenance of normal chromosome stability such as members of the Fanconi anemia complementation group and centromere proteins. Detailed information of the genes involved in the networks can be found in Supplementary Tables S20, S21, S23 and S24.

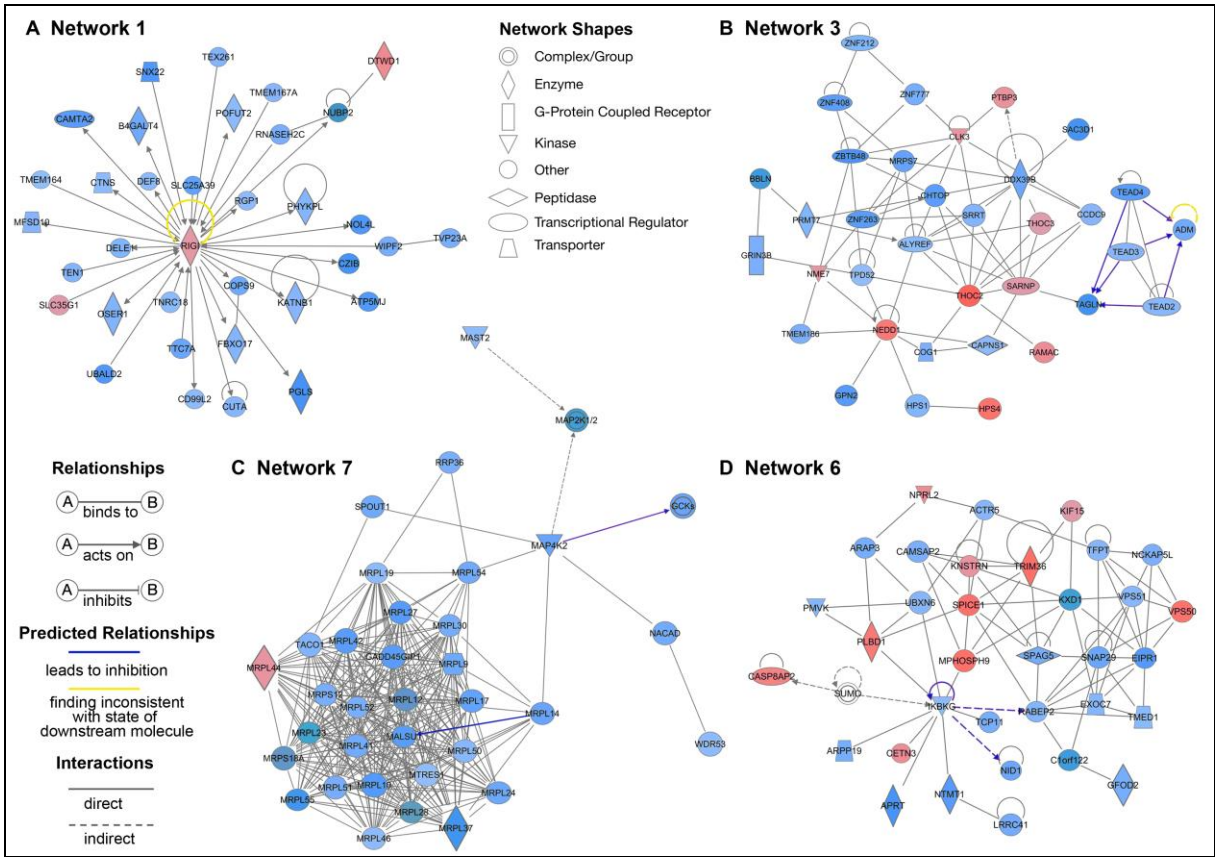


Fig 5. Networks associated with differentially expressed genes (DEGs) in the pig dataset as identified by IPA. Network 1 (A), network 3 (B), network 7 (C) and network 6 (D) associate with immune response, cell cycle progression, mitochondrial ribosomal proteins and spindle assembly, respectively. Blue colour represents low expression; red colour represents high expression in MIX (MII + ‘damaged’) oocytes. The intensity of each colour shows the strength of regulation.

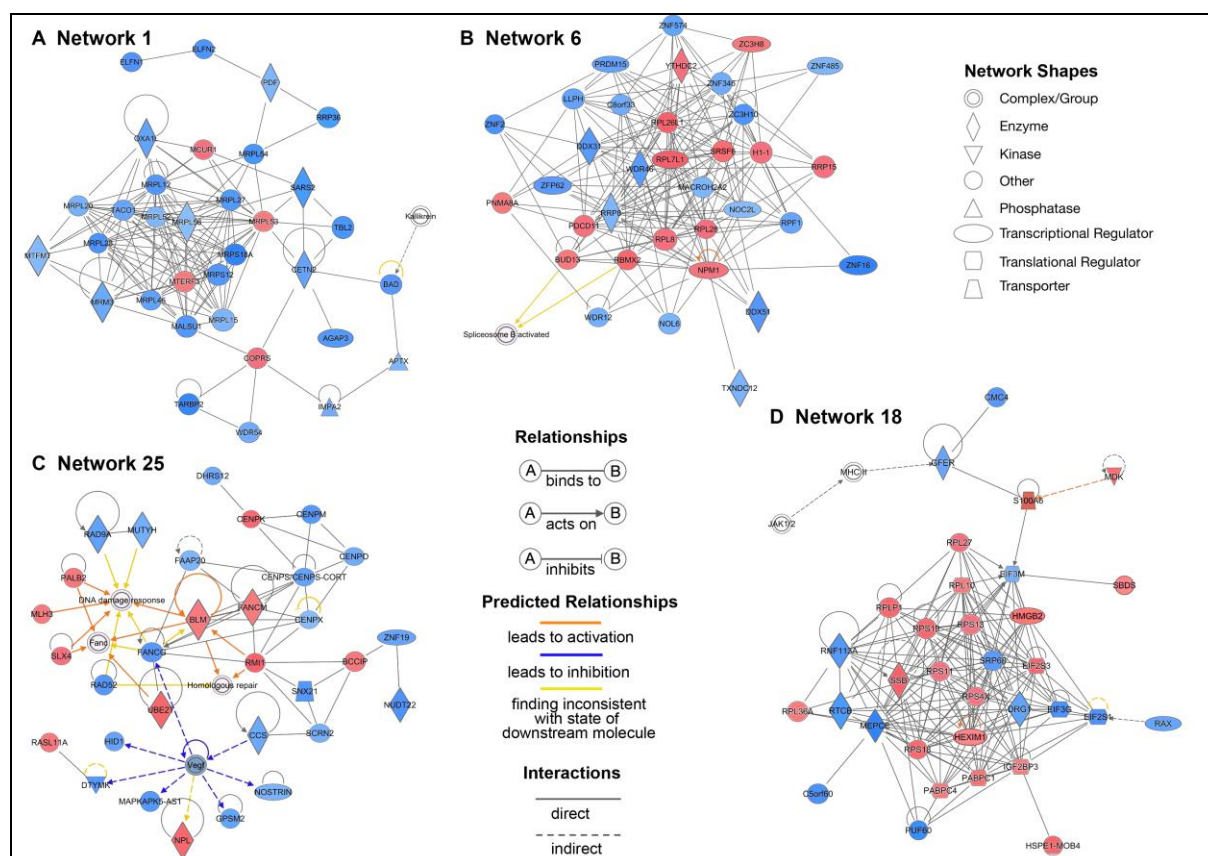


Fig 6. Networks associated with differentially expressed genes (DEGs) in the human dataset as identified in IPA. Network 1 (A), network 6 (B), network 25 (C) and network 18 (D) associated with mitochondrial processes, ribosome function, DNA damage response and maintenance of normal chromosome stability, respectively. Blue color represents low expression; red color represents high expression in MII oocytes. The intensity of each color shows the strength of regulation.

The effect of developmental stage on the oocyte transcript isoform usage

Classic DGE analysis fails to detect genes, which show differences in isoform transcript levels but result in no difference at gene level between two conditions. Therefore, we used differential transcript usage (DTU; also called isoform switching) analysis to identify differences between oocytes at different developmental stages at isoform transcript level instead of whole gene level. In the pig dataset, 11,538 transcript isoforms were retained for DTU analysis. Comparing 'MIX' (MII + 'damaged') oocytes with GV oocytes identified 2,951 DTU events involving 4,494 transcript isoforms of which 2,256 isoforms had upregulated usage and 2,238 isoforms had downregulated usage in MIX (MII + 'damaged') and 2,217 genes (those genes with DTU events referred to gDTUs) (Fig. 7A and B). All

2,217 gDTUs were protein-coding and only 270 gDTUs overlapped with DEGs found by traditional DGE analysis (Fig. 7B). GO enrichment analysis of 1,947 gDTUs, only identified by DTU analysis, revealed six significant pathways mainly involved in intracellular transport mechanisms (Fig. 7C). Interestingly, DTU analysis also identified two genes (*RAB4B* and *DNTBP1*), which had significantly decreased isoform usage when comparing MII with ‘damaged’ (Supplementary Figs. S2B-D). These DTU events took place in the longest transcript isoform of both genes (Supplementary Fig. S2E and F).

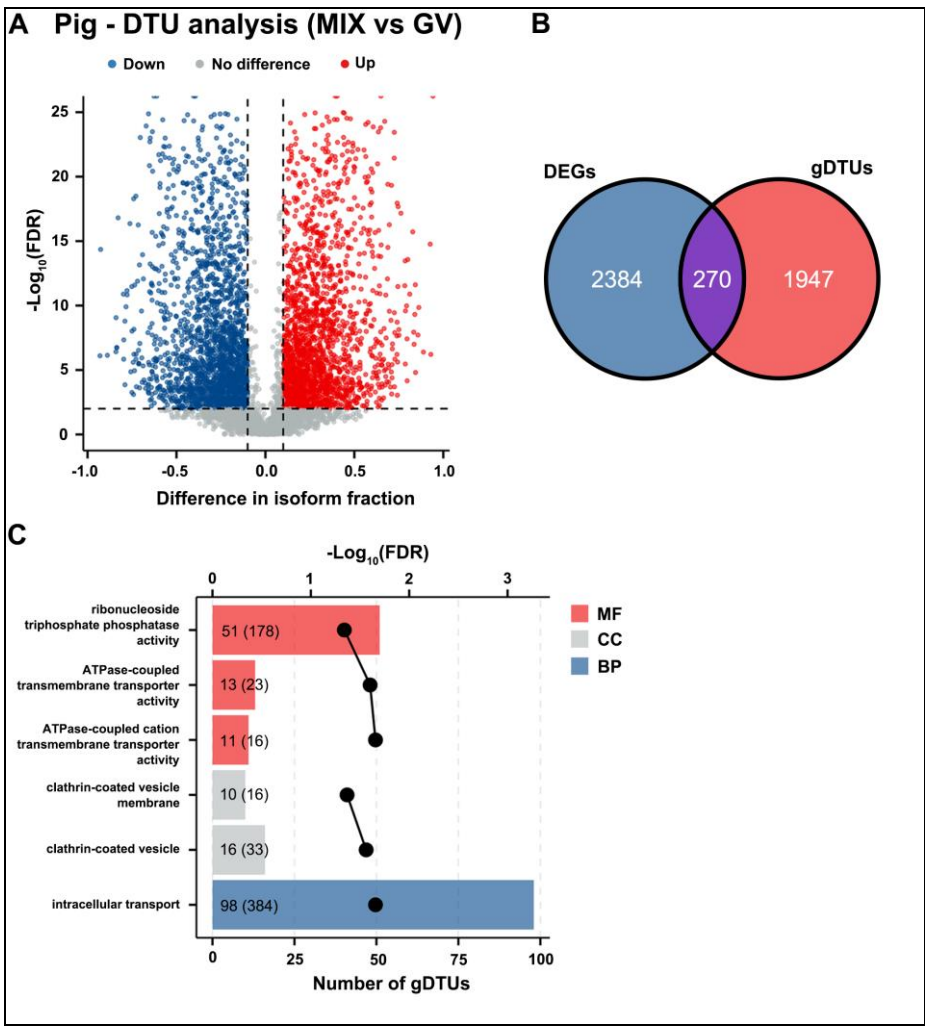


Fig 7. DTU analysis for comparison of pig ‘MIX’ (MII + ‘damaged’) oocytes with GV oocytes. (A) Differentially expressed isoform transcripts involved in isoform switching. Isoforms with upregulated isoform usage (differential isoform fraction (dIF) > 0.1 and FDR < 0.01) are shown in red, isoforms with downregulated isoform usage (dIF < -0.1 and FDR < 0.01) in blue. (B) Venn diagram showing the number of genes common to gene lists identified by DGE and DTU analysis. (C) Top 6 differential GO pathways enriched in the gDTUs as identified by DTU analysis. The dotted line represents the FDR of each significant

GO pathway. The numbers in the bars outside the parentheses represent the number of gDTUs involved in the pathway and those in parentheses indicate the total number of genes enriched for the pathway in the dataset. Only pathways with $FDR < 0.05$ were considered significant. Bars are coloured red for molecular function (MF), grey for cellular component (CC) or blue for biological process (BP).

In the human dataset, 55,459 transcript isoforms remained for DTU analysis after quality control. Comparison of MII oocytes with GV oocytes resulted in 3,932 DTU events involving 4,672 transcript isoforms of which 2,249 isoforms had upregulated usage and 2,423 isoforms downregulated usage in MII, and 2,623 gDTUs (Fig. 8A and B). Similarly, only 549 gDTUs overlapped with DEGs (Fig. 8B). Unlike the pig dataset, in the human dataset only 88% gDTUs were protein-coding, whereas the other 12% were assigned to long non-coding RNAs (lncRNAs) and transcribed unprocessed/processed/unitary pseudogenes (Fig. 8C). Significant pathways such as GTPase binding, ubiquitin protein ligase binding, regulation of protein stability and mRNA processing were enriched in the 2,074 gDTUs only identified by DTU analysis (Fig. 8D).

To identify the underlying causes of the transcript isoform switches, we quantified the number of splicing events associated with isoform switches found in both species datasets. In the pig dataset, we found that alternative transcription start site (ATSS), alternative transcription termination site (ATTs), and exon skipping (ES) were the most frequent splicing events (Supplementary Figs. S4A and B) and ATTs was the only splicing event enriched in upregulated isoform switches (Supplementary Fig. S4C). Further investigation also revealed that many isoforms lost coding potential and protein domains (Supplementary Figs. S4D and E). A similar phenomenon was observed in the human dataset (Supplementary Fig. S5).

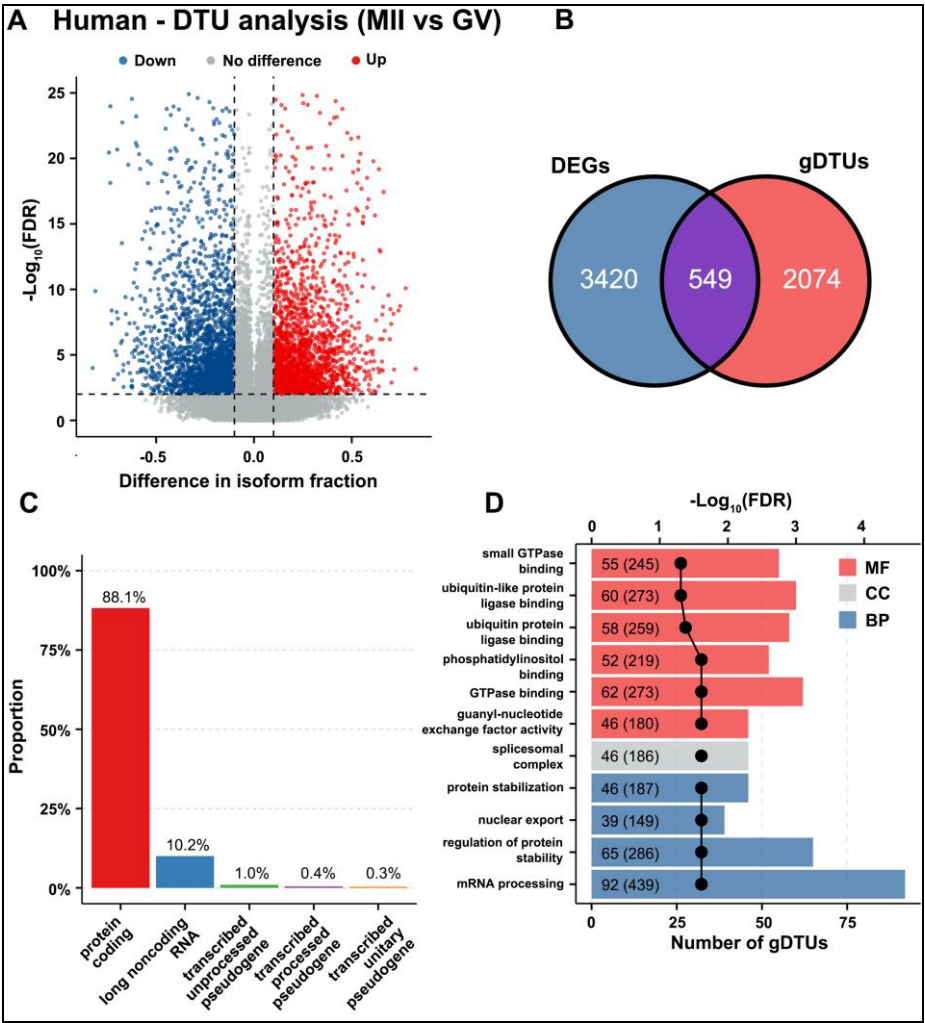


Fig 8. DTU analysis for comparison of human MII oocytes with GV oocytes. (A) Differential transcript isoforms involved in isoform switching. Isoforms with upregulated isoform usage (differential isoform fraction (dIF) > 0.1 and FDR < 0.01) are shown in red, isoforms with downregulated isoform usage (dIF < -0.1 and FDR < 0.01) in blue. (B) Venn diagram showing the number of genes common to gene lists identified by DGE and DTU analysis. (C) Proportion of biotypes of gDTUs found by DTU analysis. (D) Top 13 significant GO pathways enriched in the gDTUs only identified by DTU analysis. The dotted line represents the FDR of each significant GO pathway. The numbers in the bars outside the parentheses represent the number of gDTUs involved in the pathway and those in parentheses indicate the total number of genes enriched for the pathway in the dataset. Only pathways with FDR < 0.05 were considered significant. Bars are coloured red for molecular function (MF), grey for cellular component (CC) or blue for biological process (BP).

Discussion

Exploring gene expression changes during oocyte maturation is essential to understand their molecular role in the regulation of the transition of GV oocytes to MII oocytes and the associated completion of meiosis I. In this study, we provide a comprehensive analysis identifying gene expression alternations during oocyte maturation in pig using bulk RNAseq. Furthermore, we compared our findings in the pig with public human oocyte RNAseq data. In summary, our work established a high-resolution transcriptome profile of the pig oocyte at three developmental stages (GV, MII and ‘damaged’) and of the human oocyte at two stages (GV and MII), identifying key regulators, which drive oocyte maturation in both species. In the pig dataset since the MII with a polar body and the ‘damaged’ oocytes without a polar body did not separate in the PCA we combined these two groups for further analyses and referred to them as ‘MIX’.

In mammals, oocytes undergo a unique asymmetric cell division called meiosis to facilitate their maturation. This process involves the resumption of a long-term dormant stage referred to as GV, followed by gradual progression towards MII after accepting activation signals. As part of the first meiosis, the oocyte extrudes its first polar body to complete the process (Sanders and Jones, 2018). MII oocytes stay arrested at metaphase II until fertilisation occurs (Sanders and Jones, 2018). To get healthy MII oocytes with fertilisation competence, involves a series of biological events such as spindle assembly, chromosome alignment and chromosome segregation during meiosis I. It has been reported that disruption of meiotic spindle assembly prevents oocytes from transitioning from GV to MII in various species (Tang, et al., 2018, Wan, et al., 2018, Wu et al., 2022), indicating that an intact spindle structure is essential for oocyte maturation. The kinesin family, a class of ATP-dependent microtubule-based motor proteins, plays an important role in maintaining a stable spindle. Depletion of *Kif4a*, *Kif18a* in mouse (Tang, et al., 2018, Tang et al., 2018) or *KIF11* in pig (Wan, et al., 2018) disrupts spindle formation and then leads to oocyte maturation arrest. Besides, inhibition of *Kif15* diminishes spindle microtubule stability in mouse oocytes (Zou et al., 2022). Consistent with that, we found in this study that kinesin genes such as *KIF15*, *KIF18A* and *KIF20B* in pig MIX oocytes and *KIF4B*, *KIF5B*, *KIF5C* as well as *KIF20B* in human MII oocytes had significantly higher expression, suggesting that those kinesins were highly expressed during GV to MII transition, thereby facilitating oocyte maturation. Additionally, other genes including *NEDD1* and *CEP192*, which have been shown to be required for spindle assembly in the mouse oocyte (Clift and Schuh, 2015, So et al., 2019),

were expressed higher in pig MIX and human MII oocytes, respectively, compared to the GV stage. Furthermore, *SGO1*, *SGO2*, *CDC40* or *CDC42*, key genes regulating chromosome segregation and cell cycle as previously reported (Ben Yehuda et al., 1998, El Yakoubi et al., 2017, Mei et al., 2022, Yin et al., 2013), also had high expression in MIX/II oocytes in our pig dataset and the human dataset. Another interesting finding in our analysis was that genes involved in chromosome segregation appear to be conserved during oocyte maturation between pig and human.

Unlike somatic cells where transcription persists in mitosis (Strzyz, 2017), oocytes cease transcription once they resume meiosis and continue progression from GV stage onwards. This means the oocyte can only recruit dormant maternal mRNAs for translation during maturation (Curtis et al., 1995, De La Fuente et al., 2004). In other words, prior to meiotic resumption oocytes must synthesize and store large numbers of mRNAs and ribosomes for later use until embryonic genome activation (EGA) (Nothias et al., 1995). Previous microarray analysis in mouse found that ribosomal gene expression is down-regulated in MII oocytes compared to GV oocytes and most of them are prone to degradation during GV to MII transition (Su et al., 2007). In line with that observation, we also found that all 79 differentially expressed ribosomal genes were downregulated in pig MIX oocytes. This may imply that GV oocytes have more potential for message translation compared to MII oocytes.

In the human dataset, only about 50% of differentially expressed ribosomal genes were downregulated, suggesting that MII oocytes may retain translation potential in human. Our further investigation also showed that DEGs involved in ribosome-relevant pathways in pig oocytes were not the same as in human oocytes. The time point of EGA might explain this different regulation of ribosomal genes across oocyte maturation between different species. It occurs at the two-cell stage in mouse (Aoki, 2022), at the four-cell stage in pig (Cao et al., 2014, Du et al., 2021) and in human at the latest, the eight-cell stage (Leng et al., 2019). This indicates that the time relying on maternal mRNA storage to support early embryo development would be longer in human than in pig and mouse. Therefore, one hypothesis is that human MII oocytes need to keep relatively high expression of ribosomal genes for the potential mRNA translation during early embryo development after fertilisation. In fact, translation of maternal mRNAs throughout oocyte maturation, fertilisation and embryogenesis is complex (Richter and Lasko, 2011) and the underlying mechanism is still elusive. Here, our work provides detailed lists for DEGs and isoform switching events as well as predictive isoform switching-derived consequences on protein expression regarding

ribosomal genes across oocyte development in pig and human, which is helpful for future research in this topic.

Oocyte maturation is an energy-intensive process, therefore accurate regulation of mitochondrial function and the antioxidant system is critical (Kirillova et al., 2021). There is a positive correlation between oocyte developmental competence and the amount of mitochondrial DNA (mtDNA) as well as ATP (Van Blerkom, et al., 1995). From GV to MII transition in human oocytes, mtDNA copies increase from 10,000 to approximately 400,000 per oocyte (Jansen, 2000) and simultaneously the average ATP concentration reaches 2 pmol per oocyte (Van Blerkom, et al., 1995), which is consistent with the previous finding that human early GV oocyte had low basal respiration rates (Rodriguez-Nuevo et al., 2022). Mitochondrial dysfunction and reduction of ATP content lead to aneuploidy and spindle disassembly as well as chromosome misalignment in MII oocytes (Grindler and Moley, 2013, Luzzo, et al., 2012). Therefore, keeping mitochondria-based ATP production normal is the key to oocyte maturation.

Mitochondria rely on their electron transport chain (ETC) consisting of four complexes to synthesise ATP via oxidative phosphorylation (OXPHOS) (Lemarie and Grimm, 2011). Those complexes are encoded by 92 genes, of which 79 genes are encoded by nuclear DNA and 13 genes by mtDNA (Mukherjee and Ghosh, 2020). Intervention of OXPHOS genes during oogenesis is associated with cellular, tissue, and organ dysfunction in the resulting offspring (McFarland et al., 2007). Therefore, understanding how nuclear DNA- and mtDNA-encoded OXPHOS genes synchronously determine mitochondrial function and the dynamics of gene expression during oocyte maturation is meaningful. In this study, our analysis showed that most of mtDNA-encoded and nuclear DNA-encoded OXPHOS genes were upregulated and downregulated, respectively, from GV to MII transition in both species. The downregulation of most nuclear DNA-encoded OXPHOS genes may be associated with decreasing mitochondrial workload in MII oocytes compared to GV oocytes, which has been suspected in bovine oocytes (Sugimura et al., 2012). To keep homeostasis by counteracting ROS due to electron leakage in mitochondrial ETC, oocytes must express antioxidant genes during maturation (Sen et al., 2022, Wang et al., 2023). Interestingly, in this study, our DGE analysis found some antioxidant genes being downregulated in pig MIX or human MII oocytes, which may expose oocytes to a higher risk of ROS damage.

Numerous studies have reported that supplementation during *in vitro* maturation (IVM) with antioxidants such as vitamin C (Zhou et al., 2019), resveratrol (Zhao et al., 2023), co-enzyme

Q10 (Brown and McCarthy, 2023) can increase oocyte quality. The underlying concept is that *in vitro* manipulation of oocytes makes them more susceptible to potential oxidative stress since they lack protective antioxidant mechanisms which are present *in vivo* (Goto et al., 1993), and components as well as additives in the culture medium including metallic ions and serum albumin can also accelerate ROS generation (Guerin et al., 2001). Based on this, external antioxidants supplementation enhances the cell's capability to counteract IVM-derived ROS damage. However, the benefits of antioxidant supplementation may depend on the type of antioxidant as vitamin E has been shown to have an adverse impact on bovine oocyte developmental competence (Dalvit et al., 2005). Given the potential influence of IVM process on cell development (Takeuchi et al., 2022), there might be some genes differentially expressed in MII oocytes in the pig simply because of the *in vitro* maturation conditions. Moreover, gene expression differences between pig and human MII oocytes may not only be derived from species differences, but also from the maturation strategy used in each species.

Since we did not find any differentially expressed genes between oocytes from the MII stage (visible polar body) and 'damaged' (no visible polar body) oocytes, we assumed that those 'damaged' oocytes still were developmentally competent but were delayed in their development and postponed the extrusion of the first polar body. Recent studies also found that developmentally delayed oocytes without first polar body after incubation have MII-like transcriptomic profile and these oocytes are still developmentally competent even though showing lower overall developmental competence than MII oocytes (Hu et al., 2023, Moon et al., 2023). An alternate explanation is that this process leading to 'damage' may not be dependent upon differentially regulating gene expression. However, by performing DTU analysis we did find differences in the expression of isoform transcripts. Despite the establishment of several pig transcriptome profiles previously (Du, et al., 2021, Gao et al., 2023, Murin et al., 2023), all of them lack a sufficient number of biological replicates ($n \leq 3$) for a reliable DTU analysis. We identified in the pig two genes, which had downregulated isoforms in 'damaged' oocytes without changing the overall gene expression, namely *DTNBP1* (dystrobrevin binding protein 1) and *RAB4B*. *DTNBP1* is associated with normal biogenesis of lysosome-related organelles (Li et al., 2003) and has been shown to affect cell cycle progression by interacting with cell cycle-related genes such as cyclins D1/2/3 (Ito et al., 2016), cyclin B1 (CCNB1), cyclin E1 (CCNE1), cyclin-dependent kinases 1 and 2 (CDK1/2), cell division cycle 20 (CDC20), CDC25A, and CDC25B (Cheng et al., 2022). *CNB1* and *CDC20* were upregulated in our pig MIX oocytes compared to the GV stage,

whereas *CDC25A* and *CDC25B* were downregulated. Additionally, *DTNBP1* was upregulated in bovine embryos that successfully produced live offspring compared with embryos that did not (Salilew-Wondim et al., 2010). *RAB4B*, a member of the RAS oncogene family, is involved in protein transport and vesicular trafficking (He et al., 2002). Previous studies have shown that oocyte maturation is associated with massive macromolecular turnover, which is dependent on intracellular transport and lysosomes (El-Jouni et al., 2007, Miao et al., 2019). Thus, we propose that reduced utilisation of the predominant translated isoforms of the *DTNBP1* and *RAB4B* genes negatively influences macromolecular turnover, ultimately leading to impaired oocyte maturation. Few studies examined the function of *DTNBP1* and *RAB4B* during oocyte maturation. More work is still needed to test our hypothesis. Furthermore, DTU analysis by comparing MIX versus GV oocytes in the pig dataset or MII versus GV oocytes in the human dataset found many gDTUs undetected by traditional DGE analysis. Those gDTUs were predominantly involved in intracellular transport pathways - ATPase-dependent in pig oocytes and GTPase-dependent in human oocytes. Furthermore, ‘regulation of protein stability’ and ‘mRNA processing’ pathways were also enriched for gDTUs found in the human dataset, showing their importance for oogenesis. It has been revealed that *N*⁶-methyladenosine (m⁶A), the most abundant modification of RNAs, is regulated by *Mettl3* and *Mettl3* inactivation leads to deficiency of m⁶A and then meiosis as well as follicle development defects (Mu et al., 2021). Besides, the post-translational glycosylation modification is required for protein stability and a recent study found that DPATG1-mediated protein glycosylation is essential for female fertility (Li et al., 2020). This evidence confirms the significance of improving analyse resolution from gene level to transcript isoform level to identify key pathways not detected by traditional DEG analysis. Furthermore, we also found in both, pig and human, that alternative transcription start sites, alternative transcription termination sites and exon skipping were the most frequently altered splicing events; contributing to isoform switching from full-length isoforms. Moreover, the loss of coding potential caused by isoform switching was observed in pig MIX and human MII oocytes. Such reduced protein-coding potential in MII oocytes may be associated with impending maternal mRNAs clearance once embryo genome activation occurred after fertilisation (Sha et al., 2019).

In summary, our study establishes a gene expression atlas of oocytes from the GV and MII stage, identifying the key regulators of oocyte maturation at both gene and isoform transcript level in pig and human.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author's roles

F.T., K.H. and R.J.R designed the research; F.T. performed the experiments; F.T., and K.H. analysed the data; and F.T., K.H. and R.J.R wrote the paper. All authors have seen and approved the final version.

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Conflict of interest

The authors declare no conflicts of interest.

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Supplementary figures S1 to S5

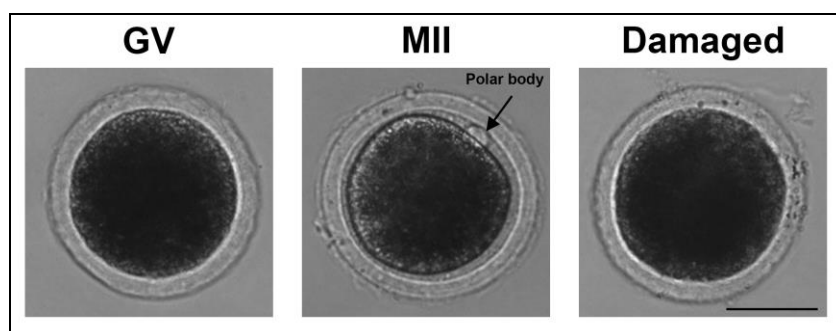


Fig S1. Morphology of pig oocytes collected for RNAseq. Bright field images of oocytes at three major developmental stages, GV, MII with polar body, and oocytes without visible polar body ('damaged') after *in vitro* incubation. Scale bar: 80 μm .

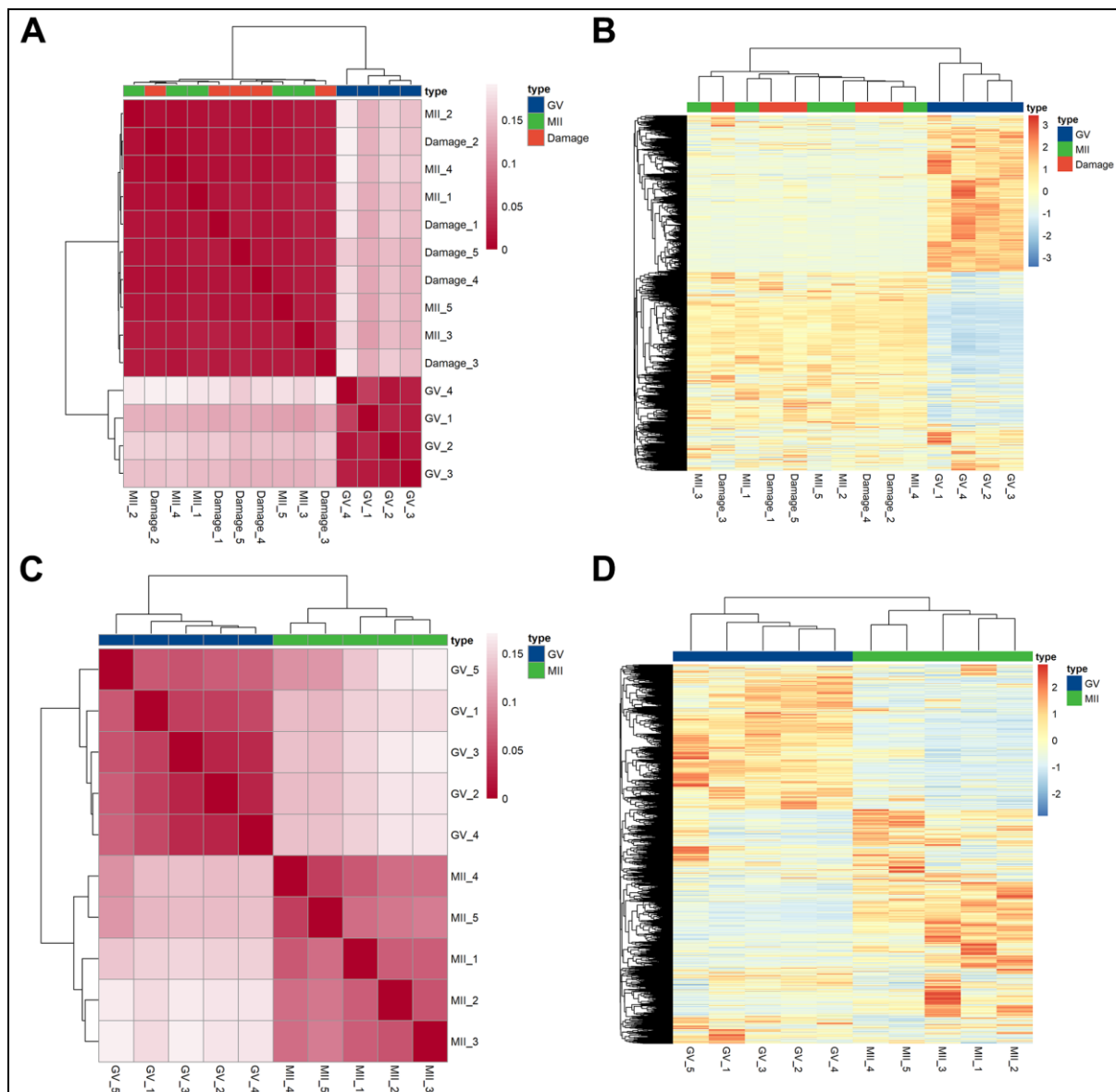


Fig S2. Heatmap highlighting the distance and gene expression among pig or human oocytes at different developmental stages. A distance matrix generated by sample-by-sample correlation (Pearson correlation) highlighting transcriptome relationships among oocytes at three different stages (GV, MII and damaged) in pig dataset (A) and at two different stages (GV and MII) in human dataset (B). Colour gradient ranges from dark red (minimum distance) to light red. A heatmap showing 12,962 genes expression in pig dataset (C) and 18,998 genes expression in human dataset (D). Colour gradient ranges from blue (low expression) to red (high expression).

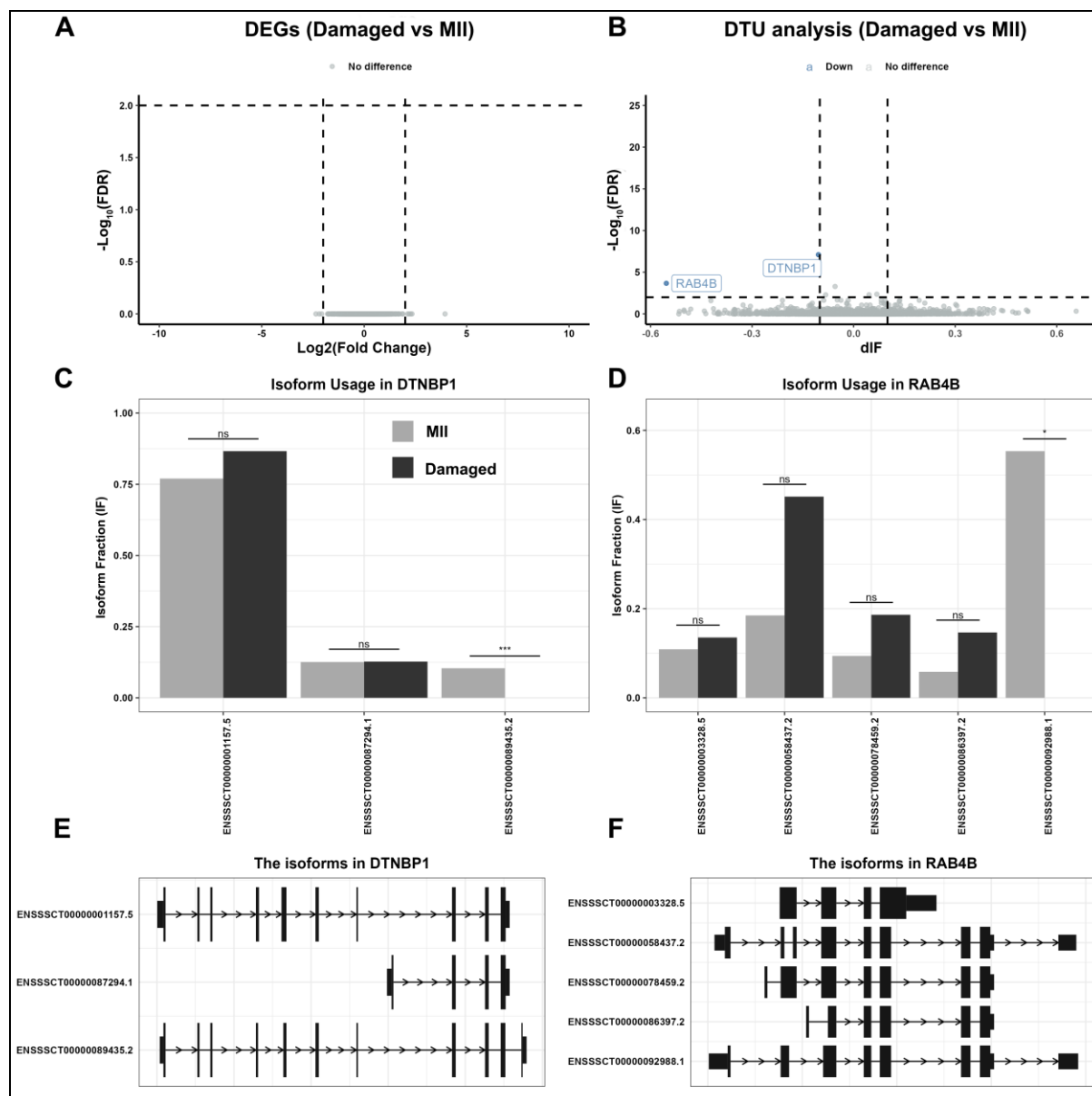


Fig S3. DGE and DTU analysis comparing pig MII oocytes with damaged oocytes. (A) Volcano plot showing no DE genes ($FDR < 0.01$ and $|\text{fold change}| > 4$) by DGE analysis comparing pig MII versus damaged oocytes. (B) Two differential transcript isoforms ($|\text{dIF}| > 0.1$ and $FDR < 0.01$) from two individual genes (*RAB4B* and *DTNBP1*) involved in isoform switching were identified by DTU analysis comparing pig MII versus damage oocytes. (C) Quantification of the isoform fraction in MII and damaged MII oocytes for the three *DTNBP1* isoforms. (D) Quantification of the isoform fraction in MII and damage MII oocytes for the five *RAB4B* isoforms. (E) Schematic representations of exon–intron maps of the three *DTNBP1* isoforms. (F) Schematic representations of exon–intron maps of the five *RAB4B* isoforms.

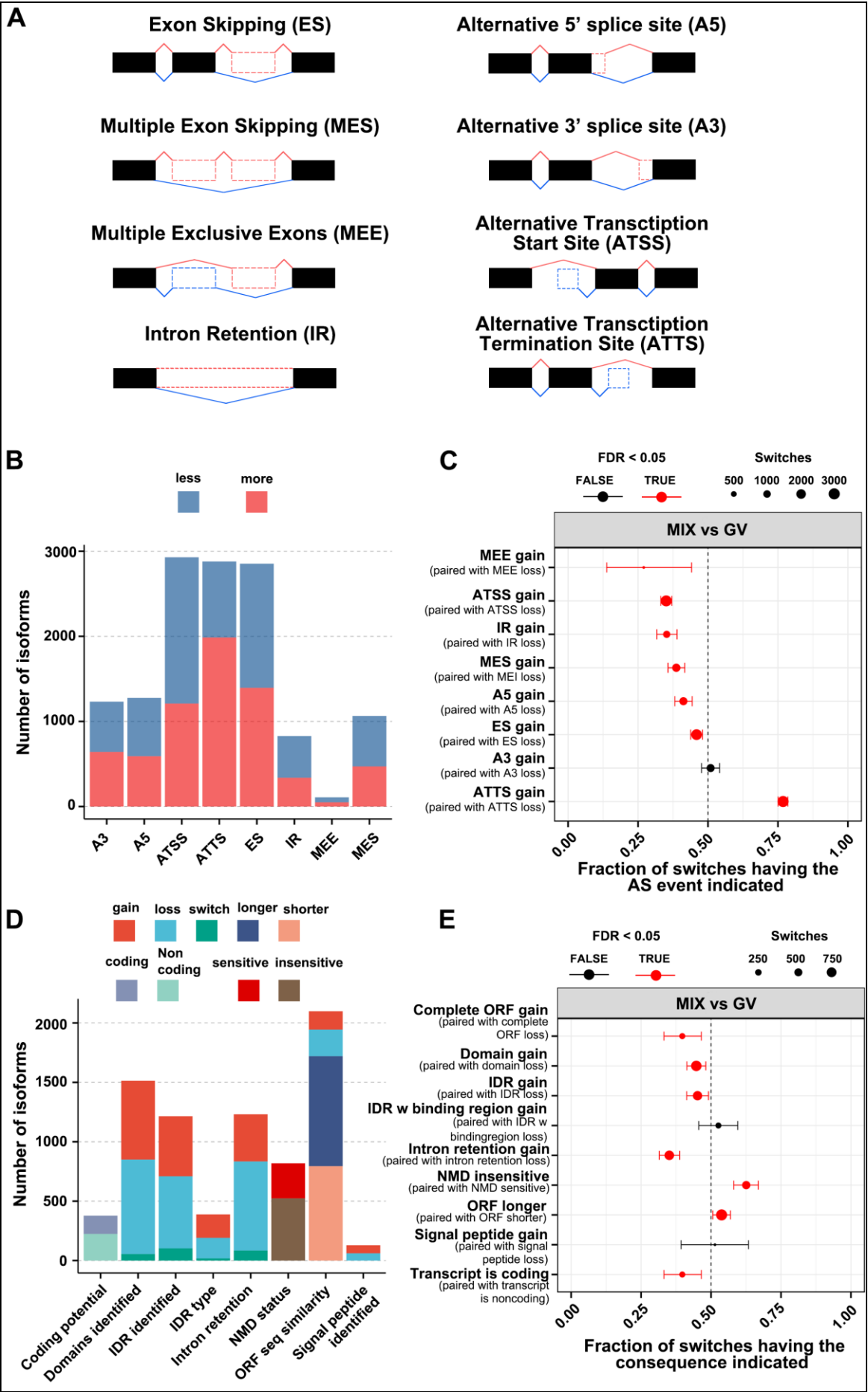


Fig S4. Alternative splicing mechanisms associated with isoform switches and consequences for protein expression in pig oocytes. (A) Schematic representation of splicing events that can lead to gene isoform switches. (B) Quantification of the number of isoforms showing more (positive difference in isoform fraction (dIF)) and less (negative dIF) splicing events in 'MIX' compared to GV. (C) Splicing events enrichment involved in isoform switches. The x-axis of the plot shows the fraction of switches connected with the indicated splicing event, where < 0.5 means depleted while > 0.5 means enriched in 'MIX'. (D) Quantification of the number of isoforms showing (i) gain or loss of coding potential, domains/signal peptides identified, intrinsically disordered regions (IDR), intron retention, open-reading frame (ORF) sequencing similarity; (ii) switch (simultaneous gain and loss) of domains identified or IDR; (iii) sensitive or insensitive to nonsense-mediated decay (NMD); and (iv) longer or shorter ORF sequencing similarity. (E) The enrichment of functional consequences for protein expression resulting from isoform switching events. The x-axis of the plot shows the fraction of switches having the indicated consequence, where < 0.5 means depleted while > 0.5 means enriched in MIX.

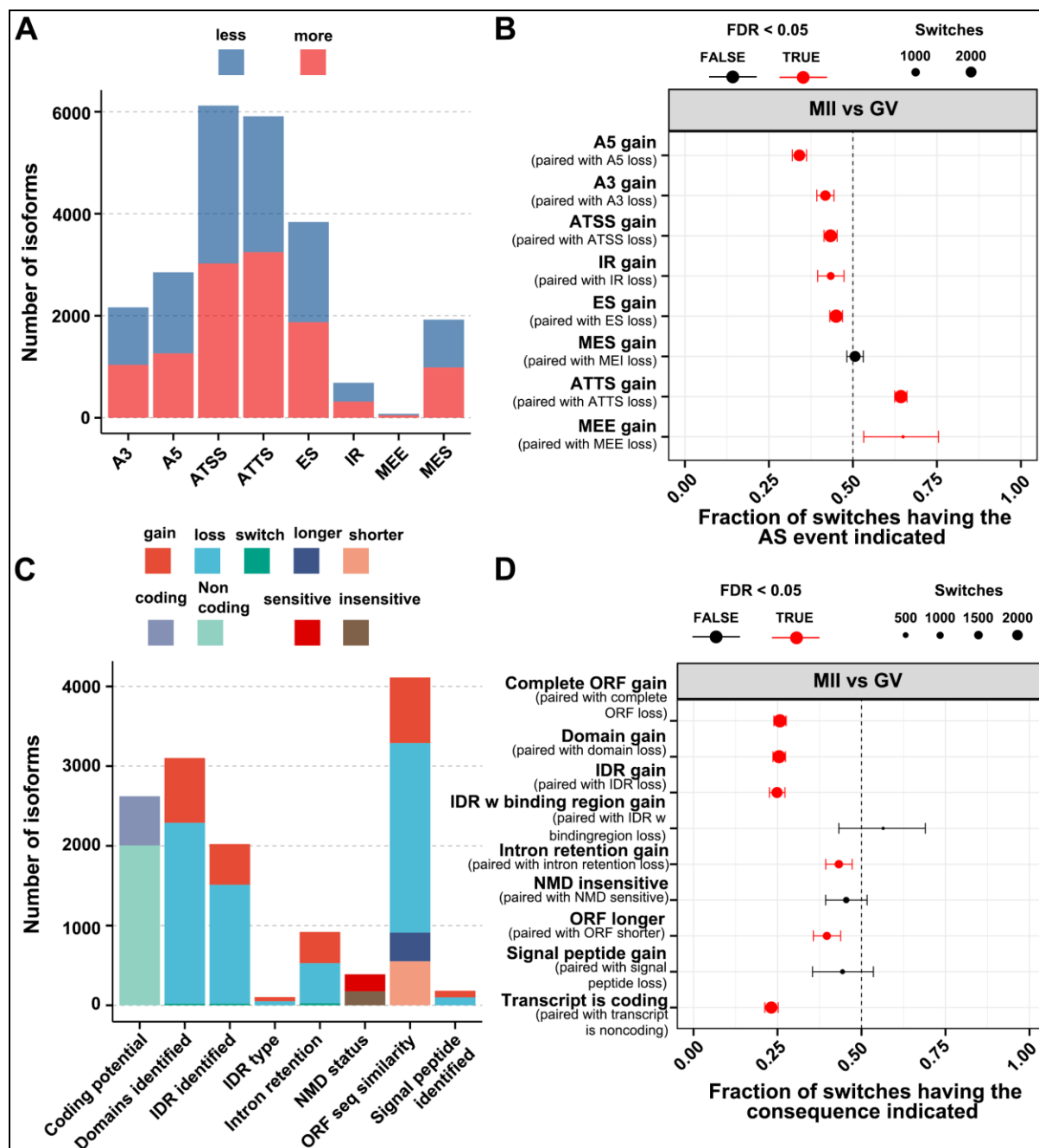


Fig S5. Alternative splicing mechanisms associated with isoform switches and consequences for protein expression in human oocytes. (A) Quantification of the number of isoforms showing more (positive difference in isoform fraction (dIF)) and less (negative dIF) splicing events in MII compared to GV. (B) Splicing events enrichment involved in isoform switches. The x-axis of the plot shows the fraction of switches connected with the indicated splicing event, where < 0.5 means depleted while > 0.5 means enriched in MII. (C) Quantification of the number of isoforms showing (i) gain or loss of coding potential, domains/signal peptides identified, intrinsically disordered regions (IDR), intron retention, open-reading frame (ORF) sequencing similarity; (ii) switch (simultaneous gain and loss) of

domains identified or IDR; (iii) sensitive or insensitive to nonsense-mediated decay (NMD); and (iv) longer or shorter ORF sequencing similarity. (D) The enrichment of functional consequences for protein expression resulting from isoform switching events. The x-axis of the plot shows the fraction of switches having the indicated consequence, where <0.5 means depleted while >0.5 means enriched in MII.

Supplementary Tables S1 to S24

Table S1. The maturation rate of pig oocytes after 42-44h IVM

Collection	Number of oocytes	Number of MII	Maturation rate
1	40	32	0.8
2	38	30	0.79
3	45	38	0.84
4	50	41	0.82
5	34	26	0.76

Table S2. Total list of differentially expressed genes in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_Mix	Mean_GV
Upregulated DEGs					
ENSSSCG00000034846		8.45	6.32E-10	8.90	0.00
ENSSSCG00000032599		7.91	4.12E-09	10.92	0.06
ENSSSCG00000057567		7.38	6.24E-08	21.21	0.51
ENSSSCG00000061874		6.63	2.08E-08	6.80	0.05
ENSSSCG00000058083		6.41	5.51E-06	3.43	0.02
ENSSSCG00000059243		4.73	1.97E-06	0.93	0.01
ENSSSCG00000006877	<i>SNX7</i>	4.23	1.61E-13	3515.45	197.59
ENSSSCG00000020970	<i>IL6</i>	4.23	1.06E-07	5.11	0.24
ENSSSCG00000024302		4.18	2.45E-04	2.12	0.13
ENSSSCG00000037821	<i>RGS5</i>	4.00	1.39E-03	3.43	0.52
ENSSSCG00000000024	<i>PARVB</i>	3.83	6.60E-03	6.76	0.35
ENSSSCG00000005316	<i>TPM2</i>	3.78	9.74E-04	2.06	0.13
ENSSSCG00000021343	<i>ZEB2</i>	3.69	4.94E-04	1.36	0.10
ENSSSCG00000055358		3.61	3.02E-08	10.81	1.32
ENSSSCG00000005790		3.52	8.17E-04	0.60	0.03
ENSSSCG00000038558	<i>GOLPH3L</i>	3.50	3.96E-06	4.84	0.45
ENSSSCG00000000296		3.37	1.78E-13	16333.75	1661.99
ENSSSCG00000040389		3.37	5.13E-11	122.39	11.83
ENSSSCG00000049079	<i>CCDC179</i>	3.36	7.62E-13	241.00	23.70
ENSSSCG00000005995	<i>MTBP</i>	3.33	6.49E-11	89.90	9.40
ENSSSCG00000001456	<i>HLA-DQA1</i>	3.31	8.04E-04	1.09	0.22
ENSSSCG00000034853		3.23	4.29E-10	67.39	8.03
ENSSSCG00000048002	<i>OOSP3</i>	3.21	8.98E-14	3708.77	408.04
ENSSSCG00000008340	<i>ANTXR1</i>	3.20	5.14E-05	0.65	0.06
ENSSSCG00000035843		3.13	4.76E-05	1.86	0.30
ENSSSCG00000002932	<i>ZNF567</i>	3.12	7.14E-12	585.40	70.61
ENSSSCG00000014250	<i>C5orf63</i>	3.11	1.58E-08	7.17	0.98
ENSSSCG00000004020	<i>SFT2D1</i>	3.09	1.99E-14	473.55	56.48
ENSSSCG00000006947	<i>SYDE2</i>	3.06	9.05E-06	2.91	0.40
ENSSSCG00000036417		3.05	1.45E-04	3.85	0.83
ENSSSCG00000061888		3.04	2.15E-13	638.30	80.39
ENSSSCG00000034122	<i>TMEM128</i>	3.02	2.21E-12	1423.24	187.25
ENSSSCG00000034242	<i>HNF4G</i>	3.02	3.22E-12	309.64	38.26
ENSSSCG00000023904	<i>CFAP57</i>	3.01	3.15E-08	51.83	6.74
ENSSSCG00000028433	<i>DUS4L</i>	3.01	6.20E-13	313.47	40.17
ENSSSCG00000012252	<i>DDX3X</i>	3.00	7.12E-11	354.44	43.49
ENSSSCG00000005984	<i>ZHX1</i>	2.98	1.36E-12	38.59	4.84
ENSSSCG00000012639	<i>THOC2</i>	2.96	5.33E-14	448.37	57.69
ENSSSCG00000013607		2.96	2.41E-10	8.69	1.09
ENSSSCG00000021946	<i>ZNF383</i>	2.96	6.04E-12	35.36	4.59
ENSSSCG00000033702	<i>SBSN</i>	2.96	2.07E-04	0.88	0.19
ENSSSCG00000054398		2.96	6.94E-06	1.67	0.24

ENSSSCG00000012152		2.92	1.38E-12	44.58	5.83
ENSSSCG00000016135	<i>CPO</i>	2.92	4.06E-03	3.15	0.65
ENSSSCG00000056580		2.91	2.23E-09	16.06	2.43
ENSSSCG00000060176		2.91	4.67E-05	1.01	0.15
ENSSSCG00000056379	<i>CD24</i>	2.90	9.83E-03	3.20	0.35
ENSSSCG00000059255		2.90	1.54E-03	1.87	0.52
ENSSSCG00000063154		2.90	8.39E-07	1.39	0.17
ENSSSCG00000010221		2.88	1.59E-05	1.21	0.16
ENSSSCG00000012491	<i>CENPI</i>	2.88	3.32E-12	261.32	37.49
ENSSSCG00000022155	<i>RBPJ</i>	2.88	2.31E-11	1021.46	150.26
ENSSSCG00000000554	<i>FGFR1OP2</i>	2.87	5.87E-14	748.96	102.41
ENSSSCG00000016869		2.87	3.66E-12	17.96	2.47
ENSSSCG00000062024		2.87	2.00E-03	0.96	0.30
ENSSSCG00000039950	<i>RMI1</i>	2.86	9.69E-13	343.04	48.09
ENSSSCG00000000579	<i>GOLT1B</i>	2.85	1.15E-11	1085.43	160.76
ENSSSCG00000015020	<i>BTG4</i>	2.85	4.47E-12	17431.01	2575.90
ENSSSCG00000016826	<i>RAD1</i>	2.84	7.22E-12	212.03	30.58
ENSSSCG00000004303	<i>RARS2</i>	2.83	5.67E-13	1526.94	219.56
ENSSSCG00000038396		2.83	6.94E-08	33.42	5.91
ENSSSCG00000039631		2.83	2.98E-04	1.50	0.36
ENSSSCG00000016070	<i>GTF3C3</i>	2.81	2.54E-11	54.19	7.54
ENSSSCG00000014214	<i>TRIM36</i>	2.80	8.98E-14	473.47	67.68
ENSSSCG00000013715		2.79	1.79E-12	197.90	29.79
ENSSSCG00000009779	<i>MPHOSPH9</i>	2.78	9.69E-14	887.15	130.41
ENSSSCG00000009009	<i>MND1</i>	2.77	1.70E-12	344.80	52.14
ENSSSCG00000016619	<i>ING3</i>	2.77	6.13E-13	257.78	38.73
ENSSSCG00000026409	<i>TYR</i>	2.75	4.48E-09	9.36	1.40
ENSSSCG00000014319	<i>SMAD5</i>	2.74	2.08E-13	736.04	109.76
ENSSSCG00000006064	<i>SNX31</i>	2.72	1.57E-11	529.63	85.79
ENSSSCG00000013084	<i>TMEM216</i>	2.72	9.74E-12	201.34	32.06
ENSSSCG00000015933	<i>FASTKD1</i>	2.71	1.83E-10	457.37	74.52
ENSSSCG00000050594		2.71	2.63E-12	3192.33	512.94
ENSSSCG00000004190	<i>STX7</i>	2.70	1.12E-10	289.29	48.43
ENSSSCG00000004233	<i>SMPDL3A</i>	2.70	3.28E-06	42.25	6.82
ENSSSCG00000006125	<i>CALB1</i>	2.70	8.73E-07	38.88	6.47
ENSSSCG00000010122	<i>CDC45</i>	2.70	3.53E-10	98.44	14.67
ENSSSCG00000016092	<i>SGO2</i>	2.70	3.77E-12	831.84	135.13
ENSSSCG00000022982	<i>VPS50</i>	2.70	6.91E-11	5302.45	882.54
ENSSSCG00000023531		2.70	1.56E-08	40.13	7.12
ENSSSCG00000024663	<i>SPICE1</i>	2.70	5.13E-13	306.31	47.30
ENSSSCG00000009960	<i>HPS4</i>	2.69	2.69E-09	12.94	2.15
ENSSSCG00000045147		2.69	9.83E-09	25.61	3.85
ENSSSCG00000007748	<i>PSPH</i>	2.68	4.62E-12	3201.64	522.98
ENSSSCG00000008099	<i>ZC3H8</i>	2.68	2.30E-11	433.11	71.95
ENSSSCG00000021307	<i>USP44</i>	2.67	5.33E-14	1250.10	196.54
ENSSSCG00000063544		2.67	1.65E-11	45.16	7.30
ENSSSCG00000010644	<i>DCLRE1A</i>	2.66	5.13E-11	1801.07	300.34
ENSSSCG00000039890	<i>RASL11A</i>	2.66	5.76E-11	135.06	22.57
ENSSSCG00000016043	<i>OSGEPL1</i>	2.65	2.05E-10	82.44	14.11
ENSSSCG00000025190	<i>COQ10A</i>	2.65	3.05E-07	2.55	0.41

ENSSSCG00000036256	<i>MAD2L1</i>	2.65	3.18E-11	2423.60	415.74
ENSSSCG00000003792		2.64	5.67E-13	306.10	49.69
ENSSSCG00000009444	<i>OLFM4</i>	2.64	1.99E-04	0.69	0.09
ENSSSCG00000023171	<i>SLC66A2</i>	2.64	3.78E-10	17.62	2.83
ENSSSCG00000004220	<i>TRMT11</i>	2.63	4.73E-11	141.98	24.07
ENSSSCG00000008937	<i>AMBN</i>	2.63	1.44E-03	0.97	0.25
ENSSSCG00000062269		2.63	1.82E-08	3.26	0.54
ENSSSCG00000023174	<i>USP53</i>	2.62	3.35E-14	313.73	51.01
ENSSSCG00000006105	<i>GEM</i>	2.61	1.21E-09	9.92	1.65
ENSSSCG00000039273		2.61	5.72E-08	6.61	1.17
ENSSSCG00000009051	<i>IL15</i>	2.60	9.50E-06	1.04	0.16
ENSSSCG00000011306	<i>ZNF502</i>	2.59	9.27E-11	296.12	52.73
ENSSSCG00000051834	<i>SDHAF4</i>	2.59	4.23E-12	51.48	8.74
ENSSSCG00000006628	<i>PSMD4</i>	2.58	4.00E-06	89.84	13.72
ENSSSCG00000006840	<i>WDR47</i>	2.58	2.12E-12	1494.98	245.24
ENSSSCG00000022806	<i>LIN7C</i>	2.58	1.31E-13	385.99	65.12
ENSSSCG00000062898	<i>RIPPLY2</i>	2.58	9.35E-07	5.35	0.85
ENSSSCG00000002143	<i>PARP2</i>	2.57	1.84E-11	59.09	10.19
ENSSSCG00000009078	<i>SLC25A31</i>	2.57	1.46E-12	288.77	48.70
ENSSSCG00000059840		2.57	1.82E-06	1.31	0.21
ENSSSCG00000000512	<i>TBC1D15</i>	2.56	2.16E-12	493.62	85.45
ENSSSCG00000004151		2.56	3.15E-12	632.80	110.65
ENSSSCG00000013332	<i>KIF18A</i>	2.56	2.58E-12	1271.99	224.46
ENSSSCG00000025682	<i>ACTR6</i>	2.56	1.24E-10	251.14	46.20
ENSSSCG00000044472	<i>COL19A1</i>	2.56	3.68E-09	46.14	8.64
ENSSSCG00000055543		2.56	4.46E-07	46.69	8.86
ENSSSCG00000063532		2.56	2.45E-12	37.98	6.54
ENSSSCG00000004242	<i>TBC1D32</i>	2.55	2.62E-12	1729.63	299.57
ENSSSCG00000013392	<i>COPB1</i>	2.55	8.98E-14	1270.60	218.59
ENSSSCG00000017430	<i>EIF1</i>	2.55	4.46E-13	2714.12	460.22
ENSSSCG00000056538	<i>PCNA</i>	2.55	3.09E-13	28316.23	4915.53
ENSSSCG00000000890	<i>NEDD1</i>	2.54	2.49E-12	497.96	88.87
ENSSSCG00000003740	<i>ZSCAN30</i>	2.54	7.43E-06	2.41	0.47
ENSSSCG00000005170	<i>DENND4C</i>	2.54	9.12E-12	270.46	47.18
ENSSSCG00000057970	<i>PLBD1</i>	2.54	3.19E-07	20.95	3.93
ENSSSCG00000005786	<i>SNRPA1</i>	2.53	1.49E-12	711.54	127.48
ENSSSCG00000015322	<i>TFPI2</i>	2.53	8.41E-12	210.92	36.70
ENSSSCG00000023328	<i>GPM6A</i>	2.53	1.30E-03	0.81	0.16
ENSSSCG00000040946	<i>EIF5A2</i>	2.53	2.79E-12	80.32	13.84
ENSSSCG00000005600	<i>PPP6C</i>	2.52	2.89E-14	1183.92	205.81
ENSSSCG00000029326	<i>CCNB1</i>	2.52	3.35E-13	5119.91	909.51
ENSSSCG00000033395		2.52	6.16E-09	22.46	3.98
ENSSSCG00000001816	<i>BLM</i>	2.51	3.76E-13	315.98	56.02
ENSSSCG00000012173	<i>SAT1</i>	2.51	3.00E-11	873.07	160.83
ENSSSCG00000012193		2.51	3.04E-03	0.68	0.16
ENSSSCG00000012597	<i>PLS3</i>	2.51	9.77E-12	662.35	117.46
ENSSSCG00000016159	<i>CPS1</i>	2.51	4.02E-06	3.07	0.57
ENSSSCG00000016332	<i>RBM44</i>	2.51	3.01E-11	83.24	14.88
ENSSSCG00000004672	<i>GATM</i>	2.50	3.78E-07	8.13	1.44
ENSSSCG00000012235		2.50	1.64E-13	116.90	20.70

ENSSSCG00000014071	<i>BTF3</i>	2.50	1.70E-12	3001.08	543.17
ENSSSCG00000024999	<i>PPIP5K2</i>	2.50	3.87E-13	1405.11	249.86
ENSSSCG00000025120	<i>BORA</i>	2.50	2.22E-13	188.87	33.52
ENSSSCG00000004391	<i>CEP57L1</i>	2.49	1.18E-10	913.16	175.40
ENSSSCG00000026083	<i>DNAJC24</i>	2.49	4.24E-10	104.43	18.66
ENSSSCG000000055078		2.49	4.81E-10	9.06	1.59
ENSSSCG00000000798	<i>TWF1</i>	2.48	5.33E-14	619.17	111.09
ENSSSCG00000005056	<i>DLGAP5</i>	2.48	3.88E-12	1829.22	343.18
ENSSSCG00000010999	<i>SMU1</i>	2.48	4.47E-11	265.51	49.49
ENSSSCG00000015040	<i>PTS</i>	2.48	8.95E-11	580.14	112.25
ENSSSCG00000017000	<i>RANBP17</i>	2.48	2.45E-09	114.90	21.38
ENSSSCG00000041063		2.48	1.02E-08	5.00	0.96
ENSSSCG00000009236	<i>HELQ</i>	2.47	2.92E-12	178.91	32.10
ENSSSCG00000024529	<i>TRMT5</i>	2.47	9.32E-13	442.07	80.77
ENSSSCG00000009670	<i>ESCO2</i>	2.46	1.20E-11	6373.36	1192.64
ENSSSCG00000028010	<i>ABHD3</i>	2.46	3.80E-12	36.92	6.83
ENSSSCG00000000722	<i>RAD51AP1</i>	2.45	2.45E-12	762.34	143.99
ENSSSCG00000000782	<i>C12orf40</i>	2.45	3.59E-12	394.43	73.82
ENSSSCG00000003766	<i>DNAJB4</i>	2.45	5.32E-11	365.43	68.79
ENSSSCG00000006902	<i>GFI1</i>	2.45	3.59E-11	133.31	25.83
ENSSSCG00000009704	<i>HMGB2</i>	2.45	7.26E-13	865.84	159.45
ENSSSCG00000020842	<i>TAF13</i>	2.45	4.74E-11	291.49	55.88
ENSSSCG00000047744		2.45	1.77E-03	2.24	0.67
ENSSSCG00000004331	<i>CASP8AP2</i>	2.44	5.34E-14	1669.76	308.88
ENSSSCG00000011261	<i>WDR48</i>	2.44	3.33E-13	438.64	80.88
ENSSSCG00000011704	<i>WWTR1</i>	2.44	4.86E-04	0.90	0.21
ENSSSCG00000016902	<i>GZMA</i>	2.44	6.88E-11	194.62	36.89
ENSSSCG00000034074	<i>ERI2</i>	2.44	7.73E-12	82.54	15.63
ENSSSCG00000009818	<i>IFT81</i>	2.43	2.54E-13	577.77	108.16
ENSSSCG00000011010	<i>C9orf72</i>	2.43	8.48E-13	314.47	58.99
ENSSSCG00000016056	<i>GLS</i>	2.43	8.31E-11	170.06	31.63
ENSSSCG00000024459		2.43	2.98E-04	3.57	0.58
ENSSSCG00000026960	<i>ZNF280D</i>	2.43	1.34E-12	89.23	16.56
ENSSSCG00000040498	<i>FAM241B</i>	2.42	4.30E-10	133.14	25.31
ENSSSCG00000030423	<i>MIER1</i>	2.41	1.51E-14	596.44	111.98
ENSSSCG00000006071	<i>VPS13B</i>	2.40	3.04E-12	274.64	52.39
ENSSSCG00000008349	<i>CNRIP1</i>	2.40	1.57E-06	3.22	0.63
ENSSSCG00000009532	<i>POGLUT2</i>	2.40	3.46E-10	40.57	7.79
ENSSSCG00000010478	<i>FFAR4</i>	2.40	2.32E-11	73.42	14.21
ENSSSCG00000003697	<i>NDC80</i>	2.39	1.75E-12	1232.90	240.51
ENSSSCG00000004946	<i>ZWILCH</i>	2.39	1.15E-09	564.16	113.27
ENSSSCG00000004976	<i>LRRC49</i>	2.39	3.40E-11	56.36	10.97
ENSSSCG00000015242	<i>NFRKB</i>	2.39	2.60E-09	162.22	31.97
ENSSSCG00000015569	<i>SWT1</i>	2.39	1.53E-12	479.46	92.49
ENSSSCG00000030616	<i>RESF1</i>	2.39	2.35E-12	936.51	177.61
ENSSSCG00000039560	<i>OOSP2</i>	2.39	1.01E-08	1430.52	307.88
ENSSSCG000000061504	<i>CFAP69</i>	2.39	6.95E-12	45.40	8.87
ENSSSCG00000000860	<i>NUP37</i>	2.38	3.61E-11	978.23	195.31
ENSSSCG00000002020	<i>NGDN</i>	2.38	2.84E-11	3286.83	664.08
ENSSSCG00000006079	<i>RIDA</i>	2.38	1.27E-12	2326.07	454.86

ENSSSCG00000007023	<i>KAT6A</i>	2.38	4.10E-12	123.93	23.75
ENSSSCG00000023276	<i>ZNF24</i>	2.38	3.06E-11	85.34	16.96
ENSSSCG00000026181	<i>AKTIP</i>	2.38	2.54E-12	1981.28	385.00
ENSSSCG00000047560		2.38	9.28E-09	207.76	39.07
ENSSSCG00000008336	<i>ANXA4</i>	2.37	9.26E-03	0.76	0.19
ENSSSCG00000008965	<i>BTC</i>	2.37	5.46E-03	0.85	0.17
ENSSSCG00000009360	<i>ALG5</i>	2.37	4.10E-09	9.22	1.76
ENSSSCG00000016865	<i>FBXO4</i>	2.37	2.14E-09	36.31	7.32
ENSSSCG00000030088		2.37	7.68E-05	2.97	0.71
ENSSSCG00000056325		2.37	4.10E-05	0.75	0.13
ENSSSCG00000059404		2.37	2.29E-03	0.85	0.23
ENSSSCG00000008185	<i>MITD1</i>	2.36	1.62E-11	128.31	25.63
ENSSSCG00000011678	<i>XRN1</i>	2.36	5.89E-13	127.67	25.01
ENSSSCG00000012181	<i>PDK3</i>	2.36	8.48E-11	75.83	14.82
ENSSSCG00000014012	<i>GFPT2</i>	2.36	6.19E-10	134.03	25.83
ENSSSCG00000012149	<i>RBBP7</i>	2.35	8.78E-14	2052.87	405.36
ENSSSCG00000016134	<i>FASTKD2</i>	2.35	1.87E-10	808.70	170.24
ENSSSCG00000016817	<i>TARS1</i>	2.35	7.63E-13	895.37	176.72
ENSSSCG00000031954	<i>SLC39A10</i>	2.35	3.76E-13	487.83	96.65
ENSSSCG00000032198	<i>SPOPL</i>	2.35	1.35E-09	58.43	11.62
ENSSSCG00000039216	<i>CENPN</i>	2.35	1.55E-10	185.79	38.75
ENSSSCG00000039472	<i>SLC30A1</i>	2.35	2.67E-10	278.15	54.56
ENSSSCG00000011038	<i>MRC1</i>	2.34	1.15E-06	5.66	1.15
ENSSSCG00000015695	<i>RAB3GAP1</i>	2.34	1.53E-12	213.11	42.33
ENSSSCG00000015708		2.34	8.91E-04	0.97	0.32
ENSSSCG00000017668	<i>VMP1</i>	2.34	6.85E-09	90.52	19.58
ENSSSCG00000027767	<i>SHLD2</i>	2.34	8.18E-11	2170.42	434.19
ENSSSCG00000031882	<i>PNPT1</i>	2.34	1.30E-11	419.36	84.93
ENSSSCG00000039185	<i>EPB41L5</i>	2.34	9.28E-13	716.45	142.05
ENSSSCG00000048962		2.34	3.48E-06	1.97	0.40
ENSSSCG00000004578	<i>ANXA2</i>	2.33	9.68E-12	363.65	73.10
ENSSSCG00000005967	<i>LRATD2</i>	2.33	5.17E-11	732.05	145.02
ENSSSCG00000009077	<i>HSPA4L</i>	2.33	2.71E-13	701.14	140.04
ENSSSCG00000010457	<i>KIF20B</i>	2.33	8.59E-13	2668.21	534.38
ENSSSCG00000011874	<i>PARP14</i>	2.33	1.65E-11	237.23	46.53
ENSSSCG00000032557	<i>LDHB</i>	2.33	6.93E-03	5.42	1.07
ENSSSCG00000004485	<i>CD109</i>	2.32	5.17E-11	32.63	6.58
ENSSSCG00000004647	<i>DTWD1</i>	2.32	5.75E-11	497.27	105.14
ENSSSCG00000004695	<i>WDR76</i>	2.32	6.75E-10	77.62	15.91
ENSSSCG00000013314	<i>QSER1</i>	2.32	5.47E-09	95.09	20.48
ENSSSCG00000014093	<i>CRHBP</i>	2.32	8.16E-10	102.20	21.41
ENSSSCG00000038076	<i>ATF2</i>	2.32	4.74E-11	146.33	29.60
ENSSSCG00000008385	<i>PUS10</i>	2.31	1.71E-10	40.89	8.60
ENSSSCG00000012548	<i>PWWP3B</i>	2.31	3.98E-04	1.37	0.27
ENSSSCG00000016888	<i>MOCS2</i>	2.31	3.88E-11	322.81	66.09
ENSSSCG00000001882	<i>NEIL1</i>	2.30	1.04E-10	75.39	15.78
ENSSSCG00000003596	<i>SNRNP40</i>	2.30	1.26E-13	814.19	166.31
ENSSSCG00000012234	<i>SRPX</i>	2.30	5.96E-12	6261.54	1307.72
ENSSSCG00000013284	<i>TTC17</i>	2.30	5.49E-12	121.11	25.30
ENSSSCG00000016998	<i>NPM1</i>	2.30	9.69E-13	4240.07	881.86

ENSSSCG00000032971	<i>SMC1B</i>	2.30	3.74E-13	1648.81	340.02
ENSSSCG00000004304	<i>SLC35A1</i>	2.29	5.64E-11	622.22	131.90
ENSSSCG00000010995	<i>CHMP5</i>	2.29	2.05E-09	460.70	102.19
ENSSSCG00000031103	<i>TBK1</i>	2.29	3.31E-08	8.33	1.72
ENSSSCG00000008372	<i>EHBP1</i>	2.28	1.74E-12	144.94	30.21
ENSSSCG00000009084	<i>SPATA5</i>	2.28	1.42E-11	788.50	166.67
ENSSSCG00000015095	<i>UBE4A</i>	2.28	2.28E-12	173.12	35.78
ENSSSCG00000025454	<i>POLR2C</i>	2.28	1.03E-12	784.65	161.61
ENSSSCG00000030671	<i>DAZL</i>	2.28	1.78E-07	13.10	3.14
ENSSSCG00000031854		2.28	2.48E-06	3.11	0.66
ENSSSCG00000033107	<i>DYNLT1</i>	2.28	3.62E-11	1056.19	225.77
ENSSSCG00000037733	<i>TRIQQ</i>	2.28	3.16E-07	6.45	1.33
ENSSSCG00000045118	<i>NLRP4</i>	2.28	5.49E-11	378.86	76.88
ENSSSCG00000057050	<i>NPRL2</i>	2.28	7.20E-11	195.13	42.26
ENSSSCG00000063355		2.28	1.52E-11	154.80	32.62
ENSSSCG00000001862	<i>ETFA</i>	2.27	1.18E-11	3714.70	793.99
ENSSSCG00000012346	<i>PAGE2B</i>	2.27	7.13E-06	22.15	4.38
ENSSSCG00000014151	<i>CETN3</i>	2.27	2.16E-10	388.55	84.86
ENSSSCG00000016835	<i>SKP2</i>	2.27	9.69E-13	240.09	49.46
ENSSSCG00000016876	<i>C5orf34</i>	2.27	2.89E-12	897.92	189.38
ENSSSCG00000021791	<i>SENP7</i>	2.27	2.82E-11	28.69	5.92
ENSSSCG00000021998	<i>SLCO1B3</i>	2.27	6.46E-06	1.88	0.42
ENSSSCG00000022790	<i>SNX2</i>	2.27	5.17E-11	607.60	132.90
ENSSSCG00000046630	<i>C3orf56</i>	2.27	3.43E-04	3.77	0.74
ENSSSCG00000012654		2.26	3.76E-13	210.12	43.63
ENSSSCG00000024966	<i>TRIM77</i>	2.26	3.15E-12	2446.31	508.36
ENSSSCG00000035673	<i>HBP1</i>	2.26	8.95E-11	181.58	39.78
ENSSSCG00000038630		2.26	7.28E-09	164.59	35.77
ENSSSCG00000052786		2.26	1.29E-08	28.95	6.59
ENSSSCG00000000486	<i>NUP107</i>	2.25	1.26E-12	674.90	142.27
ENSSSCG00000004128	<i>ZC2HC1B</i>	2.25	3.78E-05	1.18	0.28
ENSSSCG00000004263	<i>ZUP1</i>	2.25	1.27E-11	194.24	42.40
ENSSSCG00000008857	<i>MSMO1</i>	2.25	1.39E-09	1130.80	252.99
ENSSSCG00000012619	<i>SEPTIN6</i>	2.25	1.03E-07	92.97	20.47
ENSSSCG00000014948	<i>C11orf54</i>	2.25	1.38E-07	264.47	63.35
ENSSSCG00000016073	<i>PGAP1</i>	2.25	1.28E-09	45.75	10.40
ENSSSCG00000017671	<i>RNFT1</i>	2.25	2.09E-10	133.77	27.62
ENSSSCG00000026158	<i>RAD18</i>	2.25	1.41E-11	289.18	63.10
ENSSSCG00000031990	<i>DIMT1</i>	2.25	3.14E-11	376.26	80.53
ENSSSCG00000038469	<i>KLHL7</i>	2.25	1.15E-11	677.90	147.26
ENSSSCG00000011214	<i>NGLY1</i>	2.24	4.22E-13	2038.44	428.14
ENSSSCG00000011501	<i>SUCLG2</i>	2.24	1.12E-11	234.82	50.48
ENSSSCG00000033860	<i>ZMAT3</i>	2.24	9.93E-08	42.30	8.73
ENSSSCG00000035209	<i>ANP32E</i>	2.24	8.36E-11	15.62	3.33
ENSSSCG00000036005	<i>CNEP1R1</i>	2.24	1.07E-11	252.79	53.54
ENSSSCG00000038615	<i>TAF9</i>	2.24	5.15E-11	987.37	215.85
ENSSSCG00000007235	<i>TPX2</i>	2.23	3.05E-13	1962.95	422.55
ENSSSCG00000010833	<i>TAF1A</i>	2.23	4.22E-11	2216.42	474.58
ENSSSCG00000015215	<i>CHEK1</i>	2.23	7.57E-12	357.23	75.91
ENSSSCG00000017473	<i>TOP2A</i>	2.23	1.02E-12	473.68	100.90

ENSSSCG00000027652	<i>KLHL15</i>	2.23	2.84E-09	199.45	42.02
ENSSSCG00000006866	<i>DBT</i>	2.22	1.21E-10	481.57	109.00
ENSSSCG00000009233	<i>GPAT3</i>	2.22	5.24E-07	2.91	0.61
ENSSSCG00000011804	<i>RFC4</i>	2.22	6.06E-13	615.60	133.95
ENSSSCG00000012642	<i>STAG2</i>	2.22	7.37E-10	119.34	25.14
ENSSSCG00000012691	<i>ZNF449</i>	2.22	5.06E-12	91.14	19.58
ENSSSCG00000013302	<i>CAT</i>	2.22	1.81E-09	434.71	93.97
ENSSSCG00000015576	<i>TPR</i>	2.22	1.73E-12	190.99	41.14
ENSSSCG00000016166	<i>SPAG16</i>	2.22	9.31E-13	135.00	29.11
ENSSSCG00000017044	<i>IL12B</i>	2.22	1.79E-10	217.95	47.22
ENSSSCG00000024881	<i>TCP11L2</i>	2.22	5.85E-06	6.87	1.64
ENSSSCG00000031476	<i>KLHL6</i>	2.22	3.40E-03	0.77	0.14
ENSSSCG00000040220	<i>USP33</i>	2.22	2.57E-12	1719.54	372.76
ENSSSCG00000001847	<i>MESP1</i>	2.21	1.67E-09	27.07	6.00
ENSSSCG00000002381	<i>NEK9</i>	2.21	1.55E-04	1.27	0.28
ENSSSCG00000004403	<i>CDC40</i>	2.21	6.15E-13	264.26	57.90
ENSSSCG00000006830	<i>PSMA5</i>	2.21	3.67E-11	541.17	122.47
ENSSSCG00000009491	<i>TGDS</i>	2.21	6.48E-11	658.19	147.04
ENSSSCG00000011549	<i>OGG1</i>	2.21	2.02E-07	2.59	0.55
ENSSSCG00000016549	<i>MKLN1</i>	2.21	5.82E-11	575.89	127.68
ENSSSCG00000024443	<i>ORC6</i>	2.21	1.67E-11	1236.76	275.63
ENSSSCG00000028748	<i>NDC1</i>	2.21	9.51E-13	666.46	145.27
ENSSSCG00000059309	<i>CA9</i>	2.21	2.37E-11	346.54	77.34
ENSSSCG00000004105	<i>NUP43</i>	2.20	1.65E-11	255.90	57.21
ENSSSCG00000004414	<i>CD164</i>	2.20	2.24E-12	1086.46	238.38
ENSSSCG00000006347	<i>DUSP12</i>	2.20	4.49E-10	123.80	27.45
ENSSSCG00000006755	<i>DENND2C</i>	2.20	5.72E-10	31.74	6.80
ENSSSCG00000017259	<i>PRKAR1A</i>	2.20	1.05E-13	770.49	167.67
ENSSSCG00000024119	<i>GLB1</i>	2.20	5.01E-06	3.90	0.83
ENSSSCG00000025355	<i>ZNF146</i>	2.20	2.19E-09	75.55	16.92
ENSSSCG00000039582	<i>PSMA2</i>	2.20	7.70E-11	868.77	197.31
ENSSSCG00000004217	<i>RNF146</i>	2.19	3.39E-08	392.30	82.64
ENSSSCG00000005135	<i>MTAP</i>	2.19	9.69E-13	378.72	83.62
ENSSSCG00000005466	<i>PTBP3</i>	2.19	6.75E-13	298.66	65.96
ENSSSCG00000009850	<i>TAOK3</i>	2.19	2.35E-12	193.39	42.19
ENSSSCG00000011207	<i>SGO1</i>	2.19	5.41E-12	482.67	107.23
ENSSSCG00000016045	<i>PMS1</i>	2.19	5.21E-12	473.40	106.46
ENSSSCG00000017022	<i>HMMR</i>	2.19	9.66E-13	2157.75	476.67
ENSSSCG00000020743	<i>RABGAP1</i>	2.19	6.15E-13	711.19	154.97
ENSSSCG00000020805	<i>FOXR2</i>	2.19	9.17E-06	1.76	0.37
ENSSSCG00000021310	<i>LIN9</i>	2.19	4.22E-11	45.53	10.08
ENSSSCG00000029774	<i>RNF7</i>	2.19	1.11E-11	479.82	108.17
ENSSSCG00000031652	<i>RPGRIP1L</i>	2.19	6.31E-13	460.58	102.45
ENSSSCG00000036610	<i>ARMC8</i>	2.19	1.54E-12	717.24	159.31
ENSSSCG00000009314	<i>FLT3</i>	2.18	3.64E-10	123.75	28.46
ENSSSCG00000010240	<i>DNA2</i>	2.18	7.06E-11	72.78	16.60
ENSSSCG00000015302	<i>STEAP2</i>	2.18	8.26E-06	29.56	6.37
ENSSSCG00000015659	<i>YOD1</i>	2.18	1.31E-10	56.34	12.50
ENSSSCG00000016887	<i>ITGA2</i>	2.18	3.80E-10	263.17	57.30
ENSSSCG00000021371	<i>ZNF300</i>	2.18	9.03E-09	8.85	1.92

ENSSSCG00000022387	<i>TBPL1</i>	2.18	1.29E-11	1216.64	274.46
ENSSSCG00000027472	<i>GCA</i>	2.18	2.25E-12	790.27	175.78
ENSSSCG00000029127		2.18	2.18E-06	11.90	2.74
ENSSSCG00000035883	<i>GPR160</i>	2.18	1.48E-12	707.97	158.39
ENSSSCG00000035887	<i>C8orf34</i>	2.18	1.04E-09	44.38	10.61
ENSSSCG00000008221	<i>KDM3A</i>	2.17	2.17E-11	111.76	24.67
ENSSSCG00000008451	<i>PPM1B</i>	2.17	3.49E-11	56.57	12.43
ENSSSCG00000008826	<i>FRYL</i>	2.17	1.82E-11	121.84	26.93
ENSSSCG00000008902	<i>PPAT</i>	2.17	2.11E-10	32.70	7.17
ENSSSCG00000009886	<i>TRAJD1</i>	2.17	1.46E-09	206.19	45.10
ENSSSCG00000014136	<i>VCAN</i>	2.17	1.65E-11	875.34	200.23
ENSSSCG00000016076	<i>COQ10B</i>	2.17	1.17E-09	532.02	122.62
ENSSSCG00000024392	<i>THEMIS</i>	2.17	4.31E-05	3.28	0.84
ENSSSCG00000028867	<i>PPIL4</i>	2.17	1.07E-12	262.13	59.06
ENSSSCG00000033366		2.17	4.51E-11	183.28	42.04
ENSSSCG00000035082	<i>PHF5A</i>	2.17	4.79E-11	1071.14	244.64
ENSSSCG00000051839	<i>FTHL17</i>	2.17	1.51E-04	0.86	0.19
ENSSSCG00000004336	<i>EPHA7</i>	2.16	1.36E-08	22.83	5.27
ENSSSCG00000005076	<i>KIAA0586</i>	2.16	7.84E-13	240.77	54.26
ENSSSCG00000011112	<i>CDC123</i>	2.16	3.39E-11	421.42	93.19
ENSSSCG00000011197	<i>OXNAD1</i>	2.16	4.07E-09	100.51	23.41
ENSSSCG00000011710	<i>EIF2A</i>	2.16	1.85E-12	286.06	65.08
ENSSSCG00000011937	<i>MORC1</i>	2.16	1.06E-06	20.06	4.49
ENSSSCG00000014022	<i>HNRNPH1</i>	2.16	1.15E-10	35.98	8.09
ENSSSCG00000025775	<i>TADA2A</i>	2.16	2.04E-12	1051.13	236.93
ENSSSCG00000002410	<i>CEP128</i>	2.15	1.49E-12	78.52	17.77
ENSSSCG00000004134	<i>PEX3</i>	2.15	2.69E-12	192.61	43.48
ENSSSCG00000007322	<i>NDRG3</i>	2.15	3.63E-11	3654.45	857.59
ENSSSCG00000013339	<i>ANO3</i>	2.15	2.18E-03	0.69	0.13
ENSSSCG00000014967	<i>FAM76B</i>	2.15	6.75E-11	74.34	16.74
ENSSSCG00000016232	<i>MRPL44</i>	2.15	1.59E-12	82.18	18.53
ENSSSCG00000023074	<i>KLK4</i>	2.15	1.19E-04	1.86	0.43
ENSSSCG00000025870	<i>HEPACAM2</i>	2.15	1.41E-08	12.53	2.97
ENSSSCG00000006980	<i>FGF20</i>	2.14	1.21E-05	2.60	0.67
ENSSSCG00000007881	<i>ERCC4</i>	2.14	6.95E-09	20.03	4.49
ENSSSCG00000008300	<i>STAMBP</i>	2.14	1.99E-11	111.17	25.79
ENSSSCG00000009113	<i>METTL14</i>	2.14	1.63E-11	619.57	138.99
ENSSSCG00000009671	<i>PBK</i>	2.14	1.19E-10	718.02	168.68
ENSSSCG00000011213	<i>TOP2B</i>	2.14	1.28E-12	2689.18	606.75
ENSSSCG00000015346	<i>ICA1</i>	2.14	1.63E-11	250.71	56.75
ENSSSCG00000050940	<i>PRICKLE4</i>	2.14	1.66E-11	1994.51	465.17
ENSSSCG00000053306	<i>KNSTRN</i>	2.14	2.15E-10	992.32	237.67
ENSSSCG00000005008	<i>POLE2</i>	2.13	7.80E-11	148.11	34.86
ENSSSCG00000006369	<i>F11R</i>	2.13	3.93E-10	31.59	7.19
ENSSSCG00000007797	<i>ITGAL</i>	2.13	2.37E-09	12.00	2.82
ENSSSCG00000012757	<i>CETN2</i>	2.13	8.60E-10	1675.09	406.95
ENSSSCG00000013772	<i>ASF1B</i>	2.13	1.81E-11	372.95	85.35
ENSSSCG00000015771	<i>NEIL3</i>	2.13	4.32E-13	618.12	141.41
ENSSSCG00000021184	<i>OSGIN2</i>	2.13	2.05E-09	11.69	2.65
ENSSSCG00000023296	<i>CENPE</i>	2.13	1.29E-12	851.27	196.05

ENSSSCG00000023886	<i>RPA3</i>	2.13	4.63E-11	327.72	77.29
ENSSSCG00000026761	<i>CCT8</i>	2.13	8.20E-12	1911.54	446.90
ENSSSCG00000029226	<i>UBC</i>	2.13	9.20E-13	2492.50	572.00
ENSSSCG00000031869	<i>VPS72</i>	2.13	6.94E-12	397.20	91.62
ENSSSCG00000037595	<i>AP3S1</i>	2.13	1.63E-12	433.70	100.27
ENSSSCG00000042522		2.13	2.56E-11	373.38	85.33
ENSSSCG00000001904	<i>CLK3</i>	2.12	3.72E-12	146.56	33.58
ENSSSCG00000004469	<i>LCA5</i>	2.12	1.65E-11	194.71	45.63
ENSSSCG00000006032	<i>EMC2</i>	2.12	3.51E-10	953.29	231.42
ENSSSCG00000015293		2.12	1.21E-10	70.55	16.55
ENSSSCG00000031418		2.12	1.12E-04	0.85	0.17
ENSSSCG00000033241		2.12	2.85E-07	3.38	0.82
ENSSSCG00000035648	<i>MANEA</i>	2.12	4.06E-10	113.50	26.46
ENSSSCG00000062556		2.12	9.99E-10	12.66	2.93
ENSSSCG00000062685	<i>ATAD1</i>	2.12	1.15E-10	119.08	27.30
ENSSSCG00000004163	<i>BCLAF1</i>	2.11	3.25E-09	41.86	9.58
ENSSSCG00000004540	<i>ONECUT2</i>	2.11	3.24E-04	766.59	219.88
ENSSSCG00000006926	<i>GTF2B</i>	2.11	8.47E-10	741.32	180.56
ENSSSCG00000006950	<i>DNAI3</i>	2.11	6.58E-06	4.13	1.00
ENSSSCG00000008298	<i>DUSP11</i>	2.11	2.40E-09	177.43	44.10
ENSSSCG00000010243	<i>CCAR1</i>	2.11	5.84E-13	442.88	101.90
ENSSSCG00000010635	<i>ZDHHC6</i>	2.11	3.27E-08	92.24	23.30
ENSSSCG00000012055	<i>MORC3</i>	2.11	5.47E-12	815.55	190.82
ENSSSCG00000016008	<i>CWC22</i>	2.11	6.47E-13	197.44	45.87
ENSSSCG00000062206	<i>PSMG1</i>	2.11	1.74E-12	1018.67	238.16
ENSSSCG00000004639	<i>USP8</i>	2.10	4.92E-13	742.55	174.32
ENSSSCG00000007031	<i>POLB</i>	2.10	1.41E-12	355.17	83.43
ENSSSCG00000010391	<i>ERCC6</i>	2.10	2.32E-06	4.57	1.11
ENSSSCG00000010609	<i>CFAP43</i>	2.10	1.28E-07	3.83	0.89
ENSSSCG00000014084	<i>POC5</i>	2.10	2.33E-13	950.55	222.14
ENSSSCG00000016049	<i>HIBCH</i>	2.10	8.13E-11	1174.80	284.50
ENSSSCG00000022788	<i>PPA2</i>	2.10	2.34E-08	16.61	4.05
ENSSSCG00000024781	<i>CAPN14</i>	2.10	1.70E-03	0.60	0.16
ENSSSCG00000025721	<i>TMPRSS7</i>	2.10	7.98E-05	1.49	0.34
ENSSSCG00000030408	<i>DDX58</i>	2.10	2.33E-11	190.94	46.08
ENSSSCG00000031367	<i>AADAC</i>	2.10	7.86E-08	12.41	3.00
ENSSSCG00000006162	<i>ZC2HC1A</i>	2.09	1.65E-11	1405.46	336.26
ENSSSCG00000006192	<i>LACTB2</i>	2.09	7.21E-10	47.39	11.70
ENSSSCG00000006294	<i>NME7</i>	2.09	1.64E-08	953.29	238.05
ENSSSCG00000009594	<i>SPTLC1</i>	2.09	1.78E-13	320.41	75.09
ENSSSCG00000014204	<i>DCP2</i>	2.09	3.23E-12	366.44	87.16
ENSSSCG00000014539	<i>ZFP62</i>	2.09	1.59E-08	12.85	3.06
ENSSSCG00000029943	<i>SCLT1</i>	2.09	1.20E-11	552.87	131.97
ENSSSCG00000060529		2.09	9.89E-12	47.31	11.13
ENSSSCG00000001934	<i>SEC23A</i>	2.08	7.14E-12	319.36	75.21
ENSSSCG00000005112	<i>WDR89</i>	2.08	7.09E-10	229.48	57.66
ENSSSCG00000008996	<i>PLRG1</i>	2.08	7.10E-12	241.15	57.00
ENSSSCG00000009901	<i>SIRT4</i>	2.08	1.51E-09	18.21	4.39
ENSSSCG00000010160	<i>TARBP1</i>	2.08	2.34E-07	9.07	2.12
ENSSSCG00000022903	<i>NAPEPLD</i>	2.08	5.38E-09	68.37	15.88

ENSSSCG00000023724	<i>ZBTB1</i>	2.08	3.91E-10	34.20	8.22
ENSSSCG00000000364	<i>SARNP</i>	2.07	4.25E-10	362.77	91.37
ENSSSCG000000005212	<i>PLGRKT</i>	2.07	3.84E-09	53.27	13.43
ENSSSCG000000006727	<i>WDR3</i>	2.07	9.90E-08	50.51	12.31
ENSSSCG000000008789	<i>WDR19</i>	2.07	6.54E-11	1040.61	245.03
ENSSSCG000000009030	<i>PRMT9</i>	2.07	4.91E-11	57.53	13.92
ENSSSCG000000010794	<i>PALB2</i>	2.07	6.85E-13	488.50	116.11
ENSSSCG000000015861	<i>WDR33</i>	2.07	7.30E-10	80.76	20.37
ENSSSCG000000021834	<i>ERCC6L</i>	2.07	3.70E-11	190.21	45.20
ENSSSCG000000027293	<i>TNPO1</i>	2.07	4.54E-12	774.95	184.83
ENSSSCG000000028949	<i>NUP35</i>	2.07	1.03E-08	1527.79	393.37
ENSSSCG000000035893	<i>CLTRN</i>	2.07	5.50E-12	78.35	18.77
ENSSSCG000000055086		2.07	1.01E-11	28.46	6.80
ENSSSCG000000059506		2.07	1.15E-05	2.30	0.55
ENSSSCG000000004623	<i>BCL2L10</i>	2.06	5.21E-12	879.63	214.90
ENSSSCG000000007503	<i>RAE1</i>	2.06	3.81E-13	997.77	238.20
ENSSSCG000000008518	<i>SLC30A6</i>	2.06	2.01E-07	122.74	31.36
ENSSSCG000000011762	<i>ACTL6A</i>	2.06	7.07E-13	293.56	70.82
ENSSSCG000000013849	<i>TPM4</i>	2.06	4.52E-03	1.46	0.31
ENSSSCG000000015689	<i>DARS1</i>	2.06	1.59E-12	301.07	72.55
ENSSSCG000000015793	<i>UFSP2</i>	2.06	1.46E-08	50.05	12.77
ENSSSCG000000015889	<i>TANK</i>	2.06	3.34E-09	195.01	49.54
ENSSSCG000000022361	<i>BANK1</i>	2.06	7.05E-08	41.81	10.09
ENSSSCG000000024131	<i>MINDY2</i>	2.06	3.19E-09	46.26	11.40
ENSSSCG000000025349	<i>CCDC14</i>	2.06	5.22E-09	9.47	2.27
ENSSSCG000000026579	<i>LEKR1</i>	2.06	1.21E-11	66.90	16.33
ENSSSCG000000027429	<i>YARS2</i>	2.06	3.02E-08	23.85	5.60
ENSSSCG000000037594	<i>PNISR</i>	2.06	3.02E-13	320.75	77.11
ENSSSCG000000038541	<i>TMEM60</i>	2.06	4.63E-10	575.29	145.05
ENSSSCG000000040418	<i>FSIP1</i>	2.06	4.12E-10	55.74	13.88
ENSSSCG000000001095	<i>GMNN</i>	2.05	4.15E-10	565.28	141.82
ENSSSCG000000003730	<i>RNF138</i>	2.05	1.18E-10	65.86	15.98
ENSSSCG000000004314	<i>PM20D2</i>	2.05	6.25E-10	123.66	30.87
ENSSSCG000000004661	<i>MYEF2</i>	2.05	1.11E-11	71.44	17.22
ENSSSCG000000009040	<i>SMAD1</i>	2.05	1.18E-10	80.20	19.28
ENSSSCG000000011181	<i>NEK11</i>	2.05	2.53E-10	24.79	6.15
ENSSSCG000000014123	<i>FAM151B</i>	2.05	5.13E-10	475.49	116.81
ENSSSCG000000015868	<i>ARL6IP6</i>	2.05	2.03E-09	8.15	1.97
ENSSSCG000000027206	<i>PAR6B</i>	2.05	7.87E-09	133.23	32.17
ENSSSCG000000033025	<i>C21orf91</i>	2.05	6.29E-10	203.09	50.99
ENSSSCG000000040187		2.05	5.80E-09	171.05	42.83
ENSSSCG000000003072	<i>ZNF283</i>	2.04	4.34E-12	256.68	61.83
ENSSSCG000000004049	<i>ACAT2</i>	2.04	5.88E-06	12.04	3.27
ENSSSCG000000004351	<i>USP45</i>	2.04	2.20E-12	817.88	200.37
ENSSSCG000000005344	<i>MELK</i>	2.04	6.00E-12	3232.29	794.74
ENSSSCG000000005933	<i>CHRA1</i>	2.04	6.64E-11	565.21	141.56
ENSSSCG000000007955	<i>CLUAP1</i>	2.04	1.63E-11	125.91	30.41
ENSSSCG000000008614	<i>SMC6</i>	2.04	9.07E-13	230.42	55.86
ENSSSCG000000011309	<i>KIF15</i>	2.04	2.13E-12	580.56	140.79
ENSSSCG000000011518	<i>SHQ1</i>	2.04	4.84E-10	103.34	25.17

ENSSSCG00000012046	<i>SMIM11</i>	2.04	2.42E-10	175.95	44.10
ENSSSCG00000013223	<i>NUP160</i>	2.04	4.22E-11	207.82	49.68
ENSSSCG00000014126	<i>MSH3</i>	2.04	3.45E-11	478.21	119.71
ENSSSCG00000016945	<i>PPWD1</i>	2.04	1.27E-10	124.06	31.02
ENSSSCG00000023320	<i>CYP3A22</i>	2.04	2.46E-05	304.00	95.90
ENSSSCG00000027230	<i>SLC35G1</i>	2.04	5.13E-13	155.19	37.52
ENSSSCG00000036491	<i>PCNP</i>	2.04	8.09E-13	166.38	40.58
ENSSSCG00000049258		2.04	1.11E-04	0.75	0.18
ENSSSCG00000053875		2.04	1.33E-06	9.77	2.28
ENSSSCG00000062141		2.04	7.10E-08	16.65	4.37
ENSSSCG00000000926	<i>CEP290</i>	2.03	4.11E-13	760.60	185.90
ENSSSCG00000003949	<i>CDC20</i>	2.03	6.07E-12	236.97	58.12
ENSSSCG00000005029	<i>RTRAF</i>	2.03	4.77E-09	300.98	75.85
ENSSSCG00000012119	<i>TMSB4X</i>	2.03	3.19E-08	514.63	131.38
ENSSSCG00000014338	<i>HSPA9</i>	2.03	5.08E-12	660.28	160.50
ENSSSCG00000017032		2.03	1.13E-10	9059.55	2299.04
ENSSSCG00000017493	<i>ZPBP2</i>	2.03	3.11E-10	37.26	9.23
ENSSSCG00000038181	<i>CCNT1</i>	2.03	2.03E-10	88.26	21.46
ENSSSCG00000047723		2.03	3.91E-06	3.98	1.15
ENSSSCG00000000800	<i>PUS7L</i>	2.02	1.99E-09	18.01	4.66
ENSSSCG00000009968	<i>TTC28</i>	2.02	1.92E-09	151.02	38.97
ENSSSCG00000011881	<i>IQCB1</i>	2.02	4.91E-11	1046.16	263.78
ENSSSCG00000013940	<i>NLRP3</i>	2.02	4.86E-10	73.53	18.64
ENSSSCG00000014070	<i>ANKRA2</i>	2.02	9.67E-12	81.56	20.24
ENSSSCG00000016853	<i>RICTOR</i>	2.02	2.35E-09	196.78	47.10
ENSSSCG00000017419	<i>DNAJC7</i>	2.02	8.19E-13	383.73	95.80
ENSSSCG00000022292	<i>NPL</i>	2.02	1.32E-06	20.71	5.61
ENSSSCG00000060656	<i>GPX1</i>	2.02	5.07E-08	28.93	7.51
ENSSSCG00000006846	<i>HENMT1</i>	2.01	7.44E-12	3081.78	774.09
ENSSSCG00000007043	<i>GPCPD1</i>	2.01	1.27E-11	245.49	61.28
ENSSSCG00000008529	<i>YPEL5</i>	2.01	1.28E-10	2190.83	563.93
ENSSSCG00000014061	<i>THOC3</i>	2.01	3.67E-06	4.08	1.07
ENSSSCG00000014969	<i>CEP57</i>	2.01	2.51E-13	1469.17	363.61
ENSSSCG00000022957		2.01	3.32E-07	43.07	11.41
ENSSSCG00000024445	<i>METTL3</i>	2.01	5.21E-11	86.21	21.27
ENSSSCG00000026433	<i>CCDC73</i>	2.01	2.50E-11	559.03	142.83
ENSSSCG00000028327	<i>RHOBTB1</i>	2.01	2.55E-09	19.22	4.75
ENSSSCG00000028423	<i>RBBP4</i>	2.01	3.87E-13	1999.70	498.31
ENSSSCG00000033937	<i>DYNC2H1</i>	2.01	6.72E-09	19.93	4.87
ENSSSCG00000039331		2.01	1.49E-09	130.38	32.25
ENSSSCG00000001968	<i>NUBPL</i>	2.00	2.72E-07	48.87	14.22
ENSSSCG00000003831	<i>OMA1</i>	2.00	4.03E-09	892.23	232.27
ENSSSCG00000004875	<i>CYB5A</i>	2.00	1.06E-09	595.40	158.09
ENSSSCG00000025830	<i>NUP93</i>	2.00	6.54E-11	158.70	39.19
ENSSSCG00000036431	<i>VPS13C</i>	2.00	1.15E-11	80.04	20.01
ENSSSCG00000047552		2.00	1.13E-05	5.81	1.40
Downregulated DEGs					
ENSSSCG00000041773		-10.50	2.97E-13	0.27	77.46
ENSSSCG00000020737	<i>ZNRD2</i>	-7.03	1.77E-13	0.26	35.21
ENSSSCG00000031420	<i>SCO2</i>	-6.84	2.74E-12	0.02	5.07

ENSSSCG00000036865	<i>SDS</i>	-6.79	1.45E-11	0.14	13.87
ENSSSCG00000012890	<i>TCIRG1</i>	-6.74	7.22E-12	0.34	28.94
ENSSSCG00000039647	<i>EIF3F</i>	-6.72	2.20E-12	0.21	19.22
ENSSSCG00000012953	<i>YIF1A</i>	-6.68	2.63E-12	0.45	43.28
ENSSSCG00000005438	<i>ACTL7B</i>	-6.50	2.32E-11	0.19	16.09
ENSSSCG00000000973	<i>SELENOO</i>	-6.49	5.32E-10	0.04	5.43
ENSSSCG00000026142	<i>TNK1</i>	-6.49	1.77E-11	0.11	10.67
ENSSSCG00000003351	<i>MMP23B</i>	-6.46	2.24E-12	0.02	4.08
ENSSSCG00000046182		-6.41	7.05E-12	0.02	4.21
ENSSSCG00000026931	<i>SERTAD1</i>	-6.39	2.09E-11	0.09	6.68
ENSSSCG00000002651	<i>CDT1</i>	-6.37	8.91E-12	0.24	21.12
ENSSSCG00000017143	<i>CEP131</i>	-6.23	1.48E-13	0.48	32.68
ENSSSCG00000005848	<i>FAM166A</i>	-6.15	3.06E-10	0.36	22.35
ENSSSCG00000015337		-6.12	1.02E-14	3.08	205.93
ENSSSCG00000034876	<i>PET100</i>	-6.10	1.34E-11	0.72	32.71
ENSSSCG00000001990	<i>NOP9</i>	-6.09	5.37E-13	0.41	27.17
ENSSSCG00000002555	<i>JAG2</i>	-6.09	2.40E-10	0.02	3.62
ENSSSCG00000044499		-6.08	3.77E-13	0.00	2.39
ENSSSCG00000003261		-6.07	3.27E-13	0.70	39.43
ENSSSCG00000040673	<i>TMEM140</i>	-6.05	2.21E-10	0.03	3.72
ENSSSCG00000025589	<i>SMIM26</i>	-6.02	1.86E-13	0.66	43.58
ENSSSCG00000049336	<i>H2BK1</i>	-6.02	6.73E-13	4.31	212.24
ENSSSCG00000007983	<i>PDIA2</i>	-5.95	8.76E-12	0.23	12.59
ENSSSCG00000024388	<i>BNIP3</i>	-5.94	1.48E-12	0.40	25.45
ENSSSCG00000016720	<i>PGAM2</i>	-5.90	3.53E-12	0.00	2.14
ENSSSCG00000056689	<i>C11orf94</i>	-5.88	2.43E-10	0.04	3.51
ENSSSCG00000004760	<i>PPP1R14D</i>	-5.85	8.31E-12	0.07	5.74
ENSSSCG00000008004	<i>ANTKMT</i>	-5.84	6.06E-11	0.16	7.94
ENSSSCG000000031450	<i>MLYCD</i>	-5.83	1.49E-11	0.19	10.52
ENSSSCG00000054801	<i>ZMYND19</i>	-5.83	2.33E-08	0.03	3.53
ENSSSCG00000003350	<i>MIB2</i>	-5.82	1.40E-07	0.12	8.49
ENSSSCG00000026169	<i>MFSD12</i>	-5.81	2.35E-09	0.16	7.40
ENSSSCG00000033788	<i>OXLD1</i>	-5.81	1.06E-11	0.19	10.73
ENSSSCG00000028974	<i>UST</i>	-5.80	5.40E-14	2.46	143.26
ENSSSCG00000032166	<i>ATP5PD</i>	-5.79	1.65E-15	4.03	228.62
ENSSSCG00000035147	<i>HSD17B1</i>	-5.79	1.10E-10	0.06	3.71
ENSSSCG00000012767	<i>HAUS7</i>	-5.76	2.04E-12	0.24	12.46
ENSSSCG00000003109	<i>TMEM160</i>	-5.75	2.70E-12	0.26	14.53
ENSSSCG00000037686	<i>TBL3</i>	-5.74	3.99E-10	0.05	3.42
ENSSSCG00000058867		-5.74	7.67E-10	0.03	2.79
ENSSSCG00000055397	<i>NAPRT</i>	-5.71	3.20E-11	0.01	2.14
ENSSSCG00000032235	<i>ARFGAP1</i>	-5.69	2.63E-08	0.05	3.83
ENSSSCG00000008010	<i>CHTF18</i>	-5.68	3.49E-09	0.10	5.54
ENSSSCG00000028045	<i>MUL1</i>	-5.68	4.27E-10	0.05	3.99
ENSSSCG00000007984	<i>MRPL28</i>	-5.64	1.46E-12	0.75	32.97
ENSSSCG00000009482	<i>SPRY2</i>	-5.64	8.86E-10	0.22	11.46
ENSSSCG00000028720	<i>NXN</i>	-5.64	7.49E-11	0.41	17.01
ENSSSCG00000007765	<i>PRSS53</i>	-5.63	1.34E-10	0.02	2.63
ENSSSCG00000008030	<i>TSR3</i>	-5.63	5.07E-11	0.02	2.47
ENSSSCG00000033620	<i>SLC25A10</i>	-5.63	1.92E-10	0.16	8.99

ENSSSCG00000003554	<i>SELENON</i>	-5.61	1.55E-10	0.28	11.43
ENSSSCG000000024974	<i>RPL13</i>	-5.61	3.33E-11	0.62	28.74
ENSSSCG000000021624	<i>LAD1</i>	-5.60	7.31E-14	1.07	51.92
ENSSSCG000000036102	<i>TCF25</i>	-5.59	3.72E-10	0.05	3.74
ENSSSCG000000003567	<i>KDF1</i>	-5.58	5.79E-11	0.11	5.64
ENSSSCG000000013778	<i>NDUFB7</i>	-5.56	1.33E-15	1.44	68.64
ENSSSCG000000040313	<i>PSKH1</i>	-5.56	3.64E-12	0.29	13.84
ENSSSCG000000002512	<i>DEGS2</i>	-5.54	1.33E-15	3.79	172.38
ENSSSCG000000002959	<i>FAM98C</i>	-5.54	4.40E-10	0.30	10.68
ENSSSCG000000033757	<i>FKBP2</i>	-5.53	2.36E-12	0.20	9.59
ENSSSCG000000040919	<i>RTN4RL2</i>	-5.53	1.71E-11	0.01	2.03
ENSSSCG000000041220	<i>NDUFA7</i>	-5.53	5.35E-15	4.72	211.96
ENSSSCG000000033310		-5.51	8.33E-13	1.61	56.38
ENSSSCG000000005661	<i>ENDOG</i>	-5.48	8.96E-12	0.01	1.74
ENSSSCG000000006522	<i>GBA</i>	-5.46	1.15E-10	0.03	2.28
ENSSSCG000000003108	<i>NPAS1</i>	-5.45	3.75E-12	0.79	34.60
ENSSSCG000000037455	<i>NDUFS8</i>	-5.45	7.31E-14	0.96	39.46
ENSSSCG000000023018	<i>MCCD1</i>	-5.44	1.68E-09	0.10	5.05
ENSSSCG000000023968	<i>TSSK3</i>	-5.44	1.03E-08	0.14	5.49
ENSSSCG000000049515		-5.44	1.98E-09	0.09	3.52
ENSSSCG000000033506	<i>KCTD21</i>	-5.42	3.16E-10	0.05	2.77
ENSSSCG000000013632	<i>C19orf38</i>	-5.40	5.36E-13	0.35	14.66
ENSSSCG000000036310	<i>RFXANK</i>	-5.40	2.19E-10	0.07	3.01
ENSSSCG000000003136	<i>CYTH2</i>	-5.39	1.82E-14	1.49	61.33
ENSSSCG000000033148	<i>MRPL12</i>	-5.39	1.29E-12	0.20	8.84
ENSSSCG000000037427	<i>PTDSS2</i>	-5.39	2.96E-09	0.01	2.03
ENSSSCG000000006486	<i>TSACC</i>	-5.37	1.33E-12	0.18	8.56
ENSSSCG000000000135	<i>KCTD17</i>	-5.36	3.56E-11	0.01	1.66
ENSSSCG000000013004	<i>TM7SF2</i>	-5.36	9.93E-09	0.18	6.30
ENSSSCG000000039915		-5.36	4.20E-08	0.09	4.08
ENSSSCG000000001692	<i>MRPS18A</i>	-5.35	2.89E-14	1.01	41.19
ENSSSCG000000002536		-5.35	4.00E-10	0.19	7.52
ENSSSCG000000040967	<i>NACC2</i>	-5.35	1.20E-06	0.07	4.82
ENSSSCG000000013569	<i>PEX11G</i>	-5.33	5.17E-10	0.04	2.35
ENSSSCG000000017938	<i>YBX2</i>	-5.33	3.40E-13	1.97	80.94
ENSSSCG000000014823	<i>P2RY6</i>	-5.32	1.02E-08	0.09	3.43
ENSSSCG000000005832	<i>MAMDC4</i>	-5.30	2.97E-13	0.34	13.45
ENSSSCG000000001867	<i>PSTPIP1</i>	-5.29	1.47E-12	0.47	17.29
ENSSSCG000000010116	<i>SLC25A1</i>	-5.29	1.10E-09	0.07	3.27
ENSSSCG000000034379	<i>MAP2K3</i>	-5.27	4.71E-12	0.38	14.73
ENSSSCG000000017313	<i>CRHR1</i>	-5.26	2.56E-12	0.57	20.11
ENSSSCG000000028934	<i>FAM3A</i>	-5.26	6.07E-12	0.27	10.78
ENSSSCG000000040186	<i>C12orf57</i>	-5.26	1.16E-08	0.18	4.48
ENSSSCG000000059847		-5.25	6.41E-09	0.14	6.29
ENSSSCG000000029616	<i>FAAP100</i>	-5.24	1.00E-09	0.03	2.38
ENSSSCG000000008014	<i>NUBP2</i>	-5.23	5.69E-13	0.51	18.99
ENSSSCG000000021837	<i>TMEM120A</i>	-5.22	6.41E-09	0.10	3.23
ENSSSCG000000038777	<i>C7orf50</i>	-5.22	4.66E-11	0.13	5.75
ENSSSCG000000014853	<i>GDPD5</i>	-5.21	4.78E-13	0.53	20.58
ENSSSCG000000003339	<i>INTS11</i>	-5.20	4.89E-12	0.26	9.72

ENSSSCG00000005759	<i>MRPS2</i>	-5.20	1.53E-07	0.08	3.59
ENSSSCG00000024144	<i>NDUFS7</i>	-5.20	3.38E-12	0.57	18.14
ENSSSCG00000024697	<i>TMEM125</i>	-5.19	7.67E-11	0.26	10.27
ENSSSCG00000038364		-5.19	2.40E-12	0.61	19.33
ENSSSCG00000017203	<i>GALK1</i>	-5.17	1.84E-14	1.50	53.11
ENSSSCG00000028204	<i>TREH</i>	-5.17	2.95E-10	0.08	3.04
ENSSSCG00000040952	<i>PATE1</i>	-5.17	8.84E-10	0.08	3.77
ENSSSCG00000001423	<i>NELFE</i>	-5.16	5.01E-14	0.68	23.72
ENSSSCG00000002294	<i>ARG2</i>	-5.16	1.18E-13	0.77	26.24
ENSSSCG00000008061	<i>ELOB</i>	-5.16	1.32E-14	2.04	69.19
ENSSSCG00000013919	<i>HOMER3</i>	-5.16	1.13E-09	0.05	2.79
ENSSSCG00000031513	<i>HRAS</i>	-5.16	8.67E-09	0.10	4.04
ENSSSCG00000003876	<i>CDKN2C</i>	-5.15	4.70E-11	0.05	2.50
ENSSSCG00000025353	<i>TNNT1</i>	-5.15	1.82E-14	3.78	138.15
ENSSSCG00000013423	<i>WDR18</i>	-5.14	7.83E-09	0.10	2.90
ENSSSCG00000013761	<i>CC2D1A</i>	-5.14	1.48E-08	0.11	3.61
ENSSSCG00000022774	<i>NOP53</i>	-5.14	2.69E-08	0.19	6.86
ENSSSCG00000003194	<i>AKT1S1</i>	-5.13	6.10E-09	0.10	3.73
ENSSSCG00000005920	<i>BOP1</i>	-5.12	9.18E-10	0.21	7.86
ENSSSCG000000062464	<i>CHST12</i>	-5.11	3.22E-12	0.39	12.94
ENSSSCG00000003157	<i>LIN7B</i>	-5.10	1.29E-11	0.24	8.06
ENSSSCG00000004408	<i>SMPD2</i>	-5.10	7.60E-13	0.30	10.99
ENSSSCG00000013906	<i>KXD1</i>	-5.10	4.75E-11	0.33	10.31
ENSSSCG00000015290	<i>CDK18</i>	-5.10	2.90E-10	0.07	3.49
ENSSSCG00000013727	<i>TRIR</i>	-5.09	5.98E-10	0.58	18.76
ENSSSCG00000029300	<i>ALKBH4</i>	-5.09	7.44E-10	0.09	2.98
ENSSSCG00000013730	<i>KLF1</i>	-5.07	2.21E-10	0.27	7.77
ENSSSCG00000027127	<i>MAP2K2</i>	-5.07	1.89E-10	0.25	8.54
ENSSSCG00000033292	<i>CFAP276</i>	-5.07	1.70E-08	0.19	7.49
ENSSSCG00000033649		-5.06	6.26E-11	0.01	1.38
ENSSSCG00000029724	<i>RACK1</i>	-5.05	2.16E-13	2.92	87.39
ENSSSCG00000002850		-5.03	4.97E-11	0.07	2.92
ENSSSCG00000032731	<i>NDST1</i>	-5.03	1.55E-08	0.12	3.68
ENSSSCG00000022295		-5.02	1.44E-10	0.32	9.40
ENSSSCG00000035034	<i>CNIH4</i>	-5.02	4.33E-14	11.34	368.16
ENSSSCG00000040352	<i>DUS1L</i>	-5.02	7.60E-10	0.31	10.30
ENSSSCG00000021259	<i>CDA</i>	-5.01	6.31E-14	1.08	33.86
ENSSSCG00000034566	<i>NPDC1</i>	-5.01	1.72E-10	0.12	4.57
ENSSSCG00000005914	<i>SHARPIN</i>	-5.00	2.02E-09	0.09	3.17
ENSSSCG00000037098	<i>C19orf81</i>	-5.00	8.98E-14	0.98	30.89
ENSSSCG00000011444	<i>NT5DC2</i>	-4.99	6.63E-13	0.28	9.15
ENSSSCG00000032696	<i>TMEM179B</i>	-4.99	4.78E-13	0.53	17.07
ENSSSCG00000051874		-4.99	1.89E-09	0.81	22.33
ENSSSCG00000024254	<i>ALKBH7</i>	-4.98	6.15E-13	0.96	27.21
ENSSSCG00000030539	<i>KLK15</i>	-4.98	2.77E-10	0.12	3.59
ENSSSCG00000033731	<i>SLC35B1</i>	-4.98	5.35E-15	1.72	53.27
ENSSSCG00000038888	<i>C1orf122</i>	-4.98	4.48E-10	0.06	2.37
ENSSSCG00000000031	<i>MCAT</i>	-4.95	4.55E-10	0.15	4.44
ENSSSCG00000023121	<i>ABCA7</i>	-4.95	3.70E-09	0.04	1.79
ENSSSCG00000029945	<i>GCAT</i>	-4.95	2.60E-09	0.06	2.25

ENSSSCG00000031249	<i>PTTG1IP</i>	-4.95	1.40E-12	0.57	17.92
ENSSSCG00000039516	<i>LRRC47</i>	-4.95	1.49E-13	1.37	41.65
ENSSSCG00000000062	<i>CSDC2</i>	-4.94	9.90E-09	0.05	2.56
ENSSSCG00000006361	<i>PPOX</i>	-4.93	1.04E-09	0.14	4.53
ENSSSCG00000031602	<i>DNAJC5</i>	-4.93	1.13E-08	0.23	6.99
ENSSSCG000000061305		-4.91	8.08E-10	0.05	1.97
ENSSSCG00000039612		-4.89	2.13E-14	0.76	22.98
ENSSSCG00000009783	<i>OGFOD2</i>	-4.88	5.84E-13	0.35	10.67
ENSSSCG00000012840	<i>CD151</i>	-4.88	6.68E-10	0.04	2.04
ENSSSCG00000013442	<i>ABHD17A</i>	-4.88	2.74E-12	0.59	17.71
ENSSSCG00000013496	<i>SIRT6</i>	-4.88	3.87E-09	0.10	3.39
ENSSSCG00000032010	<i>RNH1</i>	-4.88	9.65E-12	0.66	17.38
ENSSSCG00000028167	<i>SLIRP</i>	-4.87	5.35E-15	6.15	176.12
ENSSSCG00000003229	<i>ETFB</i>	-4.85	4.32E-12	0.85	22.38
ENSSSCG00000017232	<i>SLC9A3R1</i>	-4.85	5.33E-10	0.43	10.54
ENSSSCG00000038604	<i>DOCK6</i>	-4.85	1.92E-10	0.18	5.08
ENSSSCG00000054506	<i>VEGFB</i>	-4.85	2.25E-10	0.01	1.27
ENSSSCG00000058091		-4.85	4.60E-13	1.06	33.12
ENSSSCG00000011287	<i>HHATL</i>	-4.84	7.19E-09	0.12	3.07
ENSSSCG00000047232	<i>CELA1</i>	-4.84	2.75E-11	0.01	1.10
ENSSSCG00000017140	<i>CHMP6</i>	-4.83	3.60E-08	0.18	4.48
ENSSSCG00000003341	<i>TAS1R3</i>	-4.82	4.32E-10	0.17	4.84
ENSSSCG00000014448	<i>ARSI</i>	-4.82	2.38E-09	0.03	1.55
ENSSSCG00000034841	<i>RGS19</i>	-4.82	2.49E-08	0.06	1.98
ENSSSCG00000005901		-4.81	8.07E-10	0.03	1.61
ENSSSCG00000031299	<i>TECR</i>	-4.81	2.12E-13	1.47	40.89
ENSSSCG00000031550	<i>C1orf105</i>	-4.81	8.97E-15	4.20	121.88
ENSSSCG00000012783	<i>IDH3G</i>	-4.80	1.44E-13	0.94	25.94
ENSSSCG00000034455	<i>RNF166</i>	-4.80	1.91E-08	0.37	9.51
ENSSSCG00000062259	<i>ICAM2</i>	-4.80	9.35E-09	0.14	2.81
ENSSSCG00000010795	<i>NDUFAB1</i>	-4.79	3.77E-13	2.38	67.99
ENSSSCG00000017300	<i>MRC2</i>	-4.79	2.11E-10	0.04	1.88
ENSSSCG00000034288	<i>AP4M1</i>	-4.79	1.15E-10	0.02	1.32
ENSSSCG00000017215	<i>SLC16A5</i>	-4.78	1.04E-09	0.14	4.20
ENSSSCG00000029050	<i>MRPL55</i>	-4.78	2.71E-13	1.52	39.25
ENSSSCG00000008556	<i>KHK</i>	-4.77	1.64E-08	0.05	1.83
ENSSSCG00000009709	<i>MFAP3L</i>	-4.77	1.95E-09	0.19	4.63
ENSSSCG00000012842	<i>RPLP2</i>	-4.77	1.02E-14	2.61	68.76
ENSSSCG00000023151	<i>GRIN2C</i>	-4.77	4.92E-10	0.08	2.57
ENSSSCG00000039372	<i>EMC10</i>	-4.77	1.83E-08	0.06	2.29
ENSSSCG00000013231	<i>C1QTNF4</i>	-4.76	4.92E-09	0.05	1.79
ENSSSCG00000032083	<i>MRPL37</i>	-4.76	1.66E-15	41.20	1093.86
ENSSSCG00000037061	<i>RRP1</i>	-4.76	2.09E-08	0.08	2.14
ENSSSCG00000037343	<i>MRPS11</i>	-4.76	6.06E-13	0.90	22.79
ENSSSCG00000039010	<i>WNT7A</i>	-4.76	5.22E-13	1.47	37.65
ENSSSCG00000040815	<i>DUSP5</i>	-4.76	7.63E-13	1.44	36.53
ENSSSCG00000009972	<i>KREMEN1</i>	-4.75	5.78E-11	0.32	8.40
ENSSSCG00000010056	<i>GGT1</i>	-4.75	1.39E-13	1.33	34.16
ENSSSCG00000012896	<i>NDUFV1</i>	-4.75	1.02E-08	0.66	11.71
ENSSSCG00000013893	<i>ARRDC2</i>	-4.75	1.62E-11	0.80	20.75

ENSSSCG00000024672	<i>KLF16</i>	-4.75	6.45E-08	0.06	2.25
ENSSSCG00000029239	<i>MZB1</i>	-4.75	2.07E-12	0.48	12.48
ENSSSCG00000004676	<i>DUOXA2</i>	-4.74	4.68E-09	0.05	1.84
ENSSSCG00000015073	<i>TAGLN</i>	-4.72	7.68E-14	1.24	31.78
ENSSSCG00000031630	<i>DPH7</i>	-4.72	1.19E-10	0.34	8.41
ENSSSCG00000005907	<i>ADCK5</i>	-4.71	4.48E-09	0.13	3.31
ENSSSCG00000013723	<i>DHPS</i>	-4.71	1.15E-13	0.72	18.80
ENSSSCG00000016201	<i>TTLL4</i>	-4.71	1.15E-13	1.22	31.71
ENSSSCG00000000739	<i>FOXMI</i>	-4.70	4.25E-10	0.46	11.23
ENSSSCG00000030561	<i>LMTK3</i>	-4.70	1.25E-08	0.27	7.94
ENSSSCG00000034207	<i>CEBPB</i>	-4.70	4.30E-09	0.08	2.38
ENSSSCG00000013003	<i>ZNHIT2</i>	-4.69	2.71E-07	0.05	1.97
ENSSSCG00000016393		-4.69	5.92E-09	0.04	1.42
ENSSSCG00000027428	<i>ENHO</i>	-4.69	9.93E-11	0.18	4.50
ENSSSCG00000032110	<i>GTF3C5</i>	-4.69	3.55E-11	0.65	16.90
ENSSSCG00000007517	<i>NPEPL1</i>	-4.68	1.09E-08	0.07	2.05
ENSSSCG00000013061	<i>EML3</i>	-4.68	3.99E-08	0.05	1.90
ENSSSCG00000013616	<i>ZNF653</i>	-4.68	7.77E-08	0.08	2.28
ENSSSCG00000011358	<i>TREX1</i>	-4.67	2.11E-09	0.06	1.84
ENSSSCG00000036988		-4.67	2.36E-12	5.36	141.71
ENSSSCG00000001691	<i>RSPH9</i>	-4.66	1.51E-08	0.08	2.33
ENSSSCG00000010564	<i>POLL</i>	-4.66	6.27E-08	0.12	2.69
ENSSSCG00000035080	<i>RPL23A</i>	-4.66	2.37E-09	7.08	109.29
ENSSSCG00000013663	<i>ANGPTL6</i>	-4.65	8.87E-09	0.03	1.52
ENSSSCG00000016391	<i>AMER3</i>	-4.65	4.92E-09	0.05	1.43
ENSSSCG00000040125	<i>HSF4</i>	-4.65	1.15E-13	0.62	16.47
ENSSSCG00000026293	<i>STX5</i>	-4.64	1.32E-12	0.35	8.67
ENSSSCG00000033892	<i>EVA1B</i>	-4.64	1.54E-10	0.03	1.32
ENSSSCG00000035839	<i>TOP3A</i>	-4.64	3.39E-08	0.23	5.33
ENSSSCG00000003218	<i>MYBPC2</i>	-4.63	2.86E-09	0.08	2.25
ENSSSCG00000005528	<i>NDUFA8</i>	-4.63	1.44E-14	9.37	239.97
ENSSSCG00000006524	<i>THBS3</i>	-4.63	8.63E-12	0.42	10.46
ENSSSCG00000029201	<i>AJUBA</i>	-4.63	2.16E-13	5.04	116.85
ENSSSCG00000010969	<i>GALT</i>	-4.62	1.59E-10	0.37	7.59
ENSSSCG00000014434	<i>IL17B</i>	-4.62	6.87E-07	0.09	2.94
ENSSSCG00000002646	<i>TRAPPC2L</i>	-4.61	1.43E-08	0.24	4.56
ENSSSCG00000016734	<i>CCM2</i>	-4.61	2.25E-05	0.19	4.98
ENSSSCG00000024912	<i>WDR5</i>	-4.61	1.66E-15	7.06	171.38
ENSSSCG000000058250		-4.61	5.62E-11	0.34	8.13
ENSSSCG00000060225	<i>CIDEA</i>	-4.61	3.65E-14	1.15	28.35
ENSSSCG00000026653		-4.60	2.16E-09	0.16	4.57
ENSSSCG00000032787	<i>ALAD</i>	-4.60	1.04E-14	1.80	43.05
ENSSSCG00000040012	<i>TMEM147</i>	-4.60	2.94E-12	0.97	21.44
ENSSSCG00000002458	<i>TMEM251</i>	-4.59	1.98E-14	0.95	23.36
ENSSSCG00000022864	<i>EIF6</i>	-4.59	2.89E-14	6.31	152.64
ENSSSCG00000024823	<i>RCN3</i>	-4.59	1.81E-09	0.09	2.32
ENSSSCG00000003850	<i>CZIB</i>	-4.58	1.33E-15	5.47	133.25
ENSSSCG00000013011	<i>SAC3D1</i>	-4.58	3.55E-09	0.03	1.30
ENSSSCG00000024756	<i>SPG7</i>	-4.58	1.26E-08	0.05	1.49
ENSSSCG00000037146	<i>SWSAP1</i>	-4.58	2.90E-13	2.02	47.13

ENSSSCG00000006776	<i>MOV10</i>	-4.57	2.08E-13	0.73	17.09
ENSSSCG00000035909	<i>ERICH2</i>	-4.57	1.33E-15	3.37	82.04
ENSSSCG00000021959	<i>SYCN</i>	-4.55	3.57E-14	4.53	106.55
ENSSSCG00000031489	<i>DUSP22</i>	-4.55	5.07E-08	0.13	2.50
ENSSSCG00000040507	<i>PDLIM7</i>	-4.55	2.43E-12	1.23	26.88
ENSSSCG00000013779	<i>PKN1</i>	-4.53	2.82E-09	0.15	3.71
ENSSSCG00000034905	<i>MVD</i>	-4.53	4.32E-10	0.15	3.93
ENSSSCG00000017544	<i>ATP5MC1</i>	-4.52	1.32E-14	9.86	229.53
ENSSSCG00000037151	<i>MIEF2</i>	-4.52	8.26E-08	0.11	1.88
ENSSSCG00000059555	<i>NOTO</i>	-4.51	2.66E-10	1.11	24.03
ENSSSCG00000002650	<i>APRT</i>	-4.50	5.97E-10	0.27	5.57
ENSSSCG00000003195	<i>PNKP</i>	-4.50	2.26E-09	0.08	2.04
ENSSSCG00000004674	<i>SHF</i>	-4.50	1.69E-08	0.08	2.29
ENSSSCG00000008824	<i>ZAR1</i>	-4.50	1.17E-14	7.26	162.79
ENSSSCG00000013497	<i>ANKRD24</i>	-4.50	4.97E-09	0.06	1.57
ENSSSCG00000033397	<i>KCNK9</i>	-4.50	8.29E-11	0.26	5.86
ENSSSCG00000005373	<i>NANS</i>	-4.49	3.78E-11	0.95	18.70
ENSSSCG00000009303	<i>RPL21</i>	-4.49	1.66E-15	6.32	140.84
ENSSSCG00000012791	<i>NAA10</i>	-4.49	1.49E-13	0.91	20.17
ENSSSCG00000013503	<i>SHD</i>	-4.49	1.26E-14	4.46	101.33
ENSSSCG00000013896	<i>MPV17L2</i>	-4.49	1.34E-09	0.22	4.41
ENSSSCG00000034096	<i>DMAP1</i>	-4.49	1.69E-08	0.54	14.24
ENSSSCG00000013878	<i>PGLS</i>	-4.48	2.13E-09	0.12	3.00
ENSSSCG00000017524	<i>CDK5RAP3</i>	-4.47	1.09E-10	0.61	12.27
ENSSSCG00000031474	<i>PTK6</i>	-4.47	8.86E-10	0.12	2.80
ENSSSCG00000021467	<i>EME2</i>	-4.46	1.79E-07	0.19	3.85
ENSSSCG00000024573	<i>LALBA</i>	-4.46	1.00E-10	0.96	19.94
ENSSSCG00000039392	<i>SNPH</i>	-4.46	1.21E-10	0.80	17.44
ENSSSCG00000002719	<i>EXOSC6</i>	-4.44	7.42E-09	0.28	4.97
ENSSSCG00000014037		-4.44	3.51E-09	0.08	1.87
ENSSSCG00000018055	<i>PEMT</i>	-4.44	2.36E-08	0.13	2.52
ENSSSCG00000013267	<i>PEX16</i>	-4.43	1.49E-11	0.45	9.26
ENSSSCG00000035532	<i>ATP5F1D</i>	-4.43	2.91E-13	0.58	12.83
ENSSSCG00000002913	<i>PRODH2</i>	-4.42	9.03E-09	0.10	2.17
ENSSSCG00000005313	<i>CCDC107</i>	-4.42	9.07E-10	0.21	4.17
ENSSSCG00000007432	<i>ZNF335</i>	-4.42	1.59E-09	0.24	4.42
ENSSSCG00000015650	<i>MAPKAPK2</i>	-4.42	4.54E-12	0.66	13.68
ENSSSCG00000015734	<i>IMP4</i>	-4.42	1.51E-11	2.82	50.48
ENSSSCG00000039506	<i>MYL6</i>	-4.42	1.82E-12	8.84	171.35
ENSSSCG00000062012		-4.41	3.18E-07	0.07	2.26
ENSSSCG00000000696	<i>NOP2</i>	-4.40	1.98E-14	1.76	36.70
ENSSSCG00000010341	<i>TSPAN14</i>	-4.40	6.41E-12	1.48	31.63
ENSSSCG00000032249	<i>GBX1</i>	-4.40	3.12E-08	0.12	2.26
ENSSSCG00000036716	<i>RPL37A</i>	-4.40	2.16E-13	2.97	58.88
ENSSSCG00000002654	<i>FBXO31</i>	-4.39	2.10E-11	1.65	33.50
ENSSSCG00000006531	<i>EFNA3</i>	-4.39	1.47E-09	0.24	6.03
ENSSSCG00000008041	<i>PKD1</i>	-4.39	1.97E-07	0.19	3.68
ENSSSCG00000013045	<i>OTUB1</i>	-4.39	1.19E-16	76.79	1621.51
ENSSSCG00000025610	<i>AGAP3</i>	-4.39	1.03E-07	0.36	7.41
ENSSSCG00000028794	<i>BCKDHA</i>	-4.39	6.15E-13	2.11	42.74

ENSSSCG00000062981	<i>AIP</i>	-4.39	8.34E-13	0.87	17.51
ENSSSCG00000000261	<i>IGFBP6</i>	-4.38	8.84E-11	0.53	9.96
ENSSSCG000000002517	<i>WDR25</i>	-4.38	7.30E-12	0.64	12.77
ENSSSCG000000031154	<i>ACKR2</i>	-4.38	1.05E-10	0.49	8.66
ENSSSCG000000051822	<i>C17orf107</i>	-4.38	3.09E-08	0.07	1.45
ENSSSCG000000007430	<i>NEURL2</i>	-4.37	2.07E-08	0.09	1.81
ENSSSCG000000009614	<i>FHIP2B</i>	-4.37	2.51E-08	0.05	1.43
ENSSSCG000000023677	<i>CHMP1A</i>	-4.37	1.29E-09	0.09	2.25
ENSSSCG000000029145	<i>POMGNT1</i>	-4.37	1.24E-08	0.09	1.90
ENSSSCG000000034092	<i>MBLAC1</i>	-4.37	3.80E-11	0.31	6.27
ENSSSCG000000057915	<i>LAT</i>	-4.37	5.02E-10	0.23	5.32
ENSSSCG000000055869	<i>SRM</i>	-4.36	4.58E-10	0.46	9.53
ENSSSCG000000001907	<i>UBL7</i>	-4.34	1.66E-15	5.61	113.49
ENSSSCG000000003451	<i>PDPN</i>	-4.34	3.79E-09	0.04	1.24
ENSSSCG000000007691	<i>ZP3</i>	-4.34	1.03E-13	95.54	1863.30
ENSSSCG000000033329	<i>SLC47A1</i>	-4.34	9.16E-13	0.85	16.98
ENSSSCG000000060949	<i>LY6G6D</i>	-4.34	2.06E-09	0.09	2.15
ENSSSCG000000001624	<i>FRS3</i>	-4.33	4.41E-08	0.13	2.56
ENSSSCG000000006500	<i>UBQLN4</i>	-4.32	1.69E-09	0.10	2.12
ENSSSCG000000013552	<i>GPR108</i>	-4.32	1.55E-11	0.54	10.22
ENSSSCG000000016473	<i>EPHB6</i>	-4.32	1.62E-09	0.40	8.45
ENSSSCG000000008009	<i>LMF1</i>	-4.31	2.27E-11	0.42	8.50
ENSSSCG000000025736	<i>RECQL4</i>	-4.31	5.64E-08	0.14	2.77
ENSSSCG000000036178	<i>CCDC167</i>	-4.31	1.32E-14	5.49	109.90
ENSSSCG000000010639	<i>HABP2</i>	-4.30	9.08E-08	0.09	2.27
ENSSSCG000000033983	<i>RRP7A</i>	-4.30	8.30E-09	0.11	2.18
ENSSSCG000000002004	<i>PSME2</i>	-4.29	7.72E-12	0.98	17.95
ENSSSCG000000003383	<i>ZBTB48</i>	-4.29	3.16E-12	0.22	4.83
ENSSSCG000000008000	<i>RPUSD1</i>	-4.29	4.54E-08	0.05	1.16
ENSSSCG000000017245	<i>CDC42EP4</i>	-4.29	3.44E-08	0.12	2.14
ENSSSCG000000024346	<i>SLC7A3</i>	-4.29	5.28E-14	2.17	41.59
ENSSSCG000000038800	<i>PUF60</i>	-4.29	2.58E-14	5.10	95.90
ENSSSCG000000025401	<i>CDK10</i>	-4.28	1.22E-08	0.26	4.73
ENSSSCG000000034893	<i>COPS6</i>	-4.28	3.03E-14	3.88	73.77
ENSSSCG000000038234	<i>TMEM175</i>	-4.28	9.80E-09	0.06	1.54
ENSSSCG000000040509	<i>LIMD2</i>	-4.28	3.91E-08	0.25	3.98
ENSSSCG000000055768	<i>SRA1</i>	-4.28	1.01E-10	0.61	10.84
ENSSSCG000000002642	<i>CDH15</i>	-4.27	2.90E-10	0.12	2.79
ENSSSCG000000010130	<i>GNB1L</i>	-4.27	6.09E-10	0.24	4.47
ENSSSCG000000013033	<i>BAD</i>	-4.27	4.66E-11	0.15	3.21
ENSSSCG000000013506	<i>STAP2</i>	-4.27	9.79E-09	0.05	1.33
ENSSSCG000000014800	<i>RNF121</i>	-4.27	2.52E-09	0.15	3.19
ENSSSCG000000039635		-4.27	1.46E-11	0.40	7.66
ENSSSCG000000000276	<i>TARBP2</i>	-4.26	2.28E-12	0.53	10.15
ENSSSCG000000004670	<i>C15orf48</i>	-4.26	9.35E-12	0.69	12.17
ENSSSCG000000008694	<i>GRK4</i>	-4.26	3.60E-10	0.32	6.29
ENSSSCG000000039307	<i>H2AJ</i>	-4.26	1.76E-14	1.37	26.94
ENSSSCG000000001878	<i>PTPN9</i>	-4.25	6.83E-13	1.57	28.23
ENSSSCG000000007173	<i>IDH3B</i>	-4.25	3.87E-13	1.79	33.51
ENSSSCG000000008035	<i>GFER</i>	-4.25	8.11E-14	1.03	19.59

ENSSSCG00000009625	<i>PDLIM2</i>	-4.25	1.10E-07	0.32	4.58
ENSSSCG00000013875	<i>USE1</i>	-4.25	4.69E-13	1.68	32.22
ENSSSCG00000017136	<i>TBCD</i>	-4.25	1.55E-08	0.09	1.99
ENSSSCG00000023603	<i>UBALD1</i>	-4.25	1.09E-09	0.64	12.84
ENSSSCG00000008823	<i>SLC10A4</i>	-4.24	4.38E-08	0.35	4.56
ENSSSCG00000010394	<i>OGDHL</i>	-4.24	4.83E-11	0.78	13.51
ENSSSCG00000012061	<i>PIGP</i>	-4.24	4.62E-14	13.22	248.05
ENSSSCG00000013664	<i>SHFL</i>	-4.24	9.00E-10	0.23	4.13
ENSSSCG00000022162	<i>RAB11FIP5</i>	-4.24	1.92E-08	0.12	2.37
ENSSSCG00000029592	<i>GPRC5A</i>	-4.24	6.81E-08	0.09	1.57
ENSSSCG00000029723	<i>PHRF1</i>	-4.24	7.23E-08	0.75	16.09
ENSSSCG00000030451	<i>LRRC14</i>	-4.24	1.29E-08	0.08	1.81
ENSSSCG00000007249	<i>NOL4L</i>	-4.23	1.15E-13	1.34	24.95
ENSSSCG00000009904	<i>DYNLL1</i>	-4.23	7.12E-16	112.33	2104.90
ENSSSCG00000010756	<i>MGMT</i>	-4.23	2.19E-11	6.23	97.91
ENSSSCG00000013573	<i>TRAPPC5</i>	-4.23	3.98E-10	0.26	4.75
ENSSSCG00000033013	<i>MARCHF9</i>	-4.23	4.18E-09	0.06	1.45
ENSSSCG00000003940	<i>HYI</i>	-4.22	5.10E-10	0.44	6.68
ENSSSCG00000007671	<i>TFR2</i>	-4.22	5.84E-11	0.66	11.46
ENSSSCG00000016721	<i>DBNL</i>	-4.22	3.41E-06	0.36	4.03
ENSSSCG00000008055	<i>TEDC2</i>	-4.21	7.78E-09	0.14	2.65
ENSSSCG00000017072	<i>GALNT10</i>	-4.21	2.49E-12	0.51	9.84
ENSSSCG00000017402	<i>STAT5A</i>	-4.21	2.33E-13	0.91	17.09
ENSSSCG00000022004	<i>SH3BP2</i>	-4.21	4.07E-08	0.22	3.77
ENSSSCG00000032833	<i>CD320</i>	-4.21	1.12E-11	0.70	12.02
ENSSSCG00000037275	<i>SNX22</i>	-4.21	4.16E-14	2.60	47.29
ENSSSCG00000046295	<i>MYG1</i>	-4.21	1.39E-11	0.13	2.90
ENSSSCG00000009146	<i>RPL34</i>	-4.20	7.06E-11	1.04	17.27
ENSSSCG00000010640	<i>NRAP</i>	-4.20	1.84E-11	0.65	11.33
ENSSSCG00000036852	<i>TSEN54</i>	-4.20	9.11E-09	0.20	3.24
ENSSSCG00000040793	<i>CTSD</i>	-4.19	4.97E-08	0.07	1.48
ENSSSCG00000010565	<i>DPCD</i>	-4.18	1.82E-13	4.64	86.42
ENSSSCG00000015613	<i>C1orf74</i>	-4.18	1.80E-10	0.68	11.06
ENSSSCG00000023423	<i>UBALD2</i>	-4.18	7.32E-11	0.34	6.24
ENSSSCG00000023666	<i>CTSB</i>	-4.18	1.82E-14	7.50	136.85
ENSSSCG00000027454	<i>QPRT</i>	-4.18	1.72E-08	0.18	3.22
ENSSSCG00000036308	<i>PGS1</i>	-4.18	1.79E-11	0.82	13.76
ENSSSCG00000040139	<i>B3GNT9</i>	-4.18	4.48E-09	0.16	3.38
ENSSSCG00000053807	<i>RPS26</i>	-4.18	2.14E-13	1.85	32.11
ENSSSCG00000056302	<i>GINS2</i>	-4.18	3.57E-14	23.74	414.74
ENSSSCG00000008019	<i>JPT2</i>	-4.17	3.41E-12	1.13	20.86
ENSSSCG00000009809	<i>MORN3</i>	-4.17	7.87E-10	0.19	3.60
ENSSSCG00000017952	<i>SAT2</i>	-4.17	9.53E-13	2.41	42.77
ENSSSCG00000040710	<i>SURF4</i>	-4.17	3.95E-09	0.62	9.46
ENSSSCG00000022197	<i>HS6ST1</i>	-4.16	1.37E-08	0.09	1.69
ENSSSCG00000054032		-4.16	1.36E-09	0.20	3.52
ENSSSCG00000001431	<i>FKBPL</i>	-4.14	1.13E-07	0.21	2.65
ENSSSCG00000003266	<i>TMC4</i>	-4.14	8.05E-12	0.59	10.50
ENSSSCG00000009879	<i>TPCN1</i>	-4.14	1.17E-11	0.41	7.07
ENSSSCG00000013637	<i>QTRT1</i>	-4.14	9.85E-10	0.23	4.03

ENSSSCG00000024661	<i>ZNF524</i>	-4.14	4.18E-10	0.51	8.09
ENSSSCG00000028850	<i>RPL26</i>	-4.14	4.21E-13	1.35	23.79
ENSSSCG00000005925	<i>EXOSC4</i>	-4.13	3.88E-09	0.50	7.40
ENSSSCG00000009557	<i>PCID2</i>	-4.13	1.44E-11	0.63	10.26
ENSSSCG00000013307	<i>LMO2</i>	-4.13	1.58E-09	0.19	3.26
ENSSSCG00000017755	<i>NOS2</i>	-4.13	6.41E-07	0.13	2.03
ENSSSCG00000036296	<i>RPS25</i>	-4.13	6.46E-13	9.39	158.19
ENSSSCG00000002879	<i>GRAMD1A</i>	-4.12	3.94E-09	0.42	6.68
ENSSSCG00000005704	<i>EXOSC2</i>	-4.12	1.11E-11	0.84	13.05
ENSSSCG00000007478	<i>ATP9A</i>	-4.12	2.33E-09	0.33	6.25
ENSSSCG00000024305	<i>MT3</i>	-4.12	5.84E-12	1.94	33.07
ENSSSCG00000038774	<i>MAPK13</i>	-4.12	3.07E-14	4.49	76.57
ENSSSCG00000045485		-4.12	3.75E-13	2.46	40.34
ENSSSCG00000000275	<i>MAP3K12</i>	-4.11	9.89E-08	0.47	6.01
ENSSSCG00000002645	<i>GALNS</i>	-4.11	2.70E-08	0.11	1.78
ENSSSCG00000007151	<i>CDC25B</i>	-4.11	1.07E-11	7.82	127.36
ENSSSCG00000009877	<i>IQCD</i>	-4.11	1.69E-11	0.30	5.50
ENSSSCG00000013087	<i>TKFC</i>	-4.11	2.02E-09	0.05	1.27
ENSSSCG00000017949	<i>WRAP53</i>	-4.11	5.73E-10	0.68	11.36
ENSSSCG00000005673	<i>IER5L</i>	-4.10	1.26E-06	0.13	2.55
ENSSSCG00000017880	<i>SPNS3</i>	-4.10	5.43E-08	0.08	1.53
ENSSSCG00000022647	<i>TIMM17B</i>	-4.10	6.09E-13	5.99	96.59
ENSSSCG00000000268	<i>AAAS</i>	-4.09	4.69E-13	5.13	90.00
ENSSSCG00000005649	<i>URM1</i>	-4.09	3.19E-10	0.44	8.08
ENSSSCG00000013032	<i>GPR137</i>	-4.09	1.13E-08	0.37	6.53
ENSSSCG00000003078	<i>CEACAM19</i>	-4.08	1.16E-07	0.12	1.81
ENSSSCG00000023866	<i>ACSF3</i>	-4.08	1.88E-08	0.10	1.92
ENSSSCG00000025928		-4.08	1.28E-12	3.16	49.75
ENSSSCG00000034227	<i>RPL35</i>	-4.08	2.58E-14	2.20	36.83
ENSSSCG00000002680	<i>TAF1C</i>	-4.07	2.09E-08	0.13	2.16
ENSSSCG00000039130	<i>RPL6</i>	-4.07	5.35E-15	8.76	147.43
ENSSSCG000000051897	<i>CRB3</i>	-4.07	1.51E-11	1.43	24.84
ENSSSCG000000054149	<i>DPM3</i>	-4.07	2.30E-07	0.27	3.53
ENSSSCG00000027992	<i>MST1R</i>	-4.06	1.63E-07	0.07	1.27
ENSSSCG00000034360	<i>CELSR2</i>	-4.06	1.93E-07	0.21	3.16
ENSSSCG00000035121	<i>RHBG</i>	-4.06	6.64E-11	0.55	8.29
ENSSSCG00000040845	<i>AGPAT2</i>	-4.06	2.35E-12	0.90	15.97
ENSSSCG000000050581		-4.06	2.00E-08	0.04	1.03
ENSSSCG00000001703	<i>NFKBIE</i>	-4.05	5.00E-07	0.14	1.90
ENSSSCG00000003338	<i>PUSL1</i>	-4.05	2.40E-09	0.27	4.07
ENSSSCG00000003922	<i>UROD</i>	-4.05	9.69E-13	1.07	18.06
ENSSSCG00000006499	<i>LAMTOR2</i>	-4.05	2.41E-13	2.99	48.91
ENSSSCG00000008571	<i>HADHA</i>	-4.05	1.66E-15	27.28	461.16
ENSSSCG00000010584	<i>MFSD13A</i>	-4.05	9.32E-09	0.14	2.39
ENSSSCG00000012618	<i>SOWAHD</i>	-4.05	2.07E-07	0.07	1.27
ENSSSCG00000025272	<i>HEMK1</i>	-4.05	1.29E-08	0.24	3.23
ENSSSCG00000039619	<i>PIN1</i>	-4.05	7.55E-08	0.35	4.88
ENSSSCG00000040145	<i>SNAI3</i>	-4.05	2.51E-09	0.04	1.16
ENSSSCG00000002910	<i>ALKBH6</i>	-4.04	5.56E-09	0.17	2.81
ENSSSCG00000005303	<i>PIGO</i>	-4.04	1.82E-09	0.54	8.32

ENSSSCG00000007667	<i>LRCH4</i>	-4.04	4.96E-10	0.64	10.90
ENSSSCG00000010214	<i>CDK1</i>	-4.04	3.77E-12	22.61	417.14
ENSSSCG00000017883	<i>GGT6</i>	-4.04	4.46E-14	7.61	128.49
ENSSSCG00000000746	<i>WASHC1</i>	-4.03	1.70E-10	1.13	19.16
ENSSSCG00000005716	<i>POMT1</i>	-4.03	2.79E-08	0.07	1.57
ENSSSCG00000007119	<i>NXT1</i>	-4.03	1.92E-09	0.15	2.39
ENSSSCG00000008710	<i>JAKMIP1</i>	-4.03	2.14E-10	0.26	4.35
ENSSSCG00000012939	<i>BRMS1</i>	-4.03	1.43E-07	0.37	4.76
ENSSSCG00000001064	<i>GMPR</i>	-4.02	7.68E-14	7.99	128.11
ENSSSCG00000006482	<i>MEF2D</i>	-4.02	1.70E-09	0.55	9.64
ENSSSCG00000007603	<i>NPTX2</i>	-4.02	5.91E-08	0.18	2.83
ENSSSCG00000061542	<i>LRRC61</i>	-4.02	2.23E-09	0.16	2.75
ENSSSCG00000003342	<i>DVL1</i>	-4.01	4.34E-08	0.10	2.22
ENSSSCG00000004957	<i>CLN6</i>	-4.01	1.68E-07	0.36	4.96
ENSSSCG00000007602	<i>BAIAP2L1</i>	-4.01	5.35E-15	8.97	143.10
ENSSSCG00000017519	<i>MRPL10</i>	-4.01	1.63E-10	0.74	10.29
ENSSSCG00000021255	<i>ADA</i>	-4.01	3.56E-14	7.89	125.51
ENSSSCG00000022815	<i>PYGB</i>	-4.01	6.22E-13	7.73	118.47
ENSSSCG00000034385	<i>ADAD2</i>	-4.01	6.95E-08	0.16	2.92
ENSSSCG00000038738	<i>DMWD</i>	-4.01	9.37E-13	2.75	44.09
ENSSSCG00000053941	<i>AGPAT2</i>	-4.01	1.78E-12	0.91	15.30
ENSSSCG00000012273	<i>USP11</i>	-4.00	6.66E-11	0.97	14.76
ENSSSCG00000013017	<i>EHD1</i>	-4.00	3.13E-08	0.54	9.48
ENSSSCG00000015486	<i>PIGC</i>	-4.00	3.57E-14	5.99	95.61
ENSSSCG00000022120	<i>ZBTB8B</i>	-4.00	2.06E-08	0.08	1.54
ENSSSCG00000001654	<i>PPP2R5D</i>	-3.99	1.93E-09	1.18	18.85
ENSSSCG00000012275	<i>ARAF</i>	-3.99	1.45E-08	0.36	5.47
ENSSSCG00000017084	<i>FAT2</i>	-3.99	5.69E-12	2.34	37.66
ENSSSCG00000026812	<i>EMG1</i>	-3.99	1.11E-13	2.56	41.96
ENSSSCG00000038911	<i>KLF2</i>	-3.99	5.57E-11	1.25	18.06
ENSSSCG00000039953	<i>PNRC1</i>	-3.99	5.60E-13	1.90	30.65
ENSSSCG00000003178	<i>IRF3</i>	-3.98	3.74E-08	0.06	1.11
ENSSSCG00000017012	<i>SLIT3</i>	-3.98	1.70E-13	3.61	56.07
ENSSSCG00000023785	<i>TMEM156</i>	-3.98	1.42E-10	0.57	9.85
ENSSSCG00000028755	<i>EIPR1</i>	-3.98	1.31E-13	1.43	21.97
ENSSSCG00000055493	<i>EMC6</i>	-3.98	1.02E-14	13.49	210.70
ENSSSCG00000057936		-3.98	1.40E-06	0.22	2.28
ENSSSCG00000062397	<i>SF3B5</i>	-3.98	1.52E-11	0.77	12.10
ENSSSCG00000022738		-3.97	5.17E-11	2.21	32.78
ENSSSCG00000037029	<i>CSRNP2</i>	-3.97	2.58E-11	1.03	16.48
ENSSSCG00000011023	<i>ZNF438</i>	-3.96	2.98E-08	0.07	1.30
ENSSSCG00000022434	<i>ZNF235</i>	-3.96	1.50E-12	3.73	57.99
ENSSSCG00000023658	<i>NR2C2AP</i>	-3.96	1.16E-13	3.92	60.79
ENSSSCG00000039224	<i>CSPG5</i>	-3.96	4.35E-10	0.29	4.49
ENSSSCG00000015145	<i>ZNF202</i>	-3.95	7.26E-12	0.27	4.55
ENSSSCG00000023783	<i>MRPL27</i>	-3.95	4.33E-13	0.97	15.17
ENSSSCG00000026554	<i>PRXL2B</i>	-3.95	1.03E-07	0.19	2.99
ENSSSCG00000037046	<i>TUBB4B</i>	-3.95	2.45E-12	3.92	57.17
ENSSSCG00000001757	<i>WDR61</i>	-3.94	9.53E-14	18.84	287.51
ENSSSCG00000013582	<i>XAB2</i>	-3.94	2.69E-11	1.20	18.19

ENSSSCG00000007772	<i>STX1A</i>	-3.93	5.34E-08	0.07	1.26
ENSSSCG00000029460	<i>RND2</i>	-3.93	1.28E-08	0.28	3.99
ENSSSCG00000034137	<i>PPIB</i>	-3.93	4.10E-14	14.24	219.44
ENSSSCG00000056361	<i>COX14</i>	-3.93	9.30E-12	0.84	12.85
ENSSSCG00000003265	<i>LENG1</i>	-3.92	3.42E-14	6.90	101.31
ENSSSCG00000012845	<i>CEND1</i>	-3.92	1.39E-07	0.08	1.46
ENSSSCG00000037251		-3.92	1.41E-07	0.11	1.65
ENSSSCG00000039843	<i>IPO9</i>	-3.92	2.00E-10	0.57	8.39
ENSSSCG00000003669	<i>MFSD2A</i>	-3.91	8.98E-14	1.70	25.27
ENSSSCG00000005678	<i>NTMT1</i>	-3.91	2.06E-12	0.38	6.11
ENSSSCG00000026568	<i>DNPH1</i>	-3.91	1.94E-10	2.66	41.59
ENSSSCG00000029070	<i>PAFAH1B3</i>	-3.91	8.99E-11	0.22	3.75
ENSSSCG00000038992	<i>TUBB6</i>	-3.91	3.22E-07	0.47	3.79
ENSSSCG00000000708	<i>TNFRSF1A</i>	-3.90	7.70E-09	0.14	2.51
ENSSSCG00000004849	<i>APBA2</i>	-3.90	8.60E-10	0.21	3.12
ENSSSCG00000007818	<i>KDM8</i>	-3.90	2.58E-10	0.29	4.61
ENSSSCG00000017227	<i>FDXR</i>	-3.90	2.78E-09	0.12	1.92
ENSSSCG00000026038	<i>DDX28</i>	-3.90	3.41E-12	1.18	16.53
ENSSSCG00000007853	<i>LYRM1</i>	-3.89	4.27E-14	1.39	21.13
ENSSSCG00000012758	<i>NSDHL</i>	-3.89	2.49E-14	12.10	178.76
ENSSSCG00000017338	<i>PLCD3</i>	-3.89	9.70E-10	0.29	3.85
ENSSSCG00000020665	<i>TAF6L</i>	-3.89	4.16E-08	1.21	17.78
ENSSSCG00000025599	<i>FTSJ1</i>	-3.89	7.36E-14	4.38	65.16
ENSSSCG00000041453		-3.89	4.89E-08	0.10	1.43
ENSSSCG00000053928	<i>GPN2</i>	-3.89	1.65E-10	0.80	10.92
ENSSSCG00000010682	<i>PRDX3</i>	-3.88	5.35E-15	6.80	100.51
ENSSSCG00000012817	<i>FUNDC2</i>	-3.88	6.26E-11	2.08	27.65
ENSSSCG00000012918	<i>GRK2</i>	-3.88	2.94E-07	0.08	1.27
ENSSSCG00000038428	<i>PAXX</i>	-3.88	1.43E-07	0.08	1.22
ENSSSCG00000039218	<i>SLC38A8</i>	-3.88	2.08E-13	5.91	85.24
ENSSSCG00000000443	<i>GLI1</i>	-3.87	2.84E-08	0.04	0.85
ENSSSCG00000021181	<i>DHCR7</i>	-3.87	5.05E-09	0.19	2.71
ENSSSCG00000024895	<i>GGA1</i>	-3.87	2.60E-08	0.87	10.39
ENSSSCG00000034487	<i>NDUFB11</i>	-3.87	2.16E-14	5.06	75.16
ENSSSCG00000000740	<i>TEX52</i>	-3.86	4.94E-08	0.08	1.51
ENSSSCG00000011293	<i>POMGNT2</i>	-3.86	7.05E-09	0.17	2.41
ENSSSCG00000011369	<i>WDR6</i>	-3.86	2.34E-08	0.12	1.63
ENSSSCG00000028609	<i>SLC12A4</i>	-3.86	1.66E-11	1.81	25.53
ENSSSCG00000036317	<i>VASP</i>	-3.86	1.08E-09	0.31	4.71
ENSSSCG00000036722	<i>MALSU1</i>	-3.86	3.79E-13	3.33	47.90
ENSSSCG00000038762	<i>BTF3L4</i>	-3.86	8.41E-12	6.62	87.99
ENSSSCG00000000749	<i>SLC6A12</i>	-3.85	1.78E-09	0.23	3.48
ENSSSCG00000023539	<i>MBOAT2</i>	-3.85	6.99E-12	2.03	30.26
ENSSSCG00000025303	<i>FAM50A</i>	-3.85	3.72E-12	0.81	11.65
ENSSSCG00000034916	<i>GORASP1</i>	-3.85	1.69E-07	0.10	1.40
ENSSSCG00000055487	<i>COMMD7</i>	-3.85	2.91E-12	2.13	31.37
ENSSSCG00000013063	<i>TUT1</i>	-3.84	8.21E-09	0.16	2.38
ENSSSCG00000023680	<i>MEPCE</i>	-3.84	2.00E-12	3.00	41.32
ENSSSCG00000025794	<i>FBRS</i>	-3.84	3.81E-09	0.23	3.52
ENSSSCG00000030478		-3.84	2.46E-14	11.14	164.80

ENSSSCG00000035733	<i>PLXNB2</i>	-3.84	5.01E-08	0.14	1.83
ENSSSCG00000053677	<i>MRGBP</i>	-3.84	4.33E-11	0.98	13.66
ENSSSCG00000007963	<i>ZNF263</i>	-3.83	1.17E-07	0.06	1.01
ENSSSCG00000013595	<i>CERS4</i>	-3.83	4.41E-14	1.83	25.74
ENSSSCG00000021361	<i>ZNF710</i>	-3.83	1.09E-07	0.13	1.57
ENSSSCG00000024058	<i>SLC5A2</i>	-3.83	4.69E-08	0.11	1.70
ENSSSCG00000025838	<i>AP1M2</i>	-3.83	3.07E-11	1.47	19.80
ENSSSCG00000032407	<i>LRFN1</i>	-3.83	5.77E-08	0.11	1.73
ENSSSCG00000035852	<i>CSNK1D</i>	-3.83	2.42E-10	1.45	19.87
ENSSSCG00000027371	<i>PCDHGA4</i>	-3.82	8.13E-10	3.08	47.68
ENSSSCG00000031129	<i>SIRT5</i>	-3.82	9.84E-11	0.41	5.72
ENSSSCG00000037734	<i>UBE2M</i>	-3.82	7.22E-10	0.40	5.94
ENSSSCG00000039659	<i>TIMM10</i>	-3.82	1.94E-11	0.57	7.43
ENSSSCG00000006954	<i>EEF1D</i>	-3.81	3.77E-13	1.87	26.87
ENSSSCG00000012916	<i>POLD4</i>	-3.81	1.13E-08	0.11	1.69
ENSSSCG00000017983	<i>PER1</i>	-3.81	1.03E-10	1.01	14.61
ENSSSCG00000017988	<i>CCDC42</i>	-3.81	3.48E-10	0.22	3.33
ENSSSCG00000032073		-3.81	6.60E-10	0.82	10.06
ENSSSCG00000039867	<i>UCK2</i>	-3.81	2.01E-14	2.82	39.01
ENSSSCG00000059376	<i>EEF1AKMT1</i>	-3.81	1.83E-11	0.81	11.63
ENSSSCG00000007932	<i>ROGDI</i>	-3.80	8.91E-09	0.73	10.65
ENSSSCG00000017062	<i>TIMD4</i>	-3.80	5.72E-13	2.21	30.79
ENSSSCG00000028317	<i>ARHGEF28</i>	-3.80	3.21E-13	1.41	19.71
ENSSSCG00000034859	<i>GADD45GIP1</i>	-3.80	1.68E-14	4.00	55.89
ENSSSCG00000000736	<i>TEAD4</i>	-3.79	5.40E-10	0.37	4.68
ENSSSCG00000002927	<i>LRFN3</i>	-3.79	3.45E-08	0.15	1.86
ENSSSCG00000003089	<i>TOMM40</i>	-3.79	6.17E-06	0.16	2.36
ENSSSCG00000017902	<i>CAMTA2</i>	-3.79	6.33E-08	0.24	3.06
ENSSSCG00000058017	<i>TMEM200B</i>	-3.79	2.46E-09	0.73	10.47
ENSSSCG00000001502	<i>RPS18</i>	-3.78	2.06E-14	8.18	109.71
ENSSSCG00000001841	<i>RHCG</i>	-3.78	8.17E-10	0.22	3.05
ENSSSCG00000016969	<i>SERF1A</i>	-3.78	8.98E-14	3.32	45.07
ENSSSCG00000022107	<i>CHTOP</i>	-3.78	7.60E-13	8.85	114.34
ENSSSCG00000028637	<i>CYP27B1</i>	-3.78	5.88E-10	3.06	41.25
ENSSSCG00000033432	<i>CHMP4A</i>	-3.78	1.39E-13	1.20	16.90
ENSSSCG00000056961	<i>NDUFA13</i>	-3.78	1.65E-09	2.65	27.47
ENSSSCG00000009615	<i>NUDT18</i>	-3.77	1.46E-06	0.13	1.44
ENSSSCG00000014825	<i>RELT</i>	-3.77	6.26E-07	0.14	1.54
ENSSSCG00000023097	<i>ZNF408</i>	-3.77	2.44E-09	0.18	2.89
ENSSSCG00000023607	<i>CYP4F22</i>	-3.77	2.05E-07	0.08	1.13
ENSSSCG00000029362	<i>CHMP2A</i>	-3.77	8.75E-12	2.00	25.99
ENSSSCG00000003217	<i>JOSD2</i>	-3.76	7.21E-10	1.86	22.04
ENSSSCG00000016100	<i>NDUFB3</i>	-3.76	3.16E-10	3.22	40.73
ENSSSCG00000024736	<i>ACP4</i>	-3.76	2.00E-07	0.12	1.50
ENSSSCG00000026606	<i>PAIP2</i>	-3.76	1.09E-13	12.02	168.24
ENSSSCG00000003470	<i>FAM131C</i>	-3.75	5.25E-07	0.11	1.16
ENSSSCG00000028878	<i>BCAR1</i>	-3.75	2.09E-08	0.13	2.08
ENSSSCG00000013475	<i>NCLN</i>	-3.74	2.22E-08	0.36	5.23
ENSSSCG00000013886	<i>B3GNT3</i>	-3.74	3.30E-11	1.03	12.77
ENSSSCG00000028712	<i>ATPAF2</i>	-3.74	9.20E-13	1.41	18.58

ENSSSCG00000035546		-3.74	6.67E-07	0.65	6.58
ENSSSCG00000038528		-3.74	9.89E-09	0.25	3.12
ENSSSCG00000044924		-3.74	1.25E-10	0.47	6.32
ENSSSCG00000002664	<i>GSE1</i>	-3.73	8.45E-10	1.08	14.29
ENSSSCG00000004549	<i>RBPM52</i>	-3.73	5.72E-12	4.01	54.77
ENSSSCG00000015342	<i>COL28A1</i>	-3.73	3.27E-08	0.34	4.98
ENSSSCG00000037510	<i>DYNLRB1</i>	-3.73	2.29E-12	7.03	90.37
ENSSSCG00000051352		-3.73	3.12E-10	0.46	6.27
ENSSSCG00000002276	<i>PLEKHG3</i>	-3.72	1.29E-08	0.10	1.52
ENSSSCG00000034318	<i>MRPS25</i>	-3.72	4.33E-14	54.62	714.80
ENSSSCG00000038650	<i>TLCD1</i>	-3.72	2.08E-13	3.13	40.51
ENSSSCG00000058604	<i>NDUFC1</i>	-3.72	7.68E-14	8.84	117.82
ENSSSCG00000001204	<i>ZKSCAN4</i>	-3.71	1.49E-12	0.91	11.87
ENSSSCG00000001908	<i>CCDC33</i>	-3.71	4.27E-07	0.12	1.43
ENSSSCG00000009215	<i>ABCG2</i>	-3.71	2.68E-06	0.63	5.45
ENSSSCG00000017778	<i>DHRS13</i>	-3.71	3.24E-07	0.16	1.86
ENSSSCG00000044312		-3.71	8.19E-11	0.59	7.82
ENSSSCG00000000259	<i>CSAD</i>	-3.70	7.38E-11	0.74	9.89
ENSSSCG00000007187	<i>NSFL1C</i>	-3.70	7.29E-13	3.96	49.83
ENSSSCG00000008769		-3.70	1.23E-06	0.09	1.31
ENSSSCG00000017747	<i>RAB11FIP4</i>	-3.70	1.02E-10	0.35	4.55
ENSSSCG00000037431	<i>TIMM17A</i>	-3.70	9.29E-14	1.76	23.20
ENSSSCG00000038036	<i>TTL11</i>	-3.70	3.13E-09	0.37	4.19
ENSSSCG00000040854	<i>BOLA3</i>	-3.70	5.12E-14	3.12	41.00
ENSSSCG00000010158	<i>TOMM20</i>	-3.69	2.16E-13	7.37	98.94
ENSSSCG00000013455	<i>IZUMO4</i>	-3.69	3.16E-09	0.33	3.80
ENSSSCG00000014137	<i>HAPLN1</i>	-3.69	1.32E-07	0.35	4.17
ENSSSCG00000017932	<i>ASGR2</i>	-3.69	2.33E-11	0.59	7.88
ENSSSCG00000037531	<i>MAP3K11</i>	-3.69	7.52E-07	0.19	2.46
ENSSSCG00000022545	<i>CALM3</i>	-3.68	1.02E-14	5.67	72.02
ENSSSCG00000025791	<i>MON1A</i>	-3.68	3.30E-13	2.27	29.03
ENSSSCG00000040086	<i>YTHDF1</i>	-3.68	2.03E-11	1.98	25.12
ENSSSCG00000022187	<i>CISD3</i>	-3.67	5.55E-08	0.17	2.03
ENSSSCG00000026472	<i>RPL7L1</i>	-3.67	7.68E-14	15.87	212.17
ENSSSCG00000030361	<i>PRKCZ</i>	-3.67	1.17E-08	0.26	3.14
ENSSSCG00000038685	<i>MPPED1</i>	-3.67	4.66E-14	2.61	33.39
ENSSSCG00000002295	<i>VTI1B</i>	-3.66	1.66E-15	12.11	153.73
ENSSSCG00000005319	<i>GBA2</i>	-3.66	1.78E-09	0.41	5.13
ENSSSCG00000007308	<i>ROMO1</i>	-3.66	1.62E-11	8.18	96.39
ENSSSCG00000017868	<i>P2RX5</i>	-3.66	1.30E-12	2.70	34.22
ENSSSCG00000027768	<i>SLC29A4</i>	-3.66	1.68E-08	0.51	6.36
ENSSSCG00000028184	<i>DNAH1</i>	-3.66	5.86E-07	0.13	1.58
ENSSSCG00000063102		-3.66	7.15E-07	0.62	7.89
ENSSSCG00000000214	<i>GPD1</i>	-3.65	9.98E-14	3.35	42.32
ENSSSCG00000002016	<i>THTPA</i>	-3.65	2.84E-10	0.37	4.69
ENSSSCG00000023796	<i>RNF121</i>	-3.65	5.84E-13	1.45	18.16
ENSSSCG00000032366	<i>MOB3A</i>	-3.65	4.51E-11	0.50	6.49
ENSSSCG00000034980	<i>IRF8</i>	-3.65	4.84E-12	4.22	51.20
ENSSSCG00000038979	<i>ARHGDI6</i>	-3.65	2.18E-08	0.25	3.03
ENSSSCG00000040569	<i>PLA2G10</i>	-3.65	1.29E-10	0.21	2.86

ENSSSCG00000061894	<i>STYXL1</i>	-3.65	3.03E-14	18.67	245.56
ENSSSCG00000005471	<i>SNX30</i>	-3.64	1.70E-12	1.04	12.82
ENSSSCG00000030167	<i>SLC25A39</i>	-3.64	3.76E-06	0.31	4.02
ENSSSCG00000000064	<i>ACO2</i>	-3.63	1.79E-11	9.11	103.35
ENSSSCG00000000998	<i>RPP40</i>	-3.63	9.56E-15	4.47	55.62
ENSSSCG00000002557	<i>NUDT14</i>	-3.63	7.50E-10	0.63	7.06
ENSSSCG00000007860	<i>PDILT</i>	-3.63	6.14E-08	0.19	2.58
ENSSSCG00000010201	<i>RASGEF1A</i>	-3.63	2.33E-11	2.53	29.24
ENSSSCG00000012997	<i>POLA2</i>	-3.63	1.32E-12	2.08	25.86
ENSSSCG00000015079	<i>BACE1</i>	-3.63	1.89E-07	0.11	1.22
ENSSSCG00000032957	<i>PTPN23</i>	-3.63	3.55E-11	1.42	17.82
ENSSSCG00000061531		-3.63	6.99E-10	0.35	4.77
ENSSSCG00000002235	<i>LPCAT4</i>	-3.62	5.53E-11	0.44	5.46
ENSSSCG00000024235	<i>NPLOC4</i>	-3.62	4.20E-10	0.92	11.95
ENSSSCG00000002709		-3.61	1.49E-11	2.27	28.03
ENSSSCG00000003623	<i>C1orf94</i>	-3.61	4.25E-08	0.06	1.05
ENSSSCG00000013293	<i>COMMD9</i>	-3.61	6.03E-12	6.60	79.67
ENSSSCG00000037646	<i>DNAJA4</i>	-3.61	4.51E-11	0.61	7.61
ENSSSCG00000037792	<i>COX7A1</i>	-3.61	3.02E-13	2.99	36.34
ENSSSCG00000038221	<i>HSD17B2</i>	-3.61	5.29E-07	0.12	1.35
ENSSSCG00000039538		-3.61	1.99E-07	0.16	1.80
ENSSSCG00000058673		-3.61	4.20E-08	0.18	2.18
ENSSSCG00000015825	<i>ADGRA2</i>	-3.60	9.12E-09	0.30	3.32
ENSSSCG00000016469	<i>TRPV6</i>	-3.60	3.19E-08	0.06	0.95
ENSSSCG00000023662	<i>CHST3</i>	-3.60	2.95E-11	7.80	94.88
ENSSSCG00000033359	<i>CUEDC2</i>	-3.60	1.35E-07	0.23	2.17
ENSSSCG00000003131	<i>SYNGR4</i>	-3.59	5.14E-07	0.27	2.55
ENSSSCG00000010309	<i>ZSWIM8</i>	-3.59	3.77E-11	0.98	12.06
ENSSSCG00000022726	<i>RHOD</i>	-3.59	4.43E-07	0.11	1.19
ENSSSCG00000023801	<i>LANCL2</i>	-3.59	5.50E-12	1.92	22.12
ENSSSCG00000029541	<i>PSD2</i>	-3.59	2.83E-09	0.29	3.26
ENSSSCG00000054583	<i>EEF1AKMT4</i>	-3.59	7.70E-07	0.10	1.09
ENSSSCG00000010481	<i>LGI1</i>	-3.58	9.24E-09	0.56	6.67
ENSSSCG00000034350	<i>SERHL2</i>	-3.58	5.68E-13	2.87	34.12
ENSSSCG00000039196	<i>POLR2I</i>	-3.58	5.73E-12	1.76	20.28
ENSSSCG00000002469	<i>OTUB2</i>	-3.57	4.15E-10	0.32	3.85
ENSSSCG00000003177		-3.57	8.85E-06	0.27	1.85
ENSSSCG00000030831	<i>DENND3</i>	-3.57	1.60E-09	0.39	4.65
ENSSSCG00000033444	<i>SPC24</i>	-3.57	1.82E-14	33.60	396.47
ENSSSCG00000037120	<i>TK1</i>	-3.57	8.53E-11	3.26	37.09
ENSSSCG00000013492	<i>APBA3</i>	-3.56	6.02E-11	0.55	6.70
ENSSSCG00000002995		-3.55	5.70E-10	0.47	5.39
ENSSSCG00000011889	<i>GSK3B</i>	-3.55	1.29E-13	3.52	40.23
ENSSSCG00000016127	<i>NDUFS1</i>	-3.55	8.66E-13	2.46	28.10
ENSSSCG00000016450	<i>NOS3</i>	-3.55	3.18E-07	0.11	1.44
ENSSSCG00000016758	<i>STK17A</i>	-3.55	1.49E-13	24.40	277.55
ENSSSCG00000030672	<i>ZNF692</i>	-3.55	7.78E-07	0.11	1.19
ENSSSCG00000006667	<i>BOLA1</i>	-3.54	1.70E-08	0.25	2.52
ENSSSCG00000006828	<i>ATXN7L2</i>	-3.54	7.24E-09	0.20	2.47
ENSSSCG00000010027	<i>PATZ1</i>	-3.54	6.69E-08	0.39	4.05

ENSSSCG00000013241	<i>NR1H3</i>	-3.54	2.14E-12	2.37	26.68
ENSSSCG00000017509		-3.54	8.02E-14	5.75	65.44
ENSSSCG00000025264	<i>PQBP1</i>	-3.54	7.84E-13	4.19	48.21
ENSSSCG00000025618	<i>TAP1</i>	-3.54	3.93E-07	0.14	1.47
ENSSSCG00000029553	<i>CCDC57</i>	-3.54	3.40E-07	0.13	1.47
ENSSSCG00000012837	<i>CHID1</i>	-3.53	1.54E-08	0.57	5.81
ENSSSCG00000013226	<i>PTPMT1</i>	-3.53	4.32E-14	2.49	28.66
ENSSSCG00000016704		-3.53	1.64E-08	0.19	2.35
ENSSSCG00000021672	<i>WBP2</i>	-3.53	1.22E-09	1.28	14.82
ENSSSCG00000024693	<i>MRPL17</i>	-3.53	2.97E-13	5.15	59.70
ENSSSCG00000028282	<i>SLC1A4</i>	-3.53	1.33E-10	1.47	16.55
ENSSSCG00000038460	<i>FOXF1</i>	-3.53	4.59E-07	0.07	0.86
ENSSSCG00000000437	<i>ARHGAP9</i>	-3.52	9.16E-13	1.62	18.78
ENSSSCG00000001096	<i>ARMH2</i>	-3.52	8.38E-08	0.26	2.91
ENSSSCG00000001825	<i>SLC41A3</i>	-3.52	3.18E-10	1.51	16.59
ENSSSCG00000003037	<i>ZNF574</i>	-3.52	4.55E-10	1.35	14.60
ENSSSCG00000013757	<i>C19orf53</i>	-3.52	1.26E-13	3.53	40.12
ENSSSCG00000014371	<i>NDUFA2</i>	-3.52	3.44E-11	3.25	36.62
ENSSSCG00000016216	<i>TUBA4A</i>	-3.52	1.04E-13	2.25	25.39
ENSSSCG00000038614	<i>NENF</i>	-3.52	1.15E-07	0.22	2.06
ENSSSCG00000005917	<i>HSF1</i>	-3.51	9.80E-10	1.11	13.03
ENSSSCG00000011294	<i>GASK1A</i>	-3.51	4.25E-10	0.75	8.92
ENSSSCG00000027550	<i>PLCD1</i>	-3.51	2.85E-07	0.14	1.58
ENSSSCG00000027847	<i>CSKMT</i>	-3.51	1.61E-11	1.24	13.63
ENSSSCG00000029438	<i>SES2</i>	-3.51	7.64E-10	0.32	3.66
ENSSSCG00000033422	<i>STIMATE</i>	-3.51	7.31E-14	3.87	43.57
ENSSSCG00000037568	<i>RAB43</i>	-3.51	1.80E-08	0.70	7.64
ENSSSCG00000010029	<i>DRG1</i>	-3.50	4.33E-14	21.36	243.47
ENSSSCG00000014033	<i>RMND5B</i>	-3.50	1.81E-11	0.50	5.80
ENSSSCG00000017239	<i>RPL38</i>	-3.50	3.57E-14	3.40	38.89
ENSSSCG00000017926	<i>SLC16A13</i>	-3.50	5.94E-10	0.45	4.97
ENSSSCG00000021129	<i>PFKM</i>	-3.50	2.89E-14	2.49	28.29
ENSSSCG00000032527	<i>FOSL2</i>	-3.50	3.81E-09	0.45	4.60
ENSSSCG00000043842	<i>TMEM225B</i>	-3.50	1.19E-12	2.19	24.82
ENSSSCG00000004317	<i>UBE2J1</i>	-3.49	9.09E-10	0.60	6.32
ENSSSCG00000031452	<i>C14orf93</i>	-3.49	1.03E-09	0.28	3.16
ENSSSCG00000031514	<i>CCDC28B</i>	-3.49	4.63E-09	0.49	5.17
ENSSSCG00000037476		-3.49	3.90E-10	0.62	7.24
ENSSSCG00000005613	<i>LRSAM1</i>	-3.48	1.23E-11	1.69	19.88
ENSSSCG00000010078	<i>TOP3B</i>	-3.48	4.35E-06	0.21	2.17
ENSSSCG00000011110	<i>CCDC3</i>	-3.48	5.72E-13	13.64	151.41
ENSSSCG00000013895	<i>MAST3</i>	-3.48	1.31E-10	0.70	7.49
ENSSSCG00000027573	<i>RPL29</i>	-3.48	3.68E-12	4.65	48.18
ENSSSCG00000032453	<i>SUV39H1</i>	-3.48	6.66E-08	0.12	1.38
ENSSSCG00000003943	<i>MED8</i>	-3.47	1.11E-12	8.42	95.27
ENSSSCG00000009739	<i>NOC4L</i>	-3.47	6.14E-09	0.46	4.98
ENSSSCG00000010686	<i>BAG3</i>	-3.47	4.20E-11	1.35	15.34
ENSSSCG00000011548	<i>BRPF1</i>	-3.47	6.19E-11	1.45	14.71
ENSSSCG00000016478	<i>PRSS2</i>	-3.47	7.12E-12	4.74	52.86
ENSSSCG00000023177	<i>RRP9</i>	-3.47	6.97E-10	0.52	5.53

ENSSSCG00000023837	<i>WFDC1</i>	-3.47	2.23E-08	0.14	1.61
ENSSSCG00000027124		-3.47	6.45E-10	0.56	6.03
ENSSSCG00000034994	<i>AKAP1</i>	-3.47	4.48E-13	3.00	33.88
ENSSSCG00000000719	<i>NDUFA9</i>	-3.46	7.56E-13	5.46	62.73
ENSSSCG00000002377	<i>EIF2B2</i>	-3.46	1.28E-11	1.30	14.43
ENSSSCG00000003990	<i>ZNF671</i>	-3.46	1.76E-09	0.40	4.22
ENSSSCG00000008282	<i>WDR54</i>	-3.46	1.04E-10	0.90	9.72
ENSSSCG00000013040	<i>TRPT1</i>	-3.46	5.68E-08	0.46	5.14
ENSSSCG00000036331	<i>AMY2B</i>	-3.46	7.73E-06	0.29	2.31
ENSSSCG00000051838	<i>CRTAP</i>	-3.46	2.87E-09	0.52	6.09
ENSSSCG00000005217	<i>RCL1</i>	-3.45	2.29E-12	2.35	24.98
ENSSSCG00000006958	<i>TOP1MT</i>	-3.45	2.41E-10	2.69	25.55
ENSSSCG00000025612	<i>SPATA19</i>	-3.45	2.51E-07	0.34	4.02
ENSSSCG00000037557	<i>DRC3</i>	-3.45	1.14E-07	0.05	0.75
ENSSSCG00000051618	<i>SETD1B</i>	-3.45	1.63E-10	0.94	10.30
ENSSSCG00000004776	<i>DISP2</i>	-3.44	2.27E-07	0.21	2.11
ENSSSCG00000006488	<i>GLMP</i>	-3.44	7.12E-09	0.67	6.16
ENSSSCG00000010929	<i>CYB5R1</i>	-3.44	1.30E-07	0.36	3.94
ENSSSCG00000021991	<i>NDUFV3</i>	-3.44	1.98E-14	6.24	67.22
ENSSSCG00000038854	<i>PSMF1</i>	-3.44	1.65E-11	1.89	19.83
ENSSSCG00000013236	<i>MYBPC3</i>	-3.43	3.49E-09	0.34	3.91
ENSSSCG00000013360	<i>TMEM86A</i>	-3.43	8.81E-08	0.09	1.12
ENSSSCG00000025571	<i>POLR2G</i>	-3.43	1.15E-11	6.19	65.81
ENSSSCG00000027288	<i>DAGLB</i>	-3.43	9.71E-07	0.18	2.23
ENSSSCG00000035134	<i>MRPS7</i>	-3.43	2.79E-13	2.81	30.63
ENSSSCG00000037238	<i>DBF4B</i>	-3.43	1.38E-05	0.43	2.95
ENSSSCG00000040182	<i>RHBDD2</i>	-3.43	1.09E-05	0.20	1.89
ENSSSCG00000043690		-3.43	6.40E-07	0.22	2.22
ENSSSCG00000007439	<i>CDH22</i>	-3.42	1.81E-11	0.62	6.70
ENSSSCG00000008040	<i>TSC2</i>	-3.42	1.93E-11	1.63	17.65
ENSSSCG00000010134	<i>TANGO2</i>	-3.42	2.75E-12	2.88	29.75
ENSSSCG00000035939	<i>UCKL1</i>	-3.42	4.81E-09	0.71	6.82
ENSSSCG00000037905	<i>ITGB5</i>	-3.42	1.30E-12	3.75	39.49
ENSSSCG00000037918	<i>ADIRF</i>	-3.42	3.82E-08	0.17	1.90
ENSSSCG00000040531	<i>UTS2</i>	-3.42	5.36E-10	0.49	5.30
ENSSSCG00000000394	<i>CNPY2</i>	-3.41	5.33E-14	11.19	120.37
ENSSSCG00000035615	<i>GSTK1</i>	-3.41	2.95E-13	1.19	12.71
ENSSSCG00000036132	<i>CKM</i>	-3.41	2.55E-11	0.60	6.62
ENSSSCG00000000695	<i>IFFO1</i>	-3.40	6.31E-10	0.65	7.48
ENSSSCG00000002013	<i>DHRS4</i>	-3.40	8.04E-08	0.31	2.94
ENSSSCG00000009276	<i>XPO4</i>	-3.40	1.25E-10	1.23	11.78
ENSSSCG00000016678	<i>NOD1</i>	-3.40	1.80E-11	1.51	15.40
ENSSSCG00000054721	<i>PAGR1</i>	-3.40	7.96E-09	0.21	2.52
ENSSSCG00000000046	<i>CYP2D6</i>	-3.39	3.19E-05	0.40	2.26
ENSSSCG00000012983	<i>PCNX3</i>	-3.39	7.29E-08	0.43	4.23
ENSSSCG00000017810	<i>TLCD3A</i>	-3.39	5.74E-07	0.20	2.05
ENSSSCG00000017935	<i>CTDNEP1</i>	-3.39	1.60E-12	2.22	23.48
ENSSSCG00000062214	<i>SFN</i>	-3.39	6.28E-11	1.67	16.47
ENSSSCG00000003332	<i>SDF4</i>	-3.38	2.14E-06	0.41	3.46
ENSSSCG00000003348		-3.38	1.86E-13	4.73	47.53

ENSSSCG00000011783	<i>EIF2B5</i>	-3.38	1.92E-09	0.41	3.98
ENSSSCG00000013932	<i>LPAR2</i>	-3.38	2.86E-07	0.12	1.20
ENSSSCG00000021461	<i>SNF8</i>	-3.38	4.36E-13	5.10	51.69
ENSSSCG00000038404	<i>SERPINB6</i>	-3.38	5.90E-12	3.89	40.13
ENSSSCG00000038918	<i>CTSF</i>	-3.38	5.13E-08	0.32	3.50
ENSSSCG00000054789	<i>YPEL1</i>	-3.38	1.51E-11	1.41	15.04
ENSSSCG00000007092	<i>KAT14</i>	-3.37	5.94E-10	0.71	7.01
ENSSSCG00000027515		-3.37	2.63E-08	0.49	4.77
ENSSSCG00000034040	<i>TMEM11</i>	-3.37	2.95E-13	8.39	84.79
ENSSSCG00000035997	<i>RPL10</i>	-3.37	1.49E-13	8.35	84.51
ENSSSCG00000036876	<i>THAP3</i>	-3.37	6.44E-08	0.16	2.04
ENSSSCG00000062738	<i>FDX2</i>	-3.37	7.19E-07	0.69	5.56
ENSSSCG00000014038	<i>FAM193B</i>	-3.36	2.66E-06	0.12	1.02
ENSSSCG00000025955	<i>SSBP4</i>	-3.36	2.39E-07	0.22	2.30
ENSSSCG00000001696	<i>MRPL14</i>	-3.35	9.88E-14	8.92	90.91
ENSSSCG00000002003	<i>RNF31</i>	-3.35	4.96E-11	1.24	12.78
ENSSSCG00000013889		-3.35	1.84E-14	15.59	158.04
ENSSSCG00000017792	<i>CORO6</i>	-3.35	7.50E-08	0.31	2.61
ENSSSCG00000038938	<i>FIS1</i>	-3.35	1.08E-12	1.72	17.26
ENSSSCG00000003433	<i>PLOD1</i>	-3.34	2.47E-08	0.34	3.50
ENSSSCG00000007939	<i>ANKS3</i>	-3.34	3.11E-08	0.18	1.85
ENSSSCG00000007979	<i>LUC7L</i>	-3.34	1.07E-09	0.64	6.37
ENSSSCG00000013020	<i>MAP4K2</i>	-3.34	7.47E-11	0.96	9.36
ENSSSCG00000033982	<i>ZNHIT1</i>	-3.34	9.78E-11	3.21	30.84
ENSSSCG00000035973	<i>LSM6</i>	-3.34	3.76E-13	28.39	284.28
ENSSSCG00000038471	<i>NUAK2</i>	-3.34	1.09E-06	0.12	1.12
ENSSSCG00000004002	<i>RPS5</i>	-3.33	2.06E-14	12.20	122.22
ENSSSCG00000005655	<i>DYNC2I2</i>	-3.33	1.92E-09	0.34	3.78
ENSSSCG00000017268	<i>PRKCA</i>	-3.33	8.30E-10	0.52	5.15
ENSSSCG00000036114		-3.33	4.86E-09	0.54	5.34
ENSSSCG00000058549		-3.33	5.99E-07	0.11	1.21
ENSSSCG00000001852	<i>IDH2</i>	-3.32	2.89E-14	6.27	63.02
ENSSSCG00000003042	<i>RPS19</i>	-3.32	4.63E-08	10.01	73.74
ENSSSCG00000006512	<i>FDPS</i>	-3.32	3.35E-13	5.47	53.14
ENSSSCG00000013513	<i>PLIN5</i>	-3.32	4.06E-10	1.60	15.13
ENSSSCG00000029983	<i>PCGF3</i>	-3.32	1.04E-10	0.85	8.34
ENSSSCG00000046252		-3.32	1.84E-05	0.29	1.89
ENSSSCG00000010046	<i>GNAZ</i>	-3.31	4.08E-08	0.15	1.56
ENSSSCG00000014876	<i>MYO7A</i>	-3.31	5.92E-10	0.87	7.97
ENSSSCG00000017520	<i>LRRC46</i>	-3.31	7.31E-09	0.41	3.91
ENSSSCG00000024500	<i>CFAP410</i>	-3.31	1.52E-07	0.22	2.04
ENSSSCG00000035238	<i>ELOVL1</i>	-3.31	1.24E-09	0.47	4.82
ENSSSCG00000039878	<i>PLD6</i>	-3.31	1.81E-09	0.45	4.60
ENSSSCG00000054855	<i>ASPDH</i>	-3.31	6.17E-09	0.49	4.53
ENSSSCG00000003385	<i>PARK7</i>	-3.30	2.24E-12	22.21	213.86
ENSSSCG00000010094	<i>SNAP29</i>	-3.30	8.98E-14	2.20	21.73
ENSSSCG00000014348	<i>SPATA24</i>	-3.30	4.39E-11	1.02	10.02
ENSSSCG00000022784	<i>PLEKHO1</i>	-3.30	1.51E-09	2.68	25.15
ENSSSCG00000036013		-3.30	6.66E-09	0.48	4.17
ENSSSCG00000038440	<i>GTPBP3</i>	-3.30	4.94E-08	0.21	2.05

ENSSSCG00000057749	<i>HSBP1</i>	-3.30	7.68E-14	20.57	201.80
ENSSSCG00000008482	<i>GEMIN6</i>	-3.29	3.16E-14	29.75	295.20
ENSSSCG00000014568	<i>DENND2B</i>	-3.29	4.77E-07	0.67	6.75
ENSSSCG00000016202	<i>RNF25</i>	-3.29	4.11E-12	1.33	12.79
ENSSSCG00000017364	<i>HROB</i>	-3.29	1.38E-10	2.04	19.69
ENSSSCG00000021289	<i>GAK</i>	-3.29	1.63E-06	0.50	5.20
ENSSSCG00000040833	<i>BRF2</i>	-3.29	1.21E-10	1.72	15.75
ENSSSCG00000061647	<i>CASQ2</i>	-3.29	1.73E-10	1.46	15.26
ENSSSCG00000017287	<i>PSMC5</i>	-3.28	2.54E-13	5.57	53.22
ENSSSCG00000021698	<i>RRP1B</i>	-3.28	5.20E-08	1.21	10.78
ENSSSCG00000056729	<i>C5AR1</i>	-3.28	2.60E-11	3.18	30.19
ENSSSCG00000060764		-3.28	3.65E-04	0.41	1.64
ENSSSCG00000002815	<i>ADGRG1</i>	-3.27	4.86E-11	2.12	21.20
ENSSSCG00000003551	<i>PAQR7</i>	-3.27	1.38E-09	1.14	10.72
ENSSSCG00000007521	<i>NELFCD</i>	-3.27	2.08E-09	0.45	4.50
ENSSSCG00000027016	<i>C1orf47</i>	-3.27	3.41E-07	0.35	3.43
ENSSSCG00000032840		-3.27	7.67E-11	0.77	7.28
ENSSSCG00000033291	<i>PIP4K2B</i>	-3.27	5.98E-12	1.34	13.18
ENSSSCG00000039024	<i>SPSB3</i>	-3.27	2.26E-11	1.71	16.07
ENSSSCG00000000431	<i>MBD6</i>	-3.26	4.17E-07	0.28	2.46
ENSSSCG00000000661	<i>PHC1</i>	-3.26	1.73E-10	1.45	14.22
ENSSSCG00000004971	<i>TLE3</i>	-3.26	3.55E-07	0.11	1.07
ENSSSCG00000007981	<i>NPRL3</i>	-3.26	4.83E-07	0.26	2.56
ENSSSCG00000030798	<i>FUS</i>	-3.26	3.45E-09	0.70	7.14
ENSSSCG00000008434	<i>TTC7A</i>	-3.25	6.08E-11	0.58	5.59
ENSSSCG00000031112	<i>TM4SF5</i>	-3.25	5.18E-11	0.78	7.56
ENSSSCG00000038073	<i>NOD2</i>	-3.25	2.78E-07	0.08	0.85
ENSSSCG00000056541	<i>PEX11B</i>	-3.25	1.51E-09	1.18	12.59
ENSSSCG00000058854		-3.25	2.43E-11	1.01	9.43
ENSSSCG00000002497	<i>TCL1B</i>	-3.24	6.86E-12	13.78	126.49
ENSSSCG00000013613	<i>EEF1</i>	-3.24	5.66E-12	0.97	9.02
ENSSSCG00000024111	<i>SCGB3A2</i>	-3.24	1.40E-08	1.24	11.68
ENSSSCG00000027374	<i>C1orf50</i>	-3.24	3.27E-12	7.54	69.27
ENSSSCG00000027407	<i>MYH14</i>	-3.24	8.69E-09	0.27	2.88
ENSSSCG00000029991	<i>SNIP1</i>	-3.24	9.08E-08	0.36	2.99
ENSSSCG00000031756		-3.24	1.18E-11	16.53	165.95
ENSSSCG00000034752	<i>SUPT4H1</i>	-3.24	2.14E-06	0.12	0.99
ENSSSCG00000053652	<i>ASIP</i>	-3.24	4.19E-10	0.78	7.10
ENSSSCG00000002952	<i>YIF1B</i>	-3.23	2.02E-07	0.53	4.47
ENSSSCG00000003384	<i>DNAJC11</i>	-3.23	9.66E-13	4.05	38.09
ENSSSCG00000008302	<i>FBXO41</i>	-3.23	6.80E-08	0.31	2.82
ENSSSCG00000009333		-3.23	1.83E-07	0.22	2.26
ENSSSCG00000010719		-3.23	3.25E-11	7.51	68.93
ENSSSCG00000030510	<i>FBL</i>	-3.23	6.11E-10	1.25	11.22
ENSSSCG00000001400	<i>DDX39B</i>	-3.22	1.61E-13	8.00	73.43
ENSSSCG00000006354	<i>TOMM40L</i>	-3.22	4.33E-08	0.44	3.53
ENSSSCG00000029901	<i>UBE2O</i>	-3.22	4.35E-09	1.36	13.00
ENSSSCG00000032996	<i>SLC7A5</i>	-3.22	3.17E-07	0.16	1.76
ENSSSCG00000036568	<i>MVB12A</i>	-3.22	1.89E-07	0.18	1.70
ENSSSCG00000036868	<i>CTNNBIP1</i>	-3.22	4.54E-08	0.25	2.71

ENSSSCG00000051883	<i>CHKB</i>	-3.22	6.04E-11	1.36	11.79
ENSSSCG00000055498	<i>ZNF226</i>	-3.22	1.09E-10	1.84	17.40
ENSSSCG00000056515	<i>FAM174C</i>	-3.22	1.93E-07	0.28	2.53
ENSSSCG00000006469	<i>MRPL24</i>	-3.21	1.82E-14	3.62	33.73
ENSSSCG00000007286	<i>ACSS2</i>	-3.21	2.29E-14	7.70	70.55
ENSSSCG00000010084		-3.21	1.46E-09	0.39	3.81
ENSSSCG00000026819	<i>NID1</i>	-3.21	4.34E-07	0.32	2.83
ENSSSCG00000032380	<i>C1orf53</i>	-3.21	1.67E-08	0.29	2.70
ENSSSCG00000038950	<i>VARs1</i>	-3.21	1.07E-08	0.27	2.55
ENSSSCG00000016207	<i>RETREG2</i>	-3.20	3.76E-09	0.61	5.48
ENSSSCG00000022672	<i>TRPM4</i>	-3.20	1.44E-07	0.49	4.03
ENSSSCG00000033169	<i>RPS15</i>	-3.20	9.05E-11	15.11	127.09
ENSSSCG00000039245	<i>RIMS3</i>	-3.20	7.15E-09	0.47	4.22
ENSSSCG00000041782		-3.20	1.83E-03	0.76	1.30
ENSSSCG00000002495	<i>SYNE3</i>	-3.19	9.89E-08	0.42	3.83
ENSSSCG00000008321	<i>FIGLA</i>	-3.19	4.66E-13	4.30	38.32
ENSSSCG00000009349	<i>RFC3</i>	-3.19	1.13E-12	36.22	337.46
ENSSSCG00000009880	<i>SLC8B1</i>	-3.19	1.17E-13	4.41	40.01
ENSSSCG00000015083	<i>FXYD6</i>	-3.19	6.72E-12	37.57	335.08
ENSSSCG00000016208	<i>ZFAND2B</i>	-3.19	7.28E-11	1.14	9.97
ENSSSCG00000021591	<i>RBM3</i>	-3.19	6.51E-11	6.40	54.13
ENSSSCG00000028920	<i>POLDIP2</i>	-3.19	7.60E-13	2.69	24.23
ENSSSCG00000031888	<i>DDIT4</i>	-3.19	1.28E-08	0.22	2.18
ENSSSCG00000033177	<i>CDC26</i>	-3.19	1.69E-12	9.12	83.95
ENSSSCG00000000685	<i>TPI1</i>	-3.18	2.34E-12	2.70	23.94
ENSSSCG00000010092	<i>PI4KA</i>	-3.18	2.26E-10	1.49	13.06
ENSSSCG00000023691		-3.18	1.49E-13	18.73	173.78
ENSSSCG00000005229	<i>VLDLR</i>	-3.17	1.04E-13	6.35	56.05
ENSSSCG00000011546	<i>MTMR14</i>	-3.17	5.25E-11	3.86	32.57
ENSSSCG00000016747	<i>NUDCD3</i>	-3.17	5.79E-10	1.09	9.97
ENSSSCG00000027057	<i>FAU</i>	-3.17	3.05E-13	5.36	48.45
ENSSSCG00000030217	<i>COLGALT2</i>	-3.17	5.87E-14	14.11	128.46
ENSSSCG00000033854	<i>LGALS1</i>	-3.17	6.15E-05	0.19	1.08
ENSSSCG00000034883	<i>AMIGO1</i>	-3.17	1.38E-09	0.32	3.04
ENSSSCG00000000743	<i>FKBP4</i>	-3.16	1.75E-12	7.35	63.60
ENSSSCG00000002341	<i>PAPLN</i>	-3.16	5.84E-10	0.82	7.51
ENSSSCG00000003359	<i>TPRG1L</i>	-3.16	9.77E-08	0.25	2.08
ENSSSCG00000005628	<i>ST6GALNAC4</i>	-3.16	6.70E-06	0.10	0.82
ENSSSCG00000010759	<i>GLRX3</i>	-3.16	5.33E-14	6.27	56.06
ENSSSCG00000011279	<i>LYZL4</i>	-3.16	1.68E-03	0.23	2.67
ENSSSCG00000012108	<i>WWC3</i>	-3.16	7.61E-07	0.41	3.07
ENSSSCG00000014827	<i>PLEKHB1</i>	-3.16	1.99E-10	1.34	11.96
ENSSSCG00000017191	<i>SRP68</i>	-3.16	9.57E-12	14.01	119.57
ENSSSCG00000021494	<i>CDC25A</i>	-3.16	2.33E-11	5.40	46.99
ENSSSCG00000030415	<i>DPP3</i>	-3.16	1.17E-07	0.19	1.76
ENSSSCG00000057536		-3.16	4.64E-10	1.21	9.99
ENSSSCG00000000203	<i>KCNH3</i>	-3.15	7.30E-12	4.21	36.44
ENSSSCG00000008245	<i>TMSB10</i>	-3.15	3.26E-10	18.86	152.83
ENSSSCG00000009821	<i>ARPC3</i>	-3.15	1.49E-12	6.54	57.82
ENSSSCG00000014367	<i>SLC35A4</i>	-3.15	5.74E-10	0.51	4.49

ENSSSCG00000014831	<i>PAAF1</i>	-3.15	1.81E-12	4.74	44.22
ENSSSCG00000022044		-3.15	4.16E-06	0.29	2.01
ENSSSCG00000022343	<i>ENO1</i>	-3.15	3.16E-09	7.25	54.56
ENSSSCG00000038964	<i>COX19</i>	-3.15	1.77E-10	0.96	8.03
ENSSSCG00000040968	<i>DUS3L</i>	-3.15	1.81E-10	0.93	8.22
ENSSSCG00000002971	<i>ACP7</i>	-3.14	4.82E-06	0.28	2.07
ENSSSCG00000004552	<i>TRIP4</i>	-3.14	9.19E-12	9.01	80.26
ENSSSCG00000005912	<i>GPAA1</i>	-3.14	1.84E-06	0.24	2.14
ENSSSCG00000013539	<i>GTF2F1</i>	-3.14	1.68E-11	7.45	64.17
ENSSSCG00000027357	<i>CSTB</i>	-3.14	2.48E-13	7.22	63.71
ENSSSCG00000029228	<i>ZNF276</i>	-3.14	1.90E-06	0.43	3.18
ENSSSCG00000039952	<i>ZFAND3</i>	-3.14	2.35E-13	5.17	46.22
ENSSSCG00000000058	<i>SNU13</i>	-3.13	9.29E-13	9.45	80.97
ENSSSCG00000000087	<i>TAB1</i>	-3.13	7.80E-09	0.81	7.13
ENSSSCG00000001762	<i>CIB2</i>	-3.13	2.02E-10	0.51	4.69
ENSSSCG00000001884	<i>COMMD4</i>	-3.13	5.08E-12	2.14	18.39
ENSSSCG00000011903	<i>B4GALT4</i>	-3.13	4.06E-12	4.37	38.44
ENSSSCG00000013425	<i>MISP</i>	-3.13	8.16E-10	0.44	4.05
ENSSSCG00000015769	<i>SPCS3</i>	-3.13	5.33E-14	4.03	35.36
ENSSSCG00000020790	<i>COPS9</i>	-3.13	1.32E-12	7.55	67.00
ENSSSCG00000023325	<i>ACY1</i>	-3.13	2.53E-10	0.81	7.12
ENSSSCG00000025266	<i>VWA3A</i>	-3.13	1.32E-12	2.17	19.02
ENSSSCG00000027076	<i>CYHR1</i>	-3.13	1.83E-05	0.34	3.68
ENSSSCG00000029066	<i>IDI1</i>	-3.13	9.35E-12	11.61	101.52
ENSSSCG00000007713	<i>BUD23</i>	-3.12	1.52E-11	11.04	94.12
ENSSSCG00000022417	<i>HNF1B</i>	-3.12	3.30E-11	3.78	31.42
ENSSSCG00000027827	<i>GALE</i>	-3.12	3.58E-09	0.58	4.74
ENSSSCG00000030131	<i>C15orf40</i>	-3.12	1.27E-12	1.52	13.39
ENSSSCG00000039861	<i>HDHD3</i>	-3.12	2.04E-09	1.08	9.81
ENSSSCG00000056742	<i>CD164L2</i>	-3.12	2.03E-07	0.21	1.87
ENSSSCG00000059961		-3.12	3.18E-07	0.37	2.99
ENSSSCG00000003478	<i>CROCC</i>	-3.11	1.41E-08	0.68	5.29
ENSSSCG00000007788	<i>PHKG2</i>	-3.11	1.69E-11	0.94	8.11
ENSSSCG00000010580	<i>NFKB2</i>	-3.11	2.53E-07	0.19	2.11
ENSSSCG00000010853	<i>EPHX1</i>	-3.11	2.51E-11	2.64	21.94
ENSSSCG00000025308	<i>IL17D</i>	-3.11	3.78E-06	0.17	1.32
ENSSSCG00000032728	<i>EFNB1</i>	-3.11	1.71E-10	1.33	11.53
ENSSSCG00000036075	<i>WASHC3</i>	-3.11	1.13E-10	1.24	10.81
ENSSSCG00000057447	<i>H2AC19</i>	-3.11	5.71E-08	0.28	2.49
ENSSSCG00000057512	<i>H2AC18</i>	-3.11	5.71E-08	0.28	2.49
ENSSSCG00000008287	<i>INO80B</i>	-3.10	6.23E-06	0.17	1.24
ENSSSCG00000009977	<i>RASL10A</i>	-3.10	1.52E-08	0.50	3.99
ENSSSCG00000030229	<i>ABHD14A</i>	-3.10	9.98E-08	0.64	4.24
ENSSSCG00000035969	<i>THRA</i>	-3.10	2.91E-07	0.33	3.00
ENSSSCG00000040449	<i>ABHD12</i>	-3.10	2.30E-09	0.68	5.54
ENSSSCG00000004349	<i>COQ3</i>	-3.09	1.10E-10	4.20	36.46
ENSSSCG00000005322	<i>NPR2</i>	-3.09	2.01E-07	0.23	1.84
ENSSSCG00000005679	<i>ASB6</i>	-3.09	2.52E-10	1.02	8.55
ENSSSCG00000008044	<i>MLST8</i>	-3.09	1.42E-11	2.06	17.89
ENSSSCG00000009815	<i>CAMKK2</i>	-3.09	1.42E-10	0.68	5.97

ENSSSCG00000010798	<i>GGA2</i>	-3.09	3.50E-12	3.07	26.05
ENSSSCG00000010854	<i>TMEM63A</i>	-3.09	6.10E-11	5.60	46.79
ENSSSCG00000013437	<i>TCF3</i>	-3.09	6.31E-10	1.36	11.54
ENSSSCG00000014634	<i>C11orf42</i>	-3.09	7.90E-05	1.07	7.39
ENSSSCG00000018046		-3.09	1.36E-08	2.47	18.88
ENSSSCG00000021460	<i>NYX</i>	-3.09	9.91E-07	0.22	1.94
ENSSSCG00000026939	<i>LMAN2L</i>	-3.09	1.94E-06	0.14	1.11
ENSSSCG00000028343	<i>MRPL9</i>	-3.09	3.09E-14	8.43	71.02
ENSSSCG00000034510	<i>ORAI1</i>	-3.09	9.80E-10	1.81	16.05
ENSSSCG00000037215	<i>ZNF3</i>	-3.09	1.69E-08	0.78	6.20
ENSSSCG0000003705	<i>CABLES1</i>	-3.08	5.40E-11	1.09	9.00
ENSSSCG0000004758	<i>RHOV</i>	-3.08	9.06E-06	0.24	1.97
ENSSSCG00000005662	<i>SPOUT1</i>	-3.08	6.86E-10	0.97	7.82
ENSSSCG00000011386	<i>MST1</i>	-3.08	9.76E-10	0.61	4.89
ENSSSCG00000024242	<i>MRPL54</i>	-3.08	1.16E-09	2.50	19.62
ENSSSCG00000028856	<i>ABCF3</i>	-3.08	1.23E-08	0.77	6.06
ENSSSCG00000031707	<i>CTDSP2</i>	-3.08	3.69E-11	1.81	14.54
ENSSSCG00000037869	<i>NDUFA5</i>	-3.08	1.60E-10	4.34	35.12
ENSSSCG00000002036		-3.07	5.33E-14	11.18	92.85
ENSSSCG00000010779	<i>SYCE1</i>	-3.07	8.71E-09	0.48	3.97
ENSSSCG00000011410	<i>CYB561D2</i>	-3.07	5.22E-08	0.28	2.27
ENSSSCG00000013064	<i>EEF1G</i>	-3.07	2.13E-10	3.44	26.48
ENSSSCG00000013408	<i>ADM</i>	-3.07	1.24E-06	0.21	1.79
ENSSSCG00000037127	<i>CDKN2AIPNL</i>	-3.07	5.49E-12	5.55	45.64
ENSSSCG000000053975		-3.07	2.73E-08	0.98	7.96
ENSSSCG00000002241	<i>NUTM1</i>	-3.06	9.39E-07	0.22	1.82
ENSSSCG00000003063	<i>PHLDB3</i>	-3.06	1.16E-09	1.01	8.13
ENSSSCG00000006621	<i>CGN</i>	-3.06	2.83E-10	2.35	18.37
ENSSSCG00000027928	<i>TMEM9</i>	-3.06	1.76E-06	0.17	1.44
ENSSSCG00000030548	<i>HERC5</i>	-3.06	2.92E-12	2.37	19.33
ENSSSCG00000039882	<i>HTRA2</i>	-3.06	5.57E-07	0.14	1.13
ENSSSCG00000056787	<i>SDHAF1</i>	-3.06	7.53E-11	0.76	6.42
ENSSSCG00000011424	<i>TEX264</i>	-3.05	2.19E-12	2.11	17.68
ENSSSCG00000016745	<i>DDX56</i>	-3.05	2.43E-09	0.99	7.83
ENSSSCG00000023318	<i>MARS1</i>	-3.05	6.40E-11	5.78	45.96
ENSSSCG00000032060		-3.05	4.33E-13	16.95	137.55
ENSSSCG00000032710	<i>E2F2</i>	-3.05	2.64E-07	0.40	2.85
ENSSSCG00000061194		-3.05	7.22E-12	2.53	20.92
ENSSSCG00000000398	<i>APOF</i>	-3.04	3.87E-07	0.17	1.41
ENSSSCG00000002375	<i>RPS6KL1</i>	-3.04	4.68E-07	0.27	2.09
ENSSSCG00000003046	<i>RABAC1</i>	-3.04	6.92E-12	5.59	45.15
ENSSSCG00000003286		-3.04	2.35E-13	19.90	163.61
ENSSSCG00000009932	<i>MMAB</i>	-3.04	3.67E-10	1.09	8.67
ENSSSCG00000013634	<i>YIPF2</i>	-3.04	2.43E-12	3.18	26.10
ENSSSCG00000037381	<i>GET1</i>	-3.04	9.56E-12	34.82	276.18
ENSSSCG00000039390	<i>EIF3B</i>	-3.04	4.72E-11	3.80	30.24
ENSSSCG00000052504	<i>MRPL41</i>	-3.04	2.28E-12	3.70	30.64
ENSSSCG00000063044		-3.04	7.22E-05	0.26	1.58
ENSSSCG00000012248	<i>MPC1L</i>	-3.03	1.03E-08	0.24	2.07
ENSSSCG00000013270	<i>CRY2</i>	-3.03	7.44E-08	0.63	4.91

ENSSSCG00000013598	<i>KANK3</i>	-3.03	1.60E-06	0.45	3.34
ENSSSCG00000016452	<i>GIMAP8</i>	-3.03	1.29E-06	0.20	1.63
ENSSSCG00000016733	<i>NACAD</i>	-3.03	2.80E-07	0.44	3.81
ENSSSCG00000033700		-3.03	6.47E-12	13.44	111.30
ENSSSCG00000033744		-3.03	5.25E-12	1.77	14.24
ENSSSCG00000039144		-3.03	4.85E-08	0.34	2.98
ENSSSCG00000040727	<i>ASPSCR1</i>	-3.03	5.14E-08	0.37	3.01
ENSSSCG00000057430	<i>JMJD7</i>	-3.03	8.35E-08	0.27	2.26
ENSSSCG00000058302		-3.03	7.59E-05	0.21	1.20
ENSSSCG00000004826	<i>SELENOS</i>	-3.02	1.32E-12	6.35	50.83
ENSSSCG00000012280	<i>UXT</i>	-3.02	1.64E-12	6.37	51.93
ENSSSCG00000033541	<i>NAT8L</i>	-3.02	3.02E-06	0.30	2.08
ENSSSCG00000060526		-3.02	2.32E-09	1.28	10.30
ENSSSCG00000000691	<i>COPS7A</i>	-3.01	1.19E-10	1.69	13.19
ENSSSCG00000002015	<i>AP1G2</i>	-3.01	2.00E-06	0.27	2.48
ENSSSCG00000005715	<i>PRRC2B</i>	-3.01	2.40E-09	1.16	8.75
ENSSSCG00000015252	<i>SNX19</i>	-3.01	6.24E-06	0.25	1.65
ENSSSCG00000015536	<i>LHX4</i>	-3.01	6.07E-07	0.15	1.22
ENSSSCG00000017777	<i>FLOT2</i>	-3.01	1.04E-08	0.67	5.35
ENSSSCG00000030668	<i>UQCC2</i>	-3.01	2.16E-13	11.65	93.22
ENSSSCG00000031462	<i>ZNRF1</i>	-3.01	8.25E-11	1.59	12.63
ENSSSCG00000037399		-3.01	1.12E-10	0.89	7.10
ENSSSCG00000040929	<i>TPT1</i>	-3.01	5.04E-12	6.55	50.82
ENSSSCG00000045348	<i>TMEM213</i>	-3.01	1.04E-11	3.40	26.32
ENSSSCG00000000633	<i>YBX3</i>	-3.00	4.68E-12	5.66	45.27
ENSSSCG00000003904	<i>LRRC41</i>	-3.00	1.99E-06	0.19	1.53
ENSSSCG00000005631	<i>FAM102A</i>	-3.00	2.57E-09	0.94	7.29
ENSSSCG00000006780	<i>WNT2B</i>	-3.00	6.75E-13	3.06	24.60
ENSSSCG00000016673	<i>GHRHR</i>	-3.00	1.57E-07	0.32	2.43
ENSSSCG00000020817	<i>RPS16</i>	-3.00	6.06E-13	6.16	48.61
ENSSSCG00000023973	<i>NOC2L</i>	-3.00	1.81E-06	0.31	2.24
ENSSSCG00000024977	<i>NOBOX</i>	-3.00	4.26E-10	3.32	27.11
ENSSSCG00000004373	<i>RTN4IP1</i>	-2.99	1.62E-12	6.02	47.87
ENSSSCG00000012487	<i>XKRX</i>	-2.99	2.07E-11	0.82	6.59
ENSSSCG00000014110	<i>DMGDH</i>	-2.99	7.22E-12	6.28	50.42
ENSSSCG00000024045	<i>CASTOR2</i>	-2.99	5.93E-09	1.49	12.53
ENSSSCG00000027952	<i>ADCY5</i>	-2.99	9.74E-07	0.22	1.64
ENSSSCG00000028202	<i>RANGAP1</i>	-2.99	9.83E-09	0.43	3.30
ENSSSCG00000035775	<i>BCS1L</i>	-2.99	2.13E-11	1.81	13.98
ENSSSCG00000010817	<i>LYPLAL1</i>	-2.98	2.11E-09	3.66	31.82
ENSSSCG00000017884	<i>TEKT1</i>	-2.98	1.19E-05	0.19	1.27
ENSSSCG00000021408	<i>TKT</i>	-2.98	7.12E-12	9.39	73.87
ENSSSCG00000024052	<i>GPX4</i>	-2.98	9.17E-11	2.13	16.42
ENSSSCG00000030174	<i>AP3S2</i>	-2.98	2.74E-10	1.35	10.22
ENSSSCG00000031220	<i>TEX35</i>	-2.98	2.08E-08	2.88	25.15
ENSSSCG00000039575	<i>PALM</i>	-2.98	1.37E-05	0.50	4.20
ENSSSCG00000002811	<i>CNGB1</i>	-2.97	6.73E-07	0.20	1.78
ENSSSCG00000017164	<i>TIMP2</i>	-2.97	7.16E-08	0.48	3.59
ENSSSCG00000023110	<i>UBXN1</i>	-2.97	7.22E-12	1.70	13.47
ENSSSCG00000031269	<i>LYRM4</i>	-2.97	1.56E-11	1.79	14.05

ENSSSCG00000032082		-2.97	8.96E-09	2.91	19.61
ENSSSCG00000032413		-2.97	1.34E-10	0.77	6.15
ENSSSCG00000038508	<i>SPTBN2</i>	-2.97	3.16E-06	0.11	0.88
ENSSSCG00000002029	<i>MYH6</i>	-2.96	5.81E-05	0.19	0.97
ENSSSCG00000002741	<i>ZNF821</i>	-2.96	7.06E-12	1.90	14.95
ENSSSCG000000009732	<i>CHFR</i>	-2.96	2.84E-08	0.69	5.21
ENSSSCG00000010514	<i>RRP12</i>	-2.96	1.15E-08	0.80	5.99
ENSSSCG00000012969	<i>FIBP</i>	-2.96	3.35E-10	2.15	15.84
ENSSSCG00000030153	<i>SMURF1</i>	-2.96	2.99E-09	0.65	5.00
ENSSSCG00000032188	<i>METTL26</i>	-2.96	1.55E-11	1.83	14.45
ENSSSCG00000000061	<i>PMM1</i>	-2.95	5.48E-10	1.22	8.66
ENSSSCG00000003134	<i>GRWD1</i>	-2.95	1.70E-07	0.81	6.94
ENSSSCG00000005930	<i>SLC45A4</i>	-2.95	9.31E-05	0.53	5.21
ENSSSCG00000013830	<i>ILVBL</i>	-2.95	5.93E-09	0.47	3.64
ENSSSCG00000017134	<i>FN3KRP</i>	-2.95	1.51E-08	0.45	3.20
ENSSSCG00000026612	<i>TIMM50</i>	-2.95	1.06E-12	3.78	28.80
ENSSSCG00000054981	<i>FADD</i>	-2.95	9.77E-06	0.20	1.31
ENSSSCG00000002720		-2.94	1.96E-07	0.81	5.41
ENSSSCG00000005668	<i>SH3GLB2</i>	-2.94	7.70E-09	1.21	9.96
ENSSSCG00000015982	<i>HOXD9</i>	-2.94	1.71E-10	1.86	14.55
ENSSSCG00000033926	<i>NUDT1</i>	-2.94	5.35E-11	1.48	10.85
ENSSSCG00000038459	<i>SURF2</i>	-2.94	1.98E-10	0.94	7.15
ENSSSCG00000039824	<i>ARRDC1</i>	-2.94	3.09E-08	0.72	5.89
ENSSSCG00000063004	<i>SNTA1</i>	-2.94	2.67E-06	0.15	1.09
ENSSSCG00000005380	<i>COL15A1</i>	-2.93	4.86E-09	0.69	5.23
ENSSSCG00000011324		-2.93	4.67E-10	0.56	4.33
ENSSSCG00000011470	<i>ABHD6</i>	-2.93	8.51E-10	1.39	10.03
ENSSSCG00000013729	<i>GCDH</i>	-2.93	8.33E-11	1.87	13.68
ENSSSCG00000016205	<i>NHEJ1</i>	-2.93	4.33E-11	1.24	9.54
ENSSSCG00000017955	<i>MPDU1</i>	-2.93	4.94E-11	1.77	13.23
ENSSSCG00000023478	<i>SLC46A1</i>	-2.93	1.61E-09	0.41	3.18
ENSSSCG00000025107	<i>MIX23</i>	-2.93	3.33E-13	32.29	248.25
ENSSSCG00000028018	<i>EP400</i>	-2.93	4.07E-06	0.17	1.22
ENSSSCG00000031236	<i>GLIPR2</i>	-2.93	4.22E-11	4.51	35.27
ENSSSCG00000039342	<i>DNAI1</i>	-2.93	3.98E-10	1.27	9.58
ENSSSCG00000043116		-2.93	1.93E-12	5.79	42.80
ENSSSCG00000053706	<i>OR4B1</i>	-2.93	1.32E-04	0.21	1.40
ENSSSCG00000000232	<i>ACVRL1</i>	-2.92	1.96E-06	0.10	0.80
ENSSSCG00000002309	<i>PLEKHD1</i>	-2.92	5.39E-08	0.45	3.26
ENSSSCG00000016488	<i>SSBP1</i>	-2.92	2.97E-13	25.92	201.93
ENSSSCG00000035081	<i>CCDC106</i>	-2.92	1.28E-05	0.51	3.28
ENSSSCG00000040866	<i>CNTD1</i>	-2.92	1.25E-06	0.30	2.15
ENSSSCG00000053937	<i>ARPP19</i>	-2.92	4.54E-12	56.23	437.98
ENSSSCG00000002736	<i>TAT</i>	-2.91	8.21E-08	0.93	5.93
ENSSSCG00000011325	<i>MYL3</i>	-2.91	3.52E-10	1.24	9.72
ENSSSCG00000026505	<i>SETD6</i>	-2.91	6.70E-11	3.83	28.14
ENSSSCG00000034387	<i>ARL2</i>	-2.91	6.52E-11	1.90	14.06
ENSSSCG00000054516	<i>PSMA6</i>	-2.91	2.16E-13	24.32	184.94
ENSSSCG00000003150	<i>NUCB1</i>	-2.90	2.06E-07	1.19	8.32
ENSSSCG00000003216	<i>POLD1</i>	-2.90	3.03E-10	2.57	18.59

ENSSSCG00000006774	<i>PPM1J</i>	-2.90	2.41E-07	0.19	1.42
ENSSSCG00000009764	<i>CCDC92</i>	-2.90	2.52E-09	0.42	3.17
ENSSSCG00000012494	<i>TIMM8A</i>	-2.90	2.39E-07	0.48	2.94
ENSSSCG00000014430	<i>ABLIM3</i>	-2.90	4.71E-09	1.38	9.83
ENSSSCG00000015474	<i>PPFIA4</i>	-2.90	6.19E-07	0.27	1.79
ENSSSCG00000017635	<i>MKS1</i>	-2.90	9.44E-09	0.73	5.14
ENSSSCG00000024750	<i>GFOD2</i>	-2.90	1.86E-05	0.15	1.08
ENSSSCG00000026550	<i>ZNF621</i>	-2.90	4.21E-09	0.92	7.19
ENSSSCG00000040599	<i>TBC1D25</i>	-2.90	3.68E-08	0.38	2.98
ENSSSCG00000042533		-2.90	1.45E-07	0.17	1.47
ENSSSCG00000057266	<i>DDT</i>	-2.90	5.24E-11	4.41	31.61
ENSSSCG00000058988	<i>CCDC63</i>	-2.90	1.56E-11	2.83	21.70
ENSSSCG00000004177	<i>RPS12</i>	-2.89	4.10E-12	5.17	38.17
ENSSSCG00000013242	<i>ACP2</i>	-2.89	8.15E-08	0.69	5.09
ENSSSCG00000016732	<i>TBRG4</i>	-2.89	1.81E-08	1.32	9.22
ENSSSCG00000031757	<i>CARS2</i>	-2.89	3.05E-09	3.85	30.21
ENSSSCG00000038033	<i>CCDC32</i>	-2.89	4.29E-11	2.51	18.80
ENSSSCG00000054091	<i>CLTB</i>	-2.89	8.53E-07	0.21	1.56
ENSSSCG00000001680	<i>ABCC10</i>	-2.88	2.25E-05	0.20	1.28
ENSSSCG00000003204	<i>VRK3</i>	-2.88	1.95E-07	0.50	3.23
ENSSSCG00000008183	<i>MRPL30</i>	-2.88	1.09E-11	6.36	46.56
ENSSSCG00000017208	<i>SLC25A19</i>	-2.88	3.21E-08	0.40	2.86
ENSSSCG00000017758	<i>SPAG5</i>	-2.88	8.66E-11	2.96	20.93
ENSSSCG00000032216		-2.88	8.24E-13	10.36	74.24
ENSSSCG00000035527		-2.88	9.94E-10	1.01	7.18
ENSSSCG00000036700	<i>RPUSD2</i>	-2.88	1.09E-10	1.16	8.70
ENSSSCG00000000703	<i>VAMP1</i>	-2.87	7.87E-08	0.37	2.59
ENSSSCG00000007425	<i>SNX21</i>	-2.87	2.42E-08	0.45	3.63
ENSSSCG00000012335	<i>FGD1</i>	-2.87	9.80E-10	1.78	12.95
ENSSSCG00000015937	<i>KLHL23</i>	-2.87	2.10E-04	0.16	0.76
ENSSSCG00000016775	<i>ZNF777</i>	-2.87	1.76E-05	0.25	1.98
ENSSSCG00000027051	<i>EMC7</i>	-2.87	9.79E-10	2.86	20.37
ENSSSCG00000061881	<i>SF3A2</i>	-2.87	1.09E-05	1.18	9.17
ENSSSCG00000000366	<i>DNAJC14</i>	-2.86	6.74E-12	6.50	46.62
ENSSSCG00000004475	<i>HTR1B</i>	-2.86	1.73E-05	0.35	2.13
ENSSSCG00000013511	<i>HDGFL2</i>	-2.86	8.92E-12	4.16	31.21
ENSSSCG00000017371	<i>TMEM101</i>	-2.86	6.70E-07	0.32	2.11
ENSSSCG00000032488	<i>ZADH2</i>	-2.86	4.37E-05	0.19	1.10
ENSSSCG00000032644	<i>HLX</i>	-2.86	9.91E-07	0.46	3.09
ENSSSCG00000061749	<i>PATL2</i>	-2.86	5.49E-13	40.29	288.52
ENSSSCG00000062656	<i>GBP5</i>	-2.86	8.50E-10	1.14	7.87
ENSSSCG00000007076	<i>NDUFAF5</i>	-2.85	1.21E-11	3.90	28.73
ENSSSCG00000007719	<i>CLIP2</i>	-2.85	3.79E-10	1.20	8.77
ENSSSCG00000011952	<i>RPL24</i>	-2.85	2.74E-12	3.29	23.92
ENSSSCG00000014391	<i>ARAP3</i>	-2.85	3.22E-07	0.21	1.48
ENSSSCG00000025436	<i>ILDR1</i>	-2.85	9.27E-11	2.72	19.58
ENSSSCG00000027098	<i>TBC1D24</i>	-2.85	3.18E-11	2.91	21.89
ENSSSCG00000052759		-2.85	2.19E-09	2.54	17.08
ENSSSCG00000053572	<i>ADAM29</i>	-2.85	1.66E-09	0.48	3.44
ENSSSCG00000056684	<i>DERL1</i>	-2.85	1.64E-12	8.21	58.07

ENSSSCG00000011412	<i>CACNA2D2</i>	-2.84	2.92E-08	0.97	7.59
ENSSSCG00000012075	<i>FAM3B</i>	-2.84	4.86E-08	0.55	3.65
ENSSSCG00000028983	<i>TBC1D1</i>	-2.84	5.08E-11	7.83	57.26
ENSSSCG00000030421	<i>GDI1</i>	-2.84	2.34E-08	1.59	11.59
ENSSSCG00000034792	<i>KLK5</i>	-2.84	5.38E-09	0.86	6.30
ENSSSCG00000039656	<i>RHOG</i>	-2.84	4.09E-05	1.62	9.84
ENSSSCG00000059314	<i>GDPGP1</i>	-2.84	1.14E-07	0.18	1.34
ENSSSCG00000009413	<i>CPB2</i>	-2.83	2.13E-07	0.70	4.86
ENSSSCG00000011313	<i>LIMD1</i>	-2.83	1.49E-08	0.77	5.34
ENSSSCG00000015021	<i>HOATZ</i>	-2.83	4.51E-09	0.33	2.43
ENSSSCG00000017479	<i>WIPF2</i>	-2.83	1.25E-11	6.98	51.47
ENSSSCG00000023408	<i>SAMD4A</i>	-2.83	3.12E-06	0.16	0.98
ENSSSCG00000033112	<i>TSPYL5</i>	-2.83	7.70E-07	0.44	2.98
ENSSSCG00000039662	<i>MRPL51</i>	-2.83	3.09E-13	8.29	59.38
ENSSSCG00000001535	<i>TCP11</i>	-2.82	3.70E-11	25.71	183.76
ENSSSCG00000001550	<i>ARMC12</i>	-2.82	2.21E-10	4.00	30.21
ENSSSCG00000015067	<i>ZPR1</i>	-2.82	5.82E-11	2.44	16.89
ENSSSCG00000016435	<i>SMARCD3</i>	-2.82	5.63E-08	0.51	3.31
ENSSSCG00000016498	<i>MKRN1</i>	-2.82	1.95E-12	8.10	56.59
ENSSSCG00000025545	<i>HDAC6</i>	-2.82	4.97E-07	0.35	2.17
ENSSSCG00000029165	<i>DOK4</i>	-2.82	7.30E-11	4.85	33.91
ENSSSCG00000001900	<i>CSK</i>	-2.81	6.95E-12	4.05	28.57
ENSSSCG00000003263	<i>PRPF31</i>	-2.81	3.90E-11	1.98	14.10
ENSSSCG00000007798	<i>TBC1D10B</i>	-2.81	8.92E-07	1.10	8.15
ENSSSCG00000012336	<i>GNL3L</i>	-2.81	2.02E-10	1.91	12.91
ENSSSCG00000028054	<i>ZNF526</i>	-2.81	2.06E-10	1.76	12.30
ENSSSCG00000032804	<i>BORCS5</i>	-2.81	4.97E-11	26.22	183.69
ENSSSCG00000033673	<i>SLC25A6</i>	-2.81	3.59E-10	10.81	74.51
ENSSSCG00000036007	<i>MFAP4</i>	-2.81	2.21E-07	0.54	4.00
ENSSSCG00000046886		-2.81	1.15E-12	2.18	15.27
ENSSSCG00000054874		-2.81	4.40E-07	0.16	1.19
ENSSSCG00000011562	<i>EMC3</i>	-2.80	8.65E-12	5.04	35.35
ENSSSCG00000012822	<i>F8</i>	-2.80	3.62E-11	1.99	13.80
ENSSSCG00000012846	<i>GATD1</i>	-2.80	6.87E-07	0.38	2.64
ENSSSCG00000016346	<i>MAD2L1BP</i>	-2.80	2.45E-12	2.98	20.63
ENSSSCG00000017330	<i>MAP3K14</i>	-2.80	1.85E-06	0.13	1.01
ENSSSCG00000027024	<i>ASIC3</i>	-2.80	4.46E-05	0.23	1.28
ENSSSCG00000038880	<i>RPL23</i>	-2.80	3.32E-09	4.56	27.95
ENSSSCG00000052671	<i>RPL13A</i>	-2.80	1.74E-12	4.90	33.84
ENSSSCG00000054115		-2.80	1.48E-10	34.00	233.78
ENSSSCG00000058858	<i>RNASEH2C</i>	-2.80	1.44E-08	2.20	13.49
ENSSSCG00000001885	<i>C15orf39</i>	-2.79	2.80E-08	0.73	5.30
ENSSSCG00000002729	<i>VAC14</i>	-2.79	2.11E-06	0.43	2.88
ENSSSCG00000013855	<i>FAM32A</i>	-2.79	1.70E-12	8.95	63.35
ENSSSCG00000017690	<i>MRM1</i>	-2.79	3.29E-10	1.31	9.02
ENSSSCG00000028501	<i>ALDH3B1</i>	-2.79	2.27E-07	0.37	2.92
ENSSSCG00000029240	<i>KCNMB3</i>	-2.79	7.00E-08	0.43	2.75
ENSSSCG00000031860	<i>MRPS12</i>	-2.79	3.02E-07	0.58	3.53
ENSSSCG00000034178	<i>AIF1L</i>	-2.79	1.33E-06	0.40	2.65
ENSSSCG00000034771	<i>CCNDBP1</i>	-2.79	2.54E-13	6.60	46.01

ENSSSCG00000034964	<i>STX8</i>	-2.79	6.31E-14	46.68	328.48
ENSSSCG00000057427		-2.79	2.79E-10	2.24	15.91
ENSSSCG00000057510	<i>PLA2G15</i>	-2.79	2.07E-07	0.68	4.30
ENSSSCG00000005122	<i>TEK</i>	-2.78	9.10E-14	22.93	157.07
ENSSSCG00000005717	<i>UCK1</i>	-2.78	1.32E-07	0.49	3.47
ENSSSCG00000007664	<i>AGFG2</i>	-2.78	2.89E-08	0.55	3.90
ENSSSCG00000008268	<i>AUP1</i>	-2.78	2.55E-09	1.19	8.16
ENSSSCG00000016319	<i>GBX2</i>	-2.78	3.85E-06	0.22	1.67
ENSSSCG00000030388	<i>UPP1</i>	-2.78	3.72E-08	1.07	7.21
ENSSSCG00000040397	<i>COLEC12</i>	-2.78	3.06E-09	0.42	3.00
ENSSSCG00000051162		-2.78	1.31E-11	5.38	37.28
ENSSSCG00000001656	<i>RRP36</i>	-2.77	3.20E-11	3.84	25.47
ENSSSCG00000010187	<i>TAF5L</i>	-2.77	5.74E-12	6.65	46.36
ENSSSCG00000010274	<i>SGPL1</i>	-2.77	2.32E-12	6.41	43.31
ENSSSCG00000011329	<i>CCDC12</i>	-2.77	8.72E-11	12.52	84.39
ENSSSCG00000012743	<i>MTMR1</i>	-2.77	8.26E-10	1.07	7.26
ENSSSCG00000013661	<i>EIF3G</i>	-2.77	2.80E-10	4.60	29.87
ENSSSCG00000014891	<i>GAB2</i>	-2.77	3.78E-09	0.89	6.28
ENSSSCG00000038639	<i>TOM1L2</i>	-2.77	1.81E-07	0.12	0.94
ENSSSCG00000048076		-2.77	3.44E-13	6.59	45.40
ENSSSCG00000051954	<i>ARF3</i>	-2.77	2.00E-08	1.06	7.20
ENSSSCG00000002040	<i>MRPL52</i>	-2.76	5.90E-12	8.82	58.91
ENSSSCG00000013259	<i>DGKZ</i>	-2.76	3.68E-07	0.49	3.50
ENSSSCG00000013745	<i>FARSA</i>	-2.76	7.20E-10	3.19	20.28
ENSSSCG00000015563	<i>RGL1</i>	-2.76	6.00E-12	10.34	68.82
ENSSSCG00000025363	<i>SNX17</i>	-2.76	7.40E-09	1.69	11.03
ENSSSCG00000038600	<i>PRSS8</i>	-2.76	4.88E-07	0.86	6.40
ENSSSCG00000012940	<i>B4GAT1</i>	-2.75	5.19E-09	0.80	5.25
ENSSSCG00000013481	<i>FZR1</i>	-2.75	5.28E-11	4.90	32.87
ENSSSCG00000016691	<i>JAZF1</i>	-2.75	5.33E-14	15.32	101.90
ENSSSCG00000021861	<i>PIGT</i>	-2.75	3.23E-07	0.58	3.34
ENSSSCG00000025638	<i>UBE2Z</i>	-2.75	1.79E-07	0.20	1.45
ENSSSCG00000027101	<i>TVP23A</i>	-2.75	2.71E-10	0.68	4.74
ENSSSCG00000004757	<i>VPS18</i>	-2.74	1.16E-07	0.39	2.68
ENSSSCG00000006816	<i>AHCYL1</i>	-2.74	5.05E-08	0.66	4.06
ENSSSCG00000008202	<i>CNNM4</i>	-2.74	2.97E-07	0.39	2.72
ENSSSCG00000008309	<i>SPR</i>	-2.74	7.42E-11	9.19	58.95
ENSSSCG00000017803	<i>TIMM22</i>	-2.74	8.26E-11	9.13	62.82
ENSSSCG00000028078	<i>DPH1</i>	-2.74	4.81E-10	3.33	20.97
ENSSSCG00000028879	<i>PLOD3</i>	-2.74	5.71E-08	0.17	1.31
ENSSSCG00000028962		-2.74	1.52E-09	1.20	7.40
ENSSSCG00000005385	<i>NR4A3</i>	-2.73	4.26E-05	0.14	0.73
ENSSSCG00000008057	<i>AMDHD2</i>	-2.73	1.11E-10	3.89	26.28
ENSSSCG00000040981	<i>GMFG</i>	-2.73	3.29E-07	0.32	2.16
ENSSSCG00000000202	<i>MCRS1</i>	-2.72	4.37E-10	3.71	24.13
ENSSSCG00000000209	<i>NCKAP5L</i>	-2.72	9.59E-07	0.60	4.15
ENSSSCG00000003778	<i>LHX8</i>	-2.72	1.03E-12	17.96	116.43
ENSSSCG00000009305	<i>GTF3A</i>	-2.72	9.96E-10	0.84	5.56
ENSSSCG00000011941	<i>IFT57</i>	-2.72	1.09E-12	8.39	54.86
ENSSSCG00000017248	<i>COG1</i>	-2.72	8.41E-10	1.51	9.35

ENSSSCG00000023166	<i>RNF227</i>	-2.72	7.14E-09	0.69	4.43
ENSSSCG00000025673		-2.72	1.18E-11	2.57	17.21
ENSSSCG00000029154	<i>NOSIP</i>	-2.72	4.32E-09	0.44	2.96
ENSSSCG00000031764	<i>VMAC</i>	-2.72	7.41E-06	0.30	1.67
ENSSSCG00000032734	<i>VOPP1</i>	-2.72	2.76E-08	0.36	2.33
ENSSSCG00000035212	<i>KLF6</i>	-2.72	8.45E-07	0.41	2.32
ENSSSCG00000037597	<i>CDK2</i>	-2.72	1.65E-11	1.87	12.28
ENSSSCG00000001392	<i>TCF19</i>	-2.71	2.42E-06	0.26	1.80
ENSSSCG00000003914	<i>PRDX1</i>	-2.71	5.08E-12	61.68	406.66
ENSSSCG00000005838	<i>TRAF2</i>	-2.71	7.03E-09	1.34	8.59
ENSSSCG00000009592	<i>NFIL3</i>	-2.71	1.41E-11	4.78	30.39
ENSSSCG00000012878	<i>IGHMBP2</i>	-2.71	1.35E-07	0.56	3.66
ENSSSCG00000016211	<i>ATG9A</i>	-2.71	2.35E-05	0.26	1.68
ENSSSCG00000023619	<i>SLC12A9</i>	-2.71	1.47E-07	0.37	2.36
ENSSSCG00000027072	<i>ATP5IF1</i>	-2.71	7.33E-12	34.40	230.92
ENSSSCG00000029635	<i>GRIN3B</i>	-2.71	4.53E-10	1.42	9.76
ENSSSCG00000031835	<i>GATAD1</i>	-2.71	2.69E-08	0.42	2.74
ENSSSCG00000033689	<i>GPS1</i>	-2.71	1.49E-06	0.48	3.23
ENSSSCG00000034035	<i>TMEM69</i>	-2.71	6.85E-10	8.36	51.60
ENSSSCG00000035120	<i>ALKBH5</i>	-2.71	2.75E-09	7.56	47.45
ENSSSCG00000054316	<i>IFT22</i>	-2.71	6.89E-12	6.57	42.75
ENSSSCG00000005485	<i>AMBP</i>	-2.70	8.39E-08	0.70	5.02
ENSSSCG00000008297	<i>TPRKB</i>	-2.70	5.83E-11	7.28	47.72
ENSSSCG00000010015	<i>OSBP2</i>	-2.70	3.14E-07	0.28	1.80
ENSSSCG00000012905	<i>TMEM134</i>	-2.70	3.44E-07	0.90	4.94
ENSSSCG00000016461	<i>ZYX</i>	-2.70	1.18E-06	0.80	5.06
ENSSSCG00000002955	<i>CATSPERG</i>	-2.69	8.29E-07	0.27	1.71
ENSSSCG00000003376	<i>PLEKHG5</i>	-2.69	2.51E-08	0.97	6.49
ENSSSCG00000004791	<i>RASGRP1</i>	-2.69	7.29E-10	1.49	9.47
ENSSSCG00000005308	<i>RUSC2</i>	-2.69	1.04E-09	1.08	6.73
ENSSSCG00000012847	<i>TALDO1</i>	-2.69	1.65E-11	4.53	28.59
ENSSSCG00000023155	<i>CLN8</i>	-2.69	1.38E-11	4.76	30.02
ENSSSCG00000055956		-2.69	2.86E-09	0.54	3.51
ENSSSCG00000000198	<i>DNAJC22</i>	-2.68	1.84E-11	3.34	21.33
ENSSSCG00000002041	<i>SLC7A7</i>	-2.68	3.65E-13	11.69	75.41
ENSSSCG00000007438	<i>NCOA5</i>	-2.68	4.58E-11	3.47	22.46
ENSSSCG00000013019	<i>MEN1</i>	-2.68	3.21E-06	0.60	3.32
ENSSSCG00000014288	<i>GDF9</i>	-2.68	2.41E-13	321.34	2046.50
ENSSSCG00000025751	<i>MDH1</i>	-2.68	2.59E-10	21.61	139.58
ENSSSCG00000027128	<i>LONP1</i>	-2.68	8.16E-12	4.81	30.70
ENSSSCG00000038399	<i>ATP5PF</i>	-2.68	4.60E-09	35.19	209.28
ENSSSCG00000041660	<i>H2AC1</i>	-2.68	1.66E-08	0.51	3.34
ENSSSCG00000003867	<i>TXNDC12</i>	-2.67	1.93E-09	0.91	5.65
ENSSSCG00000013401	<i>DKK3</i>	-2.67	2.92E-09	1.44	9.07
ENSSSCG00000015862	<i>LIMS2</i>	-2.67	8.50E-09	1.94	12.01
ENSSSCG00000023978	<i>RECQL5</i>	-2.67	1.61E-08	1.66	10.59
ENSSSCG00000031576	<i>TMEM42</i>	-2.67	1.12E-11	20.20	129.20
ENSSSCG00000046071		-2.67	4.41E-08	0.30	2.11
ENSSSCG00000054353		-2.67	4.08E-08	0.33	2.31
ENSSSCG00000002972	<i>SARS2</i>	-2.66	9.62E-09	0.54	3.61

ENSSSCG00000003282		-2.66	1.82E-08	0.82	4.90
ENSSSCG00000003566	<i>NUDC</i>	-2.66	7.33E-13	16.47	103.01
ENSSSCG000000027629	<i>CDIPT</i>	-2.66	2.59E-08	13.13	76.84
ENSSSCG000000028346	<i>SAMM50</i>	-2.66	1.64E-10	2.59	15.99
ENSSSCG000000031719	<i>SEMA4B</i>	-2.66	4.50E-10	3.72	23.19
ENSSSCG000000045948		-2.66	3.34E-10	1.13	7.16
ENSSSCG000000052227	<i>RBIS</i>	-2.66	3.12E-10	19.24	117.31
ENSSSCG000000060019	<i>RPS19BP1</i>	-2.66	2.98E-09	1.54	9.53
ENSSSCG000000005340	<i>CCIN</i>	-2.65	4.70E-07	0.36	2.05
ENSSSCG000000007941	<i>CDIP1</i>	-2.65	4.99E-07	0.30	1.79
ENSSSCG000000010683	<i>GRK5</i>	-2.65	2.06E-07	0.44	2.53
ENSSSCG000000020965	<i>LYSMD1</i>	-2.65	2.71E-10	1.13	6.92
ENSSSCG000000026185	<i>VWA5B2</i>	-2.65	8.77E-06	0.23	1.36
ENSSSCG000000028266	<i>TMUB1</i>	-2.65	2.72E-10	8.15	49.21
ENSSSCG000000037310	<i>ATP6AP1</i>	-2.65	2.26E-08	0.80	5.04
ENSSSCG000000003055	<i>XRCC1</i>	-2.64	1.58E-08	1.06	6.93
ENSSSCG000000005615	<i>PTRH1</i>	-2.64	4.35E-07	0.31	1.79
ENSSSCG000000012089	<i>ADARB1</i>	-2.64	6.17E-06	0.14	0.91
ENSSSCG000000012981	<i>RELA</i>	-2.64	1.36E-05	0.26	1.42
ENSSSCG000000022250	<i>SPACA9</i>	-2.64	2.25E-08	0.27	1.77
ENSSSCG000000024325	<i>SGK2</i>	-2.64	5.10E-08	0.58	3.31
ENSSSCG000000027314	<i>CAMSAP2</i>	-2.64	4.25E-06	0.32	1.81
ENSSSCG000000030435	<i>USP39</i>	-2.64	4.56E-10	5.72	33.85
ENSSSCG000000031076	<i>MAPK7</i>	-2.64	1.42E-09	4.65	28.93
ENSSSCG000000033311	<i>TMEM186</i>	-2.64	9.14E-13	6.71	41.40
ENSSSCG000000052310		-2.64	2.90E-11	5.88	37.65
ENSSSCG000000000702	<i>ZNF384</i>	-2.63	6.89E-07	0.20	1.30
ENSSSCG000000002532	<i>ZNF839</i>	-2.63	1.77E-09	0.92	5.73
ENSSSCG000000003491	<i>AKR7A2</i>	-2.63	2.09E-05	0.69	2.84
ENSSSCG000000003506	<i>PINK1</i>	-2.63	8.08E-10	6.54	37.53
ENSSSCG000000008504	<i>CRIM1</i>	-2.63	5.72E-13	6.99	43.49
ENSSSCG000000012199	<i>NROB1</i>	-2.63	1.44E-09	17.03	98.00
ENSSSCG000000013381	<i>RPS13</i>	-2.63	1.86E-12	7.41	45.27
ENSSSCG000000013768	<i>MISP3</i>	-2.63	1.68E-09	1.05	6.45
ENSSSCG000000017879	<i>SPNS2</i>	-2.63	6.90E-06	0.38	2.05
ENSSSCG000000031117	<i>THF</i>	-2.63	7.83E-12	3.07	19.19
ENSSSCG000000034716	<i>CCDC137</i>	-2.63	3.99E-06	0.39	2.55
ENSSSCG000000035501	<i>SMARCA1</i>	-2.63	3.13E-10	2.14	12.93
ENSSSCG000000038475		-2.63	3.50E-11	1.84	11.51
ENSSSCG000000002006	<i>PSME1</i>	-2.62	1.35E-10	1.56	9.83
ENSSSCG000000002367	<i>ISCA2</i>	-2.62	4.58E-09	4.54	28.78
ENSSSCG000000007957	<i>C16orf90</i>	-2.62	5.00E-10	1.04	6.36
ENSSSCG000000010259	<i>TYSND1</i>	-2.62	4.56E-07	0.36	2.13
ENSSSCG000000016578	<i>FLNC</i>	-2.62	1.19E-07	1.17	6.68
ENSSSCG000000027229	<i>B3GNTL1</i>	-2.62	2.25E-09	1.38	8.69
ENSSSCG000000033759	<i>TBXA2R</i>	-2.62	2.31E-08	4.85	29.83
ENSSSCG000000034314	<i>LSM4</i>	-2.62	2.37E-09	13.13	76.39
ENSSSCG000000038776	<i>GET3</i>	-2.62	4.55E-06	0.29	1.80
ENSSSCG000000041822	<i>SMARCD2</i>	-2.62	1.12E-07	1.21	7.87
ENSSSCG000000000362	<i>RDH5</i>	-2.61	4.87E-05	0.86	5.83

ENSSSCG00000000965	<i>NCAPH2</i>	-2.61	1.86E-08	0.68	4.02
ENSSSCG00000003823	<i>C1orf87</i>	-2.61	4.29E-06	0.20	1.31
ENSSSCG000000014819	<i>ATG16L2</i>	-2.61	3.02E-05	0.15	0.85
ENSSSCG000000015644	<i>IKBKE</i>	-2.61	5.89E-08	0.62	3.80
ENSSSCG000000023920	<i>P3H1</i>	-2.61	1.47E-09	0.85	5.18
ENSSSCG000000026741	<i>TBCC</i>	-2.61	7.33E-12	15.27	92.39
ENSSSCG000000038203	<i>EDF1</i>	-2.61	1.61E-06	1.60	10.63
ENSSSCG000000039681	<i>B9D1</i>	-2.61	5.26E-05	0.18	0.89
ENSSSCG000000052704		-2.61	2.58E-05	0.23	1.19
ENSSSCG000000055502	<i>BCAS2</i>	-2.61	4.81E-12	117.99	735.06
ENSSSCG000000013435	<i>MBD3</i>	-2.60	9.34E-08	0.40	2.43
ENSSSCG000000020803	<i>BRPF3</i>	-2.60	5.63E-10	1.31	7.75
ENSSSCG000000032573	<i>CHCHD7</i>	-2.60	1.39E-11	25.72	155.51
ENSSSCG000000007622	<i>PTCD1</i>	-2.59	3.40E-08	3.14	18.87
ENSSSCG000000008701	<i>LRPAP1</i>	-2.59	1.06E-11	2.10	12.75
ENSSSCG000000011264	<i>CSRNPI</i>	-2.59	1.73E-06	0.28	1.73
ENSSSCG000000011448	<i>GLT8D1</i>	-2.59	2.92E-10	1.96	11.50
ENSSSCG000000011806	<i>MASP1</i>	-2.59	2.72E-06	0.36	1.97
ENSSSCG000000017783	<i>MYO18A</i>	-2.59	8.57E-09	0.95	5.85
ENSSSCG000000017787	<i>GIT1</i>	-2.59	1.85E-08	1.96	11.84
ENSSSCG000000017829	<i>SGSM2</i>	-2.59	2.00E-09	0.79	4.87
ENSSSCG000000032048	<i>SCRG1</i>	-2.59	5.36E-11	2.19	13.40
ENSSSCG000000033272	<i>DNAJB6</i>	-2.59	8.97E-13	18.15	109.96
ENSSSCG000000035967	<i>ZC3H18</i>	-2.59	2.02E-07	1.95	11.22
ENSSSCG000000036050	<i>CD302</i>	-2.59	4.66E-09	1.19	7.00
ENSSSCG000000062015	<i>CMC4</i>	-2.59	1.11E-11	4.42	26.62
ENSSSCG000000002544	<i>PPP1R13B</i>	-2.58	1.35E-11	11.22	67.17
ENSSSCG000000006081	<i>RPL30</i>	-2.58	1.52E-12	162.58	979.09
ENSSSCG000000007722	<i>NCF1</i>	-2.58	7.05E-12	10.42	62.03
ENSSSCG000000009959	<i>ASPHD2</i>	-2.58	3.40E-10	2.22	13.61
ENSSSCG000000017091	<i>TNIP1</i>	-2.58	3.44E-06	0.27	1.77
ENSSSCG000000017882	<i>MYBBP1A</i>	-2.58	5.82E-07	0.87	4.85
ENSSSCG000000037102	<i>FSTL3</i>	-2.58	1.47E-08	1.59	10.29
ENSSSCG000000037514		-2.58	6.28E-12	3.75	22.44
ENSSSCG000000038035		-2.58	1.58E-08	2.85	16.00
ENSSSCG000000038960		-2.58	2.53E-10	2.02	12.13
ENSSSCG000000039412	<i>DOC2B</i>	-2.58	2.41E-10	5.04	31.36
ENSSSCG000000051899	<i>B2M</i>	-2.58	5.71E-05	0.40	2.35
ENSSSCG000000004629	<i>LYSMD2</i>	-2.57	4.90E-09	1.06	6.11
ENSSSCG000000012286	<i>ZNF630</i>	-2.57	1.07E-08	0.86	5.02
ENSSSCG000000016585	<i>IMPDH1</i>	-2.57	4.00E-04	0.32	1.62
ENSSSCG000000016773	<i>ZNF212</i>	-2.57	9.17E-11	2.39	14.65
ENSSSCG000000018014	<i>ZNF18</i>	-2.57	1.43E-06	0.16	1.03
ENSSSCG000000021180	<i>POLR2K</i>	-2.57	5.07E-11	112.43	655.03
ENSSSCG000000026890	<i>GALNT6</i>	-2.57	5.06E-10	0.98	5.83
ENSSSCG000000000189	<i>LMBR1L</i>	-2.56	4.79E-05	0.19	1.00
ENSSSCG000000003334	<i>UBE2J2</i>	-2.56	1.93E-10	7.39	45.29
ENSSSCG000000007592	<i>EIF2AK1</i>	-2.56	5.57E-07	0.73	3.94
ENSSSCG000000009348	<i>STARD13</i>	-2.56	6.30E-11	1.53	9.09
ENSSSCG000000010534	<i>HPS1</i>	-2.56	2.70E-07	0.33	1.86

ENSSSCG00000011442	<i>NISCH</i>	-2.56	4.13E-07	1.52	8.74
ENSSSCG00000014830	<i>COA4</i>	-2.56	5.44E-12	15.72	91.77
ENSSSCG00000022039		-2.56	3.33E-05	0.30	1.51
ENSSSCG00000027100	<i>MED31</i>	-2.56	1.74E-12	14.74	87.47
ENSSSCG00000029343	<i>MFSD11</i>	-2.56	3.05E-11	2.59	15.17
ENSSSCG00000033189	<i>FAM107A</i>	-2.56	9.48E-11	3.92	22.81
ENSSSCG00000054170	<i>DNAJC30</i>	-2.56	4.78E-11	4.72	26.94
ENSSSCG00000017211	<i>GGA3</i>	-2.55	4.96E-10	1.11	6.49
ENSSSCG00000017283	<i>CD79B</i>	-2.55	3.96E-05	0.39	2.06
ENSSSCG00000017998	<i>GLP2R</i>	-2.55	2.92E-12	5.46	31.78
ENSSSCG00000021822	<i>RNF169</i>	-2.55	4.37E-10	2.95	16.66
ENSSSCG00000030378	<i>LIMK1</i>	-2.55	6.06E-07	0.45	2.77
ENSSSCG00000030396	<i>SETD7</i>	-2.55	3.95E-10	1.05	6.30
ENSSSCG00000032469	<i>SENP3</i>	-2.55	7.87E-08	1.18	6.77
ENSSSCG00000033991	<i>DPP7</i>	-2.55	1.60E-04	0.26	1.12
ENSSSCG00000036709	<i>OSCP1</i>	-2.55	1.48E-05	0.28	1.56
ENSSSCG00000002763	<i>PRMT7</i>	-2.54	6.54E-11	1.66	9.64
ENSSSCG00000007516	<i>STX16</i>	-2.54	1.05E-07	0.46	2.69
ENSSSCG00000008170		-2.54	7.17E-12	9.34	52.90
ENSSSCG00000014396	<i>DELE1</i>	-2.54	1.28E-07	0.49	2.93
ENSSSCG00000023467		-2.54	8.16E-06	0.44	2.37
ENSSSCG00000024064	<i>RNF6</i>	-2.54	8.97E-10	1.16	6.71
ENSSSCG00000029785	<i>RPS9</i>	-2.54	1.03E-12	9.09	52.83
ENSSSCG00000038507	<i>RPS29</i>	-2.54	2.69E-09	4.69	25.87
ENSSSCG00000039626	<i>DERL3</i>	-2.54	8.47E-11	3.04	17.12
ENSSSCG00000006736	<i>CD2</i>	-2.53	6.06E-11	4.24	24.83
ENSSSCG00000012172	<i>ACOT9</i>	-2.53	6.70E-08	7.34	42.88
ENSSSCG00000021718	<i>METTL17</i>	-2.53	1.54E-10	5.30	29.52
ENSSSCG00000023820	<i>ZMIZ2</i>	-2.53	2.34E-08	1.19	7.18
ENSSSCG00000023948	<i>UBTD2</i>	-2.53	2.08E-13	13.89	79.92
ENSSSCG00000024351	<i>MET</i>	-2.53	1.24E-08	1.51	9.04
ENSSSCG00000028677		-2.53	9.34E-12	20.69	123.09
ENSSSCG00000029430	<i>IMP13</i>	-2.53	2.30E-05	0.25	1.63
ENSSSCG00000029708	<i>SLC25A38</i>	-2.53	1.15E-10	3.12	17.42
ENSSSCG00000032031	<i>QARS1</i>	-2.53	1.93E-09	1.99	10.91
ENSSSCG00000034647	<i>MRPS15</i>	-2.53	4.73E-11	5.26	30.12
ENSSSCG00000000144	<i>TXN2</i>	-2.52	1.58E-10	8.18	46.40
ENSSSCG00000009758	<i>DHX37</i>	-2.52	4.26E-09	0.92	5.42
ENSSSCG00000014427	<i>FBXO38</i>	-2.52	9.24E-08	1.19	6.13
ENSSSCG00000017200	<i>UNC13D</i>	-2.52	2.94E-07	1.63	8.92
ENSSSCG00000023263	<i>MRPL45</i>	-2.52	1.15E-11	8.64	50.10
ENSSSCG00000023935	<i>GMPPA</i>	-2.52	1.43E-05	0.57	2.91
ENSSSCG00000025430	<i>DTX2</i>	-2.52	6.68E-10	14.54	83.01
ENSSSCG00000030908		-2.52	8.10E-11	4.32	26.08
ENSSSCG00000037354	<i>MMACHC</i>	-2.52	5.36E-08	0.75	4.12
ENSSSCG00000058502		-2.52	3.18E-07	1.03	5.55
ENSSSCG00000004388	<i>ARMC2</i>	-2.51	2.95E-13	97.68	562.02
ENSSSCG00000005012	<i>ARF6</i>	-2.51	9.78E-11	15.01	87.69
ENSSSCG00000007803	<i>TUFM</i>	-2.51	5.08E-11	6.70	37.69
ENSSSCG00000011215	<i>OXSM</i>	-2.51	3.72E-11	4.45	26.57

ENSSSCG00000017231	<i>NAT9</i>	-2.51	3.51E-08	0.77	4.59
ENSSSCG00000017971	<i>NAA38</i>	-2.51	2.15E-11	6.33	36.57
ENSSSCG00000022714	<i>OSER1</i>	-2.51	7.39E-11	45.15	258.85
ENSSSCG00000028218	<i>CEACAM20</i>	-2.51	1.29E-07	0.44	2.59
ENSSSCG00000032467	<i>RAB5C</i>	-2.51	6.55E-10	5.66	31.67
ENSSSCG00000033613	<i>FOXSI</i>	-2.51	3.53E-07	0.31	1.79
ENSSSCG00000036944	<i>TACO1</i>	-2.51	8.19E-11	5.08	28.20
ENSSSCG00000037878	<i>AHSP</i>	-2.51	8.13E-05	0.30	1.76
ENSSSCG00000041579		-2.51	1.47E-10	3.84	22.45
ENSSSCG00000000077	<i>ADSL</i>	-2.50	2.40E-10	4.69	25.48
ENSSSCG00000001213	<i>GPX6</i>	-2.50	3.17E-06	0.34	1.84
ENSSSCG00000001476	<i>HSD17B8</i>	-2.50	1.38E-07	0.67	3.57
ENSSSCG00000007492	<i>FAM210B</i>	-2.50	4.83E-07	2.13	13.52
ENSSSCG00000011364	<i>NCKIPSD</i>	-2.50	7.13E-06	0.34	1.94
ENSSSCG00000011598	<i>FGD5</i>	-2.50	3.44E-08	0.73	4.09
ENSSSCG00000012379	<i>ARR3</i>	-2.50	2.04E-08	2.48	13.94
ENSSSCG00000012772	<i>BCAP31</i>	-2.50	4.69E-12	11.61	64.12
ENSSSCG00000014029	<i>COL23A1</i>	-2.50	3.27E-09	1.31	7.22
ENSSSCG00000014311	<i>SLC25A48</i>	-2.50	2.07E-06	0.75	3.71
ENSSSCG00000014336	<i>EGR1</i>	-2.50	8.15E-10	3.06	17.04
ENSSSCG00000024687	<i>FANCA</i>	-2.50	5.26E-06	0.30	1.67
ENSSSCG00000026106	<i>TXNDC15</i>	-2.50	2.89E-05	0.25	1.20
ENSSSCG00000029034	<i>COX4I1</i>	-2.50	1.95E-11	14.31	78.89
ENSSSCG00000035811	<i>RPL32</i>	-2.50	3.72E-12	16.89	94.25
ENSSSCG00000037647	<i>TFDP2</i>	-2.50	3.57E-13	142.66	819.94
ENSSSCG00000040578	<i>CASKIN2</i>	-2.50	2.55E-08	1.14	6.53
ENSSSCG00000054068	<i>CTRC</i>	-2.50	1.89E-06	0.16	0.99
ENSSSCG00000057365		-2.50	5.33E-14	95.31	539.84
ENSSSCG00000003106	<i>AP2S1</i>	-2.49	7.30E-12	7.17	40.46
ENSSSCG00000005196	<i>DMAC1</i>	-2.49	9.87E-09	0.91	4.89
ENSSSCG00000011583	<i>TMEM40</i>	-2.49	4.87E-07	0.41	2.35
ENSSSCG00000012643	<i>SH2D1A</i>	-2.49	3.91E-05	0.19	0.94
ENSSSCG00000027946	<i>MVP</i>	-2.49	1.23E-07	6.00	38.30
ENSSSCG00000031669	<i>DOLPP1</i>	-2.49	1.64E-05	0.29	1.33
ENSSSCG00000038086	<i>ECHS1</i>	-2.49	2.42E-08	7.94	41.85
ENSSSCG00000047664		-2.49	1.59E-07	0.93	5.46
ENSSSCG00000050530	<i>SRRD</i>	-2.49	1.70E-08	2.24	12.47
ENSSSCG00000055689	<i>PMVK</i>	-2.49	3.82E-08	0.72	4.10
ENSSSCG00000000063	<i>POLR3H</i>	-2.48	2.58E-11	11.36	63.30
ENSSSCG00000000550	<i>SMCO2</i>	-2.48	4.06E-08	0.37	2.31
ENSSSCG00000001596	<i>MOCS1</i>	-2.48	3.19E-06	0.37	1.87
ENSSSCG00000007736	<i>TMEM248</i>	-2.48	2.72E-11	12.94	74.98
ENSSSCG00000015845	<i>GTF2E2</i>	-2.48	4.00E-10	22.33	118.76
ENSSSCG00000017089	<i>ANXA6</i>	-2.48	1.78E-05	0.27	1.32
ENSSSCG00000017953	<i>FXR2</i>	-2.48	2.89E-08	3.09	17.81
ENSSSCG00000021744	<i>C8orf76</i>	-2.48	4.47E-11	79.85	454.51
ENSSSCG00000025737	<i>IQCA1L</i>	-2.48	8.19E-09	1.37	7.07
ENSSSCG00000029502	<i>NAXD</i>	-2.48	4.53E-06	2.51	11.68
ENSSSCG00000033019	<i>RPL12</i>	-2.48	1.80E-11	4.07	22.48
ENSSSCG00000034715		-2.48	8.25E-10	4.40	24.44

ENSSSCG00000035028	<i>GRK6</i>	-2.48	3.93E-08	0.43	2.39
ENSSSCG00000041356		-2.48	5.21E-07	0.81	3.96
ENSSSCG00000052919	<i>PMF1</i>	-2.48	2.71E-11	8.51	46.91
ENSSSCG00000060307		-2.48	1.48E-06	0.25	1.49
ENSSSCG00000062377		-2.48	1.18E-10	3.48	19.92
ENSSSCG00000001655	<i>MEA1</i>	-2.47	1.97E-10	9.99	55.00
ENSSSCG00000004480	<i>COX7A2</i>	-2.47	8.47E-12	25.76	141.30
ENSSSCG00000007720	<i>GTF2IRD1</i>	-2.47	2.37E-08	0.97	5.18
ENSSSCG00000016559	<i>CPA2</i>	-2.47	5.29E-07	0.42	2.55
ENSSSCG00000036062	<i>RNF122</i>	-2.47	1.45E-08	3.38	19.80
ENSSSCG00000039838	<i>RGS10</i>	-2.47	5.27E-06	0.17	1.13
ENSSSCG00000040154	<i>MRPL36</i>	-2.47	1.05E-06	5.04	25.56
ENSSSCG00000053790		-2.47	1.96E-06	0.32	1.86
ENSSSCG00000000837	<i>CHST11</i>	-2.46	3.52E-08	9.35	52.37
ENSSSCG00000002337	<i>ZFYVE1</i>	-2.46	6.20E-11	21.17	113.99
ENSSSCG00000003930	<i>RPS8</i>	-2.46	3.76E-13	11.72	64.55
ENSSSCG00000005474	<i>SAL1</i>	-2.46	1.31E-08	5.40	28.33
ENSSSCG00000011712	<i>P2RY14</i>	-2.46	3.23E-09	1.11	6.00
ENSSSCG00000013292	<i>PRR5L</i>	-2.46	8.05E-11	5.96	33.11
ENSSSCG00000013601	<i>MARCHF2</i>	-2.46	1.20E-05	0.25	1.44
ENSSSCG00000016368	<i>FARP2</i>	-2.46	1.12E-06	0.31	1.68
ENSSSCG00000017194	<i>TEN1</i>	-2.46	1.57E-05	0.24	1.23
ENSSSCG00000024789	<i>SRRT</i>	-2.46	7.81E-10	3.21	17.11
ENSSSCG00000032062	<i>WDR55</i>	-2.46	8.78E-08	0.48	2.73
ENSSSCG00000032170	<i>DAPK3</i>	-2.46	9.25E-06	0.47	2.69
ENSSSCG00000032835	<i>TMEM268</i>	-2.46	3.30E-08	0.94	4.94
ENSSSCG00000038805	<i>FBXO17</i>	-2.46	1.36E-07	2.72	14.09
ENSSSCG00000039230	<i>POLR2D</i>	-2.46	4.47E-12	22.83	128.70
ENSSSCG00000060961		-2.46	2.00E-03	1.16	3.98
ENSSSCG00000003458	<i>EFHD2</i>	-2.45	5.72E-07	0.70	4.08
ENSSSCG00000005006	<i>RPL36AL</i>	-2.45	1.02E-10	9.92	55.49
ENSSSCG00000006371	<i>USF1</i>	-2.45	1.40E-06	0.52	2.68
ENSSSCG00000007806	<i>RABEP2</i>	-2.45	2.10E-08	1.43	8.21
ENSSSCG00000008012	<i>HAGH</i>	-2.45	3.14E-10	9.42	49.94
ENSSSCG00000008317	<i>TEX261</i>	-2.45	1.30E-05	1.10	5.81
ENSSSCG00000025114	<i>FMNL3</i>	-2.45	3.62E-10	7.50	39.89
ENSSSCG00000034739		-2.45	3.16E-10	6.25	32.35
ENSSSCG00000035873	<i>SPRING1</i>	-2.45	4.77E-12	6.09	33.63
ENSSSCG00000036832	<i>STK40</i>	-2.45	9.60E-11	5.02	27.02
ENSSSCG00000003508	<i>KIF17</i>	-2.44	7.67E-07	0.64	3.73
ENSSSCG00000004170		-2.44	4.47E-09	1.00	5.48
ENSSSCG00000005310	<i>TESK1</i>	-2.44	1.43E-05	0.31	1.65
ENSSSCG00000010167	<i>MAP10</i>	-2.44	4.31E-06	0.35	1.74
ENSSSCG00000014030	<i>PHYKPL</i>	-2.44	4.06E-10	1.25	6.80
ENSSSCG00000025116	<i>TONSL</i>	-2.44	1.33E-05	0.22	1.27
ENSSSCG00000033352	<i>FAM163A</i>	-2.44	1.41E-08	0.84	4.80
ENSSSCG00000038307	<i>POLE4</i>	-2.44	7.44E-12	47.83	257.58
ENSSSCG00000003253	<i>MYADM</i>	-2.43	1.25E-09	2.01	11.03
ENSSSCG00000003918	<i>TOE1</i>	-2.43	1.12E-09	3.33	17.28
ENSSSCG00000006480	<i>NAXE</i>	-2.43	8.08E-10	3.94	20.97

ENSSSCG00000013662	<i>PPAN</i>	-2.43	3.27E-12	15.29	81.02
ENSSSCG00000017460	<i>KRT12</i>	-2.43	2.85E-05	0.22	1.16
ENSSSCG00000022538	<i>MARK4</i>	-2.43	1.15E-07	0.84	4.89
ENSSSCG00000028004	<i>RIN2</i>	-2.43	1.14E-08	4.90	27.33
ENSSSCG00000033000	<i>TIMP4</i>	-2.43	5.07E-08	1.36	7.50
ENSSSCG00000034045	<i>ERGIC3</i>	-2.43	2.97E-13	10.91	58.33
ENSSSCG00000036970	<i>SUGP1</i>	-2.43	4.10E-09	1.51	7.86
ENSSSCG00000004714	<i>EPB42</i>	-2.42	4.36E-07	0.84	4.11
ENSSSCG00000006523	<i>MTX1</i>	-2.42	6.99E-10	1.13	6.01
ENSSSCG00000009782	<i>ARL6IP4</i>	-2.42	7.33E-12	3.58	19.09
ENSSSCG00000017190	<i>EXOC7</i>	-2.42	1.48E-07	0.54	2.79
ENSSSCG00000022099	<i>TP53INP2</i>	-2.42	9.42E-10	1.71	8.64
ENSSSCG00000027198	<i>PDK2</i>	-2.42	2.27E-06	0.47	2.43
ENSSSCG00000028180	<i>DUSP28</i>	-2.42	7.83E-06	0.16	0.87
ENSSSCG00000056995	<i>SAYSD1</i>	-2.42	2.51E-07	0.26	1.53
ENSSSCG00000061599	<i>H1-10</i>	-2.42	7.43E-08	0.68	3.57
ENSSSCG00000003976	<i>NFYC</i>	-2.41	5.16E-12	14.57	76.12
ENSSSCG00000005486	<i>KIF12</i>	-2.41	2.22E-06	0.58	3.19
ENSSSCG00000006337	<i>HSD17B7</i>	-2.41	1.54E-11	112.60	619.94
ENSSSCG00000013510	<i>UBXN6</i>	-2.41	5.73E-12	4.23	22.49
ENSSSCG00000015362	<i>TSPAN13</i>	-2.41	2.77E-11	5.86	30.18
ENSSSCG00000027723		-2.41	5.54E-08	1.81	9.28
ENSSSCG00000028465	<i>ELAC2</i>	-2.41	1.22E-08	1.30	7.11
ENSSSCG00000033792	<i>RAB40C</i>	-2.41	2.70E-03	0.23	0.88
ENSSSCG00000033993	<i>PLCXD3</i>	-2.41	8.72E-08	0.51	2.68
ENSSSCG00000036002	<i>TGIF2</i>	-2.41	6.58E-09	3.91	20.39
ENSSSCG00000058339	<i>C11orf98</i>	-2.41	6.04E-12	50.25	266.89
ENSSSCG00000004487	<i>MTO1</i>	-2.40	1.40E-09	2.39	12.02
ENSSSCG00000007349	<i>ACTR5</i>	-2.40	9.41E-07	0.54	2.63
ENSSSCG00000013258	<i>HARBI1</i>	-2.40	1.49E-08	2.14	11.13
ENSSSCG00000013876	<i>MYO9B</i>	-2.40	5.89E-08	0.61	3.08
ENSSSCG00000015085	<i>IL10RA</i>	-2.40	5.61E-07	0.44	2.24
ENSSSCG00000016110	<i>KIAA2012</i>	-2.40	9.54E-09	2.17	12.17
ENSSSCG00000017798	<i>TMIGD1</i>	-2.40	9.56E-10	3.10	16.84
ENSSSCG00000035182	<i>SDR42E1</i>	-2.40	1.97E-06	0.31	1.59
ENSSSCG00000036835	<i>OSBPL2</i>	-2.40	1.06E-09	5.73	29.35
ENSSSCG00000037267	<i>MAX</i>	-2.40	5.25E-09	5.29	26.77
ENSSSCG00000037558	<i>YY1</i>	-2.40	7.21E-10	3.73	19.13
ENSSSCG00000056442		-2.40	1.57E-10	5.57	30.85
ENSSSCG00000059913	<i>DUS2</i>	-2.40	1.19E-07	1.12	5.59
ENSSSCG00000003432	<i>KIAA2013</i>	-2.39	1.28E-06	0.83	4.63
ENSSSCG00000004679	<i>SORD</i>	-2.39	2.56E-09	1.73	8.55
ENSSSCG00000007768	<i>STX4</i>	-2.39	2.02E-09	1.25	6.60
ENSSSCG00000011587	<i>EFCAB12</i>	-2.39	3.52E-10	1.51	7.86
ENSSSCG00000013427	<i>DAZAP1</i>	-2.39	1.80E-09	3.28	17.29
ENSSSCG00000016372	<i>STK25</i>	-2.39	1.09E-07	1.18	6.68
ENSSSCG00000016793	<i>ZNF622</i>	-2.39	2.23E-06	0.30	1.60
ENSSSCG00000017396	<i>PSMC3IP</i>	-2.39	4.99E-12	10.84	56.51
ENSSSCG00000017726	<i>SPACA3</i>	-2.39	3.77E-11	4.47	24.22
ENSSSCG00000017804	<i>ABR</i>	-2.39	1.18E-11	6.10	31.63

ENSSSCG00000021843	<i>SYT5</i>	-2.39	9.00E-06	0.94	5.16
ENSSSCG00000036817	<i>PPP4C</i>	-2.39	5.63E-08	5.12	26.14
ENSSSCG00000037391		-2.39	6.28E-06	0.29	1.56
ENSSSCG00000058949	<i>STOML3</i>	-2.39	4.00E-08	0.66	3.47
ENSSSCG00000002397	<i>POMT2</i>	-2.38	1.38E-06	0.55	2.93
ENSSSCG00000007799	<i>MYLPF</i>	-2.38	1.73E-07	0.41	2.10
ENSSSCG00000009889	<i>ALDH2</i>	-2.38	1.01E-08	3.05	14.87
ENSSSCG00000026253		-2.38	4.51E-05	0.41	1.81
ENSSSCG00000028414		-2.38	7.25E-11	44.83	233.12
ENSSSCG00000032424	<i>NUDT16</i>	-2.38	4.50E-09	2.19	11.31
ENSSSCG00000033766	<i>ETFBKMT</i>	-2.38	5.46E-10	1.82	9.29
ENSSSCG00000034131	<i>TXNDC5</i>	-2.38	9.91E-10	3.36	18.14
ENSSSCG00000038058	<i>RAD51AP2</i>	-2.38	1.47E-08	2.51	14.15
ENSSSCG00000038079	<i>CLPP</i>	-2.38	2.40E-09	4.96	24.90
ENSSSCG00000044869		-2.38	7.96E-09	1.09	5.52
ENSSSCG00000055629		-2.38	4.50E-04	0.22	0.84
ENSSSCG00000001396	<i>HLA-B8</i>	-2.37	9.89E-08	1.21	6.08
ENSSSCG00000006546	<i>TDRD10</i>	-2.37	3.48E-10	17.27	87.27
ENSSSCG00000007340	<i>TTI1</i>	-2.37	3.11E-08	1.09	5.41
ENSSSCG00000011370	<i>DALRD3</i>	-2.37	6.85E-06	0.61	2.62
ENSSSCG00000017924	<i>PELP1</i>	-2.37	8.04E-08	2.05	10.89
ENSSSCG00000031465	<i>PRRT1B</i>	-2.37	2.88E-09	18.45	98.73
ENSSSCG00000034070	<i>ZNF592</i>	-2.37	6.24E-11	4.15	21.46
ENSSSCG00000061214	<i>DYDC1</i>	-2.37	1.31E-12	29.71	153.64
ENSSSCG00000001512	<i>CUTA</i>	-2.36	2.75E-09	7.98	39.41
ENSSSCG00000002962	<i>MAP4K1</i>	-2.36	1.22E-11	4.54	22.91
ENSSSCG00000006477	<i>BCAN</i>	-2.36	2.10E-06	0.36	1.77
ENSSSCG00000007142	<i>PANK2</i>	-2.36	3.13E-11	7.44	37.39
ENSSSCG00000009742	<i>ULK1</i>	-2.36	2.26E-06	0.77	3.72
ENSSSCG00000011158	<i>PFKP</i>	-2.36	8.61E-11	9.17	47.01
ENSSSCG00000011664	<i>RBP1</i>	-2.36	3.92E-08	0.49	2.57
ENSSSCG00000011899	<i>CD80</i>	-2.36	2.09E-09	3.96	20.61
ENSSSCG00000013507	<i>MPND</i>	-2.36	1.97E-06	0.17	1.03
ENSSSCG00000014952	<i>IZUMO1R</i>	-2.36	5.97E-08	0.60	2.98
ENSSSCG00000015232	<i>ST3GAL4</i>	-2.36	7.47E-06	0.29	1.36
ENSSSCG00000016532	<i>WDR91</i>	-2.36	5.19E-10	14.40	70.77
ENSSSCG00000023139	<i>METTL23</i>	-2.36	1.88E-11	5.98	30.42
ENSSSCG00000023379	<i>UBE2L6</i>	-2.36	5.07E-07	0.42	2.24
ENSSSCG00000024240	<i>CCDC9</i>	-2.36	5.15E-07	1.07	5.21
ENSSSCG00000031274	<i>F12</i>	-2.36	5.46E-06	0.39	1.90
ENSSSCG00000040581	<i>CISH</i>	-2.36	3.65E-07	0.22	1.22
ENSSSCG00000004412	<i>MICAL1</i>	-2.35	4.11E-06	0.24	1.21
ENSSSCG00000011356	<i>UQCRC1</i>	-2.35	1.90E-10	7.12	35.21
ENSSSCG00000016448	<i>KCNH2</i>	-2.35	4.28E-05	0.35	2.03
ENSSSCG00000027135	<i>PPM1G</i>	-2.35	6.08E-09	9.40	45.69
ENSSSCG00000029331	<i>PALLD</i>	-2.35	6.47E-12	4.65	23.81
ENSSSCG00000037432	<i>PLPPR3</i>	-2.35	4.62E-08	1.08	5.48
ENSSSCG00000062938	<i>VAMP8</i>	-2.35	7.56E-10	2.10	10.91
ENSSSCG00000001544	<i>TEAD3</i>	-2.34	1.66E-06	0.53	2.99
ENSSSCG00000007456	<i>SULF2</i>	-2.34	1.28E-10	3.58	18.01

ENSSSCG00000012396	<i>MED12</i>	-2.34	3.93E-08	1.60	7.84
ENSSSCG00000015718	<i>C2orf76</i>	-2.34	2.19E-09	49.57	255.79
ENSSSCG00000016385		-2.34	1.48E-10	1.55	7.84
ENSSSCG00000023195		-2.34	5.26E-11	6.32	32.15
ENSSSCG00000024059	<i>VAT1</i>	-2.34	1.45E-08	1.40	7.36
ENSSSCG00000025071	<i>BTNL2</i>	-2.34	1.63E-06	0.59	3.00
ENSSSCG00000037263	<i>SIAH1</i>	-2.34	2.52E-10	18.70	91.50
ENSSSCG00000061592	<i>EPM2A</i>	-2.34	2.06E-06	0.29	1.70
ENSSSCG00000005672	<i>PTPA</i>	-2.33	4.86E-07	1.24	6.20
ENSSSCG00000007682	<i>SH2B2</i>	-2.33	1.79E-05	0.32	1.52
ENSSSCG00000008194	<i>ACTR1B</i>	-2.33	2.67E-04	0.43	1.65
ENSSSCG00000008695	<i>MFSD10</i>	-2.33	6.33E-07	0.63	3.38
ENSSSCG00000012984	<i>SCYL1</i>	-2.33	9.06E-09	1.55	8.27
ENSSSCG00000013722	<i>WDR83</i>	-2.33	5.15E-07	0.39	2.05
ENSSSCG00000014899	<i>PRCP</i>	-2.33	1.99E-05	1.56	5.82
ENSSSCG00000016750	<i>YKT6</i>	-2.33	3.08E-08	1.89	8.96
ENSSSCG00000016912	<i>PLPP1</i>	-2.33	1.23E-12	12.96	64.56
ENSSSCG00000017036	<i>CCNJL</i>	-2.33	9.83E-09	0.78	3.95
ENSSSCG00000034058	<i>ARHGDI1</i>	-2.33	1.06E-05	0.72	3.45
ENSSSCG00000054116	<i>ITGAD</i>	-2.33	9.82E-12	7.79	38.71
ENSSSCG00000058554		-2.33	4.13E-07	0.78	4.16
ENSSSCG00000000684	<i>USP5</i>	-2.32	1.03E-08	1.94	9.81
ENSSSCG00000002524	<i>AMN</i>	-2.32	9.38E-05	0.29	1.50
ENSSSCG00000002813	<i>KATNB1</i>	-2.32	3.89E-09	1.55	7.43
ENSSSCG00000007315	<i>AAR2</i>	-2.32	9.84E-11	2.28	11.26
ENSSSCG00000014921	<i>PRSS23</i>	-2.32	2.56E-07	0.80	4.17
ENSSSCG00000015111	<i>C2CD2L</i>	-2.32	1.87E-04	0.30	1.47
ENSSSCG00000016579	<i>CCDC136</i>	-2.32	1.46E-09	11.65	55.23
ENSSSCG00000021620	<i>STIP1</i>	-2.32	5.75E-12	40.68	204.61
ENSSSCG00000026990	<i>FAM162A</i>	-2.32	1.28E-11	25.62	129.56
ENSSSCG00000027505	<i>ESYT3</i>	-2.32	9.85E-09	4.87	24.02
ENSSSCG00000028126	<i>MPPE1</i>	-2.32	2.46E-08	1.97	9.22
ENSSSCG00000056374	<i>STMP1</i>	-2.32	1.37E-11	17.54	89.79
ENSSSCG00000061116		-2.32	1.71E-05	0.42	2.22
ENSSSCG00000002996	<i>RAB4B</i>	-2.31	2.86E-07	1.35	6.33
ENSSSCG00000008984	<i>SHROOM3</i>	-2.31	7.89E-08	0.75	3.52
ENSSSCG00000009799	<i>DIABLO</i>	-2.31	9.80E-10	2.54	12.29
ENSSSCG00000011192	<i>HACL1</i>	-2.31	6.50E-09	0.65	3.28
ENSSSCG00000029781	<i>SELENOM</i>	-2.31	9.95E-06	0.28	1.25
ENSSSCG00000032141	<i>DUT</i>	-2.31	4.09E-12	66.55	335.85
ENSSSCG00000032443	<i>KIAA0895L</i>	-2.31	1.28E-06	0.47	2.25
ENSSSCG00000036503	<i>RAB6B</i>	-2.31	5.49E-10	2.67	13.04
ENSSSCG00000038766	<i>MAD1L1</i>	-2.31	1.54E-06	0.41	1.94
ENSSSCG00000000158	<i>RTCB</i>	-2.30	6.41E-12	15.28	74.85
ENSSSCG00000001022	<i>SSR1</i>	-2.30	1.20E-11	38.35	189.24
ENSSSCG00000009578	<i>CDK20</i>	-2.30	2.17E-09	1.24	6.16
ENSSSCG00000011128	<i>ITIH2</i>	-2.30	2.84E-06	0.45	1.99
ENSSSCG00000013005	<i>VPS51</i>	-2.30	4.30E-07	0.67	3.09
ENSSSCG00000013864	<i>TMEM38A</i>	-2.30	1.05E-04	0.25	1.03
ENSSSCG00000017193	<i>CDK3</i>	-2.30	4.65E-07	0.72	3.37

ENSSSCG00000025568	<i>TEAD2</i>	-2.30	7.28E-05	0.22	1.03
ENSSSCG00000026103	<i>ZBTB17</i>	-2.30	1.14E-08	1.87	8.74
ENSSSCG00000039056	<i>GAS7</i>	-2.30	5.55E-06	1.38	6.00
ENSSSCG00000061899	<i>IMMP2L</i>	-2.30	9.20E-11	15.20	77.93
ENSSSCG00000002652	<i>KLHDC4</i>	-2.29	9.20E-07	1.98	9.49
ENSSSCG00000005646	<i>COQ4</i>	-2.29	1.08E-07	0.87	4.01
ENSSSCG00000014984	<i>MMP27</i>	-2.29	3.19E-07	0.31	1.52
ENSSSCG00000022777	<i>SLC35C2</i>	-2.29	8.55E-05	0.37	1.66
ENSSSCG00000027974	<i>MRPL50</i>	-2.29	1.72E-10	13.48	65.84
ENSSSCG00000034414	<i>PSME3IP1</i>	-2.29	1.27E-12	48.15	233.04
ENSSSCG00000037413	<i>KBTBD7</i>	-2.29	5.02E-05	0.24	1.03
ENSSSCG00000038177	<i>SPATA16</i>	-2.29	4.91E-10	2.12	10.24
ENSSSCG00000040457	<i>EPN2</i>	-2.29	1.21E-07	5.88	29.24
ENSSSCG00000001863	<i>TMEM266</i>	-2.28	1.01E-08	2.22	10.61
ENSSSCG00000008913	<i>IGFBP7</i>	-2.28	2.90E-09	4.79	23.28
ENSSSCG00000013039	<i>NUDT22</i>	-2.28	3.07E-07	0.96	5.10
ENSSSCG00000013125	<i>OSBP</i>	-2.28	1.02E-07	4.14	19.83
ENSSSCG00000013467	<i>SGTA</i>	-2.28	6.98E-11	5.22	24.83
ENSSSCG00000016677	<i>GARS1</i>	-2.28	3.16E-10	3.92	18.21
ENSSSCG00000033142	<i>ENDOU</i>	-2.28	2.86E-08	0.79	3.78
ENSSSCG00000037637	<i>GGH</i>	-2.28	4.35E-09	14.45	73.28
ENSSSCG00000000396	<i>STAT2</i>	-2.27	7.72E-12	9.30	44.57
ENSSSCG00000003040	<i>ARHGEF1</i>	-2.27	2.20E-06	1.01	4.87
ENSSSCG00000010330	<i>PPIF</i>	-2.27	1.66E-09	10.65	49.12
ENSSSCG00000014450	<i>TCOF1</i>	-2.27	4.50E-04	0.34	1.75
ENSSSCG00000016577	<i>ATP6V1F</i>	-2.27	1.13E-10	5.07	24.60
ENSSSCG00000027070	<i>ENTPD6</i>	-2.27	6.64E-07	1.05	5.23
ENSSSCG00000032374	<i>SULT1B1</i>	-2.27	9.85E-07	0.64	2.88
ENSSSCG00000033695	<i>KCTD15</i>	-2.27	6.90E-06	0.35	1.54
ENSSSCG00000033920	<i>CTU2</i>	-2.27	3.30E-07	1.16	5.29
ENSSSCG00000036614	<i>PGP</i>	-2.27	2.34E-08	1.34	6.44
ENSSSCG00000055707	<i>BBIP1</i>	-2.27	2.81E-07	1.26	5.94
ENSSSCG00000003262	<i>TFPT</i>	-2.26	3.76E-09	1.23	5.84
ENSSSCG00000007323	<i>DSN1</i>	-2.26	5.08E-12	24.48	119.74
ENSSSCG00000008521	<i>SRD5A2</i>	-2.26	7.33E-04	0.26	0.85
ENSSSCG00000010331	<i>ANXA11</i>	-2.26	1.86E-09	6.99	33.16
ENSSSCG00000011336	<i>ELP6</i>	-2.26	2.42E-11	6.98	33.27
ENSSSCG00000011763	<i>MRPL47</i>	-2.26	6.35E-11	28.12	141.05
ENSSSCG00000025826	<i>BOC</i>	-2.26	5.06E-11	5.20	25.17
ENSSSCG00000031557	<i>CHCHD6</i>	-2.26	1.36E-05	0.25	1.13
ENSSSCG00000038623	<i>TMED1</i>	-2.26	5.67E-07	0.51	2.50
ENSSSCG00000039751	<i>NLRC5</i>	-2.26	1.17E-06	0.53	2.32
ENSSSCG00000045776	<i>ZNF593</i>	-2.26	1.30E-11	5.72	27.24
ENSSSCG00000047083		-2.26	6.09E-07	0.30	1.54
ENSSSCG00000049172		-2.26	4.38E-04	0.47	2.06
ENSSSCG00000051892	<i>GON7</i>	-2.26	1.91E-10	29.59	140.15
ENSSSCG00000052041	<i>ZNF550</i>	-2.26	9.47E-09	1.17	5.51
ENSSSCG00000006614	<i>THEM5</i>	-2.25	1.22E-06	1.26	5.85
ENSSSCG00000006698	<i>BCL9</i>	-2.25	6.21E-09	2.86	13.60
ENSSSCG00000006754	<i>AMPD1</i>	-2.25	1.92E-05	0.20	0.99

ENSSSCG00000009628	<i>CCAR2</i>	-2.25	2.26E-08	1.07	5.01
ENSSSCG00000013556	<i>ADGRE1</i>	-2.25	3.33E-05	0.66	2.71
ENSSSCG00000016217	<i>DNAJB2</i>	-2.25	1.97E-08	1.89	9.12
ENSSSCG00000017167	<i>CYTH1</i>	-2.25	6.45E-06	1.95	7.66
ENSSSCG00000022757	<i>TIMM13</i>	-2.25	3.96E-10	25.50	116.82
ENSSSCG00000037843	<i>TMEM138</i>	-2.25	8.44E-12	4.59	21.56
ENSSSCG00000039991	<i>PIGG</i>	-2.25	1.35E-08	1.40	6.57
ENSSSCG00000002640	<i>DEF8</i>	-2.24	2.23E-09	1.01	4.82
ENSSSCG00000007383	<i>TOMM34</i>	-2.24	2.97E-12	28.10	130.60
ENSSSCG00000016349	<i>NDUFA10</i>	-2.24	6.20E-10	3.85	18.40
ENSSSCG00000016760	<i>C7orf25</i>	-2.24	1.39E-11	6.89	32.04
ENSSSCG00000020717	<i>FHIP1A</i>	-2.24	2.74E-12	22.10	105.33
ENSSSCG00000021971	<i>DPEP1</i>	-2.24	4.58E-08	4.80	22.71
ENSSSCG00000024429	<i>SIDT1</i>	-2.24	4.94E-09	1.56	7.80
ENSSSCG00000031838		-2.24	3.94E-06	2.34	8.90
ENSSSCG00000034927		-2.24	5.38E-11	17.13	79.75
ENSSSCG00000035230	<i>PIEZO1</i>	-2.24	3.64E-08	0.94	4.37
ENSSSCG00000037197	<i>BAG5</i>	-2.24	2.04E-07	0.96	4.16
ENSSSCG00000038549	<i>ZFP36L2</i>	-2.24	3.29E-09	5.69	26.19
ENSSSCG00000002887	<i>MAG</i>	-2.23	7.65E-06	0.77	3.55
ENSSSCG00000010545	<i>CPN1</i>	-2.23	3.48E-08	0.63	2.93
ENSSSCG00000011433	<i>WDR82</i>	-2.23	1.86E-12	11.60	54.83
ENSSSCG00000012885	<i>LRP5</i>	-2.23	2.71E-06	0.96	4.29
ENSSSCG00000014356	<i>DNAJC18</i>	-2.23	2.30E-10	11.23	53.57
ENSSSCG00000016220	<i>DNPEP</i>	-2.23	8.96E-09	2.95	13.41
ENSSSCG00000022129	<i>ARSL</i>	-2.23	2.89E-04	0.36	1.37
ENSSSCG00000038493	<i>PFDN1</i>	-2.23	1.63E-11	67.84	320.89
ENSSSCG00000038948	<i>ETS2</i>	-2.23	2.79E-05	0.38	1.57
ENSSSCG00000040524	<i>ISYNA1</i>	-2.23	1.02E-09	2.06	9.57
ENSSSCG00000055477	<i>SLA2</i>	-2.23	7.38E-09	1.64	7.54
ENSSSCG00000001824	<i>ZXDC</i>	-2.22	4.98E-07	0.83	3.77
ENSSSCG00000008908	<i>PDCL2</i>	-2.22	3.09E-09	1.40	6.44
ENSSSCG00000015483	<i>METTL13</i>	-2.22	1.63E-05	0.37	1.49
ENSSSCG00000017165	<i>USP36</i>	-2.22	1.78E-07	5.62	23.92
ENSSSCG00000022553	<i>TNRC18</i>	-2.22	2.61E-06	0.60	2.64
ENSSSCG00000022912	<i>NT5C3A</i>	-2.22	1.45E-11	9.05	42.80
ENSSSCG00000032655	<i>ALYREF</i>	-2.22	2.26E-08	2.39	11.63
ENSSSCG00000057024	<i>PPP3CC</i>	-2.22	1.88E-11	5.26	24.15
ENSSSCG00000060915		-2.22	7.01E-10	5.38	25.15
ENSSSCG00000000757	<i>ADIPOR2</i>	-2.21	6.95E-12	12.61	58.73
ENSSSCG00000001036	<i>TFAP2A</i>	-2.21	4.16E-06	0.26	1.20
ENSSSCG00000001892	<i>SCAMP2</i>	-2.21	2.01E-06	2.56	10.30
ENSSSCG00000010052	<i>BCR</i>	-2.21	1.72E-07	1.52	6.93
ENSSSCG00000011576	<i>HRH1</i>	-2.21	8.15E-10	2.22	10.55
ENSSSCG00000015340	<i>ASNS</i>	-2.21	3.77E-13	259.88	1196.58
ENSSSCG00000015611	<i>UTP25</i>	-2.21	1.15E-12	13.43	62.53
ENSSSCG00000016436	<i>CHPF2</i>	-2.21	1.49E-08	1.46	6.91
ENSSSCG00000017125	<i>FOXK2</i>	-2.21	6.54E-11	11.23	52.45
ENSSSCG00000023569	<i>FBRSL1</i>	-2.21	6.50E-09	4.67	22.53
ENSSSCG00000031083	<i>SZRD1</i>	-2.21	1.84E-09	2.02	9.61

ENSSSCG00000033526	<i>BAG2</i>	-2.21	6.14E-11	5.26	24.20
ENSSSCG00000033787		-2.21	8.82E-04	0.39	1.54
ENSSSCG00000038916	<i>LSM10</i>	-2.21	2.51E-11	19.13	88.21
ENSSSCG00000003393	<i>TMEM201</i>	-2.20	3.65E-06	0.36	1.60
ENSSSCG00000005284	<i>GNA14</i>	-2.20	3.44E-09	1.72	7.89
ENSSSCG00000005349	<i>GRHPR</i>	-2.20	8.91E-12	26.91	122.84
ENSSSCG00000011404	<i>NAA80</i>	-2.20	3.91E-07	0.56	2.74
ENSSSCG00000012088	<i>POFUT2</i>	-2.20	4.47E-08	2.20	10.76
ENSSSCG00000012914	<i>RAD9A</i>	-2.20	1.63E-09	1.43	6.67
ENSSSCG00000017865	<i>CTNS</i>	-2.20	2.91E-10	2.67	11.95
ENSSSCG00000027525	<i>DHCR24</i>	-2.20	4.75E-06	1.03	4.22
ENSSSCG00000028025	<i>WDR74</i>	-2.20	1.32E-09	3.95	18.23
ENSSSCG00000031242		-2.20	1.44E-08	2.91	13.31
ENSSSCG00000033546	<i>UBXN11</i>	-2.20	1.88E-06	0.41	1.94
ENSSSCG00000034695	<i>SIRT7</i>	-2.20	1.02E-07	2.81	12.40
ENSSSCG00000003913	<i>MAST2</i>	-2.19	2.32E-11	10.46	48.15
ENSSSCG00000004952	<i>SMAD3</i>	-2.19	4.98E-08	0.86	3.87
ENSSSCG00000004955	<i>MAP2K5</i>	-2.19	5.33E-10	1.92	8.68
ENSSSCG00000006777	<i>RHOC</i>	-2.19	6.41E-09	4.90	21.49
ENSSSCG00000009166	<i>MANBA</i>	-2.19	4.12E-09	464.76	2110.38
ENSSSCG00000009716	<i>SH3RF1</i>	-2.19	1.34E-09	2.81	13.25
ENSSSCG00000010876	<i>DESI2</i>	-2.19	5.43E-09	12.59	54.91
ENSSSCG00000012288	<i>CCDC120</i>	-2.19	2.32E-06	0.76	3.72
ENSSSCG00000017336	<i>HEXIM1</i>	-2.19	3.69E-06	0.68	3.05
ENSSSCG00000021276	<i>TEX47</i>	-2.19	4.96E-05	0.27	1.28
ENSSSCG00000025842	<i>SPAG8</i>	-2.19	1.93E-09	2.45	11.03
ENSSSCG00000025986	<i>EDARADD</i>	-2.19	2.22E-08	2.65	11.71
ENSSSCG00000044473		-2.19	4.32E-09	1.71	7.70
ENSSSCG00000000072	<i>SLC25A17</i>	-2.18	4.39E-12	32.62	147.05
ENSSSCG00000000769	<i>BID</i>	-2.18	1.75E-06	1.27	5.33
ENSSSCG00000001070	<i>FAM8A1</i>	-2.18	3.18E-10	5.19	23.86
ENSSSCG00000003484	<i>PADI6</i>	-2.18	1.83E-11	125.83	571.57
ENSSSCG00000008274	<i>DCTN1</i>	-2.18	3.15E-06	1.39	6.11
ENSSSCG00000011145	<i>ASB13</i>	-2.18	3.36E-04	0.27	0.98
ENSSSCG00000011420	<i>RBM15B</i>	-2.18	9.69E-08	0.63	2.93
ENSSSCG00000031398		-2.18	3.32E-06	0.54	2.49
ENSSSCG00000036775	<i>SLC48A1</i>	-2.18	7.60E-07	1.19	5.52
ENSSSCG00000003509	<i>SH2D5</i>	-2.17	4.72E-06	0.24	1.22
ENSSSCG00000004506	<i>CTIF</i>	-2.17	3.55E-08	0.71	3.20
ENSSSCG00000005915	<i>MAF1</i>	-2.17	1.02E-08	2.88	12.96
ENSSSCG00000012689	<i>ZNF75D</i>	-2.17	1.69E-11	6.92	31.02
ENSSSCG00000013433	<i>ADAMTSL5</i>	-2.17	2.09E-06	0.53	2.24
ENSSSCG00000015700	<i>TMEM163</i>	-2.17	6.71E-11	4.83	22.03
ENSSSCG00000025248	<i>PITPNA</i>	-2.17	2.82E-08	4.33	18.45
ENSSSCG00000026981	<i>MRPS6</i>	-2.17	8.83E-12	17.04	77.47
ENSSSCG00000027381	<i>GGCX</i>	-2.17	1.93E-10	2.51	11.39
ENSSSCG00000029776	<i>FAM219B</i>	-2.17	3.97E-11	3.15	14.27
ENSSSCG00000032798	<i>GTF3C2</i>	-2.17	9.43E-11	18.73	84.51
ENSSSCG00000033301	<i>THAP7</i>	-2.17	3.05E-09	5.55	24.20
ENSSSCG00000036751	<i>PPM1H</i>	-2.17	7.95E-10	3.93	17.70

ENSSSCG00000059511		-2.17	5.80E-05	0.33	1.33
ENSSSCG00000059578	<i>C16orf74</i>	-2.17	1.95E-05	0.38	1.56
ENSSSCG00000002349		-2.16	1.92E-07	1.10	4.94
ENSSSCG00000005841	<i>RABL6</i>	-2.16	8.93E-04	0.27	1.51
ENSSSCG00000006520	<i>SCAMP3</i>	-2.16	5.32E-10	4.08	17.96
ENSSSCG00000010489		-2.16	1.32E-04	0.31	1.18
ENSSSCG00000011426	<i>POC1A</i>	-2.16	1.20E-11	5.03	22.34
ENSSSCG00000011663	<i>RBP2</i>	-2.16	2.22E-08	3.22	14.13
ENSSSCG00000012825	<i>IKBKG</i>	-2.16	1.21E-06	0.42	1.96
ENSSSCG00000020666	<i>EHD4</i>	-2.16	8.64E-11	5.34	23.57
ENSSSCG00000021106	<i>GRIPAP1</i>	-2.16	6.47E-08	0.87	3.82
ENSSSCG00000028338	<i>PAMR1</i>	-2.16	9.00E-11	4.58	20.26
ENSSSCG00000030149	<i>CAPNS1</i>	-2.16	3.49E-11	8.70	38.68
ENSSSCG00000033196	<i>MYORG</i>	-2.16	3.16E-08	1.22	5.59
ENSSSCG00000060069	<i>ZNF74</i>	-2.16	9.19E-10	1.22	5.36
ENSSSCG00000006632	<i>SCNM1</i>	-2.15	6.03E-10	20.45	93.01
ENSSSCG00000013524	<i>MICOS13</i>	-2.15	8.01E-10	4.69	21.31
ENSSSCG00000013764	<i>RFX1</i>	-2.15	7.17E-08	1.15	5.27
ENSSSCG00000014337	<i>ETF1</i>	-2.15	6.50E-11	6.38	27.54
ENSSSCG00000021018	<i>GSDMB</i>	-2.15	1.04E-10	76.73	347.92
ENSSSCG00000021145	<i>AP1S1</i>	-2.15	5.09E-06	2.60	9.87
ENSSSCG00000021217	<i>FKBP3</i>	-2.15	1.65E-09	10.92	49.37
ENSSSCG00000022401	<i>AGTRAP</i>	-2.15	2.13E-09	9.02	38.76
ENSSSCG00000022947	<i>AFG3L2</i>	-2.15	1.06E-10	3.78	17.02
ENSSSCG00000001504	<i>WDR46</i>	-2.14	3.14E-04	0.27	1.27
ENSSSCG00000004694	<i>FRMD5</i>	-2.14	1.17E-08	3.38	14.88
ENSSSCG00000007281	<i>MAP1LC3A</i>	-2.14	7.19E-09	3.12	13.57
ENSSSCG00000008985	<i>SOWAHB</i>	-2.14	5.53E-06	0.66	2.64
ENSSSCG00000014374	<i>DND1</i>	-2.14	3.37E-09	3.70	16.40
ENSSSCG00000014556	<i>BET1L</i>	-2.14	6.09E-10	5.02	21.97
ENSSSCG00000023759	<i>WDR13</i>	-2.14	9.99E-06	0.82	3.27
ENSSSCG00000027270		-2.14	5.49E-08	11.58	47.26
ENSSSCG00000028661	<i>ENKD1</i>	-2.14	3.55E-08	2.04	8.62
ENSSSCG00000030849		-2.14	2.26E-12	10.23	45.40
ENSSSCG00000031781	<i>PSMB10</i>	-2.14	6.11E-07	1.07	4.84
ENSSSCG00000031821	<i>HASPIN</i>	-2.14	4.08E-08	1.84	7.73
ENSSSCG00000037808		-2.14	2.38E-05	7.06	23.35
ENSSSCG00000037979	<i>AARSD1</i>	-2.14	1.56E-12	11.45	50.29
ENSSSCG00000038185	<i>EREG</i>	-2.14	1.80E-09	1.63	7.39
ENSSSCG00000049970		-2.14	6.80E-07	1.33	5.37
ENSSSCG00000052991	<i>ECI1</i>	-2.14	9.30E-07	0.63	2.75
ENSSSCG00000063195	<i>ZNF71</i>	-2.14	1.90E-08	1.26	5.61
ENSSSCG00000004053	<i>TAGAP</i>	-2.13	1.31E-06	0.26	1.26
ENSSSCG00000010888		-2.13	2.85E-07	0.48	2.14
ENSSSCG00000017420	<i>CNP</i>	-2.13	6.72E-10	6.35	27.59
ENSSSCG00000028561	<i>CD28</i>	-2.13	3.36E-10	8.93	39.31
ENSSSCG00000038390	<i>HELT</i>	-2.13	6.09E-04	0.29	1.00
ENSSSCG00000004401	<i>DDO</i>	-2.12	1.22E-03	0.38	1.14
ENSSSCG00000005057	<i>FBXO34</i>	-2.12	6.94E-10	2.21	9.54
ENSSSCG00000005249	<i>FAM189A2</i>	-2.12	3.21E-09	3.40	15.33

ENSSSCG00000007435	<i>PLTP</i>	-2.12	3.32E-06	1.11	4.87
ENSSSCG00000012744	<i>CD99L2</i>	-2.12	9.67E-07	0.37	1.65
ENSSSCG00000017416	<i>DHX58</i>	-2.12	1.83E-09	11.41	50.12
ENSSSCG00000017499	<i>STARD3</i>	-2.12	6.01E-06	0.54	2.12
ENSSSCG00000021007	<i>MRPL19</i>	-2.12	1.26E-11	11.02	48.32
ENSSSCG00000024555	<i>ING2</i>	-2.12	2.00E-06	0.82	3.63
ENSSSCG00000031818		-2.12	2.27E-09	2.03	9.27
ENSSSCG00000035148	<i>ZNF268</i>	-2.12	1.32E-05	0.36	1.45
ENSSSCG00000036536	<i>WDR53</i>	-2.12	1.03E-12	41.85	183.92
ENSSSCG00000038617	<i>PCMTD2</i>	-2.12	2.64E-10	7.45	31.72
ENSSSCG00000005105	<i>MRPL46</i>	-2.11	2.51E-09	23.51	103.95
ENSSSCG00000010144	<i>ACTN2</i>	-2.11	1.19E-07	0.69	2.98
ENSSSCG00000012269	<i>CDK16</i>	-2.11	1.68E-07	2.06	8.82
ENSSSCG00000013879	<i>SLC27A1</i>	-2.11	6.27E-07	0.36	1.63
ENSSSCG00000023991	<i>RIT1</i>	-2.11	8.82E-07	1.30	5.89
ENSSSCG00000027046		-2.11	2.85E-05	0.20	0.89
ENSSSCG00000028227	<i>RPN2</i>	-2.11	1.86E-08	12.62	51.74
ENSSSCG00000035336		-2.11	1.24E-06	0.35	1.63
ENSSSCG00000000034	<i>TTLL12</i>	-2.10	5.19E-08	2.11	9.28
ENSSSCG00000001765	<i>ADAMTS7</i>	-2.10	7.42E-07	3.02	12.45
ENSSSCG00000005320	<i>RGP1</i>	-2.10	3.00E-10	3.84	16.19
ENSSSCG00000007160	<i>DDRKG1</i>	-2.10	6.82E-09	2.10	8.91
ENSSSCG00000008247	<i>SUCLG1</i>	-2.10	2.07E-10	12.25	52.59
ENSSSCG00000009848		-2.10	4.31E-09	1.68	7.18
ENSSSCG00000014779		-2.10	9.30E-06	0.36	1.48
ENSSSCG00000016743	<i>OGDH</i>	-2.10	2.59E-06	0.82	3.55
ENSSSCG00000022955	<i>POLR2B</i>	-2.10	1.06E-09	4.68	20.08
ENSSSCG00000024578	<i>PHLDB1</i>	-2.10	4.96E-08	2.14	9.32
ENSSSCG00000034518	<i>TOR1A</i>	-2.10	5.13E-10	18.28	78.22
ENSSSCG00000058877	<i>RNF185</i>	-2.10	6.69E-10	7.15	30.80
ENSSSCG00000005918	<i>DGAT1</i>	-2.09	5.70E-09	1.82	7.71
ENSSSCG00000008562	<i>SLC35F6</i>	-2.09	2.50E-05	0.32	1.43
ENSSSCG00000009298	<i>CDK8</i>	-2.09	1.20E-09	8.26	34.99
ENSSSCG00000012042	<i>ATP5PO</i>	-2.09	2.92E-11	70.43	307.96
ENSSSCG00000012540	<i>SLC25A53</i>	-2.09	1.59E-04	0.30	1.21
ENSSSCG00000016215		-2.09	6.03E-04	0.80	2.95
ENSSSCG00000022525	<i>ARHGEF5</i>	-2.09	4.63E-08	1.70	7.07
ENSSSCG00000024983	<i>RSL24D1</i>	-2.09	1.54E-08	5.16	22.56
ENSSSCG00000030947	<i>ZFAT</i>	-2.09	1.02E-06	0.33	1.49
ENSSSCG00000032452	<i>WFS1</i>	-2.09	1.76E-06	1.26	5.46
ENSSSCG00000033490		-2.09	8.07E-08	11.14	48.73
ENSSSCG00000034863	<i>PARD6A</i>	-2.09	2.39E-06	0.80	3.43
ENSSSCG00000038172	<i>PIP4P1</i>	-2.09	7.32E-09	1.72	7.36
ENSSSCG00000051291		-2.09	5.30E-06	0.25	1.17
ENSSSCG00000052107	<i>TMEM219</i>	-2.09	1.53E-08	5.06	22.22
ENSSSCG00000062925		-2.09	3.39E-06	0.21	0.97
ENSSSCG00000001920	<i>HCN4</i>	-2.08	2.60E-06	1.81	7.49
ENSSSCG00000005782	<i>TM2D3</i>	-2.08	7.83E-08	32.53	134.07
ENSSSCG00000006157	<i>MSTO1</i>	-2.08	3.42E-07	0.64	2.69
ENSSSCG00000007578	<i>MMD2</i>	-2.08	4.57E-08	1.04	4.28

ENSSSCG00000009931	<i>MVK</i>	-2.08	9.99E-10	2.76	11.45
ENSSSCG00000010885	<i>TLR5</i>	-2.08	2.95E-06	0.27	1.19
ENSSSCG00000013030	<i>PRDX5</i>	-2.08	4.13E-11	5.86	24.41
ENSSSCG00000013470	<i>MRPS33</i>	-2.08	5.90E-11	22.04	95.81
ENSSSCG00000014007	<i>FLT4</i>	-2.08	8.10E-08	1.10	4.71
ENSSSCG00000017940	<i>GPS2</i>	-2.08	2.08E-10	9.81	40.97
ENSSSCG00000022161	<i>ZNF251</i>	-2.08	1.71E-05	0.38	1.69
ENSSSCG00000027478	<i>PPCDC</i>	-2.08	1.12E-11	16.78	71.33
ENSSSCG00000036824	<i>AVPI1</i>	-2.08	2.67E-08	3.48	13.97
ENSSSCG00000041692		-2.08	4.79E-09	2.73	11.64
ENSSSCG00000049923		-2.08	6.22E-07	0.47	2.04
ENSSSCG00000051205	<i>P2RX4</i>	-2.08	6.81E-08	0.87	3.90
ENSSSCG00000056534	<i>CT83</i>	-2.08	4.95E-06	0.30	1.31
ENSSSCG00000006821	<i>GSTM3</i>	-2.07	3.15E-08	164.76	711.79
ENSSSCG00000009015	<i>GATB</i>	-2.07	3.59E-08	4.03	16.04
ENSSSCG00000012249	<i>CXorf38</i>	-2.07	7.37E-07	2.25	8.59
ENSSSCG00000013446	<i>SCAMP4</i>	-2.07	1.31E-06	0.67	2.77
ENSSSCG00000014285	<i>SEPTIN8</i>	-2.07	4.63E-12	9.19	38.67
ENSSSCG00000017328	<i>ARHGAP27</i>	-2.07	4.65E-08	3.91	15.69
ENSSSCG00000033627	<i>YIPF3</i>	-2.07	2.37E-08	1.22	5.11
ENSSSCG00000040109	<i>TNNI3K</i>	-2.07	2.19E-08	0.84	3.58
ENSSSCG00000042572	<i>IMP3</i>	-2.07	5.93E-11	24.93	104.56
ENSSSCG00000058475	<i>OPA3</i>	-2.07	6.27E-09	1.66	6.92
ENSSSCG00000000148		-2.06	1.39E-06	0.62	2.55
ENSSSCG00000004554	<i>PCLAF</i>	-2.06	1.09E-04	1.38	4.91
ENSSSCG00000013436	<i>UQCR11</i>	-2.06	1.59E-09	3.90	16.14
ENSSSCG00000017106	<i>MED10</i>	-2.06	5.51E-10	6.64	28.26
ENSSSCG00000024136	<i>AMPH</i>	-2.06	3.04E-05	0.37	1.59
ENSSSCG00000024293	<i>TMEM178A</i>	-2.06	1.05E-07	1.40	6.05
ENSSSCG00000032932	<i>MSRB1</i>	-2.06	2.53E-07	0.45	1.92
ENSSSCG00000033479	<i>NEUROG2</i>	-2.06	2.69E-05	0.66	2.64
ENSSSCG00000037670	<i>TMEM164</i>	-2.06	9.10E-10	3.44	14.48
ENSSSCG00000060759		-2.06	1.28E-04	0.35	1.34
ENSSSCG00000000807	<i>SLC38A1</i>	-2.05	1.52E-08	1.71	7.36
ENSSSCG00000009786	<i>HIP1R</i>	-2.05	1.52E-09	6.28	25.72
ENSSSCG00000010960	<i>SLC28A3</i>	-2.05	2.70E-07	6.77	31.43
ENSSSCG00000011286	<i>KLHL40</i>	-2.05	5.49E-05	0.48	1.91
ENSSSCG00000012965	<i>DRAP1</i>	-2.05	6.13E-07	23.32	87.91
ENSSSCG00000013753	<i>IER2</i>	-2.05	4.75E-06	1.74	7.08
ENSSSCG00000015107	<i>VPS11</i>	-2.05	8.88E-10	3.29	13.41
ENSSSCG00000017219	<i>HID1</i>	-2.05	1.52E-05	0.34	1.51
ENSSSCG00000022773		-2.05	8.36E-11	5.19	22.10
ENSSSCG00000026248		-2.05	2.78E-07	1.97	7.70
ENSSSCG00000028020	<i>MRPS9</i>	-2.05	1.73E-10	17.80	72.40
ENSSSCG00000034308	<i>LRMDA</i>	-2.05	1.07E-10	7.13	29.46
ENSSSCG00000038954	<i>PLIN3</i>	-2.05	1.05E-07	1.17	4.63
ENSSSCG00000050591		-2.05	4.35E-06	0.72	2.79
ENSSSCG00000055268	<i>RIMKLA</i>	-2.05	5.65E-08	15.14	61.46
ENSSSCG00000000190	<i>TUBA1B</i>	-2.04	5.95E-10	43.01	177.68
ENSSSCG00000000433	<i>B4GALNT1</i>	-2.04	2.41E-06	0.63	2.65

ENSSSCG00000002530	<i>CINP</i>	-2.04	4.24E-08	3.25	13.13
ENSSSCG00000006156	<i>TPD52</i>	-2.04	5.83E-08	1.53	6.18
ENSSSCG00000006959	<i>ZNF696</i>	-2.04	3.04E-07	1.09	4.25
ENSSSCG00000007704	<i>NSUN5</i>	-2.04	2.30E-06	3.78	16.56
ENSSSCG00000009963	<i>TPST2</i>	-2.04	6.87E-06	0.51	1.86
ENSSSCG00000010926	<i>SYT2</i>	-2.04	8.24E-09	3.84	16.30
ENSSSCG00000012973	<i>MUS81</i>	-2.04	1.60E-06	3.40	13.27
ENSSSCG00000015772	<i>AGA</i>	-2.04	1.45E-09	3.04	12.56
ENSSSCG00000029494	<i>RBBP9</i>	-2.04	9.93E-08	1.66	6.82
ENSSSCG00000037475		-2.04	5.06E-05	0.56	2.02
ENSSSCG00000038718	<i>ADRM1</i>	-2.04	6.64E-05	3.80	17.97
ENSSSCG00000051740		-2.04	8.07E-04	0.43	1.35
ENSSSCG00000054251		-2.04	8.57E-06	0.77	2.90
ENSSSCG00000000022	<i>RTL6</i>	-2.03	4.54E-07	0.58	2.37
ENSSSCG00000005719	<i>RAPGEF1</i>	-2.03	6.45E-05	2.24	10.13
ENSSSCG00000007317	<i>DLGAP4</i>	-2.03	8.69E-09	36.43	146.95
ENSSSCG00000007324	<i>SOGA1</i>	-2.03	2.73E-05	0.36	1.37
ENSSSCG00000010835	<i>AIDA</i>	-2.03	7.06E-12	23.11	93.21
ENSSSCG00000013363	<i>LDHC</i>	-2.03	8.38E-07	57.84	224.27
ENSSSCG00000016451		-2.03	5.67E-08	0.84	3.44
ENSSSCG00000037985	<i>MTRES1</i>	-2.03	1.05E-11	40.68	167.77
ENSSSCG00000040433		-2.03	1.55E-07	0.99	4.03
ENSSSCG00000045290		-2.03	5.16E-09	1.64	6.72
ENSSSCG00000054578	<i>RPS14</i>	-2.03	1.95E-11	12.38	50.36
ENSSSCG00000055769	<i>MSANTD3</i>	-2.03	6.77E-11	9.08	36.83
ENSSSCG00000003572	<i>SYTL1</i>	-2.02	3.67E-05	0.35	1.26
ENSSSCG00000004774	<i>IVD</i>	-2.02	7.30E-10	2.32	9.46
ENSSSCG00000005648	<i>SLC27A4</i>	-2.02	8.39E-05	0.38	1.54
ENSSSCG00000006543	<i>ADAR</i>	-2.02	3.92E-07	3.22	13.41
ENSSSCG00000008006	<i>FBXL16</i>	-2.02	1.45E-07	0.68	2.74
ENSSSCG00000009672	<i>SCARA5</i>	-2.02	3.18E-09	3.06	12.19
ENSSSCG00000010163	<i>KCNK1</i>	-2.02	1.31E-06	0.93	3.82
ENSSSCG00000012049	<i>KCNE1</i>	-2.02	9.67E-05	0.37	1.39
ENSSSCG00000013012	<i>SNX15</i>	-2.02	1.13E-04	0.61	2.06
ENSSSCG00000013471		-2.02	1.53E-12	38.28	155.60
ENSSSCG00000014305	<i>SAR1B</i>	-2.02	4.37E-09	17.58	71.62
ENSSSCG00000014395	<i>PCDH12</i>	-2.02	3.34E-07	4.57	21.56
ENSSSCG00000017917	<i>MINK1</i>	-2.02	2.14E-06	0.58	2.54
ENSSSCG00000022536	<i>SLC37A2</i>	-2.02	2.17E-09	4.55	18.41
ENSSSCG00000023140	<i>EIF2B4</i>	-2.02	4.27E-09	2.34	9.30
ENSSSCG00000025323	<i>SF3B3</i>	-2.02	2.03E-09	18.50	73.11
ENSSSCG00000030425	<i>SPHK2</i>	-2.02	8.16E-06	0.30	1.27
ENSSSCG00000004584	<i>GCNT3</i>	-2.01	3.99E-09	6.21	24.93
ENSSSCG00000009896	<i>BICDL1</i>	-2.01	1.19E-04	0.59	2.48
ENSSSCG00000012324	<i>IQSEC2</i>	-2.01	7.76E-04	0.34	1.13
ENSSSCG00000012590	<i>LHFPL1</i>	-2.01	1.97E-10	15.56	61.20
ENSSSCG00000012857	<i>CARS1</i>	-2.01	6.90E-06	0.66	2.30
ENSSSCG00000016406	<i>ESYT2</i>	-2.01	1.72E-08	4.73	19.03
ENSSSCG00000029304	<i>STEAP3</i>	-2.01	3.36E-07	1.52	5.77
ENSSSCG00000032495		-2.01	1.62E-08	5.13	20.54

ENSSSCG00000032585	<i>ZNF613</i>	-2.01	5.30E-06	1.24	5.48
ENSSSCG00000032836	<i>TRIM41</i>	-2.01	2.60E-09	2.16	8.82
ENSSSCG00000035297	<i>ISG12(A)</i>	-2.01	9.68E-06	0.31	1.27
ENSSSCG00000037105	<i>EVL</i>	-2.01	2.84E-07	1.58	6.39
ENSSSCG00000038708	<i>MTHFS</i>	-2.01	1.06E-08	1.75	7.22
ENSSSCG00000038733	<i>SIAH3</i>	-2.01	3.72E-07	2.31	9.15
ENSSSCG00000051966		-2.01	3.11E-05	0.24	0.97
ENSSSCG00000008226	<i>POLR1A</i>	-2.00	8.13E-08	1.64	6.33
ENSSSCG00000013248	<i>LRP4</i>	-2.00	3.77E-08	2.42	9.95
ENSSSCG00000017204	<i>ITGB4</i>	-2.00	2.99E-03	0.36	1.34
ENSSSCG00000017264	<i>AMZ2</i>	-2.00	6.83E-09	13.73	55.72
ENSSSCG00000027041		-2.00	5.57E-11	93.45	372.79
ENSSSCG00000008175	<i>CHST10</i>	-2.00	1.59E-08	12.71	51.37

Table S3. Differentially expressed genes associated with oocytes, cell cycle and meiosis in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_Mix	Mean_GV
Upregulated DEGs					
ENSSSCG00000048002	<i>OOSP3</i>	3.21	8.98E-14	3708.77	408.04
ENSSSCG00000012491	<i>CENPI</i>	2.88	3.32E-12	261.32	37.49
ENSSSCG00000016826	<i>RAD1</i>	2.84	7.22E-12	212.03	30.58
ENSSSCG00000009009	<i>MND1</i>	2.77	1.70E-12	344.80	52.14
ENSSSCG00000010122	<i>CDC45</i>	2.70	3.53E-10	98.44	14.67
ENSSSCG00000016092	<i>SGO2</i>	2.70	3.77E-12	831.84	135.13
ENSSSCG00000024663	<i>SPICE1</i>	2.70	5.13E-13	306.31	47.30
ENSSSCG00000010644	<i>DCLRE1A</i>	2.66	5.13E-11	1801.07	300.34
ENSSSCG00000036256	<i>MAD2L1</i>	2.65	3.18E-11	2423.60	415.74
ENSSSCG00000056538	<i>PCNA</i>	2.55	3.09E-13	28316.23	4915.53
ENSSSCG00000029326	<i>CCNB1</i>	2.52	3.35E-13	5119.91	909.51
ENSSSCG00000025120	<i>BORA</i>	2.50	2.22E-13	188.87	33.52
ENSSSCG00000004391	<i>CEP57L1</i>	2.49	1.18E-10	913.16	175.40
ENSSSCG00000009670	<i>ESCO2</i>	2.46	1.20E-11	6373.36	1192.64
ENSSSCG00000039560	<i>OOSP2</i>	2.39	1.01E-08	1430.52	307.88
ENSSSCG00000002020	<i>NGDN</i>	2.38	2.84E-11	3286.83	664.08
ENSSSCG00000039216	<i>CENPN</i>	2.35	1.55E-10	185.79	38.75
ENSSSCG00000030671	<i>DAZL</i>	2.28	1.78E-07	13.10	3.14
ENSSSCG00000014151	<i>CETN3</i>	2.27	2.16E-10	388.55	84.86
ENSSSCG00000016835	<i>SKP2</i>	2.27	9.69E-13	240.09	49.46
ENSSSCG00000015215	<i>CHEK1</i>	2.23	7.57E-12	357.23	75.91
ENSSSCG00000004403	<i>CDC40</i>	2.21	6.15E-13	264.26	57.90
ENSSSCG00000011207	<i>SGO1</i>	2.19	5.41E-12	482.67	107.23
ENSSSCG00000020805	<i>FOXR2</i>	2.19	9.17E-06	1.76	0.37
ENSSSCG00000011112	<i>CDC123</i>	2.16	3.39E-11	421.42	93.19
ENSSSCG00000002410	<i>CEP128</i>	2.15	1.49E-12	78.52	17.77
ENSSSCG00000053306	<i>KNSTRN</i>	2.14	2.15E-10	992.32	237.67
ENSSSCG00000023296	<i>CENPE</i>	2.13	1.29E-12	851.27	196.05
ENSSSCG00000004469	<i>LCA5</i>	2.12	1.65E-11	194.71	45.63
ENSSSCG00000010243	<i>CCAR1</i>	2.11	5.84E-13	442.88	101.90
ENSSSCG00000014084	<i>POC5</i>	2.10	2.33E-13	950.55	222.14
ENSSSCG00000000926	<i>CEP290</i>	2.03	4.11E-13	760.60	185.90
ENSSSCG00000003949	<i>CDC20</i>	2.03	6.07E-12	236.97	58.12
ENSSSCG00000017493	<i>ZBPB2</i>	2.03	3.11E-10	37.26	9.23
ENSSSCG00000038181	<i>CCNT1</i>	2.03	2.03E-10	88.26	21.46
ENSSSCG00000014969	<i>CEP57</i>	2.01	2.51E-13	1469.17	363.61
Downregulated DEGs					
ENSSSCG00000017143	<i>CEP131</i>	-6.23	1.48E-13	0.48	32.68
ENSSSCG00000000739	<i>FOXM1</i>	-4.70	4.25E-10	0.46	11.23
ENSSSCG00000008824	<i>ZAR1</i>	-4.50	1.17E-14	7.26	162.79
ENSSSCG00000021467	<i>EME2</i>	-4.46	1.79E-07	0.19	3.85
ENSSSCG00000007691	<i>ZP3</i>	-4.34	1.03E-13	95.54	1863.30

ENSSSCG00000007151	<i>CDC25B</i>	-4.11	1.07E-11	7.82	127.36
ENSSSCG00000017983	<i>PER1</i>	-3.81	1.03E-10	1.01	14.61
ENSSSCG00000038460	<i>FOXF1</i>	-3.53	4.59E-07	0.07	0.86
ENSSSCG00000014033	<i>RMND5B</i>	-3.50	1.81E-11	0.50	5.80
ENSSSCG00000008321	<i>FIGLA</i>	-3.19	4.66E-13	4.30	38.32
ENSSSCG00000033177	<i>CDC26</i>	-3.19	1.69E-12	9.12	83.95
ENSSSCG00000021494	<i>CDC25A</i>	-3.16	2.33E-11	5.40	46.99
ENSSSCG00000013425	<i>MISP</i>	-3.13	8.16E-10	0.44	4.05
ENSSSCG00000024977	<i>NOBOX</i>	-3.00	4.26E-10	3.32	27.11
ENSSSCG00000033613	<i>FOXS1</i>	-2.51	3.53E-07	0.31	1.79
ENSSSCG00000038766	<i>MAD1L1</i>	-2.31	1.54E-06	0.41	1.94
ENSSSCG00000017125	<i>FOXK2</i>	-2.21	6.54E-11	11.23	52.45

Table S4. Differentially expressed genes associated with mitochondria and oxidative phosphorylation in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_Mix	Mean_GV
Upregulated DEGs					
ENSSSCG00000025190	<i>COQ10A</i>	2.65	3.05E-07	2.55	0.41
ENSSSCG00000016076	<i>COQ10B</i>	2.17	1.17E-09	532.02	122.62
ENSSSCG00000016232	<i>MRPL44</i>	2.15	1.59E-12	82.18	18.53
ENSSSCG00000001968	<i>NUBPL</i>	2.00	2.72E-07	48.87	14.22
Downregulated DEGs					
ENSSSCG00000031420	<i>SCO2</i>	-6.84	2.74E-12	0.02	5.07
ENSSSCG00000034876	<i>PET100</i>	-6.10	1.34E-11	0.72	32.71
ENSSSCG00000032166	<i>ATP5PD</i>	-5.79	1.65E-15	4.03	228.62
ENSSSCG00000028045	<i>MUL1</i>	-5.68	4.27E-10	0.05	3.99
ENSSSCG00000007984	<i>MRPL28</i>	-5.64	1.46E-12	0.75	32.97
ENSSSCG00000013778	<i>NDUFB7</i>	-5.56	1.33E-15	1.44	68.64
ENSSSCG00000041220	<i>NDUFA7</i>	-5.53	5.35E-15	4.72	211.96
ENSSSCG00000037455	<i>NDUFS8</i>	-5.45	7.31E-14	0.96	39.46
ENSSSCG00000023018	<i>MCCD1</i>	-5.44	1.68E-09	0.10	5.05
ENSSSCG00000033148	<i>MRPL12</i>	-5.39	1.29E-12	0.20	8.84
ENSSSCG00000001692	<i>MRPS18A</i>	-5.35	2.89E-14	1.01	41.19
ENSSSCG00000005759	<i>MRPS2</i>	-5.20	1.53E-07	0.08	3.59
ENSSSCG00000024144	<i>NDUFS7</i>	-5.20	3.38E-12	0.57	18.14
ENSSSCG00000003229	<i>ETFB</i>	-4.85	4.32E-12	0.85	22.38
ENSSSCG00000010795	<i>NDUFAB1</i>	-4.79	3.77E-13	2.38	67.99
ENSSSCG00000029050	<i>MRPL55</i>	-4.78	2.71E-13	1.52	39.25
ENSSSCG00000032083	<i>MRPL37</i>	-4.76	1.66E-15	41.20	1093.86
ENSSSCG00000037343	<i>MRPS11</i>	-4.76	6.06E-13	0.90	22.79
ENSSSCG00000012896	<i>NDUFV1</i>	-4.75	1.02E-08	0.66	11.71
ENSSSCG00000005528	<i>NDUFA8</i>	-4.63	1.44E-14	9.37	239.97
ENSSSCG00000037151	<i>MIEF2</i>	-4.52	8.26E-08	0.11	1.88
ENSSSCG00000013896	<i>MPV17L2</i>	-4.49	1.34E-09	0.22	4.41
ENSSSCG00000017519	<i>MRPL10</i>	-4.01	1.63E-10	0.74	10.29
ENSSSCG00000023783	<i>MRPL27</i>	-3.95	4.33E-13	0.97	15.17
ENSSSCG00000056361	<i>COX14</i>	-3.93	9.30E-12	0.84	12.85
ENSSSCG00000034487	<i>NDUFB11</i>	-3.87	2.16E-14	5.06	75.16
ENSSSCG00000036722	<i>MALSU1</i>	-3.86	3.79E-13	3.33	47.90
ENSSSCG00000039659	<i>TIMM10</i>	-3.82	1.94E-11	0.57	7.43
ENSSSCG00000003089	<i>TOMM40</i>	-3.79	6.17E-06	0.16	2.36
ENSSSCG00000056961	<i>NDUFA13</i>	-3.78	1.65E-09	2.65	27.47
ENSSSCG00000016100	<i>NDUFB3</i>	-3.76	3.16E-10	3.22	40.73
ENSSSCG00000028712	<i>ATPAF2</i>	-3.74	9.20E-13	1.41	18.58
ENSSSCG00000034318	<i>MRPS25</i>	-3.72	4.33E-14	54.62	714.80
ENSSSCG00000058604	<i>NDUFC1</i>	-3.72	7.68E-14	8.84	117.82
ENSSSCG00000037431	<i>TIMM17A</i>	-3.70	9.29E-14	1.76	23.20
ENSSSCG00000010158	<i>TOMM20</i>	-3.69	2.16E-13	7.37	98.94

ENSSSCG00000037792	<i>COX7A1</i>	-3.61	3.02E-13	2.99	36.34
ENSSSCG00000016127	<i>NDUFS1</i>	-3.55	8.66E-13	2.46	28.10
ENSSSCG00000024693	<i>MRPL17</i>	-3.53	2.97E-13	5.15	59.70
ENSSSCG00000014371	<i>NDUFA2</i>	-3.52	3.44E-11	3.25	36.62
ENSSSCG00000000719	<i>NDUFA9</i>	-3.46	7.56E-13	5.46	62.73
ENSSSCG00000010929	<i>CYB5R1</i>	-3.44	1.30E-07	0.36	3.94
ENSSSCG00000021991	<i>NDUFV3</i>	-3.44	1.98E-14	6.24	67.22
ENSSSCG00000035134	<i>MRPS7</i>	-3.43	2.79E-13	2.81	30.63
ENSSSCG00000001696	<i>MRPL14</i>	-3.35	9.88E-14	8.92	90.91
ENSSSCG00000038440	<i>GTPBP3</i>	-3.30	4.94E-08	0.21	2.05
ENSSSCG00000006354	<i>TOMM40L</i>	-3.22	4.33E-08	0.44	3.53
ENSSSCG00000006469	<i>MRPL24</i>	-3.21	1.82E-14	3.62	33.73
ENSSSCG00000038964	<i>COX19</i>	-3.15	1.77E-10	0.96	8.03
ENSSSCG00000028343	<i>MRPL9</i>	-3.09	3.09E-14	8.43	71.02
ENSSSCG00000024242	<i>MRPL54</i>	-3.08	1.16E-09	2.50	19.62
ENSSSCG00000037869	<i>NDUFA5</i>	-3.08	1.60E-10	4.34	35.12
ENSSSCG00000052504	<i>MRPL41</i>	-3.04	2.28E-12	3.70	30.64
ENSSSCG00000012248	<i>MPC1L</i>	-3.03	1.03E-08	0.24	2.07
ENSSSCG00000026612	<i>TIMM50</i>	-2.95	1.06E-12	3.78	28.80
ENSSSCG00000025107	<i>MIX23</i>	-2.93	3.33E-13	32.29	248.25
ENSSSCG00000012494	<i>TIMM8A</i>	-2.90	2.39E-07	0.48	2.94
ENSSSCG00000008183	<i>MRPL30</i>	-2.88	1.09E-11	6.36	46.56
ENSSSCG00000007076	<i>NDUFAF5</i>	-2.85	1.21E-11	3.90	28.73
ENSSSCG00000039662	<i>MRPL51</i>	-2.83	3.09E-13	8.29	59.38
ENSSSCG00000017690	<i>MRM1</i>	-2.79	3.29E-10	1.31	9.02
ENSSSCG00000031860	<i>MRPS12</i>	-2.79	3.02E-07	0.58	3.53
ENSSSCG00000002040	<i>MRPL52</i>	-2.76	5.90E-12	8.82	58.91
ENSSSCG00000017803	<i>TIMM22</i>	-2.74	8.26E-11	9.13	62.82
ENSSSCG00000027072	<i>ATP5IF1</i>	-2.71	7.33E-12	34.40	230.92
ENSSSCG00000027128	<i>LONP1</i>	-2.68	8.16E-12	4.81	30.70
ENSSSCG00000038399	<i>ATP5PF</i>	-2.68	4.60E-09	35.19	209.28
ENSSSCG00000002972	<i>SARS2</i>	-2.66	9.62E-09	0.54	3.61
ENSSSCG00000014830	<i>COA4</i>	-2.56	5.44E-12	15.72	91.77
ENSSSCG00000034647	<i>MRPS15</i>	-2.53	4.73E-11	5.26	30.12
ENSSSCG00000023263	<i>MRPL45</i>	-2.52	1.15E-11	8.64	50.10
ENSSSCG00000036944	<i>TACO1</i>	-2.51	8.19E-11	5.08	28.20
ENSSSCG00000029034	<i>COX4I1</i>	-2.50	1.95E-11	14.31	78.89
ENSSSCG00000004480	<i>COX7A2</i>	-2.47	8.47E-12	25.76	141.30
ENSSSCG00000040154	<i>MRPL36</i>	-2.47	1.05E-06	5.04	25.56
ENSSSCG00000006523	<i>MTX1</i>	-2.42	6.99E-10	1.13	6.01
ENSSSCG00000004487	<i>MTO1</i>	-2.40	1.40E-09	2.39	12.02
ENSSSCG00000033766	<i>ETFBKMT</i>	-2.38	5.46E-10	1.82	9.29
ENSSSCG00000038079	<i>CLPP</i>	-2.38	2.40E-09	4.96	24.90
ENSSSCG00000011356	<i>UQCRC1</i>	-2.35	1.90E-10	7.12	35.21
ENSSSCG00000061899	<i>IMMP2L</i>	-2.30	9.20E-11	15.20	77.93
ENSSSCG00000027974	<i>MRPL50</i>	-2.29	1.72E-10	13.48	65.84
ENSSSCG00000005646	<i>COQ4</i>	-2.29	1.08E-07	0.87	4.01
ENSSSCG00000011763	<i>MRPL47</i>	-2.26	6.35E-11	28.12	141.05
ENSSSCG00000022757	<i>TIMM13</i>	-2.25	3.96E-10	25.50	116.82
ENSSSCG00000007383	<i>TOMM34</i>	-2.24	2.97E-12	28.10	130.60

ENSSSCG00000016349	<i>NDUFA10</i>	-2.24	6.20E-10	3.85	18.40
ENSSSCG00000026981	<i>MRPS6</i>	-2.17	8.83E-12	17.04	77.47
ENSSSCG00000013524	<i>MICOS13</i>	-2.15	8.01E-10	4.69	21.31
ENSSSCG00000021007	<i>MRPL19</i>	-2.12	1.26E-11	11.02	48.32
ENSSSCG00000005105	<i>MRPL46</i>	-2.11	2.51E-09	23.51	103.95
ENSSSCG00000006157	<i>MSTO1</i>	-2.08	3.42E-07	0.64	2.69
ENSSSCG00000013470	<i>MRPS33</i>	-2.08	5.90E-11	22.04	95.81
ENSSSCG00000058475	<i>OPA3</i>	-2.07	6.27E-09	1.66	6.92
ENSSSCG00000013436	<i>UQCR11</i>	-2.06	1.59E-09	3.90	16.14
ENSSSCG00000028020	<i>MRPS9</i>	-2.05	1.73E-10	17.80	72.40
ENSSSCG00000037985	<i>MTRES1</i>	-2.03	1.05E-11	40.68	167.77

Table S5. Differentially expressed genes associated with steroidogenesis in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_Mix	Mean_GV
Upregulated DEGs					
ENSSSCG00000001862	<i>ETFA</i>	2.27	1.18E-11	3714.70	793.99
ENSSSCG00000011197	<i>OXNAD1</i>	2.16	4.07E-09	100.51	23.41
ENSSSCG00000023320	<i>CYP3A22</i>	2.04	2.46E-05	304.00	95.90
Downregulated DEGs					
ENSSSCG00000033788	<i>OXLD1</i>	-5.81	1.06E-11	0.19	10.73
ENSSSCG00000035147	<i>HSD17B1</i>	-5.79	1.10E-10	0.06	3.71
ENSSSCG00000055768	<i>SRA1</i>	-4.28	1.01E-10	0.61	10.84
ENSSSCG00000017227	<i>FDXR</i>	-3.90	2.78E-09	0.12	1.92
ENSSSCG00000012758	<i>NSDHL</i>	-3.89	2.49E-14	12.10	178.76
ENSSSCG00000021181	<i>DHCR7</i>	-3.87	5.05E-09	0.19	2.71
ENSSSCG00000038221	<i>HSD17B2</i>	-3.61	5.29E-07	0.12	1.35
ENSSSCG00000062738	<i>FDX2</i>	-3.37	7.19E-07	0.69	5.56
ENSSSCG00000009348	<i>STARD13</i>	-2.56	6.30E-11	1.53	9.09
ENSSSCG00000001476	<i>HSD17B8</i>	-2.50	1.38E-07	0.67	3.57
ENSSSCG00000006337	<i>HSD17B7</i>	-2.41	1.54E-11	112.60	619.94
ENSSSCG00000008521	<i>SRD5A2</i>	-2.26	7.33E-04	0.26	0.85
ENSSSCG00000017499	<i>STARD3</i>	-2.12	6.01E-06	0.54	2.12

Table S6. Differentially expressed genes associated with antioxidant response in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_Mix	Mean_GV
Upregulated DEGs					
ENSSSCG00000013302	<i>CAT</i>	2.22	1.81E-09	434.71	93.97
ENSSSCG00000021184	<i>OSGIN2</i>	2.13	2.05E-09	11.69	2.65
ENSSSCG00000009901	<i>SIRT4</i>	2.08	1.51E-09	18.21	4.39
ENSSSCG00000006056	<i>GPX1</i>	2.02	5.07E-08	28.93	7.51
ENSSSCG00000003831	<i>OMA1</i>	2.00	4.03E-09	892.23	232.27
Downregulated DEGs					
ENSSSCG00000000973	<i>SELENOO</i>	-6.49	5.32E-10	0.04	5.43
ENSSSCG00000028720	<i>NXN</i>	-5.64	7.49E-11	0.41	17.01
ENSSSCG00000003554	<i>SELENON</i>	-5.61	1.55E-10	0.28	11.43
ENSSSCG00000013496	<i>SIRT6</i>	-4.88	3.87E-09	0.10	3.39
ENSSSCG00000017755	<i>NOS2</i>	-4.13	6.41E-07	0.13	2.03
ENSSSCG00000024305	<i>MT3</i>	-4.12	5.84E-12	1.94	33.07
ENSSSCG00000026554	<i>PRXL2B</i>	-3.95	1.03E-07	0.19	2.99
ENSSSCG00000010682	<i>PRDX3</i>	-3.88	5.35E-15	6.80	100.51
ENSSSCG000000031129	<i>SIRT5</i>	-3.82	9.84E-11	0.41	5.72
ENSSSCG00000007308	<i>ROMO1</i>	-3.66	1.62E-11	8.18	96.39
ENSSSCG00000016450	<i>NOS3</i>	-3.55	3.18E-07	0.11	1.44
ENSSSCG000000035615	<i>GSTK1</i>	-3.41	2.95E-13	1.19	12.71
ENSSSCG00000010759	<i>GLRX3</i>	-3.16	5.33E-14	6.27	56.06
ENSSSCG000000004826	<i>SELENOS</i>	-3.02	1.32E-12	6.35	50.83
ENSSSCG00000024052	<i>GPX4</i>	-2.98	9.17E-11	2.13	16.42
ENSSSCG000000003914	<i>PRDX1</i>	-2.71	5.08E-12	61.68	406.66
ENSSSCG000000000144	<i>TXN2</i>	-2.52	1.58E-10	8.18	46.40
ENSSSCG00000022714	<i>OSER1</i>	-2.51	7.39E-11	45.15	258.85
ENSSSCG00000001213	<i>GPX6</i>	-2.50	3.17E-06	0.34	1.84
ENSSSCG00000026106	<i>TXNDC15</i>	-2.50	2.89E-05	0.25	1.20
ENSSSCG000000008012	<i>HAGH</i>	-2.45	3.14E-10	9.42	49.94
ENSSSCG000000034131	<i>TXNDC5</i>	-2.38	9.91E-10	3.36	18.14
ENSSSCG000000029781	<i>SELENOM</i>	-2.31	9.95E-06	0.28	1.25
ENSSSCG000000034695	<i>SIRT7</i>	-2.20	1.02E-07	2.81	12.40
ENSSSCG000000013030	<i>PRDX5</i>	-2.08	4.13E-11	5.86	24.41
ENSSSCG000000006821	<i>GSTM3</i>	-2.07	3.15E-08	164.76	711.79

Table S7. Differentially expressed genes associated with endoplasmic reticulum stress in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_Mix	Mean_GV
Upregulated DEGs					
ENSSSCG00000012252	<i>DDX3X</i>	3.00	7.12E-11	354.44	43.49
ENSSSCG00000032198	<i>SPOPL</i>	2.35	1.35E-09	58.43	11.62
ENSSSCG00000012234	<i>SRPX</i>	2.30	5.96E-12	6261.54	1307.72
ENSSSCG00000015095	<i>UBE4A</i>	2.28	2.28E-12	173.12	35.78
ENSSSCG00000017671	<i>RNFT1</i>	2.25	2.09E-10	133.77	27.62
ENSSSCG00000011214	<i>NGLY1</i>	2.24	4.22E-13	2038.44	428.14
ENSSSCG00000015659	<i>YOD1</i>	2.18	1.31E-10	56.34	12.50
ENSSSCG00000011710	<i>EIF2A</i>	2.16	1.85E-12	286.06	65.08
ENSSSCG00000007955	<i>CLUAP1</i>	2.04	1.63E-11	125.91	30.41
Downregulated DEGs					
ENSSSCG00000007983	<i>PDIA2</i>	-5.95	8.76E-12	0.23	12.59
ENSSSCG00000023121	<i>ABCA7</i>	-4.95	3.70E-09	0.04	1.79
ENSSSCG00000034207	<i>CEBPB</i>	-4.70	4.30E-09	0.08	2.38
ENSSSCG00000024823	<i>RCN3</i>	-4.59	1.81E-09	0.09	2.32
ENSSSCG00000017524	<i>CDK5RAP3</i>	-4.47	1.09E-10	0.61	12.27
ENSSSCG00000023796	<i>RNF121</i>	-3.65	5.84E-13	1.45	18.16
ENSSSCG00000024235	<i>NPLOC4</i>	-3.62	4.20E-10	0.92	11.95
ENSSSCG00000011889	<i>GSK3B</i>	-3.55	1.29E-13	3.52	40.23
ENSSSCG00000029438	<i>SESN2</i>	-3.51	7.64E-10	0.32	3.66
ENSSSCG00000004317	<i>UBE2J1</i>	-3.49	9.09E-10	0.60	6.32
ENSSSCG00000038938	<i>FIS1</i>	-3.35	1.08E-12	1.72	17.26
ENSSSCG00000003385	<i>PARK7</i>	-3.30	2.24E-12	22.21	213.86
ENSSSCG00000003705	<i>CABLES1</i>	-3.08	5.40E-11	1.09	9.00
ENSSSCG00000023110	<i>UBXN1</i>	-2.97	7.22E-12	1.70	13.47
ENSSSCG00000056684	<i>DERL1</i>	-2.85	1.64E-12	8.21	58.07
ENSSSCG00000008268	<i>AUP1</i>	-2.78	2.55E-09	1.19	8.16
ENSSSCG00000003867	<i>TXNDC12</i>	-2.67	1.93E-09	0.91	5.65
ENSSSCG00000028266	<i>TMUB1</i>	-2.65	2.72E-10	8.15	49.21
ENSSSCG00000003334	<i>UBE2J2</i>	-2.56	1.93E-10	7.39	45.29
ENSSSCG00000039626	<i>DERL3</i>	-2.54	8.47E-11	3.04	17.12
ENSSSCG00000012772	<i>BCAP31</i>	-2.50	4.69E-12	11.61	64.12
ENSSSCG00000038805	<i>FBXO17</i>	-2.46	1.36E-07	2.72	14.09
ENSSSCG00000013510	<i>UBXN6</i>	-2.41	5.73E-12	4.23	22.49
ENSSSCG00000013467	<i>SGTA</i>	-2.28	6.98E-11	5.22	24.83
ENSSSCG00000016217	<i>DNAJB2</i>	-2.25	1.97E-08	1.89	9.12
ENSSSCG00000000769	<i>BID</i>	-2.18	1.75E-06	1.27	5.33
ENSSSCG00000012825	<i>IKBKG</i>	-2.16	1.21E-06	0.42	1.96
ENSSSCG00000007160	<i>DDRGK1</i>	-2.10	6.82E-09	2.10	8.91
ENSSSCG00000058877	<i>RNF185</i>	-2.10	6.69E-10	7.15	30.80
ENSSSCG00000032452	<i>WFS1</i>	-2.09	1.76E-06	1.26	5.46

Table S8. Differentially expressed genes associated with ribosomal structure and function in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_Mix	Mean_GV
Downregulated DEGs					
ENSSSCG00000024974	<i>RPL13</i>	-5.61	3.33E-11	0.62	28.74
ENSSSCG00000005920	<i>BOP1</i>	-5.12	9.18E-10	0.21	7.86
ENSSSCG00000012842	<i>RPLP2</i>	-4.77	1.02E-14	2.61	68.76
ENSSSCG00000037061	<i>RRP1</i>	-4.76	2.09E-08	0.08	2.14
ENSSSCG00000035080	<i>RPL23A</i>	-4.66	2.37E-09	7.08	109.29
ENSSSCG00000009303	<i>RPL21</i>	-4.49	1.66E-15	6.32	140.84
ENSSSCG00000036716	<i>RPL37A</i>	-4.40	2.16E-13	2.97	58.88
ENSSSCG00000033983	<i>RRP7A</i>	-4.30	8.30E-09	0.11	2.18
ENSSSCG00000013664	<i>SHFL</i>	-4.24	9.00E-10	0.23	4.13
ENSSSCG00000009146	<i>RPL34</i>	-4.20	7.06E-11	1.04	17.27
ENSSSCG00000053807	<i>RPS26</i>	-4.18	2.14E-13	1.85	32.11
ENSSSCG00000028850	<i>RPL26</i>	-4.14	4.21E-13	1.35	23.79
ENSSSCG00000036296	<i>RPS25</i>	-4.13	6.46E-13	9.39	158.19
ENSSSCG00000034227	<i>RPL35</i>	-4.08	2.58E-14	2.20	36.83
ENSSSCG00000039130	<i>RPL6</i>	-4.07	5.35E-15	8.76	147.43
ENSSSCG00000001502	<i>RPS18</i>	-3.78	2.06E-14	8.18	109.71
ENSSSCG00000026472	<i>RPL7L1</i>	-3.67	7.68E-14	15.87	212.17
ENSSSCG00000017239	<i>RPL38</i>	-3.50	3.57E-14	3.40	38.89
ENSSSCG00000027573	<i>RPL29</i>	-3.48	3.68E-12	4.65	48.18
ENSSSCG00000023177	<i>RRP9</i>	-3.47	6.97E-10	0.52	5.53
ENSSSCG00000035997	<i>RPL10</i>	-3.37	1.49E-13	8.35	84.51
ENSSSCG00000004002	<i>RPS5</i>	-3.33	2.06E-14	12.20	122.22
ENSSSCG00000003042	<i>RPS19</i>	-3.32	4.63E-08	10.01	73.74
ENSSSCG00000021698	<i>RRP1B</i>	-3.28	5.20E-08	1.21	10.78
ENSSSCG00000030510	<i>FBL</i>	-3.23	6.11E-10	1.25	11.22
ENSSSCG00000033169	<i>RPS15</i>	-3.20	9.05E-11	15.11	127.09
ENSSSCG00000007713	<i>BUD23</i>	-3.12	1.52E-11	11.04	94.12
ENSSSCG00000002375	<i>RPS6KL1</i>	-3.04	4.68E-07	0.27	2.09
ENSSSCG00000020817	<i>RPS16</i>	-3.00	6.06E-13	6.16	48.61
ENSSSCG00000010514	<i>RRP12</i>	-2.96	1.15E-08	0.80	5.99
ENSSSCG00000004177	<i>RPS12</i>	-2.89	4.10E-12	5.17	38.17
ENSSSCG00000011952	<i>RPL24</i>	-2.85	2.74E-12	3.29	23.92
ENSSSCG00000038880	<i>RPL23</i>	-2.80	3.32E-09	4.56	27.95
ENSSSCG00000052671	<i>RPL13A</i>	-2.80	1.74E-12	4.90	33.84
ENSSSCG00000058858	<i>RNASEH2C</i>	-2.80	1.44E-08	2.20	13.49
ENSSSCG00000001656	<i>RRP36</i>	-2.77	3.20E-11	3.84	25.47
ENSSSCG00000052227	<i>RBIS</i>	-2.66	3.12E-10	19.24	117.31
ENSSSCG00000060019	<i>RPS19BP1</i>	-2.66	2.98E-09	1.54	9.53
ENSSSCG00000013381	<i>RPS13</i>	-2.63	1.86E-12	7.41	45.27
ENSSSCG00000006081	<i>RPL30</i>	-2.58	1.52E-12	162.58	979.09
ENSSSCG00000029785	<i>RPS9</i>	-2.54	1.03E-12	9.09	52.83
ENSSSCG00000038507	<i>RPS29</i>	-2.54	2.69E-09	4.69	25.87

ENSSSCG00000035811	<i>RPL32</i>	-2.50	3.72E-12	16.89	94.25
ENSSSCG00000033019	<i>RPL12</i>	-2.48	1.80E-11	4.07	22.48
ENSSSCG00000003930	<i>RPS8</i>	-2.46	3.76E-13	11.72	64.55
ENSSSCG00000005006	<i>RPL36AL</i>	-2.45	1.02E-10	9.92	55.49
ENSSSCG00000024983	<i>RSL24D1</i>	-2.09	1.54E-08	5.16	22.56
ENSSSCG000000055268	<i>RIMKLA</i>	-2.05	5.65E-08	15.14	61.46
ENSSSCG000000054578	<i>RPS14</i>	-2.03	1.95E-11	12.38	50.36

Table S9. Differentially expressed genes associated with cytoskeleton and extracellular matrix in pig MII oocytes + 'Damaged' oocytes (MIX; n=10) versus germinal vesicle stage (GV) oocytes (n=4). (logFC - log2 fold change; FDR - false discovery rate; Mean_MIX - average normalised counts for all MII and 'damaged' oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_GV	Mean_Mix
Upregulated DEGs					
ENSSSCG00000044472	<i>COL19A1</i>	2.56	3.68E-09	8.64	46.14
ENSSSCG00000012597	<i>PLS3</i>	2.51	9.77E-12	117.46	662.35
ENSSSCG00000016887	<i>ITGA2</i>	2.18	3.80E-10	57.30	263.17
ENSSSCG00000014136	<i>VCAN</i>	2.17	1.65E-11	200.23	875.34
ENSSSCG00000007797	<i>ITGAL</i>	2.13	2.37E-09	2.82	12.00
ENSSSCG00000011762	<i>ACTL6A</i>	2.06	7.07E-13	70.82	293.56
ENSSSCG00000004661	<i>MYEF2</i>	2.05	1.11E-11	17.22	71.44
Downregulated DEGs					
ENSSSCG00000005438	<i>ACTL7B</i>	-6.50	2.32E-11	16.09	0.19
ENSSSCG00000021624	<i>LAD1</i>	-5.60	7.31E-14	51.92	1.07
ENSSSCG00000015073	<i>TAGLN</i>	-4.72	7.68E-14	31.78	1.24
ENSSSCG00000002642	<i>CDH15</i>	-4.27	2.90E-10	2.79	0.12
ENSSSCG00000008055	<i>TEDC2</i>	-4.21	7.78E-09	2.65	0.14
ENSSSCG00000017084	<i>FAT2</i>	-3.99	5.69E-12	37.66	2.34
ENSSSCG00000039224	<i>CSPG5</i>	-3.96	4.35E-10	4.49	0.29
ENSSSCG00000037046	<i>TUBB4B</i>	-3.95	2.45E-12	57.17	3.92
ENSSSCG00000038992	<i>TUBB6</i>	-3.91	3.22E-07	3.79	0.47
ENSSSCG00000015342	<i>COL28A1</i>	-3.73	3.27E-08	4.98	0.34
ENSSSCG00000014137	<i>HAPLN1</i>	-3.69	1.32E-07	4.17	0.35
ENSSSCG00000016216	<i>TUBA4A</i>	-3.52	1.04E-13	25.39	2.25
ENSSSCG00000013236	<i>MYBPC3</i>	-3.43	3.49E-09	3.91	0.34
ENSSSCG00000007439	<i>CDH22</i>	-3.42	1.81E-11	6.70	0.62
ENSSSCG00000037905	<i>ITGB5</i>	-3.42	1.30E-12	39.49	3.75
ENSSSCG00000014876	<i>MYO7A</i>	-3.31	5.92E-10	7.97	0.87
ENSSSCG00000027407	<i>MYH14</i>	-3.24	8.69E-09	2.88	0.27
ENSSSCG00000026819	<i>NID1</i>	-3.21	4.34E-07	2.83	0.32
ENSSSCG00000033854	<i>LGALS1</i>	-3.17	6.15E-05	1.08	0.19
ENSSSCG00000002341	<i>PAPLN</i>	-3.16	5.84E-10	7.51	0.82
ENSSSCG00000009821	<i>ARPC3</i>	-3.15	1.49E-12	57.82	6.54
ENSSSCG00000021460	<i>NYX</i>	-3.09	9.91E-07	1.94	0.22
ENSSSCG00000005380	<i>COL15A1</i>	-2.93	4.86E-09	5.23	0.69
ENSSSCG00000031764	<i>VMAC</i>	-2.72	7.41E-06	1.67	0.30
ENSSSCG00000017783	<i>MYO18A</i>	-2.59	8.57E-09	5.85	0.95
ENSSSCG00000014029	<i>COL23A1</i>	-2.50	3.27E-09	7.22	1.31
ENSSSCG00000010167	<i>MAP10</i>	-2.44	4.31E-06	1.74	0.35
ENSSSCG00000017460	<i>KRT12</i>	-2.43	2.85E-05	1.16	0.22
ENSSSCG00000013876	<i>MYO9B</i>	-2.40	5.89E-08	3.08	0.61
ENSSSCG00000006477	<i>BCAN</i>	-2.36	2.10E-06	1.77	0.36
ENSSSCG00000008194	<i>ACTR1B</i>	-2.33	2.67E-04	1.65	0.43
ENSSSCG00000054116	<i>ITGAD</i>	-2.33	9.82E-12	38.71	7.79
ENSSSCG00000007281	<i>MAP1LC3A</i>	-2.14	7.19E-09	13.57	3.12

Table S10. Total list of differentially expressed genes in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	GeneName	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000273637		7.47	9.07E-05	13.67	0.25
ENSG00000214262	<i>ANKRD36BP1</i>	7.43	2.15E-05	2.12	0.00
ENSG00000275895		7.06	2.13E-03	16.93	4.61
ENSG00000260371		6.69	8.29E-05	2.27	0.04
ENSG00000228144		6.19	7.97E-04	15.99	2.35
ENSG00000288620		5.99	2.97E-03	5.84	0.49
ENSG00000272162		5.86	1.31E-03	59.46	6.30
ENSG00000275215	<i>RNA5-8SN3</i>	5.83	1.02E-05	0.94	0.01
ENSG00000277739	<i>5_8S_rRNA</i>	5.83	1.02E-05	0.94	0.01
ENSG00000278189	<i>RNA5-8SN1</i>	5.83	1.02E-05	0.94	0.01
ENSG00000278233	<i>RNA5-8SN2</i>	5.83	1.02E-05	0.94	0.01
ENSG00000263244		5.79	1.54E-03	8.77	0.84
ENSG00000280537		5.72	5.14E-05	0.97	0.01
ENSG00000269930		5.48	3.90E-05	0.58	0.00
ENSG00000213300	<i>HNRNPA3P6</i>	5.32	1.82E-03	1.84	0.35
ENSG00000274944		5.30	1.69E-04	70.42	5.67
ENSG00000254568		5.26	7.00E-04	0.89	0.09
ENSG00000197956	<i>S100A6</i>	5.22	8.18E-04	2.44	0.10
ENSG00000230401	<i>LINC01972</i>	5.18	4.11E-05	1.37	0.03
ENSG00000234857	<i>HNRNPUL2-BSCL2</i>	5.17	1.20E-03	6.87	0.54
ENSG00000285253		5.13	2.41E-04	4.07	0.17
ENSG00000131435	<i>PDLIM4</i>	5.05	4.06E-03	2.19	0.25
ENSG00000103355	<i>PRSS33</i>	5.04	5.38E-03	1.63	0.08
ENSG00000214237	<i>MINDY4B</i>	4.92	7.28E-04	24.45	1.59
ENSG00000108821	<i>COL1A1</i>	4.87	5.18E-03	1.36	0.19
ENSG00000272851		4.80	3.39E-04	6.68	0.57
ENSG00000260385		4.79	7.59E-04	2.99	0.13
ENSG00000206503	<i>HLA-A</i>	4.73	3.58E-03	1.10	0.17
ENSG00000261600		4.70	4.83E-04	4.00	0.13
ENSG00000243955	<i>GSTA1</i>	4.65	3.42E-03	23.91	1.41
ENSG00000147465	<i>STAR</i>	4.57	2.79E-03	9.46	0.56
ENSG00000115641	<i>FHL2</i>	4.49	9.36E-03	13.58	1.19
ENSG00000264668		4.34	3.39E-03	0.95	0.12
ENSG00000163191	<i>S100A11</i>	4.19	4.57E-03	4.95	0.40
ENSG00000233825		4.08	8.44E-03	2.45	0.74
ENSG00000289282		4.01	5.21E-04	0.52	0.04
ENSG00000267605		4.00	4.74E-03	2.95	0.29
ENSG00000286053	<i>ASDURF</i>	3.97	1.15E-03	13.01	1.96
ENSG00000260670		3.95	4.75E-03	0.84	0.15
ENSG00000197747	<i>S100A10</i>	3.91	1.07E-03	19.08	1.20

ENSG00000277209	<i>RPPH1</i>	3.90	7.74E-04	0.57	0.04
ENSG00000210112	<i>MT-TM</i>	3.90	3.77E-03	3.21	0.28
ENSG00000240342	<i>RPS2P5</i>	3.90	7.67E-03	13.78	2.07
ENSG00000260342		3.88	7.27E-04	75.92	13.82
ENSG00000168461	<i>RAB31</i>	3.84	4.98E-03	3.46	0.26
ENSG00000285953		3.81	9.63E-03	1.21	0.18
ENSG00000289865		3.80	4.63E-05	12.90	0.87
ENSG00000273542	<i>H4C12</i>	3.78	1.86E-03	2.29	0.15
ENSG00000255980	<i>LINC02953</i>	3.77	1.46E-04	4.31	0.34
ENSG00000132406	<i>TMEM128</i>	3.74	2.99E-06	149.99	10.82
ENSG00000181588	<i>MEX3D</i>	3.71	5.96E-05	1.57	0.12
ENSG00000148943	<i>LIN7C</i>	3.67	5.78E-07	163.72	12.95
ENSG00000164758	<i>MED30</i>	3.64	2.74E-07	187.25	15.69
ENSG00000210100	<i>MT-TI</i>	3.62	7.41E-04	1.95	0.23
ENSG00000230863		3.61	3.38E-04	53.53	7.78
ENSG00000205940	<i>HSP90AB2P</i>	3.61	6.20E-03	0.48	0.07
ENSG00000286473		3.54	4.17E-05	6.83	0.61
ENSG00000164010	<i>ERMAP</i>	3.53	3.14E-03	1.42	0.33
ENSG00000105143	<i>SLC1A6</i>	3.52	1.63E-04	24.13	2.18
ENSG00000248477	<i>NAIPP3</i>	3.50	7.95E-03	1.05	0.15
ENSG00000250687	<i>NAIPP1</i>	3.50	7.95E-03	1.05	0.15
ENSG00000249319		3.49	9.04E-03	0.51	0.09
ENSG00000209082	<i>MT-TL1</i>	3.45	1.51E-04	19.55	2.15
ENSG00000230562	<i>FAM133DP</i>	3.43	2.16E-03	7.14	1.01
ENSG00000263986		3.42	3.54E-03	0.78	0.16
ENSG00000279924		3.41	2.56E-03	1.09	0.17
ENSG00000034510	<i>TMSB10</i>	3.40	8.09E-04	121.50	10.00
ENSG00000210156	<i>MT-TK</i>	3.36	4.40E-03	4.16	0.35
ENSG00000253251	<i>SHLD3</i>	3.30	6.99E-05	3.36	0.38
ENSG00000232560	<i>LINC01549</i>	3.29	2.74E-03	0.48	0.05
ENSG00000198945	<i>L3MBTL3</i>	3.27	1.52E-03	12.43	1.68
ENSG00000276121		3.25	6.43E-03	1.12	0.14
ENSG00000229236	<i>TTY10</i>	3.24	5.39E-03	2.87	0.92
ENSG00000210194	<i>MT-TE</i>	3.23	7.28E-04	3.34	0.52
ENSG00000123595	<i>RAB9A</i>	3.22	3.98E-03	1.29	0.19
ENSG00000111716	<i>LDHB</i>	3.18	5.31E-03	8.69	0.85
ENSG00000153140	<i>CETN3</i>	3.17	7.37E-07	476.44	56.25
ENSG00000265817	<i>FSBP</i>	3.17	5.49E-04	5.24	0.57
ENSG00000164032	<i>H2AZ1</i>	3.14	2.12E-03	16.59	1.96
ENSG00000164104	<i>HMGB2</i>	3.12	2.67E-07	1307.96	156.93
ENSG00000162614	<i>NEXN</i>	3.12	2.96E-03	0.62	0.15
ENSG00000210144	<i>MT-TY</i>	3.11	1.08E-03	3.38	0.59
ENSG00000166681	<i>BEX3</i>	3.08	5.66E-03	8.04	0.98
ENSG00000137875	<i>BCL2L10</i>	3.06	3.83E-05	4098.27	488.93
ENSG00000177469	<i>CAVIN1</i>	3.06	1.35E-03	0.52	0.07
ENSG00000277453		3.05	1.77E-03	0.77	0.14

ENSG00000210140	<i>MT-TC</i>	3.04	3.94E-04	18.79	3.21
ENSG00000113140	<i>SPARC</i>	3.04	5.74E-03	20.32	2.57
ENSG00000242265	<i>PEG10</i>	3.03	1.57E-03	1.93	0.26
ENSG00000122674	<i>CCZ1</i>	3.02	2.83E-05	929.60	111.48
ENSG00000172687	<i>ZNF738</i>	3.01	1.64E-06	158.98	21.29
ENSG00000210107	<i>MT-TQ</i>	3.01	3.43E-04	12.89	1.95
ENSG00000210135	<i>MT-TN</i>	3.00	4.05E-04	10.30	1.75
ENSG00000151552	<i>QDPR</i>	2.98	1.52E-04	144.11	16.28
ENSG00000006327	<i>TNFRSF12A</i>	2.98	1.97E-04	17.15	2.72
ENSG00000115461	<i>IGFBP5</i>	2.98	4.30E-04	17.89	2.43
ENSG00000210154	<i>MT-TD</i>	2.98	4.46E-03	3.49	0.36
ENSG00000174405	<i>LIG4</i>	2.97	8.46E-06	104.92	13.11
ENSG00000156136	<i>DCK</i>	2.97	1.15E-04	47.37	5.43
ENSG00000250874		2.96	1.18E-03	10.44	2.29
ENSG00000287669		2.96	1.44E-03	1.03	0.14
ENSG00000259291	<i>ZNF710-AS1</i>	2.96	3.24E-03	0.47	0.06
ENSG00000267281	<i>ATF7-NPFF</i>	2.93	8.11E-03	0.92	0.19
ENSG00000290383		2.90	5.08E-05	5.30	0.82
ENSG00000210196	<i>MT-TP</i>	2.89	1.13E-04	17.52	2.73
ENSG00000246705	<i>H2AJ</i>	2.88	4.81E-03	3.53	0.50
ENSG00000262152	<i>GREP1</i>	2.85	2.73E-05	3.01	0.43
ENSG00000113657	<i>DPYSL3</i>	2.85	1.33E-03	5.42	0.90
ENSG00000288864	<i>ARHGAP11A-SCG5</i>	2.85	6.56E-03	4.84	0.71
ENSG00000138795	<i>LEF1</i>	2.84	2.45E-05	234.75	31.58
ENSG00000170961	<i>HAS2</i>	2.84	2.26E-03	2.69	0.70
ENSG00000133169	<i>BEX1</i>	2.83	9.65E-03	9.71	1.37
ENSG00000210127	<i>MT-TA</i>	2.82	3.63E-04	8.88	1.65
ENSG00000177917	<i>ARL6IP6</i>	2.78	7.68E-05	32.84	4.37
ENSG00000164949	<i>GEM</i>	2.78	1.30E-04	60.85	8.45
ENSG00000146476	<i>ARMT1</i>	2.78	1.42E-04	18.54	2.58
ENSG00000115271	<i>GCA</i>	2.78	9.80E-03	102.47	26.74
ENSG00000171295	<i>ZNF440</i>	2.77	1.78E-05	7.48	1.13
ENSG00000163682	<i>RPL9</i>	2.77	3.46E-03	46.00	16.55
ENSG00000198695	<i>MT-ND6</i>	2.76	1.06E-04	315.16	59.86
ENSG00000285751		2.75	9.41E-03	1.53	0.47
ENSG00000210151	<i>MT-TS1</i>	2.73	4.20E-04	16.73	3.13
ENSG00000142669	<i>SH3BGRL3</i>	2.72	3.87E-03	15.48	1.86
ENSG00000117479	<i>SLC19A2</i>	2.70	1.42E-04	178.90	27.41
ENSG00000187049	<i>TMEM216</i>	2.68	1.52E-06	50.71	8.43
ENSG00000210077	<i>MT-TV</i>	2.68	2.77E-04	24.59	3.63
ENSG00000277199	<i>LINC01632</i>	2.67	4.24E-04	1.19	0.20
ENSG00000105549	<i>THEG</i>	2.66	5.12E-04	3.19	0.52
ENSG00000188171	<i>ZNF626</i>	2.65	1.41E-05	36.68	5.99
ENSG00000176182	<i>MYPOP</i>	2.65	5.07E-04	5.08	0.87
ENSG00000287558		2.64	8.18E-05	12.23	2.46
ENSG00000272888	<i>CHASERR</i>	2.63	6.25E-05	12.55	2.26

ENSG00000172058	<i>SERF1A</i>	2.62	3.04E-05	10.37	1.71
ENSG00000197566	<i>ZNF624</i>	2.62	1.03E-04	13.94	2.77
ENSG00000260021		2.60	1.76E-03	0.94	0.16
ENSG00000231620		2.60	4.61E-03	0.52	0.09
ENSG00000246263	<i>UBR5-DT</i>	2.58	1.02E-05	18.63	3.14
ENSG00000056277	<i>ZNF280C</i>	2.57	3.78E-05	352.72	67.09
ENSG00000225972	<i>MTND1P23</i>	2.57	1.72E-03	3.25	0.59
ENSG00000259865		2.57	6.25E-03	0.66	0.11
ENSG00000206052	<i>DOK6</i>	2.56	6.67E-05	8.21	1.42
ENSG00000236698	<i>EIF1AXP1</i>	2.56	3.34E-03	9.41	2.39
ENSG00000109944	<i>JHY</i>	2.56	5.73E-03	20.44	3.17
ENSG00000214788		2.55	6.68E-06	20.89	3.84
ENSG00000137193	<i>PIM1</i>	2.55	8.15E-03	2.09	0.54
ENSG00000138448	<i>ITGAV</i>	2.54	3.42E-05	18.26	3.42
ENSG00000288605		2.54	1.84E-03	1.94	0.44
ENSG00000273175		2.53	9.36E-04	11.33	2.45
ENSG00000133657	<i>ATP13A3</i>	2.52	3.77E-05	47.67	8.17
ENSG00000280660		2.52	1.28E-03	2.01	0.40
ENSG00000290098		2.52	2.25E-03	1.16	0.26
ENSG00000101955	<i>SRPX</i>	2.52	5.87E-03	8.30	1.63
ENSG00000185219	<i>ZNF445</i>	2.51	6.68E-06	35.98	6.53
ENSG00000236120		2.51	8.35E-04	1.94	0.33
ENSG00000235729		2.51	3.37E-03	1.80	0.32
ENSG00000203814	<i>H2BC18</i>	2.50	2.53E-04	3.68	0.68
ENSG00000204308	<i>RNF5</i>	2.49	3.32E-04	5.01	0.95
ENSG00000090905	<i>TNRC6A</i>	2.47	2.94E-05	163.75	33.15
ENSG00000211459	<i>MT-RNR1</i>	2.47	4.81E-05	2088.19	400.59
ENSG00000291192	<i>ANKRD18DP</i>	2.47	3.19E-03	1.04	0.25
ENSG00000095209	<i>TMEM38B</i>	2.46	5.12E-06	56.10	10.67
ENSG00000113971	<i>NPHP3</i>	2.45	2.92E-04	2.91	0.58
ENSG00000233184	<i>DPH5-DT</i>	2.45	1.81E-03	1.84	0.34
ENSG00000149089	<i>APIP</i>	2.44	2.91E-06	96.54	18.67
ENSG00000285010	<i>OOSP4A</i>	2.43	1.32E-06	17973.08	3517.42
ENSG00000198888	<i>MT-ND1</i>	2.43	1.98E-04	2826.33	576.31
ENSG00000155011	<i>DKK2</i>	2.43	4.32E-03	0.80	0.17
ENSG00000286771		2.43	7.53E-03	0.72	0.12
ENSG00000288846		2.42	2.77E-04	3.01	0.60
ENSG00000272913		2.42	1.13E-03	6.69	1.23
ENSG00000228748		2.42	8.36E-03	0.91	0.24
ENSG00000109534	<i>GAR1</i>	2.41	4.83E-05	9.87	1.81
ENSG00000173230	<i>GOLGB1</i>	2.41	4.00E-03	13.27	2.40
ENSG00000198346	<i>ZNF813</i>	2.40	1.71E-04	32.05	6.50
ENSG00000198840	<i>MT-ND3</i>	2.40	1.75E-04	81.36	18.61
ENSG00000196507	<i>TCEAL3</i>	2.40	1.59E-03	2.04	0.39
ENSG00000198189	<i>HSD17B11</i>	2.40	5.35E-03	7.59	2.03
ENSG00000119632	<i>IFI27L2</i>	2.38	9.30E-04	1.29	0.28

ENSG00000170340	<i>B3GNT2</i>	2.38	7.47E-04	2085.45	397.54
ENSG00000255073	<i>ZFP91-CNTF</i>	2.38	6.15E-03	8.00	2.68
ENSG00000119640	<i>ACYP1</i>	2.36	1.99E-05	36.06	7.14
ENSG00000164647	<i>STEAP1</i>	2.36	3.97E-03	2.38	0.68
ENSG00000159335	<i>PTMS</i>	2.36	4.78E-03	2.02	0.50
ENSG00000184905	<i>TCEAL2</i>	2.36	5.20E-03	1.53	0.36
ENSG00000143401	<i>ANP32E</i>	2.36	8.38E-03	1.26	0.32
ENSG00000225630	<i>MTND2P28</i>	2.34	3.76E-04	11.98	2.81
ENSG00000278981		2.34	4.39E-03	10.49	2.12
ENSG00000137392	<i>CLPS</i>	2.33	1.34E-04	19.80	4.80
ENSG00000096717	<i>SIRT1</i>	2.33	5.42E-04	6.83	1.47
ENSG00000160062	<i>ZBTB8A</i>	2.33	8.00E-04	3.57	0.69
ENSG00000178401	<i>DNAJC22</i>	2.33	3.20E-03	0.59	0.11
ENSG00000141338	<i>ABCA8</i>	2.33	4.02E-03	1.00	0.18
ENSG00000052802	<i>MSMO1</i>	2.32	8.70E-06	42.44	9.01
ENSG00000126524	<i>SBDS</i>	2.32	2.36E-04	4.51	1.07
ENSG00000280013		2.32	7.04E-04	148.85	36.89
ENSG00000265015		2.32	1.13E-03	0.97	0.21
ENSG00000164930	<i>FZD6</i>	2.31	2.22E-05	29.33	5.93
ENSG00000115109	<i>EPB41L5</i>	2.31	3.91E-05	726.10	146.48
ENSG00000186834	<i>HEXIM1</i>	2.31	1.82E-04	8.46	1.88
ENSG00000148175	<i>STOM</i>	2.31	1.96E-03	20.63	3.83
ENSG00000213185	<i>FAM24B</i>	2.30	3.05E-06	62.87	13.52
ENSG00000173653	<i>RCE1</i>	2.30	2.28E-03	54.29	15.13
ENSG00000067955	<i>CBFB</i>	2.29	6.19E-05	38.01	7.68
ENSG00000204899	<i>MZT1</i>	2.29	1.23E-04	26.13	4.96
ENSG00000113583	<i>C5orf15</i>	2.28	1.82E-05	11.43	2.42
ENSG00000291040	<i>CD99P1</i>	2.28	2.25E-04	27.34	5.29
ENSG00000287602		2.28	1.22E-03	1.32	0.26
ENSG00000286808		2.28	6.02E-03	1.71	0.41
ENSG00000132970	<i>WASF3</i>	2.27	1.06E-04	38.09	8.18
ENSG00000102468	<i>HTR2A</i>	2.27	1.71E-04	42.55	8.22
ENSG00000198786	<i>MT-ND5</i>	2.27	2.58E-04	1422.27	361.95
ENSG00000120800	<i>UTP20</i>	2.26	6.26E-04	29.08	5.97
ENSG00000258162		2.26	6.83E-03	2.04	0.37
ENSG00000175155	<i>YPEL2</i>	2.25	1.92E-04	70.87	14.89
ENSG00000056736	<i>IL17RB</i>	2.25	1.69E-03	12.21	3.01
ENSG00000288756		2.25	4.57E-03	0.69	0.14
ENSG00000225660		2.23	8.51E-06	26.69	5.92
ENSG00000224932	<i>LINC02262</i>	2.23	1.26E-05	238.10	52.53
ENSG00000160813	<i>PPP1R35</i>	2.23	5.14E-05	728.59	164.35
ENSG00000129657	<i>SEC14L1</i>	2.23	1.41E-04	67.33	14.99
ENSG00000213719	<i>CLIC1</i>	2.23	6.47E-04	11.91	2.50
ENSG00000167779	<i>IGFBP6</i>	2.23	3.17E-03	65.47	15.33
ENSG00000262117	<i>BCAR4</i>	2.22	5.09E-05	364.50	89.80
ENSG00000227192		2.22	6.27E-04	1.66	0.37

ENSG00000160352	<i>ZNF714</i>	2.22	5.60E-03	4.62	1.08
ENSG00000210082	<i>MT-RNR2</i>	2.21	2.17E-05	6845.67	1614.92
ENSG00000114127	<i>XRN1</i>	2.20	1.12E-05	220.03	51.51
ENSG00000162385	<i>MAGOH</i>	2.20	2.00E-05	411.28	97.34
ENSG00000124193	<i>SRSF6</i>	2.20	3.75E-05	18.25	4.27
ENSG00000198899	<i>MT-ATP6</i>	2.20	4.18E-05	962.21	238.40
ENSG00000082641	<i>NFE2L1</i>	2.20	5.32E-04	10.73	2.59
ENSG00000154997	<i>SEPTIN14</i>	2.19	1.16E-03	2.49	0.58
ENSG00000188486	<i>H2AX</i>	2.18	5.23E-04	32.49	6.55
ENSG00000154479	<i>CFAP210</i>	2.18	1.34E-03	41.30	9.60
ENSG00000258102	<i>MAP1LC3B2</i>	2.18	1.85E-03	7.46	1.83
ENSG00000110057	<i>UNC93B1</i>	2.18	3.44E-03	1.99	0.50
ENSG00000183323	<i>CCDC125</i>	2.18	3.54E-03	1.80	0.66
ENSG00000248527	<i>MTATP6P1</i>	2.17	6.92E-05	191.84	49.11
ENSG00000204531	<i>POU5F1</i>	2.17	4.35E-04	15.80	3.60
ENSG00000217874	<i>OR4F7P</i>	2.17	7.82E-03	0.74	0.22
ENSG00000290948		2.17	9.36E-03	0.63	0.13
ENSG00000133935	<i>ERG28</i>	2.16	1.98E-06	132.18	31.01
ENSG00000286293		2.16	9.88E-04	2.72	0.58
ENSG00000277459		2.16	1.93E-03	1.98	0.47
ENSG00000118363	<i>SPCS2</i>	2.15	9.21E-06	507.19	114.12
ENSG00000243749	<i>TMEM35B</i>	2.15	1.47E-05	91.74	22.23
ENSG00000082269	<i>FAM135A</i>	2.15	1.53E-05	41.14	9.71
ENSG00000122299	<i>ZC3H7A</i>	2.15	1.59E-05	270.23	61.94
ENSG00000174839	<i>DENND6A</i>	2.15	8.37E-05	9.63	2.31
ENSG00000278931		2.15	9.16E-04	2.27	0.62
ENSG00000168005	<i>SPINDOC</i>	2.15	1.32E-03	10.81	2.84
ENSG00000231930		2.15	3.28E-03	0.62	0.14
ENSG00000261837		2.15	5.13E-03	0.97	0.21
ENSG00000290735		2.15	6.15E-03	1.29	0.31
ENSG00000170946	<i>DNAJC24</i>	2.14	9.84E-06	55.22	13.25
ENSG00000139263	<i>LRIG3</i>	2.14	1.12E-04	45.95	10.37
ENSG00000077458	<i>FAM76B</i>	2.14	1.41E-04	79.05	17.30
ENSG00000198824	<i>CHAMP1</i>	2.14	1.64E-04	195.93	50.17
ENSG00000217128	<i>FNIP1</i>	2.14	9.36E-04	8.38	2.04
ENSG00000198879	<i>SFMBT2</i>	2.14	4.95E-03	4.01	0.77
ENSG00000257557	<i>PPP1R12A-AS1</i>	2.14	7.27E-03	0.48	0.12
ENSG00000155545	<i>MIER3</i>	2.13	2.09E-04	33.92	8.90
ENSG00000149503	<i>INCENP</i>	2.12	8.19E-05	15.69	3.94
ENSG00000198763	<i>MT-ND2</i>	2.12	1.69E-04	2125.15	549.94
ENSG00000134852	<i>CLOCK</i>	2.12	2.59E-04	359.14	97.21
ENSG00000148572	<i>NRBF2</i>	2.12	1.96E-03	56.13	12.08
ENSG00000145358	<i>DDIT4L</i>	2.12	8.61E-03	7.43	1.94
ENSG00000085415	<i>SEH1L</i>	2.11	3.77E-05	158.85	36.31
ENSG00000078237	<i>TIGAR</i>	2.11	6.61E-05	35.62	8.84
ENSG00000168566	<i>SNRNP48</i>	2.11	3.20E-04	19.84	4.93

ENSG00000291095		2.11	3.61E-03	1.78	0.46
ENSG00000156273	<i>BACH1</i>	2.10	3.07E-05	639.71	155.32
ENSG00000198938	<i>MT-CO3</i>	2.10	7.84E-05	2678.28	704.00
ENSG00000135503	<i>ACVR1B</i>	2.10	9.50E-05	50.19	11.60
ENSG00000139343	<i>SNRPF</i>	2.09	1.04E-05	206.12	52.08
ENSG00000289591		2.09	3.67E-05	17.61	4.32
ENSG00000138434	<i>ITPRID2</i>	2.09	3.98E-05	101.48	24.63
ENSG00000289394		2.09	3.08E-03	1.06	0.29
ENSG00000088305	<i>DNMT3B</i>	2.08	2.70E-04	73.08	16.28
ENSG00000058056	<i>USP13</i>	2.08	4.46E-04	322.88	81.81
ENSG00000184640	<i>SEPTIN9</i>	2.08	6.64E-04	25.82	6.50
ENSG00000173905	<i>GOLIM4</i>	2.08	3.29E-03	1.61	0.45
ENSG00000171987	<i>C11orf40</i>	2.08	2.52E-03	91.17	19.87
ENSG00000130816	<i>DNMT1</i>	2.07	7.15E-06	10923.59	2659.60
ENSG00000177414	<i>UBE2U</i>	2.07	1.03E-04	28.28	7.06
ENSG00000262580		2.07	1.49E-04	2.21	0.54
ENSG00000164327	<i>RICTOR</i>	2.07	4.19E-04	83.65	21.32
ENSG00000251297	<i>TUBB7P</i>	2.07	8.65E-04	1263.81	366.60
ENSG00000144426	<i>NBEAL1</i>	2.06	7.78E-05	53.92	14.46
ENSG00000196369	<i>SRGAP2B</i>	2.06	9.86E-05	10.64	2.75
ENSG00000138764	<i>CCNG2</i>	2.06	2.00E-03	20.16	4.19
ENSG00000141664	<i>ZCCHC2</i>	2.06	2.22E-03	73.19	20.33
ENSG00000108021	<i>TASOR2</i>	2.05	3.83E-06	233.82	58.43
ENSG00000118197	<i>DDX59</i>	2.05	6.80E-06	395.90	97.25
ENSG00000101132	<i>PFDN4</i>	2.05	1.85E-05	156.11	40.92
ENSG00000112941	<i>TENT4A</i>	2.05	3.86E-05	180.35	43.22
ENSG00000153922	<i>CHD1</i>	2.05	5.96E-05	36.12	8.97
ENSG00000120868	<i>APAF1</i>	2.05	2.82E-04	14.87	3.50
ENSG00000115457	<i>IGFBP2</i>	2.05	1.91E-03	73.96	16.25
ENSG00000024862	<i>CCDC28A</i>	2.04	5.88E-06	153.60	38.48
ENSG00000290092		2.04	6.37E-06	518.10	127.78
ENSG00000100354	<i>TNRC6B</i>	2.04	6.54E-05	487.70	123.86
ENSG00000142867	<i>BCL10</i>	2.04	1.03E-04	83.11	20.19
ENSG00000257386		2.04	1.85E-04	8.10	2.18
ENSG00000228407		2.04	2.71E-04	3.69	0.93
ENSG00000236541	<i>VN2R9P</i>	2.04	3.68E-03	0.84	0.22
ENSG00000285231	<i>OOSP3</i>	2.04	4.31E-03	28.74	8.20
ENSG00000242259	<i>C22orf39</i>	2.03	6.41E-05	13.94	3.67
ENSG00000285633		2.03	3.04E-04	6.31	1.74
ENSG00000163666	<i>HESX1</i>	2.03	3.24E-03	1.82	0.48
ENSG00000143669	<i>LYST</i>	2.02	7.38E-06	54.66	14.06
ENSG00000164587	<i>RPS14</i>	2.02	4.12E-05	254.46	68.60
ENSG00000131652	<i>THOC6</i>	2.02	8.80E-05	90.19	21.63
ENSG00000063169	<i>BICRA</i>	2.02	2.01E-04	6.86	1.92
ENSG00000231889	<i>TRAF3IP2-AS1</i>	2.02	2.10E-04	6.09	1.52
ENSG00000084207	<i>GSTP1</i>	2.02	3.56E-03	45.41	13.65

ENSG00000090971	<i>NAT14</i>	2.02	5.67E-03	4.52	1.05
ENSG00000106588	<i>PSMA2</i>	2.01	2.10E-06	1233.69	320.76
ENSG00000110422	<i>HIPK3</i>	2.01	6.73E-05	12.72	3.39
ENSG00000198886	<i>MT-ND4</i>	2.01	3.04E-04	3244.20	874.64
ENSG00000116406	<i>EDEM3</i>	2.01	1.23E-03	5.84	1.58
ENSG00000258977	<i>LINC01467</i>	2.01	9.78E-04	109.74	27.59
ENSG00000150627	<i>WDR17</i>	2.01	6.68E-03	1.33	0.32
ENSG00000164162	<i>ANAPC10</i>	2.00	5.21E-06	168.40	44.51
ENSG00000151665	<i>PIGF</i>	2.00	2.01E-05	89.51	23.41
ENSG00000152520	<i>PAN3</i>	2.00	6.06E-05	28.74	7.31
ENSG00000230002	<i>ALMS1-IT1</i>	2.00	1.69E-04	8.56	2.17
ENSG00000110492	<i>MDK</i>	2.00	2.23E-04	15.73	3.95
ENSG00000150093	<i>ITGB1</i>	2.00	3.23E-04	51.24	12.35
ENSG00000227097	<i>RPS28P7</i>	2.00	1.10E-03	4.74	1.32
ENSG00000243660	<i>ZNF487</i>	2.00	1.46E-03	1.65	0.42
ENSG00000198804	<i>MT-CO1</i>	1.99	4.44E-05	8635.10	2335.52
ENSG00000205981	<i>DNAJC19</i>	1.99	6.07E-05	127.91	33.72
ENSG00000115540	<i>MOB4</i>	1.99	8.80E-05	352.13	85.44
ENSG00000160207	<i>HSF2BP</i>	1.99	9.36E-05	793.82	219.05
ENSG00000145246	<i>ATP10D</i>	1.99	5.02E-03	57.03	16.68
ENSG00000119414	<i>PPP6C</i>	1.98	2.99E-06	473.16	124.18
ENSG00000273344	<i>PAXIP1-DT</i>	1.98	1.61E-05	19.65	5.22
ENSG00000115289	<i>PCGF1</i>	1.98	2.08E-05	608.27	169.34
ENSG00000197969	<i>VPS13A</i>	1.98	2.25E-05	54.99	14.87
ENSG00000165521	<i>EML5</i>	1.98	2.45E-05	50.30	13.18
ENSG00000108064	<i>TFAM</i>	1.98	2.94E-05	105.34	27.43
ENSG00000115170	<i>ACVR1</i>	1.98	1.60E-04	18.71	4.67
ENSG00000108256	<i>NUFIP2</i>	1.98	4.53E-04	96.29	27.33
ENSG00000134247	<i>PTGFRN</i>	1.98	5.25E-04	24.83	7.02
ENSG00000143198	<i>MGST3</i>	1.98	4.82E-03	49.96	14.16
ENSG00000125676	<i>THOC2</i>	1.97	5.57E-06	805.01	216.64
ENSG00000198818	<i>SFT2D1</i>	1.97	1.29E-05	69.80	18.81
ENSG00000123066	<i>MED13L</i>	1.97	3.03E-05	61.73	16.15
ENSG00000162604	<i>TM2D1</i>	1.97	4.83E-05	72.31	18.36
ENSG00000198727	<i>MT-CYB</i>	1.97	1.68E-04	2897.34	840.11
ENSG00000197321	<i>SVIL</i>	1.97	8.89E-04	4.20	1.23
ENSG00000143153	<i>ATP1B1</i>	1.97	8.09E-04	20.19	5.89
ENSG00000099954	<i>CECR2</i>	1.97	2.57E-03	12.50	4.08
ENSG00000272205	<i>POU2F1-DT</i>	1.97	4.53E-03	0.99	0.26
ENSG00000260926		1.97	4.68E-03	1.37	0.45
ENSG00000146223	<i>RPL7L1</i>	1.96	5.90E-06	49.26	13.30
ENSG00000171530	<i>TBCA</i>	1.96	2.46E-05	270.54	74.41
ENSG00000027697	<i>IFNGR1</i>	1.96	4.28E-05	29.40	7.83
ENSG00000153094	<i>BCL2L11</i>	1.96	7.43E-05	13.59	3.51
ENSG00000205572	<i>SERF1B</i>	1.96	7.29E-05	256.21	70.03
ENSG00000270820	<i>USP34-DT</i>	1.96	3.15E-04	6.25	1.81

ENSG00000274012	<i>RN7SL2</i>	1.96	3.65E-04	5.70	1.64
ENSG00000198265	<i>HELZ</i>	1.96	3.18E-04	267.90	68.58
ENSG00000276436		1.96	2.50E-03	1.09	0.31
ENSG00000066827	<i>ZFAT</i>	1.96	4.34E-03	13.08	3.54
ENSG00000153130	<i>SCOC</i>	1.95	9.14E-06	163.46	42.89
ENSG00000164611	<i>PTTG1</i>	1.95	9.22E-06	19807.11	5489.63
ENSG00000169914	<i>OTUD3</i>	1.95	1.22E-04	210.46	56.21
ENSG00000011405	<i>PIK3C2A</i>	1.95	2.71E-04	254.41	69.16
ENSG00000066379	<i>POLR1H</i>	1.95	6.45E-04	192.18	44.90
ENSG00000185088	<i>RPS27L</i>	1.94	6.01E-06	218.11	59.72
ENSG00000175063	<i>UBE2C</i>	1.94	1.87E-05	1106.61	314.82
ENSG00000033867	<i>SLC4A7</i>	1.94	1.99E-05	302.93	80.24
ENSG00000166595	<i>CIAO2B</i>	1.94	6.71E-05	162.13	46.85
ENSG00000272870	<i>SAP30-DT</i>	1.94	8.51E-05	10.92	3.05
ENSG00000157212	<i>PAXIP1</i>	1.94	3.03E-04	262.47	66.69
ENSG00000171940	<i>ZNF217</i>	1.94	5.21E-04	36.70	9.43
ENSG00000132801	<i>ZSWIM3</i>	1.94	1.48E-03	202.52	48.22
ENSG00000285529		1.94	3.31E-03	6.32	1.70
ENSG00000274997	<i>H2AC12</i>	1.94	4.46E-03	16.94	5.36
ENSG00000037241	<i>RPL26L1</i>	1.93	1.04E-05	391.71	110.30
ENSG00000138385	<i>SSB</i>	1.93	2.15E-05	578.11	162.95
ENSG00000196569	<i>LAMA2</i>	1.93	3.88E-05	79.48	21.87
ENSG00000126804	<i>ZBTB1</i>	1.93	4.69E-04	15.45	4.18
ENSG00000196091	<i>MYBPC1</i>	1.93	1.15E-03	1.10	0.30
ENSG00000224578	<i>HNRNPA1L3</i>	1.93	1.13E-03	2.15	0.57
ENSG00000136770	<i>DNAJC1</i>	1.92	5.66E-06	183.35	51.15
ENSG00000189050	<i>RNFT1</i>	1.92	8.00E-06	214.34	57.61
ENSG00000196976	<i>LAGE3</i>	1.92	1.06E-05	321.30	91.42
ENSG00000277738		1.92	4.13E-05	131.53	36.28
ENSG00000250546	<i>LINC02994</i>	1.92	1.59E-04	12.75	3.46
ENSG00000245112	<i>SMARCA5-AS1</i>	1.92	2.69E-04	6.52	1.92
ENSG00000266872		1.92	3.10E-04	2.69	0.74
ENSG00000268170		1.92	2.33E-03	1.14	0.32
ENSG00000226650	<i>KIF4B</i>	1.92	5.09E-03	1.08	0.28
ENSG00000008952	<i>SEC62</i>	1.91	2.33E-05	162.75	46.43
ENSG00000121851	<i>POLR3GL</i>	1.91	3.36E-05	53.43	14.65
ENSG00000198712	<i>MT-CO2</i>	1.91	1.14E-04	2716.89	815.67
ENSG00000285894		1.91	2.15E-04	60.08	16.13
ENSG00000162620	<i>LRRIQ3</i>	1.91	5.00E-04	9.05	2.47
ENSG00000075539	<i>FRYL</i>	1.91	9.74E-04	35.34	10.36
ENSG00000226608	<i>FTLP3</i>	1.91	3.25E-03	1.42	0.38
ENSG00000278239		1.91	7.00E-03	1.14	0.36
ENSG00000028277	<i>POU2F2</i>	1.91	6.80E-03	2.55	0.80
ENSG00000172404	<i>DNAJB7</i>	1.91	7.70E-03	1.31	0.44
ENSG00000140988	<i>RPS2</i>	1.90	4.78E-06	285.05	80.38
ENSG00000290759		1.90	1.28E-05	114.32	31.66

ENSG00000146574	<i>CCZ1B</i>	1.90	1.82E-05	905.43	244.44
ENSG00000205268	<i>PDE7A</i>	1.90	7.19E-05	53.85	15.35
ENSG00000243273		1.90	1.05E-04	49.03	14.38
ENSG00000234763		1.90	2.08E-04	4.82	1.43
ENSG00000119927	<i>GPAM</i>	1.90	6.96E-04	43.36	12.17
ENSG00000120279	<i>MYCT1</i>	1.90	6.44E-03	2.52	0.72
ENSG00000226419	<i>SLC16A1-AS1</i>	1.90	6.84E-03	2.03	0.49
ENSG00000143106	<i>PSMA5</i>	1.89	4.42E-06	1175.65	324.92
ENSG00000070770	<i>CSNK2A2</i>	1.89	1.44E-05	43.36	12.19
ENSG00000071794	<i>HLTF</i>	1.89	2.45E-05	62.44	18.23
ENSG00000106211	<i>HSPB1</i>	1.89	3.77E-05	303.06	84.95
ENSG00000059728	<i>MXD1</i>	1.89	5.96E-05	357.38	106.23
ENSG00000213123	<i>DYNLT2B</i>	1.89	1.04E-04	33.83	9.85
ENSG00000196950	<i>SLC39A10</i>	1.89	1.05E-04	605.25	167.92
ENSG00000100697	<i>DICER1</i>	1.89	1.24E-04	85.01	23.42
ENSG00000225830	<i>ERCC6</i>	1.89	2.17E-04	186.11	51.06
ENSG00000225840		1.89	3.65E-04	372.12	96.22
ENSG00000186918	<i>ZNF395</i>	1.89	8.99E-04	17.11	4.34
ENSG00000255133	<i>LINC02721</i>	1.89	1.17E-03	11.04	3.56
ENSG00000070961	<i>ATP2B1</i>	1.88	2.73E-05	247.90	68.32
ENSG00000173473	<i>SMARCC1</i>	1.88	5.84E-05	49.77	14.46
ENSG00000177733	<i>HNRNPA0</i>	1.88	7.61E-05	8.42	2.37
ENSG00000074935	<i>TUBE1</i>	1.88	1.01E-04	145.78	39.02
ENSG00000291259		1.88	1.32E-04	12.37	3.74
ENSG00000244053	<i>RPL13AP2</i>	1.88	3.26E-04	29.13	8.51
ENSG00000251680		1.88	3.68E-04	10.61	3.07
ENSG00000198586	<i>TLK1</i>	1.88	3.67E-04	28.85	9.18
ENSG00000188177	<i>ZC3H6</i>	1.88	9.45E-04	13.47	4.43
ENSG00000224517	<i>HTR2A-AS1</i>	1.88	1.80E-03	15.09	3.80
ENSG00000187764	<i>SEMA4D</i>	1.88	4.70E-03	16.35	4.86
ENSG00000075188	<i>NUP37</i>	1.87	4.40E-06	695.17	198.32
ENSG00000145703	<i>IQGAP2</i>	1.87	1.32E-05	535.26	148.37
ENSG00000178966	<i>RMI1</i>	1.87	1.73E-05	164.20	44.93
ENSG00000114062	<i>UBE3A</i>	1.87	7.46E-05	66.51	19.96
ENSG00000268043	<i>NBPF12</i>	1.87	8.70E-05	6.91	1.97
ENSG00000289316		1.87	4.94E-04	4.12	1.21
ENSG00000138316	<i>ADAMTS14</i>	1.87	1.76E-03	14.93	3.58
ENSG00000184261	<i>KCNK12</i>	1.87	2.48E-03	19.33	5.65
ENSG00000010072	<i>SPRTN</i>	1.87	2.61E-03	78.15	19.03
ENSG00000163002	<i>NUP35</i>	1.86	4.70E-06	1814.48	523.33
ENSG00000103152	<i>MPG</i>	1.86	2.70E-05	121.84	34.23
ENSG00000114978	<i>MOB1A</i>	1.86	1.00E-04	201.21	55.03
ENSG00000126790	<i>L3HYPDH</i>	1.86	4.99E-04	15.42	4.14
ENSG00000183625	<i>CCR3</i>	1.86	1.28E-03	76.39	21.71
ENSG00000157540	<i>DYRK1A</i>	1.86	2.04E-03	60.57	17.26
ENSG00000165828	<i>PRAP1</i>	1.86	2.67E-03	39.93	12.10

ENSG00000165434	<i>PGM2L1</i>	1.86	3.35E-03	4.95	1.83
ENSG00000105849	<i>POLR1F</i>	1.85	5.15E-06	417.11	119.69
ENSG00000175216	<i>CKAP5</i>	1.85	6.92E-05	1303.75	371.61
ENSG00000050405	<i>LIMA1</i>	1.85	8.80E-05	2274.23	624.46
ENSG00000139613	<i>SMARCC2</i>	1.85	1.29E-04	77.01	22.77
ENSG00000269891	<i>ARHGAP19-SLIT1</i>	1.85	2.20E-04	58.88	16.44
ENSG00000168280	<i>KIF5C</i>	1.85	7.75E-04	6.77	2.15
ENSG00000127955	<i>GNAI1</i>	1.85	6.71E-04	258.44	69.97
ENSG00000289094		1.85	3.96E-03	2.04	0.68
ENSG00000282508	<i>LINC01002</i>	1.85	7.92E-03	1.86	0.55
ENSG00000268119		1.84	1.11E-05	34.97	10.11
ENSG00000156482	<i>RPL30</i>	1.84	1.26E-05	385.05	115.17
ENSG00000134597	<i>RBMX2</i>	1.84	2.46E-05	509.73	153.89
ENSG00000083457	<i>ITGAE</i>	1.84	3.76E-05	140.93	42.57
ENSG00000074695	<i>LMAN1</i>	1.84	5.39E-05	104.68	29.70
ENSG00000291015		1.84	9.07E-05	10.30	3.13
ENSG00000163659	<i>TIPARP</i>	1.84	9.27E-05	476.03	133.29
ENSG00000198862	<i>LTN1</i>	1.84	1.08E-04	317.54	90.54
ENSG00000099875	<i>MKNK2</i>	1.84	1.79E-04	19.61	6.04
ENSG00000164151	<i>ICE1</i>	1.84	2.04E-04	164.42	44.08
ENSG00000272933	<i>TRIM8-DT</i>	1.84	5.42E-04	4.53	1.27
ENSG00000177186	<i>OR2M7</i>	1.84	3.50E-03	1.56	0.47
ENSG00000170584	<i>NUDCD2</i>	1.83	8.53E-06	293.83	87.29
ENSG00000258315	<i>C17orf49</i>	1.83	1.02E-05	104.78	31.01
ENSG00000077152	<i>UBE2T</i>	1.83	1.69E-05	645.97	184.12
ENSG00000140396	<i>NCOA2</i>	1.83	2.27E-05	55.57	16.14
ENSG00000005249	<i>PRKAR2B</i>	1.83	3.18E-05	22.10	6.46
ENSG00000285901		1.83	3.15E-05	177.27	50.08
ENSG00000170322	<i>NFRKB</i>	1.83	3.65E-05	241.76	71.69
ENSG00000198900	<i>TOP1</i>	1.83	4.60E-05	284.03	87.62
ENSG00000165661	<i>QSOX2</i>	1.83	1.09E-04	19.24	5.43
ENSG00000162601	<i>MYSM1</i>	1.83	3.01E-04	31.52	9.47
ENSG00000151151	<i>IPMK</i>	1.83	3.76E-04	7.86	2.25
ENSG00000263146	<i>LINC01896</i>	1.83	9.57E-04	18.01	5.55
ENSG00000104231	<i>ZFAND1</i>	1.83	3.79E-03	8.47	2.62
ENSG00000174132	<i>FAM174A</i>	1.83	4.63E-03	17.63	5.25
ENSG00000280113		1.83	7.79E-03	4.50	1.24
ENSG00000154102	<i>C16orf74</i>	1.82	1.02E-05	289.69	85.50
ENSG00000133863	<i>TEX15</i>	1.82	1.22E-05	150.10	43.94
ENSG00000289228		1.82	2.22E-05	18.04	5.38
ENSG00000106399	<i>RPA3</i>	1.82	3.71E-05	118.62	36.73
ENSG00000171735	<i>CAMTA1</i>	1.82	3.99E-05	76.54	22.56
ENSG00000023608	<i>SNAPC1</i>	1.82	4.23E-05	163.43	45.88
ENSG00000111144	<i>LTA4H</i>	1.82	6.27E-05	410.28	116.85
ENSG00000213639	<i>PPP1CB</i>	1.82	8.12E-05	73.71	21.24
ENSG00000153048	<i>CARHSP1</i>	1.82	1.00E-04	14.24	4.37

ENSG00000077097	<i>TOP2B</i>	1.82	9.17E-05	250.16	71.85
ENSG00000166398	<i>GARRE1</i>	1.82	1.13E-04	26.32	8.22
ENSG00000177034	<i>MTX3</i>	1.82	1.43E-04	34.85	9.75
ENSG00000125844	<i>RRBP1</i>	1.82	1.55E-04	53.85	16.85
ENSG00000009780	<i>FAM76A</i>	1.82	1.98E-04	52.49	15.64
ENSG00000065978	<i>YBX1</i>	1.82	5.78E-04	14.44	4.74
ENSG00000164983	<i>TMEM65</i>	1.82	8.04E-04	3.41	0.98
ENSG00000271383	<i>NBPF19</i>	1.82	9.39E-03	4.72	1.71
ENSG00000081154	<i>PCNP</i>	1.81	1.06E-05	91.48	26.73
ENSG00000137955	<i>RABGGTB</i>	1.81	1.26E-05	138.38	40.94
ENSG00000270757	<i>HSPE1-MOB4</i>	1.81	1.31E-05	536.07	161.24
ENSG00000118007	<i>STAG1</i>	1.81	1.85E-05	78.33	22.68
ENSG00000256061	<i>DNAAF4</i>	1.81	2.33E-05	78.24	23.71
ENSG00000088256	<i>GNA11</i>	1.81	1.12E-04	147.77	42.45
ENSG00000234545	<i>FAM133B</i>	1.81	1.14E-04	269.08	79.09
ENSG00000167355	<i>OR51B5</i>	1.81	3.07E-04	9.62	3.07
ENSG00000218819	<i>TDRD15</i>	1.81	9.33E-04	7.61	2.20
ENSG00000057019	<i>DCBLD2</i>	1.81	2.36E-03	4.73	1.39
ENSG00000184990	<i>SIVA1</i>	1.80	4.40E-06	351.33	105.38
ENSG00000126016	<i>AMOT</i>	1.80	1.09E-05	132.98	40.30
ENSG00000163634	<i>THOC7</i>	1.80	1.19E-05	257.14	76.37
ENSG00000121741	<i>ZMYM2</i>	1.80	6.43E-05	212.00	64.11
ENSG00000159140	<i>SON</i>	1.80	7.43E-05	251.10	80.32
ENSG00000164713	<i>BRI3</i>	1.80	1.58E-04	27.23	8.61
ENSG00000060237	<i>WNK1</i>	1.80	1.93E-04	26.36	7.94
ENSG00000135838	<i>NPL</i>	1.80	2.69E-04	61.89	17.27
ENSG00000165389	<i>SPTSSA</i>	1.80	4.31E-04	6.50	2.06
ENSG00000273983	<i>H3C8</i>	1.80	1.67E-03	10.66	3.19
ENSG00000290837	<i>LRRC37A5P</i>	1.80	3.38E-03	1.12	0.35
ENSG00000118482	<i>PHF3</i>	1.79	6.14E-06	130.14	38.83
ENSG00000156531	<i>PHF6</i>	1.79	1.02E-05	139.07	41.63
ENSG00000081870	<i>HSPB11</i>	1.79	2.15E-05	504.26	154.42
ENSG00000072803	<i>FBXW11</i>	1.79	2.52E-05	28.09	8.56
ENSG00000140264	<i>SERF2</i>	1.79	2.58E-05	916.08	285.53
ENSG00000105372	<i>RPS19</i>	1.79	2.83E-05	448.52	140.25
ENSG00000213062		1.79	3.83E-05	68.99	20.42
ENSG00000137818	<i>RPLP1</i>	1.79	5.90E-05	321.67	101.39
ENSG00000126777	<i>KTN1</i>	1.79	7.83E-05	484.46	154.58
ENSG00000156802	<i>ATAD2</i>	1.79	1.43E-04	170.86	48.36
ENSG00000204130	<i>RUFY2</i>	1.79	2.00E-04	21.32	6.76
ENSG00000143545	<i>RAB13</i>	1.79	2.17E-04	19.20	5.58
ENSG00000257923	<i>CUX1</i>	1.79	2.38E-04	204.82	65.96
ENSG00000212907	<i>MT-ND4L</i>	1.79	9.11E-04	347.32	115.01
ENSG00000134313	<i>KIDINS220</i>	1.79	1.05E-03	104.15	29.86
ENSG00000289318		1.79	5.83E-03	2.28	0.75
ENSG00000164715	<i>LMTK2</i>	1.79	5.39E-03	11.27	2.78

ENSG00000123219	<i>CENPK</i>	1.78	2.11E-05	157.27	48.72
ENSG00000231500	<i>RPS18</i>	1.78	2.45E-05	165.89	51.34
ENSG00000023516	<i>AKAP11</i>	1.78	3.06E-05	196.55	60.60
ENSG00000174718	<i>RESF1</i>	1.78	3.62E-05	603.73	179.64
ENSG00000176386	<i>CDC26</i>	1.78	5.54E-05	121.89	37.94
ENSG00000139746	<i>RBM26</i>	1.78	6.97E-05	56.12	16.98
ENSG00000183955	<i>KMT5A</i>	1.78	1.49E-04	13.25	4.21
ENSG00000228253	<i>MT-ATP8</i>	1.78	1.91E-04	50.46	14.72
ENSG00000134278	<i>SPIRE1</i>	1.78	5.13E-04	11.62	3.36
ENSG00000112893	<i>MAN2A1</i>	1.78	6.23E-04	16.62	5.05
ENSG00000070831	<i>CDC42</i>	1.78	6.29E-04	45.89	15.54
ENSG00000275993		1.78	1.31E-03	2.85	0.86
ENSG00000289809		1.78	1.78E-03	9.92	3.16
ENSG00000157107	<i>FCHO2</i>	1.78	2.12E-03	5.70	1.58
ENSG00000198176	<i>TFDP1</i>	1.77	2.84E-05	113.68	33.54
ENSG00000108848	<i>LUC7L3</i>	1.77	4.06E-05	115.12	34.79
ENSG00000130699	<i>TAF4</i>	1.77	1.34E-04	21.13	6.23
ENSG00000137815	<i>RTF1</i>	1.77	2.07E-04	123.76	39.82
ENSG00000148384	<i>INPP5E</i>	1.77	7.15E-04	31.71	9.37
ENSG00000253729	<i>PRKDC</i>	1.77	3.16E-03	17.55	4.98
ENSG00000180900	<i>SCRIB</i>	1.77	4.12E-03	3.22	1.05
ENSG00000137812	<i>KNL1</i>	1.76	4.53E-05	448.67	143.69
ENSG00000166578	<i>IQCD</i>	1.76	6.11E-05	73.14	22.14
ENSG00000132964	<i>CDK8</i>	1.76	8.56E-05	48.29	15.71
ENSG00000236618	<i>PITPNA-AS1</i>	1.76	1.04E-04	42.70	13.46
ENSG00000101639	<i>CEP192</i>	1.76	2.00E-04	86.91	26.50
ENSG00000169446	<i>MMGT1</i>	1.76	2.41E-04	95.48	27.74
ENSG00000151414	<i>NEK7</i>	1.76	4.29E-04	14.87	4.45
ENSG00000135338	<i>LCA5</i>	1.76	1.23E-03	38.88	11.19
ENSG00000270647	<i>TAF15</i>	1.76	2.64E-03	8.12	2.62
ENSG00000280614		1.76	2.36E-03	45.24	12.17
ENSG00000280800		1.76	2.36E-03	45.24	12.17
ENSG00000281181		1.76	2.36E-03	45.24	12.17
ENSG00000155903	<i>RASA2</i>	1.76	4.07E-03	9.52	2.78
ENSG00000173193	<i>PARP14</i>	1.76	6.64E-03	1.61	0.51
ENSG00000138398	<i>PPIG</i>	1.75	8.03E-06	501.85	158.50
ENSG00000148482	<i>SLC39A12</i>	1.75	2.60E-05	33.52	10.32
ENSG00000138433	<i>CIR1</i>	1.75	2.72E-05	538.65	172.03
ENSG00000198054	<i>DSCR8</i>	1.75	3.70E-05	61.91	19.53
ENSG00000189195	<i>BTBD8</i>	1.75	3.85E-05	37.01	11.55
ENSG00000095951	<i>HIVEP1</i>	1.75	7.12E-05	112.36	35.43
ENSG00000180182	<i>MED14</i>	1.75	7.54E-05	102.63	32.42
ENSG00000083896	<i>YTHDC1</i>	1.75	7.76E-05	58.25	19.18
ENSG00000130332	<i>LSM7</i>	1.75	9.86E-05	108.12	34.87
ENSG00000101868	<i>POLA1</i>	1.75	1.33E-04	141.27	42.45
ENSG00000232023	<i>LINC01807</i>	1.75	1.60E-04	26.55	8.62

ENSG00000271614	<i>ATP2B1-AS1</i>	1.75	1.76E-04	6.71	2.12
ENSG00000105821	<i>DNAJC2</i>	1.75	1.76E-04	266.88	81.55
ENSG00000158195	<i>WASF2</i>	1.75	1.87E-04	91.23	28.42
ENSG00000100852	<i>ARHGAP5</i>	1.75	2.72E-04	31.19	10.29
ENSG00000110944	<i>IL23A</i>	1.75	3.18E-04	7.72	2.32
ENSG00000273398		1.75	3.67E-04	10.68	3.49
ENSG00000236452		1.75	3.53E-04	22.22	6.82
ENSG00000198039	<i>ZNF273</i>	1.75	4.27E-04	10.30	3.04
ENSG00000169291	<i>SHE</i>	1.75	4.39E-04	17.39	5.38
ENSG00000157224	<i>CLDN12</i>	1.75	4.37E-04	279.93	81.15
ENSG00000130741	<i>EIF2S3</i>	1.75	8.42E-04	22.17	7.08
ENSG00000035499	<i>DEPDC1B</i>	1.75	8.13E-04	110.67	32.01
ENSG00000124171	<i>PARD6B</i>	1.75	1.20E-03	14.06	4.46
ENSG00000185158	<i>LRRC37B</i>	1.75	2.17E-03	3.27	1.05
ENSG00000145604	<i>SKP2</i>	1.75	5.65E-03	1557.44	425.59
ENSG00000137707	<i>BTG4</i>	1.74	3.32E-06	6708.21	2097.09
ENSG00000165672	<i>PRDX3</i>	1.74	3.86E-06	716.42	221.70
ENSG00000172301	<i>COPRS</i>	1.74	3.92E-06	689.74	214.91
ENSG00000087086	<i>FTL</i>	1.74	1.66E-05	22199.41	7040.26
ENSG00000147050	<i>KDM6A</i>	1.74	2.32E-05	66.77	20.74
ENSG00000131469	<i>RPL27</i>	1.74	3.06E-05	100.63	32.62
ENSG00000169062	<i>UPF3A</i>	1.74	4.25E-05	85.42	26.78
ENSG00000158411	<i>MITD1</i>	1.74	4.25E-05	106.04	33.95
ENSG00000198887	<i>SMC5</i>	1.74	5.42E-05	90.86	28.03
ENSG00000172765	<i>TMCC1</i>	1.74	5.84E-05	89.12	26.72
ENSG00000021574	<i>SPAST</i>	1.74	7.95E-05	27.88	8.63
ENSG00000039319	<i>ZFYVE16</i>	1.74	8.29E-05	68.32	21.18
ENSG00000198160	<i>MIER1</i>	1.74	1.38E-04	46.58	14.32
ENSG00000196371	<i>FUT4</i>	1.74	2.56E-04	6.71	2.08
ENSG00000245910	<i>SNHG6</i>	1.74	3.19E-04	7.48	2.39
ENSG00000156509	<i>FBXO43</i>	1.74	2.72E-04	117.34	34.55
ENSG00000286312		1.74	5.13E-04	4.07	1.26
ENSG00000116473	<i>RAP1A</i>	1.74	8.69E-04	15.59	5.01
ENSG00000126012	<i>KDM5C</i>	1.74	2.34E-03	22.22	6.87
ENSG00000117148	<i>ACTL8</i>	1.74	5.27E-03	1048.12	311.04
ENSG00000104067	<i>TJP1</i>	1.73	4.43E-06	114.90	36.08
ENSG00000175600	<i>SUGCT</i>	1.73	1.04E-05	349.12	110.63
ENSG00000114744	<i>COMMD2</i>	1.73	1.33E-05	218.89	67.80
ENSG00000134049	<i>IER3IP1</i>	1.73	2.28E-05	404.92	122.55
ENSG00000164109	<i>MAD2L1</i>	1.73	2.32E-05	1036.23	313.13
ENSG00000155313	<i>USP25</i>	1.73	2.54E-05	224.20	71.76
ENSG00000188612	<i>SUMO2</i>	1.73	2.71E-05	1124.07	353.09
ENSG00000134982	<i>APC</i>	1.73	2.89E-05	228.98	69.89
ENSG00000108107	<i>RPL28</i>	1.73	6.47E-05	91.65	29.92
ENSG00000287316		1.73	1.22E-04	9.78	3.13
ENSG00000072134	<i>EPN2</i>	1.73	1.73E-04	64.65	20.12

ENSG00000176018	<i>LYSMD3</i>	1.73	2.74E-04	27.34	8.80
ENSG00000164484	<i>TMEM200A</i>	1.73	5.25E-04	90.92	27.00
ENSG00000114423	<i>CBLB</i>	1.73	6.49E-04	13.23	4.12
ENSG00000147133	<i>TAF1</i>	1.73	7.15E-04	16.74	4.95
ENSG00000100084	<i>HIRA</i>	1.73	2.76E-03	13.77	4.72
ENSG00000146083	<i>RNF44</i>	1.73	4.29E-03	2.00	0.59
ENSG00000159596	<i>TMEM69</i>	1.72	5.98E-06	491.90	156.17
ENSG00000085224	<i>ATRX</i>	1.72	1.28E-05	335.91	104.98
ENSG00000056050	<i>HPF1</i>	1.72	1.35E-05	2892.68	936.75
ENSG00000203909	<i>DPPA5</i>	1.72	1.90E-05	7181.89	2314.57
ENSG00000094975	<i>SUCO</i>	1.72	2.80E-05	157.92	48.87
ENSG00000235655	<i>H3P6</i>	1.72	3.01E-05	321.62	103.34
ENSG00000115966	<i>ATF2</i>	1.72	6.41E-05	171.16	53.15
ENSG00000017797	<i>RALBP1</i>	1.72	8.98E-05	153.99	50.35
ENSG00000008324	<i>SS18L2</i>	1.72	1.21E-04	96.15	32.02
ENSG00000169629	<i>RGPD8</i>	1.72	6.50E-04	21.02	6.82
ENSG00000066135	<i>KDM4A</i>	1.72	8.88E-04	64.13	20.14
ENSG00000163584	<i>RPL22L1</i>	1.72	1.20E-03	8.04	2.65
ENSG00000187151	<i>ANGPTL5</i>	1.72	1.67E-03	6.88	2.17
ENSG00000154188	<i>ANGPT1</i>	1.72	3.01E-03	7.68	2.72
ENSG00000290789		1.72	3.68E-03	5.99	1.92
ENSG00000075391	<i>RASAL2</i>	1.72	3.46E-03	17.56	6.22
ENSG00000100300	<i>TSPO</i>	1.72	5.07E-03	3.07	0.88
ENSG00000124391	<i>IL17C</i>	1.72	5.30E-03	39.89	12.18
ENSG00000154917	<i>RAB6B</i>	1.72	7.80E-03	13.74	5.62
ENSG00000187569	<i>DPPA3</i>	1.71	1.90E-06	7628.10	2436.91
ENSG00000075142	<i>SRI</i>	1.71	6.05E-06	332.27	105.97
ENSG00000204387	<i>SNHG32</i>	1.71	1.81E-05	40.04	12.60
ENSG00000189079	<i>ARID2</i>	1.71	3.09E-05	51.89	16.70
ENSG00000104904	<i>OAZ1</i>	1.71	4.11E-05	377.29	116.68
ENSG00000071243	<i>ING3</i>	1.71	5.31E-05	333.24	108.65
ENSG00000120029	<i>ARMH3</i>	1.71	6.10E-05	23.70	7.54
ENSG00000153006	<i>SREK1IP1</i>	1.71	6.66E-05	206.46	68.61
ENSG00000125944	<i>HNRNPR</i>	1.71	7.42E-05	70.93	21.81
ENSG00000135315	<i>CEP162</i>	1.71	8.57E-05	121.10	38.89
ENSG00000073803	<i>MAP3K13</i>	1.71	1.32E-04	21.02	6.98
ENSG00000198258	<i>UBL5</i>	1.71	3.88E-04	154.62	51.58
ENSG00000119318	<i>RAD23B</i>	1.71	8.89E-04	14.55	4.79
ENSG00000163577	<i>EIF5A2</i>	1.71	1.36E-03	2.63	0.87
ENSG00000011454	<i>RABGAP1</i>	1.71	2.61E-03	346.63	98.91
ENSG00000181163	<i>NPM1</i>	1.70	5.91E-06	1844.96	597.99
ENSG00000115128	<i>SF3B6</i>	1.70	2.05E-05	202.81	66.49
ENSG00000135486	<i>HNRNPA1</i>	1.70	2.73E-05	789.43	243.84
ENSG00000154429	<i>CCSAP</i>	1.70	5.54E-05	43.93	14.04
ENSG00000047634	<i>SCML1</i>	1.70	5.38E-05	253.16	78.25
ENSG00000156535	<i>CD109</i>	1.70	7.33E-05	20.66	6.65

ENSG00000115677	<i>HDLBP</i>	1.70	1.68E-04	239.73	77.94
ENSG00000134744	<i>TUT4</i>	1.70	2.82E-04	11.69	3.88
ENSG00000185345	<i>PRKN</i>	1.70	6.33E-04	9.90	3.04
ENSG00000172000	<i>ZNF556</i>	1.70	8.13E-04	12.53	3.88
ENSG00000009413	<i>REV3L</i>	1.70	7.87E-04	33.57	10.83
ENSG00000179476	<i>C14orf28</i>	1.70	9.13E-04	13.09	4.35
ENSG00000109436	<i>TBC1D9</i>	1.70	1.12E-03	17.27	5.36
ENSG00000100360	<i>IFT27</i>	1.70	4.50E-03	11.51	3.87
ENSG00000223551	<i>TMSB4XP4</i>	1.70	6.55E-03	1.75	0.56
ENSG00000133640	<i>LRRIQ1</i>	1.70	6.27E-03	13.98	3.98
ENSG00000129235	<i>TXNDC17</i>	1.69	1.50E-05	504.88	166.27
ENSG00000166913	<i>YWHAB</i>	1.69	2.30E-05	962.76	315.77
ENSG00000196104	<i>SPOCK3</i>	1.69	7.43E-05	29.61	9.94
ENSG00000165392	<i>WRN</i>	1.69	1.11E-04	166.84	51.92
ENSG00000111647	<i>UHRF1BP1L</i>	1.69	1.12E-04	177.67	56.83
ENSG00000143815	<i>LBR</i>	1.69	1.72E-04	80.31	24.60
ENSG00000088766	<i>CRLS1</i>	1.69	2.01E-04	641.01	192.98
ENSG00000182004	<i>SNRPE</i>	1.69	3.67E-04	886.03	298.64
ENSG00000117724	<i>CENPF</i>	1.69	7.05E-04	96.76	33.24
ENSG00000160633	<i>SAFB</i>	1.69	1.51E-03	24.97	7.26
ENSG00000290821		1.69	4.29E-03	3.11	1.00
ENSG00000267064	<i>UXT-AS1</i>	1.69	4.85E-03	4.82	1.40
ENSG00000150625	<i>GPM6A</i>	1.69	5.31E-03	2.86	1.05
ENSG00000258065		1.69	6.36E-03	1.01	0.30
ENSG00000197121	<i>PGAP1</i>	1.69	6.24E-03	5.44	2.01
ENSG00000105254	<i>TBCB</i>	1.68	4.40E-06	264.51	85.76
ENSG00000029725	<i>RABEP1</i>	1.68	7.96E-06	275.54	88.75
ENSG00000111897	<i>SERINC1</i>	1.68	9.12E-06	126.93	40.60
ENSG00000164114	<i>MAP9</i>	1.68	2.49E-05	381.83	124.56
ENSG00000269699	<i>ZIM2</i>	1.68	3.77E-05	194.72	63.79
ENSG00000100664	<i>EIF5</i>	1.68	4.25E-05	781.66	259.05
ENSG00000164086	<i>DUSP7</i>	1.68	5.39E-05	54.23	17.28
ENSG00000261206	<i>LINC00561</i>	1.68	6.64E-05	28.39	9.21
ENSG00000124177	<i>CHD6</i>	1.68	1.10E-04	42.76	14.35
ENSG00000160818	<i>GPATCH4</i>	1.68	1.20E-04	60.50	19.97
ENSG00000189060	<i>H1-0</i>	1.68	1.55E-04	72.99	24.78
ENSG00000130396	<i>AFDN</i>	1.68	1.67E-04	91.60	30.86
ENSG00000115993	<i>TRAK2</i>	1.68	1.88E-04	78.85	24.97
ENSG00000096872	<i>IFT74</i>	1.68	1.85E-04	109.79	38.28
ENSG00000107890	<i>ANKRD26</i>	1.68	2.54E-04	90.89	29.34
ENSG00000103642	<i>LACTB</i>	1.68	5.02E-04	16.06	5.08
ENSG00000146376	<i>ARHGAP18</i>	1.68	4.42E-04	1014.40	306.58
ENSG00000214293	<i>APTR</i>	1.68	6.20E-04	8.99	2.91
ENSG00000205791	<i>LOH12CR2</i>	1.68	1.01E-03	5.55	1.94
ENSG00000015568	<i>RGPD5</i>	1.68	1.37E-03	37.87	11.77
ENSG00000279595		1.68	2.65E-03	3.46	1.10

ENSG00000090061	<i>CCNK</i>	1.68	2.95E-03	98.78	37.29
ENSG00000287284		1.68	4.79E-03	1.79	0.62
ENSG00000183864	<i>TOB2</i>	1.68	3.72E-03	30.60	9.64
ENSG00000182348	<i>ZNF804B</i>	1.68	9.36E-03	5.33	2.25
ENSG00000140941	<i>MAP1LC3B</i>	1.67	9.06E-06	436.36	143.84
ENSG00000134453	<i>RBM17</i>	1.67	1.91E-05	371.73	120.00
ENSG00000217930	<i>PAM16</i>	1.67	2.25E-05	118.27	39.53
ENSG00000161920	<i>MED11</i>	1.67	2.48E-05	108.48	35.53
ENSG00000089048	<i>ESF1</i>	1.67	5.39E-05	253.63	84.34
ENSG00000126653	<i>NSRP1</i>	1.67	6.12E-05	84.59	29.11
ENSG00000168216	<i>LMBRD1</i>	1.67	7.01E-05	284.43	96.92
ENSG00000183530	<i>PRR14L</i>	1.67	7.33E-05	140.28	45.05
ENSG00000104047	<i>DTWD1</i>	1.67	8.37E-05	38.35	12.78
ENSG00000259343	<i>TMC3-AS1</i>	1.67	1.08E-04	74.14	25.14
ENSG00000079691	<i>CARMIL1</i>	1.67	1.06E-04	253.12	81.03
ENSG00000169946	<i>ZFPM2</i>	1.67	1.08E-04	659.91	212.03
ENSG00000170293	<i>CMTM8</i>	1.67	1.54E-04	70.86	22.57
ENSG00000100592	<i>DAAM1</i>	1.67	1.49E-04	1098.70	381.75
ENSG00000156650	<i>KAT6B</i>	1.67	2.00E-04	53.00	16.93
ENSG00000120733	<i>KDM3B</i>	1.67	2.21E-04	15.21	4.92
ENSG00000135999	<i>EPC2</i>	1.67	3.89E-03	7.78	2.51
ENSG00000185245	<i>GP1BA</i>	1.67	9.54E-03	1.76	0.63
ENSG00000148843	<i>PDCD11</i>	1.67	9.52E-03	2.47	0.89
ENSG00000249915	<i>PDCD6</i>	1.67	6.69E-03	282.13	107.03
ENSG00000156976	<i>EIF4A2</i>	1.66	1.01E-05	996.85	330.72
ENSG00000186010	<i>NDUFA13</i>	1.66	1.50E-05	154.09	51.38
ENSG00000108055	<i>SMC3</i>	1.66	2.05E-05	1538.03	508.72
ENSG00000091039	<i>OSBPL8</i>	1.66	2.20E-05	127.89	41.77
ENSG00000162961	<i>DPY30</i>	1.66	2.35E-05	373.39	125.40
ENSG00000165813	<i>CCDC186</i>	1.66	3.51E-05	288.32	94.72
ENSG00000092978	<i>GPATCH2</i>	1.66	6.67E-05	76.42	25.57
ENSG00000129315	<i>CCNT1</i>	1.66	2.54E-04	86.69	29.84
ENSG00000235437	<i>LINC01278</i>	1.66	3.86E-04	18.69	6.58
ENSG00000134901	<i>POGLUT2</i>	1.66	7.04E-04	16.66	5.59
ENSG00000167202	<i>TBC1D2B</i>	1.66	6.83E-04	29.47	10.49
ENSG00000276168	<i>RN7SL1</i>	1.66	9.71E-04	8.29	2.96
ENSG00000291224		1.66	1.04E-03	8.32	2.93
ENSG00000256879	<i>PDE3A-AS1</i>	1.66	1.12E-03	5.00	1.63
ENSG00000067533	<i>RRP15</i>	1.66	1.17E-03	89.60	30.28
ENSG00000282692		1.66	5.49E-03	1.13	0.40
ENSG00000158125	<i>XDH</i>	1.66	6.01E-03	1.04	0.37
ENSG00000287422		1.66	6.56E-03	1.37	0.49
ENSG00000038219	<i>BOD1L1</i>	1.65	1.38E-05	199.71	65.35
ENSG00000138182	<i>KIF20B</i>	1.65	2.08E-05	712.65	235.12
ENSG00000169032	<i>MAP2K1</i>	1.65	5.77E-05	172.69	56.58
ENSG00000268696	<i>ZNF723</i>	1.65	1.87E-04	18.71	6.56

ENSG00000153201	<i>RANBP2</i>	1.65	1.77E-04	172.74	59.59
ENSG00000168672	<i>LRATD2</i>	1.65	3.96E-04	60.99	19.30
ENSG00000248311		1.65	5.90E-04	5.52	1.84
ENSG00000083312	<i>TNPO1</i>	1.65	4.86E-04	83.73	27.05
ENSG00000179295	<i>PTPN11</i>	1.65	5.49E-04	27.00	8.67
ENSG00000166002	<i>SMCO4</i>	1.65	8.73E-04	100.94	33.18
ENSG00000169554	<i>ZEB2</i>	1.65	1.27E-03	3.60	1.16
ENSG00000108510	<i>MED13</i>	1.65	1.05E-03	101.85	33.56
ENSG00000230178	<i>OR4F3</i>	1.65	1.66E-03	4.33	1.57
ENSG00000228451	<i>SDAD1P1</i>	1.65	1.78E-03	5.39	1.97
ENSG00000204186	<i>ZDBF2</i>	1.65	1.59E-03	35.22	11.37
ENSG00000155096	<i>AZIN1</i>	1.65	1.67E-03	133.34	41.57
ENSG00000115020	<i>PIKFYVE</i>	1.65	2.41E-03	84.58	26.90
ENSG00000165997	<i>ARL5B</i>	1.65	2.65E-03	65.54	20.43
ENSG00000167658	<i>EEF2</i>	1.65	3.85E-03	33.56	12.84
ENSG00000273987		1.65	9.96E-03	0.93	0.29
ENSG00000198668	<i>CALM1</i>	1.64	9.21E-06	2212.95	730.91
ENSG00000273559	<i>CWC25</i>	1.64	1.29E-05	340.27	114.35
ENSG00000144224	<i>UBXN4</i>	1.64	3.21E-05	461.54	158.15
ENSG00000132514	<i>CLEC10A</i>	1.64	3.71E-05	549.95	180.62
ENSG00000103540	<i>CCP110</i>	1.64	5.91E-05	124.77	40.89
ENSG00000136153	<i>LMO7</i>	1.64	1.91E-04	174.12	55.86
ENSG00000070756	<i>PABPC1</i>	1.64	2.32E-04	95.33	34.50
ENSG00000100836	<i>PABPN1</i>	1.64	3.44E-04	32.31	11.23
ENSG00000007202	<i>KIAA0100</i>	1.64	4.90E-04	29.89	9.77
ENSG00000119285	<i>HEATR1</i>	1.64	4.98E-04	593.64	186.13
ENSG00000248787		1.64	1.17E-03	3.24	1.12
ENSG00000070778	<i>PTPN21</i>	1.64	1.05E-03	73.23	25.94
ENSG00000078177	<i>N4BP2</i>	1.64	1.28E-03	103.73	31.93
ENSG00000135090	<i>TAOK3</i>	1.64	1.88E-03	478.79	148.34
ENSG00000114739	<i>ACVR2B</i>	1.64	2.43E-03	27.70	8.82
ENSG00000100485	<i>SOS2</i>	1.64	2.55E-03	16.65	5.64
ENSG00000121769	<i>FABP3</i>	1.64	3.80E-03	2.30	0.74
ENSG00000086062	<i>B4GALT1</i>	1.64	4.95E-03	20.96	6.58
ENSG00000255836		1.64	7.55E-03	2.10	0.72
ENSG00000288968		1.64	9.70E-03	4.00	1.21
ENSG00000116030	<i>SUMO1</i>	1.63	1.00E-05	561.39	190.02
ENSG00000050393	<i>MCUR1</i>	1.63	1.29E-05	80.36	27.12
ENSG00000158417	<i>EIF5B</i>	1.63	2.79E-05	831.64	287.47
ENSG00000142534	<i>RPS11</i>	1.63	3.91E-05	193.39	67.00
ENSG00000073712	<i>FERMT2</i>	1.63	4.29E-05	106.46	36.01
ENSG00000169567	<i>HINT1</i>	1.63	4.26E-05	1413.11	489.45
ENSG00000100281	<i>HMGXB4</i>	1.63	5.32E-05	196.98	67.39
ENSG00000155368	<i>DBI</i>	1.63	6.66E-05	176.70	60.33
ENSG00000198707	<i>CEP290</i>	1.63	8.37E-05	29.97	10.21
ENSG00000166266	<i>CUL5</i>	1.63	7.76E-05	1629.57	527.07

ENSG00000134825	<i>TMEM258</i>	1.63	1.33E-04	92.45	32.95
ENSG00000124610	<i>H1-1</i>	1.63	1.55E-04	1291.49	453.17
ENSG00000113300	<i>CNOT6</i>	1.63	2.09E-04	93.45	30.40
ENSG00000231607	<i>DLEU2</i>	1.63	2.69E-04	49.39	17.16
ENSG00000100813	<i>ACIN1</i>	1.63	6.18E-04	41.63	14.20
ENSG00000119335	<i>SET</i>	1.63	6.06E-04	59.49	18.24
ENSG00000198231	<i>DDX42</i>	1.63	6.66E-04	65.15	21.80
ENSG00000205002	<i>AARD</i>	1.63	1.46E-03	2.01	0.68
ENSG00000188827	<i>SLX4</i>	1.63	1.77E-03	13.94	4.31
ENSG00000047188	<i>YTHDC2</i>	1.63	2.98E-03	28.24	9.05
ENSG00000131023	<i>LATS1</i>	1.63	3.04E-03	29.70	9.03
ENSG00000170759	<i>KIF5B</i>	1.62	8.64E-06	211.57	70.93
ENSG00000054282	<i>SDCCAG8</i>	1.62	1.14E-05	667.90	226.08
ENSG00000161016	<i>RPL8</i>	1.62	1.26E-05	382.81	131.09
ENSG00000143977	<i>SNRPG</i>	1.62	4.33E-05	206.49	71.07
ENSG00000166352	<i>IFTAP</i>	1.62	7.46E-05	149.60	52.00
ENSG00000184983	<i>NDUFA6</i>	1.62	7.86E-05	336.22	119.71
ENSG00000177954	<i>RPS27</i>	1.62	2.00E-04	102.43	36.66
ENSG00000160404	<i>TOR2A</i>	1.62	2.45E-04	154.22	52.01
ENSG00000151461	<i>UPF2</i>	1.62	4.46E-04	25.35	9.27
ENSG00000138071	<i>ACTR2</i>	1.62	4.95E-04	148.76	51.65
ENSG00000233384	<i>CNIH3-AS2</i>	1.62	8.20E-04	3.89	1.27
ENSG00000213741	<i>RPS29</i>	1.62	6.91E-04	60.32	22.33
ENSG00000182504	<i>CEP97</i>	1.62	6.85E-04	83.95	26.54
ENSG00000249936	<i>RAC1P2</i>	1.62	1.03E-03	14.90	5.11
ENSG00000083168	<i>KAT6A</i>	1.62	1.40E-03	38.18	12.57
ENSG00000289690		1.62	2.21E-03	4.24	1.53
ENSG00000215417	<i>MIR17HG</i>	1.62	3.03E-03	1.82	0.64
ENSG00000185697	<i>MYBL1</i>	1.62	2.66E-03	10.90	3.99
ENSG00000204104	<i>TRAF3IP1</i>	1.62	3.25E-03	47.23	16.82
ENSG00000286904		1.62	3.77E-03	10.83	4.31
ENSG00000162522	<i>KIAA1522</i>	1.62	4.65E-03	7.15	2.60
ENSG00000242154		1.62	9.82E-03	1.08	0.33
ENSG00000169064	<i>ZBBX</i>	1.62	9.80E-03	1.93	0.68
ENSG00000144161	<i>ZC3H8</i>	1.61	2.34E-05	179.53	62.11
ENSG00000147403	<i>RPL10</i>	1.61	2.70E-05	252.98	87.79
ENSG00000196204	<i>RNF216P1</i>	1.61	3.51E-05	128.41	43.26
ENSG00000152359	<i>POC5</i>	1.61	4.60E-05	229.27	78.60
ENSG00000182670	<i>TTC3</i>	1.61	6.22E-05	156.06	51.90
ENSG00000255857	<i>PXN-AS1</i>	1.61	1.53E-04	10.13	3.48
ENSG00000090621	<i>PABPC4</i>	1.61	1.69E-04	73.77	25.21
ENSG00000128908	<i>INO80</i>	1.61	1.87E-04	16.92	5.78
ENSG00000088038	<i>CNOT3</i>	1.61	3.21E-04	30.56	10.84
ENSG00000289507		1.61	4.35E-04	6.12	2.05
ENSG00000172939	<i>OXSRI</i>	1.61	4.19E-04	18.59	6.32
ENSG00000226137	<i>BAIAP2-DT</i>	1.61	1.40E-03	3.31	1.14

ENSG00000080166	<i>DCT</i>	1.61	1.82E-03	172.06	50.88
ENSG00000170889	<i>RPS9</i>	1.61	6.96E-03	50.07	17.36
ENSG00000139618	<i>BRCA2</i>	1.60	9.98E-06	865.90	297.84
ENSG00000177879	<i>AP3S1</i>	1.60	2.15E-05	118.73	39.91
ENSG00000114956	<i>DGUOK</i>	1.60	3.12E-05	190.21	65.83
ENSG00000101443	<i>WFDC2</i>	1.60	3.67E-05	628.94	215.32
ENSG00000198034	<i>RPS4X</i>	1.60	3.78E-05	173.46	61.01
ENSG00000100578	<i>KIAA0586</i>	1.60	4.11E-05	142.70	49.16
ENSG00000187109	<i>NAP1L1</i>	1.60	4.61E-05	272.40	96.70
ENSG00000136709	<i>WDR33</i>	1.60	5.13E-05	204.35	70.36
ENSG00000286075	<i>SAGSIN1</i>	1.60	5.28E-05	218.85	73.46
ENSG00000233927	<i>RPS28</i>	1.60	7.38E-05	89.15	31.80
ENSG00000151474	<i>FRMD4A</i>	1.60	7.51E-05	71.42	24.48
ENSG00000113387	<i>SUB1</i>	1.60	1.05E-04	762.55	268.18
ENSG00000150636	<i>CCDC102B</i>	1.60	1.54E-04	14.37	5.05
ENSG00000172795	<i>DCP2</i>	1.60	6.47E-04	883.20	315.02
ENSG00000260708	<i>TBC1D22A-DT</i>	1.60	1.93E-03	6.48	2.16
ENSG00000264522	<i>OTUD7B</i>	1.60	1.87E-03	14.88	5.02
ENSG00000284846		1.60	3.34E-03	21.24	8.87
ENSG00000146414	<i>SHPRH</i>	1.60	4.54E-03	32.87	10.30
ENSG00000149735	<i>GPHA2</i>	1.60	8.17E-03	126.04	37.30
ENSG00000089157	<i>RPLP0</i>	1.59	4.82E-06	598.91	205.65
ENSG00000121690	<i>DEPDC7</i>	1.59	1.29E-05	2537.99	855.78
ENSG00000173812	<i>EIF1</i>	1.59	1.30E-05	1927.94	672.50
ENSG00000198729	<i>PPP1R14C</i>	1.59	2.72E-05	114.32	39.94
ENSG00000076043	<i>REXO2</i>	1.59	2.77E-05	764.36	256.16
ENSG00000113593	<i>PPWD1</i>	1.59	3.69E-05	299.82	102.55
ENSG00000110700	<i>RPS13</i>	1.59	5.26E-05	322.26	115.72
ENSG00000064012	<i>CASP8</i>	1.59	5.84E-05	38.94	13.73
ENSG00000104218	<i>CSPP1</i>	1.59	7.70E-05	83.27	28.35
ENSG00000155100	<i>OTUD6B</i>	1.59	8.39E-05	24.52	8.34
ENSG00000032219	<i>ARID4A</i>	1.59	9.70E-05	331.71	112.19
ENSG00000163946	<i>TASOR</i>	1.59	9.99E-05	243.70	83.77
ENSG00000055208	<i>TAB2</i>	1.59	1.15E-04	34.29	11.53
ENSG00000153989	<i>NUS1</i>	1.59	1.34E-04	23.85	8.14
ENSG00000096092	<i>TMEM14A</i>	1.59	1.14E-04	569.16	200.79
ENSG00000177565	<i>TBL1XR1</i>	1.59	2.57E-04	27.42	9.78
ENSG00000272391	<i>POM121C</i>	1.59	3.35E-04	18.78	6.36
ENSG00000061676	<i>NCKAP1</i>	1.59	4.43E-04	45.16	15.53
ENSG00000139865	<i>TTC6</i>	1.59	4.64E-04	39.31	14.29
ENSG00000129351	<i>ILF3</i>	1.59	6.84E-04	75.92	26.27
ENSG00000146007	<i>ZMAT2</i>	1.59	8.42E-04	61.45	23.11
ENSG00000244398	<i>RPL36AP37</i>	1.59	1.40E-03	23.93	8.68
ENSG00000181450	<i>ZNF678</i>	1.59	3.03E-03	10.36	3.42
ENSG00000131725	<i>WDR44</i>	1.59	3.43E-03	65.58	22.60
ENSG00000123131	<i>PRDX4</i>	1.59	6.92E-03	10.53	3.70

ENSG00000267041	<i>ZNF850</i>	1.59	7.90E-03	57.01	19.04
ENSG00000163041	<i>H3-3A</i>	1.58	2.31E-05	408.52	143.10
ENSG00000083093	<i>PALB2</i>	1.58	2.48E-05	250.37	87.90
ENSG00000125870	<i>SNRPB2</i>	1.58	3.70E-05	156.61	55.38
ENSG00000130150	<i>MOSPD2</i>	1.58	6.41E-05	113.98	38.89
ENSG00000110075	<i>PPP6R3</i>	1.58	8.70E-05	114.47	39.89
ENSG00000163535	<i>SGO2</i>	1.58	8.80E-05	326.84	111.16
ENSG00000148450	<i>MSRB2</i>	1.58	1.39E-04	11.13	3.81
ENSG00000181090	<i>EHMT1</i>	1.58	1.37E-04	125.05	43.88
ENSG00000082258	<i>CCNT2</i>	1.58	1.52E-04	66.36	23.58
ENSG00000128829	<i>EIF2AK4</i>	1.58	1.93E-04	74.53	26.37
ENSG00000213186	<i>TRIM59</i>	1.58	2.07E-04	208.44	70.79
ENSG00000198604	<i>BAZ1A</i>	1.58	2.32E-04	740.68	248.40
ENSG00000280241		1.58	4.77E-04	29.10	9.97
ENSG00000272333	<i>KMT2B</i>	1.58	5.77E-04	16.21	5.77
ENSG00000139437	<i>TCHP</i>	1.58	5.89E-04	70.74	25.06
ENSG00000107643	<i>MAPK8</i>	1.58	6.55E-04	73.86	27.60
ENSG00000172922	<i>RNASEH2C</i>	1.58	7.62E-04	42.01	13.92
ENSG00000008128	<i>CDK11A</i>	1.58	1.77E-03	17.15	6.14
ENSG00000164031	<i>DNAJB14</i>	1.58	2.13E-03	10.17	3.50
ENSG00000178502	<i>KLHL11</i>	1.58	2.31E-03	21.37	6.61
ENSG00000196081	<i>ZNF724</i>	1.58	2.78E-03	6.58	2.44
ENSG00000006459	<i>KDM7A</i>	1.58	3.89E-03	95.29	30.23
ENSG00000156469	<i>MTERF3</i>	1.57	1.20E-05	1704.92	587.52
ENSG00000141446	<i>ESCO1</i>	1.57	2.45E-05	114.79	40.54
ENSG00000135968	<i>GCC2</i>	1.57	4.51E-05	475.92	170.26
ENSG00000182180	<i>MRPS16</i>	1.57	6.65E-05	50.47	18.12
ENSG00000108468	<i>CBX1</i>	1.57	6.47E-05	125.42	43.77
ENSG00000122507	<i>BBS9</i>	1.57	6.67E-05	291.15	104.46
ENSG00000178397	<i>FAM220A</i>	1.57	7.68E-05	219.04	74.51
ENSG00000082438	<i>COBLL1</i>	1.57	8.06E-05	142.42	48.70
ENSG00000137962	<i>ARHGAP29</i>	1.57	1.07E-04	124.29	42.24
ENSG00000011566	<i>MAP4K3</i>	1.57	1.52E-04	52.07	17.86
ENSG00000100266	<i>PACSIN2</i>	1.57	1.85E-04	90.61	30.90
ENSG00000115163	<i>CENPA</i>	1.57	5.38E-04	267.16	89.44
ENSG00000149311	<i>ATM</i>	1.57	7.47E-04	49.03	16.86
ENSG00000269713	<i>NBPF9</i>	1.57	1.09E-03	10.72	4.00
ENSG00000125351	<i>UPF3B</i>	1.57	1.26E-03	130.80	49.84
ENSG00000151881	<i>TMEM267</i>	1.57	6.63E-03	1.67	0.56
ENSG00000279373		1.57	7.00E-03	2.17	0.81
ENSG00000153574	<i>RPIA</i>	1.57	5.92E-03	35.63	11.81
ENSG00000079950	<i>STX7</i>	1.56	2.59E-05	66.47	23.10
ENSG00000107949	<i>BCCIP</i>	1.56	2.45E-05	458.70	162.66
ENSG00000165283	<i>STOML2</i>	1.56	2.68E-05	163.75	56.77
ENSG00000142507	<i>PSMB6</i>	1.56	3.39E-05	358.68	130.18
ENSG00000147649	<i>MTDH</i>	1.56	3.83E-05	95.81	33.92

ENSG00000164610	<i>RP9</i>	1.56	4.17E-05	104.61	37.61
ENSG00000171202	<i>TMEM126A</i>	1.56	7.24E-05	167.26	60.80
ENSG00000241343	<i>RPL36A</i>	1.56	7.87E-05	96.05	34.06
ENSG00000119397	<i>CNTRL</i>	1.56	1.09E-04	162.47	57.57
ENSG00000119906	<i>SLF2</i>	1.56	1.46E-04	73.18	26.33
ENSG00000198680	<i>TUSC1</i>	1.56	2.06E-04	37.23	12.95
ENSG00000186714	<i>CCDC73</i>	1.56	2.31E-04	163.33	58.94
ENSG00000287286		1.56	3.36E-04	18.77	6.49
ENSG00000063244	<i>U2AF2</i>	1.56	3.50E-04	15.94	5.88
ENSG00000132432	<i>SEC61G</i>	1.56	3.23E-04	163.76	60.23
ENSG00000136231	<i>IGF2BP3</i>	1.56	4.86E-04	157.88	52.28
ENSG00000112200	<i>ZNF451</i>	1.56	8.32E-04	50.15	18.87
ENSG00000138641	<i>HERC3</i>	1.56	9.67E-04	73.73	25.68
ENSG00000122035	<i>RASL11A</i>	1.56	1.17E-03	61.73	22.28
ENSG00000160551	<i>TAOK1</i>	1.56	1.19E-03	114.01	41.07
ENSG00000126870	<i>DYNC2I1</i>	1.56	1.27E-03	52.98	20.84
ENSG00000290429		1.56	7.39E-03	8.73	3.46
ENSG00000171456	<i>ASXL1</i>	1.55	1.62E-05	79.25	28.39
ENSG00000090054	<i>SPTLC1</i>	1.55	3.05E-05	101.88	35.71
ENSG00000115414	<i>FN1</i>	1.55	2.96E-05	341.03	120.64
ENSG00000145734	<i>BDP1</i>	1.55	5.35E-05	107.38	38.24
ENSG00000144674	<i>GOLGA4</i>	1.55	5.90E-05	267.69	95.96
ENSG00000197299	<i>BLM</i>	1.55	6.65E-05	101.46	35.77
ENSG00000205581	<i>HMGN1</i>	1.55	6.71E-05	286.40	100.71
ENSG00000133226	<i>SRRM1</i>	1.55	7.51E-05	129.47	46.08
ENSG00000136122	<i>BORA</i>	1.55	8.46E-05	76.11	26.18
ENSG00000183814	<i>LIN9</i>	1.55	8.50E-05	104.30	38.43
ENSG00000175054	<i>ATR</i>	1.55	1.57E-04	72.42	25.71
ENSG00000164609	<i>SLU7</i>	1.55	1.55E-04	504.08	183.90
ENSG00000197081	<i>IGF2R</i>	1.55	4.50E-04	25.53	8.95
ENSG00000092439	<i>TRPM7</i>	1.55	5.31E-04	43.22	15.11
ENSG00000167554	<i>ZNF610</i>	1.55	8.84E-04	74.57	24.27
ENSG00000138767	<i>CNOT6L</i>	1.55	8.70E-04	120.20	40.72
ENSG00000123268	<i>ATF1</i>	1.55	1.20E-03	29.90	10.29
ENSG00000108799	<i>EZH1</i>	1.55	1.77E-03	18.57	7.09
ENSG00000119684	<i>MLH3</i>	1.55	1.91E-03	15.92	6.18
ENSG00000129003	<i>VPS13C</i>	1.55	1.90E-03	123.02	42.30
ENSG00000072133	<i>RPS6KA6</i>	1.55	2.50E-03	11.59	3.87
ENSG00000116704	<i>SLC35D1</i>	1.55	3.30E-03	84.33	28.06
ENSG00000112144	<i>CILK1</i>	1.55	4.18E-03	11.71	3.68
ENSG00000163644	<i>PPM1K</i>	1.55	6.35E-03	1.69	0.58
ENSG00000109381	<i>ELF2</i>	1.55	5.38E-03	9.23	3.32
ENSG00000169826	<i>CSGALNACT2</i>	1.55	7.14E-03	56.29	18.81
ENSG00000006625	<i>GGCT</i>	1.54	1.28E-05	252.05	90.18
ENSG00000203907	<i>OOEP</i>	1.54	2.01E-05	4456.91	1632.83
ENSG00000145569	<i>OTULINL</i>	1.54	5.52E-05	53.47	18.94

ENSG00000229251	<i>HNRNPA1P8</i>	1.54	1.34E-04	787.21	280.66
ENSG00000047315	<i>POLR2B</i>	1.54	1.55E-04	46.54	16.38
ENSG00000067798	<i>NAV3</i>	1.54	1.69E-04	84.77	31.29
ENSG00000164292	<i>RHOBTB3</i>	1.54	3.31E-04	76.64	26.52
ENSG00000137656	<i>BUD13</i>	1.54	6.93E-04	110.40	37.35
ENSG00000182287	<i>AP1S2</i>	1.54	1.14E-03	8.56	2.93
ENSG00000143799	<i>PARP1</i>	1.54	9.16E-04	255.33	86.07
ENSG00000100014	<i>SPECC1L</i>	1.54	1.46E-03	73.23	25.48
ENSG00000115977	<i>AAK1</i>	1.54	1.75E-03	14.31	5.53
ENSG00000108960	<i>MMD</i>	1.54	4.04E-03	21.29	6.78
ENSG00000105792	<i>CFAP69</i>	1.54	5.42E-03	2.56	0.85
ENSG00000143442	<i>POGZ</i>	1.54	4.92E-03	32.82	12.99
ENSG00000156697	<i>UTP14A</i>	1.53	1.30E-05	300.65	107.42
ENSG00000196074	<i>SYCP2</i>	1.53	1.31E-05	561.45	202.67
ENSG00000151962	<i>RBM46</i>	1.53	3.72E-05	167.85	60.57
ENSG00000267058		1.53	6.19E-05	32.99	11.88
ENSG00000138778	<i>CENPE</i>	1.53	6.11E-05	802.82	292.95
ENSG00000149256	<i>TENM4</i>	1.53	8.67E-05	27.47	9.86
ENSG00000132967	<i>HMGB1P5</i>	1.53	8.65E-05	148.68	55.66
ENSG00000164190	<i>NIPBL</i>	1.53	1.09E-04	116.12	42.64
ENSG00000118412	<i>CASP8AP2</i>	1.53	1.34E-04	130.85	48.04
ENSG00000107854	<i>TNKS2</i>	1.53	1.48E-04	124.09	44.16
ENSG00000187605	<i>TET3</i>	1.53	1.65E-04	82.81	29.36
ENSG00000241767	<i>LINC01324</i>	1.53	2.13E-04	6.60	2.38
ENSG00000219200	<i>RNASEK</i>	1.53	2.07E-04	62.75	23.44
ENSG00000137449	<i>CPEB2</i>	1.53	4.91E-04	9.59	3.49
ENSG00000088832	<i>FKBP1A</i>	1.53	4.19E-04	100.93	36.74
ENSG00000165417	<i>GTF2A1</i>	1.53	5.45E-04	6.44	2.37
ENSG00000067208	<i>EVI5</i>	1.53	6.43E-04	41.31	14.56
ENSG00000188243	<i>COMMD6</i>	1.53	5.89E-04	221.90	80.54
ENSG00000067596	<i>DHX8</i>	1.53	6.72E-04	54.71	20.66
ENSG00000123607	<i>TTC21B</i>	1.53	9.22E-04	35.95	12.34
ENSG00000006576	<i>PHTF2</i>	1.53	1.00E-03	100.28	33.54
ENSG00000107186	<i>MPDZ</i>	1.53	1.15E-03	24.14	9.28
ENSG00000246662	<i>CIBAR1-DT</i>	1.53	1.72E-03	2.67	0.99
ENSG00000106330	<i>MOSPD3</i>	1.53	1.77E-03	8.98	3.06
ENSG00000198929	<i>NOS1AP</i>	1.53	1.55E-03	134.06	48.02
ENSG00000205339	<i>IPO7</i>	1.53	2.89E-03	15.42	5.34
ENSG00000182013	<i>PNMA8A</i>	1.53	3.00E-03	23.10	8.77
ENSG00000198276	<i>UCKL1</i>	1.53	8.72E-03	12.04	3.84
ENSG00000139218	<i>SCAF11</i>	1.52	2.25E-05	97.64	35.00
ENSG00000137210	<i>TMEM14B</i>	1.52	2.73E-05	940.38	342.01
ENSG00000012983	<i>MAP4K5</i>	1.52	4.15E-05	37.45	13.54
ENSG00000173113	<i>TRMT112</i>	1.52	3.71E-05	1108.65	411.89
ENSG00000182117	<i>NOP10</i>	1.52	4.20E-05	368.56	137.38
ENSG00000119655	<i>NPC2</i>	1.52	5.49E-05	158.59	59.02

ENSG00000269893	<i>SNHG8</i>	1.52	1.18E-04	12.07	4.36
ENSG00000163714	<i>U2SURP</i>	1.52	1.24E-04	101.41	36.77
ENSG00000120159	<i>CAAP1</i>	1.52	1.41E-04	34.74	12.35
ENSG00000059588	<i>TARBP1</i>	1.52	1.72E-04	33.65	12.23
ENSG00000004897	<i>CDC27</i>	1.52	1.54E-04	449.07	168.81
ENSG00000185056	<i>C5orf47</i>	1.52	2.00E-04	28.90	10.12
ENSG00000122483	<i>CCDC18</i>	1.52	2.21E-04	44.32	15.84
ENSG00000135945	<i>REV1</i>	1.52	2.23E-04	173.53	61.01
ENSG00000238217	<i>LINC01877</i>	1.52	3.00E-04	7.44	2.71
ENSG00000096063	<i>SRPK1</i>	1.52	2.63E-04	315.55	116.07
ENSG00000164142	<i>FHIP1A</i>	1.52	3.41E-04	30.27	10.45
ENSG00000051825	<i>MPHOSPH9</i>	1.52	3.62E-04	26.85	9.72
ENSG00000188994	<i>ZNF292</i>	1.52	3.41E-04	98.33	34.46
ENSG00000131626	<i>PPFIA1</i>	1.52	3.46E-04	234.66	79.44
ENSG00000166889	<i>PATL1</i>	1.52	4.50E-04	16.49	6.27
ENSG00000173041	<i>ZNF680</i>	1.52	5.07E-04	11.85	4.28
ENSG00000268364	<i>SMC5-DT</i>	1.52	5.35E-04	7.93	3.01
ENSG00000100201	<i>DDX17</i>	1.52	6.80E-04	20.64	7.28
ENSG00000130338	<i>TULP4</i>	1.52	7.03E-04	24.41	9.48
ENSG00000117519	<i>CNN3</i>	1.52	6.20E-04	1185.39	427.00
ENSG00000152332	<i>UHMK1</i>	1.52	1.31E-03	44.48	14.97
ENSG00000158987	<i>RAPGEF6</i>	1.52	1.29E-03	90.82	30.91
ENSG00000115760	<i>BIRC6</i>	1.52	1.48E-03	98.16	32.67
ENSG00000204822	<i>MRPL53</i>	1.52	1.53E-03	55.97	21.36
ENSG00000290445	<i>CCNYL2</i>	1.52	4.98E-03	2.52	0.88
ENSG00000065989	<i>PDE4A</i>	1.52	4.55E-03	9.63	3.08
ENSG00000196792	<i>STRN3</i>	1.52	5.79E-03	8.34	3.24
ENSG00000186335	<i>SLC36A2</i>	1.52	8.42E-03	1.86	0.72
ENSG00000263041		1.52	7.55E-03	88.35	28.33
ENSG00000197045	<i>GMFB</i>	1.51	1.26E-05	415.04	151.26
ENSG00000174720	<i>LARP7</i>	1.51	2.92E-05	579.75	212.50
ENSG00000136108	<i>CKAP2</i>	1.51	4.63E-05	357.62	133.40
ENSG00000091136	<i>LAMB1</i>	1.51	5.24E-05	173.74	61.82
ENSG00000173674	<i>EIF1AX</i>	1.51	5.65E-05	272.22	101.80
ENSG00000101745	<i>ANKRD12</i>	1.51	6.52E-05	77.67	28.79
ENSG00000089902	<i>RCOR1</i>	1.51	1.19E-04	72.09	25.87
ENSG00000168928	<i>CTRB2</i>	1.51	1.31E-04	51.95	19.09
ENSG00000111911	<i>HINT3</i>	1.51	2.10E-04	17.75	6.71
ENSG00000151470	<i>C4orf33</i>	1.51	2.20E-04	23.52	8.53
ENSG00000164941	<i>INTS8</i>	1.51	1.97E-04	575.58	204.12
ENSG00000165533	<i>TTC8</i>	1.51	2.55E-04	35.64	12.74
ENSG00000163104	<i>SMARCAD1</i>	1.51	3.10E-04	105.64	37.38
ENSG00000154265	<i>ABCA5</i>	1.51	4.46E-04	54.81	20.20
ENSG00000175105	<i>ZNF654</i>	1.51	4.92E-04	195.07	67.38
ENSG00000187790	<i>FANCM</i>	1.51	5.25E-04	266.50	92.77
ENSG00000136603	<i>SKIL</i>	1.51	9.82E-04	9.38	3.51

ENSG00000158296	<i>SLC13A3</i>	1.51	8.94E-04	35.38	12.97
ENSG00000145725	<i>PPIP5K2</i>	1.51	8.76E-04	120.92	43.80
ENSG00000157827	<i>FMNL2</i>	1.51	1.50E-03	20.19	6.88
ENSG00000108306	<i>FBXL20</i>	1.51	3.03E-03	26.69	9.25
ENSG00000223508	<i>RPL23AP53</i>	1.51	5.20E-03	6.65	2.52
ENSG00000162616	<i>DNAJB4</i>	1.51	5.19E-03	93.99	31.48
ENSG00000205542	<i>TMSB4X</i>	1.50	1.46E-05	5803.41	2122.66
ENSG00000141458	<i>NPC1</i>	1.50	1.66E-05	353.88	128.75
ENSG00000107951	<i>MTPAP</i>	1.50	2.10E-05	139.01	50.54
ENSG00000275004	<i>ZNF280B</i>	1.50	4.80E-05	387.32	142.66
ENSG00000180008	<i>SOCS4</i>	1.50	9.42E-05	31.09	11.42
ENSG00000167797	<i>CDK2AP2</i>	1.50	1.81E-04	1507.37	533.06
ENSG00000250299	<i>MRPS31P4</i>	1.50	3.23E-04	7.98	2.87
ENSG00000133106	<i>EPSTI1</i>	1.50	2.82E-04	607.98	212.55
ENSG00000119953	<i>SMNDC1</i>	1.50	3.63E-04	22.50	8.58
ENSG00000144362	<i>PHOSPHO2</i>	1.50	3.67E-04	83.94	29.29
ENSG00000160131	<i>VMA21</i>	1.50	5.74E-04	16.24	6.33
ENSG00000140575	<i>IQGAP1</i>	1.50	1.05E-03	428.21	143.47
ENSG00000058272	<i>PPP1R12A</i>	1.50	1.54E-03	423.04	147.57
ENSG00000291106	<i>LINC00888</i>	1.50	2.71E-03	12.63	4.60
Downregulated DEGs					
ENSG00000070669	<i>ASNS</i>	-9.34	1.08E-05	0.34	39.78
ENSG00000262633		-8.63	1.06E-05	0.00	6.78
ENSG00000288894		-7.42	2.30E-05	0.43	23.96
ENSG00000115657	<i>ABCB6</i>	-6.70	6.85E-05	0.13	3.31
ENSG00000289744		-6.29	6.47E-05	0.17	3.55
ENSG00000136444	<i>RSAD1</i>	-6.18	8.22E-04	0.03	2.22
ENSG00000083814	<i>ZNF671</i>	-6.01	1.54E-04	0.10	2.41
ENSG00000225365		-5.99	1.06E-05	0.18	11.23
ENSG00000176868		-5.95	1.57E-04	0.00	1.14
ENSG00000275158	<i>TRBV12-5</i>	-5.88	1.03E-04	0.06	1.68
ENSG00000253271		-5.86	4.95E-05	0.02	1.27
ENSG00000148331	<i>ASB6</i>	-5.83	1.61E-06	2.14	129.25
ENSG00000230707		-5.83	8.70E-05	0.05	2.03
ENSG00000197213	<i>ZSCAN5B</i>	-5.81	3.07E-05	0.00	0.91
ENSG00000255772	<i>LINC01479</i>	-5.80	1.71E-04	0.20	5.16
ENSG00000274248		-5.78	3.90E-05	0.05	3.24
ENSG00000263528	<i>IKBKE</i>	-5.78	4.65E-04	0.16	4.22
ENSG00000153485	<i>TMEM251</i>	-5.76	2.76E-07	0.92	47.00
ENSG00000168418	<i>KCNG4</i>	-5.75	5.90E-05	0.12	3.30
ENSG00000254037		-5.74	1.90E-05	0.01	1.12
ENSG00000255303	<i>OR5BA1P</i>	-5.73	4.19E-05	0.03	1.63
ENSG00000232903	<i>LINC01166</i>	-5.71	1.82E-05	0.03	1.82
ENSG00000150556	<i>LYPD6B</i>	-5.71	1.77E-04	0.10	3.63
ENSG00000175213	<i>ZNF408</i>	-5.70	1.00E-05	0.83	36.56
ENSG00000184489	<i>PTP4A3</i>	-5.70	7.68E-05	0.02	1.56

ENSG00000288683		-5.69	5.90E-05	0.01	1.03
ENSG00000288725		-5.68	3.08E-04	0.33	5.45
ENSG00000253716	<i>MINCR</i>	-5.66	2.58E-04	0.16	2.19
ENSG00000241839	<i>PLEKHO2</i>	-5.58	9.18E-05	0.06	2.36
ENSG00000254402	<i>LRRC24</i>	-5.58	1.12E-03	0.62	6.80
ENSG00000286258		-5.56	6.10E-05	0.04	1.81
ENSG00000230843		-5.53	2.77E-05	0.02	0.99
ENSG00000253390	<i>ENTPD4-DT</i>	-5.52	4.69E-04	0.10	2.43
ENSG00000108839	<i>ALOX12</i>	-5.51	3.40E-03	0.06	2.96
ENSG00000142751	<i>GPN2</i>	-5.49	1.60E-07	3.17	138.98
ENSG00000219039		-5.49	7.21E-04	0.30	4.25
ENSG00000267288		-5.48	3.65E-05	0.00	0.74
ENSG00000255750		-5.48	3.70E-04	0.16	4.21
ENSG00000284713	<i>SMIM38</i>	-5.47	9.48E-07	0.53	23.74
ENSG00000249551	<i>LINC02216</i>	-5.44	3.70E-05	0.03	1.27
ENSG00000272595	<i>OR10AH1P</i>	-5.44	3.68E-04	1.69	30.93
ENSG00000169733	<i>RFNG</i>	-5.43	1.91E-04	0.88	20.31
ENSG00000223631	<i>LINC01120</i>	-5.41	3.66E-04	0.11	3.02
ENSG00000226036		-5.40	1.28E-04	0.02	1.06
ENSG00000263612		-5.38	3.63E-05	0.02	0.89
ENSG00000117676	<i>RPS6KA1</i>	-5.37	2.21E-04	0.30	10.29
ENSG00000188229	<i>TUBB4B</i>	-5.31	2.22E-05	9.83	409.00
ENSG00000259295	<i>CSPG4P12</i>	-5.30	8.05E-04	0.12	2.15
ENSG00000133895	<i>MEN1</i>	-5.29	1.19E-06	0.70	27.05
ENSG00000077009	<i>NMRK2</i>	-5.29	2.89E-06	0.72	30.85
ENSG00000254665		-5.29	2.72E-05	0.00	0.68
ENSG00000257271	<i>KIRREL3-AS1</i>	-5.27	4.85E-04	0.08	2.29
ENSG00000278848	<i>TP53TG3F</i>	-5.26	1.09E-04	0.07	2.90
ENSG00000143107	<i>FNDC7</i>	-5.25	9.91E-04	0.25	4.79
ENSG00000269243		-5.25	1.27E-03	0.79	6.80
ENSG00000173253	<i>DMRT2</i>	-5.24	4.83E-04	0.08	1.16
ENSG00000254793	<i>FDSP4</i>	-5.23	2.60E-05	0.00	0.56
ENSG00000184967	<i>NOC4L</i>	-5.20	2.71E-05	0.79	19.40
ENSG00000131142	<i>CCL25</i>	-5.19	8.71E-05	0.13	3.53
ENSG00000144891	<i>AGTR1</i>	-5.17	3.35E-05	0.02	1.04
ENSG00000228594	<i>FNDC10</i>	-5.16	4.90E-04	0.70	8.64
ENSG00000267001		-5.13	1.40E-04	0.12	2.59
ENSG00000236968		-5.13	2.27E-04	0.03	0.91
ENSG00000127586	<i>CHTF18</i>	-5.10	4.55E-04	0.15	1.87
ENSG00000007384	<i>RHBDF1</i>	-5.09	1.01E-03	0.73	5.93
ENSG00000274425		-5.08	1.52E-05	0.06	2.44
ENSG00000100319	<i>ZMAT5</i>	-5.07	8.19E-06	2.51	65.75
ENSG00000119227	<i>PIGZ</i>	-5.04	6.79E-05	0.08	2.33
ENSG00000007171	<i>NOS2</i>	-5.04	9.27E-03	1.55	9.51
ENSG00000139190	<i>VAMP1</i>	-5.01	5.99E-04	0.22	2.84
ENSG00000255545	<i>B3GAT1-DT</i>	-5.00	1.47E-03	0.16	3.11

ENSG00000175707	<i>KDF1</i>	-4.97	1.89E-06	1.94	54.89
ENSG00000263843	<i>MIF4GD-DT</i>	-4.97	5.50E-04	0.05	0.87
ENSG00000242279	<i>RPL7AP54</i>	-4.97	7.08E-04	0.17	1.10
ENSG00000140368	<i>PSTPIP1</i>	-4.96	5.52E-07	14.78	446.99
ENSG00000258815	<i>LINC02820</i>	-4.94	6.68E-05	0.01	0.79
ENSG00000248817	<i>PMPCAP1</i>	-4.94	9.67E-04	0.05	1.42
ENSG00000231817	<i>LINC01198</i>	-4.93	4.94E-05	0.13	3.28
ENSG00000268903		-4.91	3.07E-04	0.09	1.82
ENSG00000226194	<i>LINC02519</i>	-4.91	1.84E-03	0.16	1.66
ENSG00000279144		-4.90	1.34E-03	0.37	6.92
ENSG00000180834	<i>MAP6D1</i>	-4.88	1.22E-05	1.43	37.02
ENSG00000265369	<i>PCAT18</i>	-4.88	1.65E-04	0.03	0.70
ENSG00000095321	<i>CRAT</i>	-4.88	3.19E-03	0.69	5.93
ENSG00000204977	<i>TRIM13</i>	-4.87	1.31E-07	11.11	326.02
ENSG00000262179	<i>MYMX</i>	-4.87	1.72E-04	0.06	1.09
ENSG00000228151		-4.87	2.01E-04	0.03	1.15
ENSG00000147119	<i>CHST7</i>	-4.87	2.30E-03	0.23	2.95
ENSG00000101997	<i>CCDC22</i>	-4.86	2.58E-05	0.54	11.18
ENSG00000243649	<i>CFB</i>	-4.86	4.82E-04	0.03	0.77
ENSG00000275400		-4.83	4.16E-05	0.01	0.57
ENSG00000258627		-4.82	4.76E-04	0.09	2.19
ENSG00000130881	<i>LRP3</i>	-4.81	1.29E-04	0.09	2.25
ENSG00000225913		-4.81	1.48E-03	0.32	3.52
ENSG00000116096	<i>SPR</i>	-4.80	3.50E-07	3.76	101.45
ENSG00000258539		-4.80	6.18E-04	0.12	1.42
ENSG00000070985	<i>TRPM5</i>	-4.77	1.67E-06	2.98	77.31
ENSG00000288258		-4.77	2.29E-04	0.21	6.22
ENSG00000205861	<i>PCOTH</i>	-4.76	4.37E-04	0.14	1.28
ENSG00000161956	<i>SEN3</i>	-4.75	4.80E-04	0.10	1.20
ENSG00000146232	<i>NFKBIE</i>	-4.74	4.81E-05	1.21	23.05
ENSG00000087077	<i>TRIP6</i>	-4.73	8.70E-04	0.18	1.60
ENSG00000128185	<i>DGCR6L</i>	-4.72	1.32E-06	2.07	52.17
ENSG00000184470	<i>TXNRD2</i>	-4.71	1.26E-05	0.80	15.36
ENSG00000111684	<i>LPCAT3</i>	-4.71	4.01E-04	0.07	0.71
ENSG00000251485	<i>NRBF2P6</i>	-4.71	5.36E-04	0.08	1.02
ENSG00000231720		-4.70	2.27E-04	0.06	1.36
ENSG00000267493	<i>CIRBP-AS1</i>	-4.70	2.21E-04	0.02	0.61
ENSG00000105278	<i>ZFR2</i>	-4.69	1.67E-06	1.70	40.21
ENSG00000271989		-4.69	3.99E-05	0.63	15.20
ENSG00000243384		-4.68	9.17E-05	0.01	0.50
ENSG00000114854	<i>TNNC1</i>	-4.68	2.98E-04	0.24	5.28
ENSG00000274225	<i>LINC03038</i>	-4.67	1.45E-06	0.93	23.60
ENSG00000234707	<i>SEC61G-DT</i>	-4.67	2.37E-04	0.11	1.84
ENSG00000167967	<i>E4F1</i>	-4.67	1.42E-03	0.84	6.33
ENSG00000229338	<i>NME2P3</i>	-4.67	3.03E-03	0.06	1.30
ENSG00000236668	<i>LHX2-AS1</i>	-4.66	3.15E-04	0.05	0.93

ENSG00000188130	<i>MAPK12</i>	-4.65	1.72E-06	1.40	31.60
ENSG00000128805	<i>ARHGAP22</i>	-4.65	1.14E-03	0.33	4.70
ENSG00000131849	<i>ZNF132</i>	-4.65	1.91E-03	1.69	19.60
ENSG00000267348	<i>GEMIN7-AS1</i>	-4.64	1.30E-04	0.06	1.65
ENSG00000234832	<i>NXT1-AS1</i>	-4.64	1.80E-04	0.05	1.12
ENSG00000273238	<i>TMEM271</i>	-4.64	6.19E-04	0.20	2.17
ENSG00000156574	<i>NODAL</i>	-4.64	9.29E-04	0.54	3.53
ENSG00000160808	<i>MYL3</i>	-4.64	6.81E-03	0.15	1.85
ENSG00000288088		-4.63	1.39E-04	0.04	0.93
ENSG00000289423		-4.63	4.16E-04	0.07	1.01
ENSG00000173511	<i>VEGFB</i>	-4.63	7.79E-04	0.48	4.77
ENSG00000138615	<i>CILP</i>	-4.62	5.47E-03	0.13	1.06
ENSG00000148335	<i>NTMT1</i>	-4.61	1.48E-05	1.69	32.85
ENSG00000163923	<i>RPL39L</i>	-4.60	1.24E-06	5.88	129.88
ENSG00000100031	<i>GGT1</i>	-4.59	1.11E-03	0.77	15.72
ENSG00000137198	<i>GMPR</i>	-4.58	2.66E-06	1.28	30.42
ENSG00000165912	<i>PACSLN3</i>	-4.58	3.15E-04	0.04	0.76
ENSG00000233983		-4.58	5.31E-04	0.06	0.65
ENSG00000160213	<i>CSTB</i>	-4.57	8.78E-07	16.98	400.69
ENSG00000279746		-4.57	2.21E-04	0.11	1.90
ENSG00000143994	<i>ABHD1</i>	-4.57	3.41E-04	0.11	1.94
ENSG00000284664		-4.57	6.28E-04	0.19	1.99
ENSG00000266086		-4.57	9.87E-04	0.08	1.56
ENSG00000145916	<i>RMND5B</i>	-4.56	3.23E-06	1.85	47.98
ENSG00000198074	<i>AKR1B10</i>	-4.56	2.56E-04	0.14	2.13
ENSG00000163464	<i>CXCR1</i>	-4.56	2.55E-03	0.24	1.60
ENSG00000167302	<i>TEPSIN</i>	-4.53	4.42E-04	0.42	4.14
ENSG00000105251	<i>SHD</i>	-4.52	2.38E-06	50.59	1090.22
ENSG00000254686		-4.52	1.20E-04	0.30	4.98
ENSG00000105610	<i>KLF1</i>	-4.52	2.28E-04	0.06	1.17
ENSG00000172345	<i>STARD5</i>	-4.51	2.39E-06	3.05	63.04
ENSG00000291067		-4.50	7.94E-04	0.17	1.33
ENSG00000128965	<i>CHAC1</i>	-4.49	2.10E-06	3.58	79.08
ENSG00000225950	<i>NTF4</i>	-4.48	7.24E-05	0.01	0.51
ENSG00000175294	<i>CATSPER1</i>	-4.48	3.35E-04	0.40	7.56
ENSG00000102103	<i>PQBP1</i>	-4.46	4.03E-06	3.78	73.24
ENSG00000168517	<i>HEXIM2</i>	-4.46	3.70E-05	2.66	39.18
ENSG00000227963	<i>RBM15-AS1</i>	-4.46	1.47E-04	0.07	1.50
ENSG00000290355	<i>DDX11L16</i>	-4.46	5.27E-04	0.07	0.82
ENSG00000240225	<i>ZNF542P</i>	-4.46	2.20E-03	1.21	9.96
ENSG00000064545	<i>TMEM161A</i>	-4.45	3.74E-06	1.79	36.54
ENSG00000187953	<i>PMS2CL</i>	-4.45	4.10E-04	0.02	0.69
ENSG00000118094	<i>TREH</i>	-4.44	7.43E-04	0.07	0.60
ENSG00000016391	<i>CHDH</i>	-4.44	4.21E-03	0.55	5.00
ENSG00000259672		-4.44	7.73E-03	0.45	3.53
ENSG00000226180		-4.43	6.47E-05	0.03	0.81

ENSG00000147383	<i>NSDHL</i>	-4.42	1.45E-06	7.67	146.29
ENSG00000187288	<i>CIDEC</i>	-4.42	8.50E-06	1.00	19.97
ENSG00000237361	<i>TUSC8</i>	-4.42	4.06E-04	0.57	7.23
ENSG00000196152	<i>ZNF79</i>	-4.42	6.75E-04	1.21	19.10
ENSG00000100056	<i>ESS2</i>	-4.41	6.58E-07	2.76	56.63
ENSG00000224475	<i>RPL7AP40</i>	-4.41	1.39E-05	0.57	10.54
ENSG00000138771	<i>SHROOM3</i>	-4.41	2.02E-04	0.14	3.04
ENSG00000226314	<i>ZKSCAN8P1</i>	-4.41	7.01E-04	0.13	1.50
ENSG00000173465	<i>ZNRD2</i>	-4.40	1.08E-05	1.81	34.27
ENSG00000185019	<i>UBOX5</i>	-4.40	6.66E-05	0.62	10.25
ENSG00000260886	<i>TAT-AS1</i>	-4.39	4.86E-04	0.16	2.30
ENSG00000223884		-4.39	8.55E-04	0.08	1.56
ENSG00000168913	<i>ENHO</i>	-4.38	1.19E-05	0.76	13.43
ENSG00000164077	<i>MON1A</i>	-4.37	1.76E-04	0.73	9.45
ENSG00000246627	<i>CACNA1C-AS1</i>	-4.37	2.69E-04	0.02	0.46
ENSG00000179913	<i>B3GNT3</i>	-4.36	3.98E-04	0.04	0.88
ENSG00000172830	<i>SSH3</i>	-4.36	1.25E-03	0.09	0.64
ENSG00000225849	<i>MKRN7P</i>	-4.36	6.12E-03	0.18	1.35
ENSG00000230483		-4.35	3.60E-06	0.54	11.07
ENSG00000233975	<i>LINC02574</i>	-4.35	3.67E-04	0.05	0.75
ENSG00000289093		-4.35	6.73E-04	0.06	1.05
ENSG00000235070		-4.34	1.68E-03	0.10	1.00
ENSG00000232746	<i>LINC02022</i>	-4.33	2.80E-05	0.56	10.98
ENSG00000109654	<i>TRIM2</i>	-4.33	9.56E-04	0.04	0.99
ENSG00000206066	<i>IGLL3P</i>	-4.32	1.55E-05	0.98	17.91
ENSG00000106266	<i>SNX8</i>	-4.32	5.49E-05	1.27	17.60
ENSG00000274752	<i>TRBV12-3</i>	-4.32	2.64E-04	0.24	4.79
ENSG00000100253	<i>MIOX</i>	-4.32	2.80E-03	0.26	2.66
ENSG00000130734	<i>ATG4D</i>	-4.31	6.52E-05	1.14	16.38
ENSG00000121775	<i>TMEM39B</i>	-4.31	1.72E-04	0.15	2.53
ENSG00000232586	<i>KIAA1614-AS1</i>	-4.31	1.84E-03	0.13	1.41
ENSG00000255202		-4.30	3.21E-07	2.75	54.17
ENSG00000184163	<i>C1QTNF12</i>	-4.30	6.84E-04	0.05	0.54
ENSG00000235357	<i>LINC01621</i>	-4.30	7.46E-04	0.05	0.64
ENSG00000286098		-4.30	2.15E-03	0.20	2.16
ENSG00000235330	<i>RPL12P25</i>	-4.29	8.25E-04	0.08	0.81
ENSG00000260382		-4.29	1.09E-03	0.12	0.89
ENSG00000259229		-4.29	1.15E-03	0.08	0.87
ENSG00000283765		-4.29	4.86E-03	0.37	2.33
ENSG00000254389	<i>RHPN1-AS1</i>	-4.28	2.69E-05	0.63	11.26
ENSG00000260328		-4.28	1.82E-04	0.02	0.42
ENSG00000258959		-4.28	1.38E-03	0.15	1.05
ENSG00000243910	<i>TUBA4B</i>	-4.27	2.67E-07	20.14	393.21
ENSG00000047230	<i>CTPS2</i>	-4.27	1.41E-06	1.59	31.63
ENSG00000258741	<i>H2AZ2P1</i>	-4.27	1.01E-03	0.11	1.15
ENSG00000255422		-4.27	5.25E-03	0.19	2.23

ENSG00000284194	<i>SCO2</i>	-4.26	4.23E-07	2.37	47.32
ENSG00000083817	<i>ZNF416</i>	-4.26	1.60E-06	7.06	143.24
ENSG00000231605	<i>LINC01363</i>	-4.26	7.11E-06	0.29	6.15
ENSG00000241852	<i>C8orf58</i>	-4.26	1.42E-03	0.09	0.57
ENSG00000279076		-4.26	2.79E-03	0.09	0.92
ENSG00000126062	<i>TMEM115</i>	-4.25	7.45E-06	3.23	55.45
ENSG00000254972		-4.25	3.81E-04	0.06	0.97
ENSG00000185736	<i>ADARB2</i>	-4.25	8.87E-04	0.85	27.13
ENSG00000157881	<i>PANK4</i>	-4.25	1.28E-03	0.44	5.70
ENSG00000259431	<i>THTPA</i>	-4.24	4.43E-05	1.36	19.88
ENSG00000280893		-4.24	1.79E-03	1.59	14.59
ENSG00000082014	<i>SMARCD3</i>	-4.23	8.65E-04	0.74	7.89
ENSG00000287259		-4.23	1.20E-03	0.06	0.90
ENSG00000168505	<i>GBX2</i>	-4.23	2.48E-03	0.06	0.84
ENSG00000269793	<i>ZIM2-AS1</i>	-4.22	1.13E-03	0.13	2.28
ENSG00000176108	<i>CHMP6</i>	-4.22	3.23E-03	0.41	2.63
ENSG00000275034	<i>TP53TG3E</i>	-4.22	4.26E-03	0.18	1.38
ENSG00000126803	<i>HSPA2</i>	-4.21	2.60E-06	1.22	22.32
ENSG00000122783	<i>CYREN</i>	-4.20	3.15E-07	2.31	44.42
ENSG00000205138	<i>SDHAF1</i>	-4.20	1.28E-05	0.74	12.92
ENSG00000146834	<i>MEPCE</i>	-4.19	6.01E-07	2.96	53.27
ENSG00000271314		-4.19	8.73E-04	0.07	0.72
ENSG00000188095	<i>MESP2</i>	-4.19	4.06E-03	0.11	2.20
ENSG00000151117	<i>TMEM86A</i>	-4.18	8.37E-05	0.42	5.69
ENSG00000269846		-4.18	8.96E-05	0.06	1.34
ENSG00000197562	<i>RAB40C</i>	-4.18	3.05E-04	1.15	15.07
ENSG00000223979	<i>SMCR2</i>	-4.18	2.98E-04	0.02	0.40
ENSG00000248919	<i>ATP5MF-PTCD1</i>	-4.18	1.65E-03	0.20	2.58
ENSG00000174276	<i>ZNHIT2</i>	-4.17	1.27E-05	2.12	30.65
ENSG00000096080	<i>MRPS18A</i>	-4.16	4.26E-07	3.68	67.77
ENSG00000248703	<i>LINC02415</i>	-4.16	1.37E-04	0.95	14.46
ENSG00000119411	<i>BSPRY</i>	-4.16	2.69E-04	1.11	12.73
ENSG00000203943	<i>SAMD13</i>	-4.16	3.35E-04	0.05	0.71
ENSG00000223777		-4.16	6.96E-04	0.06	0.91
ENSG00000250385		-4.16	2.93E-03	0.24	1.13
ENSG00000162496	<i>DHRS3</i>	-4.15	7.77E-04	0.03	0.68
ENSG00000288520		-4.15	1.86E-03	0.04	0.69
ENSG00000133115	<i>STOML3</i>	-4.15	3.33E-03	0.05	0.54
ENSG00000223923	<i>TNS1-AS1</i>	-4.14	1.32E-04	0.26	3.62
ENSG00000273172	<i>LINC02091</i>	-4.14	1.27E-04	0.01	0.39
ENSG00000108963	<i>DPH1</i>	-4.14	9.45E-04	0.77	7.53
ENSG00000120913	<i>PDLIM2</i>	-4.13	6.13E-06	10.11	151.70
ENSG00000286119		-4.13	1.30E-05	0.78	13.32
ENSG00000234826		-4.13	2.56E-05	0.38	6.81
ENSG00000226288	<i>OR52I2</i>	-4.13	7.55E-04	0.26	2.81
ENSG00000141577	<i>CEP131</i>	-4.13	3.87E-03	0.50	3.64

ENSG00000010295	<i>IFFO1</i>	-4.12	1.93E-04	0.79	10.03
ENSG00000154222	<i>CC2D1B</i>	-4.12	2.13E-04	0.25	3.30
ENSG00000286549		-4.12	1.97E-04	0.01	0.42
ENSG00000228701	<i>TNKS2-DT</i>	-4.11	4.61E-04	0.82	7.32
ENSG00000164743	<i>C8orf48</i>	-4.11	8.21E-04	0.12	1.89
ENSG00000224051	<i>CPTP</i>	-4.11	1.24E-03	0.32	3.43
ENSG00000166813	<i>KIF7</i>	-4.10	1.67E-05	2.45	30.69
ENSG00000184441		-4.10	6.41E-04	0.03	0.43
ENSG00000100314	<i>CABP7</i>	-4.10	7.68E-04	0.04	0.60
ENSG00000157343	<i>ARMC12</i>	-4.10	1.89E-03	0.13	1.48
ENSG00000257842	<i>NOVA1-DT</i>	-4.10	9.97E-03	0.09	1.49
ENSG00000260451	<i>GEMIN8P2</i>	-4.09	7.87E-04	0.30	2.75
ENSG00000256546	<i>LINC02985</i>	-4.09	9.54E-04	0.21	2.62
ENSG00000162783	<i>IER5</i>	-4.09	1.96E-03	0.35	3.74
ENSG00000224322		-4.09	2.71E-03	0.09	1.42
ENSG00000170631	<i>ZNF16</i>	-4.08	1.88E-06	6.22	111.09
ENSG00000182383	<i>RPL27AP5</i>	-4.08	1.31E-04	0.69	7.66
ENSG00000289710		-4.08	2.39E-04	0.08	1.10
ENSG00000167840	<i>ZNF232</i>	-4.07	2.67E-07	3.43	58.52
ENSG00000178307	<i>TMEM11</i>	-4.07	3.15E-07	12.37	204.19
ENSG00000141562	<i>NARF</i>	-4.07	3.82E-07	14.92	251.53
ENSG00000065717	<i>TLE2</i>	-4.07	2.66E-05	3.64	55.60
ENSG00000285331		-4.07	2.25E-04	0.37	3.91
ENSG00000276819	<i>TRBV15</i>	-4.07	1.27E-03	0.12	0.86
ENSG00000196843	<i>ARID5A</i>	-4.06	6.41E-05	0.69	9.01
ENSG00000187951		-4.06	1.11E-03	0.16	1.76
ENSG00000188004	<i>SNHG28</i>	-4.06	1.11E-03	0.06	0.71
ENSG00000189366	<i>ALG1L</i>	-4.06	6.44E-03	0.12	1.32
ENSG00000139546	<i>TARBP2</i>	-4.05	3.85E-05	0.53	7.60
ENSG00000185669	<i>SNAI3</i>	-4.05	5.09E-05	1.89	25.74
ENSG00000110921	<i>MVK</i>	-4.05	5.88E-05	0.45	6.14
ENSG00000184984	<i>CHRM5</i>	-4.05	1.00E-03	0.21	1.89
ENSG00000234817	<i>ECI2-DT</i>	-4.04	1.04E-05	0.37	6.10
ENSG00000205309	<i>NT5M</i>	-4.04	1.69E-04	0.75	7.90
ENSG00000282591	<i>FAM138F</i>	-4.04	1.69E-03	0.08	0.75
ENSG00000261448		-4.03	2.60E-05	0.23	4.08
ENSG00000040487	<i>SLC66A1</i>	-4.02	9.55E-05	1.24	20.67
ENSG00000228100	<i>LINC01820</i>	-4.02	8.40E-04	0.29	3.05
ENSG00000157211	<i>CDCP2</i>	-4.02	9.50E-04	0.07	1.14
ENSG00000119946	<i>CNNM1</i>	-4.02	6.12E-03	0.13	1.37
ENSG00000290459		-4.02	8.07E-03	0.40	4.85
ENSG00000148297	<i>MED22</i>	-4.01	1.57E-03	0.46	5.00
ENSG00000285427	<i>SOD2-OT1</i>	-4.01	4.04E-03	0.18	0.99
ENSG00000127580	<i>WDR24</i>	-4.01	4.84E-03	1.23	9.88
ENSG00000110442	<i>COMMD9</i>	-4.00	2.99E-06	2.33	36.19
ENSG00000165125	<i>TRPV6</i>	-4.00	2.52E-05	1.59	27.14

ENSG00000100577	<i>GSTZ1</i>	-4.00	2.57E-04	0.45	6.32
ENSG00000288545		-3.99	1.52E-06	21.37	311.19
ENSG00000260710		-3.99	1.17E-03	0.11	0.86
ENSG00000123416	<i>TUBA1B</i>	-3.98	2.93E-06	70.56	1004.18
ENSG00000237171		-3.98	1.10E-03	0.08	0.91
ENSG00000260439	<i>LMF1-AS1</i>	-3.98	1.34E-03	0.06	0.59
ENSG00000179950	<i>PUF60</i>	-3.97	1.45E-06	6.40	102.69
ENSG00000141873	<i>SLC39A3</i>	-3.97	1.95E-06	4.28	62.60
ENSG00000119986	<i>AVPI1</i>	-3.97	4.53E-06	2.05	29.15
ENSG00000269858	<i>EGLN2</i>	-3.97	1.09E-03	1.50	12.05
ENSG00000239556	<i>UPK3BL3P</i>	-3.97	3.53E-03	0.09	0.99
ENSG00000176973	<i>FAM89B</i>	-3.96	2.48E-05	4.49	53.21
ENSG00000287368		-3.96	3.32E-03	0.10	0.53
ENSG00000260857		-3.96	4.93E-03	0.34	3.29
ENSG00000132661	<i>NXT1</i>	-3.95	3.05E-06	15.26	208.69
ENSG00000159214	<i>CCDC24</i>	-3.95	7.19E-05	0.52	6.56
ENSG00000263105		-3.95	6.92E-04	0.03	0.36
ENSG00000186019	<i>ZNF225-AS1</i>	-3.95	2.47E-03	0.30	2.27
ENSG00000122971	<i>ACADS</i>	-3.95	6.01E-03	0.31	2.30
ENSG00000188100	<i>FAM25A</i>	-3.94	3.08E-04	0.03	0.58
ENSG00000189319	<i>FAM53B</i>	-3.93	7.78E-06	2.70	36.28
ENSG00000188997	<i>KCTD21</i>	-3.93	1.03E-04	3.02	39.45
ENSG00000258588	<i>TRIM6-TRIM34</i>	-3.93	1.65E-03	0.30	2.31
ENSG00000222022		-3.93	2.62E-03	0.07	0.45
ENSG00000242017	<i>ALG1L15P</i>	-3.92	7.33E-06	4.55	59.11
ENSG00000154957	<i>ZNF18</i>	-3.91	9.00E-07	5.11	78.64
ENSG00000140474	<i>ULK3</i>	-3.91	6.11E-05	1.10	17.71
ENSG00000267498	<i>UQCRFS1-DT</i>	-3.91	1.73E-03	0.09	0.68
ENSG00000175573	<i>C11orf68</i>	-3.91	2.87E-03	0.29	2.06
ENSG00000197114	<i>ZGPAT</i>	-3.90	4.63E-05	0.68	9.93
ENSG00000241451	<i>RPS27P22</i>	-3.90	7.09E-04	0.15	1.55
ENSG00000233516		-3.90	3.00E-03	0.12	1.50
ENSG00000136270	<i>TBRG4</i>	-3.89	8.69E-06	2.00	28.58
ENSG00000213397	<i>HAUS7</i>	-3.89	9.06E-06	3.05	38.64
ENSG00000287980		-3.89	9.21E-06	0.52	7.56
ENSG00000162032	<i>SPSB3</i>	-3.89	2.27E-05	1.67	19.09
ENSG00000259856	<i>RAB43P1</i>	-3.89	1.62E-03	0.20	1.80
ENSG00000233008	<i>LINC01725</i>	-3.89	1.78E-03	0.20	2.47
ENSG00000197019	<i>SERTAD1</i>	-3.89	1.85E-03	0.84	6.16
ENSG00000177301	<i>KCNA2</i>	-3.89	2.38E-03	0.33	1.82
ENSG00000160570	<i>DEDD2</i>	-3.88	6.93E-05	4.29	43.44
ENSG00000289546		-3.88	8.12E-04	0.06	0.59
ENSG00000198522	<i>GPN1</i>	-3.87	3.13E-07	9.21	133.97
ENSG00000249993	<i>BFSP2-AS1</i>	-3.87	3.53E-06	1.91	28.81
ENSG00000258634		-3.87	1.64E-03	0.15	1.25
ENSG00000196123	<i>KIAA0895L</i>	-3.87	2.07E-03	0.11	0.99

ENSG00000271897		-3.87	3.02E-03	0.06	0.43
ENSG00000164088	<i>PPM1M</i>	-3.87	3.76E-03	0.10	0.93
ENSG00000213211	<i>KRT18P64</i>	-3.87	5.20E-03	0.07	0.56
ENSG00000158457	<i>TSPAN33</i>	-3.87	6.20E-03	0.27	1.86
ENSG00000187713	<i>TMEM203</i>	-3.86	6.42E-06	2.67	38.55
ENSG00000181409	<i>AATK</i>	-3.86	5.48E-04	0.04	0.62
ENSG00000223802	<i>CERS1</i>	-3.86	3.42E-03	0.49	3.12
ENSG00000291176		-3.86	3.82E-03	0.40	2.09
ENSG00000286715		-3.85	5.37E-05	1.19	13.80
ENSG00000267475	<i>NUDT19-DT</i>	-3.85	7.02E-04	0.22	2.13
ENSG00000140104	<i>CLBA1</i>	-3.85	1.05E-03	0.14	1.46
ENSG00000176845	<i>METRNL</i>	-3.85	1.09E-03	0.10	0.93
ENSG00000167103	<i>PIP5KL1</i>	-3.85	3.92E-03	0.25	1.40
ENSG00000132823	<i>OSER1</i>	-3.84	2.74E-07	18.19	258.61
ENSG00000167393	<i>PPP2R3B</i>	-3.84	9.10E-06	0.64	8.70
ENSG00000144120	<i>TMEM177</i>	-3.84	7.61E-05	0.48	5.68
ENSG00000261707		-3.84	3.48E-04	0.05	0.81
ENSG00000075234	<i>TTC38</i>	-3.84	1.36E-03	0.43	4.87
ENSG00000260922		-3.83	3.13E-07	3.15	46.54
ENSG00000236782	<i>ZNF593OS</i>	-3.83	3.51E-05	16.96	178.50
ENSG00000258760		-3.83	3.60E-04	0.06	0.90
ENSG00000227269		-3.83	7.41E-04	0.24	2.97
ENSG00000115353	<i>TACR1</i>	-3.83	3.32E-03	0.13	0.45
ENSG00000124541	<i>RRP36</i>	-3.82	1.52E-06	3.29	48.64
ENSG00000138030	<i>KHK</i>	-3.82	1.98E-06	12.28	168.38
ENSG00000153060	<i>TEKT5</i>	-3.82	1.24E-05	4.88	63.07
ENSG00000204315	<i>FKBPL</i>	-3.82	3.75E-05	0.65	8.06
ENSG00000217416	<i>ISCA1P1</i>	-3.82	4.07E-03	0.07	0.58
ENSG00000218839	<i>FAM138C</i>	-3.82	7.21E-03	0.20	1.44
ENSG00000170464	<i>DNAJC18</i>	-3.81	1.06E-06	7.40	102.94
ENSG00000178096	<i>BOLA1</i>	-3.81	2.73E-05	1.96	23.06
ENSG00000188937	<i>NYX</i>	-3.81	6.20E-03	0.22	0.75
ENSG00000164011	<i>ZNF691</i>	-3.80	5.46E-05	1.07	13.30
ENSG00000213347	<i>MXD3</i>	-3.80	2.12E-03	0.08	0.88
ENSG00000116863	<i>ADPRS</i>	-3.79	7.19E-05	1.39	15.79
ENSG00000169683	<i>LRRC45</i>	-3.79	1.47E-03	0.90	5.68
ENSG00000182087	<i>TMEM259</i>	-3.79	1.62E-03	0.71	4.66
ENSG00000291055		-3.79	2.68E-03	0.10	0.55
ENSG00000162222	<i>TTC9C</i>	-3.78	1.92E-07	13.77	200.41
ENSG00000131779	<i>PEX11B</i>	-3.78	6.01E-06	7.22	88.41
ENSG00000037637	<i>FBXO42</i>	-3.78	7.29E-06	3.85	53.53
ENSG00000233934	<i>RPL21P38</i>	-3.78	3.88E-04	0.07	0.88
ENSG00000253279	<i>LINC02209</i>	-3.78	1.94E-03	0.16	1.07
ENSG00000257390		-3.78	2.97E-03	0.12	1.78
ENSG00000129055	<i>ANAPC13</i>	-3.77	5.13E-07	6.27	86.85
ENSG00000286691		-3.77	2.91E-06	1.88	26.05

ENSG00000250073	<i>ESAM-AS1</i>	-3.77	7.38E-05	0.21	3.20
ENSG00000255130		-3.77	4.38E-04	0.10	1.57
ENSG00000105875	<i>WDR91</i>	-3.76	3.70E-05	1.51	17.57
ENSG00000160087	<i>UBE2J2</i>	-3.75	2.74E-07	9.37	132.22
ENSG00000278970	<i>HEIH</i>	-3.75	4.23E-06	0.75	10.44
ENSG00000233820		-3.75	1.21E-05	1.94	24.57
ENSG00000176022	<i>B3GALT6</i>	-3.75	3.56E-04	1.44	11.34
ENSG00000197180	<i>ATP6AP1-DT</i>	-3.75	2.94E-03	0.11	1.20
ENSG00000249839		-3.75	7.29E-03	0.12	0.45
ENSG00000273471		-3.75	9.58E-03	0.10	0.49
ENSG00000119408	<i>NEK6</i>	-3.74	4.60E-05	3.99	44.08
ENSG00000230234		-3.74	5.03E-05	5.99	67.78
ENSG00000230596	<i>GPAA1P2</i>	-3.74	1.16E-03	0.07	0.85
ENSG00000100526	<i>CDKN3</i>	-3.73	1.90E-06	1.39	19.21
ENSG00000198133	<i>TMEM229B</i>	-3.73	3.26E-06	2.55	32.38
ENSG00000186340	<i>THBS2</i>	-3.73	2.60E-05	1.03	14.37
ENSG00000132768	<i>DPH2</i>	-3.73	2.07E-04	1.31	19.29
ENSG00000268350	<i>FAM156A</i>	-3.73	1.35E-03	0.20	1.88
ENSG00000159905	<i>ZNF221</i>	-3.73	1.68E-03	0.06	0.62
ENSG00000226765	<i>RPSAP33</i>	-3.73	1.70E-03	0.10	0.69
ENSG00000291096		-3.73	3.66E-03	0.24	1.63
ENSG00000125826	<i>RBCK1</i>	-3.72	1.64E-06	7.66	95.77
ENSG00000160606	<i>TLCD1</i>	-3.72	2.39E-06	6.31	78.38
ENSG00000248008	<i>NRAV</i>	-3.72	9.76E-05	1.62	16.27
ENSG00000230404		-3.72	1.67E-03	0.16	1.45
ENSG00000288806		-3.72	4.30E-03	0.08	0.48
ENSG00000105443	<i>CYTH2</i>	-3.71	2.01E-06	8.50	106.50
ENSG00000108771	<i>DHX58</i>	-3.71	6.67E-06	7.87	95.38
ENSG00000225177	<i>NHSL1-AS1</i>	-3.71	1.66E-05	0.56	6.72
ENSG00000204859	<i>ZBTB48</i>	-3.71	2.08E-05	1.08	13.73
ENSG00000110400	<i>NECTIN1</i>	-3.71	3.27E-04	0.88	7.35
ENSG00000160051	<i>IQCC</i>	-3.71	1.13E-03	0.25	2.15
ENSG00000234789		-3.71	1.42E-03	0.11	0.92
ENSG00000224165	<i>DNAJC27-AS1</i>	-3.71	4.00E-03	0.13	0.91
ENSG00000140400	<i>MAN2C1</i>	-3.71	9.04E-03	0.19	1.04
ENSG00000105220	<i>GPI</i>	-3.70	4.10E-06	9.99	131.44
ENSG00000159176	<i>CSRP1</i>	-3.70	4.78E-06	12.74	147.06
ENSG00000175221	<i>MED16</i>	-3.70	1.21E-05	11.44	162.97
ENSG00000203620		-3.70	1.97E-04	0.13	1.55
ENSG00000287972		-3.70	1.57E-03	0.19	1.32
ENSG00000183628	<i>DGCR6</i>	-3.70	2.67E-03	2.60	34.65
ENSG00000161542	<i>PRPSAP1</i>	-3.69	1.18E-06	10.54	135.88
ENSG00000145491	<i>ROPN1L</i>	-3.69	1.88E-06	2.44	33.63
ENSG00000138073	<i>PREB</i>	-3.69	1.03E-05	7.88	112.07
ENSG00000130511	<i>SSBP4</i>	-3.69	5.28E-05	0.41	4.69
ENSG00000263574		-3.69	1.29E-04	0.13	1.73

ENSG00000213434	<i>VTI1BP2</i>	-3.69	1.84E-03	0.05	0.33
ENSG00000162231	<i>NXF1</i>	-3.68	3.15E-07	7.47	97.29
ENSG00000099203	<i>TMED1</i>	-3.68	3.08E-04	2.74	20.76
ENSG00000117411	<i>B4GALT2</i>	-3.68	8.09E-04	0.47	3.31
ENSG00000111186	<i>WNT5B</i>	-3.68	4.45E-03	0.14	0.93
ENSG00000140287	<i>HDC</i>	-3.67	1.60E-07	90.74	1185.73
ENSG00000181817	<i>LSM10</i>	-3.67	2.44E-06	8.67	103.74
ENSG00000162227	<i>TAF6L</i>	-3.67	2.89E-04	0.59	6.04
ENSG00000289828		-3.67	1.23E-03	0.04	0.38
ENSG00000197548	<i>ATG7</i>	-3.66	4.23E-07	50.69	647.66
ENSG00000248098	<i>BCKDHA</i>	-3.66	1.41E-05	1.22	14.93
ENSG00000183751	<i>TBL3</i>	-3.66	7.48E-05	0.67	8.59
ENSG00000278238	<i>CKAP2-DT</i>	-3.66	1.52E-04	0.82	6.99
ENSG00000241149	<i>ZNF722</i>	-3.66	3.65E-04	0.26	2.39
ENSG00000227155	<i>DOCK8-AS2</i>	-3.66	2.75E-03	0.25	1.87
ENSG00000267751	<i>BSG-AS1</i>	-3.66	3.31E-03	0.10	0.93
ENSG00000113812	<i>ACTR8</i>	-3.65	1.52E-06	6.46	77.42
ENSG00000253978	<i>TENM2-AS1</i>	-3.65	1.49E-05	2.63	30.10
ENSG00000110448	<i>CD5</i>	-3.65	3.46E-04	0.30	2.75
ENSG00000100053	<i>CRYBB3</i>	-3.65	4.42E-04	0.37	4.69
ENSG00000289868		-3.65	1.37E-03	0.04	0.38
ENSG00000179943	<i>FIZ1</i>	-3.65	1.56E-03	0.09	1.07
ENSG00000236008	<i>LINC01814</i>	-3.65	3.21E-03	0.17	0.84
ENSG00000152766	<i>ANKRD22</i>	-3.65	6.79E-03	0.82	10.43
ENSG00000184792	<i>OSBP2</i>	-3.64	1.04E-06	3.06	39.11
ENSG00000187266	<i>EPOR</i>	-3.64	4.20E-05	0.37	4.63
ENSG00000112619	<i>PRPH2</i>	-3.64	5.86E-04	1.09	11.57
ENSG00000261832		-3.64	3.30E-03	0.13	1.51
ENSG00000184602	<i>SNN</i>	-3.64	4.69E-03	0.18	0.86
ENSG00000141378	<i>PTRH2</i>	-3.63	1.57E-06	23.70	286.04
ENSG00000167118	<i>URM1</i>	-3.63	3.01E-06	2.07	24.56
ENSG00000141499	<i>WRAP53</i>	-3.62	1.67E-06	4.31	53.07
ENSG00000105447	<i>GRWD1</i>	-3.62	8.05E-06	3.80	46.41
ENSG00000095906	<i>NUBP2</i>	-3.62	1.03E-05	1.89	21.44
ENSG00000065268	<i>WDR18</i>	-3.62	5.15E-05	5.11	50.01
ENSG00000013588	<i>GPRC5A</i>	-3.62	8.91E-04	0.95	6.70
ENSG00000242899	<i>RPL7P16</i>	-3.62	9.92E-04	0.05	0.57
ENSG00000239820	<i>RN7SL213P</i>	-3.62	1.15E-03	0.07	0.90
ENSG00000242114	<i>MTFP1</i>	-3.62	1.38E-03	0.22	2.00
ENSG00000188064	<i>WNT7B</i>	-3.62	1.42E-03	0.08	0.68
ENSG00000197021	<i>EOLA2</i>	-3.61	2.67E-07	25.35	317.98
ENSG00000112578	<i>BYSL</i>	-3.61	1.89E-06	4.27	53.58
ENSG00000204356	<i>NELFE</i>	-3.61	1.28E-05	4.46	51.65
ENSG00000204595	<i>DPRX</i>	-3.61	1.05E-04	0.40	4.86
ENSG00000239445	<i>ST3GAL6-AS1</i>	-3.61	1.10E-04	0.25	3.33
ENSG00000289562		-3.61	2.23E-03	0.25	2.06

ENSG00000236975	<i>LINC02814</i>	-3.61	2.31E-03	0.19	1.28
ENSG00000247381	<i>PLUT</i>	-3.61	6.03E-03	0.22	1.06
ENSG00000016402	<i>IL20RA</i>	-3.61	5.47E-03	0.82	6.22
ENSG00000241764	<i>CBL1-AS1</i>	-3.60	1.32E-06	2.59	30.95
ENSG00000142396	<i>ERV3-1</i>	-3.60	2.79E-06	6.32	72.02
ENSG00000183060	<i>LYSMD4</i>	-3.60	2.10E-05	1.28	14.58
ENSG00000204390	<i>HSPA1L</i>	-3.60	2.30E-05	0.68	7.57
ENSG00000232537		-3.60	3.40E-05	6.55	60.75
ENSG00000123989	<i>CHPF</i>	-3.60	9.52E-04	1.76	10.26
ENSG00000255239	<i>TREHP1</i>	-3.60	1.06E-03	0.14	1.36
ENSG00000227510	<i>LINC01442</i>	-3.60	4.64E-03	0.07	0.41
ENSG00000173928	<i>SWSAP1</i>	-3.59	1.16E-06	2.23	27.85
ENSG00000291179		-3.59	4.13E-03	0.16	0.85
ENSG00000235865	<i>GSN-AS1</i>	-3.59	5.19E-03	0.22	1.42
ENSG00000163017	<i>ACTG2</i>	-3.58	2.79E-06	16.31	183.03
ENSG00000239197		-3.58	1.12E-04	0.21	2.74
ENSG00000226816		-3.58	7.62E-04	0.10	1.04
ENSG00000135077	<i>HAVCR2</i>	-3.58	1.33E-03	0.04	0.37
ENSG00000198796	<i>ALPK2</i>	-3.58	1.84E-03	0.27	1.88
ENSG00000131389	<i>SLC6A6</i>	-3.57	2.59E-06	10.45	124.21
ENSG00000118640	<i>VAMP8</i>	-3.57	1.61E-05	3.51	37.70
ENSG00000179178	<i>TMEM125</i>	-3.57	2.73E-05	0.53	6.45
ENSG00000114767	<i>RRP9</i>	-3.57	6.95E-05	2.77	25.65
ENSG00000142733	<i>MAP3K6</i>	-3.57	7.42E-05	1.41	13.48
ENSG00000239199	<i>RPL21P6</i>	-3.57	9.91E-04	0.16	1.32
ENSG00000286346		-3.57	4.54E-03	0.11	0.60
ENSG00000174370	<i>KCNJ5-AS1</i>	-3.57	6.86E-03	0.12	0.84
ENSG00000228903	<i>RASA4CP</i>	-3.57	6.36E-03	0.74	4.91
ENSG00000249825	<i>THBS4-AS1</i>	-3.56	2.74E-07	41.10	483.72
ENSG00000187650	<i>VMAC</i>	-3.56	4.53E-06	1.36	15.75
ENSG00000253342		-3.56	1.31E-05	1.13	14.29
ENSG00000119431	<i>HDHD3</i>	-3.56	5.30E-05	4.21	42.05
ENSG00000266245	<i>MIR4644</i>	-3.56	1.56E-03	0.03	0.37
ENSG00000215045	<i>GRID2IP</i>	-3.56	2.90E-03	0.29	1.92
ENSG00000104835	<i>SARS2</i>	-3.55	2.56E-05	0.95	10.50
ENSG00000228719		-3.55	9.74E-05	0.83	8.29
ENSG00000171970	<i>ZNF57</i>	-3.54	6.35E-07	9.62	114.45
ENSG00000125967	<i>NECAB3</i>	-3.54	5.20E-06	0.76	8.62
ENSG00000157368	<i>IL34</i>	-3.54	8.98E-05	0.58	5.88
ENSG00000285230	<i>RALY-AS1</i>	-3.54	2.83E-03	0.58	4.52
ENSG00000167695	<i>TLCD3A</i>	-3.54	4.25E-03	0.79	5.46
ENSG00000178381	<i>ZFAND2A</i>	-3.53	2.74E-07	413.24	4958.75
ENSG00000160679	<i>CHTOP</i>	-3.53	3.15E-07	5.41	65.15
ENSG00000167740	<i>CYB5D2</i>	-3.53	3.86E-06	2.60	28.97
ENSG00000174744	<i>BRMS1</i>	-3.53	2.28E-05	6.81	67.92
ENSG00000167705	<i>RILP</i>	-3.53	6.68E-05	0.35	4.01

ENSG00000182318	<i>ZSCAN22</i>	-3.53	8.43E-04	0.49	4.82
ENSG00000135587	<i>SMPD2</i>	-3.53	2.60E-03	0.56	3.97
ENSG00000237556	<i>KCND3-AS1</i>	-3.53	5.88E-03	0.25	1.17
ENSG00000256271	<i>CACNA1C-AS2</i>	-3.52	1.24E-04	0.66	5.72
ENSG00000137310	<i>TCF19</i>	-3.52	1.82E-04	0.56	6.46
ENSG00000007376	<i>RPUSD1</i>	-3.52	4.56E-03	0.95	4.78
ENSG00000119185	<i>ITGB1BP1</i>	-3.51	2.74E-07	9.74	114.08
ENSG00000102393	<i>GLA</i>	-3.51	3.75E-06	7.58	82.17
ENSG00000183617	<i>MRPL54</i>	-3.51	3.85E-05	2.24	22.67
ENSG00000111057	<i>KRT18</i>	-3.51	5.57E-05	2.60	25.01
ENSG00000233271		-3.51	3.08E-03	0.31	1.93
ENSG00000125968	<i>ID1</i>	-3.51	3.40E-03	2.17	31.81
ENSG00000285683		-3.51	8.55E-03	0.08	0.57
ENSG00000141741	<i>MIEN1</i>	-3.50	6.66E-06	2.89	33.04
ENSG00000188051	<i>TMEM221</i>	-3.50	2.70E-05	0.77	7.73
ENSG00000230257	<i>NFE4</i>	-3.50	5.68E-05	0.40	5.11
ENSG00000177932	<i>ZNF354C</i>	-3.50	6.76E-05	0.52	5.27
ENSG00000219700	<i>PTCHD3P3</i>	-3.50	9.01E-03	0.09	0.57
ENSG00000100104	<i>SRRD</i>	-3.49	2.44E-06	5.90	64.11
ENSG00000173818	<i>ENDOV</i>	-3.49	3.00E-06	1.72	19.34
ENSG00000185000	<i>DGAT1</i>	-3.49	1.26E-04	2.17	18.02
ENSG00000274929		-3.49	4.24E-04	0.14	1.88
ENSG00000236253	<i>SLC25A3P1</i>	-3.49	8.91E-04	0.65	4.82
ENSG00000167617	<i>CDC42EP5</i>	-3.49	3.43E-03	0.36	2.85
ENSG00000125122	<i>LRRC29</i>	-3.49	6.21E-03	0.13	0.58
ENSG00000065802	<i>ASB1</i>	-3.48	3.72E-05	1.49	14.27
ENSG00000214655	<i>ZSWIM8</i>	-3.48	1.60E-04	0.25	2.54
ENSG00000254789		-3.48	7.43E-04	0.24	2.18
ENSG00000213714	<i>FAM209B</i>	-3.48	1.15E-03	0.21	2.08
ENSG00000181284	<i>TMEM102</i>	-3.48	7.12E-03	0.17	1.14
ENSG00000074266	<i>EED</i>	-3.48	8.00E-03	0.39	1.65
ENSG00000162144	<i>CYB561A3</i>	-3.47	3.85E-06	1.78	19.45
ENSG00000244563	<i>RPS26P19</i>	-3.47	3.75E-03	0.32	2.27
ENSG00000239498		-3.47	4.73E-03	0.32	1.93
ENSG00000124562	<i>SNRPC</i>	-3.46	2.32E-06	23.62	266.10
ENSG00000184209	<i>SNRNP35</i>	-3.46	3.86E-06	3.97	43.90
ENSG00000080189	<i>SLC35C2</i>	-3.46	1.26E-05	4.20	44.61
ENSG00000163156	<i>SCNM1</i>	-3.46	1.37E-05	5.12	55.25
ENSG00000162236	<i>STX5</i>	-3.46	4.11E-05	0.42	5.17
ENSG00000184564	<i>SLITRK6</i>	-3.46	4.42E-05	0.56	5.57
ENSG00000177854	<i>TMEM187</i>	-3.46	4.60E-04	0.45	3.90
ENSG00000224626		-3.46	9.94E-03	0.11	0.96
ENSG00000092330	<i>TINF2</i>	-3.45	6.21E-07	13.63	151.84
ENSG00000152147	<i>GEMIN6</i>	-3.45	8.78E-07	6.52	75.37
ENSG00000125319	<i>HROB</i>	-3.45	5.39E-06	11.07	122.74
ENSG00000140835	<i>CHST4</i>	-3.45	3.65E-04	1.11	10.35

ENSG00000163467	<i>TSACC</i>	-3.45	7.94E-04	0.14	1.82
ENSG00000183309	<i>ZNF623</i>	-3.44	2.79E-05	6.96	65.81
ENSG00000171700	<i>RGS19</i>	-3.44	8.75E-05	0.55	6.51
ENSG00000127080	<i>IPPK</i>	-3.44	7.20E-04	3.00	40.87
ENSG00000079308	<i>TNS1</i>	-3.44	1.24E-03	0.13	1.19
ENSG00000259265		-3.44	9.59E-03	0.19	1.77
ENSG00000243789	<i>JMJD7</i>	-3.43	4.41E-06	2.88	31.89
ENSG00000158246	<i>TENT5B</i>	-3.43	1.41E-05	19.75	227.95
ENSG00000269335	<i>IKBKG</i>	-3.43	5.24E-05	0.42	4.06
ENSG00000254744		-3.43	4.98E-05	14.23	134.01
ENSG00000237716		-3.43	6.30E-04	0.03	0.42
ENSG00000290673		-3.42	2.10E-06	6.69	69.54
ENSG00000101391	<i>CDK5RAP1</i>	-3.42	8.03E-06	8.24	87.51
ENSG00000085998	<i>POMGNT1</i>	-3.42	3.70E-05	3.26	38.01
ENSG00000249601	<i>LINC01187</i>	-3.42	1.25E-03	0.91	6.47
ENSG00000159173	<i>TNNI1</i>	-3.42	1.53E-03	0.14	1.22
ENSG00000171777	<i>RASGRP4</i>	-3.42	2.89E-03	0.22	1.51
ENSG00000174516	<i>PELI3</i>	-3.42	3.73E-03	0.38	2.51
ENSG00000141570	<i>CBX8</i>	-3.41	1.13E-05	1.71	17.67
ENSG00000267070		-3.41	3.19E-05	1.47	14.86
ENSG00000160539	<i>PLPP7</i>	-3.41	3.51E-05	2.05	19.14
ENSG00000285743		-3.41	1.35E-04	1.11	8.94
ENSG00000231542	<i>TAB3-AS1</i>	-3.41	5.08E-04	0.11	1.22
ENSG00000232628		-3.41	5.89E-04	0.26	2.63
ENSG00000288111		-3.41	7.38E-04	0.12	1.14
ENSG00000205744	<i>DENND1C</i>	-3.41	2.10E-03	1.66	11.27
ENSG00000273901		-3.41	3.78E-03	0.07	0.42
ENSG00000103671	<i>TRIP4</i>	-3.40	1.25E-06	5.95	62.06
ENSG00000111652	<i>COPS7A</i>	-3.40	1.52E-05	1.72	17.70
ENSG00000013016	<i>EHD3</i>	-3.40	2.08E-05	0.67	7.36
ENSG00000130772	<i>MED18</i>	-3.40	3.20E-05	2.15	19.87
ENSG00000229011	<i>LINC01038</i>	-3.40	6.35E-03	0.08	0.58
ENSG00000143297	<i>FCRL5</i>	-3.40	6.30E-03	0.44	2.70
ENSG00000136271	<i>DDX56</i>	-3.39	2.74E-07	8.99	98.14
ENSG00000058335	<i>RASGRF1</i>	-3.39	6.35E-06	21.68	218.22
ENSG00000129696	<i>TTI2</i>	-3.39	1.31E-05	2.59	24.81
ENSG00000114529	<i>C3orf52</i>	-3.39	3.96E-04	1.73	16.59
ENSG00000234390	<i>USP27X-DT</i>	-3.39	2.50E-03	0.06	0.54
ENSG00000105135	<i>ILVBL</i>	-3.39	2.98E-03	0.07	0.49
ENSG00000164885	<i>CDK5</i>	-3.38	2.09E-06	34.39	342.85
ENSG00000171357	<i>LURAP1</i>	-3.38	8.37E-05	0.46	3.97
ENSG00000185803	<i>SLC52A2</i>	-3.38	8.39E-05	2.33	26.74
ENSG00000158106	<i>RHPN1</i>	-3.38	7.15E-04	0.18	1.40
ENSG00000100220	<i>RTCB</i>	-3.37	1.92E-07	26.04	278.61
ENSG00000167210	<i>LOXHD1</i>	-3.37	8.78E-07	8.40	86.62
ENSG00000224540	<i>TFDP1P1</i>	-3.37	2.60E-05	0.92	9.46

ENSG00000290590		-3.37	6.52E-04	0.02	0.35
ENSG00000219410		-3.37	1.34E-03	0.50	3.38
ENSG00000132677	<i>RHBG</i>	-3.37	1.47E-03	0.22	2.24
ENSG00000270179		-3.37	3.96E-03	0.07	0.61
ENSG00000173239	<i>LIPM</i>	-3.37	3.51E-03	3.50	28.19
ENSG00000284837		-3.36	2.74E-07	79.38	834.30
ENSG00000169718	<i>DUS1L</i>	-3.36	7.62E-06	3.35	31.73
ENSG00000285374		-3.36	1.02E-05	4.35	43.79
ENSG00000162378	<i>ZYG11B</i>	-3.36	8.69E-05	0.91	7.52
ENSG00000162426	<i>SLC45A1</i>	-3.36	3.63E-03	0.37	1.92
ENSG00000101230	<i>ISM1</i>	-3.36	4.20E-03	0.19	1.13
ENSG00000155287	<i>SLC25A28</i>	-3.36	9.22E-03	0.11	0.81
ENSG00000185291	<i>IL3RA</i>	-3.35	1.13E-06	5.89	59.98
ENSG00000141560	<i>FN3KRP</i>	-3.35	5.98E-06	1.22	12.89
ENSG00000167969	<i>ECI1</i>	-3.35	1.31E-05	3.47	32.79
ENSG00000267645		-3.35	2.24E-05	1.03	10.39
ENSG00000138074	<i>SLC5A6</i>	-3.35	8.98E-05	4.77	55.04
ENSG00000182557	<i>SPNS3</i>	-3.35	1.94E-03	0.10	0.83
ENSG00000267586	<i>LINC00907</i>	-3.34	1.90E-06	17.45	179.69
ENSG00000115998	<i>C2orf42</i>	-3.34	5.29E-06	4.64	46.28
ENSG00000148411	<i>NACC2</i>	-3.34	9.10E-06	4.08	38.78
ENSG00000162300	<i>ZFPL1</i>	-3.34	2.18E-05	1.48	14.83
ENSG00000141013	<i>GAS8</i>	-3.34	3.75E-05	1.70	17.31
ENSG00000215217	<i>C5orf49</i>	-3.34	6.32E-05	0.52	4.66
ENSG00000287663		-3.34	9.91E-05	0.48	4.11
ENSG00000165643	<i>SOHLH1</i>	-3.34	2.72E-03	1.10	5.73
ENSG00000230190		-3.34	3.02E-03	0.09	0.60
ENSG00000135596	<i>MICAL1</i>	-3.34	6.56E-03	0.50	2.96
ENSG00000116521	<i>SCAMP3</i>	-3.33	2.44E-06	6.38	62.41
ENSG00000156521	<i>TYSND1</i>	-3.33	1.67E-05	2.31	20.00
ENSG00000168101	<i>NUDT16L1</i>	-3.33	2.24E-05	5.95	55.18
ENSG00000186654	<i>PRR5</i>	-3.33	4.51E-05	8.10	64.86
ENSG00000134815	<i>DHX34</i>	-3.33	5.41E-05	0.43	3.89
ENSG00000184716	<i>SERINC4</i>	-3.33	4.29E-03	0.23	1.52
ENSG00000095739	<i>BAMBI</i>	-3.33	4.26E-03	2.56	17.51
ENSG00000258984	<i>UBE2F-SCLY</i>	-3.33	6.62E-03	0.20	1.00
ENSG00000108784	<i>NAGLU</i>	-3.33	7.94E-03	0.13	0.73
ENSG00000183569	<i>SERHL2</i>	-3.32	3.60E-06	38.34	350.68
ENSG00000154133	<i>ROBO4</i>	-3.32	3.12E-05	2.16	23.07
ENSG00000235827	<i>TUBB8P9</i>	-3.32	3.21E-05	82.24	770.12
ENSG00000251616		-3.32	8.14E-04	0.30	2.66
ENSG00000230092		-3.32	5.53E-03	0.06	0.66
ENSG00000255425	<i>OR8G3P</i>	-3.31	1.89E-06	2.96	28.86
ENSG00000136867	<i>SLC31A2</i>	-3.31	3.85E-06	15.48	142.32
ENSG00000253552	<i>HOXA-AS2</i>	-3.31	1.63E-04	0.31	2.79
ENSG00000181965	<i>NEUROG1</i>	-3.31	1.43E-03	0.18	1.54

ENSG00000164068	<i>RNF123</i>	-3.31	2.33E-03	0.14	1.08
ENSG00000095383	<i>TBC1D2</i>	-3.30	7.30E-06	3.05	30.87
ENSG00000289700		-3.30	1.17E-05	5.74	52.92
ENSG00000254560	<i>BBOX1-AS1</i>	-3.30	3.79E-05	5.93	63.43
ENSG00000267796	<i>LIN37</i>	-3.30	4.33E-05	4.41	40.52
ENSG00000222043		-3.30	2.60E-03	0.07	0.52
ENSG00000277150	<i>F8A3</i>	-3.30	6.17E-03	0.52	3.02
ENSG00000288709	<i>F8A2</i>	-3.30	6.17E-03	0.52	3.02
ENSG00000161277	<i>THAP8</i>	-3.29	2.72E-05	4.40	34.77
ENSG00000172780	<i>RAB43</i>	-3.29	5.59E-04	0.80	5.85
ENSG00000182378	<i>PLCXD1</i>	-3.28	3.30E-05	1.65	17.49
ENSG00000114735	<i>HEMK1</i>	-3.28	1.05E-03	0.58	3.34
ENSG00000114021	<i>NIT2</i>	-3.27	1.72E-06	7.39	72.84
ENSG00000163866	<i>SMIM12</i>	-3.27	4.82E-06	1.79	17.24
ENSG00000103051	<i>COG4</i>	-3.27	3.36E-05	7.21	64.46
ENSG00000147443	<i>DOK2</i>	-3.27	5.36E-05	2.64	23.04
ENSG00000142252	<i>GEMIN7</i>	-3.27	7.53E-05	3.23	24.20
ENSG00000269680		-3.27	6.74E-04	0.07	0.69
ENSG00000155252	<i>PI4K2A</i>	-3.27	1.46E-03	0.76	5.15
ENSG00000248079	<i>DPH6-DT</i>	-3.27	2.85E-03	0.26	1.82
ENSG00000290916		-3.27	5.35E-03	0.21	2.49
ENSG00000227920		-3.26	3.07E-05	1.18	10.56
ENSG00000280425		-3.26	1.23E-03	0.22	1.79
ENSG00000106809	<i>OGN</i>	-3.26	1.62E-03	0.06	0.55
ENSG00000239674		-3.26	1.71E-03	0.43	2.71
ENSG00000099899	<i>TRMT2A</i>	-3.26	6.15E-03	0.51	3.16
ENSG00000155542	<i>SETD9</i>	-3.26	7.73E-03	0.30	1.85
ENSG00000182481	<i>KPNA2</i>	-3.25	2.76E-07	172.92	1644.91
ENSG00000023902	<i>PLEKHO1</i>	-3.25	1.53E-05	3.28	29.28
ENSG00000228300	<i>FAM174C</i>	-3.25	2.79E-05	6.05	51.78
ENSG00000113504	<i>SLC12A7</i>	-3.25	5.90E-05	0.53	5.04
ENSG00000261156	<i>LINC01989</i>	-3.25	5.99E-05	1.03	8.48
ENSG00000025770	<i>NCAPH2</i>	-3.25	1.03E-04	1.14	8.90
ENSG00000183715	<i>OPCML</i>	-3.25	2.18E-03	1.49	7.50
ENSG00000163810	<i>TGM4</i>	-3.25	5.88E-03	5.02	30.26
ENSG00000251637	<i>LINC02754</i>	-3.24	2.79E-06	2.69	26.71
ENSG00000171574	<i>ZNF584</i>	-3.24	2.80E-06	3.56	34.90
ENSG00000117640	<i>MTFR1L</i>	-3.24	5.10E-06	10.32	94.50
ENSG00000154813	<i>DPH3</i>	-3.24	1.37E-05	5.40	49.33
ENSG00000105676	<i>ARMC6</i>	-3.24	2.10E-05	2.92	29.81
ENSG00000197296	<i>FITM2</i>	-3.24	4.20E-04	0.44	3.49
ENSG00000183134	<i>PTGDR2</i>	-3.24	1.10E-03	0.37	3.63
ENSG00000175329	<i>ISX</i>	-3.24	3.50E-03	0.21	1.16
ENSG00000142544	<i>CTU1</i>	-3.23	1.31E-04	2.32	17.52
ENSG00000152749	<i>GPR180</i>	-3.23	1.91E-04	2.02	19.95
ENSG00000138185	<i>ENTPD1</i>	-3.23	4.03E-04	1.69	11.62

ENSG00000179604	<i>CDC42EP4</i>	-3.23	1.55E-03	0.76	4.37
ENSG00000270035		-3.23	1.94E-03	0.06	0.54
ENSG00000053371	<i>AKR7A2</i>	-3.22	3.85E-05	14.99	115.17
ENSG00000266904	<i>LINC00663</i>	-3.22	4.00E-04	0.35	3.23
ENSG00000106638	<i>TBL2</i>	-3.22	1.22E-03	0.78	5.01
ENSG00000198917	<i>SPOUT1</i>	-3.22	1.60E-03	0.52	3.60
ENSG00000254620		-3.22	2.42E-03	0.06	0.59
ENSG00000290825	<i>DDX11L2</i>	-3.22	3.90E-03	0.26	1.57
ENSG00000077312	<i>SNRPA</i>	-3.21	6.35E-07	7.68	72.47
ENSG00000169427	<i>KCNK9</i>	-3.21	2.36E-05	30.14	299.14
ENSG00000276045	<i>ORAI1</i>	-3.21	2.58E-05	12.05	94.22
ENSG00000136280	<i>CCM2</i>	-3.21	1.82E-04	1.77	12.31
ENSG00000279989		-3.21	1.34E-03	0.03	0.37
ENSG00000167799	<i>NUDT8</i>	-3.21	2.36E-03	0.49	2.63
ENSG00000280317		-3.21	4.21E-03	0.09	0.85
ENSG00000172458	<i>IL17D</i>	-3.21	9.23E-03	0.13	0.74
ENSG00000168159	<i>RNF187</i>	-3.20	2.02E-05	7.68	69.59
ENSG00000224865		-3.20	3.05E-05	1.01	9.32
ENSG00000025434	<i>NR1H3</i>	-3.20	8.78E-05	2.01	18.18
ENSG00000145911	<i>N4BP3</i>	-3.20	2.38E-03	0.16	1.13
ENSG00000276411		-3.20	2.41E-03	0.14	1.06
ENSG00000166897	<i>ELFN2</i>	-3.20	7.30E-03	0.12	0.70
ENSG00000196793	<i>ZNF239</i>	-3.19	1.99E-06	2.36	22.01
ENSG00000287797		-3.19	4.82E-06	1.15	10.65
ENSG00000286442		-3.19	6.20E-06	7.03	65.92
ENSG00000286333		-3.19	2.15E-05	1.49	12.33
ENSG00000213995	<i>NAXD</i>	-3.19	4.93E-05	9.78	91.64
ENSG00000067836	<i>ROGDI</i>	-3.19	9.53E-05	1.77	13.02
ENSG00000181350	<i>LRRC75A</i>	-3.19	4.29E-03	0.20	1.37
ENSG00000163357	<i>DCST1</i>	-3.19	8.17E-03	0.18	0.85
ENSG00000135930	<i>EIF4E2</i>	-3.18	7.27E-07	9.96	95.50
ENSG00000266173	<i>STRADA</i>	-3.18	8.78E-07	5.25	48.00
ENSG00000100372	<i>SLC25A17</i>	-3.18	1.47E-06	9.45	86.82
ENSG00000182544	<i>MFSD5</i>	-3.18	1.15E-05	11.00	95.83
ENSG00000105122	<i>RASAL3</i>	-3.18	2.71E-04	2.12	17.51
ENSG00000157734	<i>SNX22</i>	-3.18	3.17E-04	1.02	7.59
ENSG00000274275		-3.18	4.67E-04	0.19	1.74
ENSG00000073169	<i>SELENOO</i>	-3.18	1.88E-03	0.46	3.13
ENSG00000259594		-3.18	4.53E-03	0.21	1.26
ENSG00000185324	<i>CDK10</i>	-3.17	1.29E-05	1.60	13.70
ENSG00000007520	<i>TSR3</i>	-3.17	4.87E-04	1.99	13.55
ENSG00000288930		-3.17	4.89E-03	0.07	0.46
ENSG00000230352		-3.17	5.25E-03	0.30	2.96
ENSG00000226281		-3.17	6.78E-03	0.41	2.13
ENSG00000171885	<i>AQP4</i>	-3.17	8.26E-03	0.16	0.81
ENSG00000204380	<i>PKP4-AS1</i>	-3.16	1.95E-06	32.09	291.88

ENSG00000106028	<i>SSBP1</i>	-3.16	2.79E-06	14.96	137.86
ENSG00000180098	<i>TRNAU1AP</i>	-3.16	4.53E-06	3.27	28.97
ENSG00000108179	<i>PPIF</i>	-3.16	7.37E-06	9.24	84.41
ENSG00000174775	<i>HRAS</i>	-3.16	2.37E-05	0.71	6.16
ENSG00000260430		-3.16	5.08E-05	0.92	7.82
ENSG00000272617		-3.16	1.33E-04	9.45	62.18
ENSG00000103502	<i>CDIPT</i>	-3.16	1.63E-04	1.15	7.79
ENSG00000125449	<i>ARMC7</i>	-3.16	2.21E-04	0.56	4.03
ENSG00000253648		-3.16	3.31E-03	0.10	0.79
ENSG00000221968	<i>FADS3</i>	-3.15	1.47E-06	52.09	485.01
ENSG00000166847	<i>DCTN5</i>	-3.15	3.07E-06	15.00	130.39
ENSG00000132434	<i>LANCL2</i>	-3.15	9.24E-06	2.49	22.69
ENSG00000198026	<i>ZNF335</i>	-3.15	7.18E-05	0.61	5.48
ENSG00000289189		-3.15	1.09E-04	0.70	5.59
ENSG00000227372	<i>TP73-AS1</i>	-3.15	1.20E-04	3.32	34.99
ENSG00000251206	<i>TILRLS</i>	-3.15	1.52E-04	0.57	4.97
ENSG00000253130		-3.15	1.55E-04	0.34	3.15
ENSG00000214415	<i>GNAT3</i>	-3.15	2.85E-03	0.06	0.51
ENSG00000225213		-3.15	3.47E-03	0.21	1.42
ENSG00000141934	<i>PLPP2</i>	-3.14	3.12E-06	3.26	28.57
ENSG00000199370	<i>U3</i>	-3.14	4.86E-06	1.75	16.20
ENSG00000176473	<i>WDR25</i>	-3.14	5.83E-06	13.77	123.70
ENSG00000133316	<i>WDR74</i>	-3.14	2.25E-05	7.04	54.97
ENSG00000135709	<i>KIAA0513</i>	-3.14	6.97E-05	1.30	10.69
ENSG00000123810	<i>B9D2</i>	-3.14	9.73E-05	1.77	12.21
ENSG00000254792		-3.14	2.23E-04	0.14	1.26
ENSG00000100151	<i>PICK1</i>	-3.14	1.79E-03	0.89	5.00
ENSG00000291143		-3.14	3.65E-03	0.69	3.82
ENSG00000256751	<i>PLBD1-AS1</i>	-3.14	5.09E-03	0.08	0.53
ENSG00000162073	<i>PAQR4</i>	-3.14	6.12E-03	0.27	1.44
ENSG00000125458	<i>NT5C</i>	-3.13	3.86E-06	1.35	12.45
ENSG00000115207	<i>GTF3C2</i>	-3.13	9.12E-06	8.57	82.98
ENSG00000068354	<i>TBC1D25</i>	-3.13	1.03E-05	4.75	43.52
ENSG00000170667	<i>RASA4B</i>	-3.13	3.07E-05	3.27	26.64
ENSG00000130811	<i>EIF3G</i>	-3.13	4.79E-05	5.87	47.83
ENSG00000142319	<i>SLC6A3</i>	-3.13	1.63E-03	0.11	0.96
ENSG00000286132		-3.12	4.41E-06	7.29	67.74
ENSG00000286748		-3.12	1.03E-05	2.77	24.71
ENSG00000273541		-3.12	5.70E-05	2.02	16.74
ENSG00000108479	<i>GALK1</i>	-3.12	5.85E-05	0.87	7.32
ENSG00000086504	<i>MRPL28</i>	-3.12	1.08E-04	2.50	18.12
ENSG00000177548	<i>RABEP2</i>	-3.12	1.38E-03	0.24	1.59
ENSG00000256463	<i>SALL3</i>	-3.12	4.59E-03	2.14	14.44
ENSG00000147124	<i>ZNF41</i>	-3.12	6.20E-03	0.37	1.76
ENSG00000167733	<i>HSD11B1L</i>	-3.11	2.38E-05	7.20	57.60
ENSG00000168002	<i>POLR2G</i>	-3.11	3.26E-05	6.21	48.96

ENSG00000237845		-3.11	1.16E-04	0.32	3.04
ENSG00000130244	<i>FAM98C</i>	-3.11	1.85E-04	0.93	6.71
ENSG00000213563	<i>C8orf82</i>	-3.11	2.45E-04	3.42	23.65
ENSG00000198624	<i>CCDC69</i>	-3.11	3.17E-04	0.85	7.83
ENSG00000213189	<i>BTF3L4P2</i>	-3.11	3.84E-04	2.55	15.50
ENSG00000267607	<i>ICAM4-AS1</i>	-3.11	8.02E-03	0.08	0.36
ENSG00000139641	<i>ESYT1</i>	-3.10	4.07E-06	4.10	35.87
ENSG00000164081	<i>TEX264</i>	-3.10	7.37E-06	12.14	98.04
ENSG00000197070	<i>ARRDC1</i>	-3.10	6.32E-05	2.20	16.90
ENSG00000152700	<i>SAR1B</i>	-3.10	4.87E-04	3.95	26.81
ENSG00000172752	<i>COL6A5</i>	-3.10	1.12E-03	1.61	10.06
ENSG00000182108	<i>DEXI</i>	-3.10	4.73E-03	0.45	2.88
ENSG00000204661	<i>C5orf60</i>	-3.10	6.12E-03	0.34	1.92
ENSG00000182208	<i>MOB2</i>	-3.09	1.09E-05	2.84	22.11
ENSG00000258628	<i>RHPN2P1</i>	-3.09	2.79E-05	1.74	14.22
ENSG00000254401	<i>LINC02752</i>	-3.09	5.82E-05	0.41	3.46
ENSG00000198464	<i>ZNF480</i>	-3.09	2.58E-04	0.55	4.76
ENSG00000275874	<i>PICSAR</i>	-3.09	3.27E-04	0.24	2.27
ENSG00000116761	<i>CTH</i>	-3.09	4.56E-04	1.81	11.63
ENSG00000150276	<i>PPIAP26</i>	-3.09	4.39E-03	0.10	0.79
ENSG00000236339	<i>POM121L13P</i>	-3.09	8.37E-03	0.12	0.85
ENSG00000183154		-3.09	8.98E-03	0.11	0.58
ENSG00000140105	<i>WARS1</i>	-3.08	2.60E-06	12.51	110.27
ENSG00000151287	<i>TEX30</i>	-3.08	2.59E-06	43.80	355.72
ENSG00000134508	<i>CABLES1</i>	-3.08	3.34E-05	4.53	40.72
ENSG00000280426		-3.08	4.30E-03	0.19	1.08
ENSG00000115008	<i>IL1A</i>	-3.08	7.91E-03	0.30	1.08
ENSG00000234423	<i>LINC01250</i>	-3.08	9.17E-03	0.10	0.50
ENSG00000269895		-3.08	9.72E-03	0.10	0.46
ENSG00000275111	<i>ZNF2</i>	-3.07	8.78E-07	7.11	61.82
ENSG00000185627	<i>PSMD13</i>	-3.07	8.00E-06	5.32	43.47
ENSG00000133597	<i>ADCK2</i>	-3.07	1.29E-05	1.43	11.99
ENSG00000152253	<i>SPC25</i>	-3.07	2.70E-05	6.99	57.46
ENSG00000103089	<i>FA2H</i>	-3.07	3.01E-05	1.01	8.99
ENSG00000254192		-3.07	3.59E-05	0.85	6.81
ENSG00000135482	<i>ZC3H10</i>	-3.07	1.12E-04	0.90	6.91
ENSG00000068724	<i>TTC7A</i>	-3.07	3.15E-04	1.07	8.94
ENSG00000149016	<i>TUT1</i>	-3.07	1.16E-03	0.51	3.83
ENSG00000133477	<i>FAM83F</i>	-3.07	1.78E-03	0.94	4.86
ENSG00000261067		-3.07	8.05E-03	0.08	0.39
ENSG00000168675	<i>LDLRAD4</i>	-3.07	8.62E-03	0.88	2.79
ENSG00000119725	<i>ZNF410</i>	-3.06	2.04E-06	19.75	165.17
ENSG00000101457	<i>DNTTIP1</i>	-3.06	3.86E-06	8.74	71.89
ENSG00000245614	<i>DDX11-AS1</i>	-3.06	1.02E-05	0.98	8.26
ENSG00000174945	<i>AMZ1</i>	-3.06	3.52E-05	0.96	7.29
ENSG00000198915	<i>RASGEF1A</i>	-3.06	1.00E-04	1.79	12.79

ENSG00000226519	<i>LINC00390</i>	-3.06	1.97E-03	0.34	2.26
ENSG00000227477	<i>STK4-DT</i>	-3.06	2.42E-03	0.38	2.57
ENSG00000180855	<i>ZNF443</i>	-3.05	1.04E-06	41.43	345.62
ENSG00000176476	<i>SGF29</i>	-3.05	1.95E-06	20.83	175.53
ENSG00000130204	<i>TOMM40</i>	-3.05	1.04E-05	1.93	15.77
ENSG00000261786		-3.05	7.08E-04	2.49	19.89
ENSG00000159761	<i>C16orf86</i>	-3.05	4.65E-03	0.29	1.39
ENSG00000172426	<i>RSPH9</i>	-3.04	4.10E-06	9.05	73.68
ENSG00000169410	<i>PTPN9</i>	-3.04	1.32E-05	3.20	26.21
ENSG00000262482		-3.04	2.05E-05	0.79	6.84
ENSG00000120832	<i>MTERF2</i>	-3.04	1.17E-03	1.23	9.05
ENSG00000132002	<i>DNAJB1</i>	-3.03	1.73E-05	49.84	375.86
ENSG00000172183	<i>ISG20</i>	-3.03	4.23E-05	1.33	9.88
ENSG00000287093		-3.03	3.16E-03	0.06	0.71
ENSG00000197889	<i>MEIG1</i>	-3.03	9.22E-03	0.10	0.79
ENSG00000068120	<i>COASY</i>	-3.02	3.09E-06	6.29	50.19
ENSG00000101057	<i>MYBL2</i>	-3.02	6.10E-06	19.10	167.36
ENSG00000167113	<i>COQ4</i>	-3.02	1.46E-05	4.20	32.06
ENSG00000155229	<i>MMS19</i>	-3.02	8.60E-05	5.30	45.30
ENSG00000136877	<i>FPGS</i>	-3.02	1.32E-04	3.24	22.75
ENSG00000168907	<i>PLA2G4F</i>	-3.02	3.17E-04	2.63	18.59
ENSG00000213965	<i>NUDT19</i>	-3.02	1.20E-03	0.13	1.07
ENSG00000285533	<i>RELA-DT</i>	-3.02	1.66E-03	0.19	1.59
ENSG00000197565	<i>COL4A6</i>	-3.02	5.14E-03	0.45	2.23
ENSG00000198546	<i>ZNF511</i>	-3.01	1.13E-06	8.40	69.63
ENSG00000073578	<i>SDHA</i>	-3.01	3.07E-06	18.58	154.03
ENSG00000168389	<i>MFSD2A</i>	-3.01	6.67E-06	36.59	315.45
ENSG00000223795		-3.01	6.11E-05	3.50	25.71
ENSG00000185187	<i>SIGIRR</i>	-3.01	4.20E-04	2.00	13.00
ENSG00000224870	<i>MRPL20-AS1</i>	-3.01	1.04E-03	0.27	2.19
ENSG00000224843	<i>LINC00240</i>	-3.01	7.87E-03	0.08	0.38
ENSG00000270157		-3.01	9.57E-03	0.34	1.70
ENSG00000155115	<i>GTF3C6</i>	-3.00	1.52E-06	21.90	181.13
ENSG00000129197	<i>RPAIN</i>	-3.00	1.89E-06	17.93	143.95
ENSG00000181929	<i>PRKAG1</i>	-3.00	1.98E-06	7.06	60.19
ENSG00000246560	<i>UBE2D3-AS1</i>	-3.00	3.86E-06	4.00	33.88
ENSG00000271550	<i>BNIP3P11</i>	-3.00	1.86E-03	0.27	2.45
ENSG00000103489	<i>XYLT1</i>	-2.99	1.92E-07	79.68	657.81
ENSG00000142528	<i>ZNF473</i>	-2.99	2.46E-06	8.67	67.93
ENSG00000037897	<i>METTL1</i>	-2.99	1.05E-05	2.95	21.61
ENSG00000149418	<i>ST14</i>	-2.99	2.70E-05	37.37	265.41
ENSG00000151655	<i>ITIH2</i>	-2.99	6.68E-05	4.54	31.17
ENSG00000167900	<i>TK1</i>	-2.99	1.12E-04	10.13	65.11
ENSG00000260914		-2.99	1.62E-04	2.36	17.34
ENSG00000166839	<i>ANKDD1A</i>	-2.99	7.03E-04	0.56	3.39
ENSG00000282881	<i>TMEM275</i>	-2.99	1.12E-03	0.08	0.66

ENSG00000279945		-2.99	1.39E-03	0.31	2.06
ENSG00000183747	<i>ACSM2A</i>	-2.99	8.75E-03	0.25	0.98
ENSG00000079616	<i>KIF22</i>	-2.98	1.88E-06	23.72	185.38
ENSG00000143179	<i>UCK2</i>	-2.98	1.89E-06	11.56	95.64
ENSG00000175311	<i>ANKS4B</i>	-2.98	2.19E-05	2.96	23.75
ENSG00000215305	<i>VPS16</i>	-2.98	1.19E-04	2.16	15.97
ENSG00000099849	<i>RASSF7</i>	-2.98	9.81E-04	1.23	7.52
ENSG00000162456	<i>KNCN</i>	-2.98	2.17E-03	0.37	2.46
ENSG00000291151	<i>NSUN5P1</i>	-2.98	2.04E-03	2.29	11.53
ENSG00000186907	<i>RTN4RL2</i>	-2.98	7.44E-03	1.03	4.14
ENSG00000143740	<i>SNAP47</i>	-2.97	8.78E-07	13.78	109.54
ENSG00000132600	<i>PRMT7</i>	-2.97	2.74E-06	7.52	59.62
ENSG00000254858	<i>MPV17L2</i>	-2.97	8.03E-06	7.57	57.66
ENSG00000255079	<i>LINC02704</i>	-2.97	1.05E-05	3.73	29.17
ENSG00000169221	<i>TBC1D10B</i>	-2.97	1.89E-05	5.74	41.52
ENSG00000273162		-2.97	1.13E-03	0.27	1.82
ENSG00000243836	<i>WDR86-AS1</i>	-2.97	1.17E-03	1.41	14.59
ENSG00000172375	<i>C2CD2L</i>	-2.97	1.80E-03	0.27	1.94
ENSG00000166508	<i>MCM7</i>	-2.96	1.41E-06	20.37	168.31
ENSG00000260034	<i>LCMT1-AS2</i>	-2.96	1.28E-05	2.81	21.44
ENSG00000101331	<i>CCM2L</i>	-2.96	2.10E-05	1.46	11.12
ENSG00000130305	<i>NSUN5</i>	-2.96	4.25E-05	14.09	98.29
ENSG00000289968		-2.96	1.55E-04	0.44	3.60
ENSG00000122741	<i>DCAF10</i>	-2.96	3.81E-04	2.01	12.54
ENSG00000124785	<i>NRN1</i>	-2.96	5.09E-04	0.44	3.82
ENSG00000146700	<i>SSC4D</i>	-2.96	2.52E-03	0.30	1.81
ENSG00000234996	<i>ACTG1P25</i>	-2.96	2.58E-03	2.97	28.21
ENSG00000250584	<i>LINC01511</i>	-2.95	2.24E-06	43.46	361.34
ENSG00000139719	<i>VPS33A</i>	-2.95	3.09E-06	6.13	47.58
ENSG00000166133	<i>RPUSD2</i>	-2.95	1.82E-05	3.18	22.98
ENSG00000127952	<i>STYXL1</i>	-2.95	1.99E-05	2.30	17.16
ENSG00000010278	<i>CD9</i>	-2.95	4.51E-05	29.27	203.87
ENSG00000287451		-2.95	6.00E-05	0.57	4.68
ENSG00000168229	<i>PTGDR</i>	-2.95	2.80E-04	0.54	4.58
ENSG00000121454	<i>LHX4</i>	-2.95	2.95E-04	3.29	22.79
ENSG00000274922		-2.95	4.73E-04	0.29	2.01
ENSG00000166436	<i>TRIM66</i>	-2.95	8.13E-04	0.30	2.28
ENSG00000134001	<i>EIF2S1</i>	-2.94	1.71E-06	34.54	265.38
ENSG00000179988	<i>PSTK</i>	-2.94	5.97E-06	3.62	27.39
ENSG00000105671	<i>DDX49</i>	-2.94	2.58E-05	2.33	17.82
ENSG00000163472	<i>TMEM79</i>	-2.94	8.96E-05	0.83	6.03
ENSG00000112812	<i>PRSS16</i>	-2.94	1.64E-04	1.08	7.21
ENSG00000168743	<i>NPNT</i>	-2.94	1.88E-04	3.20	25.21
ENSG00000259956	<i>RBM15B</i>	-2.94	3.39E-04	0.98	5.82
ENSG00000258390	<i>LINC02318</i>	-2.94	4.55E-04	0.46	3.31
ENSG00000260338	<i>LINC01570</i>	-2.94	1.85E-03	0.17	1.10

ENSG00000253696	<i>KBTD11-OT1</i>	-2.94	2.37E-03	0.21	1.37
ENSG00000114491	<i>UMPS</i>	-2.93	8.78E-07	14.87	117.22
ENSG00000172006	<i>ZNF554</i>	-2.93	2.79E-06	6.32	48.44
ENSG00000144152	<i>FBLN7</i>	-2.93	2.80E-06	64.06	482.79
ENSG00000124523	<i>SIRT5</i>	-2.93	6.14E-06	4.93	37.30
ENSG00000100628	<i>ASB2</i>	-2.93	3.70E-05	2.61	18.05
ENSG00000287725		-2.93	4.06E-05	1.14	7.95
ENSG00000289087		-2.93	5.10E-05	1.71	12.47
ENSG00000159884	<i>CCDC107</i>	-2.93	8.76E-05	0.92	6.28
ENSG00000086967	<i>MYBPC2</i>	-2.93	1.84E-04	1.11	7.44
ENSG00000149761	<i>NUDT22</i>	-2.93	1.84E-03	0.86	4.68
ENSG00000204352	<i>C9orf129</i>	-2.93	4.99E-03	0.18	0.97
ENSG00000262898		-2.92	1.14E-06	5.91	46.73
ENSG00000131351	<i>HAUS8</i>	-2.92	2.67E-06	54.18	395.01
ENSG00000228109	<i>MELTF-AS1</i>	-2.92	6.05E-06	5.95	47.61
ENSG00000170881	<i>RNF139</i>	-2.92	8.03E-06	6.29	50.33
ENSG00000141294	<i>LRRC46</i>	-2.92	1.50E-05	1.29	9.57
ENSG00000260456	<i>C16orf95</i>	-2.92	1.98E-05	1.55	11.02
ENSG00000164535	<i>DAGLB</i>	-2.92	3.85E-05	3.74	29.83
ENSG00000126953	<i>TIMM8A</i>	-2.92	4.61E-05	4.02	28.87
ENSG00000074370	<i>ATP2A3</i>	-2.92	4.16E-04	0.88	7.60
ENSG00000278700	<i>Metazoa_SRP</i>	-2.92	4.52E-04	0.12	1.06
ENSG00000225968	<i>ELFN1</i>	-2.92	1.81E-03	0.30	1.90
ENSG00000108231	<i>LGI1</i>	-2.92	2.63E-03	0.20	1.06
ENSG00000255524	<i>NPIP8</i>	-2.92	7.90E-03	0.12	1.03
ENSG00000160345	<i>PIERCE1</i>	-2.91	1.08E-04	0.71	5.94
ENSG00000169220	<i>RGS14</i>	-2.91	3.62E-04	12.96	73.73
ENSG00000225886		-2.91	4.94E-04	0.19	1.48
ENSG00000172216	<i>CEBPB</i>	-2.91	8.64E-04	0.91	5.08
ENSG00000231628		-2.91	3.90E-03	0.20	1.12
ENSG00000187260	<i>WDR86</i>	-2.91	5.37E-03	0.11	1.02
ENSG00000171163	<i>ZNF692</i>	-2.90	8.97E-05	1.62	11.91
ENSG00000176087	<i>SLC35A4</i>	-2.90	9.25E-05	7.33	55.47
ENSG00000236511	<i>LINC01231</i>	-2.90	2.69E-04	0.86	6.22
ENSG00000261777	<i>DDX19A-DT</i>	-2.90	5.64E-03	0.30	1.61
ENSG00000132792	<i>CTNBL1</i>	-2.89	1.32E-06	16.67	126.57
ENSG00000132286	<i>TIMM10B</i>	-2.89	1.89E-06	10.01	73.38
ENSG00000184047	<i>DIABLO</i>	-2.89	2.89E-06	26.39	191.02
ENSG00000100294	<i>MCAT</i>	-2.89	1.10E-05	7.66	55.94
ENSG00000141428	<i>C18orf21</i>	-2.89	1.86E-05	3.34	25.89
ENSG00000248373		-2.89	2.55E-05	1.10	8.83
ENSG00000104969	<i>SGTA</i>	-2.89	3.71E-05	4.04	31.02
ENSG00000251436	<i>NUP58P1</i>	-2.89	1.48E-03	0.49	3.01
ENSG00000286736		-2.89	4.20E-03	0.17	1.31
ENSG00000130675	<i>MNX1</i>	-2.89	6.20E-03	0.13	0.71
ENSG00000260231	<i>KDM7A-DT</i>	-2.89	8.49E-03	0.17	0.69

ENSG00000100162	<i>CENPM</i>	-2.88	4.82E-06	3.65	27.65
ENSG00000162377	<i>COA7</i>	-2.88	1.01E-05	5.77	42.80
ENSG00000163933	<i>RFT1</i>	-2.88	2.92E-05	7.22	57.83
ENSG00000133612	<i>AGAP3</i>	-2.88	8.12E-05	0.98	6.81
ENSG00000169692	<i>AGPAT2</i>	-2.88	1.55E-04	22.47	128.79
ENSG00000177599	<i>ZNF491</i>	-2.88	2.78E-03	0.25	1.40
ENSG00000238113	<i>LINC01410</i>	-2.88	7.87E-03	0.36	1.90
ENSG00000213380	<i>COG8</i>	-2.87	5.55E-06	30.46	225.88
ENSG00000182054	<i>IDH2</i>	-2.87	6.06E-06	20.82	150.98
ENSG00000256500		-2.87	1.06E-05	3.89	28.37
ENSG00000100116	<i>GCAT</i>	-2.87	1.03E-05	38.54	258.88
ENSG00000173638	<i>SLC19A1</i>	-2.87	3.51E-05	3.98	25.68
ENSG00000215193	<i>PEX26</i>	-2.87	5.97E-05	1.95	13.97
ENSG00000101417	<i>PXMP4</i>	-2.87	7.43E-05	1.57	12.88
ENSG00000099330	<i>OCEL1</i>	-2.87	7.62E-04	1.24	6.55
ENSG00000277011		-2.87	8.37E-04	0.40	2.42
ENSG00000253207		-2.87	3.66E-03	0.13	1.03
ENSG00000176155	<i>CCDC57</i>	-2.87	5.26E-03	0.56	4.86
ENSG00000159720	<i>ATP6V0D1</i>	-2.86	7.71E-07	45.93	334.29
ENSG00000158796	<i>DEDD</i>	-2.86	7.92E-07	35.47	265.47
ENSG00000092931	<i>MFSD11</i>	-2.86	1.89E-06	7.08	51.72
ENSG00000157349	<i>DDX19B</i>	-2.86	3.86E-06	3.09	23.48
ENSG00000148444	<i>COMMD3</i>	-2.86	4.58E-06	6.55	50.46
ENSG00000198563	<i>DDX39B</i>	-2.86	6.66E-06	7.08	52.91
ENSG00000150510	<i>FAM124A</i>	-2.86	6.85E-06	4.48	32.27
ENSG00000133317	<i>LGALS12</i>	-2.86	2.45E-05	8.96	59.90
ENSG00000116396	<i>KCNC4</i>	-2.86	2.01E-04	2.33	14.05
ENSG00000177380	<i>PPFIA3</i>	-2.86	4.23E-04	1.82	9.84
ENSG00000197847	<i>SLC22A20P</i>	-2.86	8.08E-04	1.31	6.94
ENSG00000236172	<i>MIR7515HG</i>	-2.86	1.44E-03	0.32	2.64
ENSG00000272918		-2.86	1.51E-03	0.12	0.88
ENSG00000162520	<i>SYNC</i>	-2.86	9.31E-03	13.70	48.74
ENSG00000108826	<i>MRPL27</i>	-2.85	3.32E-05	6.56	44.77
ENSG00000141040	<i>ZNF287</i>	-2.85	6.58E-05	3.19	21.17
ENSG00000157833	<i>GAREM2</i>	-2.85	1.35E-04	3.85	29.88
ENSG00000226956		-2.85	1.05E-03	0.30	1.69
ENSG00000248405	<i>PRR5-ARHGAP8</i>	-2.85	1.05E-03	0.53	3.26
ENSG00000237172	<i>B3GNT9</i>	-2.85	1.44E-03	0.94	4.93
ENSG00000286394		-2.85	2.06E-03	1.02	7.99
ENSG00000248671	<i>ALG1L9P</i>	-2.85	3.46E-03	0.17	1.09
ENSG00000144040	<i>SFXN5</i>	-2.85	3.15E-03	4.04	40.13
ENSG00000232216	<i>IGHV3-43</i>	-2.85	5.09E-03	0.27	1.57
ENSG00000251131		-2.85	9.83E-03	0.56	2.12
ENSG00000126107	<i>HECTD3</i>	-2.84	8.41E-06	2.81	20.42
ENSG00000122359	<i>ANXA11</i>	-2.84	1.34E-05	8.04	54.54
ENSG00000170275	<i>CRTAP</i>	-2.84	3.94E-05	2.61	17.97

ENSG00000050767	<i>COL23A1</i>	-2.84	9.42E-05	2.43	16.79
ENSG00000168286	<i>THAP11</i>	-2.84	1.09E-04	4.17	27.75
ENSG00000258736		-2.84	4.69E-04	3.02	21.74
ENSG00000130193	<i>THEM6</i>	-2.84	8.22E-04	6.19	33.08
ENSG00000101290	<i>CDS2</i>	-2.83	9.77E-07	15.53	115.23
ENSG00000167264	<i>DUS2</i>	-2.83	2.80E-06	2.80	20.28
ENSG00000171772	<i>SYCE1</i>	-2.83	2.25E-05	4.05	27.86
ENSG00000253633		-2.83	1.89E-03	1.28	5.59
ENSG00000262814	<i>MRPL12</i>	-2.83	1.86E-03	2.31	12.58
ENSG00000162341	<i>TPCN2</i>	-2.83	4.92E-03	0.36	2.45
ENSG00000060491	<i>OGFR</i>	-2.83	7.98E-03	1.04	3.60
ENSG00000269220	<i>LINC00528</i>	-2.83	9.61E-03	0.11	0.58
ENSG00000183324	<i>REC114</i>	-2.82	8.70E-06	317.96	2220.52
ENSG00000230071	<i>RPL4P6</i>	-2.82	1.00E-05	2.20	15.99
ENSG00000137522	<i>RNF121</i>	-2.82	6.52E-05	1.77	11.90
ENSG00000184860	<i>SDR42E1</i>	-2.82	6.67E-05	4.55	30.60
ENSG00000111641	<i>NOP2</i>	-2.82	2.09E-04	12.38	84.47
ENSG00000138942	<i>RNF185</i>	-2.82	2.39E-04	10.25	77.48
ENSG00000261509	<i>TP53TG3B</i>	-2.82	3.90E-04	0.61	4.50
ENSG00000289844		-2.82	4.27E-04	0.38	2.61
ENSG00000101945	<i>SUV39H1</i>	-2.82	3.06E-03	0.81	5.09
ENSG00000234608	<i>MAPKAPK5-AS1</i>	-2.81	7.49E-06	4.55	33.64
ENSG00000119242	<i>CCDC92</i>	-2.81	1.02E-05	5.19	35.85
ENSG00000059122	<i>FLYWCH1</i>	-2.81	3.22E-04	3.92	20.64
ENSG00000126746	<i>ZNF384</i>	-2.81	3.84E-04	1.41	10.23
ENSG00000129946	<i>SHC2</i>	-2.81	9.33E-04	1.08	4.86
ENSG00000135392	<i>DNAJC14</i>	-2.81	1.23E-03	1.56	11.02
ENSG00000287051		-2.81	2.25E-03	0.40	3.10
ENSG00000185664	<i>PMEL</i>	-2.81	2.22E-03	1.72	8.87
ENSG00000257943		-2.81	4.70E-03	0.12	0.90
ENSG00000097021	<i>ACOT7</i>	-2.80	1.89E-06	11.05	77.69
ENSG00000124243	<i>BCAS4</i>	-2.80	2.93E-06	3.52	25.11
ENSG00000289842		-2.80	1.49E-05	1.46	10.90
ENSG00000213523	<i>SRA1</i>	-2.80	2.58E-05	3.78	25.84
ENSG00000123159	<i>GIPC1</i>	-2.80	1.62E-04	2.47	16.09
ENSG00000267106	<i>ZNF561-AS1</i>	-2.80	2.43E-04	2.00	12.48
ENSG00000106410	<i>NOBOX</i>	-2.80	4.29E-04	2.27	13.27
ENSG00000223797	<i>ENTPD3-AS1</i>	-2.80	1.53E-03	0.52	3.73
ENSG00000290425	<i>PI4KAP1</i>	-2.80	3.27E-03	0.27	1.36
ENSG00000106348	<i>IMPDH1</i>	-2.80	6.53E-03	0.50	2.02
ENSG00000125352	<i>RNF113A</i>	-2.79	4.36E-06	35.45	239.83
ENSG00000184436	<i>THAP7</i>	-2.79	4.53E-06	8.05	55.11
ENSG00000175224	<i>ATG13</i>	-2.79	6.10E-06	7.32	53.52
ENSG00000168393	<i>DTYMK</i>	-2.79	3.21E-05	2.78	18.59
ENSG00000141469	<i>SLC14A1</i>	-2.79	3.68E-05	8.08	53.60
ENSG00000115648	<i>MLPH</i>	-2.79	4.33E-05	1.78	11.51

ENSG00000130545	<i>CRB3</i>	-2.79	6.26E-05	2.69	16.15
ENSG00000233125	<i>ACTBP12</i>	-2.79	2.95E-03	1.85	9.32
ENSG00000248872	<i>LINC02431</i>	-2.79	3.78E-03	1.19	6.30
ENSG00000172508	<i>CARNS1</i>	-2.79	7.62E-03	0.18	0.77
ENSG00000100522	<i>GNPNAT1</i>	-2.78	1.89E-06	4.18	29.26
ENSG00000179709	<i>NLRP8</i>	-2.78	1.58E-05	71.90	522.55
ENSG00000236810	<i>ELOA-AS1</i>	-2.78	4.55E-05	2.39	16.70
ENSG00000135100	<i>HNF1A</i>	-2.78	4.56E-05	3.92	28.80
ENSG00000136490	<i>LIMD2</i>	-2.78	6.37E-05	1.61	10.98
ENSG00000232093	<i>DCST1-AS1</i>	-2.78	1.97E-04	1.13	6.26
ENSG00000142082	<i>SIRT3</i>	-2.78	2.23E-04	2.08	14.71
ENSG00000124196	<i>GTSF1L</i>	-2.78	4.90E-04	1.17	7.45
ENSG00000047648	<i>ARHGAP6</i>	-2.78	7.02E-04	9.39	51.94
ENSG00000008300	<i>CELSR3</i>	-2.78	2.32E-03	0.17	0.96
ENSG00000229443	<i>LINC00433</i>	-2.78	2.62E-03	0.12	0.79
ENSG00000176239	<i>OR51B6</i>	-2.78	2.93E-03	0.51	2.77
ENSG00000269929	<i>MIRLET7A1HG</i>	-2.78	7.29E-03	0.24	1.07
ENSG00000139364	<i>TMEM132B</i>	-2.77	2.67E-07	69.50	493.45
ENSG00000177181	<i>RIMKLA</i>	-2.77	1.76E-06	34.25	232.19
ENSG00000263715	<i>LINC02210-CRHR1</i>	-2.77	5.70E-06	4.04	29.05
ENSG00000156928	<i>MALSU1</i>	-2.77	8.03E-06	16.41	110.47
ENSG00000133392	<i>MYH11</i>	-2.77	1.02E-05	15.96	105.16
ENSG00000124104	<i>SNX21</i>	-2.77	1.99E-05	5.49	35.63
ENSG00000104221	<i>BRF2</i>	-2.77	2.72E-05	1.75	12.66
ENSG00000101187	<i>SLCO4A1</i>	-2.77	3.70E-05	3.45	22.56
ENSG00000102125	<i>TAFAZZIN</i>	-2.77	1.73E-04	2.05	13.58
ENSG00000132004	<i>FBXW9</i>	-2.77	2.21E-04	5.86	31.52
ENSG00000162755	<i>KLHDC9</i>	-2.77	2.53E-04	1.36	8.71
ENSG00000179862	<i>CITED4</i>	-2.77	2.64E-04	1.08	7.22
ENSG00000148841	<i>ITPRIP</i>	-2.77	4.48E-04	1.23	7.78
ENSG00000255929	<i>PIWIL4-AS1</i>	-2.77	6.53E-04	1.32	7.36
ENSG00000132109	<i>TRIM21</i>	-2.77	7.30E-04	1.31	8.41
ENSG00000253684	<i>BUD31P1</i>	-2.77	2.71E-03	0.54	3.84
ENSG00000253741	<i>LNCOC1</i>	-2.77	4.65E-03	0.17	0.91
ENSG00000257302	<i>FAHD2P1</i>	-2.77	7.47E-03	0.20	1.02
ENSG00000286705		-2.77	7.91E-03	0.21	1.02
ENSG00000215712	<i>TMEM242</i>	-2.76	8.55E-06	8.73	56.34
ENSG00000119718	<i>EIF2B2</i>	-2.76	9.93E-06	5.99	41.52
ENSG00000116809	<i>ZBTB17</i>	-2.76	1.31E-05	4.27	29.02
ENSG00000131043	<i>AAR2</i>	-2.76	1.35E-05	10.60	74.33
ENSG00000167173	<i>C15orf39</i>	-2.76	1.86E-05	1.23	8.57
ENSG00000248530	<i>BCL2L12P1</i>	-2.76	2.25E-04	0.49	3.28
ENSG00000160233	<i>LRRC3</i>	-2.76	4.47E-04	0.27	1.83
ENSG00000237310	<i>LINC03011</i>	-2.76	4.26E-04	1.15	7.17
ENSG00000257470		-2.76	2.42E-03	0.22	1.18
ENSG00000166359	<i>WDR88</i>	-2.76	6.65E-03	0.15	1.14

ENSG00000087191	<i>PSMC5</i>	-2.75	4.48E-06	34.69	227.82
ENSG00000166965	<i>RCCD1</i>	-2.75	6.11E-05	13.43	92.54
ENSG00000183844	<i>FAM3B</i>	-2.75	8.82E-05	5.88	38.48
ENSG00000275880		-2.75	2.07E-04	1.31	9.19
ENSG00000156860	<i>FBR5</i>	-2.75	2.17E-04	0.64	4.30
ENSG00000172073	<i>TEX37</i>	-2.75	4.46E-04	5.31	40.41
ENSG00000290907		-2.75	6.61E-04	0.25	1.83
ENSG00000101843	<i>PSMD10</i>	-2.75	9.38E-04	53.22	226.15
ENSG00000127325	<i>BEST3</i>	-2.75	8.22E-03	0.22	1.26
ENSG00000258502	<i>LINC02290</i>	-2.75	8.62E-03	0.14	0.79
ENSG00000160318	<i>CLDND2</i>	-2.75	9.86E-03	0.11	0.59
ENSG00000196208	<i>GREB1</i>	-2.74	1.45E-06	8.89	60.68
ENSG00000177370	<i>TIMM22</i>	-2.74	2.44E-06	11.91	81.44
ENSG00000100568	<i>VTI1B</i>	-2.74	1.02E-05	6.58	42.78
ENSG00000224965	<i>KCNC4-DT</i>	-2.74	3.31E-05	0.88	5.84
ENSG00000174547	<i>MRPL11</i>	-2.74	3.72E-05	6.72	41.61
ENSG00000223501	<i>VPS52</i>	-2.74	4.19E-05	1.01	6.82
ENSG00000128626	<i>MRPS12</i>	-2.74	6.10E-04	7.97	38.66
ENSG00000184887	<i>BTBD6</i>	-2.74	2.25E-03	0.83	4.09
ENSG00000249996	<i>PPIC-AS1</i>	-2.74	3.87E-03	0.07	0.47
ENSG00000213373	<i>LINC00671</i>	-2.74	6.86E-03	0.09	0.52
ENSG00000175779	<i>LINC02694</i>	-2.73	1.98E-06	20.11	139.65
ENSG00000188613	<i>NANOS1</i>	-2.73	2.29E-05	38.08	248.14
ENSG00000110871	<i>COQ5</i>	-2.73	3.18E-05	3.58	23.82
ENSG00000171421	<i>MRPL36</i>	-2.73	8.82E-05	19.45	115.54
ENSG00000117543	<i>DPH5</i>	-2.73	9.83E-05	3.78	23.75
ENSG00000273082	<i>LARGE1-AS1</i>	-2.73	1.60E-04	0.32	2.24
ENSG00000175467	<i>SART1</i>	-2.73	2.48E-04	1.03	6.44
ENSG00000125898	<i>FAM110A</i>	-2.73	3.01E-04	5.07	31.95
ENSG00000278737		-2.73	3.99E-04	3.64	22.59
ENSG00000261727		-2.73	1.04E-03	0.14	0.92
ENSG00000255395		-2.73	6.04E-03	0.44	3.90
ENSG00000236572		-2.73	9.29E-03	0.20	0.88
ENSG00000175110	<i>MRPS22</i>	-2.72	5.43E-06	11.09	72.60
ENSG00000158793	<i>NIT1</i>	-2.72	1.02E-05	1.68	11.62
ENSG00000175376	<i>EIF1AD</i>	-2.72	1.14E-05	1.95	12.90
ENSG00000231290	<i>APCDD1L-DT</i>	-2.72	2.87E-05	6.66	41.87
ENSG00000214654	<i>B3GALT9</i>	-2.72	7.88E-05	0.90	5.49
ENSG00000100304	<i>TTL12</i>	-2.72	9.80E-05	2.29	16.03
ENSG00000127922	<i>SEM1</i>	-2.72	9.57E-05	7.83	48.13
ENSG00000242021		-2.72	1.64E-04	0.57	3.63
ENSG00000174586	<i>ZNF497</i>	-2.72	1.15E-03	0.59	3.31
ENSG00000213593	<i>TMX2</i>	-2.71	5.46E-07	17.85	121.95
ENSG00000163531	<i>NFASC</i>	-2.71	5.21E-06	4.23	28.05
ENSG00000137106	<i>GRHPR</i>	-2.71	6.01E-06	43.29	276.66
ENSG00000111786	<i>SRSF9</i>	-2.71	8.18E-06	21.83	143.69

ENSG00000131100	<i>ATP6V1E1</i>	-2.71	2.14E-05	35.69	215.91
ENSG00000083828	<i>ZNF586</i>	-2.71	3.07E-05	7.83	49.79
ENSG00000175536	<i>LIPT2</i>	-2.71	3.29E-05	2.92	17.82
ENSG00000229559		-2.71	4.87E-05	3.58	22.35
ENSG00000171169	<i>NAIF1</i>	-2.71	6.55E-05	1.63	9.98
ENSG00000077943	<i>ITGA8</i>	-2.71	8.71E-05	2.82	19.22
ENSG00000107295	<i>SH3GL2</i>	-2.71	1.53E-04	5.41	32.93
ENSG00000259376		-2.71	2.60E-04	0.37	2.33
ENSG00000139610	<i>CELA1</i>	-2.71	3.03E-04	0.74	4.53
ENSG00000163975	<i>MELTF</i>	-2.71	4.91E-04	1.18	9.03
ENSG00000273269		-2.71	1.28E-03	0.33	2.13
ENSG00000257165		-2.71	8.04E-03	0.07	0.39
ENSG00000140688	<i>RUSF1</i>	-2.71	9.47E-03	1.22	4.78
ENSG00000196466	<i>ZNF799</i>	-2.70	2.67E-07	67.52	453.75
ENSG00000107175	<i>CREB3</i>	-2.70	1.90E-06	4.77	31.90
ENSG00000128563	<i>PRKRIP1</i>	-2.70	6.13E-06	18.23	119.80
ENSG00000280789	<i>PAGR1</i>	-2.70	1.86E-05	4.00	24.61
ENSG00000174640	<i>SLCO2A1</i>	-2.70	5.10E-05	2.85	18.27
ENSG00000160753	<i>RUSC1</i>	-2.70	6.15E-05	2.38	17.03
ENSG00000090432	<i>MUL1</i>	-2.70	1.36E-04	14.42	103.15
ENSG00000173976	<i>RAX2</i>	-2.70	4.20E-04	1.28	7.15
ENSG00000230361	<i>VN1R32P</i>	-2.70	5.97E-04	0.57	2.99
ENSG00000215440	<i>NPEPL1</i>	-2.70	7.09E-04	0.70	3.71
ENSG00000100596	<i>SPTLC2</i>	-2.70	9.62E-04	0.71	3.70
ENSG00000223518	<i>CSNK1A1P1</i>	-2.70	1.13E-03	0.72	3.94
ENSG00000125637	<i>PSD4</i>	-2.70	1.34E-03	0.23	1.77
ENSG00000261115	<i>TMEM178B</i>	-2.70	1.23E-03	1.91	11.62
ENSG00000105479	<i>ODAD1</i>	-2.70	1.64E-03	0.35	2.02
ENSG00000226051	<i>ZNF503-AS1</i>	-2.70	4.74E-03	0.31	1.30
ENSG00000136279	<i>DBNL</i>	-2.70	5.56E-03	1.04	5.62
ENSG00000103264	<i>FBXO31</i>	-2.70	8.88E-03	0.28	1.90
ENSG00000155868	<i>MED7</i>	-2.69	2.75E-06	9.77	63.48
ENSG00000081181	<i>ARG2</i>	-2.69	3.32E-06	133.18	844.58
ENSG00000105197	<i>TIMM50</i>	-2.69	1.11E-05	6.13	38.90
ENSG00000099992	<i>TBC1D10A</i>	-2.69	1.99E-05	5.01	31.05
ENSG00000169964	<i>TMEM42</i>	-2.69	3.06E-05	2.60	16.41
ENSG00000134253	<i>TRIM45</i>	-2.69	5.30E-05	2.88	16.83
ENSG00000101400	<i>SNTA1</i>	-2.69	3.57E-04	3.07	16.09
ENSG00000134717	<i>BTF3L4</i>	-2.69	3.16E-04	22.83	115.79
ENSG00000186687	<i>LYRM7</i>	-2.69	4.76E-04	1.38	8.13
ENSG00000286752		-2.69	5.15E-04	0.28	1.76
ENSG00000100359	<i>SGSM3</i>	-2.69	5.82E-04	0.97	5.01
ENSG00000237469	<i>TUBB8P10</i>	-2.69	4.13E-04	157.90	1066.31
ENSG00000272279		-2.69	8.16E-04	0.39	2.66
ENSG00000291155	<i>CT75</i>	-2.69	1.74E-03	0.19	1.03
ENSG00000122733	<i>PHF24</i>	-2.69	6.34E-03	0.25	1.16

ENSG00000233297	<i>RASA4DP</i>	-2.69	6.17E-03	0.40	2.47
ENSG00000106178	<i>CCL24</i>	-2.69	6.30E-03	0.72	3.82
ENSG00000205622		-2.68	3.57E-06	13.68	88.95
ENSG00000127824	<i>TUBA4A</i>	-2.68	8.04E-06	538.02	3357.92
ENSG00000213876	<i>RPL7AP64</i>	-2.68	1.06E-05	11.10	70.23
ENSG00000100412	<i>ACO2</i>	-2.68	4.43E-05	14.88	93.36
ENSG00000118894	<i>EEF2KMT</i>	-2.68	7.76E-05	1.98	12.05
ENSG00000167747	<i>C19orf48</i>	-2.68	7.13E-05	14.88	86.45
ENSG00000101412	<i>E2F1</i>	-2.68	3.08E-04	4.18	30.36
ENSG00000258657		-2.68	1.11E-03	0.26	1.66
ENSG00000290960		-2.68	9.92E-04	1.64	7.46
ENSG00000140807	<i>NKD1</i>	-2.68	1.02E-03	2.23	10.37
ENSG00000214530	<i>STARD10</i>	-2.68	1.36E-03	1.97	9.38
ENSG00000114374	<i>USP9Y</i>	-2.68	3.20E-03	0.59	3.42
ENSG00000136197	<i>C7orf25</i>	-2.67	1.02E-05	9.68	63.20
ENSG00000160695	<i>VPS11</i>	-2.67	1.29E-05	1.66	10.66
ENSG00000261129		-2.67	2.25E-05	1.29	8.46
ENSG00000006015	<i>REX1BD</i>	-2.67	1.09E-04	3.75	22.19
ENSG00000241015	<i>TPM3P9</i>	-2.67	1.61E-04	1.70	11.69
ENSG00000286592	<i>LINC02885</i>	-2.67	1.63E-04	3.62	22.77
ENSG00000149582	<i>TMEM25</i>	-2.67	5.99E-04	4.67	30.73
ENSG00000245648	<i>KLRK1-AS1</i>	-2.67	8.78E-04	3.52	18.95
ENSG00000213588	<i>ZBTB9</i>	-2.67	3.48E-03	0.55	2.39
ENSG00000090316	<i>MAEA</i>	-2.66	2.27E-05	20.69	137.36
ENSG00000168255	<i>POLR2J3</i>	-2.66	4.25E-05	1.47	9.72
ENSG00000279176		-2.66	2.44E-03	0.21	1.37
ENSG00000148291	<i>SURF2</i>	-2.65	5.50E-05	14.43	83.78
ENSG00000112658	<i>SRF</i>	-2.65	7.07E-04	0.93	4.38
ENSG00000291206	<i>GTF2IRD1P1</i>	-2.65	2.50E-03	0.27	1.39
ENSG00000288051		-2.65	2.52E-03	0.18	1.08
ENSG00000118263	<i>KLF7</i>	-2.65	2.43E-03	1.77	7.88
ENSG00000291072	<i>CROCCP2</i>	-2.65	9.67E-03	0.07	0.46
ENSG00000067606	<i>PRKCZ</i>	-2.64	9.12E-06	3.28	21.00
ENSG00000179526	<i>SHARPIN</i>	-2.64	1.53E-05	2.37	15.03
ENSG00000144591	<i>GMPPA</i>	-2.64	1.77E-05	6.52	40.30
ENSG00000158220	<i>ESYT3</i>	-2.64	2.58E-05	9.11	60.61
ENSG00000213672	<i>NCKIPSD</i>	-2.64	7.18E-05	4.34	28.82
ENSG00000250358	<i>LINC02200</i>	-2.64	1.36E-04	1.37	8.15
ENSG00000288722	<i>F8A1</i>	-2.64	6.70E-04	4.53	19.55
ENSG00000011260	<i>UTP18</i>	-2.63	1.89E-06	13.55	86.07
ENSG00000139410	<i>SDSL</i>	-2.63	1.06E-04	1.26	7.15
ENSG00000230366	<i>DSCR9</i>	-2.63	3.63E-04	1.09	7.30
ENSG00000131876	<i>SNRPA1</i>	-2.63	5.91E-04	18.99	86.61
ENSG00000114745	<i>GORASP1</i>	-2.63	1.38E-03	3.36	20.17
ENSG00000289132		-2.63	1.80E-03	0.64	2.55
ENSG00000165029	<i>ABCA1</i>	-2.63	7.72E-03	3.98	14.87

ENSG00000273274	<i>ZBTB8B</i>	-2.62	1.58E-06	6.55	41.28
ENSG00000223478	<i>ZDHH12-DT</i>	-2.62	1.02E-05	2.03	12.90
ENSG00000127561	<i>SYNGR3</i>	-2.62	5.63E-05	5.37	29.96
ENSG00000136918	<i>WDR38</i>	-2.62	6.55E-04	5.12	26.93
ENSG00000290551		-2.62	3.05E-03	0.16	0.88
ENSG00000227293		-2.62	3.69E-03	0.09	0.69
ENSG00000248564		-2.62	7.14E-03	0.16	0.74
ENSG00000168350	<i>DEGS2</i>	-2.62	4.82E-03	102.10	367.98
ENSG00000078668	<i>VDAC3</i>	-2.61	3.73E-06	52.92	323.15
ENSG00000111206	<i>FOXM1</i>	-2.61	8.69E-06	3.30	20.55
ENSG00000119559	<i>C19orf25</i>	-2.61	2.32E-05	1.65	10.10
ENSG00000225836		-2.61	2.54E-05	4.00	26.20
ENSG00000251369	<i>ZNF550</i>	-2.61	3.59E-05	5.86	34.79
ENSG00000229847	<i>EMX2OS</i>	-2.61	3.91E-05	19.47	130.70
ENSG00000138028	<i>CGREF1</i>	-2.61	1.32E-04	21.42	145.17
ENSG00000198736	<i>MSRB1</i>	-2.61	3.62E-04	0.87	4.95
ENSG00000228084		-2.61	4.46E-04	0.24	1.60
ENSG00000237693	<i>IRGM</i>	-2.61	3.94E-04	12.99	76.29
ENSG00000279480		-2.61	8.78E-04	0.78	3.90
ENSG00000177685	<i>CRACR2B</i>	-2.61	9.85E-04	0.89	4.26
ENSG00000248746	<i>ACTN3</i>	-2.61	1.08E-03	1.37	7.00
ENSG00000254222		-2.61	2.93E-03	0.31	1.87
ENSG00000002016	<i>RAD52</i>	-2.61	4.54E-03	0.65	2.49
ENSG00000128322	<i>IGLL1</i>	-2.61	8.54E-03	0.08	0.44
ENSG00000080815	<i>PSEN1</i>	-2.60	6.68E-06	31.75	196.36
ENSG00000243477	<i>NAA80</i>	-2.60	3.65E-05	0.93	5.85
ENSG00000158516	<i>CPA2</i>	-2.60	7.43E-05	2.80	15.33
ENSG00000120158	<i>RCL1</i>	-2.60	1.19E-04	5.66	35.77
ENSG00000181778	<i>TMEM252</i>	-2.60	1.16E-04	11.04	59.67
ENSG00000188186	<i>LAMTOR4</i>	-2.60	1.15E-04	19.24	108.52
ENSG00000182993	<i>C12orf60</i>	-2.60	1.77E-04	7.90	49.33
ENSG00000271977	<i>EVA1CP2</i>	-2.60	2.38E-04	9.15	50.70
ENSG00000258474	<i>LINC02313</i>	-2.60	2.25E-03	1.49	8.97
ENSG00000234300	<i>LINC00229</i>	-2.60	3.46E-03	0.31	1.57
ENSG00000185163	<i>DDX51</i>	-2.60	4.08E-03	0.71	3.13
ENSG00000174990	<i>CA5A</i>	-2.60	5.42E-03	0.35	2.47
ENSG00000171425	<i>ZNF581</i>	-2.59	6.52E-06	6.65	40.60
ENSG00000071859	<i>FAM50A</i>	-2.59	1.61E-05	4.56	27.72
ENSG00000135297	<i>MTO1</i>	-2.59	1.61E-05	4.93	30.73
ENSG00000002330	<i>BAD</i>	-2.59	1.60E-04	4.32	23.19
ENSG00000251504	<i>LINC01099</i>	-2.59	2.61E-04	0.52	3.18
ENSG00000284308	<i>C2orf81</i>	-2.59	8.01E-04	0.43	2.35
ENSG00000132773	<i>TOE1</i>	-2.59	2.17E-03	1.94	8.93
ENSG00000185040	<i>SPDYE16</i>	-2.59	5.78E-03	0.08	0.59
ENSG00000171953	<i>ATPAF2</i>	-2.58	6.26E-06	12.66	79.17
ENSG00000138621	<i>PPCDC</i>	-2.58	9.14E-06	5.40	32.66

ENSG00000171606	<i>ZNF274</i>	-2.58	1.22E-05	7.19	44.58
ENSG00000139405	<i>RITA1</i>	-2.58	1.65E-04	1.14	6.50
ENSG00000068394	<i>GPKOW</i>	-2.57	4.10E-06	11.60	70.84
ENSG00000182712	<i>CMC4</i>	-2.57	5.89E-06	10.35	62.73
ENSG00000114395	<i>CYB561D2</i>	-2.57	6.10E-05	3.12	16.93
ENSG00000273899	<i>NOL12</i>	-2.57	6.19E-05	44.27	237.98
ENSG00000171428	<i>NAT1</i>	-2.57	1.86E-04	3.35	19.72
ENSG00000267260		-2.57	1.21E-03	0.23	1.39
ENSG00000183654	<i>MARCHF11</i>	-2.57	1.64E-03	0.85	5.27
ENSG00000186222	<i>BLOC1S4</i>	-2.57	3.10E-03	1.69	8.86
ENSG00000159885	<i>ZNF222</i>	-2.56	8.83E-07	32.20	198.68
ENSG00000125485	<i>DDX31</i>	-2.56	1.35E-05	7.51	45.44
ENSG00000148308	<i>GTF3C5</i>	-2.56	1.36E-05	7.08	41.63
ENSG00000135778	<i>NTPCR</i>	-2.56	1.71E-05	7.11	40.18
ENSG00000196724	<i>ZNF418</i>	-2.56	4.76E-05	1.08	6.60
ENSG00000173786	<i>CNP</i>	-2.56	5.43E-05	6.37	36.03
ENSG00000137824	<i>RMDN3</i>	-2.56	6.43E-05	23.52	147.90
ENSG00000070061	<i>ELP1</i>	-2.56	1.46E-04	18.86	112.65
ENSG00000254416	<i>LINC02732</i>	-2.56	6.19E-04	0.36	2.11
ENSG00000251307	<i>CCNO-DT</i>	-2.56	6.70E-04	1.55	8.71
ENSG00000285847		-2.56	2.27E-03	0.45	2.48
ENSG00000175634	<i>RPS6KB2</i>	-2.56	2.53E-03	0.92	4.16
ENSG00000134830	<i>C5AR2</i>	-2.56	6.24E-03	0.24	1.49
ENSG00000221829	<i>FANCG</i>	-2.56	6.54E-03	0.44	2.36
ENSG00000113494	<i>PRLR</i>	-2.56	8.66E-03	0.83	2.76
ENSG00000114054	<i>PCCB</i>	-2.55	6.23E-07	96.91	598.82
ENSG00000117748	<i>RPA2</i>	-2.55	3.74E-06	60.80	351.05
ENSG00000144524	<i>COPS7B</i>	-2.55	5.70E-06	42.15	260.32
ENSG00000158552	<i>ZFAND2B</i>	-2.55	8.36E-06	4.39	26.36
ENSG00000197448	<i>GSTK1</i>	-2.55	1.14E-05	8.82	49.85
ENSG00000256060	<i>TRAPPC2B</i>	-2.55	2.94E-05	14.22	81.80
ENSG00000127774	<i>EMC6</i>	-2.55	3.34E-05	10.26	59.39
ENSG00000287768		-2.55	5.13E-05	1.31	7.84
ENSG00000166165	<i>CKB</i>	-2.55	7.70E-05	20.97	113.16
ENSG00000232119	<i>MCTS1</i>	-2.55	7.88E-05	21.11	116.89
ENSG00000172269	<i>DPAGT1</i>	-2.55	8.80E-05	4.22	23.05
ENSG00000196391	<i>ZNF774</i>	-2.55	3.23E-04	0.46	2.66
ENSG00000105058	<i>FAM32A</i>	-2.55	5.68E-04	20.64	87.23
ENSG00000269186	<i>LINC01082</i>	-2.55	2.46E-03	0.32	1.52
ENSG00000263745		-2.55	4.33E-03	0.54	2.72
ENSG00000257727	<i>CNPY2</i>	-2.54	1.41E-06	7.03	42.46
ENSG00000160392	<i>C19orf47</i>	-2.54	8.62E-06	4.06	23.87
ENSG00000229703	<i>LYPD9P</i>	-2.54	9.14E-06	3.34	20.57
ENSG00000132581	<i>SDF2</i>	-2.54	3.28E-05	5.82	31.46
ENSG00000130479	<i>MAP1S</i>	-2.54	3.59E-05	8.09	44.59
ENSG00000163528	<i>CHCHD4</i>	-2.54	9.59E-05	1.22	6.84

ENSG00000250149		-2.54	2.30E-04	1.33	7.97
ENSG00000120594	<i>PLXDC2</i>	-2.54	7.33E-04	1.00	5.91
ENSG00000180767	<i>CHST13</i>	-2.54	8.96E-04	2.52	11.76
ENSG00000230773		-2.54	1.52E-03	1.46	7.77
ENSG00000197465	<i>GYPE</i>	-2.54	1.52E-03	1.74	9.61
ENSG00000178605	<i>GTPBP6</i>	-2.54	1.81E-03	1.69	7.67
ENSG00000197279	<i>ZNF165</i>	-2.54	2.03E-03	2.09	9.16
ENSG00000262049		-2.54	4.53E-03	0.11	0.63
ENSG00000173540	<i>GMPPB</i>	-2.54	7.81E-03	1.08	4.22
ENSG00000197620	<i>EOLA1</i>	-2.53	3.92E-06	5.22	30.92
ENSG00000186141	<i>POLR3C</i>	-2.53	8.03E-06	9.18	53.00
ENSG00000163719	<i>MTMR14</i>	-2.53	1.26E-05	13.28	81.68
ENSG00000149925	<i>ALDOA</i>	-2.53	3.06E-05	40.86	232.34
ENSG00000152433	<i>ZNF547</i>	-2.53	3.33E-05	5.25	28.39
ENSG00000105248	<i>YJU2</i>	-2.53	1.07E-04	1.52	8.87
ENSG00000197415	<i>VEPH1</i>	-2.53	2.22E-04	12.83	66.21
ENSG00000163481	<i>RNF25</i>	-2.53	3.44E-04	2.92	17.61
ENSG00000261613		-2.53	3.99E-03	0.17	0.99
ENSG00000006704	<i>GTF2IRD1</i>	-2.53	8.40E-03	0.40	1.48
ENSG00000088833	<i>NSFL1C</i>	-2.52	6.67E-06	29.55	165.76
ENSG00000119760	<i>SUPT7L</i>	-2.52	8.05E-06	10.15	57.93
ENSG00000178927	<i>CYBC1</i>	-2.52	3.71E-05	5.65	35.49
ENSG00000103415	<i>HMOX2</i>	-2.52	4.92E-05	21.73	112.64
ENSG00000196839	<i>ADA</i>	-2.52	6.37E-05	40.67	205.31
ENSG00000138085	<i>ATRAID</i>	-2.52	6.69E-05	26.37	147.76
ENSG00000278535	<i>DHRS11</i>	-2.52	1.04E-04	3.80	22.32
ENSG00000196358	<i>NTNG2</i>	-2.52	1.49E-04	2.10	12.80
ENSG00000081692	<i>JMJD4</i>	-2.52	3.91E-04	0.96	4.60
ENSG00000180305	<i>WFDC10A</i>	-2.52	4.64E-04	0.66	3.78
ENSG00000184056	<i>VPS33B</i>	-2.52	8.88E-04	0.99	4.81
ENSG00000172179	<i>PRL</i>	-2.52	1.41E-03	2.35	11.21
ENSG00000287255		-2.52	2.82E-03	0.26	1.23
ENSG00000284428		-2.52	3.83E-03	0.50	3.41
ENSG00000087510	<i>TFAP2C</i>	-2.52	6.81E-03	0.24	1.69
ENSG00000213533	<i>STIMATE</i>	-2.51	1.81E-05	12.93	71.25
ENSG00000227057	<i>WDR46</i>	-2.51	1.95E-05	2.44	13.94
ENSG00000130830	<i>MPP1</i>	-2.51	2.15E-05	6.08	35.13
ENSG00000256923		-2.51	2.65E-05	1.56	9.27
ENSG00000122085	<i>MTERF4</i>	-2.51	4.47E-05	1.78	10.15
ENSG00000148180	<i>GSN</i>	-2.51	5.46E-05	6.30	36.28
ENSG00000241668	<i>RPL19P11</i>	-2.51	1.37E-04	2.36	14.31
ENSG00000167646	<i>DNAAF3</i>	-2.51	1.99E-04	2.73	14.84
ENSG00000188368	<i>PRR19</i>	-2.51	2.61E-04	0.99	4.91
ENSG00000104499	<i>GML</i>	-2.51	4.34E-03	6.31	24.08
ENSG00000105617	<i>LENG1</i>	-2.50	5.69E-05	2.03	11.37
ENSG00000164823	<i>OSGIN2</i>	-2.50	4.39E-04	1.53	7.22

ENSG00000205409	<i>OR52E6</i>	-2.50	7.95E-04	1.34	5.95
ENSG00000184916	<i>JAG2</i>	-2.50	8.69E-04	1.22	5.50
ENSG00000160221	<i>GATD3</i>	-2.50	1.40E-03	1.50	8.86
ENSG00000234072	<i>GTF3C2-AS2</i>	-2.50	1.84E-03	0.30	1.48
ENSG00000198939	<i>ZFP2</i>	-2.50	2.13E-03	0.84	3.78
ENSG00000245719		-2.50	1.84E-03	2.59	15.19
ENSG00000205710	<i>C17orf107</i>	-2.50	3.77E-03	0.16	0.86
ENSG00000166140	<i>ZFYVE19</i>	-2.50	3.01E-03	1.89	7.38
ENSG00000092929	<i>UNC13D</i>	-2.50	3.20E-03	11.00	38.30
ENSG00000278875		-2.50	6.30E-03	0.13	0.80
ENSG00000227953	<i>LINC01341</i>	-2.50	9.54E-03	0.22	0.97
ENSG00000198218	<i>QRICH1</i>	-2.49	1.06E-05	24.44	148.65
ENSG00000167881	<i>SRP68</i>	-2.49	1.28E-05	33.20	201.01
ENSG00000156873	<i>PHKG2</i>	-2.49	5.70E-05	5.52	28.47
ENSG00000161980	<i>POLR3K</i>	-2.49	1.28E-04	5.29	26.53
ENSG00000157978	<i>LDLRAP1</i>	-2.49	2.23E-04	11.92	72.35
ENSG00000184281	<i>TSSC4</i>	-2.49	2.74E-04	2.43	11.90
ENSG00000184465	<i>WDR27</i>	-2.49	4.16E-04	1.67	8.40
ENSG00000132024	<i>CC2D1A</i>	-2.49	5.15E-04	0.54	2.82
ENSG00000227118	<i>BTF3P13</i>	-2.49	6.30E-04	0.66	4.01
ENSG00000187954	<i>ZFTRAF1</i>	-2.49	6.42E-04	2.59	11.19
ENSG00000138435	<i>CHRNA1</i>	-2.49	1.49E-03	0.40	2.23
ENSG00000129925	<i>PGAP6</i>	-2.49	2.38E-03	0.68	3.42
ENSG00000235337		-2.49	4.19E-03	0.16	0.81
ENSG00000284646		-2.49	8.48E-03	0.25	1.41
ENSG00000174840	<i>PDE12</i>	-2.49	7.95E-03	0.58	2.58
ENSG00000184182	<i>UBE2F</i>	-2.48	1.80E-06	20.02	114.33
ENSG00000137996	<i>RTCA</i>	-2.48	1.90E-06	8.81	50.99
ENSG00000171067	<i>C11orf24</i>	-2.48	2.34E-05	11.04	58.50
ENSG00000184381	<i>PLA2G6</i>	-2.48	5.66E-04	0.79	3.75
ENSG00000185252	<i>ZNF74</i>	-2.48	9.50E-04	4.66	22.16
ENSG00000185361	<i>TNFAIP8L1</i>	-2.48	3.18E-03	0.56	3.11
ENSG00000225564	<i>LINC01492</i>	-2.48	4.55E-03	2.30	10.15
ENSG00000197885	<i>NKIRAS1</i>	-2.47	2.46E-05	25.14	129.64
ENSG00000241506	<i>PSMC1P1</i>	-2.47	3.26E-05	2.10	11.61
ENSG00000162419	<i>GMEB1</i>	-2.47	3.85E-05	6.40	32.96
ENSG00000078081	<i>LAMP3</i>	-2.47	5.35E-05	1.86	10.67
ENSG00000275198	<i>LINC02960</i>	-2.47	5.96E-05	1.04	5.60
ENSG00000184162	<i>NR2C2AP</i>	-2.47	4.18E-04	12.99	61.66
ENSG00000215475	<i>SIAH3</i>	-2.47	1.96E-03	0.55	2.81
ENSG00000271730		-2.47	7.45E-03	0.14	0.75
ENSG00000174827	<i>PDZK1</i>	-2.46	2.79E-06	11.17	62.87
ENSG00000233143	<i>DIRC3-AS1</i>	-2.46	4.53E-06	54.05	303.16
ENSG00000163817	<i>SLC6A20</i>	-2.46	7.46E-06	8.25	46.73
ENSG00000197647	<i>ZNF433</i>	-2.46	8.30E-06	7.70	43.93
ENSG00000063854	<i>HAGH</i>	-2.46	3.07E-05	96.59	509.73

ENSG00000253893	<i>FAM85B</i>	-2.46	4.96E-05	0.97	5.39
ENSG00000181038	<i>METTL23</i>	-2.46	4.67E-05	5.99	31.26
ENSG00000160446	<i>ZDHHC12</i>	-2.46	5.49E-05	3.61	18.80
ENSG00000182858	<i>ALG12</i>	-2.46	6.26E-05	6.27	35.27
ENSG00000104976	<i>SNAPC2</i>	-2.46	9.25E-05	8.13	40.94
ENSG00000166192	<i>SEN8</i>	-2.46	9.06E-05	20.75	110.57
ENSG00000170312	<i>CDK1</i>	-2.46	9.70E-05	67.28	330.49
ENSG00000159197	<i>KCNE2</i>	-2.46	3.67E-04	2.74	14.27
ENSG00000224848		-2.46	3.94E-04	1.84	10.83
ENSG00000103257	<i>SLC7A5</i>	-2.46	1.04E-03	2.26	14.58
ENSG00000250777		-2.46	2.60E-03	0.28	1.36
ENSG00000257027		-2.46	3.98E-03	1.16	4.24
ENSG00000196670	<i>ZFP62</i>	-2.45	3.74E-06	5.02	28.29
ENSG00000114650	<i>SCAP</i>	-2.45	1.31E-05	7.84	44.07
ENSG00000100902	<i>PSMA6</i>	-2.45	1.43E-05	51.71	268.01
ENSG00000171853	<i>TRAPPC12</i>	-2.45	2.84E-05	3.00	16.01
ENSG00000151502	<i>VPS26B</i>	-2.45	3.01E-05	7.55	39.43
ENSG00000178149	<i>DALRD3</i>	-2.45	7.93E-05	3.28	16.63
ENSG00000235529	<i>AGAP1-IT1</i>	-2.45	2.53E-04	0.76	4.03
ENSG00000237037	<i>NDUFA6-DT</i>	-2.45	2.36E-04	3.38	15.80
ENSG00000130159	<i>ECSIT</i>	-2.45	2.30E-04	11.21	51.68
ENSG00000141542	<i>RAB40B</i>	-2.45	3.53E-04	1.66	8.90
ENSG00000183018	<i>SPNS2</i>	-2.45	3.14E-03	0.19	1.12
ENSG00000244040	<i>IL12A-AS1</i>	-2.45	3.29E-03	0.16	0.88
ENSG00000274020	<i>LINC01138</i>	-2.45	3.37E-03	0.36	1.76
ENSG00000100347	<i>SAMM50</i>	-2.44	2.80E-06	17.25	95.93
ENSG00000104129	<i>DNAJC17</i>	-2.44	2.15E-05	5.39	29.65
ENSG00000145850	<i>TIMD4</i>	-2.44	2.67E-05	20.17	104.84
ENSG00000170004	<i>CHD3</i>	-2.44	6.11E-05	3.51	20.49
ENSG00000250334	<i>LINC00989</i>	-2.44	1.36E-04	1.83	9.87
ENSG00000100994	<i>PYGB</i>	-2.44	1.54E-04	1.23	6.71
ENSG00000105968	<i>H2AZ2</i>	-2.44	1.92E-04	4.60	25.54
ENSG00000205456	<i>TP53TG3D</i>	-2.44	4.25E-04	2.14	10.53
ENSG00000178690	<i>DYNAP</i>	-2.44	5.48E-04	1.14	5.69
ENSG00000137877	<i>SPTBN5</i>	-2.44	9.13E-04	0.79	4.23
ENSG00000254619		-2.44	9.78E-04	0.75	3.88
ENSG00000223581	<i>LINC02665</i>	-2.44	1.05E-03	0.72	4.06
ENSG00000233922	<i>LINC01694</i>	-2.44	1.35E-03	1.01	6.42
ENSG00000232671	<i>ZNF687-AS1</i>	-2.44	2.07E-03	0.21	1.28
ENSG00000168040	<i>FADD</i>	-2.44	2.81E-03	0.59	3.32
ENSG00000143443	<i>C1orf56</i>	-2.43	2.95E-06	19.57	109.13
ENSG00000084072	<i>PPIE</i>	-2.43	1.38E-05	15.78	84.20
ENSG00000174514	<i>MFSD4A</i>	-2.43	3.06E-05	7.31	38.46
ENSG00000224506	<i>LINC02523</i>	-2.43	3.11E-05	12.34	64.76
ENSG00000248932	<i>COPB2-DT</i>	-2.43	1.00E-04	1.38	7.19
ENSG00000090932	<i>DLL3</i>	-2.43	9.25E-05	22.11	111.51

ENSG00000260302	<i>LINC01882</i>	-2.43	1.81E-04	0.78	4.43
ENSG00000160691	<i>SHC1</i>	-2.43	2.54E-04	9.21	51.44
ENSG00000100038	<i>TOP3B</i>	-2.43	3.91E-04	1.63	8.21
ENSG00000259678		-2.43	3.81E-04	2.61	11.71
ENSG00000075886	<i>TUBA3D</i>	-2.43	5.80E-04	17.28	86.35
ENSG00000108604	<i>SMARCD2</i>	-2.43	1.08E-03	2.68	16.91
ENSG00000254991		-2.43	1.37E-03	2.27	9.69
ENSG00000205885	<i>C1RL-AS1</i>	-2.43	2.51E-03	0.25	1.21
ENSG00000223855	<i>PDGFA-DT</i>	-2.43	4.64E-03	1.17	6.22
ENSG00000107816	<i>LZTS2</i>	-2.43	7.29E-03	1.50	5.65
ENSG00000197099	<i>HRG-AS1</i>	-2.43	7.62E-03	4.07	17.96
ENSG00000163689	<i>CFAP20DC</i>	-2.42	9.27E-06	7.46	41.27
ENSG00000179632	<i>MAF1</i>	-2.42	1.26E-05	9.39	50.19
ENSG00000124444	<i>ZNF576</i>	-2.42	2.20E-05	2.57	14.64
ENSG00000100418	<i>DESI1</i>	-2.42	5.14E-05	4.60	22.50
ENSG00000105705	<i>SUGP1</i>	-2.42	6.54E-05	2.06	10.39
ENSG00000161179	<i>YDJC</i>	-2.42	7.74E-05	2.54	13.03
ENSG00000243716	<i>NPIP5</i>	-2.42	8.76E-05	3.20	18.26
ENSG00000169682	<i>SPNS1</i>	-2.42	7.27E-04	10.09	40.89
ENSG00000167702	<i>KIFC2</i>	-2.42	2.74E-03	0.25	1.31
ENSG00000253445		-2.42	3.78E-03	0.22	1.08
ENSG00000277368		-2.42	8.30E-03	0.20	0.85
ENSG00000178462	<i>TUBAL3</i>	-2.41	2.17E-06	41.74	225.26
ENSG00000110711	<i>AIP</i>	-2.41	8.03E-06	27.21	144.21
ENSG00000147224	<i>PRPS1</i>	-2.41	1.69E-05	4.60	25.06
ENSG00000140297	<i>GCNT3</i>	-2.41	5.46E-05	76.03	423.93
ENSG00000214087	<i>ARL16</i>	-2.41	2.84E-04	1.91	9.42
ENSG00000160055	<i>TMEM234</i>	-2.41	5.31E-04	0.80	4.05
ENSG00000231989	<i>PPP1R2B</i>	-2.41	2.25E-03	0.82	3.80
ENSG00000147813	<i>NAPRT</i>	-2.41	2.13E-03	1.61	6.56
ENSG00000151882	<i>CCL28</i>	-2.41	3.50E-03	0.24	0.99
ENSG00000233058	<i>ATP13A3-DT</i>	-2.41	5.40E-03	0.15	0.77
ENSG00000204344	<i>STK19</i>	-2.40	2.80E-06	3.83	20.90
ENSG00000100325	<i>ASCC2</i>	-2.40	3.86E-06	11.66	63.65
ENSG00000160688	<i>FLAD1</i>	-2.40	8.03E-06	14.68	78.35
ENSG00000136213	<i>CHST12</i>	-2.40	7.48E-05	17.09	93.54
ENSG00000225663	<i>MCRIP1</i>	-2.40	1.15E-04	7.83	36.89
ENSG00000134480	<i>CCNH</i>	-2.40	1.54E-04	90.60	409.20
ENSG00000263443		-2.40	3.64E-03	0.31	1.67
ENSG00000236501		-2.40	2.80E-03	6.70	35.28
ENSG00000198837	<i>DENND4B</i>	-2.40	4.42E-03	0.29	1.39
ENSG00000115073	<i>ACTR1B</i>	-2.40	7.04E-03	1.09	3.53
ENSG00000062598	<i>ELMO2</i>	-2.39	3.75E-05	28.35	156.34
ENSG00000284823		-2.39	4.25E-05	13.20	67.16
ENSG00000234902		-2.39	1.97E-04	0.73	3.65
ENSG00000168476	<i>REEP4</i>	-2.39	4.43E-04	7.90	35.95

ENSG00000145248	<i>SLC10A4</i>	-2.39	9.20E-04	0.23	1.24
ENSG00000248430	<i>HMGB3P16</i>	-2.39	1.11E-03	0.31	1.79
ENSG00000224985		-2.39	1.14E-03	0.29	1.56
ENSG00000289289		-2.39	1.10E-03	1.07	4.90
ENSG00000103254	<i>ANTKMT</i>	-2.39	1.56E-03	3.00	13.44
ENSG00000205593	<i>DENND6B</i>	-2.39	2.07E-03	0.64	3.08
ENSG00000104892	<i>KLC3</i>	-2.39	8.68E-03	0.13	0.75
ENSG00000011009	<i>LYPLA2</i>	-2.39	5.89E-03	3.89	17.72
ENSG00000004478	<i>FKBP4</i>	-2.38	4.36E-06	14.45	76.69
ENSG00000237560	<i>LINC01497</i>	-2.38	5.12E-06	3.10	16.79
ENSG00000051180	<i>RAD51</i>	-2.38	1.50E-05	24.01	120.51
ENSG00000173838	<i>MARCHF10</i>	-2.38	5.37E-05	1.06	5.90
ENSG00000153266	<i>FEZF2</i>	-2.38	7.60E-05	3.45	16.44
ENSG00000177463	<i>NR2C2</i>	-2.38	8.94E-05	2.44	12.76
ENSG00000289876		-2.38	1.80E-04	8.00	36.32
ENSG00000014138	<i>POLA2</i>	-2.38	1.90E-04	7.96	42.94
ENSG00000162946	<i>DISC1</i>	-2.38	3.08E-04	1.81	8.81
ENSG00000130714	<i>POMT1</i>	-2.38	3.47E-04	3.25	16.89
ENSG00000141644	<i>MBD1</i>	-2.38	4.92E-04	0.67	3.46
ENSG00000143224	<i>PPOX</i>	-2.38	4.46E-04	2.80	13.25
ENSG00000109062	<i>SLC9A3R1</i>	-2.38	4.20E-04	22.02	113.29
ENSG00000259685	<i>IDH2-DT</i>	-2.38	2.21E-03	0.24	1.13
ENSG00000176720	<i>BOK</i>	-2.38	3.49E-03	0.63	2.42
ENSG00000187672	<i>ERC2</i>	-2.37	1.19E-06	27.33	145.59
ENSG00000011143	<i>MKS1</i>	-2.37	1.28E-05	9.37	48.77
ENSG00000135124	<i>P2RX4</i>	-2.37	1.86E-05	8.63	43.94
ENSG00000177105	<i>RHOG</i>	-2.37	2.84E-05	9.91	52.13
ENSG00000198246	<i>SLC29A3</i>	-2.37	3.14E-05	6.47	34.95
ENSG00000133466	<i>C1QTNF6</i>	-2.37	7.25E-05	10.12	52.14
ENSG00000132423	<i>COQ3</i>	-2.37	1.84E-04	5.74	25.29
ENSG00000117305	<i>HMGCL</i>	-2.37	2.60E-04	9.74	47.01
ENSG00000284934		-2.37	4.48E-04	2.07	10.05
ENSG00000164620	<i>RELL2</i>	-2.37	5.69E-04	1.03	5.19
ENSG00000108309	<i>RUNDC3A</i>	-2.37	8.75E-04	1.47	6.82
ENSG00000286347		-2.37	4.42E-03	0.29	1.56
ENSG00000166246	<i>DNAAF8</i>	-2.36	6.80E-06	4.92	25.65
ENSG00000119421	<i>NDUFA8</i>	-2.36	1.16E-05	36.89	188.77
ENSG00000164296	<i>TIGD6</i>	-2.36	5.70E-05	1.51	7.83
ENSG00000130717	<i>UCK1</i>	-2.36	6.14E-05	1.45	7.43
ENSG00000104907	<i>TRMT1</i>	-2.36	7.88E-05	1.92	10.05
ENSG00000187840	<i>EIF4EBP1</i>	-2.36	1.05E-04	3.20	16.54
ENSG00000108561	<i>C1QBP</i>	-2.36	9.91E-05	28.31	130.10
ENSG00000002822	<i>MAD1L1</i>	-2.36	1.41E-04	11.11	51.68
ENSG00000162650	<i>ATXN7L2</i>	-2.36	1.63E-04	3.43	18.99
ENSG00000076826	<i>CAMSAP3</i>	-2.36	3.21E-04	2.06	9.98
ENSG00000233621	<i>ZC3H12A-DT</i>	-2.36	6.69E-04	0.59	2.75

ENSG00000129667	<i>RHBDF2</i>	-2.36	5.35E-04	6.34	34.68
ENSG00000023839	<i>ABCC2</i>	-2.36	1.56E-03	0.32	1.45
ENSG00000235631	<i>RNF148</i>	-2.36	3.58E-03	0.49	1.93
ENSG00000125733	<i>TRIP10</i>	-2.36	4.24E-03	0.56	2.23
ENSG00000175202	<i>HIGD2B</i>	-2.36	9.71E-03	0.13	0.68
ENSG00000091732	<i>ZC3HC1</i>	-2.35	1.89E-06	39.85	206.81
ENSG00000183763	<i>TRAIP</i>	-2.35	9.67E-06	9.63	51.49
ENSG00000122705	<i>CLTA</i>	-2.35	1.31E-05	98.94	485.42
ENSG00000286895		-2.35	2.24E-05	3.24	16.29
ENSG00000117419	<i>ERI3</i>	-2.35	2.82E-04	8.36	36.30
ENSG00000236213		-2.35	2.37E-03	0.31	1.41
ENSG00000253755	<i>IGHGP</i>	-2.35	2.39E-03	0.41	2.25
ENSG00000253368	<i>TRNP1</i>	-2.35	4.23E-03	0.35	1.55
ENSG00000260239	<i>LINC02533</i>	-2.35	5.04E-03	0.35	1.41
ENSG00000142025	<i>DMRTC2</i>	-2.35	4.73E-03	12.62	45.07
ENSG00000228043	<i>SPOPL-DT</i>	-2.35	9.13E-03	0.38	1.41
ENSG00000197362	<i>ZNF786</i>	-2.35	9.40E-03	1.12	5.05
ENSG00000141854	<i>MISP3</i>	-2.35	8.07E-03	6.05	20.02
ENSG00000151812	<i>SLC35F4</i>	-2.34	5.11E-06	5.59	29.46
ENSG00000168397	<i>ATG4B</i>	-2.34	6.42E-06	19.27	97.49
ENSG00000161204	<i>ABCF3</i>	-2.34	2.01E-05	5.68	29.19
ENSG00000169371	<i>SNUPN</i>	-2.34	2.32E-05	6.44	31.77
ENSG00000171608	<i>PIK3CD</i>	-2.34	4.65E-05	3.36	16.80
ENSG00000117408	<i>IPO13</i>	-2.34	7.48E-05	2.89	15.40
ENSG00000133313	<i>CNDP2</i>	-2.34	7.18E-05	7.34	37.95
ENSG00000255970	<i>LINC02421</i>	-2.34	7.84E-05	2.43	12.35
ENSG00000085831	<i>TTC39A</i>	-2.34	1.09E-04	2.85	13.72
ENSG00000166816	<i>LDHD</i>	-2.34	5.21E-04	1.25	5.76
ENSG00000286388		-2.34	7.13E-04	0.38	1.95
ENSG00000217060		-2.34	8.07E-04	0.55	2.49
ENSG00000116771	<i>AGMAT</i>	-2.34	2.04E-03	1.62	9.37
ENSG00000231638	<i>LUARIS</i>	-2.34	2.53E-03	0.84	4.49
ENSG00000269667		-2.34	3.40E-03	0.30	1.45
ENSG00000118777	<i>ABCG2</i>	-2.34	5.56E-03	1.71	6.20
ENSG00000183506	<i>PI4KAP2</i>	-2.34	5.44E-03	1.60	9.09
ENSG00000165724	<i>ZMYND19</i>	-2.33	1.45E-06	20.31	104.83
ENSG00000170855	<i>TRIAP1</i>	-2.33	5.98E-06	8.72	45.11
ENSG00000140092	<i>FBLN5</i>	-2.33	1.82E-05	15.69	80.55
ENSG00000176946	<i>THAP4</i>	-2.33	1.87E-05	13.06	64.60
ENSG00000126106	<i>TMEM53</i>	-2.33	1.99E-05	5.43	26.98
ENSG00000166851	<i>PLK1</i>	-2.33	2.22E-05	40.17	218.85
ENSG00000259494	<i>MRPL46</i>	-2.33	5.10E-05	10.80	51.70
ENSG00000169740	<i>ZNF32</i>	-2.33	8.89E-05	1.38	7.27
ENSG00000237638	<i>LINC02245</i>	-2.33	2.39E-04	0.82	4.17
ENSG00000164900	<i>GBX1</i>	-2.33	3.67E-04	1.67	8.51
ENSG00000183287	<i>CCBE1</i>	-2.33	3.23E-04	15.89	85.18

ENSG00000172613	<i>RAD9A</i>	-2.33	4.87E-04	2.33	10.55
ENSG00000187626	<i>ZKSCAN4</i>	-2.33	5.94E-04	5.17	23.64
ENSG00000124143	<i>ARHGAP40</i>	-2.33	1.07E-03	1.39	7.91
ENSG00000227124	<i>ZNF717</i>	-2.32	1.09E-05	2.98	15.14
ENSG00000175203	<i>DCTN2</i>	-2.32	1.73E-05	5.53	27.53
ENSG00000286280		-2.32	2.14E-04	1.41	6.96
ENSG00000169217	<i>CD2BP2</i>	-2.32	2.77E-04	2.33	11.13
ENSG00000129691	<i>ASH2L</i>	-2.32	2.69E-04	6.00	28.52
ENSG00000079739	<i>PGM1</i>	-2.32	4.46E-04	3.35	15.43
ENSG00000142973	<i>CYP4B1</i>	-2.32	5.57E-04	2.49	12.73
ENSG00000272622		-2.32	1.05E-03	0.44	2.37
ENSG00000172009	<i>THOP1</i>	-2.32	9.88E-04	1.18	5.60
ENSG00000236088	<i>COX10-DT</i>	-2.32	1.64E-03	3.44	13.17
ENSG00000225383	<i>SFTA1P</i>	-2.32	7.81E-03	0.25	1.02
ENSG00000248712	<i>CCDC153</i>	-2.32	8.41E-03	0.25	1.06
ENSG00000135063	<i>FAM189A2</i>	-2.31	2.67E-06	51.31	264.31
ENSG00000099940	<i>SNAP29</i>	-2.31	7.37E-06	32.23	159.94
ENSG00000122729	<i>ACO1</i>	-2.31	2.87E-05	9.11	45.20
ENSG00000111404	<i>RERGL</i>	-2.31	7.11E-05	3.54	17.75
ENSG00000149679	<i>CABLES2</i>	-2.31	7.70E-05	2.61	12.85
ENSG00000159495	<i>TGM7</i>	-2.31	1.36E-04	7.38	40.85
ENSG00000231482		-2.31	1.86E-03	0.59	2.85
ENSG00000286487		-2.31	1.87E-03	0.53	2.87
ENSG00000106804	<i>C5</i>	-2.31	3.11E-03	21.70	109.28
ENSG00000197136	<i>PCNX3</i>	-2.31	5.27E-03	0.28	1.34
ENSG00000165678	<i>GHITM</i>	-2.30	1.29E-05	50.89	265.55
ENSG00000188735	<i>TMEM120B</i>	-2.30	2.15E-05	8.40	43.48
ENSG00000197933	<i>ZNF823</i>	-2.30	1.11E-04	4.09	19.11
ENSG00000175575	<i>PAAF1</i>	-2.30	1.87E-04	4.69	21.45
ENSG00000223446		-2.30	2.18E-04	0.77	3.71
ENSG00000165688	<i>PMPCA</i>	-2.30	6.38E-04	1.93	7.95
ENSG00000229005	<i>HNF4A-AS1</i>	-2.30	2.13E-03	0.68	3.51
ENSG00000215067	<i>ALOX12-AS1</i>	-2.30	2.98E-03	0.25	1.34
ENSG00000224260		-2.30	7.75E-03	0.57	2.39
ENSG00000116885	<i>OSCP1</i>	-2.29	2.19E-05	11.08	52.85
ENSG00000076067	<i>RBMS2</i>	-2.29	3.29E-05	16.78	84.77
ENSG00000011198	<i>ABHD5</i>	-2.29	3.66E-05	7.67	36.28
ENSG00000143127	<i>ITGA10</i>	-2.29	5.15E-05	10.73	54.50
ENSG00000102225	<i>CDK16</i>	-2.29	8.77E-05	3.67	18.32
ENSG00000071894	<i>CPSF1</i>	-2.29	1.15E-04	3.08	14.50
ENSG00000160226	<i>CFAP410</i>	-2.29	4.74E-04	0.92	4.30
ENSG00000181781	<i>ODF3L2</i>	-2.29	5.06E-04	0.90	4.07
ENSG00000236052	<i>LINC01643</i>	-2.29	8.09E-04	0.43	2.22
ENSG00000166145	<i>SPINT1</i>	-2.29	7.56E-04	5.71	24.91
ENSG00000187258	<i>NPSR1</i>	-2.29	1.62E-03	0.23	1.16
ENSG00000148935	<i>GAS2</i>	-2.29	1.69E-03	0.80	3.17

ENSG00000290613	<i>LPAL2</i>	-2.29	2.52E-03	0.47	1.92
ENSG00000272563		-2.29	2.25E-03	1.49	6.13
ENSG00000171443	<i>ZNF524</i>	-2.29	6.32E-03	0.81	3.00
ENSG00000091483	<i>FH</i>	-2.28	2.10E-06	35.51	179.03
ENSG00000229474	<i>PATL2</i>	-2.28	3.00E-06	117.42	607.87
ENSG00000278845	<i>MRPL45</i>	-2.28	4.95E-06	9.75	48.51
ENSG00000163754	<i>GYG1</i>	-2.28	7.05E-06	161.56	818.43
ENSG00000143575	<i>HAX1</i>	-2.28	3.11E-05	13.29	62.28
ENSG00000151093	<i>OXSM</i>	-2.28	3.12E-05	22.35	102.12
ENSG00000177465	<i>ACOT4</i>	-2.28	1.05E-04	9.46	44.60
ENSG00000112624	<i>BICRAL</i>	-2.28	1.67E-04	1.85	8.57
ENSG00000172977	<i>KAT5</i>	-2.28	1.78E-04	1.78	8.68
ENSG00000179240	<i>GVQW3</i>	-2.28	2.44E-04	1.56	8.36
ENSG00000226479	<i>TMEM185B</i>	-2.28	2.54E-04	12.45	67.01
ENSG00000137880	<i>GCHFR</i>	-2.28	3.05E-04	18.39	76.96
ENSG00000285793	<i>ANAPC1P2</i>	-2.28	5.12E-04	1.05	4.87
ENSG00000285870		-2.28	5.93E-04	1.45	7.31
ENSG00000186543	<i>CROCCP5</i>	-2.28	7.41E-04	0.42	2.10
ENSG00000144962	<i>SPATA16</i>	-2.28	6.55E-04	3.21	14.09
ENSG00000289063		-2.28	9.03E-04	0.73	3.37
ENSG00000286818		-2.28	5.81E-03	1.16	4.64
ENSG00000130522	<i>JUND</i>	-2.28	7.95E-03	5.89	17.78
ENSG00000135362	<i>PRR5L</i>	-2.27	1.29E-05	31.49	155.20
ENSG00000178988	<i>MRFAP1L1</i>	-2.27	1.49E-05	21.53	103.36
ENSG00000155463	<i>OXA1L</i>	-2.27	2.94E-05	8.70	42.17
ENSG00000185721	<i>DRG1</i>	-2.27	3.03E-05	35.51	165.19
ENSG00000072201	<i>LNX1</i>	-2.27	3.32E-05	6.34	32.65
ENSG00000185359	<i>HGS</i>	-2.27	6.73E-05	4.97	24.71
ENSG00000099622	<i>CIRBP</i>	-2.27	1.31E-04	5.53	27.62
ENSG00000132635	<i>PCED1A</i>	-2.27	9.21E-04	0.99	4.43
ENSG00000183444	<i>OR7E38P</i>	-2.27	7.88E-04	29.52	120.66
ENSG00000197905	<i>TEAD4</i>	-2.27	1.14E-03	3.06	12.76
ENSG00000123454	<i>DBH</i>	-2.27	1.21E-03	1.75	7.89
ENSG00000145063		-2.27	1.31E-03	5.78	24.80
ENSG00000196363	<i>WDR5</i>	-2.26	6.01E-06	17.98	88.70
ENSG00000136908	<i>DPM2</i>	-2.26	7.50E-05	7.95	36.38
ENSG00000234965	<i>SHISA8</i>	-2.26	5.82E-04	7.23	27.55
ENSG00000184207	<i>PGP</i>	-2.26	6.38E-04	3.66	14.97
ENSG00000189409	<i>MMP23B</i>	-2.26	1.34E-03	2.21	9.29
ENSG00000240440		-2.26	1.84E-03	0.26	1.27
ENSG00000099785	<i>MARCHF2</i>	-2.26	1.80E-03	1.72	6.17
ENSG00000224238	<i>WARS2-IT1</i>	-2.26	6.80E-03	0.09	0.51
ENSG00000121957	<i>GPSM2</i>	-2.25	2.54E-05	20.52	101.92
ENSG00000149932	<i>TMEM219</i>	-2.25	1.09E-04	13.19	58.64
ENSG00000165526	<i>RPUSD4</i>	-2.25	1.08E-04	20.25	95.17
ENSG00000121413	<i>ZSCAN18</i>	-2.25	1.72E-04	2.27	11.18

ENSG00000062485	<i>CS</i>	-2.25	2.72E-04	52.41	270.87
ENSG00000105048	<i>TNNT1</i>	-2.25	1.53E-03	11.99	48.66
ENSG00000254154	<i>CRYZL2P-SEC16B</i>	-2.25	2.88E-03	0.26	1.34
ENSG00000134438	<i>RAX</i>	-2.25	3.51E-03	0.19	0.94
ENSG00000170412	<i>GPRC5C</i>	-2.25	9.30E-03	0.33	1.43
ENSG00000130165	<i>ELOF1</i>	-2.24	7.37E-06	13.57	65.24
ENSG00000128849	<i>CGNL1</i>	-2.24	2.80E-05	7.06	34.81
ENSG00000131475	<i>VPS25</i>	-2.24	3.70E-05	17.20	80.57
ENSG00000068383	<i>INPP5A</i>	-2.24	4.20E-05	3.32	15.90
ENSG00000226950	<i>DANCR</i>	-2.24	7.98E-05	13.73	64.02
ENSG00000255650	<i>FAM222A-AS1</i>	-2.24	6.84E-04	1.56	8.02
ENSG00000142405	<i>NLRP12</i>	-2.24	7.03E-04	6.80	31.16
ENSG00000175283	<i>DOLK</i>	-2.24	1.21E-03	8.74	42.31
ENSG00000105732	<i>ZNF574</i>	-2.24	1.24E-03	29.46	131.68
ENSG00000260123	<i>CARMAL</i>	-2.24	3.89E-03	0.76	3.25
ENSG00000062282	<i>DGAT2</i>	-2.24	3.21E-03	6.91	23.67
ENSG00000169684	<i>CHRNA5</i>	-2.23	1.53E-05	28.08	139.19
ENSG00000169180	<i>XPO6</i>	-2.23	2.80E-05	5.68	27.67
ENSG00000165030	<i>NFIL3</i>	-2.23	1.00E-04	2.63	12.95
ENSG00000254007		-2.23	1.09E-04	5.22	25.22
ENSG00000268895	<i>A1BG-AS1</i>	-2.23	1.69E-04	1.07	5.07
ENSG00000235530	<i>TMEM11-DT</i>	-2.23	2.16E-04	0.59	2.93
ENSG00000117069	<i>ST6GALNAC5</i>	-2.23	3.40E-04	0.63	3.03
ENSG00000285731		-2.23	1.12E-03	3.14	15.00
ENSG00000225359		-2.23	1.92E-03	0.26	1.27
ENSG00000258091		-2.23	2.43E-03	0.18	0.95
ENSG00000281920		-2.23	3.21E-03	1.67	6.98
ENSG00000170684	<i>ZNF296</i>	-2.23	3.39E-03	1.47	5.57
ENSG00000286170		-2.23	4.31E-03	0.18	0.89
ENSG00000176142	<i>TMEM39A</i>	-2.23	3.13E-03	11.52	47.76
ENSG00000258312		-2.23	5.14E-03	0.35	1.43
ENSG00000197444	<i>OGDHL</i>	-2.23	5.17E-03	0.52	1.93
ENSG00000266074	<i>BAHCC1</i>	-2.23	5.90E-03	0.97	4.78
ENSG00000065427	<i>KARS1</i>	-2.22	4.86E-06	30.33	144.16
ENSG00000115234	<i>SNX17</i>	-2.22	4.23E-05	5.69	27.26
ENSG00000146755	<i>TRIM50</i>	-2.22	4.43E-04	2.65	11.55
ENSG00000153487	<i>ING1</i>	-2.22	5.02E-04	2.25	9.96
ENSG00000161999	<i>JMJD8</i>	-2.22	9.74E-04	1.70	7.09
ENSG00000106263	<i>EIF3B</i>	-2.22	1.13E-03	6.17	27.72
ENSG00000112877	<i>CEP72</i>	-2.22	1.88E-03	0.90	4.24
ENSG00000137843	<i>PAK6</i>	-2.22	9.82E-03	0.27	0.95
ENSG00000111728	<i>ST8SIA1</i>	-2.21	6.83E-06	46.60	225.04
ENSG00000131153	<i>GINS2</i>	-2.21	7.76E-06	292.74	1384.85
ENSG00000224625	<i>TUBB8P6</i>	-2.21	8.17E-06	32.90	158.81
ENSG00000147400	<i>CETN2</i>	-2.21	1.66E-05	41.54	193.28
ENSG00000224789		-2.21	3.63E-05	1.35	6.50

ENSG00000100949	<i>RABGGTA</i>	-2.21	5.43E-05	10.36	46.86
ENSG00000288534		-2.21	5.64E-05	5.42	25.04
ENSG00000156500	<i>PABIR3</i>	-2.21	6.00E-05	1.64	7.84
ENSG00000155366	<i>RHOC</i>	-2.21	1.42E-04	12.89	55.64
ENSG00000165698	<i>SPACA9</i>	-2.21	3.05E-04	1.21	5.73
ENSG00000139842	<i>CUL4A</i>	-2.21	3.12E-04	13.50	72.56
ENSG00000161609	<i>KASH5</i>	-2.21	4.04E-04	1.17	5.42
ENSG00000278129	<i>ZNF8</i>	-2.21	4.56E-04	1.28	6.50
ENSG00000101158	<i>NELFCD</i>	-2.21	4.84E-04	7.22	35.33
ENSG00000107140	<i>TESK1</i>	-2.21	7.41E-04	1.64	6.31
ENSG00000287721		-2.21	1.63E-03	0.92	3.91
ENSG00000128346	<i>C22orf23</i>	-2.21	2.26E-03	0.66	2.94
ENSG00000130748	<i>TMEM160</i>	-2.21	2.69E-03	4.90	17.96
ENSG00000143373	<i>ZNF687</i>	-2.21	5.70E-03	0.53	1.99
ENSG00000105889	<i>STEAP1B</i>	-2.21	6.29E-03	0.93	3.80
ENSG00000108433	<i>GOSR2</i>	-2.20	1.89E-06	22.45	106.46
ENSG00000224968	<i>LINC01645</i>	-2.20	7.23E-06	13.47	64.04
ENSG00000085662	<i>AKR1B1</i>	-2.20	1.46E-05	132.25	596.65
ENSG00000123136	<i>DDX39A</i>	-2.20	1.83E-05	10.00	46.22
ENSG00000181666	<i>ZNF875</i>	-2.20	2.19E-05	18.76	86.35
ENSG00000175279	<i>CENPS</i>	-2.20	3.29E-05	86.68	378.72
ENSG00000105808	<i>RASA4</i>	-2.20	6.91E-05	21.86	96.19
ENSG00000167861	<i>HID1</i>	-2.20	1.82E-04	2.44	11.34
ENSG00000223725		-2.20	2.09E-04	1.17	5.24
ENSG00000121900	<i>TMEM54</i>	-2.20	2.08E-04	23.46	96.39
ENSG00000166949	<i>SMAD3</i>	-2.20	5.47E-04	6.75	32.43
ENSG00000149090	<i>PAMR1</i>	-2.20	7.01E-04	3.75	17.44
ENSG00000107014	<i>RLN2</i>	-2.20	1.75E-03	0.69	2.81
ENSG00000225166		-2.20	3.41E-03	0.19	0.97
ENSG00000182223	<i>ZAR1</i>	-2.20	2.17E-03	94.80	316.12
ENSG00000256407		-2.20	5.27E-03	0.16	0.73
ENSG00000262097	<i>LINC02185</i>	-2.20	8.39E-03	0.21	0.99
ENSG00000152127	<i>MGAT5</i>	-2.19	1.88E-06	92.06	427.77
ENSG00000081760	<i>AACS</i>	-2.19	5.39E-06	11.70	54.73
ENSG00000237943	<i>PRKCQ-AS1</i>	-2.19	5.86E-06	19.44	93.31
ENSG00000004961	<i>HCCS</i>	-2.19	7.14E-06	19.02	87.07
ENSG00000139233	<i>LLPH</i>	-2.19	1.73E-05	12.85	59.31
ENSG00000237400		-2.19	2.15E-05	13.27	60.63
ENSG00000125166	<i>GOT2</i>	-2.19	4.40E-05	30.24	146.10
ENSG00000149328	<i>GLB1L2</i>	-2.19	1.01E-04	3.77	17.98
ENSG00000185730	<i>ZNF696</i>	-2.19	1.61E-04	0.90	4.22
ENSG00000204852	<i>TCTN1</i>	-2.19	1.43E-04	28.50	122.98
ENSG00000258785	<i>LINC01580</i>	-2.19	3.86E-04	1.68	8.02
ENSG00000240356	<i>RPL23AP7</i>	-2.19	4.58E-04	1.96	9.90
ENSG00000290088		-2.19	5.49E-04	1.48	6.84
ENSG00000216895	<i>RBM33-DT</i>	-2.19	5.91E-04	1.25	5.72

ENSG00000119771	<i>KLHL29</i>	-2.19	5.93E-04	1.48	6.52
ENSG00000187838	<i>PLSCR3</i>	-2.19	1.10E-03	0.70	3.44
ENSG00000105700	<i>KXD1</i>	-2.18	1.85E-05	6.08	27.50
ENSG00000198830	<i>HMG2</i>	-2.18	2.07E-05	181.99	800.91
ENSG00000084754	<i>HADHA</i>	-2.18	2.70E-05	24.61	114.24
ENSG00000141956	<i>PRDM15</i>	-2.18	3.59E-05	12.53	55.65
ENSG00000148219	<i>ASTN2</i>	-2.18	3.75E-05	15.40	74.13
ENSG00000105287	<i>PRKD2</i>	-2.18	3.85E-05	23.34	104.10
ENSG00000175356	<i>SCUBE2</i>	-2.18	4.60E-05	3.04	13.53
ENSG00000107960	<i>STN1</i>	-2.18	5.42E-05	8.93	38.76
ENSG00000203879	<i>GDI1</i>	-2.18	1.78E-04	9.80	48.50
ENSG00000235335	<i>B3GALT1-AS1</i>	-2.18	2.72E-04	0.70	3.46
ENSG00000100814	<i>CCNB1IP1</i>	-2.18	3.19E-04	39.85	160.66
ENSG00000176595	<i>KBTBD11</i>	-2.18	6.21E-04	1.06	4.48
ENSG00000137161	<i>CNPY3</i>	-2.18	6.85E-04	3.46	13.75
ENSG00000198937	<i>CCDC167</i>	-2.18	9.13E-04	60.94	237.49
ENSG00000104915	<i>STX10</i>	-2.18	1.18E-03	2.54	10.35
ENSG00000003402	<i>CFLAR</i>	-2.18	3.38E-03	3.35	11.79
ENSG00000135845	<i>PIGC</i>	-2.17	1.90E-05	16.45	72.56
ENSG00000115423	<i>DNAH6</i>	-2.17	2.24E-05	3.16	14.67
ENSG00000106013	<i>ANKRD7</i>	-2.17	2.60E-05	19.72	88.96
ENSG00000285424		-2.17	3.77E-05	10.36	49.51
ENSG00000100219	<i>XBP1</i>	-2.17	7.75E-05	6.50	30.20
ENSG00000101247	<i>NDUFAF5</i>	-2.17	8.60E-05	3.52	15.67
ENSG00000100991	<i>TRPC4AP</i>	-2.17	1.43E-04	39.74	199.31
ENSG00000105656	<i>ELL</i>	-2.17	2.40E-04	1.69	7.51
ENSG00000175854	<i>SWI5</i>	-2.17	4.20E-04	8.80	42.21
ENSG00000134461	<i>ANKRD16</i>	-2.17	8.69E-04	1.23	5.00
ENSG00000165806	<i>CASP7</i>	-2.17	8.90E-04	1.94	9.24
ENSG00000211892	<i>IGHG4</i>	-2.17	3.65E-03	0.30	1.22
ENSG00000123685	<i>BATF3</i>	-2.17	4.50E-03	0.93	3.93
ENSG00000222035	<i>KIAA2012-AS1</i>	-2.17	5.43E-03	0.46	1.90
ENSG00000256150	<i>ITFG2-AS1</i>	-2.17	7.04E-03	0.19	0.78
ENSG00000197893	<i>NRAP</i>	-2.16	1.44E-05	29.42	130.51
ENSG00000166260	<i>COX11</i>	-2.16	2.93E-05	2.94	13.51
ENSG00000198270	<i>TMEM116</i>	-2.16	3.42E-05	5.03	22.61
ENSG00000104957	<i>YJU2B</i>	-2.16	4.61E-05	8.73	38.63
ENSG00000143774	<i>GUK1</i>	-2.16	8.97E-05	5.92	26.55
ENSG00000082781	<i>ITGB5</i>	-2.16	9.85E-05	9.39	40.53
ENSG00000205629	<i>LCMT1</i>	-2.16	8.70E-05	121.86	521.00
ENSG00000131165	<i>CHMP1A</i>	-2.16	2.21E-04	2.78	12.52
ENSG00000129562	<i>DAD1</i>	-2.16	3.50E-04	26.40	115.55
ENSG00000234327	<i>ZNF232-AS1</i>	-2.16	5.69E-04	0.67	3.18
ENSG00000167792	<i>NDUFV1</i>	-2.16	4.87E-04	10.01	38.56
ENSG00000249352	<i>LINC02198</i>	-2.16	1.13E-03	1.06	5.03
ENSG00000166682	<i>TMPRSS5</i>	-2.16	1.65E-03	0.55	2.40

ENSG00000171444	<i>MCC</i>	-2.16	3.33E-03	2.37	8.46
ENSG00000259251	<i>VPS13C-DT</i>	-2.16	3.77E-03	0.93	3.67
ENSG00000198720	<i>ANKRD13B</i>	-2.16	7.53E-03	0.44	1.75
ENSG00000107874	<i>CUEDC2</i>	-2.16	6.96E-03	1.73	6.50
ENSG00000043462	<i>LCP2</i>	-2.16	9.73E-03	1.94	7.59
ENSG00000224023	<i>EDRF1-DT</i>	-2.15	1.98E-04	2.66	11.96
ENSG00000101935	<i>AMMECR1</i>	-2.15	2.48E-04	1.17	5.31
ENSG00000115350	<i>POLE4</i>	-2.15	2.22E-04	34.29	139.85
ENSG00000143771	<i>CNIH4</i>	-2.15	3.40E-04	13.32	58.21
ENSG00000186187	<i>ZNRF1</i>	-2.15	4.55E-04	8.37	33.87
ENSG00000151131	<i>NOPCHAP1</i>	-2.15	9.47E-04	52.47	211.12
ENSG00000078808	<i>SDF4</i>	-2.15	1.19E-03	3.63	15.21
ENSG00000287757		-2.15	4.18E-03	0.24	1.18
ENSG00000238045	<i>MVP-DT</i>	-2.15	4.71E-03	0.27	1.09
ENSG00000243478	<i>AOX2P</i>	-2.15	6.95E-03	0.13	0.61
ENSG00000167671	<i>UBXN6</i>	-2.15	5.81E-03	1.67	6.29
ENSG00000262919	<i>CCNQ</i>	-2.14	9.15E-06	8.36	37.24
ENSG00000117133	<i>RPF1</i>	-2.14	1.90E-05	28.29	124.66
ENSG00000100938	<i>GMPR2</i>	-2.14	2.22E-05	5.27	23.45
ENSG00000120053	<i>GOT1</i>	-2.14	3.14E-05	41.80	185.07
ENSG00000287360		-2.14	3.90E-05	44.50	213.80
ENSG00000136463	<i>TACO1</i>	-2.14	4.84E-05	1.21	5.58
ENSG00000287448		-2.14	5.84E-05	1.63	7.21
ENSG00000262519	<i>TXNP4</i>	-2.14	1.35E-04	2.16	10.23
ENSG00000197217	<i>ENTPD4</i>	-2.14	1.33E-04	3.31	13.87
ENSG00000258751		-2.14	1.46E-04	4.09	18.01
ENSG00000224367	<i>OACYLP</i>	-2.14	1.43E-04	6.72	30.07
ENSG00000163864	<i>NMNAT3</i>	-2.14	1.65E-04	6.08	29.92
ENSG00000235984	<i>GPC5-AS1</i>	-2.14	2.57E-04	0.72	3.37
ENSG00000141698	<i>NT5C3B</i>	-2.14	3.87E-04	1.62	6.71
ENSG00000105929	<i>ATP6V0A4</i>	-2.14	4.83E-04	3.40	14.41
ENSG00000143001	<i>TMEM61</i>	-2.14	4.90E-04	5.25	20.65
ENSG00000115318	<i>LOXL3</i>	-2.14	8.32E-04	1.14	4.82
ENSG00000288640		-2.14	1.30E-03	0.71	3.01
ENSG00000182196	<i>ARL6IP4</i>	-2.14	1.31E-03	6.95	25.48
ENSG00000283516	<i>LITAFD</i>	-2.14	3.02E-03	1.16	5.22
ENSG00000272631		-2.14	7.34E-03	0.09	0.43
ENSG00000138031	<i>ADCY3</i>	-2.13	3.29E-05	22.13	97.11
ENSG00000099817	<i>POLR2E</i>	-2.13	3.82E-05	32.74	137.81
ENSG00000179151	<i>EDC3</i>	-2.13	1.40E-04	17.75	72.67
ENSG00000100258	<i>LMF2</i>	-2.13	1.70E-04	3.53	14.81
ENSG00000259668		-2.13	4.11E-04	1.64	7.12
ENSG00000169302	<i>STK32A</i>	-2.13	6.07E-04	0.82	3.55
ENSG00000182791	<i>CCDC87</i>	-2.13	9.02E-04	1.54	6.70
ENSG00000158825	<i>CDA</i>	-2.13	9.59E-04	4.84	19.14
ENSG00000132622	<i>HSPA12B</i>	-2.13	4.07E-03	0.69	2.71

ENSG00000288596	<i>C8orf44</i>	-2.13	5.76E-03	1.81	6.01
ENSG00000141076	<i>UTP4</i>	-2.12	4.78E-06	40.02	178.29
ENSG00000119203	<i>CPSF3</i>	-2.12	9.12E-06	27.10	118.03
ENSG00000226777	<i>FAM30A</i>	-2.12	1.99E-05	7.08	32.98
ENSG00000084731	<i>KIF3C</i>	-2.12	2.99E-05	11.05	48.21
ENSG00000290463		-2.12	8.82E-05	3.96	17.52
ENSG00000274180	<i>NATD1</i>	-2.12	1.27E-04	1.77	7.67
ENSG00000259237	<i>LINC02490</i>	-2.12	1.70E-04	0.96	4.20
ENSG00000242086	<i>MUC20-OT1</i>	-2.12	6.82E-04	12.91	58.00
ENSG00000196182	<i>STK40</i>	-2.12	1.28E-03	2.08	8.93
ENSG00000177047	<i>IFNW1</i>	-2.12	1.43E-03	1.03	5.23
ENSG00000287413		-2.12	1.84E-03	1.71	7.92
ENSG00000231476		-2.12	3.07E-03	2.05	6.87
ENSG00000090565	<i>RAB11FIP3</i>	-2.12	3.69E-03	0.72	2.98
ENSG00000288863		-2.12	4.59E-03	0.38	1.84
ENSG00000130309	<i>COLGALT1</i>	-2.12	7.73E-03	0.76	2.58
ENSG00000157429	<i>ZNF19</i>	-2.11	3.79E-05	16.70	70.45
ENSG00000176124	<i>DLEU1</i>	-2.11	3.83E-05	36.67	168.44
ENSG00000123395	<i>ATG101</i>	-2.11	5.43E-05	5.74	25.71
ENSG00000110104	<i>CCDC86</i>	-2.11	6.47E-05	5.63	26.07
ENSG00000127419	<i>TMEM175</i>	-2.11	7.82E-05	2.39	10.87
ENSG00000257663		-2.11	2.43E-04	1.24	5.11
ENSG00000250978		-2.11	6.17E-03	0.28	1.22
ENSG00000149292	<i>TTC12</i>	-2.10	7.39E-06	14.47	63.87
ENSG00000167196	<i>FBXO22</i>	-2.10	1.04E-05	24.53	107.07
ENSG00000160908	<i>ZNF394</i>	-2.10	1.46E-05	11.05	49.24
ENSG00000105778	<i>AVL9</i>	-2.10	1.58E-05	10.38	45.16
ENSG00000178585	<i>CTNNBIP1</i>	-2.10	6.00E-05	3.84	16.25
ENSG00000249396	<i>LINC02212</i>	-2.10	7.91E-05	9.26	40.85
ENSG00000004468	<i>CD38</i>	-2.10	1.33E-04	15.14	68.35
ENSG00000145029	<i>NICN1</i>	-2.10	2.99E-04	1.07	4.63
ENSG00000286733	<i>LINC02348</i>	-2.10	6.41E-04	6.10	23.52
ENSG00000259330	<i>INAFM2</i>	-2.10	1.20E-03	0.38	1.64
ENSG00000167513	<i>CDT1</i>	-2.10	9.92E-04	8.29	30.88
ENSG00000125089	<i>SH3TC1</i>	-2.10	2.14E-03	0.42	1.66
ENSG00000260519	<i>ATP8A1-DT</i>	-2.10	2.45E-03	0.51	2.28
ENSG00000142556	<i>ZNF614</i>	-2.10	2.94E-03	3.35	10.94
ENSG00000224046	<i>DMTF1-AS1</i>	-2.10	5.07E-03	1.10	4.01
ENSG00000179331	<i>RAB39A</i>	-2.10	7.25E-03	0.27	1.06
ENSG00000160075	<i>SSU72</i>	-2.09	1.97E-06	56.70	248.12
ENSG00000005421	<i>PON1</i>	-2.09	2.55E-05	4.21	18.53
ENSG00000224445	<i>LINC01708</i>	-2.09	4.06E-05	3.31	15.01
ENSG00000168275	<i>COA6</i>	-2.09	4.26E-05	7.06	29.91
ENSG00000198178	<i>CLEC4C</i>	-2.09	4.06E-05	26.38	109.90
ENSG00000158467	<i>AHCYL2</i>	-2.09	6.26E-05	6.87	29.44
ENSG00000104812	<i>GYS1</i>	-2.09	7.19E-05	4.50	19.64

ENSG00000133069	<i>TMCC2</i>	-2.09	4.04E-04	3.81	15.48
ENSG00000178741	<i>COX5A</i>	-2.09	4.98E-04	32.28	121.64
ENSG00000291071	<i>FAM86JP</i>	-2.09	6.93E-04	1.15	4.81
ENSG00000290475	<i>AP1B1P1</i>	-2.09	1.09E-03	0.78	3.07
ENSG00000127554	<i>GFER</i>	-2.09	1.12E-03	3.90	14.93
ENSG00000271040	<i>TMEM242-DT</i>	-2.09	1.72E-03	0.37	1.69
ENSG00000227591	<i>HSD11B1-AS1</i>	-2.09	3.99E-03	0.71	2.70
ENSG00000174015	<i>CBY2</i>	-2.09	3.81E-03	1.21	4.27
ENSG00000231054		-2.09	4.98E-03	0.46	1.68
ENSG00000255065		-2.09	5.50E-03	0.59	2.13
ENSG00000101298	<i>SNPH</i>	-2.09	6.18E-03	1.01	4.93
ENSG00000172575	<i>RASGRP1</i>	-2.08	1.11E-05	5.82	25.48
ENSG00000165060	<i>FXN</i>	-2.08	1.44E-05	8.58	37.88
ENSG00000113621	<i>TXNDC15</i>	-2.08	2.77E-05	6.10	25.85
ENSG00000171861	<i>MRM3</i>	-2.08	3.21E-05	4.60	19.82
ENSG00000154975	<i>CA10</i>	-2.08	3.18E-05	17.62	74.81
ENSG00000266908		-2.08	5.36E-05	3.80	16.19
ENSG00000248643	<i>RBM14-RBM4</i>	-2.08	5.60E-05	1.65	7.04
ENSG00000136631	<i>VPS45</i>	-2.08	7.43E-05	9.51	38.39
ENSG00000105325	<i>FZR1</i>	-2.08	2.07E-04	2.50	10.31
ENSG00000153406	<i>NMRAL1</i>	-2.08	3.29E-04	1.75	7.30
ENSG00000183560	<i>IZUMO1R</i>	-2.08	3.08E-04	32.36	151.71
ENSG00000154832	<i>CXXC1</i>	-2.08	4.55E-04	2.82	10.94
ENSG00000164053	<i>ATRIP</i>	-2.08	5.01E-04	1.70	7.30
ENSG00000170260	<i>ZNF212</i>	-2.08	7.50E-04	1.22	5.48
ENSG00000155511	<i>GRIA1</i>	-2.08	1.49E-03	17.60	60.77
ENSG00000233723	<i>LINC01122</i>	-2.08	1.52E-03	19.20	76.30
ENSG00000100288	<i>CHKB</i>	-2.08	2.43E-03	1.56	5.62
ENSG00000225446	<i>LINC01763</i>	-2.08	3.20E-03	0.68	2.73
ENSG00000130813	<i>SHFL</i>	-2.08	8.96E-03	4.11	12.86
ENSG00000141101	<i>NOB1</i>	-2.07	7.14E-06	30.42	129.82
ENSG00000196353	<i>CPNE4</i>	-2.07	2.21E-05	9.78	43.45
ENSG00000074071	<i>MRPS34</i>	-2.07	2.61E-05	11.13	47.76
ENSG00000170606	<i>HSPA4</i>	-2.07	9.06E-05	110.94	431.88
ENSG00000174238	<i>PITPNA</i>	-2.07	1.95E-04	17.58	68.98
ENSG00000164576	<i>SAP30L</i>	-2.07	2.20E-04	3.87	15.13
ENSG00000188511	<i>MIR3667HG</i>	-2.07	4.61E-04	1.73	6.89
ENSG00000174749	<i>FAM241A</i>	-2.07	7.41E-04	0.91	3.72
ENSG00000173992	<i>CCS</i>	-2.07	7.57E-04	5.93	22.85
ENSG00000148426	<i>PROSER2</i>	-2.07	1.87E-03	5.34	18.88
ENSG00000105771	<i>SMG9</i>	-2.07	2.73E-03	0.91	3.07
ENSG00000103356	<i>EARS2</i>	-2.07	2.63E-03	2.17	8.45
ENSG00000011132	<i>APBA3</i>	-2.07	6.72E-03	2.16	5.62
ENSG00000163444	<i>TMEM183A</i>	-2.06	4.43E-06	16.27	70.43
ENSG00000025772	<i>TOMM34</i>	-2.06	4.86E-06	76.40	333.37
ENSG00000149243	<i>KLHL35</i>	-2.06	4.18E-05	8.87	36.64

ENSG00000196981	<i>WDR5B</i>	-2.06	1.17E-04	1.92	7.76
ENSG00000148824	<i>MTG1</i>	-2.06	1.37E-04	2.73	11.21
ENSG00000214783	<i>POLR2J4</i>	-2.06	1.92E-04	0.93	3.98
ENSG00000162735	<i>PEX19</i>	-2.06	2.59E-04	7.13	31.12
ENSG00000143921	<i>ABCG8</i>	-2.06	2.98E-04	3.00	12.59
ENSG00000126602	<i>TRAP1</i>	-2.06	3.81E-04	35.98	140.84
ENSG00000250571	<i>GLI4</i>	-2.06	5.18E-04	2.05	8.00
ENSG00000242372	<i>EIF6</i>	-2.06	4.39E-04	35.74	135.92
ENSG00000232112	<i>TMA7</i>	-2.06	7.47E-04	10.62	40.72
ENSG00000259200		-2.06	1.01E-03	1.23	5.51
ENSG00000258784		-2.06	8.27E-04	14.70	61.49
ENSG00000135953	<i>MFSD9</i>	-2.06	1.13E-03	2.55	9.47
ENSG00000289166		-2.06	1.83E-03	2.32	10.07
ENSG00000135632	<i>SMYD5</i>	-2.06	1.90E-03	2.59	10.39
ENSG00000186523	<i>FAM86B1</i>	-2.06	2.13E-03	1.81	6.65
ENSG00000176715	<i>ACSF3</i>	-2.06	2.40E-03	1.45	6.35
ENSG00000280278	<i>FLJ30679</i>	-2.06	4.44E-03	0.66	2.21
ENSG00000107815	<i>TWNK</i>	-2.06	4.45E-03	2.65	8.17
ENSG00000253917		-2.06	9.94E-03	1.24	4.39
ENSG00000287117		-2.05	1.02E-05	13.02	55.54
ENSG00000123892	<i>RAB38</i>	-2.05	6.99E-05	6.89	28.61
ENSG00000111275	<i>ALDH2</i>	-2.05	2.24E-04	0.94	4.04
ENSG00000132612	<i>VPS4A</i>	-2.05	3.15E-04	6.64	26.95
ENSG00000171204	<i>TMEM126B</i>	-2.05	4.86E-04	2.92	11.36
ENSG00000127334	<i>DYRK2</i>	-2.05	5.69E-04	1.38	6.21
ENSG00000172366	<i>MCRIP2</i>	-2.05	6.15E-04	3.81	15.60
ENSG00000259671	<i>MTCYBP23</i>	-2.05	9.88E-04	1.02	4.11
ENSG00000285725		-2.05	7.54E-04	23.58	88.68
ENSG00000181026	<i>AEN</i>	-2.05	1.03E-03	3.69	15.97
ENSG00000197785	<i>ATAD3A</i>	-2.05	1.24E-03	1.89	7.20
ENSG00000237883	<i>DGUOK-AS1</i>	-2.05	1.72E-03	5.03	18.61
ENSG00000254906		-2.05	4.47E-03	1.90	6.80
ENSG00000076201	<i>PTPN23</i>	-2.05	9.82E-03	2.84	9.26
ENSG00000109919	<i>MTCH2</i>	-2.04	3.82E-06	29.41	124.49
ENSG00000136933	<i>RABEPK</i>	-2.04	2.73E-05	5.18	21.63
ENSG00000283408	<i>MIR548A1HG</i>	-2.04	5.46E-05	7.35	30.71
ENSG00000172771	<i>EFCAB12</i>	-2.04	8.96E-05	2.03	8.54
ENSG00000158747	<i>NBL1</i>	-2.04	3.22E-04	1.42	5.95
ENSG00000283515		-2.04	3.07E-04	6.75	29.79
ENSG00000139370	<i>SLC15A4</i>	-2.04	1.11E-03	13.90	57.59
ENSG00000107338	<i>SHB</i>	-2.04	1.43E-03	1.48	5.21
ENSG00000135956	<i>TMEM127</i>	-2.04	1.35E-03	3.42	14.54
ENSG00000123453	<i>SARDH</i>	-2.04	1.61E-03	13.84	46.31
ENSG00000248749		-2.04	2.50E-03	0.43	1.72
ENSG00000105397	<i>TYK2</i>	-2.04	3.50E-03	3.52	14.76
ENSG00000167333	<i>TRIM68</i>	-2.04	6.84E-03	3.48	13.52

ENSG00000110218	<i>PANX1</i>	-2.03	1.28E-05	38.88	169.06
ENSG00000277987	<i>LINC02351</i>	-2.03	1.85E-05	6.95	29.77
ENSG00000241484	<i>ARHGAP8</i>	-2.03	2.28E-05	10.13	43.43
ENSG00000001461	<i>NIPAL3</i>	-2.03	3.63E-05	37.54	156.06
ENSG00000217555	<i>CKLF</i>	-2.03	4.21E-05	12.31	50.72
ENSG00000143222	<i>UFC1</i>	-2.03	4.83E-05	13.27	54.71
ENSG00000110925	<i>CSRN2</i>	-2.03	6.00E-05	13.11	56.58
ENSG00000103274	<i>NUBP1</i>	-2.03	6.79E-05	5.70	22.60
ENSG00000166986	<i>MARS1</i>	-2.03	1.26E-04	30.22	127.99
ENSG00000113732	<i>ATP6V0E1</i>	-2.03	1.65E-04	48.77	188.55
ENSG00000214106	<i>PAXIP1-AS2</i>	-2.03	2.65E-04	0.83	3.60
ENSG00000163161	<i>ERCC3</i>	-2.03	2.07E-04	27.26	116.48
ENSG00000250021	<i>ARPIN-AP3S2</i>	-2.03	2.72E-04	2.84	10.96
ENSG00000159840	<i>ZYX</i>	-2.03	2.82E-04	4.77	18.21
ENSG00000179562	<i>GCC1</i>	-2.03	3.80E-04	6.93	30.30
ENSG00000271286	<i>CYTH1P1</i>	-2.03	4.64E-04	0.85	3.42
ENSG00000204922	<i>UQCC3</i>	-2.03	5.04E-04	3.60	15.22
ENSG00000154889	<i>MPPE1</i>	-2.03	7.21E-04	2.15	9.25
ENSG00000102870	<i>ZNF629</i>	-2.03	7.60E-04	1.72	6.49
ENSG00000111906	<i>HDCC2</i>	-2.03	1.23E-03	5.13	17.67
ENSG00000101210	<i>EEF1A2</i>	-2.03	2.11E-03	0.44	1.88
ENSG00000111653	<i>ING4</i>	-2.03	3.07E-03	1.69	6.05
ENSG00000250994		-2.03	4.36E-03	0.47	1.74
ENSG00000197702	<i>PARVA</i>	-2.02	1.43E-05	23.83	97.68
ENSG00000137944	<i>KYAT3</i>	-2.02	2.43E-05	2.48	10.53
ENSG00000130177	<i>CDC16</i>	-2.02	3.81E-05	3.16	13.42
ENSG00000107262	<i>BAG1</i>	-2.02	4.39E-05	4.84	19.94
ENSG00000141098	<i>GFOD2</i>	-2.02	7.49E-05	1.64	6.79
ENSG00000105393	<i>BABAM1</i>	-2.02	1.15E-04	9.89	38.74
ENSG00000109079	<i>TNFAIP1</i>	-2.02	3.41E-04	10.56	40.69
ENSG00000178573	<i>MAF</i>	-2.02	4.19E-04	4.74	20.04
ENSG00000150456	<i>EEF1AKMT1</i>	-2.02	4.42E-04	7.05	26.82
ENSG00000254531	<i>FLJ20021</i>	-2.02	5.66E-04	1.70	6.81
ENSG00000169972	<i>PUSL1</i>	-2.02	7.70E-04	1.67	6.19
ENSG00000066032	<i>CTNNA2</i>	-2.02	6.06E-04	39.96	188.37
ENSG00000107611	<i>CUBN</i>	-2.02	8.49E-04	9.25	34.52
ENSG00000214753	<i>HNRNPUL2</i>	-2.02	1.72E-03	0.77	3.12
ENSG00000259701		-2.02	2.68E-03	0.37	1.51
ENSG00000198553	<i>KCNRG</i>	-2.02	3.25E-03	0.35	1.49
ENSG00000063176	<i>SPHK2</i>	-2.02	3.39E-03	0.50	1.77
ENSG00000256442		-2.02	3.72E-03	0.57	2.22
ENSG00000232938	<i>RPL23AP87</i>	-2.02	9.70E-03	0.91	3.67
ENSG00000116977	<i>LGALS8</i>	-2.01	3.86E-06	97.84	401.23
ENSG00000066136	<i>NFYC</i>	-2.01	1.03E-05	32.66	134.15
ENSG00000288549		-2.01	3.90E-05	7.01	29.80
ENSG00000277988	<i>FAM30B</i>	-2.01	4.44E-05	4.98	21.26

ENSG00000135127	<i>BICDL1</i>	-2.01	4.83E-05	23.27	94.24
ENSG00000154743	<i>TSEN2</i>	-2.01	1.55E-04	8.40	33.55
ENSG00000168528	<i>SERINC2</i>	-2.01	5.13E-04	6.46	25.45
ENSG00000166507	<i>NDST2</i>	-2.01	1.17E-03	1.00	3.73
ENSG00000261740	<i>BOLA2-SMG1P6</i>	-2.01	1.01E-03	11.19	48.23
ENSG00000125753	<i>VASP</i>	-2.01	1.46E-03	0.52	2.12
ENSG00000162062	<i>TEDC2</i>	-2.01	2.39E-03	3.83	13.12
ENSG00000289830		-2.01	2.85E-03	1.09	4.73
ENSG00000179362	<i>HMG2P46</i>	-2.01	3.41E-03	0.46	1.78
ENSG00000145882	<i>PCYOX1L</i>	-2.01	2.60E-03	4.09	17.67
ENSG00000172081	<i>MOB3A</i>	-2.01	4.36E-03	2.94	11.45
ENSG00000105928	<i>GSDME</i>	-2.00	1.29E-05	81.75	342.67
ENSG00000125779	<i>PANK2</i>	-2.00	1.77E-05	6.21	26.22
ENSG00000254659	<i>LINC02715</i>	-2.00	1.03E-04	46.03	195.96
ENSG00000040531	<i>CTNS</i>	-2.00	1.52E-04	13.52	55.14
ENSG00000101152	<i>DNAJC5</i>	-2.00	8.43E-04	0.75	3.20
ENSG00000144048	<i>DUSP11</i>	-2.00	6.38E-04	78.19	263.95
ENSG00000173581	<i>CCDC106</i>	-2.00	1.41E-03	1.43	4.87
ENSG00000186369	<i>LINC00643</i>	-2.00	1.35E-03	3.92	14.44
ENSG00000103154	<i>NECAB2</i>	-2.00	1.55E-03	1.69	5.66
ENSG00000145088	<i>EAF2</i>	-2.00	2.91E-03	6.41	20.22
ENSG00000150459	<i>SAP18</i>	-2.00	2.69E-03	78.83	264.32
ENSG00000288056		-2.00	6.52E-03	0.18	0.78
ENSG00000255036	<i>BT1P4-STRA6LP-CCDC</i>	-2.00	6.61E-03	2.08	6.70
ENSG00000101850	<i>GPR143</i>	-1.99	6.06E-06	33.40	137.18
ENSG00000241127	<i>YAE1</i>	-1.99	5.23E-05	6.48	26.57
ENSG00000116871	<i>MAP7D1</i>	-1.99	1.53E-04	3.81	14.80
ENSG00000176396	<i>EID2</i>	-1.99	1.81E-04	4.28	16.17
ENSG00000173264	<i>GPR137</i>	-1.99	2.15E-04	9.11	33.17
ENSG00000168884	<i>TNIP2</i>	-1.99	3.19E-04	2.85	12.25
ENSG00000255346	<i>NOX5</i>	-1.99	6.37E-04	4.05	15.64
ENSG00000237053	<i>FUCA1P1</i>	-1.99	8.88E-04	3.15	13.88
ENSG00000163482	<i>STK36</i>	-1.99	9.22E-04	3.45	12.60
ENSG00000265749		-1.99	1.81E-03	0.32	1.35
ENSG00000286587		-1.99	2.41E-03	0.42	1.65
ENSG00000165891	<i>E2F7</i>	-1.99	2.45E-03	0.58	2.13
ENSG00000232682		-1.99	3.74E-03	2.57	9.71
ENSG00000224877	<i>NDUFAF8</i>	-1.99	8.58E-03	0.94	3.07
ENSG00000159352	<i>PSMD4</i>	-1.98	3.92E-06	31.37	126.77
ENSG00000088356	<i>PDRG1</i>	-1.98	2.96E-05	16.90	69.29
ENSG00000100461	<i>RBM23</i>	-1.98	4.06E-05	17.63	73.31
ENSG00000240849	<i>PEDS1</i>	-1.98	7.19E-05	28.53	122.17
ENSG00000117595	<i>IRF6</i>	-1.98	8.82E-05	35.77	145.79
ENSG00000125656	<i>CLPP</i>	-1.98	1.27E-04	9.73	37.87
ENSG00000102796	<i>DHRS12</i>	-1.98	2.36E-04	5.18	20.33
ENSG00000257391		-1.98	3.36E-04	1.07	4.24

ENSG00000170236	<i>USP50</i>	-1.98	4.48E-04	40.97	161.36
ENSG00000285968		-1.98	5.97E-04	6.05	22.20
ENSG00000279739		-1.98	7.15E-04	1.88	7.20
ENSG00000243969		-1.98	1.12E-03	0.83	3.48
ENSG00000007080	<i>CCDC124</i>	-1.98	8.94E-04	11.47	41.04
ENSG00000284753	<i>EEF1AKMT4</i>	-1.98	2.59E-03	1.14	3.91
ENSG00000226328	<i>NUP50-DT</i>	-1.98	3.24E-03	0.77	2.76
ENSG00000291140	<i>AMZ2P1</i>	-1.98	3.87E-03	2.81	9.35
ENSG00000153012	<i>LGI2</i>	-1.98	5.66E-03	2.11	6.12
ENSG00000116016	<i>EPAS1</i>	-1.97	2.32E-05	23.88	98.13
ENSG00000141401	<i>IMPA2</i>	-1.97	4.43E-05	10.82	42.02
ENSG00000179115	<i>FARSA</i>	-1.97	7.74E-05	12.57	48.13
ENSG00000034971	<i>MYOC</i>	-1.97	8.82E-05	1.95	7.67
ENSG00000113761	<i>ZNF346</i>	-1.97	1.00E-04	12.70	53.57
ENSG00000174652	<i>ZNF266</i>	-1.97	2.15E-04	3.99	16.88
ENSG00000175764	<i>TTLL11</i>	-1.97	4.57E-04	1.58	6.10
ENSG00000196378	<i>ZNF34</i>	-1.97	7.20E-04	4.63	18.46
ENSG00000147852	<i>VLDLR</i>	-1.97	8.11E-04	9.64	32.87
ENSG00000234551	<i>LINC01309</i>	-1.97	2.89E-03	0.41	1.81
ENSG00000119401	<i>TRIM32</i>	-1.97	1.94E-03	15.46	62.47
ENSG00000157778	<i>PSMG3</i>	-1.96	3.70E-05	17.16	66.62
ENSG00000146950	<i>SHROOM2</i>	-1.96	5.94E-05	5.83	22.41
ENSG00000106991	<i>ENG</i>	-1.96	7.12E-05	9.67	37.34
ENSG00000111667	<i>USP5</i>	-1.96	4.53E-04	2.82	11.31
ENSG00000141759	<i>TXNL4A</i>	-1.96	4.57E-04	10.85	39.09
ENSG00000287963		-1.96	5.21E-04	2.66	10.77
ENSG00000168917	<i>SLC35G2</i>	-1.96	5.78E-04	12.87	53.11
ENSG00000102053	<i>ZC3H12B</i>	-1.96	7.29E-04	0.91	3.82
ENSG00000005448	<i>WDR54</i>	-1.96	6.75E-04	3.37	12.16
ENSG00000127884	<i>ECHS1</i>	-1.96	6.62E-04	39.20	133.05
ENSG00000173020	<i>GRK2</i>	-1.96	2.88E-03	1.25	4.44
ENSG00000230867		-1.96	4.52E-03	0.77	2.81
ENSG00000172247	<i>C1QTNF4</i>	-1.96	6.58E-03	0.33	1.23
ENSG00000230438	<i>SERPINB9P1</i>	-1.96	6.99E-03	0.44	1.54
ENSG00000161526	<i>SAP30BP</i>	-1.95	3.46E-05	36.07	142.78
ENSG00000158864	<i>NDUFS2</i>	-1.95	3.62E-05	14.27	54.77
ENSG00000138092	<i>CENPO</i>	-1.95	3.59E-05	36.32	139.23
ENSG00000165630	<i>PRPF18</i>	-1.95	5.77E-05	54.26	212.14
ENSG00000100276	<i>RASL10A</i>	-1.95	8.97E-05	2.05	8.02
ENSG00000182307	<i>C8orf33</i>	-1.95	1.23E-04	3.29	12.75
ENSG00000168938	<i>PPIC</i>	-1.95	1.44E-04	8.90	32.94
ENSG00000196453	<i>ZNF777</i>	-1.95	1.68E-04	6.04	23.60
ENSG00000163832	<i>ELP6</i>	-1.95	2.31E-04	2.33	8.91
ENSG00000149474	<i>KAT14</i>	-1.95	2.79E-04	2.60	9.79
ENSG00000147044	<i>CASK</i>	-1.95	4.64E-04	1.87	7.15
ENSG00000160799	<i>CCDC12</i>	-1.95	4.50E-04	35.80	125.21

ENSG00000104853	<i>CLPTM1</i>	-1.95	1.17E-03	1.59	6.14
ENSG00000125841	<i>NRSN2</i>	-1.95	1.59E-03	1.10	4.11
ENSG00000102904	<i>TSNAXIP1</i>	-1.95	3.29E-03	0.66	2.26
ENSG00000136699	<i>SMPD4</i>	-1.95	7.29E-03	2.12	8.50
ENSG00000140526	<i>ABHD2</i>	-1.94	4.07E-06	71.74	284.08
ENSG00000145794	<i>MEGF10</i>	-1.94	1.57E-05	9.33	37.21
ENSG00000087053	<i>MTMR2</i>	-1.94	1.61E-05	47.23	181.67
ENSG00000124787	<i>RPP40</i>	-1.94	3.47E-05	7.61	30.38
ENSG00000119703	<i>ZC2HC1C</i>	-1.94	6.42E-05	8.13	30.38
ENSG00000049541	<i>RFC2</i>	-1.94	6.95E-05	8.09	30.88
ENSG00000068438	<i>FTSJ1</i>	-1.94	1.10E-04	9.77	36.12
ENSG00000166535	<i>A2ML1</i>	-1.94	5.89E-04	9.04	33.62
ENSG00000100284	<i>TOM1</i>	-1.94	1.31E-03	2.00	7.15
ENSG00000119878	<i>CRIP1</i>	-1.94	1.22E-03	8.19	28.72
ENSG00000176659	<i>LINC02910</i>	-1.94	2.60E-03	0.91	3.73
ENSG00000248738		-1.94	3.99E-03	0.90	2.94
ENSG00000181638	<i>ZFP41</i>	-1.94	4.78E-03	0.79	3.05
ENSG00000146453	<i>PNLDC1</i>	-1.93	5.43E-05	131.02	485.72
ENSG00000291136		-1.93	6.95E-05	2.23	8.54
ENSG00000151067	<i>CACNA1C</i>	-1.93	8.40E-05	35.12	133.33
ENSG00000100714	<i>MTHFD1</i>	-1.93	1.19E-04	6.53	24.56
ENSG00000149823	<i>VPS51</i>	-1.93	1.61E-04	3.57	14.31
ENSG00000103056	<i>SMPD3</i>	-1.93	4.23E-04	13.68	50.21
ENSG00000285163		-1.93	6.95E-04	1.75	7.28
ENSG00000164087	<i>POC1A</i>	-1.93	8.28E-04	5.98	23.21
ENSG00000161558	<i>TMEM143</i>	-1.93	8.87E-04	4.74	17.75
ENSG00000154370	<i>TRIM11</i>	-1.93	8.94E-04	8.48	32.60
ENSG00000136573	<i>BLK</i>	-1.93	1.11E-03	2.89	10.23
ENSG00000154511	<i>DIPK1A</i>	-1.93	1.21E-03	1.70	7.20
ENSG00000185100	<i>ADSS1</i>	-1.93	2.18E-03	0.94	3.65
ENSG00000166546	<i>BEAN1</i>	-1.93	1.76E-03	5.94	25.21
ENSG00000228999		-1.93	2.25E-03	10.20	36.37
ENSG00000253361		-1.93	4.52E-03	1.08	3.84
ENSG00000262587		-1.93	9.14E-03	1.22	3.59
ENSG00000132749	<i>TESMIN</i>	-1.92	2.16E-05	9.69	37.26
ENSG00000227279		-1.92	8.37E-05	7.36	28.74
ENSG00000155890	<i>TRIM42</i>	-1.92	1.43E-04	5.83	21.41
ENSG00000125970	<i>RALY</i>	-1.92	3.23E-04	40.51	136.96
ENSG00000136522	<i>MRPL47</i>	-1.92	5.92E-04	19.07	68.96
ENSG00000171302	<i>CANT1</i>	-1.92	1.00E-03	0.85	3.30
ENSG00000267080	<i>ASB16-AS1</i>	-1.92	1.13E-03	1.67	5.89
ENSG00000255568	<i>BRWD1-AS2</i>	-1.92	2.00E-03	0.68	2.39
ENSG00000183010	<i>PYCR1</i>	-1.92	1.84E-03	1.97	6.72
ENSG00000115138	<i>POMC</i>	-1.92	9.08E-03	0.92	3.05
ENSG00000102172	<i>SMS</i>	-1.91	6.73E-06	59.25	229.33
ENSG00000138442	<i>WDR12</i>	-1.91	1.04E-05	43.55	166.92

ENSG00000101052	<i>IFT52</i>	-1.91	1.04E-05	43.80	166.72
ENSG00000135624	<i>CCT7</i>	-1.91	2.56E-05	10.31	39.99
ENSG00000112584	<i>FAM120B</i>	-1.91	2.60E-05	36.39	140.08
ENSG00000074582	<i>BCS1L</i>	-1.91	3.12E-05	7.20	27.52
ENSG00000103160	<i>HSDL1</i>	-1.91	5.26E-05	19.31	75.85
ENSG00000157680	<i>DGKI</i>	-1.91	8.89E-05	21.29	81.15
ENSG00000154134	<i>ROBO3</i>	-1.91	9.19E-05	13.43	49.47
ENSG00000004142	<i>POLDIP2</i>	-1.91	1.19E-04	25.86	98.36
ENSG00000166169	<i>POLL</i>	-1.91	3.81E-04	3.36	12.99
ENSG00000010219	<i>DYRK4</i>	-1.91	5.53E-04	5.98	22.14
ENSG00000141959	<i>PFKL</i>	-1.91	6.21E-04	1.93	7.29
ENSG00000178803	<i>ADORA2A-AS1</i>	-1.91	1.74E-03	0.84	3.43
ENSG00000165511	<i>ZNF22-AS1</i>	-1.91	1.86E-03	0.54	2.01
ENSG00000132589	<i>FLOT2</i>	-1.91	1.53E-03	3.56	14.57
ENSG00000138495	<i>COX17</i>	-1.91	4.20E-03	25.08	83.12
ENSG00000197586	<i>ENTPD6</i>	-1.91	8.25E-03	0.80	2.69
ENSG00000042286	<i>AIFM2</i>	-1.91	8.98E-03	0.65	1.87
ENSG00000168056	<i>LTBP3</i>	-1.91	8.52E-03	0.93	2.66
ENSG00000100804	<i>PSMB5</i>	-1.90	2.12E-05	21.75	82.81
ENSG00000237250		-1.90	2.22E-05	15.08	57.13
ENSG00000010165	<i>METTL13</i>	-1.90	7.38E-05	4.72	17.94
ENSG00000255561	<i>FDXACB1</i>	-1.90	3.22E-04	2.19	8.16
ENSG00000013306	<i>SLC25A39</i>	-1.90	3.17E-04	50.85	178.42
ENSG00000156973	<i>PDE6D</i>	-1.90	6.84E-04	4.16	14.69
ENSG00000235888	<i>LINC02940</i>	-1.90	1.58E-03	0.86	3.18
ENSG00000111110	<i>PPM1H</i>	-1.90	1.43E-03	4.91	16.90
ENSG00000239789	<i>MRPS17</i>	-1.90	2.11E-03	3.96	14.18
ENSG00000083807	<i>SLC27A5</i>	-1.90	3.47E-03	6.19	19.48
ENSG00000291085	<i>TMEM191A</i>	-1.90	5.68E-03	1.34	3.95
ENSG00000205181	<i>LINC00654</i>	-1.90	8.58E-03	0.96	3.89
ENSG00000224478		-1.90	9.33E-03	5.42	22.43
ENSG00000154122	<i>ANKH</i>	-1.89	7.05E-06	55.35	215.05
ENSG00000101189	<i>MRGBP</i>	-1.89	3.93E-05	9.53	35.60
ENSG00000164733	<i>CTSB</i>	-1.89	3.92E-05	62.63	249.52
ENSG00000125457	<i>MIF4GD</i>	-1.89	1.43E-04	27.13	97.62
ENSG00000132781	<i>MUTYH</i>	-1.89	8.28E-04	2.02	6.97
ENSG00000005882	<i>PDK2</i>	-1.89	7.67E-04	6.82	24.55
ENSG00000272047	<i>GTF2H5</i>	-1.89	7.28E-04	26.69	92.15
ENSG00000235531	<i>MSC-AS1</i>	-1.89	1.08E-03	1.81	6.07
ENSG00000220891	<i>LL22NC03-63E9.3</i>	-1.89	9.85E-04	6.20	23.23
ENSG00000183647	<i>ZNF530</i>	-1.89	1.31E-03	6.79	22.87
ENSG00000137767	<i>SQOR</i>	-1.89	1.39E-03	44.05	167.48
ENSG00000153404	<i>PLEKHG4B</i>	-1.89	4.00E-03	0.75	2.74
ENSG00000129932	<i>DOHH</i>	-1.89	4.69E-03	0.44	1.54
ENSG00000100916	<i>BRMS1L</i>	-1.89	6.01E-03	0.79	2.53
ENSG00000112659	<i>CUL9</i>	-1.89	8.84E-03	0.38	1.39

ENSG00000237232	<i>ZNF295-AS1</i>	-1.89	9.95E-03	0.66	2.10
ENSG00000100346	<i>CACNA1I</i>	-1.89	9.83E-03	0.80	2.45
ENSG00000125454	<i>SLC25A19</i>	-1.88	1.04E-05	14.32	54.32
ENSG00000187775	<i>DNAH17</i>	-1.88	1.32E-05	12.55	47.74
ENSG00000244005	<i>NFS1</i>	-1.88	3.26E-05	10.08	37.68
ENSG00000116205	<i>TCEANC2</i>	-1.88	3.88E-05	5.71	21.27
ENSG00000115241	<i>PPM1G</i>	-1.88	3.75E-05	36.94	138.98
ENSG00000258871		-1.88	5.24E-05	2.51	9.45
ENSG00000164638	<i>SLC29A4</i>	-1.88	2.40E-04	2.71	10.52
ENSG00000258343	<i>SNRPF-DT</i>	-1.88	2.72E-04	3.89	14.19
ENSG00000125863	<i>MKKS</i>	-1.88	2.69E-04	8.93	32.62
ENSG00000119392	<i>GLE1</i>	-1.88	3.01E-04	11.59	46.18
ENSG00000120942	<i>UBIAD1</i>	-1.88	4.34E-04	25.89	85.80
ENSG00000125971	<i>DYNLRB1</i>	-1.88	5.65E-04	43.27	154.40
ENSG00000090339	<i>ICAM1</i>	-1.88	6.13E-04	12.65	48.94
ENSG00000167685	<i>ZNF444</i>	-1.88	8.46E-04	3.18	10.37
ENSG00000255087		-1.88	9.97E-04	5.51	20.14
ENSG00000246273	<i>SBF2-AS1</i>	-1.88	1.54E-03	2.82	11.09
ENSG00000165309	<i>ARMC3</i>	-1.88	3.19E-03	0.64	2.43
ENSG00000290731		-1.88	4.53E-03	1.02	3.69
ENSG00000255178	<i>LINC02720</i>	-1.88	4.48E-03	3.94	13.73
ENSG00000184949	<i>FAM227A</i>	-1.87	3.63E-05	29.00	111.55
ENSG00000229267	<i>SNHG31</i>	-1.87	1.86E-04	1.73	6.47
ENSG00000171466	<i>ZNF562</i>	-1.87	2.75E-04	14.75	55.04
ENSG00000185504	<i>FAAP100</i>	-1.87	8.87E-04	1.12	3.89
ENSG00000157087	<i>ATP2B2</i>	-1.87	9.23E-04	6.38	22.20
ENSG00000150756	<i>ATPSCKMT</i>	-1.87	1.36E-03	1.83	6.35
ENSG00000189362	<i>NEMP2</i>	-1.87	1.43E-03	2.06	6.97
ENSG00000140961	<i>OSGIN1</i>	-1.87	2.85E-03	0.34	1.26
ENSG00000122584	<i>NXPH1</i>	-1.87	1.81E-03	55.95	178.02
ENSG00000182612	<i>TSPAN10</i>	-1.87	5.22E-03	0.55	1.91
ENSG00000290690		-1.87	5.36E-03	0.42	1.67
ENSG00000184508	<i>HDDC3</i>	-1.87	7.22E-03	0.90	3.13
ENSG00000267665		-1.87	7.86E-03	5.49	19.05
ENSG00000196290	<i>NIF3L1</i>	-1.86	2.78E-05	32.33	118.77
ENSG00000140830	<i>TXNL4B</i>	-1.86	3.75E-05	22.44	80.30
ENSG00000106853	<i>PTGR1</i>	-1.86	5.96E-05	8.27	31.90
ENSG00000105963	<i>ADAP1</i>	-1.86	1.43E-04	3.91	15.20
ENSG00000164008	<i>C1orf50</i>	-1.86	1.40E-04	18.76	67.63
ENSG00000215883	<i>CYB5RL</i>	-1.86	1.71E-04	6.86	24.87
ENSG00000229043	<i>ZFAND2A-DT</i>	-1.86	4.06E-04	1.67	6.20
ENSG00000056972	<i>TRAF3IP2</i>	-1.86	3.39E-04	63.70	228.86
ENSG00000118491	<i>ZC2HC1B</i>	-1.86	8.58E-04	98.68	317.11
ENSG00000175662	<i>TOM1L2</i>	-1.86	1.19E-03	2.62	8.47
ENSG00000148730	<i>EIF4EBP2</i>	-1.86	1.92E-03	1.72	6.35
ENSG00000251075	<i>HTT-AS</i>	-1.86	6.39E-03	0.73	2.41

ENSG00000115233	<i>PSMD14</i>	-1.85	1.81E-05	44.39	162.95
ENSG00000130517	<i>PGPEP1</i>	-1.85	5.28E-05	15.93	59.40
ENSG00000162494	<i>LRRC38</i>	-1.85	1.76E-04	3.72	13.91
ENSG00000166454	<i>ATMIN</i>	-1.85	2.34E-04	43.38	173.69
ENSG00000234402	<i>ELK2BP</i>	-1.85	3.65E-04	1.29	4.97
ENSG00000109320	<i>NFKB1</i>	-1.85	3.65E-04	7.13	26.72
ENSG00000196295	<i>GARS1-DT</i>	-1.85	4.69E-04	3.82	15.11
ENSG00000289469		-1.85	9.35E-04	0.82	3.00
ENSG00000122140	<i>MRPS2</i>	-1.85	9.38E-04	7.27	24.67
ENSG00000132613	<i>MTSS2</i>	-1.85	1.53E-03	4.79	14.84
ENSG00000137288	<i>UQCC2</i>	-1.85	1.85E-03	10.11	31.72
ENSG00000231999	<i>LRRC8C-DT</i>	-1.85	4.50E-03	0.81	2.73
ENSG00000168061	<i>SAC3D1</i>	-1.85	5.39E-03	0.73	2.18
ENSG00000121410	<i>A1BG</i>	-1.85	8.08E-03	0.98	3.08
ENSG00000164751	<i>PEX2</i>	-1.84	2.99E-06	63.27	236.36
ENSG00000204710	<i>SPDYC</i>	-1.84	1.61E-05	147.71	533.30
ENSG00000181991	<i>MRPS11</i>	-1.84	2.60E-05	14.24	54.15
ENSG00000168522	<i>FNTA</i>	-1.84	2.82E-05	32.67	118.43
ENSG00000248592	<i>STIMATE-MUSTN1</i>	-1.84	3.91E-05	12.06	43.58
ENSG00000177646	<i>ACAD9</i>	-1.84	4.21E-05	4.67	17.25
ENSG00000204920	<i>ZNF155</i>	-1.84	6.99E-05	125.97	487.86
ENSG00000171174	<i>RBKS</i>	-1.84	1.14E-04	7.05	25.20
ENSG00000264693		-1.84	1.40E-04	5.80	21.67
ENSG00000131126	<i>TEX101</i>	-1.84	4.90E-04	1.32	4.93
ENSG00000107404	<i>DVL1</i>	-1.84	7.67E-04	0.76	2.82
ENSG00000242110	<i>AMACR</i>	-1.84	8.86E-04	2.76	9.89
ENSG00000231698		-1.84	1.44E-03	1.05	3.67
ENSG00000204301	<i>NOTCH4</i>	-1.84	1.60E-03	0.70	2.48
ENSG00000145975	<i>FAM217A</i>	-1.84	5.35E-03	1.20	3.87
ENSG00000136718	<i>IMP4</i>	-1.83	3.21E-05	10.33	37.93
ENSG00000276747	<i>PADI6</i>	-1.83	3.88E-05	361.50	1319.13
ENSG00000265702		-1.83	2.56E-04	0.95	3.56
ENSG00000168795	<i>ZBTB5</i>	-1.83	3.01E-04	5.82	21.00
ENSG00000065320	<i>NTN1</i>	-1.83	5.13E-04	6.16	23.29
ENSG00000257135	<i>ODC1-DT</i>	-1.83	9.02E-04	0.77	2.69
ENSG00000267500	<i>ZNF887P</i>	-1.83	1.77E-03	1.94	6.93
ENSG00000242485	<i>MRPL20</i>	-1.83	1.37E-03	49.13	155.45
ENSG00000148341	<i>SH3GLB2</i>	-1.83	3.46E-03	7.34	23.24
ENSG00000166510	<i>CCDC68</i>	-1.83	6.67E-03	0.68	2.18
ENSG00000174567	<i>GOLT1A</i>	-1.83	6.74E-03	2.61	8.25
ENSG00000167700	<i>MFSD3</i>	-1.83	9.48E-03	4.43	12.29
ENSG00000128581	<i>IFT22</i>	-1.82	4.74E-05	16.63	61.88
ENSG00000160190	<i>SLC37A1</i>	-1.82	7.61E-05	7.87	28.51
ENSG00000275700	<i>AATF</i>	-1.82	1.33E-04	10.32	35.59
ENSG00000089057	<i>SLC23A2</i>	-1.82	3.77E-04	1.63	5.89
ENSG00000175084	<i>DES</i>	-1.82	3.63E-04	4.32	14.81

ENSG00000179364	<i>PACS2</i>	-1.82	5.34E-04	4.80	15.63
ENSG00000079999	<i>KEAP1</i>	-1.82	6.70E-04	2.13	7.70
ENSG00000249709	<i>ZNF564</i>	-1.82	8.31E-04	13.36	46.87
ENSG00000279179		-1.82	3.12E-03	1.14	3.68
ENSG00000175643	<i>RMI2</i>	-1.82	4.12E-03	39.93	115.96
ENSG00000175470	<i>PPP2R2D</i>	-1.81	1.33E-05	14.03	51.17
ENSG00000184347	<i>SLIT3</i>	-1.81	1.64E-05	54.67	199.48
ENSG00000187860	<i>CCDC157</i>	-1.81	4.25E-05	6.96	24.98
ENSG00000257365	<i>FNTB</i>	-1.81	5.90E-05	95.69	341.21
ENSG00000186795	<i>KCNK18</i>	-1.81	8.48E-05	5.88	21.87
ENSG00000133422	<i>MORC2</i>	-1.81	1.04E-04	4.29	15.59
ENSG00000185015	<i>CA13</i>	-1.81	1.14E-04	4.11	14.26
ENSG00000100564	<i>PIGH</i>	-1.81	1.40E-04	15.14	51.91
ENSG00000166558	<i>SLC38A8</i>	-1.81	1.51E-04	54.52	191.82
ENSG00000106245	<i>BUD31</i>	-1.81	1.92E-04	31.00	112.77
ENSG00000109917	<i>ZPR1</i>	-1.81	3.78E-04	7.45	27.03
ENSG00000278259	<i>MYO19</i>	-1.81	4.47E-04	7.21	25.29
ENSG00000141295	<i>SCRN2</i>	-1.81	1.97E-03	1.79	6.03
ENSG00000285534		-1.81	1.96E-03	4.34	13.82
ENSG00000261161		-1.81	2.52E-03	1.87	7.06
ENSG00000105202	<i>FBL</i>	-1.81	5.61E-03	1.93	6.06
ENSG00000079335	<i>CDC14A</i>	-1.81	8.67E-03	0.38	1.25
ENSG00000146457	<i>WTAP</i>	-1.80	2.88E-06	55.59	201.31
ENSG00000163882	<i>POLR2H</i>	-1.80	1.26E-05	34.05	124.81
ENSG00000137713	<i>PPP2R1B</i>	-1.80	3.06E-05	49.58	179.46
ENSG00000185104	<i>FAF1</i>	-1.80	1.42E-04	10.12	37.58
ENSG00000144550	<i>CPNE9</i>	-1.80	2.53E-04	53.13	184.44
ENSG00000149100	<i>EIF3M</i>	-1.80	5.01E-04	86.92	289.00
ENSG00000183665	<i>TRMT12</i>	-1.80	6.50E-04	2.49	9.20
ENSG00000260081	<i>MRFAP1P1</i>	-1.80	1.01E-03	0.93	3.25
ENSG00000146205	<i>ANO7</i>	-1.80	1.16E-03	1.65	5.92
ENSG00000188869	<i>TMC3</i>	-1.80	1.17E-03	4.57	17.28
ENSG00000119514	<i>GALNT12</i>	-1.80	1.64E-03	0.81	2.86
ENSG00000114784	<i>EIF1B</i>	-1.80	1.87E-03	183.66	553.74
ENSG00000142684	<i>ZNF593</i>	-1.80	2.46E-03	35.12	115.48
ENSG00000160752	<i>FDPS</i>	-1.80	3.05E-03	13.88	42.22
ENSG00000248356		-1.80	4.80E-03	0.51	1.54
ENSG00000130363	<i>RSPH3</i>	-1.80	4.19E-03	1.46	4.55
ENSG00000168243	<i>GNG4</i>	-1.80	5.92E-03	2.25	8.00
ENSG00000182871	<i>COL18A1</i>	-1.80	9.88E-03	5.36	14.76
ENSG00000173744	<i>AGFG1</i>	-1.79	6.57E-05	35.06	129.75
ENSG00000011105	<i>TSPAN9</i>	-1.79	1.33E-04	2.70	9.42
ENSG00000144026	<i>ZNF514</i>	-1.79	1.17E-03	2.85	9.84
ENSG00000141994	<i>DUS3L</i>	-1.79	1.25E-03	1.54	5.19
ENSG00000125648	<i>SLC25A23</i>	-1.79	1.52E-03	4.60	16.02
ENSG00000278971		-1.79	2.78E-03	1.06	3.97

ENSG00000071889	<i>FAM3A</i>	-1.79	5.70E-03	0.71	2.28
ENSG00000286976		-1.79	6.41E-03	4.70	14.94
ENSG00000108010	<i>GLRX3</i>	-1.78	3.54E-05	13.09	45.46
ENSG00000118898	<i>PPL</i>	-1.78	6.95E-05	4.57	15.94
ENSG00000262211		-1.78	1.72E-04	7.74	26.93
ENSG00000234362	<i>LINC01914</i>	-1.78	3.19E-04	1.13	4.01
ENSG00000258789		-1.78	3.41E-04	2.31	8.24
ENSG00000254233	<i>LINC02365</i>	-1.78	6.29E-04	1.14	3.83
ENSG00000144824	<i>PHLDB2</i>	-1.78	6.19E-04	8.79	29.71
ENSG00000281103	<i>TRG-AS1</i>	-1.78	6.75E-04	7.69	24.91
ENSG00000255364	<i>SMILR</i>	-1.78	8.78E-04	2.17	7.13
ENSG00000084693	<i>AGBL5</i>	-1.78	1.35E-03	1.75	6.42
ENSG00000224173	<i>LINC02831</i>	-1.78	1.51E-03	0.81	3.01
ENSG00000140403	<i>DNAJA4</i>	-1.78	1.59E-03	5.89	18.68
ENSG00000237149	<i>ZNF503-AS2</i>	-1.78	3.12E-03	1.73	5.41
ENSG00000167588	<i>GPD1</i>	-1.78	3.60E-03	2.17	7.22
ENSG00000120341	<i>SEC16B</i>	-1.78	3.96E-03	3.54	13.31
ENSG00000242828		-1.78	5.50E-03	0.86	2.48
ENSG00000197037	<i>ZSCAN25</i>	-1.78	7.20E-03	4.86	17.25
ENSG00000183155	<i>RABIF</i>	-1.77	6.01E-06	29.43	103.92
ENSG00000254093	<i>PINX1</i>	-1.77	2.15E-05	30.15	103.92
ENSG00000113643	<i>RARS1</i>	-1.77	4.44E-05	43.66	149.27
ENSG00000197085	<i>NPSR1-AS1</i>	-1.77	5.11E-05	17.81	63.62
ENSG00000163072	<i>NOSTRIN</i>	-1.77	1.36E-04	14.22	49.72
ENSG00000105499	<i>PLA2G4C</i>	-1.77	2.86E-04	38.65	129.44
ENSG00000204713	<i>TRIM27</i>	-1.77	3.48E-04	5.37	18.85
ENSG00000247498	<i>GPRC5D-AS1</i>	-1.77	6.04E-04	2.20	7.00
ENSG00000156170	<i>NDUFAF6</i>	-1.77	7.15E-04	6.48	22.10
ENSG00000290374	<i>FAM86EP</i>	-1.77	1.63E-03	0.48	1.69
ENSG00000227011	<i>LINC02876</i>	-1.77	1.66E-03	1.16	3.79
ENSG00000290872		-1.77	2.23E-03	0.57	2.03
ENSG00000184752	<i>NDUFA12</i>	-1.77	2.44E-03	39.67	118.36
ENSG00000178028	<i>DMAP1</i>	-1.77	2.79E-03	9.21	27.28
ENSG00000136155	<i>SCEL</i>	-1.77	4.40E-03	2.16	6.71
ENSG00000249346	<i>LINC01016</i>	-1.77	8.13E-03	0.31	1.00
ENSG00000146701	<i>MDH2</i>	-1.76	1.85E-05	51.26	176.69
ENSG00000253100		-1.76	2.70E-05	51.72	178.89
ENSG00000113319	<i>RASGRF2</i>	-1.76	5.23E-05	13.76	48.10
ENSG00000157045	<i>NTAN1</i>	-1.76	7.43E-05	50.72	168.47
ENSG00000198496	<i>NBR2</i>	-1.76	1.67E-04	2.76	9.38
ENSG00000182586	<i>LINC00334</i>	-1.76	1.54E-04	12.05	41.59
ENSG00000116237	<i>ICMT</i>	-1.76	1.49E-04	28.79	104.71
ENSG00000101546	<i>RBFA</i>	-1.76	6.87E-04	3.12	10.59
ENSG00000259248	<i>USP3-AS1</i>	-1.76	5.89E-04	27.13	94.43
ENSG00000102967	<i>DHODH</i>	-1.76	7.09E-04	3.26	10.54
ENSG00000171792	<i>RHNO1</i>	-1.76	6.64E-04	7.67	23.33

ENSG00000162757	<i>C1orf74</i>	-1.76	8.47E-04	6.25	20.68
ENSG00000186716	<i>BCR</i>	-1.76	9.37E-04	2.27	7.41
ENSG00000165271	<i>NOL6</i>	-1.76	1.41E-03	0.95	3.23
ENSG00000100296	<i>THOC5</i>	-1.76	1.83E-03	1.92	6.00
ENSG00000117862	<i>TXNDC12</i>	-1.76	1.64E-03	16.05	46.49
ENSG00000130383	<i>FUT5</i>	-1.76	2.35E-03	5.31	16.38
ENSG00000215915	<i>ATAD3C</i>	-1.76	2.31E-03	52.98	154.30
ENSG00000229989	<i>MIR181A1HG</i>	-1.76	3.72E-03	0.94	3.33
ENSG00000167535	<i>CACNB3</i>	-1.76	6.43E-03	0.36	1.19
ENSG00000106852	<i>LHX6</i>	-1.76	6.78E-03	0.47	1.58
ENSG00000100558	<i>PLEK2</i>	-1.75	7.49E-06	204.48	721.57
ENSG00000023191	<i>RNH1</i>	-1.75	4.69E-05	12.18	42.36
ENSG00000132141	<i>CCT6B</i>	-1.75	1.52E-04	2.29	8.05
ENSG00000126246	<i>IGFLR1</i>	-1.75	1.68E-04	1.49	5.29
ENSG00000127252	<i>PLAAT1</i>	-1.75	3.26E-04	5.91	20.57
ENSG00000182521	<i>TBPL2</i>	-1.75	4.39E-04	5.27	17.09
ENSG00000164707	<i>SLC13A4</i>	-1.75	5.70E-04	9.86	31.88
ENSG00000258807		-1.75	6.23E-04	38.17	144.62
ENSG00000162191	<i>UBXN1</i>	-1.75	8.77E-04	12.96	40.11
ENSG00000106070	<i>GRB10</i>	-1.75	1.11E-03	7.70	27.74
ENSG00000181789	<i>COPG1</i>	-1.75	1.44E-03	18.78	66.56
ENSG00000137547	<i>MRPL15</i>	-1.75	1.44E-03	30.43	90.44
ENSG00000224189	<i>HAGLR</i>	-1.75	3.01E-03	2.15	6.50
ENSG00000196455	<i>PIK3R4</i>	-1.75	2.99E-03	7.09	21.63
ENSG00000253692	<i>IGHEP1</i>	-1.75	5.47E-03	90.98	248.29
ENSG00000141337	<i>ARSG</i>	-1.75	8.68E-03	1.23	3.33
ENSG00000135269	<i>TES</i>	-1.74	8.14E-06	23.36	80.16
ENSG00000137074	<i>APTX</i>	-1.74	2.51E-05	16.57	56.58
ENSG00000205054	<i>LINC01121</i>	-1.74	2.75E-05	5.08	17.61
ENSG00000147364	<i>FBXO25</i>	-1.74	2.94E-05	51.70	174.21
ENSG00000186866	<i>POFUT2</i>	-1.74	4.61E-05	4.46	15.45
ENSG00000157985	<i>AGAP1</i>	-1.74	1.02E-04	15.52	54.05
ENSG00000006712	<i>PAF1</i>	-1.74	1.19E-04	10.59	36.26
ENSG00000170445	<i>HARS1</i>	-1.74	1.41E-04	20.63	68.86
ENSG00000104660	<i>LEPROTL1</i>	-1.74	1.68E-04	55.01	186.37
ENSG00000119686	<i>FLVCR2</i>	-1.74	2.21E-04	50.88	173.88
ENSG00000261555		-1.74	2.60E-04	10.36	33.56
ENSG00000157219	<i>HTR5A</i>	-1.74	2.95E-04	6.34	20.80
ENSG00000286722		-1.74	3.95E-04	0.93	3.23
ENSG00000154217	<i>PITPNC1</i>	-1.74	7.88E-04	5.51	18.91
ENSG00000100416	<i>TRMU</i>	-1.74	8.08E-04	8.08	25.29
ENSG00000228590	<i>MIR4432HG</i>	-1.74	1.15E-03	1.03	3.49
ENSG00000137819	<i>PAQR5</i>	-1.74	1.07E-03	20.59	69.84
ENSG00000248049	<i>UBA6-DT</i>	-1.74	1.52E-03	1.96	6.11
ENSG00000165623	<i>UCMA</i>	-1.74	1.27E-03	51.72	157.16
ENSG00000279434		-1.74	2.31E-03	0.91	3.26

ENSG00000249069	<i>LINC01033</i>	-1.74	3.34E-03	0.60	2.03
ENSG00000230157	<i>ATP5MC1P1</i>	-1.74	4.78E-03	0.47	1.58
ENSG00000108557	<i>RAI1</i>	-1.74	8.82E-03	0.35	1.09
ENSG00000196659	<i>TTC30B</i>	-1.74	7.68E-03	1.32	3.95
ENSG00000243147	<i>MRPL33</i>	-1.74	6.89E-03	24.22	62.94
ENSG00000096093	<i>EFHC1</i>	-1.73	4.93E-05	12.04	42.53
ENSG00000099284	<i>MACROH2A2</i>	-1.73	4.93E-05	25.02	83.64
ENSG00000267774		-1.73	9.91E-05	7.77	26.92
ENSG00000155849	<i>ELMO1</i>	-1.73	9.57E-05	48.01	156.37
ENSG00000122986	<i>HVCN1</i>	-1.73	2.88E-04	13.41	46.85
ENSG00000164002	<i>EXO5</i>	-1.73	4.48E-04	32.63	116.27
ENSG00000163793	<i>DNAJC5G</i>	-1.73	8.59E-04	1.15	3.88
ENSG00000145337	<i>PYURF</i>	-1.73	9.27E-04	3.69	11.31
ENSG00000255072	<i>PIGY</i>	-1.73	9.27E-04	3.69	11.31
ENSG00000131591	<i>C1orf159</i>	-1.73	1.13E-03	0.81	2.71
ENSG00000163930	<i>BAP1</i>	-1.73	1.52E-03	0.65	2.15
ENSG00000249631		-1.73	3.23E-03	0.72	2.23
ENSG00000100218	<i>RSPH14</i>	-1.73	3.34E-03	1.69	5.01
ENSG00000285679		-1.73	3.81E-03	0.97	2.98
ENSG00000175215	<i>CTDSP2</i>	-1.73	4.89E-03	3.68	13.03
ENSG00000161267	<i>BDH1</i>	-1.72	1.00E-04	8.01	27.08
ENSG00000113719	<i>ERGIC1</i>	-1.72	1.39E-04	4.85	16.54
ENSG00000095981	<i>KCNK16</i>	-1.72	1.54E-04	3.03	10.18
ENSG00000139629	<i>GALNT6</i>	-1.72	2.06E-04	3.97	13.61
ENSG00000269009	<i>SLC6A21P</i>	-1.72	3.19E-04	3.28	10.70
ENSG00000100109	<i>TFIP11</i>	-1.72	7.67E-04	21.08	66.79
ENSG00000198298	<i>ZNF485</i>	-1.72	9.32E-04	2.40	7.83
ENSG00000134042	<i>MRO</i>	-1.72	1.50E-03	4.00	12.84
ENSG00000185122	<i>HSF1</i>	-1.72	2.32E-03	1.08	3.42
ENSG00000176472	<i>ZNF575</i>	-1.72	4.32E-03	0.48	1.55
ENSG00000144504	<i>ANKMY1</i>	-1.72	4.42E-03	0.49	1.61
ENSG00000248599	<i>FLJ42969</i>	-1.72	4.03E-03	1.04	3.19
ENSG00000203778	<i>FAM229B</i>	-1.72	3.42E-03	5.13	15.51
ENSG00000171823	<i>FBXL14</i>	-1.72	4.42E-03	2.16	6.91
ENSG00000185085	<i>INTS5</i>	-1.72	5.18E-03	3.11	9.64
ENSG00000237293		-1.72	7.90E-03	0.31	1.05
ENSG00000105255	<i>FSD1</i>	-1.72	7.72E-03	6.32	15.94
ENSG00000258429	<i>PDF</i>	-1.72	8.16E-03	17.49	44.26
ENSG00000105053	<i>VRK3</i>	-1.71	1.97E-05	27.85	93.78
ENSG00000132275	<i>RRP8</i>	-1.71	2.71E-05	10.58	35.96
ENSG00000169490	<i>TM2D2</i>	-1.71	2.76E-05	17.46	58.87
ENSG00000265354	<i>TIMM23</i>	-1.71	2.75E-05	61.82	203.16
ENSG00000187726	<i>DNAJB13</i>	-1.71	3.40E-05	10.91	36.61
ENSG00000184857	<i>TMEM186</i>	-1.71	1.05E-04	3.33	10.97
ENSG00000058799	<i>YIPF1</i>	-1.71	1.07E-04	31.19	103.60
ENSG00000105426	<i>PTPRS</i>	-1.71	2.08E-04	4.68	15.77

ENSG00000228198	<i>OR2M3</i>	-1.71	4.29E-04	9.63	30.55
ENSG00000151952	<i>TMEM132D</i>	-1.71	5.69E-04	12.54	43.06
ENSG00000114030	<i>KPNA1</i>	-1.71	7.75E-04	8.54	27.45
ENSG00000261175	<i>LINC02188</i>	-1.71	8.25E-04	4.47	13.74
ENSG00000010256	<i>UQCRC1</i>	-1.71	9.34E-04	44.27	133.31
ENSG00000183571	<i>PGPEP1L</i>	-1.71	1.30E-03	4.16	13.00
ENSG00000173221	<i>GLRX</i>	-1.71	1.52E-03	145.14	426.28
ENSG00000162585	<i>FAAP20</i>	-1.71	2.21E-03	3.18	10.25
ENSG00000256294	<i>ZNF225</i>	-1.71	2.19E-03	8.15	24.13
ENSG00000260361		-1.71	4.13E-03	0.52	1.77
ENSG00000188001	<i>TPRG1</i>	-1.70	1.66E-05	114.83	387.94
ENSG00000148840	<i>PPRC1</i>	-1.70	7.70E-05	49.03	158.96
ENSG00000172590	<i>MRPL52</i>	-1.70	4.84E-04	10.60	36.74
ENSG00000236915	<i>CLCA4-AS1</i>	-1.70	9.22E-04	1.64	5.39
ENSG00000231367	<i>LINC02613</i>	-1.70	1.51E-03	1.33	4.66
ENSG00000125846	<i>ZNF133</i>	-1.70	1.64E-03	1.65	5.54
ENSG00000143486	<i>EIF2D</i>	-1.70	1.67E-03	3.72	11.89
ENSG00000134020	<i>PEBP4</i>	-1.70	1.38E-03	53.93	171.71
ENSG00000161940	<i>BCL6B</i>	-1.70	2.25E-03	0.58	2.01
ENSG00000267226	<i>MALT1-AS1</i>	-1.70	2.03E-03	1.43	4.35
ENSG00000112640	<i>PPP2R5D</i>	-1.70	2.26E-03	3.85	11.68
ENSG00000188314	<i>OR7D1P</i>	-1.70	3.89E-03	0.37	1.22
ENSG00000153443	<i>UBALD1</i>	-1.70	3.50E-03	2.72	8.28
ENSG00000177000	<i>MTHFR</i>	-1.70	4.47E-03	3.89	12.78
ENSG00000262246	<i>CORO7</i>	-1.70	5.56E-03	0.94	2.58
ENSG00000105726	<i>ATP13A1</i>	-1.70	7.12E-03	5.12	14.34
ENSG00000119004	<i>CYP20A1</i>	-1.69	2.54E-05	48.34	159.32
ENSG00000148053	<i>NTRK2</i>	-1.69	4.11E-05	23.08	74.93
ENSG00000170892	<i>TSEN34</i>	-1.69	5.65E-04	17.43	52.98
ENSG00000167693	<i>NXN</i>	-1.69	6.47E-04	3.31	11.23
ENSG00000078401	<i>EDN1</i>	-1.69	1.48E-03	3.33	9.89
ENSG00000172336	<i>POP7</i>	-1.69	1.30E-03	50.26	147.40
ENSG00000251048		-1.69	2.57E-03	0.67	2.30
ENSG00000204544	<i>MUC21</i>	-1.69	9.63E-03	0.55	1.58
ENSG00000165916	<i>PSMC3</i>	-1.68	1.41E-04	4.94	16.45
ENSG00000165898	<i>ISCA2</i>	-1.68	1.76E-04	2.43	7.96
ENSG00000127054	<i>INTS11</i>	-1.68	2.58E-04	1.99	6.59
ENSG00000088340	<i>FER1L4</i>	-1.68	3.75E-04	2.60	8.42
ENSG00000090581	<i>GNPTG</i>	-1.68	4.91E-04	10.08	31.15
ENSG00000149743	<i>TRPT1</i>	-1.68	7.01E-04	2.29	7.64
ENSG00000224853	<i>LINC00393</i>	-1.68	8.46E-04	0.95	3.31
ENSG00000250317	<i>SMIM20</i>	-1.68	9.86E-04	3.06	10.79
ENSG00000166311	<i>SMPD1</i>	-1.68	2.55E-03	0.53	1.72
ENSG00000237945	<i>LINC00649</i>	-1.68	4.17E-03	1.13	3.69
ENSG00000221916	<i>C19orf73</i>	-1.68	9.36E-03	0.46	1.41
ENSG00000179588	<i>ZFPM1</i>	-1.68	9.53E-03	0.69	2.30

ENSG00000213465	<i>ARL2</i>	-1.68	6.57E-03	19.25	50.81
ENSG00000161057	<i>PSMC2</i>	-1.67	9.49E-06	36.81	121.69
ENSG00000141030	<i>COPS3</i>	-1.67	1.43E-05	102.73	333.79
ENSG00000184831	<i>APOO</i>	-1.67	4.60E-05	41.65	135.23
ENSG00000144659	<i>SLC25A38</i>	-1.67	4.97E-05	24.28	80.02
ENSG00000184154	<i>LRRC51</i>	-1.67	1.37E-04	3.33	11.05
ENSG00000254553		-1.67	1.37E-04	7.51	23.74
ENSG00000151445	<i>VIPAS39</i>	-1.67	1.52E-04	12.30	40.50
ENSG00000148702	<i>HABP2</i>	-1.67	4.05E-04	45.21	154.18
ENSG00000196357	<i>ZNF565</i>	-1.67	8.45E-04	5.49	17.49
ENSG00000213699	<i>SLC35F6</i>	-1.67	1.06E-03	1.17	3.72
ENSG00000196605	<i>ZNF846</i>	-1.67	9.40E-04	6.51	19.72
ENSG00000129521	<i>EGLN3</i>	-1.67	9.84E-04	7.57	23.14
ENSG00000162595	<i>DIRAS3</i>	-1.67	1.01E-03	30.27	96.84
ENSG00000103423	<i>DNAJA3</i>	-1.67	3.83E-03	7.36	22.19
ENSG00000205853	<i>RFPL3S</i>	-1.67	5.88E-03	4.71	12.77
ENSG00000123144	<i>TRIR</i>	-1.67	7.29E-03	21.05	52.80
ENSG00000187866	<i>PABIR1</i>	-1.66	9.12E-06	137.93	454.21
ENSG00000137936	<i>BCAR3</i>	-1.66	5.77E-05	4.95	16.28
ENSG00000160209	<i>PDXK</i>	-1.66	8.94E-05	21.30	68.04
ENSG00000073350	<i>LLGL2</i>	-1.66	1.13E-04	22.44	74.00
ENSG00000240857	<i>RDH14</i>	-1.66	3.03E-04	8.18	26.98
ENSG00000291099		-1.66	8.31E-04	3.04	9.29
ENSG00000285508	<i>MKKS</i>	-1.66	1.19E-03	18.37	53.91
ENSG00000164897	<i>TMUB1</i>	-1.66	2.75E-03	2.18	7.29
ENSG00000007264	<i>MATK</i>	-1.66	2.89E-03	1.71	5.09
ENSG00000271538	<i>LINC02427</i>	-1.66	3.65E-03	0.75	2.35
ENSG00000287350		-1.66	4.37E-03	1.97	5.73
ENSG00000107872	<i>FBXL15</i>	-1.66	5.03E-03	9.72	27.24
ENSG00000049883	<i>PTCD2</i>	-1.65	1.48E-04	2.31	7.50
ENSG00000204070	<i>SYS1</i>	-1.65	2.19E-04	10.85	33.33
ENSG00000104731	<i>KLHDC4</i>	-1.65	2.37E-04	3.75	11.76
ENSG00000227467	<i>LINC01537</i>	-1.65	3.99E-04	3.60	11.53
ENSG00000196597	<i>ZNF782</i>	-1.65	5.55E-04	2.29	7.52
ENSG00000118495	<i>PLAGL1</i>	-1.65	8.30E-04	6.29	18.69
ENSG00000271758		-1.65	9.74E-04	1.21	4.03
ENSG00000270170	<i>NCBP2AS2</i>	-1.65	1.11E-03	1.89	6.35
ENSG00000107537	<i>PHYH</i>	-1.65	1.12E-03	1.92	6.57
ENSG00000261305		-1.65	1.26E-03	7.54	21.80
ENSG00000110536	<i>PTPMT1</i>	-1.65	1.41E-03	18.29	51.41
ENSG00000114023	<i>FAM162A</i>	-1.65	3.13E-03	5.06	14.23
ENSG00000178971	<i>CTC1</i>	-1.65	3.54E-03	3.34	10.91
ENSG00000171448	<i>ZBTB26</i>	-1.65	4.62E-03	2.05	6.05
ENSG00000176920	<i>FUT2</i>	-1.65	4.89E-03	2.37	6.89
ENSG00000178031	<i>ADAMTSL1</i>	-1.64	7.42E-05	30.03	95.22
ENSG00000260372	<i>AQP4-AS1</i>	-1.64	8.70E-05	7.74	25.27

ENSG00000258616	<i>LINC02303</i>	-1.64	1.42E-04	24.90	82.52
ENSG00000054611	<i>TBC1D22A</i>	-1.64	2.44E-04	3.77	12.03
ENSG00000197265	<i>GTF2E2</i>	-1.64	2.26E-04	11.73	37.17
ENSG00000241388	<i>HNF1A-AS1</i>	-1.64	5.79E-04	1.47	4.72
ENSG00000109016	<i>DHRS7B</i>	-1.64	4.96E-04	12.33	37.24
ENSG00000115255	<i>REEP6</i>	-1.64	7.16E-04	2.23	7.09
ENSG00000214189	<i>ZNF788P</i>	-1.64	7.06E-04	35.41	107.65
ENSG00000167766	<i>ZNF83</i>	-1.64	1.19E-03	15.91	45.47
ENSG00000286622		-1.64	1.62E-03	1.31	4.12
ENSG00000203791	<i>EEF1AKMT2</i>	-1.64	1.47E-03	5.23	14.92
ENSG00000142185	<i>TRPM2</i>	-1.64	3.28E-03	0.64	1.96
ENSG00000139668	<i>WDFY2</i>	-1.64	3.40E-03	10.62	34.54
ENSG00000185024	<i>BRF1</i>	-1.64	6.76E-03	0.49	1.43
ENSG00000288588		-1.64	8.09E-03	0.86	2.67
ENSG00000255244		-1.64	9.22E-03	0.35	1.17
ENSG00000166741	<i>NNMT</i>	-1.64	8.88E-03	0.52	1.59
ENSG00000286162		-1.64	9.46E-03	0.35	1.07
ENSG00000278177		-1.64	9.68E-03	0.66	1.99
ENSG00000100764	<i>PSMC1</i>	-1.63	1.88E-05	31.97	101.04
ENSG00000187699	<i>C2orf88</i>	-1.63	6.19E-05	13.80	45.32
ENSG00000183454	<i>GRIN2A</i>	-1.63	1.32E-04	13.14	42.91
ENSG00000131044	<i>TTL9</i>	-1.63	1.49E-04	4.15	13.64
ENSG00000174446	<i>SNAPC5</i>	-1.63	1.93E-04	15.02	47.01
ENSG00000104093	<i>DMXL2</i>	-1.63	2.30E-04	15.85	48.33
ENSG00000198216	<i>CACNA1E</i>	-1.63	2.74E-04	4.67	14.43
ENSG00000170627	<i>GTSE1</i>	-1.63	2.63E-04	185.27	593.33
ENSG00000132522	<i>GPS2</i>	-1.63	3.27E-04	24.98	78.23
ENSG00000090376	<i>IRAK3</i>	-1.63	4.31E-04	1.35	4.28
ENSG00000166831	<i>RBPM2</i>	-1.63	5.68E-04	20.49	62.06
ENSG00000171621	<i>SPSB1</i>	-1.63	9.89E-04	13.05	40.01
ENSG00000267638		-1.63	1.64E-03	0.98	3.16
ENSG00000212694	<i>LINC01089</i>	-1.63	3.00E-03	0.64	2.04
ENSG00000140479	<i>PCSK6</i>	-1.63	2.77E-03	1.68	4.77
ENSG00000170265	<i>ZNF282</i>	-1.63	5.47E-03	0.62	1.91
ENSG00000101365	<i>IDH3B</i>	-1.63	5.72E-03	9.78	24.88
ENSG00000267719	<i>LINC02078</i>	-1.63	7.91E-03	1.10	3.37
ENSG00000157823	<i>AP3S2</i>	-1.62	4.91E-04	2.69	8.48
ENSG00000253799	<i>LINC01030</i>	-1.62	4.92E-04	31.83	96.85
ENSG00000197813		-1.62	1.60E-03	1.40	4.16
ENSG00000124006	<i>OBSL1</i>	-1.62	2.02E-03	3.71	10.77
ENSG00000034053	<i>APBA2</i>	-1.62	4.06E-03	4.76	13.23
ENSG00000280273		-1.62	6.85E-03	0.39	1.23
ENSG00000257261	<i>SLC38A4-AS1</i>	-1.62	7.78E-03	1.20	3.23
ENSG00000145934	<i>TENM2</i>	-1.61	4.73E-05	7.27	23.00
ENSG00000130414	<i>NDUFA10</i>	-1.61	5.77E-05	49.11	151.37
ENSG00000079332	<i>SAR1A</i>	-1.61	2.19E-04	31.19	99.34

ENSG00000156990	<i>RPUSD3</i>	-1.61	2.52E-04	11.00	33.95
ENSG00000046647	<i>GEMIN8</i>	-1.61	3.00E-04	18.11	56.08
ENSG00000109083	<i>IFT20</i>	-1.61	4.05E-04	11.14	35.45
ENSG00000254506		-1.61	4.55E-04	6.10	18.95
ENSG00000167625	<i>ZNF526</i>	-1.61	6.87E-04	3.90	12.21
ENSG00000103653	<i>CSK</i>	-1.61	7.79E-04	1.25	3.88
ENSG00000124226	<i>RNF114</i>	-1.61	5.86E-04	317.90	907.55
ENSG00000185630	<i>PBX1</i>	-1.61	6.87E-04	108.21	305.05
ENSG00000228463		-1.61	7.30E-04	43.19	138.80
ENSG00000262561		-1.61	1.11E-03	1.01	3.23
ENSG00000157890	<i>MEGF11</i>	-1.61	1.91E-03	10.69	30.15
ENSG00000291186		-1.61	4.54E-03	5.55	14.80
ENSG00000232767	<i>HSPA12A-AS1</i>	-1.61	8.69E-03	0.57	1.79
ENSG00000020577	<i>SAMD4A</i>	-1.60	7.37E-06	145.21	459.86
ENSG00000186300	<i>ZNF555</i>	-1.60	1.10E-04	38.67	119.34
ENSG00000084110	<i>HAL</i>	-1.60	1.87E-04	15.49	50.35
ENSG00000259203		-1.60	3.47E-04	4.34	14.18
ENSG00000205089	<i>CCNI2</i>	-1.60	6.07E-04	37.81	118.84
ENSG00000134574	<i>DDB2</i>	-1.60	9.35E-04	3.18	9.98
ENSG00000123415	<i>SMUG1</i>	-1.60	1.56E-03	2.30	6.87
ENSG00000182362	<i>YBEY</i>	-1.60	1.72E-03	1.27	4.00
ENSG00000290709		-1.60	2.49E-03	1.71	4.85
ENSG00000100353	<i>EIF3D</i>	-1.60	2.29E-03	42.48	117.82
ENSG00000245275	<i>SAP30L-AS1</i>	-1.60	3.72E-03	1.16	3.51
ENSG00000238227	<i>TMEM250</i>	-1.60	6.62E-03	1.04	3.13
ENSG00000126856	<i>PRDM7</i>	-1.60	8.22E-03	0.32	1.06
ENSG00000110583	<i>NAA40</i>	-1.60	8.20E-03	8.29	21.10
ENSG00000114268	<i>PFKFB4</i>	-1.60	9.76E-03	2.45	6.25
ENSG00000283517		-1.59	4.76E-05	376.67	1219.16
ENSG00000125818	<i>PSMF1</i>	-1.59	6.22E-05	13.23	41.08
ENSG00000185774	<i>KCNIP4</i>	-1.59	2.21E-04	9.73	30.67
ENSG00000171806	<i>METTL18</i>	-1.59	2.61E-04	13.20	40.58
ENSG00000184608	<i>FAM167A-AS1</i>	-1.59	5.01E-04	210.94	604.45
ENSG00000103707	<i>MTFMT</i>	-1.59	7.01E-04	3.07	8.92
ENSG00000116514	<i>RNF19B</i>	-1.59	8.00E-04	3.52	10.58
ENSG00000166685	<i>COG1</i>	-1.59	1.74E-03	3.06	9.92
ENSG00000168288	<i>MMADHC</i>	-1.59	2.10E-03	6.47	18.06
ENSG00000272243		-1.59	3.22E-03	3.97	12.50
ENSG00000151689	<i>INPP1</i>	-1.59	3.13E-03	14.27	41.63
ENSG00000111752	<i>PHC1</i>	-1.59	6.18E-03	3.26	8.59
ENSG00000182541	<i>LIMK2</i>	-1.59	6.72E-03	6.77	20.32
ENSG00000220201	<i>ZGLP1</i>	-1.59	8.70E-03	13.81	33.87
ENSG00000103018	<i>CYB5B</i>	-1.58	2.85E-05	37.58	114.32
ENSG00000167397	<i>VKORC1</i>	-1.58	5.15E-05	82.97	257.12
ENSG00000184009	<i>ACTG1</i>	-1.58	6.10E-05	336.39	1033.65
ENSG00000117505	<i>DR1</i>	-1.58	9.87E-05	20.87	65.39

ENSG00000156269	<i>NAA11</i>	-1.58	2.16E-04	20.07	58.87
ENSG00000152454	<i>ZNF256</i>	-1.58	2.15E-04	30.94	93.70
ENSG00000004455	<i>AK2</i>	-1.58	2.98E-04	38.35	110.05
ENSG00000198746	<i>GPATCH3</i>	-1.58	4.91E-04	5.78	17.70
ENSG00000185619	<i>PCGF3</i>	-1.58	4.33E-04	38.11	118.49
ENSG00000082458	<i>DLG3</i>	-1.58	4.55E-04	33.10	96.54
ENSG00000108984	<i>MAP2K6</i>	-1.58	7.49E-04	7.62	24.13
ENSG00000261617	<i>LINC02177</i>	-1.58	9.14E-04	3.17	9.68
ENSG00000163449	<i>TMEM169</i>	-1.58	1.79E-03	1.89	5.63
ENSG00000165120	<i>SSMEM1</i>	-1.58	1.72E-03	2.55	7.86
ENSG00000154319	<i>FAM167A</i>	-1.58	1.90E-03	10.82	35.12
ENSG00000072163	<i>LIMS2</i>	-1.58	3.28E-03	4.18	12.03
ENSG00000238042	<i>LINC02257</i>	-1.58	3.80E-03	2.37	7.20
ENSG00000161551	<i>ZNF577</i>	-1.58	6.13E-03	1.92	5.54
ENSG00000215483	<i>LINC00598</i>	-1.58	6.52E-03	4.28	11.62
ENSG00000287957		-1.58	7.19E-03	2.66	7.72
ENSG00000140284	<i>SLC27A2</i>	-1.58	7.84E-03	7.00	18.09
ENSG00000162063	<i>CCNF</i>	-1.58	8.81E-03	4.48	13.36
ENSG00000148842	<i>CNNM2</i>	-1.57	3.81E-05	127.84	385.60
ENSG00000151892	<i>GFRA1</i>	-1.57	8.86E-05	8.07	24.57
ENSG00000213762	<i>ZNF134</i>	-1.57	1.18E-04	30.80	93.59
ENSG00000164048	<i>ZNF589</i>	-1.57	1.88E-04	4.70	14.47
ENSG00000147912	<i>FBXO10</i>	-1.57	8.12E-04	4.33	12.34
ENSG00000250433	<i>CLSTN2-AS1</i>	-1.57	2.26E-03	2.51	7.85
ENSG00000197332		-1.57	4.14E-03	2.68	7.96
ENSG00000290831	<i>NSUN5P2</i>	-1.57	4.59E-03	2.05	5.67
ENSG00000174137	<i>FAM53A</i>	-1.57	4.16E-03	8.03	26.98
ENSG00000183801	<i>OLFML1</i>	-1.56	1.94E-05	50.73	156.92
ENSG00000140470	<i>ADAMTS17</i>	-1.56	4.18E-05	25.88	78.58
ENSG00000230530	<i>LIMD1-AS1</i>	-1.56	1.66E-04	13.30	40.37
ENSG00000163655	<i>GMPS</i>	-1.56	2.47E-04	13.16	38.27
ENSG00000253348		-1.56	3.19E-04	2.35	7.08
ENSG00000060709	<i>RIMBP2</i>	-1.56	6.13E-04	19.04	56.12
ENSG00000136448	<i>NMT1</i>	-1.56	8.81E-04	2.38	6.98
ENSG00000176410	<i>DNAJC30</i>	-1.56	3.40E-03	2.10	6.10
ENSG00000083720	<i>OXCT1</i>	-1.56	3.30E-03	3.57	9.70
ENSG00000180104	<i>EXOC3</i>	-1.56	4.44E-03	9.53	26.72
ENSG00000100034	<i>PPM1F</i>	-1.56	6.39E-03	2.29	6.59
ENSG00000136250	<i>AOAH</i>	-1.55	4.45E-05	82.83	244.97
ENSG00000081320	<i>STK17B</i>	-1.55	8.23E-05	10.21	30.50
ENSG00000022277	<i>RTF2</i>	-1.55	1.00E-04	25.87	77.27
ENSG00000114405	<i>C3orf14</i>	-1.55	2.06E-04	39.82	119.11
ENSG00000160193	<i>WDR4</i>	-1.55	3.48E-04	4.25	12.37
ENSG00000137103	<i>TMEM8B</i>	-1.55	3.99E-04	2.09	6.26
ENSG00000167077	<i>MEI1</i>	-1.55	7.75E-04	13.47	40.34
ENSG00000232838	<i>PET117</i>	-1.55	1.43E-03	2.79	7.75

ENSG00000142655	<i>PEX14</i>	-1.55	2.21E-03	1.76	5.38
ENSG00000008838	<i>MED24</i>	-1.55	2.13E-03	2.38	7.53
ENSG00000110002	<i>VWA5A</i>	-1.55	2.72E-03	55.04	160.63
ENSG00000262468	<i>LINC01569</i>	-1.55	4.60E-03	2.10	5.46
ENSG00000239857	<i>GET4</i>	-1.55	4.46E-03	8.91	23.38
ENSG00000083454	<i>P2RX5</i>	-1.55	5.20E-03	5.68	19.24
ENSG00000100129	<i>EIF3L</i>	-1.54	1.45E-05	60.44	182.95
ENSG00000116670	<i>MAD2L2</i>	-1.54	3.34E-05	19.46	58.28
ENSG00000105793	<i>GTPBP10</i>	-1.54	1.43E-04	198.16	590.14
ENSG00000140873	<i>ADAMTS18</i>	-1.54	4.20E-04	11.81	35.02
ENSG00000197860	<i>SGTB</i>	-1.54	6.07E-04	1.99	5.89
ENSG00000115694	<i>STK25</i>	-1.54	7.28E-04	26.42	74.87
ENSG00000196998	<i>WDR45</i>	-1.54	1.06E-03	2.78	8.47
ENSG00000104852	<i>SNRNP70</i>	-1.54	1.39E-03	4.46	12.54
ENSG00000289195		-1.54	1.83E-03	2.54	7.15
ENSG00000232936	<i>PANK1-AS1</i>	-1.54	2.34E-03	1.52	4.89
ENSG00000249115	<i>HAUS5</i>	-1.54	3.44E-03	3.92	10.67
ENSG00000102309	<i>PIN4</i>	-1.54	3.90E-03	2.65	8.48
ENSG00000187147	<i>RNF220</i>	-1.54	4.22E-03	7.11	18.76
ENSG00000131061	<i>ZNF341</i>	-1.54	9.93E-03	1.11	3.48
ENSG00000179958	<i>DCTPP1</i>	-1.53	6.92E-05	46.64	135.10
ENSG00000182831	<i>C16orf72</i>	-1.53	8.05E-05	16.79	49.14
ENSG00000038532	<i>CLEC16A</i>	-1.53	1.55E-04	18.86	55.88
ENSG00000165716	<i>DIPK1B</i>	-1.53	5.09E-04	18.89	52.38
ENSG00000071051	<i>NCK2</i>	-1.53	6.26E-04	57.87	175.49
ENSG00000230525	<i>LINC01799</i>	-1.53	7.64E-04	9.55	30.22
ENSG00000220517	<i>ASS1P1</i>	-1.53	2.52E-03	2.16	6.08
ENSG00000159210	<i>SNF8</i>	-1.53	3.62E-03	11.88	31.62
ENSG00000169689	<i>CENPX</i>	-1.53	4.36E-03	6.15	17.29
ENSG00000105953	<i>OGDH</i>	-1.53	4.92E-03	2.86	7.49
ENSG00000091164	<i>TXNL1</i>	-1.52	1.87E-05	23.50	69.73
ENSG00000168824	<i>NSG1</i>	-1.52	2.60E-05	143.43	420.30
ENSG00000130638	<i>ATXN10</i>	-1.52	1.26E-04	14.62	42.45
ENSG00000139083	<i>ETV6</i>	-1.52	2.00E-04	11.24	33.63
ENSG00000111605	<i>CPSF6</i>	-1.52	3.26E-04	10.10	30.10
ENSG00000074527	<i>NTN4</i>	-1.52	4.69E-04	6.39	18.65
ENSG00000144867	<i>SRPRB</i>	-1.52	8.76E-04	7.76	23.07
ENSG00000162624	<i>LHX8</i>	-1.52	9.32E-04	32.58	102.53
ENSG00000188976	<i>NOC2L</i>	-1.52	1.53E-03	2.94	8.69
ENSG00000094804	<i>CDC6</i>	-1.52	1.33E-03	33.01	96.14
ENSG00000135821	<i>GLUL</i>	-1.52	1.59E-03	11.16	32.91
ENSG00000106077	<i>ABHD11</i>	-1.52	2.18E-03	1.25	3.66
ENSG00000204832	<i>ST8SIA6-AS1</i>	-1.52	3.13E-03	2.84	8.02
ENSG00000131759	<i>RARA</i>	-1.52	5.30E-03	1.00	2.81
ENSG00000119681	<i>LTBP2</i>	-1.52	5.43E-03	5.30	13.82
ENSG00000262766		-1.52	7.37E-03	0.82	2.48

ENSG00000283613	<i>CUPIN1P</i>	-1.52	9.65E-03	0.39	1.19
ENSG00000231856		-1.52	9.11E-03	0.65	1.82
ENSG00000151729	<i>SLC25A4</i>	-1.52	9.04E-03	11.29	27.09
ENSG00000115526	<i>CHST10</i>	-1.52	9.89E-03	9.58	29.94
ENSG00000136003	<i>ISCU</i>	-1.52	8.21E-03	125.02	284.22
ENSG00000130713	<i>EXOSC2</i>	-1.51	2.32E-04	7.49	21.82
ENSG00000254901	<i>BORCS8</i>	-1.51	4.31E-04	9.20	26.30
ENSG00000011523	<i>CEP68</i>	-1.51	5.41E-04	9.78	28.23
ENSG00000220205	<i>VAMP2</i>	-1.51	7.17E-04	2.28	6.75
ENSG00000134851	<i>TMEM165</i>	-1.51	8.32E-04	2.74	7.63
ENSG00000225778	<i>PROSER2-AS1</i>	-1.51	1.80E-03	4.31	12.12
ENSG00000286745		-1.51	4.59E-03	0.70	2.06
ENSG00000111229	<i>ARPC3</i>	-1.51	6.86E-03	65.58	158.54
ENSG00000121940	<i>CLCC1</i>	-1.50	3.20E-04	9.08	25.52
ENSG00000205060	<i>SLC35B4</i>	-1.50	7.64E-04	12.11	36.74
ENSG00000254733		-1.50	4.62E-03	0.87	2.43
ENSG00000182389	<i>CACNB4</i>	-1.50	7.78E-03	2.45	6.76
ENSG00000167862	<i>MRPL58</i>	-1.50	6.46E-03	21.73	54.35
ENSG00000087903	<i>RFX2</i>	-1.50	9.48E-03	1.29	3.45
ENSG00000244045	<i>TMEM199</i>	-1.50	6.37E-05	22.30	65.14

Table S11. Differentially expressed genes associated with oocytes, cell cycle and cell divisions in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000285010	<i>OOSP4A</i>	2.43	1.32E-06	17973.08	3517.42
ENSG00000204899	<i>MZT1</i>	2.29	1.23E-04	26.13	4.96
ENSG00000204531	<i>POU5F1</i>	2.17	4.35E-04	15.80	3.60
ENSG00000168005	<i>SPINDOC</i>	2.15	1.32E-03	10.81	2.84
ENSG00000198824	<i>CHAMP1</i>	2.14	1.64E-04	195.93	50.17
ENSG00000149503	<i>INCENP</i>	2.12	8.19E-05	15.69	3.94
ENSG00000138764	<i>CCNG2</i>	2.06	2.00E-03	20.16	4.19
ENSG00000285231	<i>OOSP3</i>	2.04	4.31E-03	28.74	8.20
ENSG00000164162	<i>ANAPC10</i>	2.00	5.21E-06	168.40	44.51
ENSG00000164611	<i>PTTG1</i>	1.95	9.22E-06	19807.11	5489.63
ENSG00000226650	<i>KIF4B</i>	1.92	5.09E-03	1.08	0.28
ENSG00000168280	<i>KIF5C</i>	1.85	7.75E-04	6.77	2.15
ENSG00000133863	<i>TEX15</i>	1.82	1.22E-05	150.10	43.94
ENSG00000123219	<i>CENPK</i>	1.78	2.11E-05	157.27	48.72
ENSG00000176386	<i>CDC26</i>	1.78	5.54E-05	121.89	37.94
ENSG00000070831	<i>CDC42</i>	1.78	6.29E-04	45.89	15.54
ENSG00000137812	<i>KNL1</i>	1.76	4.53E-05	448.67	143.69
ENSG00000132964	<i>CDK8</i>	1.76	8.56E-05	48.29	15.71
ENSG00000101639	<i>CEP192</i>	1.76	2.00E-04	86.91	26.50
ENSG00000145604	<i>SKP2</i>	1.75	5.65E-03	1557.44	425.59
ENSG00000156509	<i>FBXO43</i>	1.74	2.72E-04	117.34	34.55
ENSG00000164109	<i>MAD2L1</i>	1.73	2.32E-05	1036.23	313.13
ENSG00000100084	<i>HIRA</i>	1.73	2.76E-03	13.77	4.72
ENSG00000085224	<i>ATRX</i>	1.72	1.28E-05	335.91	104.98
ENSG00000056050	<i>HPF1</i>	1.72	1.35E-05	2892.68	936.75
ENSG00000203909	<i>DPPA5</i>	1.72	1.90E-05	7181.89	2314.57
ENSG00000187569	<i>DPPA3</i>	1.71	1.90E-06	7628.10	2436.91
ENSG00000154429	<i>CCSAP</i>	1.70	5.54E-05	43.93	14.04
ENSG00000117724	<i>CENPF</i>	1.69	7.05E-04	96.76	33.24
ENSG00000090061	<i>CCNK</i>	1.68	2.95E-03	98.78	37.29
ENSG00000129315	<i>CCNT1</i>	1.66	2.54E-04	86.69	29.84
ENSG00000038219	<i>BOD1L1</i>	1.65	1.38E-05	199.71	65.35
ENSG00000169032	<i>MAP2K1</i>	1.65	5.77E-05	172.69	56.58
ENSG00000198707	<i>CEP290</i>	1.63	8.37E-05	29.97	10.21
ENSG00000182504	<i>CEP97</i>	1.62	6.85E-04	83.95	26.54
ENSG00000104218	<i>CSPP1</i>	1.59	7.70E-05	83.27	28.35
ENSG00000163535	<i>SGO2</i>	1.58	8.80E-05	326.84	111.16
ENSG00000082258	<i>CCNT2</i>	1.58	1.52E-04	66.36	23.58
ENSG00000107643	<i>MAPK8</i>	1.58	6.55E-04	73.86	27.60

ENSG00000008128	<i>CDK11A</i>	1.58	1.77E-03	17.15	6.14
ENSG00000141446	<i>ESCO1</i>	1.57	2.45E-05	114.79	40.54
ENSG00000011566	<i>MAP4K3</i>	1.57	1.52E-04	52.07	17.86
ENSG00000115163	<i>CENPA</i>	1.57	5.38E-04	267.16	89.44
ENSG00000119397	<i>CNTRL</i>	1.56	1.09E-04	162.47	57.57
ENSG00000136122	<i>BORA</i>	1.55	8.46E-05	76.11	26.18
ENSG00000203907	<i>OOEP</i>	1.54	2.01E-05	4456.91	1632.83
ENSG00000138778	<i>CENPE</i>	1.53	6.11E-05	802.82	292.95
ENSG00000012983	<i>MAP4K5</i>	1.52	4.15E-05	37.45	13.54
ENSG00000004897	<i>CDC27</i>	1.52	1.54E-04	449.07	168.81
ENSG00000290445	<i>CCNYL2</i>	1.52	4.98E-03	2.52	0.88
ENSG00000167797	<i>CDK2AP2</i>	1.50	1.81E-04	1507.37	533.06
Downregulated DEGs					
ENSG00000188130	<i>MAPK12</i>	-4.65	1.72E-06	1.40	31.60
ENSG00000156574	<i>NODAL</i>	-4.64	9.29E-04	0.54	3.53
ENSG00000145916	<i>RMND5B</i>	-4.56	3.23E-06	1.85	47.98
ENSG00000168505	<i>GBX2</i>	-4.23	2.48E-03	0.06	0.84
ENSG00000122783	<i>CYREN</i>	-4.20	3.15E-07	2.31	44.42
ENSG00000141577	<i>CEP131</i>	-4.13	3.87E-03	0.50	3.64
ENSG00000166813	<i>KIF7</i>	-4.10	1.67E-05	2.45	30.69
ENSG00000119946	<i>CNNM1</i>	-4.02	6.12E-03	0.13	1.37
ENSG00000037637	<i>FBXO42</i>	-3.78	7.29E-06	3.85	53.53
ENSG00000129055	<i>ANAPC13</i>	-3.77	5.13E-07	6.27	86.85
ENSG00000100526	<i>CDKN3</i>	-3.73	1.90E-06	1.39	19.21
ENSG00000142733	<i>MAP3K6</i>	-3.57	7.42E-05	1.41	13.48
ENSG00000185324	<i>CDK10</i>	-3.17	1.29E-05	1.60	13.70
ENSG00000197889	<i>MEIG1</i>	-3.03	9.22E-03	0.10	0.79
ENSG00000079616	<i>KIF22</i>	-2.98	1.88E-06	23.72	185.38
ENSG00000100162	<i>CENPM</i>	-2.88	4.82E-06	3.65	27.65
ENSG00000106410	<i>NOBOX</i>	-2.80	4.29E-04	2.27	13.27
ENSG00000167702	<i>KIFC2</i>	-2.42	2.74E-03	0.25	1.31
ENSG00000134480	<i>CCNH</i>	-2.40	1.54E-04	90.60	409.20
ENSG00000002822	<i>MAD1L1</i>	-2.36	1.41E-04	11.11	51.68
ENSG00000102225	<i>CDK16</i>	-2.29	8.77E-05	3.67	18.32
ENSG00000112877	<i>CEP72</i>	-2.22	1.88E-03	0.90	4.24
ENSG00000147400	<i>CETN2</i>	-2.21	1.66E-05	41.54	193.28
ENSG00000262919	<i>CCNQ</i>	-2.14	9.15E-06	8.36	37.24
ENSG00000084731	<i>KIF3C</i>	-2.12	2.99E-05	11.05	48.21
ENSG00000130177	<i>CDC16</i>	-2.02	3.81E-05	3.16	13.42
ENSG00000138092	<i>CENPO</i>	-1.95	3.59E-05	36.32	139.23
ENSG00000125863	<i>MKKS</i>	-1.88	2.69E-04	8.93	32.62
ENSG00000079335	<i>CDC14A</i>	-1.81	8.67E-03	0.38	1.25
ENSG00000205089	<i>CCNI2</i>	-1.60	6.07E-04	37.81	118.84
ENSG00000108984	<i>MAP2K6</i>	-1.58	7.49E-04	7.62	24.13
ENSG00000162063	<i>CCNF</i>	-1.58	8.81E-03	4.48	13.36
ENSG00000148842	<i>CNNM2</i>	-1.57	3.81E-05	127.84	385.60

ENSG00000167077	<i>MEI1</i>	-1.55	7.75E-04	13.47	40.34
ENSG00000116670	<i>MAD2L2</i>	-1.54	3.34E-05	19.46	58.28
ENSG00000169689	<i>CENPX</i>	-1.53	4.36E-03	6.15	17.29
ENSG00000094804	<i>CDC6</i>	-1.52	1.33E-03	33.01	96.14
ENSG00000011523	<i>CEP68</i>	-1.51	5.41E-04	9.78	28.23

Table S12. Differentially expressed genes associated with mitochondria and oxidative phosphorylation in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000210112	<i>MT-TM</i>	3.90	3.77E-03	3.21	0.28
ENSG00000210100	<i>MT-TI</i>	3.62	7.41E-04	1.95	0.23
ENSG00000209082	<i>MT-TL1</i>	3.45	1.51E-04	19.55	2.15
ENSG00000210156	<i>MT-TK</i>	3.36	4.40E-03	4.16	0.35
ENSG00000210194	<i>MT-TE</i>	3.23	7.28E-04	3.34	0.52
ENSG00000210144	<i>MT-TY</i>	3.11	1.08E-03	3.38	0.59
ENSG00000210140	<i>MT-TC</i>	3.04	3.94E-04	18.79	3.21
ENSG00000210107	<i>MT-TQ</i>	3.01	3.43E-04	12.89	1.95
ENSG00000210135	<i>MT-TN</i>	3.00	4.05E-04	10.30	1.75
ENSG00000210154	<i>MT-TD</i>	2.98	4.46E-03	3.49	0.36
ENSG00000210196	<i>MT-TP</i>	2.89	1.13E-04	17.52	2.73
ENSG00000210127	<i>MT-TA</i>	2.82	3.63E-04	8.88	1.65
ENSG00000198695	<i>MT-ND6</i>	2.76	1.06E-04	315.16	59.86
ENSG00000210151	<i>MT-TS1</i>	2.73	4.20E-04	16.73	3.13
ENSG00000210077	<i>MT-TV</i>	2.68	2.77E-04	24.59	3.63
ENSG00000225972	<i>MTND1P23</i>	2.57	1.72E-03	3.25	0.59
ENSG00000211459	<i>MT-RNR1</i>	2.47	4.81E-05	2088.19	400.59
ENSG00000198888	<i>MT-ND1</i>	2.43	1.98E-04	2826.33	576.31
ENSG00000198840	<i>MT-ND3</i>	2.40	1.75E-04	81.36	18.61
ENSG00000225630	<i>MTND2P28</i>	2.34	3.76E-04	11.98	2.81
ENSG00000198786	<i>MT-ND5</i>	2.27	2.58E-04	1422.27	361.95
ENSG00000210082	<i>MT-RNR2</i>	2.21	2.17E-05	6845.67	1614.92
ENSG00000198899	<i>MT-ATP6</i>	2.20	4.18E-05	962.21	238.40
ENSG00000198763	<i>MT-ND2</i>	2.12	1.69E-04	2125.15	549.94
ENSG00000198938	<i>MT-CO3</i>	2.10	7.84E-05	2678.28	704.00
ENSG00000198886	<i>MT-ND4</i>	2.01	3.04E-04	3244.20	874.64
ENSG00000198804	<i>MT-CO1</i>	1.99	4.44E-05	8635.10	2335.52
ENSG00000198727	<i>MT-CYB</i>	1.97	1.68E-04	2897.34	840.11
ENSG00000198712	<i>MT-CO2</i>	1.91	1.14E-04	2716.89	815.67
ENSG00000212907	<i>MT-ND4L</i>	1.79	9.11E-04	347.32	115.01
ENSG00000228253	<i>MT-ATP8</i>	1.78	1.91E-04	50.46	14.72
ENSG00000050393	<i>MCUR1</i>	1.63	1.29E-05	80.36	27.12
ENSG00000184983	<i>NDUFA6</i>	1.62	7.86E-05	336.22	119.71
ENSG00000156469	<i>MTERF3</i>	1.57	1.20E-05	1704.92	587.52
ENSG00000182180	<i>MRPS16</i>	1.57	6.65E-05	50.47	18.12
ENSG00000204822	<i>MRPL53</i>	1.52	1.53E-03	55.97	21.36
ENSG00000107951	<i>MTPAP</i>	1.50	2.10E-05	139.01	50.54
ENSG00000250299	<i>MRPS31P4</i>	1.50	3.23E-04	7.98	2.87
Downregulated DEGs					

ENSG00000096080	<i>MRPS18A</i>	-4.16	4.26E-07	3.68	67.77
ENSG00000205309	<i>NT5M</i>	-4.04	1.69E-04	0.75	7.90
ENSG00000242114	<i>MTFP1</i>	-3.62	1.38E-03	0.22	2.00
ENSG00000183617	<i>MRPL54</i>	-3.51	3.85E-05	2.24	22.67
ENSG00000117640	<i>MTFR1L</i>	-3.24	5.10E-06	10.32	94.50
ENSG00000086504	<i>MRPL28</i>	-3.12	1.08E-04	2.50	18.12
ENSG00000130204	<i>TOMM40</i>	-3.05	1.04E-05	1.93	15.77
ENSG00000120832	<i>MTERF2</i>	-3.04	1.17E-03	1.23	9.05
ENSG00000254858	<i>MPV17L2</i>	-2.97	8.03E-06	7.57	57.66
ENSG00000126953	<i>TIMM8A</i>	-2.92	4.61E-05	4.02	28.87
ENSG00000132286	<i>TIMM10B</i>	-2.89	1.89E-06	10.01	73.38
ENSG00000108826	<i>MRPL27</i>	-2.85	3.32E-05	6.56	44.77
ENSG00000262814	<i>MRPL12</i>	-2.83	1.86E-03	2.31	12.58
ENSG00000156928	<i>MALSU1</i>	-2.77	8.03E-06	16.41	110.47
ENSG00000174547	<i>MRPL11</i>	-2.74	3.72E-05	6.72	41.61
ENSG00000128626	<i>MRPS12</i>	-2.74	6.10E-04	7.97	38.66
ENSG00000171421	<i>MRPL36</i>	-2.73	8.82E-05	19.45	115.54
ENSG00000175110	<i>MRPS22</i>	-2.72	5.43E-06	11.09	72.60
ENSG00000090432	<i>MUL1</i>	-2.70	1.36E-04	14.42	103.15
ENSG00000105197	<i>TIMM50</i>	-2.69	1.11E-05	6.13	38.90
ENSG00000122085	<i>MTERF4</i>	-2.51	4.47E-05	1.78	10.15
ENSG00000259494	<i>MRPL46</i>	-2.33	5.10E-05	10.80	51.70
ENSG00000165688	<i>PMPCA</i>	-2.30	6.38E-04	1.93	7.95
ENSG00000278845	<i>MRPL45</i>	-2.28	4.95E-06	9.75	48.51
ENSG00000155463	<i>OXA1L</i>	-2.27	2.94E-05	8.70	42.17
ENSG00000101247	<i>NDUFAF5</i>	-2.17	8.60E-05	3.52	15.67
ENSG00000166260	<i>COX11</i>	-2.16	2.93E-05	2.94	13.51
ENSG00000167792	<i>NDUFV1</i>	-2.16	4.87E-04	10.01	38.56
ENSG00000136463	<i>TACO1</i>	-2.14	4.84E-05	1.21	5.58
ENSG00000178741	<i>COX5A</i>	-2.09	4.98E-04	32.28	121.64
ENSG00000171861	<i>MRM3</i>	-2.08	3.21E-05	4.60	19.82
ENSG00000074071	<i>MRPS34</i>	-2.07	2.61E-05	11.13	47.76
ENSG00000103356	<i>EARS2</i>	-2.07	2.63E-03	2.17	8.45
ENSG00000148824	<i>MTG1</i>	-2.06	1.37E-04	2.73	11.21
ENSG00000259671	<i>MTCYBP23</i>	-2.05	9.88E-04	1.02	4.11
ENSG00000109919	<i>MTCH2</i>	-2.04	3.82E-06	29.41	124.49
ENSG00000204922	<i>UQCC3</i>	-2.03	5.04E-04	3.60	15.22
ENSG00000224877	<i>NDUFAF8</i>	-1.99	8.58E-03	0.94	3.07
ENSG00000136522	<i>MRPL47</i>	-1.92	5.92E-04	19.07	68.96
ENSG00000138495	<i>COX17</i>	-1.91	4.20E-03	25.08	83.12
ENSG00000042286	<i>AIFM2</i>	-1.91	8.98E-03	0.65	1.87
ENSG00000239789	<i>MRPS17</i>	-1.90	2.11E-03	3.96	14.18
ENSG00000137767	<i>SQOR</i>	-1.89	1.39E-03	44.05	167.48
ENSG00000122140	<i>MRPS2</i>	-1.85	9.38E-04	7.27	24.67
ENSG00000137288	<i>UQCC2</i>	-1.85	1.85E-03	10.11	31.72
ENSG00000181991	<i>MRPS11</i>	-1.84	2.60E-05	14.24	54.15
ENSG00000242485	<i>MRPL20</i>	-1.83	1.37E-03	49.13	155.45

ENSG00000156170	<i>NDUFAF6</i>	-1.77	7.15E-04	6.48	22.10
ENSG00000184752	<i>NDUFA12</i>	-1.77	2.44E-03	39.67	118.36
ENSG00000137547	<i>MRPL15</i>	-1.75	1.44E-03	30.43	90.44
ENSG00000100416	<i>TRMU</i>	-1.74	8.08E-04	8.08	25.29
ENSG00000243147	<i>MRPL33</i>	-1.74	6.89E-03	24.22	62.94
ENSG00000265354	<i>TIMM23</i>	-1.71	2.75E-05	61.82	203.16
ENSG00000010256	<i>UQCRC1</i>	-1.71	9.34E-04	44.27	133.31
ENSG00000172590	<i>MRPL52</i>	-1.70	4.84E-04	10.60	36.74
ENSG00000110536	<i>PTPMT1</i>	-1.65	1.41E-03	18.29	51.41
ENSG00000130414	<i>NDUFA10</i>	-1.61	5.77E-05	49.11	151.37
ENSG00000103707	<i>MTFMT</i>	-1.59	7.01E-04	3.07	8.92
ENSG00000167862	<i>MRPL58</i>	-1.50	6.46E-03	21.73	54.35

Table S13. Differentially expressed genes associated with steroidogenesis in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000147465	<i>STAR</i>	4.57	2.79E-03	9.46	0.56
ENSG00000198189	<i>HSD17B11</i>	2.40	5.35E-03	7.59	2.03
ENSG00000052802	<i>MSMO1</i>	2.32	8.70E-06	42.44	9.01
ENSG00000119655	<i>NPC2</i>	1.52	5.49E-05	158.59	59.02
ENSG00000141458	<i>NPC1</i>	1.50	1.66E-05	353.88	128.75
Downregulated DEGs					
ENSG00000147383	<i>NSDHL</i>	-4.42	1.45E-06	7.67	146.29
ENSG00000167733	<i>HSD11B1L</i>	-3.11	2.38E-05	7.20	57.60
ENSG00000142973	<i>CYP4B1</i>	-2.32	5.57E-04	2.49	12.73
ENSG00000103160	<i>HSDL1</i>	-1.91	5.26E-05	19.31	75.85
ENSG00000119004	<i>CYP20A1</i>	-1.69	2.54E-05	48.34	159.32

Table S14. Differentially expressed genes associated with oxidative stress response in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000243955	<i>GSTA1</i>	4.65	3.42E-03	23.91	1.41
ENSG00000084207	<i>GSTP1</i>	2.02	3.56E-03	45.41	13.65
ENSG00000143198	<i>MGST3</i>	1.98	4.82E-03	49.96	14.16
ENSG00000165672	<i>PRDX3</i>	1.74	3.86E-06	716.42	221.70
ENSG00000129235	<i>TXNDC17</i>	1.69	1.50E-05	504.88	166.27
ENSG00000172939	<i>OXSRI</i>	1.61	4.19E-04	18.59	6.32
ENSG00000123131	<i>PRDX4</i>	1.59	6.92E-03	10.53	3.70
ENSG00000198929	<i>NOS1AP</i>	1.53	1.55E-03	134.06	48.02
Downregulated DEGs					
ENSG00000007171	<i>NOS2</i>	-5.04	9.27E-03	1.55	9.51
ENSG00000184470	<i>TXNRD2</i>	-4.71	1.26E-05	0.80	15.36
ENSG00000128965	<i>CHAC1</i>	-4.49	2.10E-06	3.58	79.08
ENSG00000100577	<i>GSTZ1</i>	-4.00	2.57E-04	0.45	6.32
ENSG00000132823	<i>OSER1</i>	-3.84	2.74E-07	18.19	258.61
ENSG00000073169	<i>SELENOO</i>	-3.18	1.88E-03	0.46	3.13
ENSG00000213593	<i>TMX2</i>	-2.71	5.46E-07	17.85	121.95
ENSG00000197448	<i>GSTK1</i>	-2.55	1.14E-05	8.82	49.85
ENSG00000164823	<i>OSGIN2</i>	-2.50	4.39E-04	1.53	7.22
ENSG00000262519	<i>TXNP4</i>	-2.14	1.35E-04	2.16	10.23
ENSG00000113621	<i>TXNDC15</i>	-2.08	2.77E-05	6.10	25.85
ENSG00000141759	<i>TXNL4A</i>	-1.96	4.57E-04	10.85	39.09
ENSG00000140961	<i>OSGIN1</i>	-1.87	2.85E-03	0.34	1.26
ENSG00000140830	<i>TXNL4B</i>	-1.86	3.75E-05	22.44	80.30
ENSG00000108010	<i>GLRX3</i>	-1.78	3.54E-05	13.09	45.46
ENSG00000117862	<i>TXNDC12</i>	-1.76	1.64E-03	16.05	46.49
ENSG00000173221	<i>GLRX</i>	-1.71	1.52E-03	145.14	426.28
ENSG00000167693	<i>NXN</i>	-1.69	6.47E-04	3.31	11.23
ENSG00000091164	<i>TXNL1</i>	-1.52	1.87E-05	23.50	69.73

Table S15. Differentially expressed genes associated with endoplasmic reticulum stress in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000101955	<i>SRPX</i>	2.52	5.87E-03	8.30	1.63
ENSG00000204308	<i>RNF5</i>	2.49	3.32E-04	5.01	0.95
ENSG00000096717	<i>SIRT1</i>	2.33	5.42E-04	6.83	1.47
ENSG00000082641	<i>NFE2L1</i>	2.20	5.32E-04	10.73	2.59
ENSG00000148572	<i>NRBF2</i>	2.12	1.96E-03	56.13	12.08
ENSG00000058056	<i>USP13</i>	2.08	4.46E-04	322.88	81.81
ENSG00000116406	<i>EDEM3</i>	2.01	1.23E-03	5.84	1.58
ENSG00000153094	<i>BCL2L11</i>	1.96	7.43E-05	13.59	3.51
ENSG00000189050	<i>RNFT1</i>	1.92	8.00E-06	214.34	57.61
ENSG00000155313	<i>USP25</i>	1.73	2.54E-05	224.20	71.76
ENSG00000185345	<i>PRKN</i>	1.70	6.33E-04	9.90	3.04
ENSG00000144224	<i>UBXN4</i>	1.64	3.21E-05	461.54	158.15
ENSG00000128829	<i>EIF2AK4</i>	1.58	1.93E-04	74.53	26.37
Downregulated DEGs					
ENSG00000204977	<i>TRIM13</i>	-4.87	1.31E-07	11.11	326.02
ENSG00000111684	<i>LPCAT3</i>	-4.71	4.01E-04	0.07	0.71
ENSG00000128965	<i>CHAC1</i>	-4.49	2.10E-06	3.58	79.08
ENSG00000160087	<i>UBE2J2</i>	-3.75	2.74E-07	9.37	132.22
ENSG00000269335	<i>IKBKG</i>	-3.43	5.24E-05	0.42	4.06
ENSG00000058335	<i>RASGRF1</i>	-3.39	6.35E-06	21.68	218.22
ENSG00000106638	<i>TBL2</i>	-3.22	1.22E-03	0.78	5.01
ENSG00000025434	<i>NR1H3</i>	-3.20	8.78E-05	2.01	18.18
ENSG00000175311	<i>ANKS4B</i>	-2.98	2.19E-05	2.96	23.75
ENSG00000134001	<i>EIF2S1</i>	-2.94	1.71E-06	34.54	265.38
ENSG00000170881	<i>RNF139</i>	-2.92	8.03E-06	6.29	50.33
ENSG00000074370	<i>ATP2A3</i>	-2.92	4.16E-04	0.88	7.60
ENSG00000172216	<i>CEBPB</i>	-2.91	8.64E-04	0.91	5.08
ENSG00000104969	<i>SGTA</i>	-2.89	3.71E-05	4.04	31.02
ENSG00000137522	<i>RNF121</i>	-2.82	6.52E-05	1.77	11.90
ENSG00000138942	<i>RNF185</i>	-2.82	2.39E-04	10.25	77.48
ENSG00000107175	<i>CREB3</i>	-2.70	1.90E-06	4.77	31.90
ENSG00000198218	<i>QRICH1</i>	-2.49	1.06E-05	24.44	148.65
ENSG00000184381	<i>PLA2G6</i>	-2.48	5.66E-04	0.79	3.75
ENSG00000176720	<i>BOK</i>	-2.38	3.49E-03	0.63	2.42
ENSG00000100219	<i>XBP1</i>	-2.17	7.75E-05	6.50	30.20
ENSG00000167671	<i>UBXN6</i>	-2.15	5.81E-03	1.67	6.29
ENSG00000143222	<i>UFC1</i>	-2.03	4.83E-05	13.27	54.71
ENSG00000185104	<i>FAF1</i>	-1.80	1.42E-04	10.12	37.58
ENSG00000113319	<i>RASGRF2</i>	-1.76	5.23E-05	13.76	48.10

ENSG00000117862	<i>TXNDC12</i>	-1.76	1.64E-03	16.05	46.49
ENSG00000162191	<i>UBXN1</i>	-1.75	8.77E-04	12.96	40.11
ENSG00000164897	<i>TMUB1</i>	-1.66	2.75E-03	2.18	7.29
ENSG00000239857	<i>GET4</i>	-1.55	4.46E-03	8.91	23.38
ENSG00000071051	<i>NCK2</i>	-1.53	6.26E-04	57.87	175.49

Table S16. Differentially expressed genes associated with ribosomal structure and function in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000275215	<i>RNA5-8SN3</i>	5.83	1.02E-05	0.94	0.01
ENSG00000277739	<i>5_8S_rRNA</i>	5.83	1.02E-05	0.94	0.01
ENSG00000278189	<i>RNA5-8SN1</i>	5.83	1.02E-05	0.94	0.01
ENSG00000278233	<i>RNA5-8SN2</i>	5.83	1.02E-05	0.94	0.01
ENSG00000240342	<i>RPS2P5</i>	3.90	7.67E-03	13.78	2.07
ENSG00000163682	<i>RPL9</i>	2.77	3.46E-03	46.00	16.55
ENSG00000126524	<i>SBDS</i>	2.32	2.36E-04	4.51	1.07
ENSG00000164587	<i>RPS14</i>	2.02	4.12E-05	254.46	68.60
ENSG00000227097	<i>RPS28P7</i>	2.00	1.10E-03	4.74	1.32
ENSG00000146223	<i>RPL7L1</i>	1.96	5.90E-06	49.26	13.30
ENSG00000185088	<i>RPS27L</i>	1.94	6.01E-06	218.11	59.72
ENSG00000037241	<i>RPL26L1</i>	1.93	1.04E-05	391.71	110.30
ENSG00000140988	<i>RPS2</i>	1.90	4.78E-06	285.05	80.38
ENSG00000244053	<i>RPL13AP2</i>	1.88	3.26E-04	29.13	8.51
ENSG00000156482	<i>RPL30</i>	1.84	1.26E-05	385.05	115.17
ENSG00000125844	<i>RRBP1</i>	1.82	1.55E-04	53.85	16.85
ENSG00000105372	<i>RPS19</i>	1.79	2.83E-05	448.52	140.25
ENSG00000137818	<i>RPLP1</i>	1.79	5.90E-05	321.67	101.39
ENSG00000231500	<i>RPS18</i>	1.78	2.45E-05	165.89	51.34
ENSG00000131469	<i>RPL27</i>	1.74	3.06E-05	100.63	32.62
ENSG00000108107	<i>RPL28</i>	1.73	6.47E-05	91.65	29.92
ENSG00000163584	<i>RPL22L1</i>	1.72	1.20E-03	8.04	2.65
ENSG00000067533	<i>RRP15</i>	1.66	1.17E-03	89.60	30.28
ENSG00000142534	<i>RPS11</i>	1.63	3.91E-05	193.39	67.00
ENSG00000161016	<i>RPL8</i>	1.62	1.26E-05	382.81	131.09
ENSG00000177954	<i>RPS27</i>	1.62	2.00E-04	102.43	36.66
ENSG00000213741	<i>RPS29</i>	1.62	6.91E-04	60.32	22.33
ENSG00000147403	<i>RPL10</i>	1.61	2.70E-05	252.98	87.79
ENSG00000170889	<i>RPS9</i>	1.61	6.96E-03	50.07	17.36
ENSG00000198034	<i>RPS4X</i>	1.60	3.78E-05	173.46	61.01
ENSG00000233927	<i>RPS28</i>	1.60	7.38E-05	89.15	31.80
ENSG00000089157	<i>RPLP0</i>	1.59	4.82E-06	598.91	205.65
ENSG00000110700	<i>RPS13</i>	1.59	5.26E-05	322.26	115.72
ENSG00000244398	<i>RPL36AP37</i>	1.59	1.40E-03	23.93	8.68
ENSG00000241343	<i>RPL36A</i>	1.56	7.87E-05	96.05	34.06
ENSG00000072133	<i>RPS6KA6</i>	1.55	2.50E-03	11.59	3.87
ENSG00000223508	<i>RPL23AP53</i>	1.51	5.20E-03	6.65	2.52
Downregulated DEGs					
ENSG00000117676	<i>RPS6KA1</i>	-5.37	2.21E-04	0.30	10.29
ENSG00000242279	<i>RPL7AP54</i>	-4.97	7.08E-04	0.17	1.10
ENSG00000163923	<i>RPL39L</i>	-4.60	1.24E-06	5.88	129.88
ENSG00000224475	<i>RPL7AP40</i>	-4.41	1.39E-05	0.57	10.54

ENSG00000235330	<i>RPL12P25</i>	-4.29	8.25E-04	0.08	0.81
ENSG00000182383	<i>RPL27AP5</i>	-4.08	1.31E-04	0.69	7.66
ENSG00000241451	<i>RPS27P22</i>	-3.90	7.09E-04	0.15	1.55
ENSG00000124541	<i>RRP36</i>	-3.82	1.52E-06	3.29	48.64
ENSG00000233934	<i>RPL21P38</i>	-3.78	3.88E-04	0.07	0.88
ENSG00000226765	<i>RPSAP33</i>	-3.73	1.70E-03	0.10	0.69
ENSG00000242899	<i>RPL7P16</i>	-3.62	9.92E-04	0.05	0.57
ENSG00000114767	<i>RRP9</i>	-3.57	6.95E-05	2.77	25.65
ENSG00000239199	<i>RPL21P6</i>	-3.57	9.91E-04	0.16	1.32
ENSG00000244563	<i>RPS26P19</i>	-3.47	3.75E-03	0.32	2.27
ENSG00000007520	<i>TSR3</i>	-3.17	4.87E-04	1.99	13.55
ENSG00000230071	<i>RPL4P6</i>	-2.82	1.00E-05	2.20	15.99
ENSG00000177181	<i>RIMKLA</i>	-2.77	1.76E-06	34.25	232.19
ENSG00000213876	<i>RPL7AP64</i>	-2.68	1.06E-05	11.10	70.23
ENSG00000175634	<i>RPS6KB2</i>	-2.56	2.53E-03	0.92	4.16
ENSG00000241668	<i>RPL19P11</i>	-2.51	1.37E-04	2.36	14.31
ENSG00000240356	<i>RPL23AP7</i>	-2.19	4.58E-04	1.96	9.90
ENSG00000117133	<i>RPF1</i>	-2.14	1.90E-05	28.29	124.66
ENSG00000130813	<i>SHFL</i>	-2.08	8.96E-03	4.11	12.86
ENSG00000232938	<i>RPL23AP87</i>	-2.02	9.70E-03	0.91	3.67
ENSG00000101546	<i>RBFA</i>	-1.76	6.87E-04	3.12	10.59
ENSG00000132275	<i>RRP8</i>	-1.71	2.71E-05	10.58	35.96

Table S17. Differentially expressed genes associated with cytoskeleton and extracellular matrix in human MII oocytes (n=5) versus germinal vesicle (GV) oocytes (n=5). (logFC - log2 fold change; FDR - false discovery rate; Mean_MII - average normalised counts for all MII oocyte samples; Mean_GV - average normalised counts for all GV oocyte samples; DEGs - differentially expressed genes)

GeneID	Gene Symbol	logFC	FDR	Mean_MII	Mean_GV
Upregulated DEGs					
ENSG00000108821	<i>COL1A1</i>	4.87	5.18E-03	1.36	0.19
ENSG00000115461	<i>IGFBP5</i>	2.98	4.30E-04	17.89	2.43
ENSG00000262152	<i>GREP1</i>	2.85	2.73E-05	3.01	0.43
ENSG00000138448	<i>ITGAV</i>	2.54	3.42E-05	18.26	3.42
ENSG00000167779	<i>IGFBP6</i>	2.23	3.17E-03	65.47	15.33
ENSG00000258102	<i>MAP1LC3B2</i>	2.18	1.85E-03	7.46	1.83
ENSG00000251297	<i>TUBB7P</i>	2.07	8.65E-04	1263.81	366.60
ENSG00000115457	<i>IGFBP2</i>	2.05	1.91E-03	73.96	16.25
ENSG00000150093	<i>ITGB1</i>	2.00	3.23E-04	51.24	12.35
ENSG00000171530	<i>TBCA</i>	1.96	2.46E-05	270.54	74.41
ENSG00000196569	<i>LAMA2</i>	1.93	3.88E-05	79.48	21.87
ENSG00000196091	<i>MYBPC1</i>	1.93	1.15E-03	1.10	0.30
ENSG00000074935	<i>TUBE1</i>	1.88	1.01E-04	145.78	39.02
ENSG00000175216	<i>CKAP5</i>	1.85	6.92E-05	1303.75	371.61
ENSG00000050405	<i>LIMA1</i>	1.85	8.80E-05	2274.23	624.46
ENSG00000083457	<i>ITGAE</i>	1.84	3.76E-05	140.93	42.57
ENSG00000180900	<i>SCRIB</i>	1.77	4.12E-03	3.22	1.05
ENSG00000105254	<i>TBCB</i>	1.68	4.40E-06	264.51	85.76
ENSG00000164114	<i>MAP9</i>	1.68	2.49E-05	381.83	124.56
ENSG00000136231	<i>IGF2BP3</i>	1.56	4.86E-04	157.88	52.28
ENSG00000115414	<i>FN1</i>	1.55	2.96E-05	341.03	120.64
ENSG00000197081	<i>IGF2R</i>	1.55	4.50E-04	25.53	8.95
ENSG00000105792	<i>CFAP69</i>	1.54	5.42E-03	2.56	0.85
ENSG00000136108	<i>CKAP2</i>	1.51	4.63E-05	357.62	133.40
ENSG00000091136	<i>LAMB1</i>	1.51	5.24E-05	173.74	61.82
Downregulated DEGs					
ENSG00000188229	<i>TUBB4B</i>	-5.31	2.22E-05	9.83	409.00
ENSG00000259295	<i>CSPG4P12</i>	-5.30	8.05E-04	0.12	2.15
ENSG00000143107	<i>FNDC7</i>	-5.25	9.91E-04	0.25	4.79
ENSG00000228594	<i>FNDC10</i>	-5.16	4.90E-04	0.70	8.64
ENSG00000160808	<i>MYL3</i>	-4.64	6.81E-03	0.15	1.85
ENSG00000243910	<i>TUBA4B</i>	-4.27	2.67E-07	20.14	393.21
ENSG00000123416	<i>TUBA1B</i>	-3.98	2.93E-06	70.56	1004.18
ENSG00000213211	<i>KRT18P64</i>	-3.87	5.20E-03	0.07	0.56
ENSG00000187650	<i>VMAC</i>	-3.56	4.53E-06	1.36	15.75
ENSG00000111057	<i>KRT18</i>	-3.51	5.57E-05	2.60	25.01
ENSG00000235827	<i>TUBB8P9</i>	-3.32	3.21E-05	82.24	770.12
ENSG00000197565	<i>COL4A6</i>	-3.02	5.14E-03	0.45	2.23
ENSG00000162456	<i>KNCN</i>	-2.98	2.17E-03	0.37	2.46

ENSG00000050767	<i>COL23A1</i>	-2.84	9.42E-05	2.43	16.79
ENSG000000237469	<i>TUBB8P10</i>	-2.69	4.13E-04	157.90	1066.31
ENSG000000127824	<i>TUBA4A</i>	-2.68	8.04E-06	538.02	3357.92
ENSG000000075886	<i>TUBA3D</i>	-2.43	5.80E-04	17.28	86.35
ENSG000000178462	<i>TUBAL3</i>	-2.41	2.17E-06	41.74	225.26
ENSG000000224625	<i>TUBB8P6</i>	-2.21	8.17E-06	32.90	158.81
ENSG000000082781	<i>ITGB5</i>	-2.16	9.85E-05	9.39	40.53
ENSG000000162062	<i>TEDC2</i>	-2.01	2.39E-03	3.83	13.12
ENSG000000168056	<i>LTBP3</i>	-1.91	8.52E-03	0.93	2.66
ENSG000000175084	<i>DES</i>	-1.82	3.63E-04	4.32	14.81
ENSG000000278259	<i>MYO19</i>	-1.81	4.47E-04	7.21	25.29
ENSG000000105202	<i>FBL</i>	-1.81	5.61E-03	1.93	6.06
ENSG000000182871	<i>COL18A1</i>	-1.80	9.88E-03	5.36	14.76
ENSG000000105255	<i>FSD1</i>	-1.72	7.72E-03	6.32	15.94
ENSG000000119681	<i>LTBP2</i>	-1.52	5.43E-03	5.30	13.82

Table S18. The up-regulated/down-regulated genes involved in top 10 Gene Ontology pathways in either human or pig dataset.

Table S19. Upstream regulators for MIX (MII + 'damaged', n = 10) versus GV (n = 4) stage oocytes in the pig.

Table S20. Top 25 networks for MIX (MII + 'damaged', n = 10) versus GV (n = 4) stage oocytes in the pig.

Table S21. Causal networks for MIX (MII + 'damaged', n = 10) versus GV (n = 4) stage oocytes in the pig.

Table S22. Upstream regulators for MII (n = 5) versus GV (n = 5) stage oocytes in the human.

Table S23. Top 25 networks for MII (n = 5) versus GV (n = 5) stage oocytes in the human.

Table S24. Causal networks for MII (n = 5) versus GV (n = 5) stage oocytes in the human.

Since Tables S18 to S24 are too large to be included in the thesis, they are deposited at Google Drive under the accession link:
<https://drive.google.com/drive/folders/1pYh7JXned3k6ulBgjluD1V9lUECpPgCz?usp=sharing>.

Chapter 4

The Interplay of Ovarian Ageing, Steroidogenesis and Oocyte Quality

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Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

- the candidate's stated contribution to the publication is accurate (as detailed above);
- permission is granted for the candidate to include the publication in the thesis; and
- the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Contribution to the Paper	Interpreted the data and supervised and conducted critical revision the manuscript		
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1 **The interplay of ovarian ageing, steroidogenesis and oocyte quality**

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8

9 **Abstract**

10 **Background:** The ovary has two major functions, the production of fertilisable oocytes and
 11 the production of the female hormones, oestradiol and progesterone. The latter processes
 12 involve cytochrome P450 enzymes and their electron transport chains. Electron transport can
 13 lead to electron leakage and the generation of reactive oxygen species (ROS). To scavenge
 14 ROS, the ovary contains multiple antioxidant enzymes. Numerous studies have reported that
 15 ovarian ageing results in a reduction of oocyte quality, which is also accompanied by changes
 16 to ovarian steroidogenesis and probably antioxidants. It is still unclear which specific
 17 antioxidant enzymes are changed in granulosa cells, that surround the oocyte, and the oocyte
 18 itself and whether these changes affect oocyte quality.

19 **Results:** In this study, we used public spatial transcriptomic data from mouse ovaries of
 20 young (3-4 months) and advanced aged (15-16 months) mouse. We identified gene clusters
 21 for several ovarian cell/structural types including follicle, stroma, functional corpora lutea
 22 (CL) and regressed CLs as well as epithelial populations. We then focused on the follicle
 23 clusters, separating them into their different cell types including oocytes, granulosa cells
 24 (immature/ mature), thecal cells, lymphatics and vasculature. For each cell type, analysis of
 25 differentially expressed genes between advanced aged versus young mouse ovaries was
 26 performed to explore the effect of ovarian aging on genes related to steroidogenesis and
 27 antioxidant enzymes. We confirmed that advanced aged mature granulosa cells highly
 28 expressed the steroidogenic gene *Cyp19a1* and lowly expressed antioxidant genes *Prdx1* as
 29 well as *Prdx2* compared to their younger counterparts. The gonadotrophin receptor gene
 30 *Lhcgr* was also more highly expressed. Antioxidant genes *Gpx1* and *Gpx3* were significantly
 31 reduced in immature and mature granulosa cells of advanced aged ovaries. Interestingly,
 32 *Gpx1* and *Gpx3* were also downregulated in oocytes and areas connected with lymphatics and
 33 vasculature in advanced aged ovaries. Other differentially downregulated antioxidant genes
 34 of advanced aged ovaries were *Gsr*, *Sod2*, *Prdx1*, *Prdx2* and *Prdx5* in oocytes, *Prdx1* in
 35 vascular cells close to follicles, and *Gpx7*, *Gpx8*, *Cat*, *Gsr*, *Sod2*, *Txn2*, *Txnrd2*, *Prdx1* and
 36 *Prdx5* in lymphatic cells, while *Sod1* was significantly upregulated in oocytes and vascular
 37 cells. Both *Gpx7* and *Prdx4* were highly expressed in oocytes of advanced aged ovaries.
 38 Antioxidant genes remained unchanged in thecal cells. The analysis of oocytes for
 39 aneuploidy revealed that oocytes from advanced aged ovaries had a higher aneuploidy rate
 40 than oocytes from young ovaries.

41 **Conclusions:** Our results suggest that ovarian ageing impairs the antioxidant response in the
42 follicular environment required to counteract increased ROS because of increased
43 steroidogenesis in mature granulosa cells. This imbalance of antioxidant and ROS might
44 account for the poor oocyte health observed during ageing.

45 **Key Words:** Reactive oxygen species / steroidogenesis / oocyte quality / ageing / ovary

46

Introduction

The ovary has two major functions, the production of oocytes to be fertilised by sperm and the synthesis of the sex steroid hormones oestradiol and progesterone, thereby regulating female fertility and endocrine activity in each menstrual cycle [1]. Even so, the ovary plays a crucial role in reproduction; it is functionally more susceptible to ageing compared to any other mammalian tissue [2]. The first evidence is the decrease of oocyte-containing primordial follicles from birth onward. A female infant has 1-2 million primordial follicles and this number substantially declines to 300,000 – 400,000 at puberty and then to below 1,000 at the time of menopause [3, 4]. Along with the reduction of the follicle number, the oocyte quality also declines with ovarian ageing. The proportion of poor quality oocytes rises from 25% at 20 years to above 75% at 40 years [2]. Indeed, more than 40% oocytes in women over 40 years are aneuploid [5]. This increases the risk of miscarriages as well as birth defects, aside of lowering the chances of advanced aged women to conceive naturally and might lead to the need of costly assisted reproductive technologies [6]. Additionally, the delay in childbearing is common in modern society as a growing number of women choose motherhood later in life, especially over 30 years of age [7]. Therefore, there is an increasing interest to uncover the underlying mechanism of how ageing affects the ovarian function including oocyte quality.

Aneuploid oocytes are a major consequence of ovarian ageing and have been considered a major reason for pregnancy failure [8]. Aneuploidy is mostly caused by chromosome segregation errors during meiosis. It has been reported that the bivalent (the pair of homologous chromosomes) possesses two structural defects with age including incorrect kinetochore-spindle microtubule attachment and premature sister kinetochore segregation due to cohesion loss [9]. Another hallmark of ageing cells is increasing oxidative stress, which also leads to chromosomal abnormality. Recent studies show that oxidative stress in oocytes results in premature loss of cohesion and errors in chromosome segregation and hence aneuploidy [10, 11]. Moreover, ovaries of advanced aged women (36-45 years) show three times higher expression of the gene *CYP19A1*, which encodes the major enzyme of oestradiol production, in their follicular granulosa cells than young women (22-34 years) [12]. This increase in steroidogenic activity with age could induce the production of reactive oxygen species (ROS) as the major enzymes for oestradiol and progesterone synthesis are cytochrome P450 enzymes, which require electron transport chains for their activity. The hydroxylation of the substrates by P450 side chain cleavage (gene *CYP11A1*), P450

aromatase (gene *CYP19A1*) and P450 hydroxylase (gene *CYP17A1*) results in electron leakage and subsequent production of oxygen radicals [13], such as superoxide radicals but also peroxides, hydroxyl radicals and singlet oxygen [14]. Therefore, a higher steroidogenic activity in ovarian granulosa cells suggests a higher risk of ROS damage to the granulosa cells and probably their neighbouring oocytes. In this study, we analysed a public spatial transcriptomic profile of mouse ovaries from two different ages and concisely annotated major cell types in the follicle. Using the spatial information, we further distinguished immature granulosa cells from mature granulosa cells. Then, a differential gene expression analysis comparing advanced aged versus young samples regarding the different cell types in the follicles was performed. Identified oocytes were analysed for ploidy status to determine the effect of ageing on oocyte quality.

Results

Spatial transcriptomic profiling of advanced aged and young ovaries

After analysing the files distributed under GSE188257 and filtering out expression spots with < 25 % tissue coverage, we identified 4,191 expression spots with an average of 5,120 genes per spot for downstream analysis. Of these, 2,566 spots were located on ovarian sections of young mouse (n = 4; 3-4 months) and 1,625 spots on ovarian sections of advanced aged mouse (n = 4; 15-16 months). Notably, each spot represents a cell cluster consisting of approximately 5-10 cells, because of 55 μm^2 tissue coverage and 100 μm centre-to-centre distance between spots. Thus, approximately 20,000-40,000 cells were encompassed in this dataset. We identified 24 ovary clusters via K-Nearest Neighbor (KNN)-based clustering (Fig. 1A). Significantly imbalanced cluster abundances between age conditions were observed (Fig. 1B). Eight ovary clusters (ovary cluster: OC0, OC2, OC5, OC7, OC8, OC9, OC19, OC20) were significantly more abundant in ovaries from young mouse, while another eight clusters (ovary cluster: OC1, OC3, OC4, OC6, OC16, OC18, OC21, OC23) were more enriched in ovaries from advanced aged mouse (Figure S1A, *Supporting Information*).

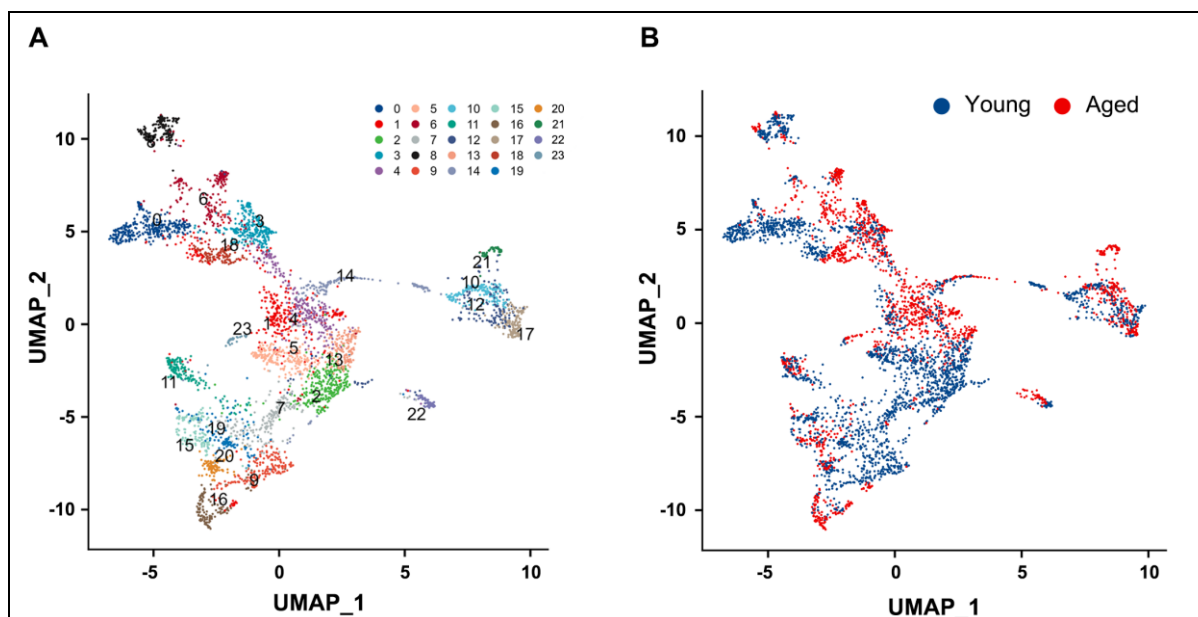


Fig 1. Global transcriptome behaviour in ovaries from young and advanced aged mouse. (A) UMAP plot of the 24 identified clusters (OC0 to OC23). (B) UMAP plot of the age conditions. Blue - young; Red – advanced aged.

Next, we analysed the top 10 most expressed genes per ovary cluster (Fig. 2A) regardless of age conditions and then combined those clusters sharing similar gene expression patterns. The generated seven clusters were annotated as corpus luteum-regressing (CL-R), stroma, follicle, corpus luteum-progressing (CL-P), epithelium 1, epithelium 2, and epithelium 3 (Fig. 2B and Figure S1B, *Supporting Information*). Stroma, CL-R and follicle were the top three clusters, which accounted for 33 %, 27 %, and 21 % of spots, respectively (Figure S1C, *Supporting Information*). The follicle cluster, as expected, was more abundant in ovaries from young mouse (Figure S1D, *Supporting Information*). In contrast, CL-P cluster and epithelium 3 were more abundant in ovaries from advanced aged mouse (Figure S1D, *Supporting Information*).

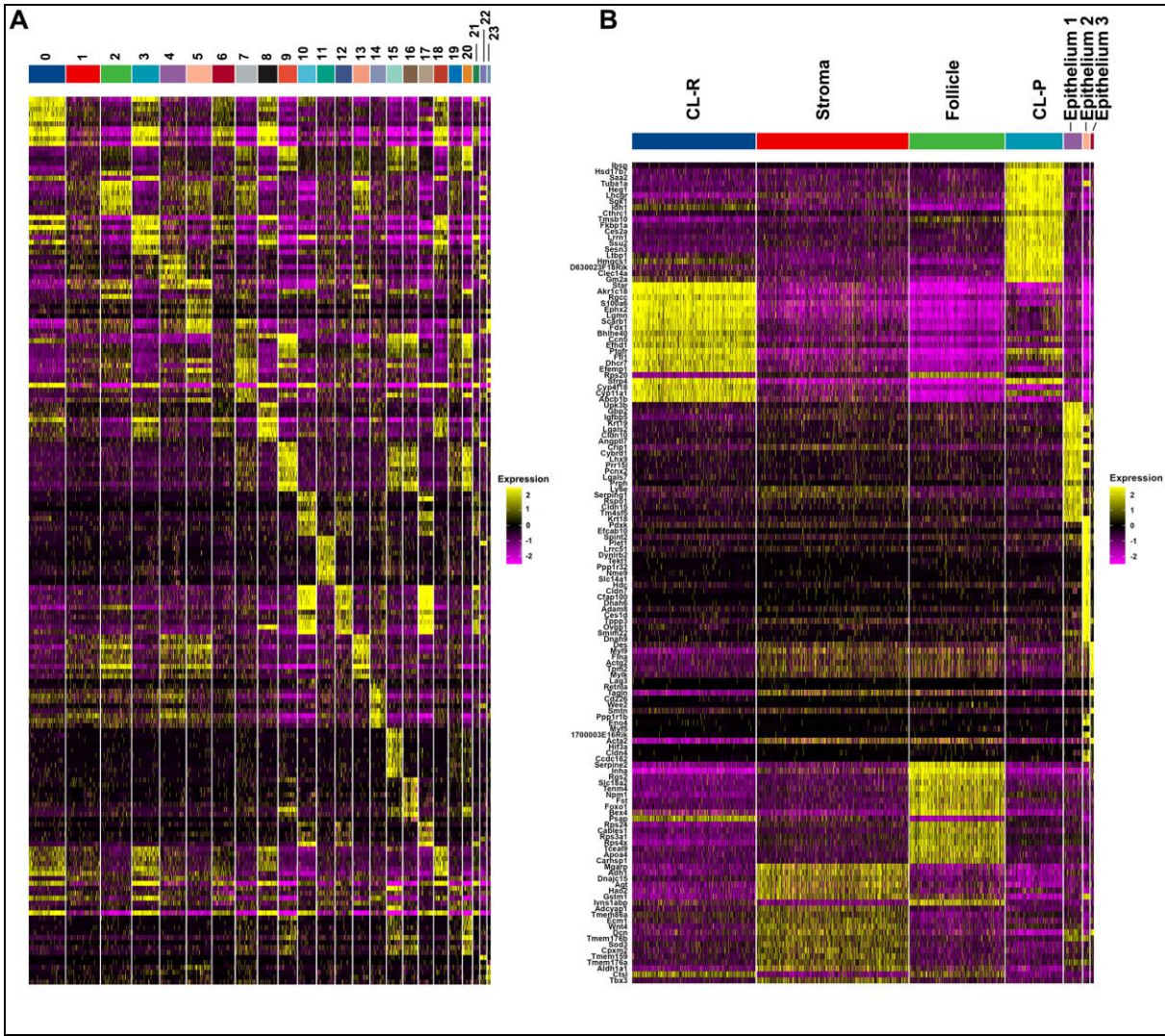


Fig 2. Heatmaps of cluster-specific genes from ovaries. (A) Heatmap showing the top 10 genes per identified ovary cluster (OC0 to OC23). (B) A heatmap showing the top 20 genes per newly-defined clusters [annotated as corpus luteum-regressing (CL-R), stroma, follicle, corpus luteum-progressing (CL-P), epithelium 1, epithelium 2 and epithelium 3] after combining identified clusters sharing similar gene expression pattern in (A). Top genes per cluster were found by a DGE analysis within one cluster, compared to all remaining other clusters. The gradient colour of legend bar represents gene expression values. Yellow - high expression. Pink - low expression.

Sub-cluster analysis of the follicle population

To identify granulosa cells, we re-clustered those spots previously defined as a follicle cluster into six sub-clusters designated as follicle cluster (FC) 0 to 5 (Fig. 3A). A significant imbalance in cluster abundances between age conditions was found for FC0, FC2 and FC4

(Fig. 3B and Figure S2, *Supporting Information*) which corresponded to vasculature, thecal cells and granulosa cells of mature follicles. We analysed the top 10 most highly expressed genes per cluster (Tables S1-6, *Supporting Information*) and also screened the expression of known follicular marker genes (Fig. 3C) for each follicle cluster. With this, follicular sub-clusters FC0, FC1, FC2, FC3, FC4 and FC5 were annotated as vascular cells (markers: *Col15a1*, *Col15a2*, *Col11a1*), lymphatic cells (markers: *Dcn*, *Igf2*), thecal cells (markers: *Lhfp*, *Insl3*, *Mgp*, *Aldh1a1*), oocytes (markers: *Bmp15*, *Zp2*, *Zp3*), granulosa cells from mature follicles (markers: *Cyp19a1*, *Nr5a2*) and granulosa cells from immature follicles (markers: *Ihh*, *Clgn*, *Fam78a*), respectively. Mapping those newly-defined follicle clusters to the original tissue sections revealed a strong correlation to the ovarian morphology (Figure S3, *Supporting Information*).

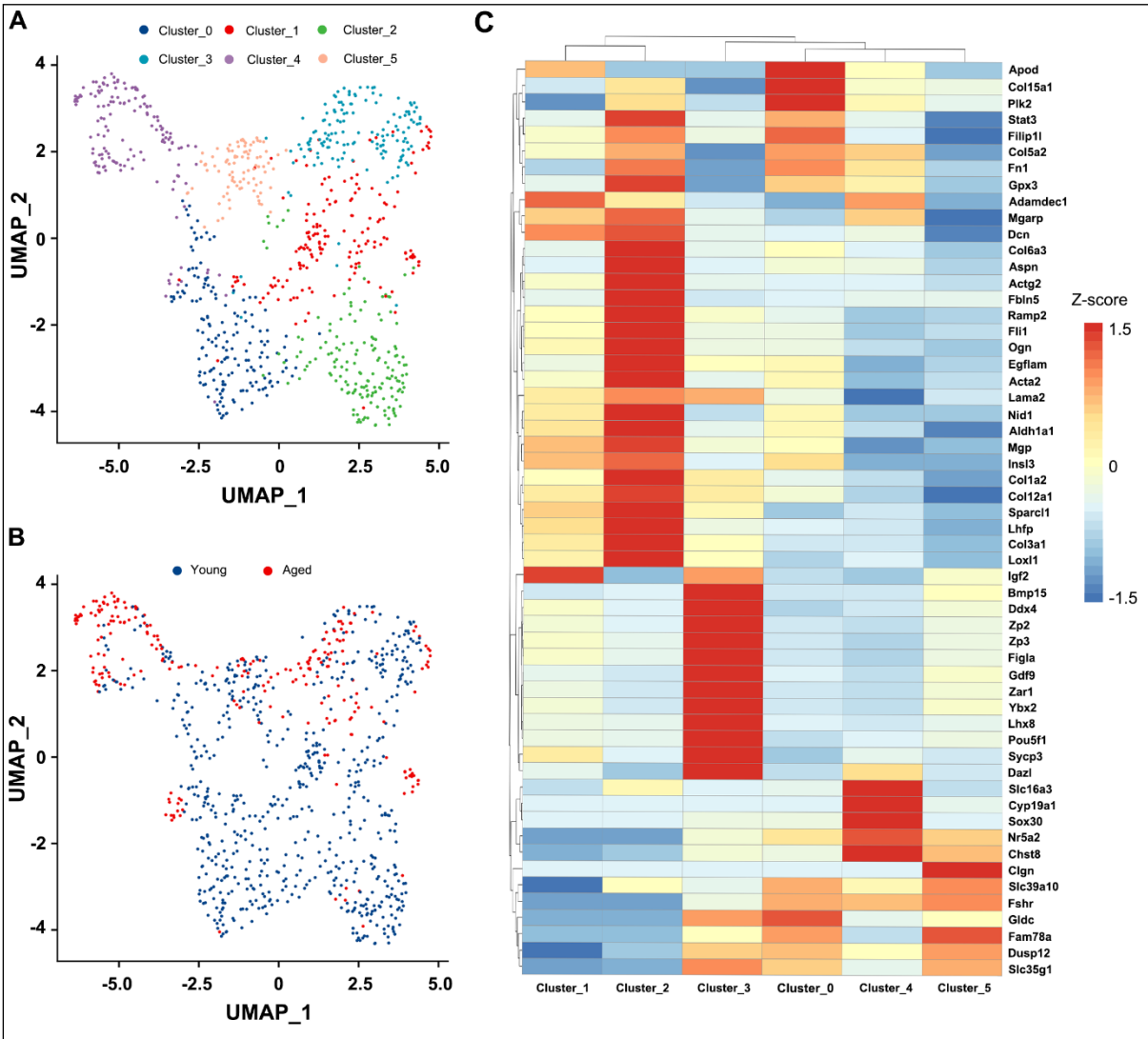


Fig 3. Sub-cluster analysis of the follicle clusters (FC0 to FC5). (A) UMAP plot of six newly-defined clusters in the follicle cluster. (B) UMAP plot of age conditions in the follicle

cluster. Blue - young; Red – advanced aged. (C) Expression of cell type specific marker genes per follicle sub-clusters. Blue – downregulated genes; Red – upregulated genes.

We performed differential gene expression (DGE) analysis between spots per follicle cluster from advanced aged versus young mouse ($\text{FDR} < 0.05$ & $|\log_2(\text{fold change})| > 0.5$; Tables S7-12, *Supporting Information*). In the granulosa cells from mature follicles cluster (FC4), 116 differentially expressed genes were identified, of which 60 genes were upregulated and 56 downregulated (Fig. 4A; Tables S7-12, *Supporting Information*). In the granulosa cells from immature follicles cluster (FC5), 123 differentially expressed genes were found, consisting of 59 upregulated and 64 downregulated genes (Fig. 5A; Tables S7-12, *Supporting Information*). Comparison of expression levels of steroidogenic and antioxidant genes in detail using the normalised counts, revealed that in granulosa cells from mature follicles *Cyp19a1* (aromatase), *Prdx1* (peroxiredoxin 1) as well as *Prdx2* (peroxiredoxin 2) were highly expressed, whereas *Gpx3* (glutathione peroxidase 3) was significantly reduced in advanced aged mouse (Fig. 4B-F; Tables S7-12, *Supporting Information*). *Gpx1* (glutathione peroxidase 1) was remarkably decreased in the granulosa cells from immature follicles cluster (FC5) in advanced aged mouse, whereas other antioxidant genes remained unchanged (Fig. 5B-F; Tables S7-12, *Supporting Information*). Notably, *Cyp19a1* in the granulosa cells from immature follicles cluster was removed from DGE analysis due to its expected low expression. Also, of note and in line with increased *Cyp19a1*, there was increased *Lhcgr* expression in granulosa cells from mature follicles cluster (FC4) (Table S2, *Supporting Information*).

In vascular (FC0), lymphatic (FC1), thecal cell (FC2) and oocyte (FC3) clusters, 610, 137, 6 and 390 differentially expressed genes were found, respectively, by comparing advanced aged mouse with young mouse (Figure S4A-7A, Tables S7-12, *Supporting Information*). Only three antioxidant genes were found in the vascular cluster (FC0), of which *Sod1* (superoxide dismutase 1) was significantly increased, whereas *Gpx1* and *Prdx1* were significantly reduced (Figure S4, Tables S7-12, *Supporting Information*). In the lymphatic cluster (FC1), the expression of ten antioxidant genes including *Gpx1*, *Gpx7* (glutathione peroxidase 7), *Gpx8* (glutathione peroxidase 8), *Cat* (catalase), *Gsr* (glutathione-disulfide reductase), *Sod2* (superoxide dismutase 2), *Txn2* (thioredoxin 2), *Txnrd2* (thioredoxins reductase 2), *Prdx1* and *Prdx5* (peroxiredoxin 5) was significantly lower in advanced aged mouse (Figure S5, Tables S7-12, *Supporting Information*). Antioxidant and steroidogenic genes were unchanged in the thecal cell cluster (FC2) (Figure S6, Tables S7-12, *Supporting*

180 *Information*). In the oocyte cluster, ten antioxidant genes were differentially expressed, of
181 which *Gpx1*, *Gpx3*, *Gsr*, *Sod2*, the peroxiredoxins *Prdx1*, *Prdx2*, and *Prdx5* significantly
182 declined, while *Gpx7*, *Sod1* and *Prdx4* (peroxiredoxin 4) were elevated (Figure S7, Tables
183 S7-12, *Supporting Information*).

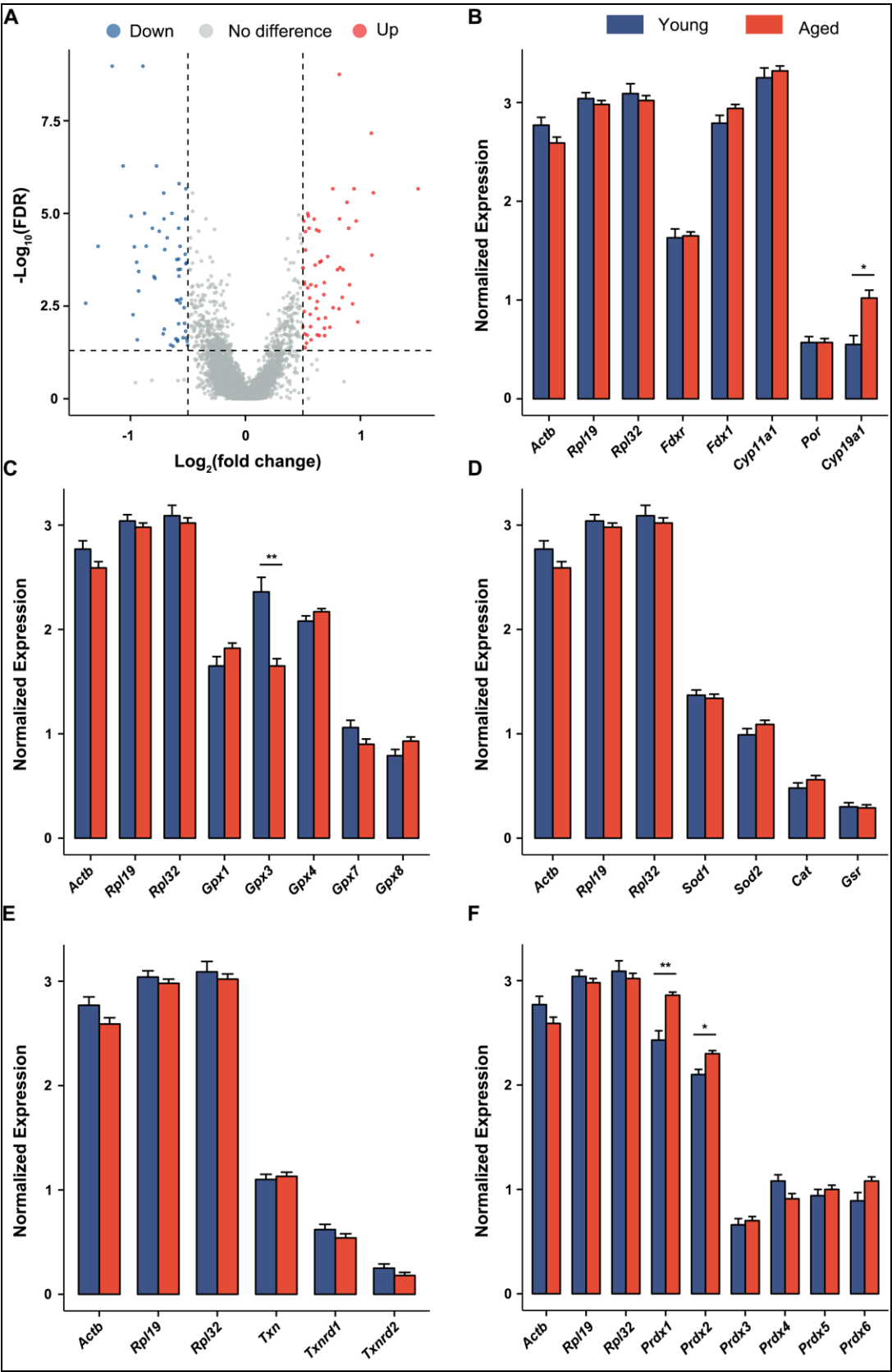


Fig 4. DGE analysis in the granulosa cells from mature follicles cluster (FC4). (A) Volcano plot of the differentially expressed genes by comparison of spots for follicle cluster

4 in ovarian sections of advanced aged mouse versus young mouse. Only genes with $FDR < 0.05$ and $|\log_2(\text{fold change})| > 0.5$ were considered significant. Red – upregulated genes. Blue – downregulated genes. (B) Expression of steroidogenic genes, (C) glutathione peroxidases (*Gpx1*, *Gpx3*, *Gpx4*, *Gpx7* and *Gpx8*), (D) glutathione-disulfide reductase (*Gsr*), sodium dismutases (*Sod1-2*) and catalase (*Cat*), (E) thioredoxins (*Txn2*) and thioredoxin reductases (*Txnrd1-2*) and (F) peroxiredoxins (*Prdx1-6*) in antral granulosa cells of young and advanced aged mouse. Each gene expression graph shows additionally the expression of the house-keeping genes *Actb* (β -actin), *Rpl19* (ribosomal protein L19) and *Rpl32* (ribosomal protein L32). A gene expression of $FDR < 0.05$ was considered significant. * $P < 0.05$, ** $P < 0.01$.

Interestingly, the significant downregulation of *Gpx1* in advanced aged mouse was observed in all clusters except for the thecal cell (FC2) and granulosa cells from mature follicles (FC4) clusters. Another interesting finding was that mitochondria genome-encoding electron transport chain (ETC) components involved in oxidative phosphorylation such as *Nd1* (mitochondrially encoded NADH dehydrogenase 1), *Nd2* (mitochondrially encoded NADH dehydrogenase 2), *Nd3* (mitochondrially encoded NADH dehydrogenase 3), *Nd4* (mitochondrially encoded NADH dehydrogenase 4), *Co1* (Cytochrome c oxidase subunit I), *Co2* (Cytochrome c oxidase subunit II), *Co3* (Cytochrome c oxidase subunit III), *Atp6* (ATP synthase F0 subunit 6), and *Cytb* (cytochrome b) were highly expressed in advanced aged vascular cells, lymphatic cells, oocytes and granulosa cells from immature follicles (Tables S7-12, *Supporting Information*).

To retrieve potential oocytes, we removed all spots with no expression of oocyte-specific genes including *Zp3* (zona pellucida protein 3) and *Gdf9* (growth differentiation factor 9) from sub-cluster 3. We obtained 88 oocytes from young mouse and 37 from advanced aged mouse (Fig. 6A). A PCA analysis was done separately on oocytes from ovaries of young and advanced aged mouse to show relationship between cells and filter out outlier cells within each group (Figure S8, *Supporting Information*). Consequently, 44 out of 88 oocytes from young mouse and 34 out of 37 oocytes from advanced aged mouse remained for further analysis. Then, we identified autosomal aneuploidies in those oocytes by calculating the aneuploidy score, an indicator of gain or loss of chromosome copy number. We found no aneuploid oocytes in young mouse, but four aneuploidies among oocytes from advanced aged mouse (Fig. 6B-C).

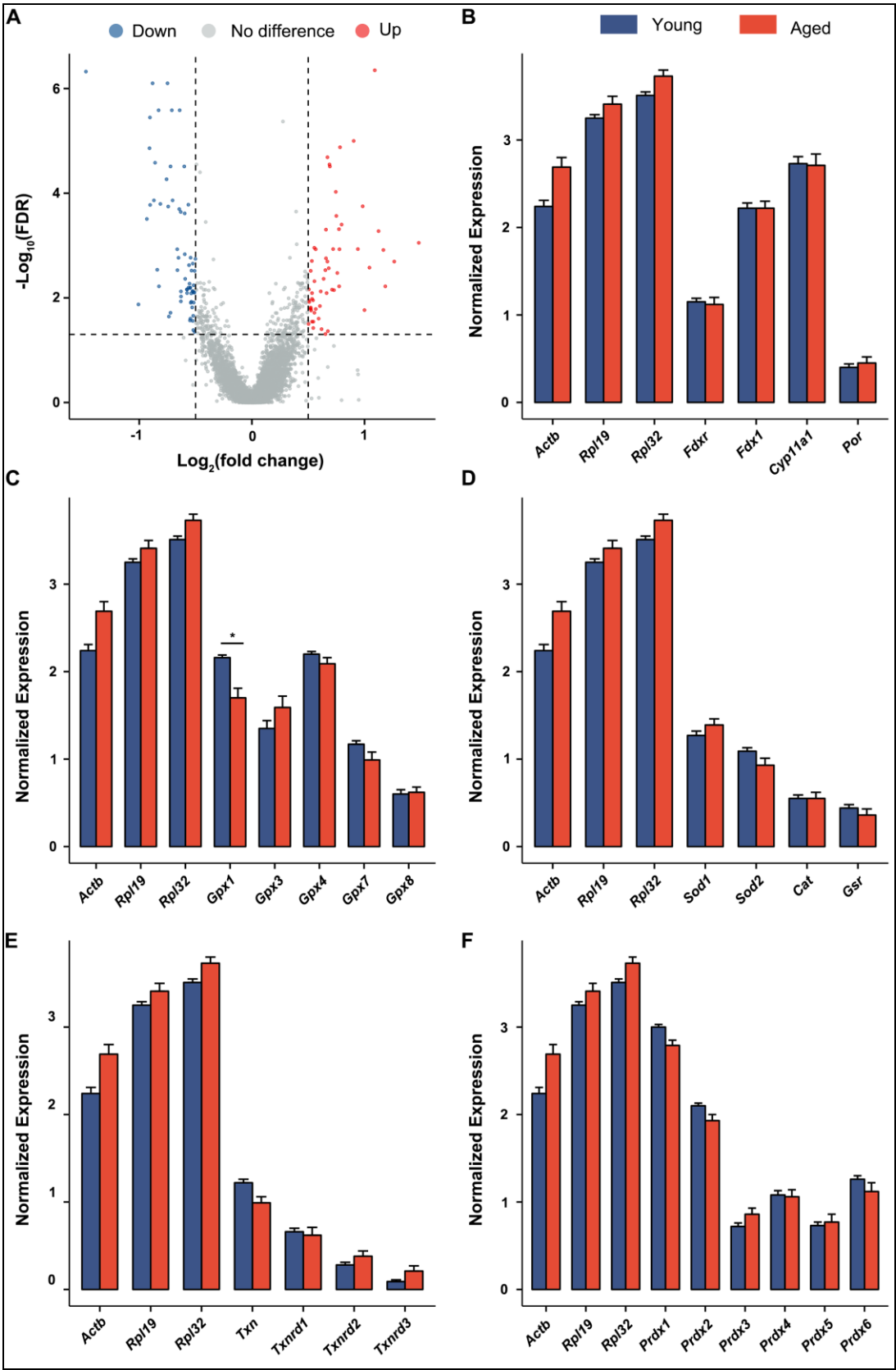


Fig 5. DGE analysis in the granulosa cells from immature follicles cluster (FC5). (A) Volcano plot of the differentially expressed genes by comparison of spots for follicle cluster 5 in ovarian sections of advanced aged mouse versus young mouse. Only genes with FDR <

0.05 and $|\log_2(\text{fold change})| > 0.5$ were considered significant. Red – upregulated genes. Blue – downregulated genes. (B) Expression of steroidogenic genes, (C) glutathione peroxidases (*Gpx1*, *Gpx3*, *Gpx4*, *Gpx7* and *Gpx8*), (D) glutathione-disulfide reductase (*Gsr*), sodium dismutases (*Sod1-2*) and catalase (*Cat*), (E) thioredoxins (*Txn*) and thioredoxin reductases (*Txnrd1-3*) and (F) peroxiredoxins (*Prdx1-6*) in preantral granulosa cells of young and advanced aged mouse. Each gene expression graph shows additionally the expression of the house-keeping genes *Actb* (β -actin), *Rpl19* (ribosomal protein L19) and *Rpl32* (ribosomal protein L32). A gene expression of $\text{FDR} < 0.05$ was considered significant. $*P < 0.05$.

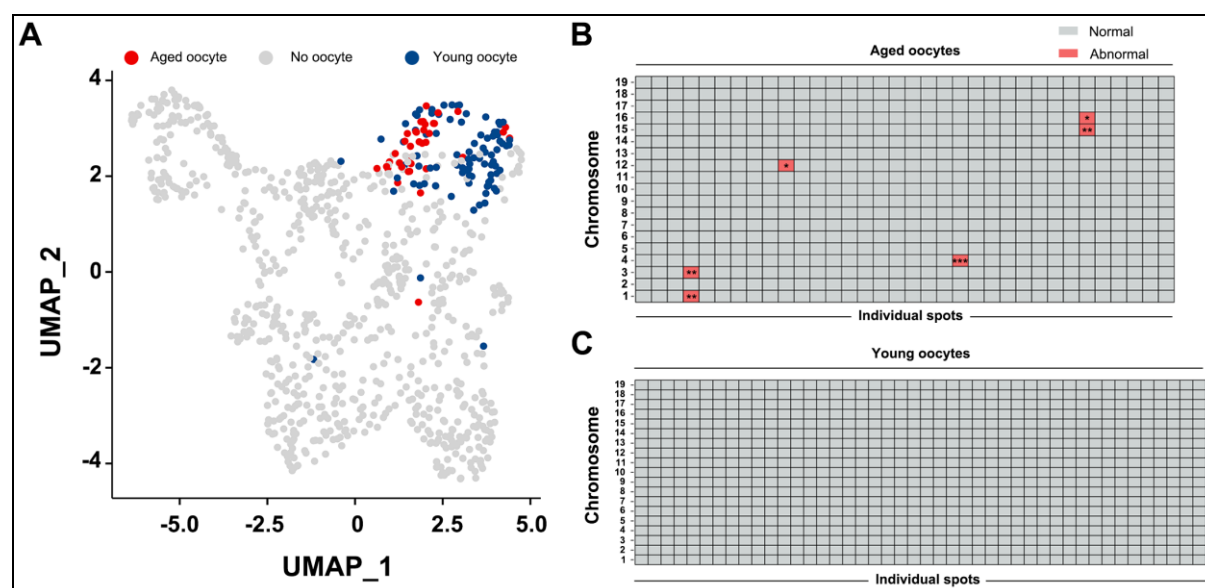


Fig 6. Aneuploidy analysis of the oocyte population. (A) UMAP plot of oocytes from young and advanced aged mouse. Blue – oocytes from young mouse. Red – oocytes from advanced aged mouse. Gray – no oocyte. (B) Autosomal aneuploidy score per spot in the advanced aged oocyte cluster showing individual chromosomes. Red – abnormality, as the score is < 0.8 or > 1.2 meaning a loss or gain of chromosome copy numbers has occurred. $*\text{FDR} < 0.05$; $**\text{FDR} < 0.01$; $***\text{FDR} < 0.001$. (C) Autosomal aneuploidy score per spot in the young oocyte cluster showing individual chromosomes. Red – abnormality, as the score is < 0.8 or > 1.2 meaning a loss or gain of chromosome copy numbers has occurred.

Discussion

Our study focused on the relationship of steroidogenesis and antioxidant enzymes in the ovarian follicle during aging. Using public spatial transcriptomic data from mouse ovaries, we concisely identified the major cell types of the ovarian follicle, especially distinguishing

between granulosa cells from immature and mature follicles. The differential gene expression analysis for each follicular cell type revealed that most genes for antioxidant enzymes were lower expressed in the ovarian sections of advanced aged mouse. We also identified that the gene *Cyp19a1*, which encodes P450aromatase and is essential for oestrogen synthesis, was more highly expressed in advanced aged mouse (1.6 fold) as observed previously in cynomolgus monkeys (1.4 fold and calculated by us from RNA seq data in [15]) and in human (3 fold [12]). Additionally, the *Lhcgr* gene, which encodes the LH receptor and stimulates expression of steroidogenesis in granulosa cells, was also elevated in advanced aged mouse (2.83-fold). However, we found that *Cyp19a1* expression was only increased in granulosa cells from mature follicles and not in immature follicles of advanced aged mouse. Simultaneously, a higher aneuploidy rate was observed in oocytes from ovaries of advanced aged mouse, consistent with previous findings in different species [16-18]. Those results show that steroidogenesis is increased, whereas antioxidant enzymes required to counteract the ROS produced by steroidogenesis are mostly downregulated with age. This would likely result in increase net ROS production in older follicles and this could result in damage to granulosa cells and oocytes with increasing age.

Advanced maternal age is detrimental to oocyte quality and is considered an important physiological cause of reduced female fertility. As shown by previous studies on natural and none-contraceptive populations, the highest reproductive efficiency is found in women in their early 20s and the efficiency declines afterwards. Accordingly, the frequency of poor-quality oocytes rises from approximate 25 % at 20 years age to more than 75 % at 40 years age [2, 19]. Such significant decrease of oocyte quality with ovarian aging results in poor clinical *in vitro* fertilisation (IVF) outcomes. Numerous IVF studies have shown that even though ovarian aging shows no effect on the ability of oocytes to be fertilised, a higher spontaneous abortion rate and a lower implantation rate were found in older women compared to younger women [20, 21]. This may be explained by a cumulatively increasing rate of aneuploidy in advanced aged women, from 45.2% at 37 years of age, 65.6% at 38- 41 years and 82.2% at 42 years of age onwards [22]. Apparently a “two-hit” model dominates the source of aneuploidy in oocytes [23]. The first hit is none or unsuccessfully recombined homolog pairs occurring in fetal life during recombination, whereas the second hit is that oocytes fail to detect and fix this recombination failure in the adult, in the peri-ovulatory period, leading to chromosome missegregation during meiosis. The long interval between these two hits makes aneuploidy rate to be affected by advanced maternal age, especially by

aging-inducing cellular detriments such as ROS [24]. It is widely accepted that aging-derived mitochondria dysfunction results in the increase of electron leakage and hence ROS production in mitochondria [25]. In other words, the oxidative phosphorylation based on electron transport chain (ETC) of mitochondria is less efficient as aging occurs. Moreover, the downregulation of genes involved in the ETC of mitochondria such as *Pdss2* and *Coq6* has been reported in aged mouse oocytes [26]. Interestingly, in our study we found mitochondria genome-encoding ETC components were highly expressed in advanced aged ovaries, and included several cell types in the follicle such as vascular, lymphatic, oocyte and granulosa cells from immature follicles (Table S7-12, *Supporting Information*).

A P450 enzymes-dependent steroidogenesis process could be another source of aging-associated ROS. It was found that *CYP19A1* expression in dominant follicle granulosa cells of advanced aged women was three times higher than in their younger counterparts [12]. Similarly, we also identified that *Cyp19a1* was more abundant in granulosa cells from mature follicles of advanced aged mouse compared to young mouse. Such high steroidogenesis activity in granulosa cells may cause the risk of an increase in ROS due to increased electron leakage. In a typical P450 enzyme reaction cycle, electrons are transferred from NADPH to different key steroidogenic enzymes such as P450scc (encoded by *CYP11A1*), P450C17 (encoded by *CYP17A1*) and P450aromatase (encoded by *CYP19A1*). However, electron leakage can occur in this process and accounts for ROS production. A previous study in bovine adrenal showed that approximate 85% of the electrons were transferred from NADPH to CYP11A1 at during their catalytic function of steroid hydroxylation in reconstituted P450scc and P450c11 systems [27]. Hence, 15% leaked and possibly formed ROS. It has been reported that P450c11 β (encoded by *CYP11B1*) in the mouse adrenal gland produced hydrogen peroxide in response to adrenocorticotrophic hormone [28]. A study using reconstituted P450 systems also revealed electron leakage in P450scc and P450c11 [27].

To counteract potential ROS damage, follicular cells have their antioxidant enzymes such as glutathione peroxidases (GPXs), glutathione-disulfide reductase (GSR), sodium dismutases (SODs), catalase (CAT), peroxiredoxins (PRDXs), thioredoxins (TXNs) and thioredoxin reductases (TXNRDs) [29]. Among them, GPX1 seems the most important enzymatic antioxidant as our recent work has shown that GPX1 is the only antioxidant enzyme, which increases in expression throughout antral follicle growth (Hummitzsch et al. 2023, unpublished data). A previous study also revealed that *GPX1* mRNA levels were significantly elevated in cumulus cells associated with oocytes that resulted in a pregnancy [30]. These

studies suggest that GPX1 has an important antioxidant role during ovarian follicle development. In the present study, the significant decrease in *Gpx1* expression in vascular cells, lymphatic cells, oocytes as well as granulosa cells from immature follicles in advanced aged mouse ovaries compared to young mouse suggests that these cell types might also be more susceptible to damage by ROS. Interestingly, *Gpx3*, instead of *Gpx1*, was reduced in advanced aged granulosa cells from mature follicles. It has been reported that *Gpx3* is one of the major antioxidant genes activated in pig cumulus cells [31], indicating that *Gpx3* has a protective role for oocytes. Therefore, the reduced *Gpx3* in advanced aged granulosa cells from mature follicles may be a cause of poor oocyte developmental competence. Together, such downregulation of GPXs and other antioxidant genes (Table S7-12, *Supporting Information*) impairs the traditional antioxidant pathways, including SOD-GPX or TXN-PRDX [32, 33], which may lead to a non-functional antioxidant system in the follicular environment.

Given that we observed the increasing risk of ROS production and impaired antioxidant system in the follicle during ovarian aging, it was reasonable to conclude that the follicular oocyte is more likely to be damaged by ROS and thereby exhibit aneuploidy. In this study, we observed a clear increase in aneuploidy rates in old oocytes. However, since it is impossible with spatial RNAseq in this study to identify which oocyte was derived from which follicular stage, we cannot confirm at which stage of follicular development the oocyte was at highest risk of ageing-related damage. One limitation of this study was that the resolution of spatial RNAseq is not on a single cell level. This means one spot may contain several cells of different cell types, especially when two cell types are spatially close to each other such as in the thecal layers of the follicle. This may cause contamination in the cluster analysis and errors in our downstream analysis. Integrating spatial transcriptomic profile with single cell transcriptomic profiles for a combined analysis would be an effective way to avoid this defect and obtain individual advantage of both techniques [34, 35]. Therefore, a further study simultaneously undertaking a spatial and single RNAseq on aging ovary is necessary to reveal all effects of aging on ovarian health in a higher resolution. Another limitation of this study is lack of biological replicate data. This limits the quality of the evidence especially for aneuploidy result since no statistical test could be done without knowing the biological replicates. Given that, a more concise experiment design with reasonable biological replicate should be considered in the future.

Conclusions

In summary, our study employed mouse ovarian spatial transcriptomic profiling to concisely identify the major cell types of the ovarian follicle. We then compared the underlying gene expression differences for each follicular cell type between advanced aged and young mouse, thereby giving an overview of how steroidogenic and antioxidant genes change and possibly identify the molecular cause of reduced oocyte quality during ovarian aging.

Methods

Spatial RNAseq data collection and processing

Mouse spatial transcriptomic profiles (accession GSE188257 [36]) were downloaded from the Gene Expression Omnibus (GEO) database. This dataset contains in total eight spatial transcriptomic data files from mouse ovaries of young (3-4 months, n=4) and advanced age (15-16 months, n=4) respectively. Four paired gene expression matrices and H&E stained tissue images (containing one advanced aged and one young ovarian section) were imported into R using Load10x_Spatial function in Seurat package [37] to generate four Seurat objects. Thereby, each image coordinator was extracted as shown on the 10x genomics website (<https://support.10xgenomics.com/spatial-gene-expression/software/pipelines/latest/rkit>) and then added into Seurat objects. Each H&E stained tissue image was divided based on ovarian sections from young or advanced aged mouse. RNAseq expression spots, which had less than 25 % tissue coverage, were removed. PercentageFeatureSet function (pattern = “^mt-”) was used to calculate the percentage of mitochondrial content (percent.mt) in each Seurat object and this variable was used as the regressor for “single cell transform (SCT)” normalization by SCTransform function (vars.to.regress = "percent.mt"). To integrate the four Seurat objects, the output of SelectIntegrationFeatures function (nfeatures = 3000) was treated as the input of PrepSCTIntegration function, followed by running FindIntegationAnchors function (normalization.method = “SCT”) and IntegrateData function (normalization.method = “SCT”). The Integrated Seurat object was used for down-stream analysis. RunPCA function (npcs = 50), FindNeighbors function (dims = 1:50, k.param = 10, reduction = “pca”), FindClusters function (resolution = 0.9) and RunUMAP function (dims = 1:50) were run consecutively to finish linear/non-linear dimension reduction and graph-based clustering. Next, the differences between advanced aged and young mouse cluster proportions were assessed by Fisher exact test and the *P* value was adjusted by the false discovery rate (FDR)

approach. Only clusters with $FDR < 0.05$ and $|\text{odd ratio}| > 1.5$ were considered being significant. To find the conserved biomarkers for each cluster irrespective of age condition, FindConservedMarkers function (`group.var = "age"`) was run and the top 10 markers per cluster were used to draw a heatmap. From the originally 24 clusters, those clusters sharing gene expression trends and biomarkers were assigned together to finally form seven cell/structural type populations including corpus luteum-regressing (CL-R), stroma, follicle, corpus luteum-progressing (CL-P), epithelium 1, epithelium 2, and epithelium 3.

For the sub cluster-analysis of the follicle identity, the expression spots were retrieved from original Seurat object and processed with similar pipelines shown above: RunPCA function (`npcs = 30`), FindNeighbors function (`dims = 1:30`, `k.param = 20`, `reduction = "pca"`), FindClusters function (`resolution = 0.5`) RunUMAP function (`dims = 1:30`, `reduction = "pca"`) and Fisher exact test with FDR adjustment. Also, FindAllMarkers function (`only.pos = TRUE`, `min.pct = 0.3`, `logfc.threshold = 0`) was run to retrieve the biomarkers for the newly-formed clusters. The DGE analysis between expression spots on ovarian sections from advanced aged and young mouse in each cluster was done by the FindMarkers function (`assay = "Spatial"`, `logfc.threshold = 0`, `min.pct = 0.3`). Genes with $|\log_2(\text{fold change})| > 0.5$ and $FDR < 0.05$ were considered as differentially expressed genes. To annotate each cluster, AverageExpression(`assay = "Spatial"`, `slot = "counts"`) was used to analyse the average known follicular marker genes (*Acta2*, *Actg2*, *Adamdec1*, *Aldh1a1*, *Apod*, *Aspn*, *Bmp15*, *Chst8*, *Clgn*, *Col12a1*, *Col15a1*, *Col1a2*, *Col3a1*, *Col5a2*, *Col6a3*, *Cyp19a1*, *Dazl*, *Dcn*, *Ddx4*, *Dusp12*, *Egflam*, *Fam78a*, *Fbln5*, *Figla*, *Filip1l*, *Fli1*, *Fn1*, *Fshr*, *Gdf9*, *Gldc*, *Gpx3*, *Igf2*, *Insl3*, *Lama2*, *Lhfp*, *Lhx8*, *Loxl1*, *Mgarp*, *Mgp*, *Nid1*, *Nr5a2*, *Ogn*, *Plk2*, *Pou5f1*, *Ramp2*, *Slc16a3*, *Slc35g1*, *Slc39a10*, *Sox30*, *Sparcl1*, *Stat3*, *Sycp3*, *Ybx2*, *Zar1*, *Zp2*, *Zp3*) expression in all cells per cluster. To identify oocytes for aneuploidy analysis, cells expressing oocyte-specific markers *Gdf9* (growth differentiation factor 9) and *Zp3* (zona pellucida protein 3) were retrieved.

Aneuploidy inference

The raw counts matrices of oocytes from young and advanced aged mouse identified by the spatial RNAseq analysis workflow described above underwent aneuploidy inference analysis. In detail, to remove highly variable cells, principle component analysis (PCA) based on most informative genes, where their median value of counts per million (CPM) across cells is higher than 50, was done on both oocyte age populations respectively. Forty-four out of 88 cells ($-5 < PC1 < 10$, $-10 < PC2 < 5$) in the oocyte matrix of young mouse remained, while 34

out of 37 cells (with PC1 < 0) in the oocytes matrix of advanced aged mouse were kept. In addition, sex chromosome data in each matrix was filtered out. For aneuploidy analysis, we employed R package scploid [38]. Using those ‘cleaned’ matrices, ploidytest objects were created by makeAneu function and filtered with setParam(param_name = “extreme.gene.thresh”, param_value = 10 (for oocytes from young mouse) or 12 (for oocytes from advanced aged mouse)) Those cutoff values were obtained by running getMaxA function. Then, setParam(param_name = “p.thresh”, param_value = 0.05) function, doAneu function and getScores function were run consecutively to get the aneuploidy calculations. Only cells with $|\text{score} - 1| > 0.2$ and $\text{FDR} < 0.05$ were considered as aneuploid.

Data visualization and code

All plots were drawn by R packages ggplot2 and Seurat. All original code has been deposited at GitHub: <https://github.com/tf1993614/Mouse-ovary-spatial-RNAseq-analysis/tree/main>.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

The data that support the findings of this study are available from the published article and its supplementary information files. The original spatial RNAseq data can be found under GSE188257.

Competing interests

The authors declare no conflicts of interest.

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431 Authors' contributions

432 F.T., K.H. and R.J.R. designed the research; F.T., and K.H. analysed the data; and F.T., K.H.
433 and R.R. wrote the paper. All authors have seen and approved the final version.

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436

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Supplementary figures S1 to S8

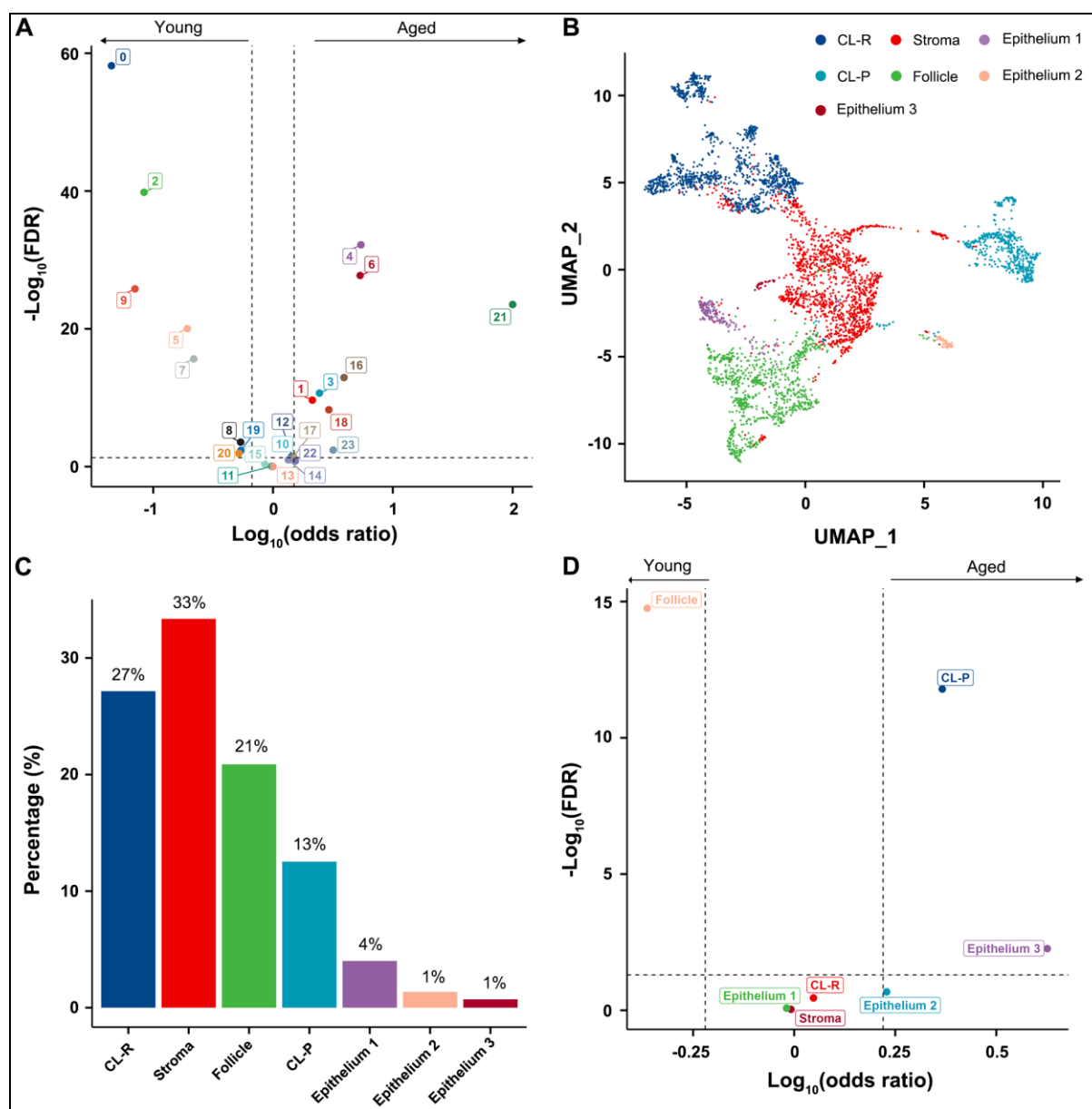


Figure S1. Cluster abundance analysis of the ovaries. (A) Fisher exact test showing the cluster abundance between age conditions in the 24 identified clusters. (B) UMAP plot of newly-combined clusters. (C) The proportion of spots per combined cluster regarding the complete ovarian section. (D) Fisher exact test showing the cluster abundance between age conditions in seven combined clusters. Only clusters with $-\log_{10}(\text{FDR}) > 1.3$ & $|\log_{10}(\text{odds ratio})| > 1.5$ are considered significant.

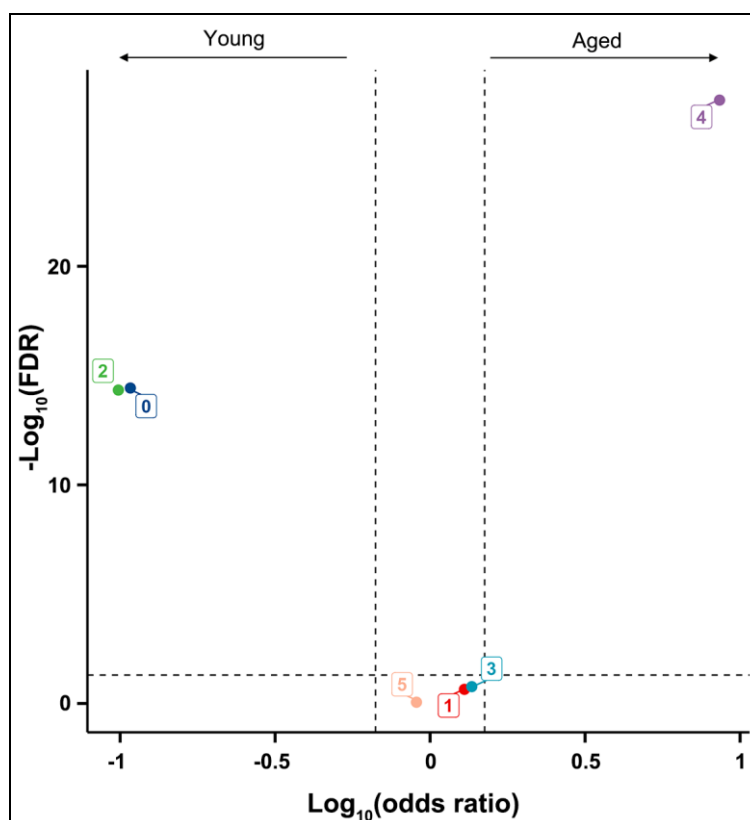


Figure S2. Cluster abundance analysis in the follicle clusters. Fisher exact test showing the cluster abundance between age conditions in the six sub-clusters (FC0 to FC5) of the follicle population. Only clusters with $-\log_{10}(\text{FDR}) > 1.3$ & $|\log_{10}(\text{odds ratio})| > 1.5$ are considered significant.

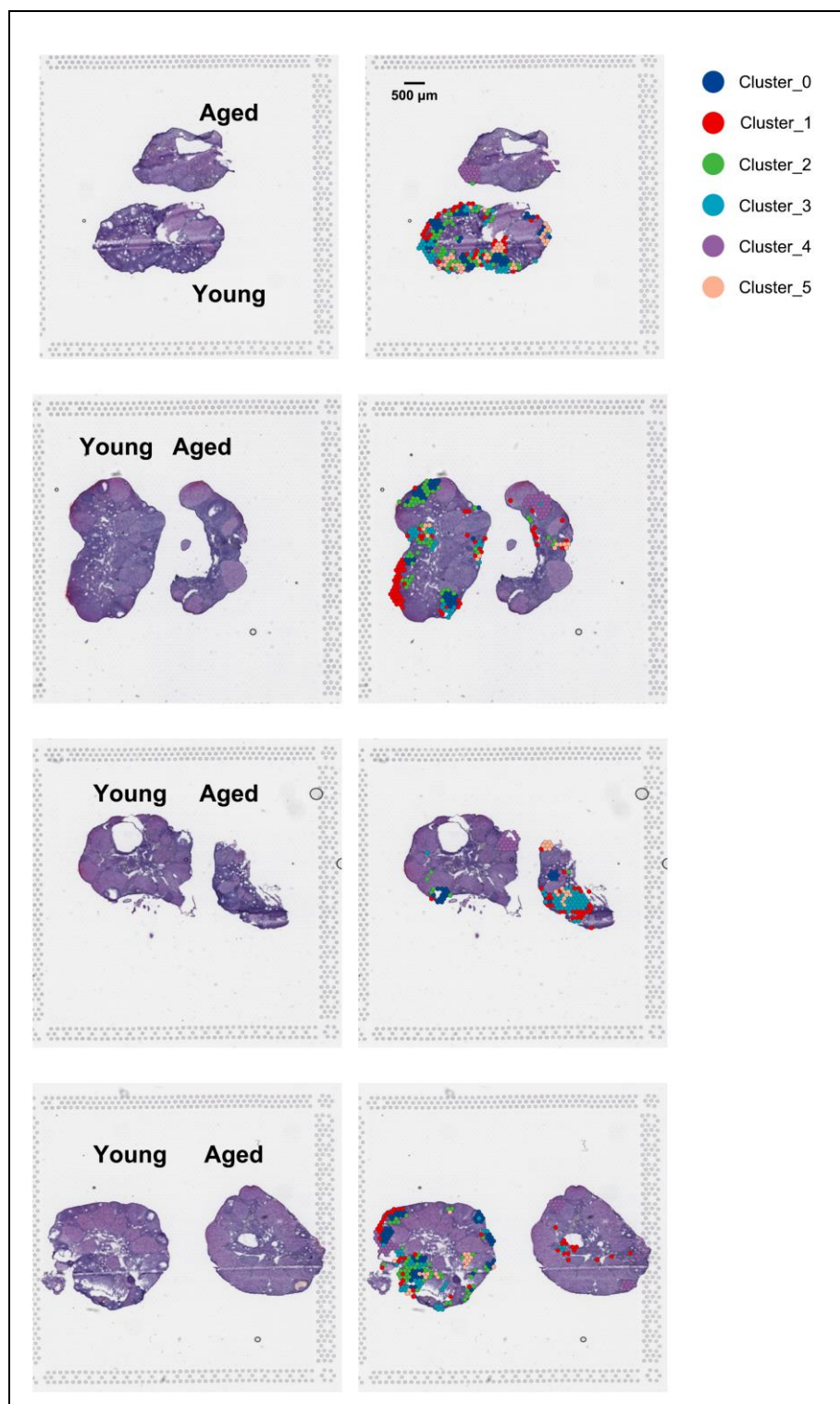


Figure S3. Spatial mapping of follicle sub-clusters. Spatial profiling of the six follicle sub-clusters (FC0 to FC5) on the ovarian tissue sections from young and advanced aged mice, stained by hematoxylin and eosin (HE). Scale bar – 500 μm.

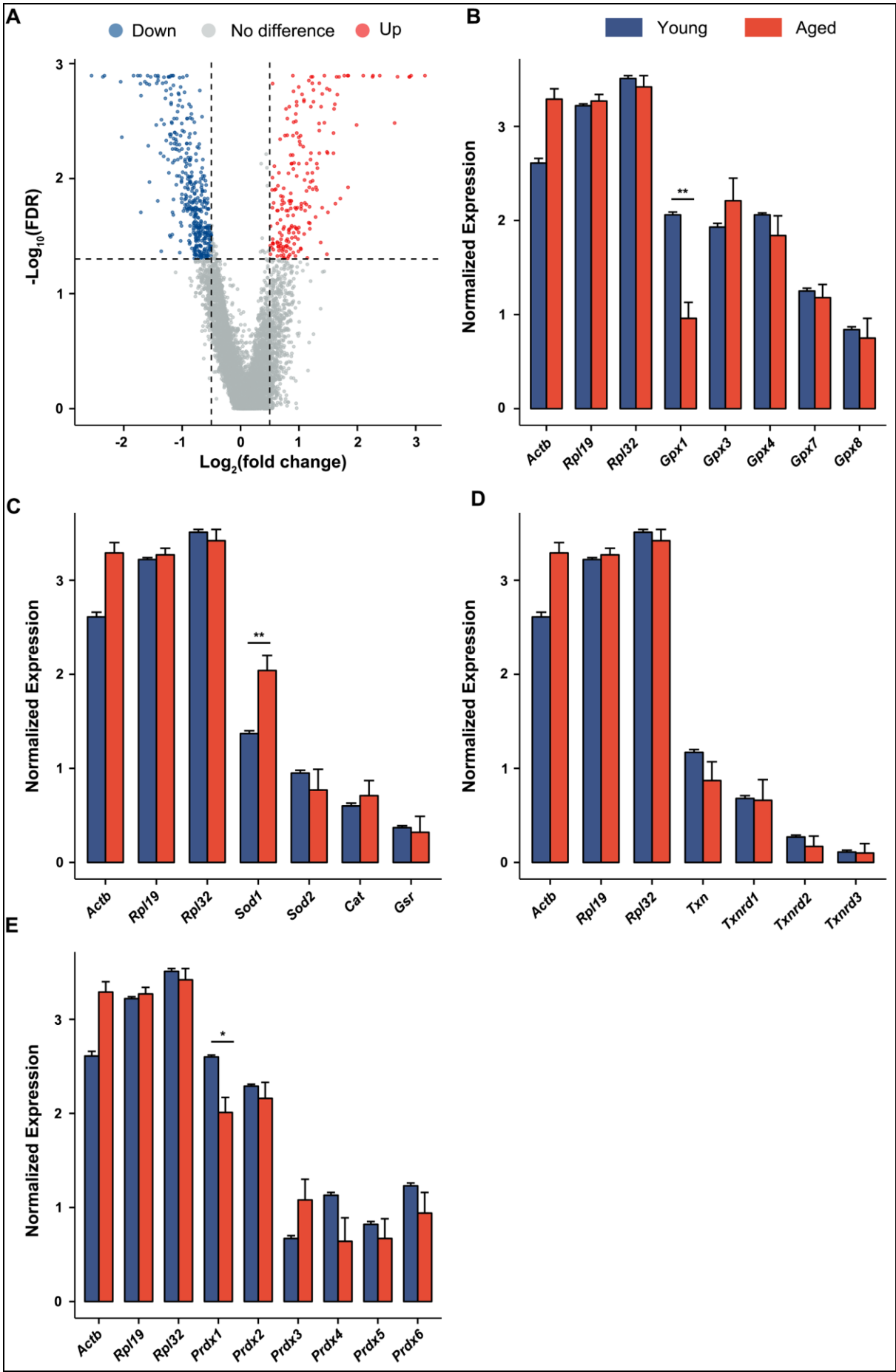


Figure S4. DGE analysis in the follicular vascular cell cluster (FC0). (A) Volcano plot of the differentially expressed genes by comparison of spots for follicle cluster 0 in ovarian sections of advanced aged mice versus young mice. Only genes with $FDR < 0.05$ and $|\log_2(\text{fold change})| > 0.5$ were considered significant. Red – upregulated genes. Blue – downregulated genes. (B) Expression of glutathione peroxidases (*Gpx1*, *Gpx3*, *Gpx4*, *Gpx7* and *Gpx8*), (C) glutathione-disulfide reductase (*Gsr*), sodium dismutases (*Sod1-2*) and catalase (*Cat*), (D) thioredoxins (*Txn*) and thioredoxin reductases (*Txnrd1-3*), and (E) peroxiredoxins (*Prdx1-6*) in follicular vascular cells of young and advanced aged mice. Each gene expression graph shows additionally the expression of the house-keeping genes *Actb* (β -actin), *Rpl19* (ribosomal protein L19) and *Rpl32* (ribosomal protein L32). A gene expression of $FDR < 0.05$ was considered significant. * $P < 0.05$, ** $P < 0.01$.

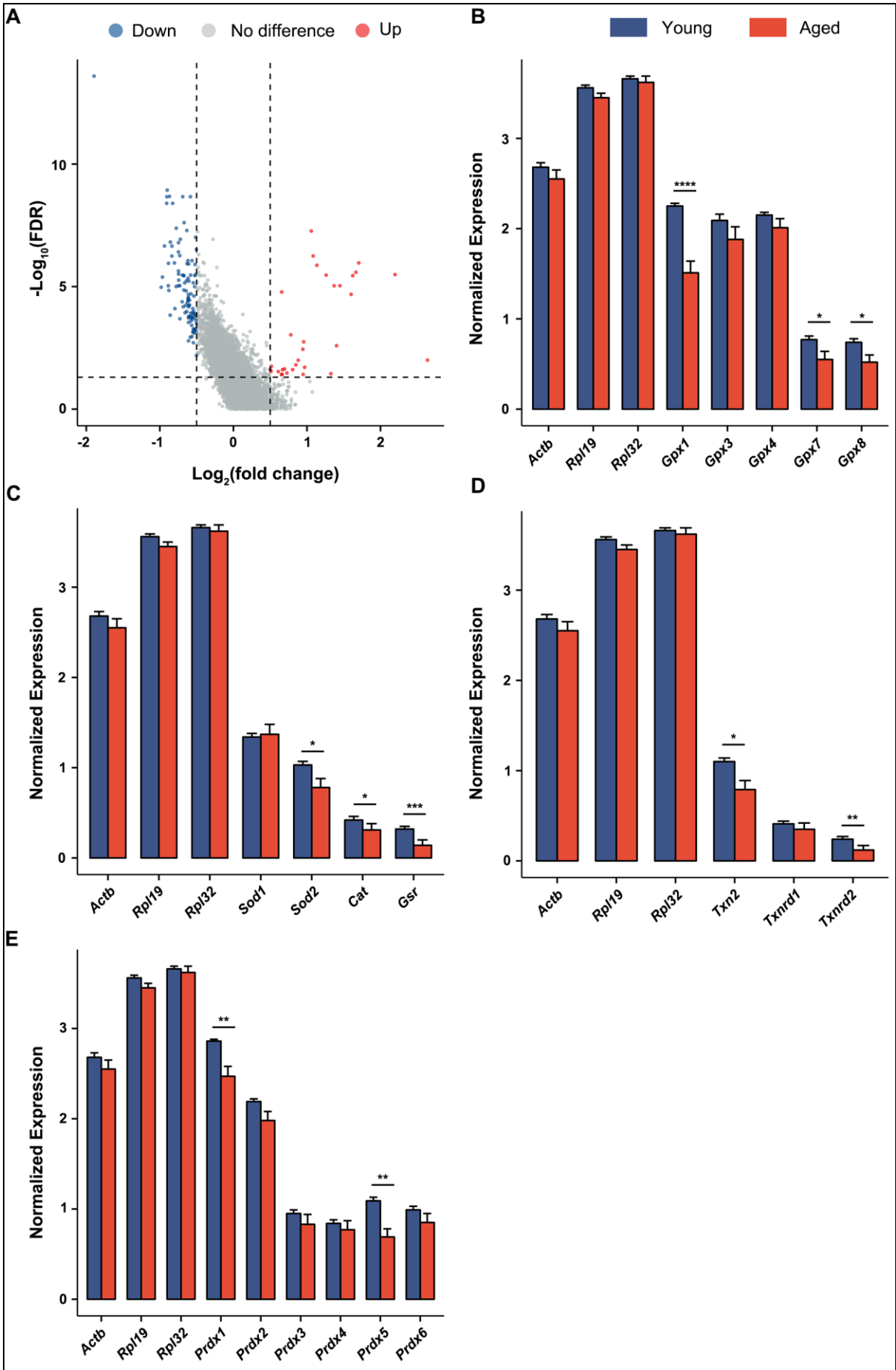


Figure S5. DGE analysis in the follicular lymphatic cell cluster (FC1). (A) Volcano plot of the differential expression genes by comparison of spots for follicle cluster 1 in ovarian sections of advanced aged mice versus young mice. Only genes with $FDR < 0.05$ and $|\log_2(\text{fold change})| > 0.5$ were considered significant. Red – upregulated genes. Blue – downregulated genes. (B) Expression of glutathione peroxidases (*Gpx1*, *Gpx3*, *Gpx4*, *Gpx7* and *Gpx8*), (C) glutathione-disulfide reductase (*Gsr*), sodium dismutases (*Sod1-2*) and catalase (*Cat*), (D) thioredoxins (*Txn2*) and thioredoxin reductases (*Txnrd1-2*) and (E) peroxiredoxins (*Prdx1-6*) in lymphatic cells of young and advanced aged mice. Each gene expression graph shows additionally the expression of the house-keeping genes *Actb* (β -actin), *Rpl19* (ribosomal protein L19) and *Rpl32* (ribosomal protein L32). A gene expression of $FDR < 0.05$ was considered significant. * $P < 0.05$, ** $P < 0.01$ and **** $p < 0.0001$.

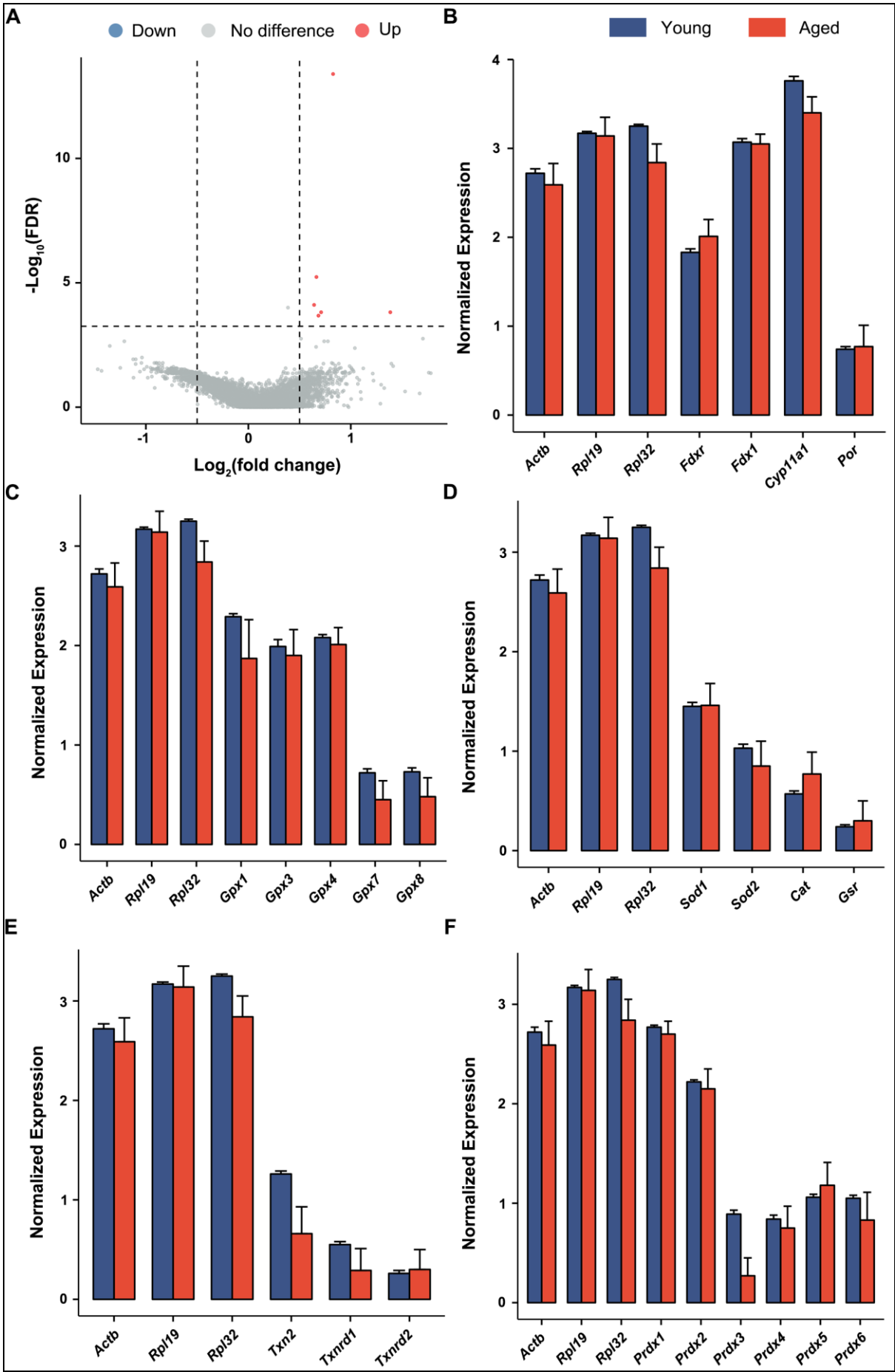


Figure S6. DGE analysis in the follicular thecal cell cluster (FC2). (A) Volcano plot of the differential expression genes by comparison of spots for follicle cluster 2 in ovarian sections of advanced aged mice versus young mice. Only genes with $FDR < 0.05$ and $|\log_2(\text{fold change})| > 1$ were considered significant. Red – upregulated genes. Blue – downregulated genes. (B) Expression of glutathione peroxidases (*Gpx1*, *Gpx3*, *Gpx4*, *Gpx7* and *Gpx8*), (C) glutathione-disulfide reductase (*Gsr*), sodium dismutases (*Sod1-2*) and catalase (*Cat*), (D) thioredoxins (*Txn2*) and thioredoxin reductases (*Txnrd1-2*) and (E) peroxiredoxins (*Prdx1-6*) in thecal cells of young and advanced aged mice. Each gene expression graph shows additionally the expression of the house-keeping genes *Actb* (β -actin), *Rpl19* (ribosomal protein L19) and *Rpl32* (ribosomal protein L32). A gene expression of $FDR < 0.05$ was considered significant.

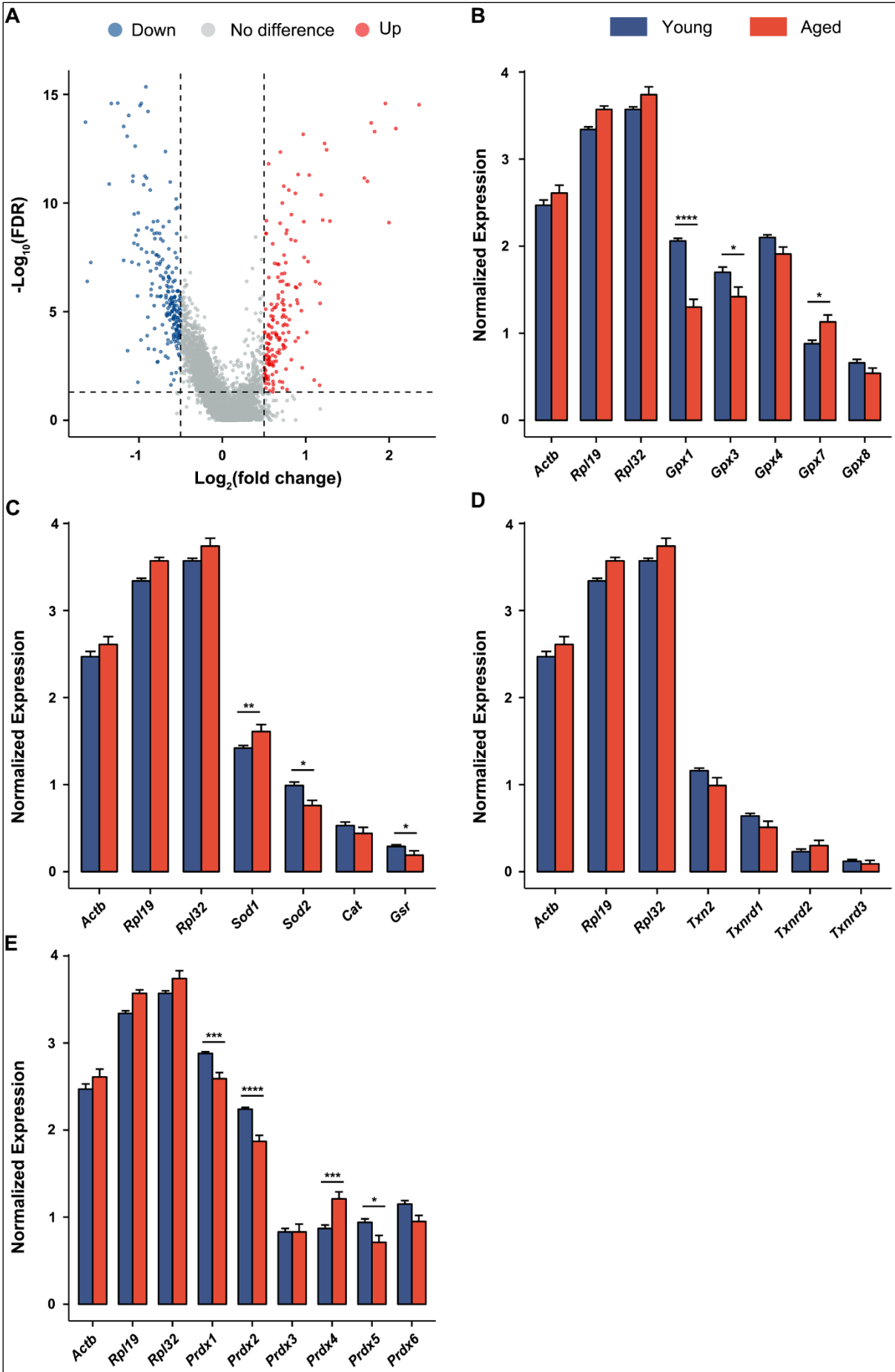


Figure S7. DGE analysis in follicular oocyte cluster (FC3). (A) Volcano plot of the differential expression genes by comparison of spots for follicle cluster 3 in ovarian sections of advanced aged mice versus spots in ovarian sections of young mice. Only genes with $FDR < 0.05$ and $|\log_2(\text{fold change})| > 0.5$ were considered significant. Red – upregulated genes. Blue – downregulated genes. (B) Expression of glutathione peroxidases (*Gpx1*, *Gpx3*, *Gpx4*, *Gpx7* and *Gpx8*), (C) glutathione-disulfide reductase (*Gsr*), sodium dismutases (*Sod1-2*) and catalase (*Cat*), (D) thioredoxins (*Txn2*) and thioredoxin reductases (*Txnrd1-3*) and (E) peroxiredoxins (*Prdx1-6*) in oocytes of young and advanced aged mice. Each gene expression graph shows additionally the expression of the house-keeping genes *Actb* (β -actin), *Rpl19* (ribosomal protein L19) and *Rpl32* (ribosomal protein L32). A gene expression of $FDR < 0.05$ was considered significant. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ and **** $P < 0.0001$.

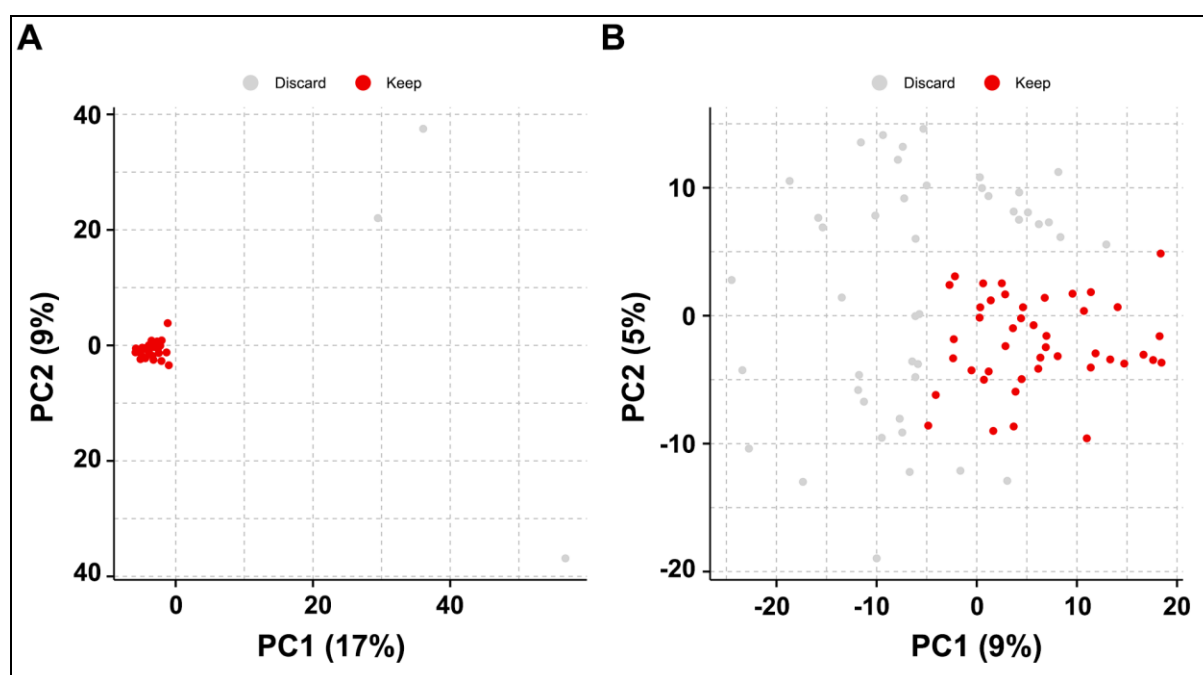


Figure S8. PCA analysis to filter out variable spots in follicular oocyte cluster (FC3). (A) PCA analysis of spots for oocytes in ovarian sections of advanced aged mice. (B) PCA analysis of spots for oocytes in ovarian sections of young mice. Only those spots in red were kept for downstream analysis of aneuploidy.

Supplementary tables S1 to S12

Table S1. Genes differentially expressed between FC0 and other sub-clusters. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
<i>Nupr1</i>	1.35E-60	4.91	0.88	0.21	4.04E-57
<i>Gem</i>	1.52E-65	4.88	1.00	0.72	4.56E-62
<i>Ccn2</i>	6.58E-58	4.76	0.95	0.44	1.97E-54
<i>Pik3ip1</i>	3.1E-59	4.50	0.99	0.61	9.29E-56
<i>Rnase1</i>	1.29E-42	4.28	0.87	0.47	3.88E-39
<i>Arrdc3</i>	6.81E-41	4.27	0.93	0.57	2.04E-37
<i>Prss23</i>	2.38E-55	4.15	0.98	0.68	7.15E-52
<i>Vpreb3</i>	4.77E-21	3.86	0.78	0.43	1.43E-17
<i>Krt20</i>	1.2E-32	3.69	0.87	0.57	3.61E-29
<i>Ptprd</i>	3.12E-52	3.68	0.98	0.69	9.36E-49
<i>Bex1</i>	1.53E-45	3.64	0.98	0.75	4.60E-42
<i>Ace</i>	1.29E-24	3.61	0.75	0.42	3.86E-21
<i>Rnase4</i>	3.83E-17	3.60	0.65	0.33	1.15E-13
<i>Coch</i>	5.05E-23	3.59	0.75	0.25	1.52E-19
<i>Itih2</i>	2.38E-40	3.59	0.90	0.55	7.13E-37
<i>Mmp11</i>	1.35E-23	3.55	0.70	0.36	4.05E-20
<i>Cxcl1</i>	3.98E-35	3.51	0.87	0.51	1.19E-31
<i>H19</i>	3E-21	3.50	0.61	0.21	9.01E-18
<i>Dst</i>	2.76E-45	3.47	0.93	0.59	8.27E-42
<i>Cyp1b1</i>	5.13E-39	3.45	0.93	0.57	1.54E-35
<i>Serpinb1a</i>	1.37E-28	3.38	0.93	0.65	4.10E-25
<i>Adamts2</i>	2.21E-44	3.34	0.98	0.70	6.63E-41
<i>Edn1</i>	6.5E-21	3.30	0.72	0.36	1.95E-17
<i>Plxdc2</i>	3.77E-44	3.30	0.96	0.74	1.13E-40
<i>Sox4</i>	2.09E-37	3.30	0.91	0.60	6.27E-34
<i>Pik3r1</i>	7.9E-33	3.26	0.93	0.63	2.37E-29
<i>Arhgdig</i>	1.53E-18	3.15	0.80	0.41	4.59E-15
<i>Grb14</i>	5.6E-56	3.13	0.99	0.81	1.68E-52
<i>Sema5a</i>	3.34E-49	3.12	0.98	0.76	1.00E-45
<i>Col11a1</i>	1.77E-25	3.11	0.86	0.65	5.32E-22
<i>Adamts5</i>	6.88E-25	3.10	0.80	0.43	2.06E-21
<i>Fhl1</i>	2.84E-35	3.03	0.93	0.64	8.53E-32
<i>Ddit4l</i>	5.34E-30	3.03	0.99	0.85	1.60E-26
<i>Myc</i>	3.12E-24	3.02	0.91	0.65	9.36E-21
<i>Slc40a1</i>	3.19E-28	3.00	0.87	0.47	9.57E-25
<i>Dmp1</i>	1.42E-17	2.99	0.47	0.04	4.25E-14
<i>Nr0b1</i>	4.68E-18	2.98	0.71	0.39	1.40E-14
<i>Tmsb10</i>	1.04E-36	2.98	0.97	0.68	3.11E-33
<i>Crim1</i>	6.16E-35	2.93	0.93	0.52	1.85E-31
<i>Zfp36l2</i>	1.04E-35	2.91	0.93	0.66	3.13E-32
<i>Cfh</i>	1.77E-48	2.89	0.97	0.57	5.32E-45

<i>Plp1</i>	7.08E-10	2.88	0.69	0.46	2.12E-06
<i>Mlf1</i>	6.64E-34	2.79	0.97	0.66	1.99E-30
<i>1110032F04Rik</i>	1.24E-29	2.78	0.95	0.65	3.71E-26
<i>Pdlim1</i>	6.74E-16	2.77	0.86	0.59	2.02E-12
<i>Tshz1</i>	9.3E-24	2.76	0.92	0.65	2.79E-20
<i>Rhobtb1</i>	1.06E-51	2.75	0.99	0.77	3.18E-48
<i>Cd36</i>	8.82E-35	2.73	0.96	0.63	2.65E-31
<i>Nlrp10</i>	2.74E-09	2.65	0.55	0.31	8.23E-06
<i>Ank3</i>	1.57E-29	2.63	0.87	0.45	4.70E-26
<i>Plagl1</i>	2.97E-26	2.62	0.95	0.68	8.90E-23
<i>Actg1</i>	1.43E-51	2.61	0.99	0.83	4.29E-48
<i>Tmtc2</i>	1.52E-26	2.60	0.89	0.57	4.57E-23
<i>Aff3</i>	1.88E-23	2.59	0.90	0.60	5.64E-20
<i>Ctsl</i>	3.82E-46	2.57	0.96	0.47	1.15E-42
<i>Peg10</i>	2.15E-10	2.55	0.58	0.30	6.45E-07
<i>Pqlc1</i>	2.06E-16	2.55	0.82	0.66	6.19E-13
<i>8030451A03Rik</i>	9.98E-37	2.54	0.99	0.76	2.99E-33
<i>Prg4</i>	7.21E-08	2.54	0.60	0.39	2.16E-04
<i>Sel1l3</i>	1.11E-24	2.54	0.93	0.68	3.32E-21
<i>Gm48053</i>	3.56E-06	2.52	0.30	0.34	1.07E-02
<i>Ghr</i>	1.43E-21	2.49	0.79	0.40	4.29E-18
<i>Dusp26</i>	2.94E-08	2.42	0.43	0.08	8.83E-05
<i>Chchd10</i>	5.09E-09	2.40	0.45	0.18	1.53E-05
<i>Dpysl5</i>	4.1E-26	2.35	0.88	0.52	1.23E-22
<i>Itgav</i>	3.24E-32	2.33	0.96	0.69	9.72E-29
<i>Bmp3</i>	2.24E-23	2.33	0.94	0.62	6.72E-20
<i>Klhdc7a</i>	3.8E-12	2.33	0.39	0.09	1.14E-08
<i>Tnnt1</i>	1.56E-12	2.31	0.43	0.24	4.68E-09
<i>Egr1</i>	1.25E-26	2.31	0.88	0.52	3.76E-23
<i>Spsb1</i>	2.43E-32	2.30	0.96	0.74	7.28E-29
<i>Tceal9</i>	9.89E-37	2.28	1.00	0.85	2.97E-33
<i>Thbs1</i>	6.05E-46	2.21	0.99	0.78	1.82E-42
<i>Syne2</i>	5.1E-19	2.21	0.89	0.68	1.53E-15
<i>Sptb</i>	2.84E-19	2.20	0.67	0.23	8.52E-16
<i>Hepacam</i>	1.65E-11	2.20	0.33	0.08	4.96E-08
<i>Plbd1</i>	7.64E-11	2.19	0.82	0.65	2.29E-07
<i>Gadd45b</i>	3.15E-16	2.19	0.57	0.27	9.44E-13
<i>Crispld2</i>	1.99E-15	2.18	0.82	0.58	5.96E-12
<i>Rapgef4</i>	4.73E-11	2.17	0.66	0.45	1.42E-07
<i>Nos2</i>	1.84E-23	2.15	0.92	0.70	5.51E-20
<i>Pamr1</i>	3.58E-08	2.15	0.55	0.27	1.07E-04
<i>Lama1</i>	1.01E-12	2.14	0.87	0.67	3.03E-09
<i>Apoa1</i>	5.47E-23	2.14	0.94	0.74	1.64E-19
<i>Cables1</i>	4.07E-38	2.11	0.98	0.80	1.22E-34
<i>Tpd52l1</i>	1.97E-28	2.10	0.91	0.51	5.91E-25
<i>Ptbp3</i>	5.77E-12	2.10	0.84	0.66	1.73E-08
<i>Prps2</i>	4.71E-19	2.10	0.92	0.65	1.41E-15
<i>Atf7ip2</i>	3.86E-23	2.09	0.70	0.34	1.16E-19
<i>Ppic</i>	4.13E-32	2.09	0.96	0.69	1.24E-28
<i>Rasl11a</i>	4.62E-16	2.06	0.78	0.54	1.38E-12

<i>Adgrv1</i>	1.81E-13	2.05	0.76	0.49	5.43E-10
<i>C130074G19Rik</i>	1.25E-15	2.00	0.92	0.68	3.74E-12
<i>1110038B12Rik</i>	5.79E-23	1.99	0.96	0.77	1.74E-19
<i>Crabp2</i>	6.55E-17	1.98	0.77	0.50	1.96E-13
<i>Tead2</i>	6.25E-10	1.98	0.75	0.54	1.87E-06
<i>Akr1c14</i>	1.92E-32	1.98	0.99	0.81	5.75E-29
<i>Gpx7</i>	3.78E-29	1.97	0.99	0.80	1.13E-25
<i>Foxo1</i>	3.79E-44	1.97	0.99	0.80	1.14E-40
<i>Bcl11a</i>	1.57E-17	1.95	0.80	0.47	4.72E-14
<i>Tex14</i>	1.51E-21	1.94	0.96	0.75	4.54E-18
<i>Zfp385b</i>	3.76E-17	1.93	0.87	0.63	1.13E-13
<i>Cald1</i>	2.95E-17	1.91	0.68	0.40	8.84E-14
<i>Amer2</i>	2.3E-09	1.90	0.44	0.20	6.89E-06
<i>Rps3a1</i>	9.61E-36	1.86	1.00	0.90	2.88E-32
<i>Npm1</i>	7.23E-25	1.86	0.98	0.89	2.17E-21
<i>Rab3b</i>	5.52E-18	1.86	0.75	0.53	1.65E-14
<i>Dpysl3</i>	3.03E-22	1.84	0.86	0.54	9.10E-19
<i>Mboat2</i>	2.82E-19	1.83	0.94	0.79	8.46E-16
<i>Sulf2</i>	1.18E-30	1.82	0.99	0.80	3.54E-27
<i>Bex4</i>	1.36E-48	1.82	1.00	0.86	4.08E-45
<i>Bmpr1b</i>	1.65E-29	1.80	0.96	0.72	4.96E-26
<i>Cyfp2</i>	1.2E-26	1.80	0.81	0.40	3.60E-23
<i>A730081D07Rik</i>	1.84E-08	1.80	0.52	0.10	5.53E-05
<i>Derl3</i>	6.41E-26	1.79	0.98	0.77	1.92E-22
<i>Anxa3</i>	7.54E-07	1.76	0.77	0.63	2.26E-03
<i>Rragd</i>	1.68E-16	1.75	0.63	0.21	5.05E-13
<i>Smtnl2</i>	1.4E-10	1.74	0.77	0.50	4.20E-07
<i>Omd</i>	4.74E-14	1.74	0.83	0.66	1.42E-10
<i>Arhgap31</i>	1.01E-13	1.72	0.92	0.73	3.04E-10
<i>Rpl23</i>	4.75E-30	1.70	1.00	0.88	1.43E-26
<i>Greb1l</i>	2.05E-07	1.70	0.81	0.61	6.15E-04
<i>Ivns1abp</i>	1.51E-36	1.69	1.00	0.78	4.54E-33
<i>Tenm4</i>	4.24E-28	1.69	1.00	0.89	1.27E-24
<i>Metrnl</i>	1.26E-18	1.67	0.92	0.75	3.78E-15
<i>Col9a2</i>	2.3E-17	1.67	0.89	0.58	6.89E-14
<i>St3gal4</i>	6.03E-23	1.67	0.97	0.80	1.81E-19
<i>Fhdc1</i>	3.35E-14	1.66	0.76	0.49	1.01E-10
<i>Vwa3b</i>	2.83E-07	1.65	0.30	0.05	8.48E-04
<i>Hpgd</i>	2.64E-25	1.65	0.97	0.72	7.92E-22
<i>Tut4</i>	4.36E-15	1.64	0.88	0.68	1.31E-11
<i>Rgs11</i>	1.77E-06	1.63	0.57	0.43	5.32E-03
<i>Ptprr</i>	1.3E-12	1.61	0.66	0.40	3.89E-09
<i>Ano4</i>	7.56E-24	1.61	0.97	0.76	2.27E-20
<i>Tes</i>	2.47E-18	1.61	0.81	0.48	7.40E-15
<i>Thbs4</i>	4.2E-23	1.61	0.94	0.75	1.26E-19
<i>Mras</i>	1.34E-17	1.60	0.90	0.68	4.02E-14
<i>Esr2</i>	1.67E-17	1.59	0.87	0.64	5.02E-14
<i>Gls</i>	4.27E-27	1.59	0.97	0.76	1.28E-23
<i>Dynap</i>	6.19E-12	1.59	0.75	0.52	1.86E-08
<i>Fam78a</i>	1.3E-10	1.59	0.83	0.67	3.90E-07

<i>Fbn2</i>	4.88E-06	1.54	0.72	0.54	1.47E-02
<i>Aicda</i>	2.28E-10	1.54	0.71	0.51	6.83E-07
<i>Slc38a3</i>	2.7E-20	1.53	0.95	0.74	8.09E-17
<i>Bmpr2</i>	7.68E-26	1.53	0.97	0.72	2.31E-22
<i>Tdrd5</i>	2.04E-35	1.53	0.98	0.77	6.12E-32
<i>Grik3</i>	3.06E-14	1.52	0.85	0.58	9.18E-11
<i>Slc38a5</i>	1.81E-27	1.52	0.99	0.67	5.44E-24
<i>Serpine2</i>	1.81E-32	1.51	1.00	0.91	5.43E-29
<i>Spag9</i>	8.85E-12	1.51	0.84	0.67	2.65E-08
<i>AW047730</i>	1.6E-10	1.50	0.52	0.19	4.81E-07
<i>4930404N11Rik</i>	6.69E-09	1.50	0.16	0.45	2.01E-05
<i>Mpped2</i>	2.63E-22	1.50	0.78	0.31	7.88E-19
<i>Vps4b</i>	1.9E-20	1.49	0.77	0.42	5.70E-17
<i>Apoa4</i>	6.73E-27	1.49	0.98	0.76	2.02E-23
<i>Zfp277</i>	6.17E-12	1.49	0.86	0.61	1.85E-08
<i>Itih5</i>	1.33E-17	1.47	0.86	0.55	3.99E-14
<i>4933431K23Rik</i>	2.58E-08	1.46	0.70	0.52	7.73E-05
<i>Rpl37</i>	3.75E-18	1.46	0.98	0.88	1.12E-14
<i>Mfap2</i>	2.98E-09	1.44	0.84	0.70	8.94E-06
<i>Dab2</i>	1.33E-12	1.42	0.92	0.73	3.98E-09
<i>C430049B03Rik</i>	5.24E-15	1.41	0.78	0.48	1.57E-11
<i>Moxd1</i>	9.79E-07	1.39	0.47	0.20	2.94E-03
<i>Snhg1</i>	4.54E-21	1.39	0.93	0.69	1.36E-17
<i>Slc18a2</i>	1.86E-14	1.37	0.99	0.81	5.57E-11
<i>Rpl4</i>	4.56E-24	1.37	0.99	0.89	1.37E-20
<i>Gadd45a</i>	2.1E-06	1.36	0.31	0.09	6.30E-03
<i>Rgs2</i>	3.77E-31	1.36	1.00	0.88	1.13E-27
<i>Ubash3a</i>	1.29E-12	1.36	0.15	0.38	3.87E-09
<i>Arhgap28</i>	6.2E-17	1.35	0.95	0.67	1.86E-13
<i>Fos</i>	1.77E-11	1.35	0.77	0.58	5.31E-08
<i>Rps4x</i>	7.98E-27	1.34	1.00	0.89	2.39E-23
<i>5430414B19Rik</i>	4.35E-20	1.33	0.48	0.13	1.31E-16
<i>Rps24</i>	3.43E-25	1.33	1.00	0.91	1.03E-21
<i>Hmgb3</i>	2.39E-19	1.32	0.94	0.69	7.18E-16
<i>Sema3c</i>	2.49E-06	1.32	0.83	0.69	7.47E-03
<i>Itsn1</i>	3.17E-13	1.32	0.82	0.59	9.50E-10
<i>Dock9</i>	6.08E-13	1.32	0.91	0.66	1.82E-09
<i>Plod2</i>	5.56E-22	1.31	0.96	0.72	1.67E-18
<i>Pdp1</i>	1.82E-15	1.30	0.81	0.52	5.45E-12
<i>Tanc2</i>	4.34E-14	1.27	0.92	0.70	1.30E-10
<i>Vasn</i>	8.66E-06	1.24	0.64	0.47	2.60E-02
<i>Gja1</i>	6.46E-28	1.22	1.00	0.82	1.94E-24
<i>Mif</i>	6.7E-21	1.21	0.98	0.78	2.01E-17
<i>Prkcd</i>	6.69E-19	1.20	0.94	0.66	2.01E-15
<i>Gm35438</i>	9.66E-10	1.19	0.39	0.12	2.90E-06
<i>Dock4</i>	4.34E-10	1.18	0.74	0.52	1.30E-06
<i>Amotl2</i>	6.8E-08	1.18	0.65	0.46	2.04E-04
<i>Ifrd1</i>	2.23E-14	1.18	0.72	0.46	6.68E-11
<i>Stmn1</i>	4.35E-23	1.17	1.00	0.80	1.31E-19
<i>4930502E18Rik</i>	6.31E-12	1.17	0.68	0.33	1.89E-08

<i>Heph</i>	1.26E-21	1.16	0.95	0.78	3.79E-18
<i>Arhgap29</i>	1.84E-12	1.15	0.95	0.78	5.53E-09
<i>Tcf7l2</i>	1.56E-07	1.15	0.70	0.47	4.69E-04
<i>Bex2</i>	1.42E-08	1.15	0.78	0.54	4.26E-05
<i>Hjurp</i>	2.87E-06	1.15	0.78	0.66	8.62E-03
<i>Gramd1a</i>	1.18E-09	1.14	0.72	0.48	3.53E-06
<i>Rnf19b</i>	9.59E-21	1.13	0.89	0.60	2.88E-17
<i>Sncaip</i>	8.91E-16	1.13	0.77	0.42	2.67E-12
<i>Rps11</i>	7.19E-15	1.11	0.97	0.86	2.16E-11
<i>F2r</i>	1E-08	1.11	0.48	0.22	3.01E-05
<i>Ucp2</i>	2.05E-08	1.10	0.50	0.25	6.16E-05
<i>Jam2</i>	7.68E-26	1.09	0.95	0.67	2.31E-22
<i>Gpc4</i>	1.45E-08	1.08	0.84	0.67	4.36E-05
<i>Rpl22</i>	3.87E-19	1.08	0.98	0.85	1.16E-15
<i>Fam162a</i>	1.37E-15	1.06	0.94	0.78	4.12E-12
<i>Sytl4</i>	3.85E-13	1.05	0.93	0.71	1.15E-09
<i>Mrto4</i>	5.33E-15	1.05	0.87	0.65	1.60E-11
<i>Fam227a</i>	3.1E-19	1.01	0.51	0.17	9.29E-16
<i>Fst</i>	8.45E-16	1.01	0.98	0.82	2.53E-12
<i>Poglut1</i>	2.35E-12	1.00	0.83	0.53	7.06E-09
<i>mt-Co1</i>	1.96E-07	1.00	0.84	0.66	5.88E-04
<i>Fabp5</i>	1.92E-10	0.99	0.84	0.63	5.77E-07
<i>Gm19569</i>	2.22E-17	0.99	0.63	0.30	6.65E-14
<i>Mcm6</i>	7.13E-08	0.98	0.93	0.69	2.14E-04
<i>Alas2</i>	1.74E-08	0.97	0.55	0.31	5.22E-05
<i>Cacna1s</i>	1.86E-14	0.96	0.18	0.37	5.57E-11
<i>Nuak1</i>	1.26E-09	0.96	0.54	0.20	3.78E-06
<i>Smim5</i>	1.97E-06	0.96	0.49	0.24	5.91E-03
<i>Magi1</i>	3.2E-06	0.95	0.68	0.49	9.59E-03
<i>Zfp41</i>	6.11E-10	0.94	0.84	0.69	1.83E-06
<i>Rpl27a</i>	6.67E-13	0.93	0.95	0.84	2.00E-09
<i>Tpt1</i>	5.16E-12	0.93	0.89	0.77	1.55E-08
<i>Oprl1</i>	4.22E-07	0.91	0.51	0.27	1.27E-03
<i>Arhgef28</i>	9.64E-13	0.90	0.86	0.60	2.89E-09
<i>Csrp2</i>	1.12E-09	0.88	0.89	0.69	3.36E-06
<i>Bzw1</i>	1.15E-10	0.87	0.63	0.38	3.44E-07
<i>Slc20a1</i>	5.59E-10	0.86	0.61	0.36	1.68E-06
<i>Cyp17a1</i>	7.3E-09	0.85	0.93	0.81	2.19E-05
<i>Hnrnpa1</i>	1.29E-16	0.84	0.98	0.76	3.86E-13
<i>Emilin2</i>	1.11E-07	0.83	0.71	0.49	3.34E-04
<i>Sptbn5</i>	2.56E-21	0.83	0.37	0.13	7.67E-18
<i>Rasl10a</i>	1.3E-15	0.83	0.93	0.71	3.89E-12
<i>Krba1</i>	1.32E-08	0.82	0.82	0.58	3.95E-05
<i>Rps15a</i>	2E-08	0.81	0.96	0.86	6.00E-05
<i>Kazald1</i>	1.55E-05	0.80	0.87	0.73	4.66E-02
<i>Tbca</i>	2.93E-21	0.80	0.98	0.71	8.80E-18
<i>Prelid3a</i>	2.26E-16	0.79	0.02	0.34	6.79E-13
<i>Tub</i>	2.71E-07	0.77	0.24	0.35	8.13E-04
<i>Odc1</i>	7.28E-07	0.76	0.69	0.51	2.18E-03
<i>Rps20</i>	1.07E-14	0.76	0.99	0.92	3.21E-11

<i>Itm2a</i>	1.05E-06	0.74	0.71	0.53	3.14E-03
<i>Runx1t1</i>	2.48E-11	0.74	0.10	0.40	7.43E-08
<i>Rpl28</i>	7.73E-06	0.70	0.93	0.87	2.32E-02
<i>Scg5</i>	2.53E-07	0.70	0.72	0.60	7.60E-04
<i>Prdx6</i>	1.45E-10	0.66	0.70	0.44	4.35E-07
<i>Itga2</i>	3.86E-08	0.65	0.61	0.33	1.16E-04
<i>Tmem266</i>	2.74E-06	0.65	0.42	0.19	8.22E-03
<i>Endod1</i>	8.51E-06	0.65	0.46	0.30	2.55E-02
<i>Carhsp1</i>	1.56E-12	0.64	0.98	0.82	4.67E-09
<i>P3h4</i>	9.52E-06	0.64	0.69	0.55	2.86E-02
<i>Elmo1</i>	4.92E-06	0.64	0.45	0.25	1.48E-02
<i>Sox30</i>	3.09E-06	0.61	0.41	0.17	9.26E-03
<i>Ewsr1</i>	1.09E-05	0.61	0.75	0.57	3.26E-02
<i>Epas1</i>	7.13E-08	0.60	0.54	0.34	2.14E-04
<i>Cst3</i>	2.9E-08	0.57	0.31	0.22	8.69E-05
<i>Nap1l5</i>	3.04E-07	0.57	0.92	0.75	9.12E-04
<i>Fth1</i>	7.32E-08	0.56	0.63	0.42	2.20E-04
<i>Akr1b7</i>	5.19E-07	0.53	0.48	0.24	1.56E-03
<i>Ctxn1</i>	4.55E-06	0.53	0.74	0.57	1.36E-02
<i>Bok</i>	3.55E-09	0.51	0.90	0.71	1.06E-05
<i>Fndc1</i>	2.06E-11	0.50	0.37	0.13	6.18E-08
<i>Rps12</i>	6.17E-07	0.49	0.93	0.85	1.85E-03
<i>Smoc2</i>	1.21E-06	0.49	0.52	0.71	3.63E-03
<i>Ncl</i>	6.57E-08	0.48	0.87	0.71	1.97E-04
<i>Lmo4</i>	6.5E-06	0.46	0.48	0.30	1.95E-02
<i>Gm28410</i>	1.49E-07	0.46	0.58	0.34	4.47E-04
<i>Adamts19</i>	9.94E-09	0.45	0.81	0.54	2.98E-05
<i>D030056L22Rik</i>	4.87E-06	0.45	0.37	0.28	1.46E-02
<i>Angpt2</i>	6.06E-11	0.44	0.78	0.46	1.82E-07
<i>BC005537</i>	1.26E-05	0.42	0.43	0.31	3.77E-02
<i>Eef1b2</i>	3.16E-06	0.42	0.98	0.86	9.48E-03
<i>Cnn3</i>	8.07E-14	0.42	0.83	0.57	2.42E-10
<i>Ranbp1</i>	2.44E-08	0.41	0.91	0.75	7.33E-05
<i>Kcne2</i>	8.57E-10	0.39	0.19	0.40	2.57E-06
<i>6330403K07Rik</i>	3.51E-08	0.39	0.69	0.37	1.05E-04
<i>Rps26</i>	1.06E-05	0.37	0.95	0.88	3.19E-02
<i>Gtf2e2</i>	7.02E-08	0.36	0.81	0.64	2.11E-04
<i>Cebpe</i>	3.2E-12	0.36	0.43	0.16	9.59E-09
<i>Cited2</i>	2.98E-09	0.34	0.65	0.44	8.94E-06
<i>Dynll1</i>	1.52E-05	0.32	0.91	0.75	4.55E-02
<i>Pabpc1</i>	8.83E-08	0.30	0.86	0.75	2.65E-04
<i>Ica1l</i>	1.63E-10	0.30	0.29	0.54	4.89E-07
<i>Nr5a2</i>	2.11E-08	0.30	0.97	0.80	6.32E-05
<i>Ikbkb</i>	5.81E-06	0.28	0.60	0.41	1.74E-02
<i>Ddo</i>	2.95E-09	0.27	0.34	0.14	8.85E-06
<i>Adamts10</i>	1.4E-08	0.27	0.78	0.60	4.19E-05
<i>Tmsb15b2</i>	4.72E-11	0.27	0.96	0.71	1.42E-07
<i>Snrpf</i>	1.28E-07	0.26	0.91	0.70	3.85E-04
<i>Dlk1</i>	3.56E-06	0.22	0.19	0.35	1.07E-02
<i>Dnajb13</i>	1.46E-05	0.22	0.69	0.46	4.39E-02

<i>Bank1</i>	1.03E-18	0.22	0.07	0.37	3.10E-15
<i>Ptma</i>	1.1E-13	0.21	0.99	0.89	3.30E-10
<i>Rcn3</i>	9.15E-08	0.21	0.85	0.62	2.75E-04
<i>Zbtb8b</i>	5.81E-07	0.20	0.75	0.56	1.74E-03
<i>Snrpd3</i>	8.6E-08	0.18	0.90	0.75	2.58E-04
<i>mt-Atp8</i>	6.63E-13	0.15	0.42	0.18	1.99E-09
<i>Optc</i>	4.8E-09	0.14	0.46	0.17	1.44E-05
<i>Fam3c</i>	8.6E-09	0.14	0.83	0.62	2.58E-05
<i>Gm13411</i>	1.04E-07	0.13	0.21	0.39	3.11E-04
<i>Fam122a</i>	1.14E-07	0.12	0.55	0.35	3.42E-04
<i>Amhr2</i>	6.15E-07	0.12	0.88	0.75	1.84E-03
<i>Efl1</i>	2.92E-08	0.11	0.88	0.60	8.76E-05
<i>Cdc34b</i>	4.59E-10	0.11	0.17	0.38	1.38E-06
<i>Dag1</i>	2.1E-08	0.10	0.83	0.67	6.30E-05
<i>Fn1</i>	6.12E-06	0.06	0.66	0.48	1.84E-02
<i>Rimklb</i>	1.26E-08	0.02	0.89	0.66	3.77E-05
<i>Nap1l1</i>	8.46E-12	0.02	0.96	0.82	2.54E-08
<i>Myom2</i>	6.45E-06	0.02	0.48	0.33	1.93E-02
<i>Gm45311</i>	2.85E-22	0.01	0.18	0.47	8.54E-19
<i>Tpm1</i>	8E-09	0.01	0.72	0.48	2.40E-05

Table S2. Genes differentially expressed between FC1 and other sub-clusters. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
<i>Adcyap1</i>	1.07E-18	3.81	0.48	0.09	3.21E-15
<i>Islr</i>	4.61E-10	3.20	0.39	0.19	1.38E-06
<i>Slc1a3</i>	1.12E-17	3.13	0.36	0.12	3.35E-14
<i>Slamf7</i>	1.58E-10	3.04	0.43	0.15	4.73E-07
<i>Sfrp1</i>	4.08E-11	3.00	0.48	0.27	1.23E-07
<i>Fzd1</i>	2.62E-10	2.97	0.34	0.19	7.87E-07
<i>Adh7</i>	1.67E-19	2.92	0.40	0.10	5.02E-16
<i>Ttyh1</i>	6.98E-08	2.79	0.55	0.28	2.10E-04
<i>Ptpn22</i>	4.57E-20	2.71	0.35	0.07	1.37E-16
<i>Slc16a9</i>	7.08E-23	2.68	0.34	0.11	2.12E-19
<i>Prdm16</i>	5.33E-11	2.68	0.31	0.09	1.60E-07
<i>Ggh</i>	9.57E-09	2.63	0.54	0.28	2.87E-05
<i>Gm13003</i>	1.78E-07	2.62	0.40	0.15	5.33E-04
<i>Ctxn3</i>	7.6E-26	2.60	0.65	0.19	2.28E-22
<i>Gm49708</i>	2.1E-07	2.45	0.55	0.27	6.30E-04
<i>Cryge</i>	1.21E-12	2.44	0.34	0.17	3.64E-09
<i>Ncam1</i>	1.21E-09	2.39	0.51	0.25	3.64E-06
<i>Dcn</i>	6.64E-25	2.34	0.49	0.18	1.99E-21
<i>C1qtnf12</i>	3.25E-09	2.33	0.68	0.45	9.76E-06
<i>Glpr1</i>	8.54E-25	2.31	0.55	0.13	2.56E-21
<i>mt-Co2</i>	2.56E-14	2.30	0.65	0.29	7.67E-11
<i>Il13ra2</i>	7.96E-09	2.29	0.53	0.26	2.39E-05
<i>Uba7</i>	4.58E-09	2.26	0.42	0.29	1.37E-05
<i>Ptprc</i>	1.19E-08	2.25	0.32	0.14	3.58E-05
<i>Iglc1</i>	2.44E-08	2.19	0.46	0.25	7.32E-05
<i>Actr3b</i>	3.41E-12	2.15	0.51	0.30	1.02E-08
<i>Adcy2</i>	6.73E-06	2.13	0.42	0.25	2.02E-02
<i>Slc22a18</i>	4.25E-26	2.13	0.42	0.14	1.28E-22
<i>mt-Nd1</i>	1.62E-09	2.11	0.62	0.41	4.85E-06
<i>Wnt4</i>	2.38E-20	2.10	0.46	0.15	7.13E-17
<i>Xcl1</i>	1.01E-14	2.09	0.37	0.11	3.02E-11
<i>mt-Nd2</i>	4.33E-15	2.08	0.55	0.22	1.30E-11
<i>Rbp1</i>	3.67E-22	2.08	0.62	0.30	1.10E-18
<i>Btg2</i>	4.69E-07	2.03	0.42	0.32	1.41E-03
<i>Knq2</i>	3.26E-15	2.02	0.36	0.14	9.77E-12
<i>Gm42418</i>	1.67E-05	2.02	0.55	0.41	5.00E-02
<i>mt-Nd3</i>	1.02E-08	2.01	0.52	0.32	3.06E-05
<i>Cabcoco1</i>	1.26E-08	2.00	0.37	0.24	3.79E-05
<i>Egfl8</i>	1.51E-06	1.96	0.48	0.34	4.54E-03
<i>AI504432</i>	2.27E-20	1.96	0.54	0.11	6.81E-17
<i>Adh1</i>	4.12E-23	1.95	0.43	0.14	1.24E-19
<i>Vim</i>	4.1E-16	1.92	0.34	0.16	1.23E-12
<i>Tmem114</i>	2.31E-07	1.91	0.62	0.30	6.93E-04

<i>Rps27</i>	1.54E-08	1.91	0.69	0.50	4.63E-05
<i>Magi3</i>	2.87E-12	1.90	0.31	0.13	8.60E-09
<i>Rab17</i>	7.09E-19	1.89	0.33	0.08	2.13E-15
<i>Nos1</i>	2.33E-23	1.88	0.60	0.19	7.00E-20
<i>Matn2</i>	4.57E-13	1.88	0.34	0.17	1.37E-09
<i>Ptgds</i>	1.12E-14	1.87	0.42	0.25	3.37E-11
<i>S1pr4</i>	5.27E-15	1.87	0.33	0.07	1.58E-11
<i>Hoxb6</i>	7.32E-06	1.86	0.45	0.21	2.20E-02
<i>Obscn</i>	6.74E-11	1.85	0.33	0.07	2.02E-07
<i>Cd2</i>	3.95E-11	1.85	0.39	0.21	1.18E-07
<i>Folr1</i>	5.94E-09	1.84	0.53	0.31	1.78E-05
<i>Cpxm2</i>	1.63E-27	1.80	0.38	0.09	4.88E-24
<i>Mgarp</i>	3.05E-29	1.78	0.45	0.17	9.14E-26
<i>Lgals1</i>	2.05E-24	1.78	0.33	0.11	6.14E-21
<i>Gatm</i>	9.37E-12	1.77	0.48	0.28	2.81E-08
<i>Lsp1</i>	2.92E-10	1.72	0.36	0.24	8.75E-07
<i>Ifi2712a</i>	1.35E-10	1.72	0.37	0.22	4.04E-07
<i>AV039307</i>	1.69E-06	1.71	0.21	0.43	5.08E-03
<i>Lum</i>	2.14E-15	1.69	0.34	0.16	6.42E-12
<i>Fbln2</i>	3.47E-07	1.68	0.37	0.22	1.04E-03
<i>Hoxa9</i>	8.56E-26	1.68	0.51	0.17	2.57E-22
<i>Ly6e</i>	1.81E-15	1.68	0.35	0.18	5.43E-12
<i>Rps14</i>	2.83E-13	1.66	0.74	0.56	8.48E-10
<i>Tmem159</i>	4.67E-14	1.66	0.37	0.22	1.40E-10
<i>Cnpy1</i>	1.28E-21	1.62	0.53	0.17	3.83E-18
<i>Rnf125</i>	9.94E-08	1.62	0.49	0.26	2.98E-04
<i>Hoxa10</i>	1.55E-14	1.61	0.38	0.16	4.64E-11
<i>Igsf5</i>	1.55E-20	1.61	0.32	0.12	4.64E-17
<i>Reln</i>	7.24E-09	1.60	0.22	0.31	2.17E-05
<i>mt-Nd5</i>	1.64E-07	1.59	0.51	0.29	4.92E-04
<i>mt-Nd4</i>	3.78E-08	1.57	0.54	0.28	1.13E-04
<i>Dio3</i>	3.36E-07	1.56	0.34	0.21	1.01E-03
<i>Sparcl1</i>	4.91E-18	1.55	0.52	0.29	1.47E-14
<i>Cstad</i>	7.87E-20	1.54	0.32	0.08	2.36E-16
<i>Cox4i2</i>	1.35E-09	1.51	0.34	0.21	4.06E-06
<i>mt-Atp6</i>	2.77E-10	1.48	0.66	0.40	8.32E-07
<i>Ly6d</i>	1.4E-15	1.46	0.39	0.06	4.21E-12
<i>E230013L22Rik</i>	6.37E-12	1.45	0.40	0.10	1.91E-08
<i>Slc6a13</i>	8.63E-09	1.44	0.41	0.10	2.59E-05
<i>9330102E08Rik</i>	6.29E-07	1.44	0.49	0.25	1.89E-03
<i>Myoc</i>	5.69E-15	1.41	0.30	0.11	1.71E-11
<i>Rpl39</i>	4.57E-20	1.40	0.80	0.55	1.37E-16
<i>Pkdrej</i>	6.68E-10	1.40	0.42	0.25	2.00E-06
<i>Atp2b2</i>	1.32E-18	1.36	0.54	0.22	3.96E-15
<i>Tmem184a</i>	9.75E-06	1.35	0.72	0.51	2.92E-02
<i>Adamts11</i>	1.03E-06	1.34	0.42	0.19	3.08E-03
<i>Srgn</i>	4.35E-11	1.34	0.31	0.25	1.30E-07
<i>2610028E06Rik</i>	5.32E-17	1.33	0.42	0.21	1.60E-13
<i>Col1a1</i>	2.12E-07	1.33	0.56	0.41	6.36E-04
<i>Ggt5</i>	1.36E-05	1.33	0.33	0.20	4.09E-02

<i>Brip1</i>	1.24E-14	1.29	0.64	0.33	3.71E-11
<i>Col18a1</i>	1.08E-09	1.27	0.30	0.18	3.23E-06
<i>Casp4</i>	1.98E-09	1.24	0.36	0.09	5.94E-06
<i>mt-Co3</i>	2.72E-08	1.24	0.72	0.55	8.17E-05
<i>Thy1</i>	1.32E-08	1.21	0.36	0.27	3.95E-05
<i>Olfml3</i>	3.21E-11	1.21	0.39	0.20	9.62E-08
<i>Pltp</i>	5.28E-12	1.21	0.44	0.28	1.58E-08
<i>Lhx9</i>	2.6E-09	1.18	0.37	0.14	7.81E-06
<i>Mt2</i>	1.7E-22	1.15	0.31	0.12	5.11E-19
<i>Zbp1</i>	2.27E-11	1.15	0.39	0.15	6.80E-08
<i>Ifitm1</i>	1.87E-09	1.14	0.43	0.24	5.62E-06
<i>Rpl19</i>	2.36E-16	1.14	0.81	0.52	7.07E-13
<i>Ptprb</i>	6.74E-14	1.13	0.40	0.23	2.02E-10
<i>Dnajc15</i>	1.54E-22	1.12	0.37	0.17	4.62E-19
<i>Selenbp1</i>	4.58E-06	1.11	0.42	0.35	1.38E-02
<i>Tbx3</i>	4.85E-14	1.11	0.52	0.26	1.46E-10
<i>Tmem200a</i>	1.48E-05	1.10	0.31	0.12	4.43E-02
<i>Syt15</i>	7.38E-27	1.10	0.39	0.11	2.21E-23
<i>Zfp85os</i>	2.75E-28	1.09	0.45	0.12	8.24E-25
<i>Serpina3n</i>	6.13E-07	1.08	0.33	0.13	1.84E-03
<i>Aldh1a2</i>	3.19E-15	1.07	0.42	0.24	9.56E-12
<i>Crb2</i>	5.27E-09	1.07	0.34	0.16	1.58E-05
<i>Runx1t1</i>	2.89E-15	1.06	0.61	0.28	8.68E-12
<i>Tns2</i>	3.25E-10	1.04	0.40	0.22	9.75E-07
<i>Nbl1</i>	2.83E-16	1.04	0.51	0.25	8.48E-13
<i>Fxyd6</i>	1.12E-07	1.04	0.57	0.38	3.36E-04
<i>Mdk</i>	7.25E-16	1.02	0.53	0.27	2.17E-12
<i>Unc13d</i>	3.48E-07	1.02	0.32	0.19	1.04E-03
<i>Hspb8</i>	1.36E-15	1.00	0.40	0.26	4.08E-12
<i>Syngap1</i>	6.17E-10	0.99	0.33	0.17	1.85E-06
<i>Aox3</i>	4.9E-17	0.99	0.40	0.14	1.47E-13
<i>Mmrn1</i>	1.53E-22	0.99	0.43	0.14	4.59E-19
<i>Nr1d1</i>	3.98E-16	0.95	0.35	0.16	1.19E-12
<i>Mmp2</i>	3.8E-14	0.94	0.39	0.19	1.14E-10
<i>Cyp26b1</i>	8.27E-10	0.94	0.37	0.15	2.48E-06
<i>Ltb4r1</i>	6.12E-25	0.92	0.31	0.09	1.84E-21
<i>Ccdc189</i>	4.44E-10	0.92	0.36	0.20	1.33E-06
<i>Rps16</i>	5.85E-11	0.91	0.82	0.68	1.76E-07
<i>Ikzf3</i>	9.74E-20	0.91	0.45	0.14	2.92E-16
<i>Tyrobp</i>	7.75E-23	0.91	0.31	0.12	2.33E-19
<i>Timp2</i>	3.82E-15	0.90	0.31	0.14	1.15E-11
<i>Rplp0</i>	2.65E-09	0.90	0.83	0.78	7.96E-06
<i>Peg3</i>	3.83E-08	0.90	0.48	0.27	1.15E-04
<i>Emilin1</i>	3.01E-10	0.88	0.46	0.29	9.04E-07
<i>Nptx2</i>	1E-28	0.88	0.66	0.22	3.01E-25
<i>Rpl22l1</i>	1.23E-08	0.86	0.75	0.57	3.68E-05
<i>Cela1</i>	4.84E-14	0.86	0.35	0.16	1.45E-10
<i>Rplp1</i>	3.25E-08	0.85	0.85	0.77	9.75E-05
<i>Pmp22</i>	1.02E-05	0.83	0.45	0.32	3.07E-02
<i>Gstm1</i>	6.58E-09	0.82	0.66	0.45	1.97E-05

<i>Fxyd1</i>	3.8E-08	0.82	0.48	0.29	1.14E-04
<i>Gpr39</i>	8.11E-10	0.81	0.39	0.15	2.43E-06
<i>Tgfb1</i>	3.46E-09	0.80	0.36	0.21	1.04E-05
<i>Rsph10b</i>	5.02E-08	0.80	0.33	0.12	1.51E-04
<i>Dync1i1</i>	9.47E-14	0.80	0.39	0.24	2.84E-10
<i>Hao2</i>	5.03E-20	0.79	0.44	0.22	1.51E-16
<i>Wnt6</i>	7.62E-08	0.78	0.48	0.30	2.29E-04
<i>Ecel1</i>	1.82E-20	0.77	0.11	0.45	5.47E-17
<i>Mmp12</i>	6.34E-16	0.77	0.30	0.08	1.90E-12
<i>Tmem176b</i>	5.46E-16	0.75	0.48	0.23	1.64E-12
<i>Loxl1</i>	7.06E-13	0.75	0.36	0.21	2.12E-09
<i>Prcd</i>	1.38E-13	0.73	0.48	0.25	4.14E-10
<i>Klhl14</i>	1.07E-19	0.72	0.42	0.17	3.20E-16
<i>Nrbp2</i>	1.77E-06	0.72	0.45	0.32	5.31E-03
<i>Prdx1</i>	7.11E-18	0.72	0.33	0.12	2.13E-14
<i>Scn8a</i>	3.54E-06	0.71	0.55	0.33	1.06E-02
<i>Cavin2</i>	7E-06	0.71	0.51	0.34	2.10E-02
<i>Dpt</i>	1.86E-33	0.70	0.40	0.06	5.58E-30
<i>Ifi35</i>	1.87E-06	0.69	0.33	0.24	5.62E-03
<i>Tulp2</i>	1.85E-11	0.69	0.51	0.30	5.55E-08
<i>Arhgap36</i>	2.44E-14	0.68	0.57	0.28	7.33E-11
<i>Tmem176a</i>	3.77E-07	0.68	0.33	0.22	1.13E-03
<i>Flt3</i>	3.6E-09	0.67	0.39	0.16	1.08E-05
<i>Cst3</i>	6.6E-13	0.66	0.42	0.19	1.98E-09
<i>Chchd10</i>	1.31E-16	0.66	0.42	0.19	3.93E-13
<i>Ttc29</i>	6.53E-09	0.64	0.34	0.17	1.96E-05
<i>Ms4a10</i>	9.36E-06	0.64	0.43	0.30	2.81E-02
<i>Ltbp2</i>	1.32E-09	0.62	0.41	0.30	3.95E-06
<i>Ica11</i>	6.51E-11	0.62	0.69	0.45	1.95E-07
<i>Sycp3</i>	2.11E-07	0.61	0.53	0.32	6.34E-04
<i>Mrc2</i>	1.63E-06	0.61	0.46	0.27	4.89E-03
<i>Cyba</i>	3.6E-06	0.61	0.34	0.22	1.08E-02
<i>Nol4l</i>	7.96E-08	0.60	0.40	0.25	2.39E-04
<i>Ctss</i>	7.12E-21	0.60	0.34	0.15	2.14E-17
<i>Slc6a4</i>	1.72E-09	0.60	0.31	0.18	5.15E-06
<i>Fcgrt</i>	8.32E-10	0.59	0.39	0.22	2.50E-06
<i>Sfrp2</i>	1.18E-11	0.59	0.39	0.11	3.54E-08
<i>Klhl5</i>	2.87E-07	0.57	0.34	0.29	8.60E-04
<i>Hist1h1c</i>	1.13E-14	0.57	0.31	0.15	3.39E-11
<i>Id2</i>	1.49E-08	0.57	0.46	0.29	4.48E-05
<i>Prox1</i>	7.38E-26	0.56	0.36	0.08	2.22E-22
<i>Hspa1a</i>	1.08E-17	0.56	0.39	0.23	3.23E-14
<i>Col3a1</i>	1.55E-09	0.56	0.61	0.39	4.66E-06
<i>Ctsh</i>	3.46E-10	0.55	0.31	0.21	1.04E-06
<i>Malat1</i>	1.64E-15	0.55	0.41	0.13	4.92E-12
<i>Esam</i>	2.61E-10	0.55	0.40	0.25	7.82E-07
<i>Serping1</i>	8.95E-13	0.54	0.44	0.24	2.68E-09
<i>Trim63</i>	1.59E-05	0.50	0.43	0.25	4.77E-02
<i>Tpt1</i>	1.86E-06	0.50	0.86	0.78	5.59E-03
<i>Rps10</i>	2.26E-06	0.49	0.89	0.80	6.77E-03

<i>Aqp1</i>	1.32E-19	0.49	0.40	0.16	3.97E-16
<i>Npr1</i>	8.71E-06	0.49	0.33	0.31	2.61E-02
<i>Timp3</i>	4.5E-15	0.48	0.30	0.14	1.35E-11
<i>Alas1</i>	2.86E-07	0.48	0.44	0.29	8.59E-04
<i>Ephx3</i>	1.13E-18	0.48	0.30	0.09	3.40E-15
<i>Coro1a</i>	1.37E-12	0.48	0.31	0.15	4.11E-09
<i>Hacd3</i>	1.02E-05	0.47	0.36	0.23	3.05E-02
<i>Ulk4</i>	1.26E-05	0.47	0.39	0.25	3.78E-02
<i>Fads1</i>	2.09E-08	0.47	0.31	0.17	6.26E-05
<i>Agt</i>	1.39E-13	0.47	0.55	0.27	4.17E-10
<i>Inf2</i>	2.77E-08	0.47	0.32	0.20	8.31E-05
<i>Fxyd5</i>	4.93E-11	0.45	0.32	0.19	1.48E-07
<i>Pkdcc</i>	8.99E-06	0.44	0.62	0.43	2.70E-02
<i>Slc23a2</i>	2.98E-07	0.43	0.31	0.17	8.95E-04
<i>Gm5547</i>	1.97E-20	0.43	0.45	0.08	5.90E-17
<i>Fcer1g</i>	7.59E-08	0.43	0.33	0.19	2.28E-04
<i>Mrvi1</i>	1.93E-06	0.42	0.43	0.31	5.80E-03
<i>Hsd3b3</i>	1.54E-07	0.42	0.51	0.26	4.63E-04
<i>Lyz1</i>	2.27E-15	0.41	0.31	0.05	6.82E-12
<i>Sod3</i>	2.49E-09	0.41	0.35	0.22	7.48E-06
<i>Tm4sf1</i>	5.12E-08	0.39	0.30	0.16	1.54E-04
<i>Calml4</i>	6.74E-11	0.35	0.42	0.28	2.02E-07
<i>Meis1</i>	1.38E-09	0.35	0.39	0.24	4.13E-06
<i>C1qa</i>	4.11E-16	0.35	0.31	0.14	1.23E-12
<i>Pmm1</i>	2.84E-07	0.34	0.34	0.24	8.51E-04
<i>Pgbd5</i>	8.2E-07	0.34	0.46	0.32	2.46E-03
<i>Tgfb2</i>	1.21E-05	0.33	0.46	0.29	3.64E-02
<i>Hspa1b</i>	1.07E-13	0.33	0.40	0.28	3.20E-10
<i>Bpifb5</i>	1.17E-07	0.32	0.47	0.24	3.51E-04
<i>Vil1</i>	5.7E-16	0.32	0.59	0.27	1.71E-12
<i>Cldn5</i>	4.37E-10	0.32	0.35	0.19	1.31E-06
<i>Tspan33</i>	3.32E-07	0.30	0.32	0.15	9.96E-04
<i>Stab1</i>	6.66E-18	0.28	0.31	0.18	2.00E-14
<i>Lyve1</i>	9.4E-21	0.27	0.43	0.12	2.82E-17
<i>Itgb7</i>	5.56E-45	0.26	0.37	0.04	1.67E-41
<i>Il21r</i>	1E-05	0.25	0.43	0.30	3.00E-02
<i>Arhgef19</i>	1.18E-14	0.25	0.30	0.17	3.55E-11
<i>Ppp1r1b</i>	9.6E-10	0.24	0.34	0.15	2.88E-06
<i>Slc9a3r2</i>	6.88E-10	0.24	0.33	0.22	2.07E-06
<i>Txnip</i>	5.32E-07	0.24	0.52	0.34	1.60E-03
<i>Ptn</i>	6.04E-09	0.22	0.37	0.16	1.81E-05
<i>Gm5</i>	1.09E-05	0.22	0.37	0.19	3.27E-02
<i>Fa2h</i>	1.49E-05	0.22	0.58	0.34	4.46E-02
<i>Serpinf1</i>	3.53E-08	0.22	0.57	0.41	1.06E-04
<i>Ltbp4</i>	7.6E-14	0.20	0.55	0.30	2.28E-10
<i>Cacna1d</i>	3.59E-09	0.20	0.44	0.26	1.08E-05
<i>Tnfrsf12a</i>	1.22E-08	0.19	0.30	0.15	3.65E-05
<i>Lyz2</i>	3.17E-25	0.18	0.30	0.10	9.50E-22
<i>Grip2</i>	7.02E-31	0.18	0.46	0.12	2.11E-27
<i>Ampd3</i>	1.38E-14	0.17	0.54	0.23	4.15E-11

<i>Lbx2</i>	1.1E-07	0.15	0.30	0.27	3.31E-04
<i>Slc27a3</i>	1.39E-10	0.13	0.36	0.20	4.17E-07
<i>Atp2b3</i>	3.59E-25	0.13	0.36	0.10	1.08E-21
<i>Nos3</i>	1.36E-07	0.12	0.32	0.24	4.09E-04
<i>Slc12a7</i>	1.42E-06	0.12	0.43	0.30	4.25E-03
<i>Ly6k</i>	3.49E-24	0.12	0.38	0.12	1.05E-20
<i>Lynx1</i>	5.63E-16	0.11	0.32	0.12	1.69E-12
<i>E330020D12Rik</i>	1.2E-13	0.11	0.75	0.35	3.61E-10
<i>Aldh1a1</i>	8.95E-08	0.10	0.56	0.38	2.68E-04
<i>Pf4</i>	3.19E-08	0.08	0.32	0.22	9.57E-05
<i>Ramp2</i>	2.61E-10	0.08	0.36	0.28	7.84E-07
<i>Gsn</i>	1.04E-10	0.05	0.36	0.24	3.13E-07
<i>Ubash3a</i>	2.88E-10	0.04	0.56	0.28	8.64E-07
<i>Itgb2</i>	1.55E-23	0.04	0.31	0.11	4.65E-20
<i>Hdac7</i>	2.24E-07	0.04	0.43	0.29	6.73E-04
<i>1700028E10Rik</i>	3.81E-11	0.04	0.45	0.22	1.14E-07
<i>Tns1</i>	8.11E-07	0.04	0.43	0.32	2.43E-03
<i>Ttc39a</i>	4.44E-06	0.04	0.37	0.14	1.33E-02
<i>4930404N11Rik</i>	4.45E-07	0.04	0.58	0.35	1.33E-03
<i>Plvap</i>	2.38E-12	0.02	0.32	0.15	7.15E-09
<i>Hspb1</i>	7.5E-18	0.02	0.32	0.20	2.25E-14

Table S3. Genes differentially expressed between FC2 and other sub-clusters. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
<i>Myl9</i>	4.72E-61	4.19	0.96	0.38	1.42E-57
<i>Cnn1</i>	1.31E-37	3.95	0.80	0.30	3.94E-34
<i>Myh11</i>	7.92E-54	3.69	0.92	0.38	2.38E-50
<i>Tagln</i>	1.25E-51	3.58	0.91	0.35	3.75E-48
<i>Actg2</i>	2.42E-38	3.56	0.86	0.37	7.27E-35
<i>Saa2</i>	2.29E-25	3.41	0.47	0.08	6.86E-22
<i>Cxcl14</i>	1.22E-33	3.41	0.64	0.18	3.65E-30
<i>Mfap5</i>	2E-38	3.39	0.88	0.48	5.99E-35
<i>Col6a4</i>	2.76E-37	3.35	0.87	0.40	8.27E-34
<i>Mfap4</i>	6.97E-39	3.32	0.87	0.40	2.09E-35
<i>Acta2</i>	2.08E-57	3.26	0.98	0.46	6.24E-54
<i>Tpm2</i>	4.15E-53	3.24	0.89	0.32	1.25E-49
<i>Mcam</i>	1.07E-14	3.22	0.60	0.23	3.21E-11
<i>Ms4a4b</i>	6.03E-12	3.21	0.35	0.10	1.81E-08
<i>Rgs5</i>	4.84E-06	3.14	0.43	0.20	1.45E-02
<i>Csrp1</i>	7.75E-44	2.97	0.77	0.24	2.32E-40
<i>Dnah2</i>	3.98E-08	2.95	0.45	0.24	1.19E-04
<i>Ddit3</i>	1.95E-06	2.95	0.33	0.18	5.84E-03
<i>Aoc3</i>	2.2E-23	2.91	0.76	0.35	6.59E-20
<i>Ccl21a</i>	1.69E-11	2.88	0.42	0.21	5.08E-08
<i>Lag3</i>	1.67E-29	2.87	0.57	0.08	5.01E-26
<i>Flna</i>	3.86E-38	2.85	0.91	0.47	1.16E-34
<i>Ogn</i>	8.74E-31	2.81	0.86	0.44	2.62E-27
<i>Gas6</i>	1.94E-25	2.80	0.86	0.50	5.82E-22
<i>Serpinf1</i>	1.27E-28	2.73	0.81	0.36	3.80E-25
<i>Asb2</i>	3.14E-09	2.73	0.52	0.19	9.43E-06
<i>Rarres2</i>	5.08E-40	2.72	0.88	0.39	1.52E-36
<i>Fhl2</i>	2.96E-21	2.68	0.70	0.37	8.88E-18
<i>Mylk</i>	3.21E-38	2.62	0.84	0.42	9.62E-35
<i>Ctla2a</i>	1E-21	2.58	0.50	0.17	3.01E-18
<i>Des</i>	4.12E-26	2.54	0.63	0.22	1.24E-22
<i>Gstm2</i>	4.56E-25	2.52	0.80	0.42	1.37E-21
<i>Col16a1</i>	1.41E-21	2.51	0.73	0.35	4.22E-18
<i>Tpm1</i>	4.98E-35	2.51	0.87	0.45	1.49E-31
<i>Serpina5</i>	1.79E-13	2.47	0.74	0.51	5.36E-10
<i>Aspn</i>	3.66E-17	2.46	0.60	0.25	1.10E-13
<i>Bpifb5</i>	5.96E-12	2.44	0.53	0.23	1.79E-08
<i>Igfbp6</i>	1.08E-37	2.43	0.76	0.23	3.25E-34
<i>Tnnt2</i>	2.49E-06	2.41	0.60	0.45	7.48E-03
<i>Ndrp2</i>	1.85E-33	2.38	0.76	0.31	5.56E-30
<i>Agbl2</i>	1.64E-16	2.37	0.43	0.12	4.92E-13
<i>Cnn2</i>	9.01E-20	2.36	0.74	0.40	2.70E-16
<i>Cavin3</i>	2.56E-39	2.35	0.76	0.30	7.69E-36

<i>Icos</i>	9.59E-17	2.35	0.40	0.08	2.88E-13
<i>Cygb</i>	3.14E-22	2.32	0.51	0.20	9.41E-19
<i>Prxl2a</i>	7.29E-11	2.32	0.62	0.41	2.19E-07
<i>Hspb1</i>	2.68E-47	2.32	0.64	0.13	8.04E-44
<i>Slc39a8</i>	1.31E-12	2.30	0.59	0.22	3.93E-09
<i>Dock8</i>	4.81E-13	2.28	0.50	0.27	1.44E-09
<i>Cped1</i>	1.28E-24	2.28	0.83	0.51	3.85E-21
<i>Pkdcc</i>	4.32E-25	2.27	0.76	0.40	1.30E-21
<i>Dtx4</i>	3.97E-13	2.26	0.65	0.38	1.19E-09
<i>Gsn</i>	6.68E-36	2.26	0.62	0.18	2.01E-32
<i>Osr2</i>	1.52E-17	2.25	0.67	0.34	4.56E-14
<i>Ccdc3</i>	9.12E-15	2.21	0.79	0.57	2.74E-11
<i>Aldh1a1</i>	2.39E-32	2.20	0.81	0.33	7.18E-29
<i>Ednrb</i>	3.45E-15	2.19	0.56	0.22	1.04E-11
<i>Hspa1b</i>	3.69E-44	2.19	0.77	0.20	1.11E-40
<i>Arhgef25</i>	7.98E-22	2.14	0.72	0.36	2.39E-18
<i>Mal</i>	1.19E-05	2.13	0.38	0.15	3.57E-02
<i>Kcnmb1</i>	3.4E-20	2.11	0.59	0.17	1.02E-16
<i>Ramp2</i>	1.06E-27	2.10	0.62	0.22	3.17E-24
<i>Ephx1</i>	1.11E-16	2.09	0.69	0.37	3.32E-13
<i>Cyp27a1</i>	9.62E-09	2.09	0.45	0.25	2.89E-05
<i>Col4a1</i>	1.32E-21	2.08	0.78	0.38	3.97E-18
<i>Lrat</i>	1.09E-12	2.07	0.54	0.21	3.28E-09
<i>Slc3a1</i>	2.63E-10	2.05	0.43	0.20	7.88E-07
<i>Gstm1</i>	3.49E-40	2.05	0.91	0.40	1.05E-36
<i>Lmod1</i>	1.99E-12	2.04	0.52	0.24	5.98E-09
<i>Aldh1a2</i>	1.28E-24	2.02	0.58	0.21	3.83E-21
<i>Malat1</i>	8.66E-28	2.01	0.37	0.14	2.60E-24
<i>Col6a2</i>	1.25E-30	2.01	0.77	0.33	3.75E-27
<i>Mmrn2</i>	5.3E-10	2.01	0.43	0.19	1.59E-06
<i>Cldn5</i>	5.75E-13	1.97	0.40	0.18	1.72E-09
<i>Fbln5</i>	2.82E-11	1.97	0.60	0.27	8.45E-08
<i>AU021092</i>	2.1E-25	1.97	0.37	0.08	6.31E-22
<i>Alas1</i>	5.49E-15	1.96	0.55	0.27	1.65E-11
<i>Hspa1a</i>	3.76E-37	1.95	0.63	0.18	1.13E-33
<i>Prss35</i>	5.76E-24	1.95	0.54	0.23	1.73E-20
<i>Ppp1r14a</i>	2.88E-21	1.94	0.64	0.29	8.64E-18
<i>Slc45a3</i>	6.35E-18	1.94	0.76	0.43	1.90E-14
<i>Gm20342</i>	2.8E-17	1.91	0.38	0.17	8.41E-14
<i>Eln</i>	7.99E-11	1.90	0.43	0.22	2.40E-07
<i>Gli1</i>	6.61E-08	1.90	0.65	0.46	1.98E-04
<i>Dhrs3</i>	2.41E-15	1.87	0.61	0.36	7.23E-12
<i>Gimap6</i>	5.58E-12	1.87	0.46	0.18	1.67E-08
<i>Gm15564</i>	1.28E-14	1.87	0.33	0.14	3.83E-11
<i>Bgn</i>	8.4E-37	1.87	0.37	0.09	2.52E-33
<i>Actn2</i>	2.75E-27	1.87	0.52	0.10	8.26E-24
<i>Myl6</i>	6.4E-53	1.86	0.81	0.17	1.92E-49
<i>Cxcl12</i>	1.86E-23	1.86	0.51	0.17	5.57E-20
<i>Tmem74b</i>	1.72E-08	1.85	0.43	0.20	5.15E-05
<i>Itga9</i>	2.84E-10	1.85	0.63	0.42	8.52E-07

<i>Gstt1</i>	1.86E-10	1.85	0.45	0.26	5.57E-07
<i>Ppp1r12b</i>	8.96E-10	1.83	0.62	0.43	2.69E-06
<i>Grap</i>	6.2E-07	1.82	0.30	0.15	1.86E-03
<i>Prrt1</i>	1.25E-06	1.82	0.43	0.19	3.74E-03
<i>Fabp3</i>	3.55E-18	1.80	0.87	0.66	1.06E-14
<i>Aldh1b1</i>	1.07E-10	1.78	0.67	0.42	3.22E-07
<i>Fam181b</i>	1.57E-10	1.77	0.61	0.37	4.70E-07
<i>Acsbg1</i>	2.87E-28	1.77	0.85	0.44	8.60E-25
<i>Stab1</i>	6.81E-15	1.76	0.43	0.15	2.04E-11
<i>Prelp</i>	9.54E-08	1.76	0.39	0.17	2.86E-04
<i>Cdh5</i>	1.08E-11	1.75	0.55	0.29	3.24E-08
<i>Esam</i>	3.22E-20	1.75	0.50	0.23	9.66E-17
<i>Xist</i>	1.37E-08	1.75	0.65	0.42	4.10E-05
<i>Notch3</i>	1.82E-08	1.74	0.42	0.20	5.47E-05
<i>Blk</i>	4.74E-40	1.73	0.37	0.03	1.42E-36
<i>Sparcl1</i>	1.26E-38	1.72	0.79	0.23	3.77E-35
<i>Txnip</i>	9.86E-28	1.70	0.71	0.30	2.96E-24
<i>Loxl1</i>	8.7E-21	1.70	0.49	0.18	2.61E-17
<i>Sh3tc1</i>	4.62E-11	1.69	0.33	0.19	1.39E-07
<i>Col4a2</i>	1.92E-12	1.68	0.67	0.40	5.77E-09
<i>Tmem176b</i>	3.47E-24	1.68	0.57	0.22	1.04E-20
<i>Scn4b</i>	4.85E-17	1.68	0.31	0.04	1.46E-13
<i>Tcaf1</i>	7.19E-18	1.67	0.67	0.36	2.16E-14
<i>Hao2</i>	9.98E-28	1.66	0.55	0.20	2.99E-24
<i>Adcy5</i>	3.56E-18	1.66	0.65	0.31	1.07E-14
<i>Cryab</i>	5.68E-07	1.65	0.57	0.37	1.70E-03
<i>Snai3</i>	5.76E-15	1.65	0.38	0.16	1.73E-11
<i>Bpifb4</i>	3.41E-08	1.64	0.73	0.54	1.02E-04
<i>Angpt4</i>	3.89E-07	1.64	0.47	0.27	1.17E-03
<i>Adamts1</i>	1.12E-06	1.61	0.41	0.26	3.36E-03
<i>Apba1</i>	5.92E-15	1.61	0.38	0.13	1.77E-11
<i>Serping1</i>	4.69E-29	1.60	0.59	0.21	1.41E-25
<i>C2</i>	1.4E-28	1.60	0.45	0.12	4.21E-25
<i>Ecm1</i>	2.59E-41	1.59	0.49	0.10	7.78E-38
<i>Itga4</i>	3.7E-13	1.59	0.50	0.14	1.11E-09
<i>Pcp4l1</i>	1.1E-19	1.59	0.60	0.24	3.31E-16
<i>Crip2</i>	4.51E-27	1.58	0.48	0.11	1.35E-23
<i>Dnase1l3</i>	5.55E-14	1.56	0.43	0.10	1.67E-10
<i>Smoc2</i>	1.63E-22	1.55	0.91	0.63	4.88E-19
<i>Mgp</i>	1.54E-36	1.55	0.39	0.09	4.61E-33
<i>Fcgrt</i>	2.05E-24	1.55	0.52	0.20	6.15E-21
<i>Aqp1</i>	5.59E-13	1.54	0.32	0.18	1.68E-09
<i>Cst6</i>	2.39E-24	1.54	0.47	0.09	7.17E-21
<i>Nbl1</i>	2.67E-17	1.54	0.52	0.25	8.02E-14
<i>Speg</i>	4.49E-13	1.53	0.50	0.21	1.35E-09
<i>Pdgfrb</i>	8.39E-21	1.53	0.42	0.14	2.52E-17
<i>Exoc3l</i>	1.39E-06	1.53	0.46	0.27	4.18E-03
<i>4921507P07Rik</i>	2.42E-17	1.51	0.39	0.17	7.25E-14
<i>Fads2</i>	1.02E-14	1.51	0.59	0.32	3.06E-11
<i>Fkbp1a</i>	3.81E-17	1.51	0.72	0.41	1.14E-13

<i>Ret</i>	8.49E-23	1.50	0.33	0.03	2.55E-19
<i>Adh1</i>	2.14E-08	1.49	0.30	0.18	6.42E-05
<i>Igsf5</i>	3.4E-23	1.49	0.42	0.10	1.02E-19
<i>Tmem204</i>	1.67E-15	1.48	0.38	0.16	5.00E-12
<i>Procr</i>	1.87E-12	1.48	0.33	0.16	5.62E-09
<i>Tgfb3</i>	1.5E-07	1.47	0.67	0.43	4.51E-04
<i>Stom</i>	8.52E-07	1.47	0.49	0.26	2.55E-03
<i>Igfbp7</i>	4.12E-31	1.47	0.40	0.12	1.24E-27
<i>Fxyd1</i>	6.09E-28	1.47	0.65	0.25	1.83E-24
<i>Nrp2</i>	6.93E-16	1.47	0.54	0.26	2.08E-12
<i>Pdlim3</i>	2.31E-11	1.46	0.50	0.18	6.93E-08
<i>Dbnnd2</i>	1.69E-21	1.46	0.62	0.27	5.07E-18
<i>Sparc</i>	1.91E-38	1.45	0.47	0.07	5.72E-35
<i>Agt</i>	9.99E-07	1.44	0.48	0.29	3.00E-03
<i>Egfl7</i>	3.93E-21	1.42	0.42	0.14	1.18E-17
<i>Hdac7</i>	2.98E-14	1.42	0.54	0.26	8.95E-11
<i>Ptpn5</i>	1.22E-14	1.42	0.30	0.08	3.65E-11
<i>Lmcd1</i>	1.09E-15	1.41	0.69	0.36	3.26E-12
<i>Ltbp4</i>	1.53E-28	1.41	0.67	0.27	4.58E-25
<i>Htra3</i>	4.29E-21	1.41	0.66	0.29	1.29E-17
<i>Gas1</i>	9.17E-08	1.41	0.38	0.24	2.75E-04
<i>Glul</i>	2.95E-07	1.41	0.63	0.41	8.84E-04
<i>Adamts10</i>	4.11E-06	1.40	0.77	0.60	1.23E-02
<i>Rnf208</i>	8.28E-12	1.40	0.42	0.12	2.48E-08
<i>Mettl7a1</i>	6.57E-12	1.40	0.40	0.21	1.97E-08
<i>Lama4</i>	8.17E-12	1.40	0.64	0.35	2.45E-08
<i>Emilin1</i>	5.16E-25	1.40	0.64	0.25	1.55E-21
<i>Kcnip3</i>	1.18E-10	1.40	0.64	0.41	3.53E-07
<i>Ptp4a3</i>	1.65E-05	1.38	0.52	0.32	4.94E-02
<i>Mst1r</i>	1.41E-07	1.37	0.45	0.15	4.24E-04
<i>Pmp22</i>	8.63E-28	1.37	0.68	0.27	2.59E-24
<i>Pltp</i>	1.52E-08	1.36	0.47	0.28	4.57E-05
<i>Mgarp</i>	4.05E-20	1.36	0.45	0.18	1.22E-16
<i>Rassf2</i>	1.6E-07	1.36	0.42	0.27	4.79E-04
<i>Fkbp4</i>	1.42E-14	1.35	0.80	0.56	4.25E-11
<i>Col6a1</i>	2.14E-28	1.35	0.70	0.31	6.42E-25
<i>Aim2</i>	2.64E-06	1.35	0.39	0.25	7.93E-03
<i>Hmgcs2</i>	1.01E-12	1.35	0.91	0.71	3.02E-09
<i>Ctxn1</i>	2.88E-07	1.34	0.73	0.58	8.65E-04
<i>Spef1</i>	1.63E-07	1.32	0.54	0.32	4.89E-04
<i>Dkk3</i>	3.27E-21	1.32	0.65	0.34	9.80E-18
<i>Colec11</i>	8.66E-12	1.32	0.38	0.15	2.60E-08
<i>Dpep1</i>	1.97E-07	1.30	0.41	0.20	5.91E-04
<i>Hspe1</i>	6.75E-13	1.29	0.85	0.71	2.02E-09
<i>Sema6c</i>	6.45E-07	1.29	0.37	0.24	1.93E-03
<i>Tns1</i>	1.67E-11	1.29	0.53	0.30	5.00E-08
<i>Smtn</i>	8.71E-19	1.28	0.60	0.25	2.61E-15
<i>Cbx7</i>	2.99E-12	1.28	0.43	0.21	8.98E-09
<i>Gabbr1</i>	5.07E-11	1.27	0.61	0.36	1.52E-07
<i>Timp3</i>	1.01E-28	1.27	0.42	0.12	3.02E-25

<i>Pacs2</i>	1.72E-13	1.26	0.64	0.35	5.16E-10
<i>Cd68</i>	4.68E-08	1.26	0.34	0.14	1.40E-04
<i>Sod3</i>	2.92E-18	1.26	0.48	0.20	8.76E-15
<i>Mmp2</i>	3.91E-17	1.26	0.40	0.19	1.17E-13
<i>Ly6c1</i>	2.22E-16	1.25	0.36	0.12	6.66E-13
<i>Tubb6</i>	1.47E-14	1.25	0.49	0.24	4.42E-11
<i>Ntn1</i>	8.65E-13	1.25	0.33	0.10	2.59E-09
<i>Adam15</i>	1.47E-13	1.25	0.56	0.28	4.42E-10
<i>Zbtb20</i>	1.15E-10	1.24	0.48	0.29	3.45E-07
<i>Tmem25</i>	5.41E-06	1.24	0.48	0.28	1.62E-02
<i>Cryba4</i>	1.92E-32	1.24	0.51	0.09	5.75E-29
<i>Lhfp</i>	3.52E-23	1.24	0.40	0.14	1.05E-19
<i>Hspb8</i>	3.26E-12	1.24	0.47	0.24	9.79E-09
<i>Actb</i>	2.91E-07	1.23	0.56	0.40	8.73E-04
<i>Fam107a</i>	1E-12	1.22	0.36	0.06	3.00E-09
<i>Itih5</i>	3.8E-11	1.21	0.79	0.57	1.14E-07
<i>Pecam1</i>	4.17E-07	1.20	0.37	0.18	1.25E-03
<i>Grk3</i>	4.99E-08	1.20	0.40	0.23	1.50E-04
<i>Fstl1</i>	1.77E-11	1.20	0.63	0.36	5.31E-08
<i>Tbx3</i>	8.96E-09	1.19	0.48	0.27	2.69E-05
<i>Clec14a</i>	2.38E-19	1.19	0.35	0.16	7.14E-16
<i>Eng</i>	3.72E-17	1.19	0.34	0.12	1.12E-13
<i>Tuba1a</i>	1.73E-20	1.19	0.54	0.21	5.18E-17
<i>Tmsb4x</i>	2.8E-30	1.19	0.46	0.14	8.40E-27
<i>Nr5a1</i>	7.79E-17	1.18	0.64	0.33	2.34E-13
<i>Tmem164</i>	3.52E-08	1.17	0.62	0.40	1.06E-04
<i>Slc9a3r2</i>	1.39E-13	1.16	0.47	0.19	4.16E-10
<i>Penk</i>	1.82E-13	1.16	0.59	0.31	5.47E-10
<i>Cavin2</i>	1.53E-05	1.16	0.54	0.34	4.58E-02
<i>Lbx2</i>	3.26E-08	1.15	0.42	0.24	9.79E-05
<i>Gramd1a</i>	5.22E-09	1.15	0.70	0.49	1.57E-05
<i>Ksr1</i>	2.13E-09	1.15	0.55	0.34	6.40E-06
<i>Cyba</i>	2.87E-18	1.14	0.48	0.19	8.62E-15
<i>Clec10a</i>	4.06E-10	1.13	0.38	0.17	1.22E-06
<i>Cav1</i>	4.74E-18	1.13	0.61	0.26	1.42E-14
<i>Tmem176a</i>	5.08E-26	1.13	0.52	0.18	1.52E-22
<i>Lhcgr</i>	1.63E-33	1.12	0.70	0.23	4.90E-30
<i>Ltbp2</i>	1.19E-28	1.11	0.68	0.24	3.57E-25
<i>Mdk</i>	5.85E-25	1.11	0.62	0.25	1.76E-21
<i>9430078K24Rik</i>	4.65E-22	1.11	0.50	0.18	1.40E-18
<i>Nkd2</i>	2.66E-12	1.11	0.31	0.09	7.97E-09
<i>Dhcr24</i>	1.07E-09	1.08	0.38	0.16	3.22E-06
<i>Col1a2</i>	3.84E-19	1.08	0.87	0.52	1.15E-15
<i>Mxra8</i>	1.41E-23	1.08	0.37	0.13	4.23E-20
<i>Mfap2</i>	1.75E-10	1.08	0.88	0.69	5.25E-07
<i>Slc1a5</i>	4.85E-11	1.07	0.48	0.26	1.46E-07
<i>Mrv1</i>	1.54E-18	1.07	0.58	0.28	4.61E-15
<i>Ifitm3</i>	1.88E-31	1.07	0.36	0.09	5.64E-28
<i>Rgs6</i>	9.79E-12	1.06	0.33	0.08	2.94E-08
<i>Sh3bgr</i>	1.41E-08	1.06	0.37	0.19	4.22E-05

<i>Fxyd7</i>	6.97E-16	1.05	0.38	0.13	2.09E-12
<i>Nisch</i>	2.27E-14	1.05	0.64	0.40	6.81E-11
<i>Gdf10</i>	9.53E-17	1.05	0.30	0.13	2.86E-13
<i>Mgll</i>	2.57E-14	1.05	0.43	0.19	7.70E-11
<i>Gadd45g</i>	4.5E-06	1.05	0.67	0.51	1.35E-02
<i>Ifitm1</i>	4.34E-19	1.05	0.49	0.23	1.30E-15
<i>Lum</i>	6.39E-18	1.04	0.39	0.15	1.92E-14
<i>Wnt6</i>	2.76E-17	1.04	0.56	0.28	8.29E-14
<i>Il4ra</i>	2.95E-13	1.04	0.42	0.19	8.86E-10
<i>Id2</i>	1.25E-17	1.03	0.56	0.27	3.75E-14
<i>Zyx</i>	4.21E-11	1.03	0.67	0.40	1.26E-07
<i>Ecscr</i>	4.45E-11	1.03	0.45	0.20	1.34E-07
<i>Cuedc1</i>	2.31E-12	1.03	0.44	0.21	6.94E-09
<i>Timp2</i>	2.4E-23	1.03	0.37	0.13	7.19E-20
<i>Aldh2</i>	8.65E-22	1.02	0.64	0.31	2.60E-18
<i>Slc5a4b</i>	4.84E-23	1.02	0.30	0.08	1.45E-19
<i>Tmem86a</i>	1.7E-30	1.01	0.35	0.10	5.11E-27
<i>Myoc</i>	3.68E-09	1.01	0.35	0.11	1.10E-05
<i>Myom2</i>	1.38E-07	1.01	0.22	0.39	4.13E-04
<i>D030025P21Rik</i>	2.55E-07	1.00	0.40	0.18	7.66E-04
<i>Ckb</i>	3.33E-26	1.00	0.66	0.28	1.00E-22
<i>Ccdc102a</i>	4.74E-10	1.00	0.45	0.27	1.42E-06
<i>Acvrl1</i>	1.31E-12	0.99	0.44	0.23	3.94E-09
<i>Pmm1</i>	5.84E-17	0.98	0.49	0.21	1.75E-13
<i>C1qb</i>	5.89E-17	0.96	0.31	0.12	1.77E-13
<i>Ccdc24</i>	1.65E-07	0.96	0.33	0.14	4.94E-04
<i>Rras</i>	1.26E-15	0.96	0.36	0.14	3.79E-12
<i>Ccnl2</i>	4.79E-18	0.96	0.70	0.34	1.44E-14
<i>Baiap2</i>	2.11E-09	0.95	0.41	0.23	6.33E-06
<i>Col5a1</i>	9.76E-10	0.95	0.62	0.39	2.93E-06
<i>Abcb1a</i>	5.31E-13	0.95	0.37	0.16	1.59E-09
<i>Cyp17a1</i>	3.19E-16	0.95	0.93	0.81	9.58E-13
<i>Fxyd5</i>	2.95E-11	0.94	0.38	0.18	8.84E-08
<i>Fads1</i>	4.35E-14	0.93	0.40	0.16	1.30E-10
<i>Gpr39</i>	1.89E-11	0.93	0.36	0.15	5.68E-08
<i>Lama2</i>	5.7E-07	0.91	0.76	0.56	1.71E-03
<i>Lsp1</i>	4.36E-08	0.91	0.41	0.23	1.31E-04
<i>1110008P14Rik</i>	6.34E-14	0.89	0.48	0.19	1.90E-10
<i>Col1a1</i>	5.14E-25	0.88	0.77	0.36	1.54E-21
<i>Bcam</i>	2.07E-17	0.87	0.35	0.12	6.21E-14
<i>Ada</i>	2.36E-06	0.87	0.38	0.18	7.07E-03
<i>Mrc2</i>	5.92E-07	0.87	0.42	0.28	1.78E-03
<i>S100b</i>	2.01E-28	0.86	0.57	0.17	6.03E-25
<i>Kcnj8</i>	8.62E-08	0.86	0.42	0.23	2.59E-04
<i>Cd9</i>	8.76E-13	0.85	0.60	0.32	2.63E-09
<i>Prcd</i>	7.45E-08	0.85	0.46	0.26	2.23E-04
<i>Selenbp1</i>	2.65E-08	0.85	0.55	0.32	7.95E-05
<i>Palld</i>	1.7E-13	0.84	0.33	0.16	5.09E-10
<i>Srd5a1</i>	5.06E-15	0.84	0.49	0.23	1.52E-11
<i>Dbi</i>	1.42E-19	0.84	0.37	0.13	4.27E-16

<i>Lbp</i>	1.92E-12	0.83	0.45	0.21	5.76E-09
<i>Tpm4</i>	6.68E-12	0.83	0.42	0.20	2.00E-08
<i>Kcns2</i>	3.59E-08	0.82	0.35	0.17	1.08E-04
<i>Ankrd6</i>	1.06E-08	0.80	0.31	0.11	3.18E-05
<i>Lingo1</i>	4.19E-08	0.80	0.40	0.24	1.26E-04
<i>Fn1</i>	2.95E-13	0.80	0.73	0.46	8.86E-10
<i>Dnajc15</i>	7.59E-14	0.80	0.35	0.17	2.28E-10
<i>Tmtc1</i>	9.35E-06	0.79	0.52	0.40	2.81E-02
<i>Hacd3</i>	6.73E-12	0.79	0.47	0.20	2.02E-08
<i>Lama5</i>	6.12E-11	0.79	0.36	0.22	1.84E-07
<i>Mcrip2</i>	1.08E-11	0.79	0.54	0.26	3.24E-08
<i>Tcf21</i>	1.88E-20	0.78	0.72	0.35	5.64E-17
<i>Rbp1</i>	4.27E-29	0.78	0.71	0.28	1.28E-25
<i>Sult1a1</i>	5.82E-11	0.77	0.47	0.25	1.75E-07
<i>Heg1</i>	7.91E-15	0.77	0.61	0.31	2.37E-11
<i>Tm4sf1</i>	2.7E-11	0.77	0.36	0.15	8.10E-08
<i>Palm</i>	9.61E-10	0.76	0.53	0.27	2.88E-06
<i>Npr1</i>	7.64E-10	0.76	0.57	0.25	2.29E-06
<i>Plpp3</i>	1.03E-11	0.75	0.38	0.20	3.08E-08
<i>Tle2</i>	2.21E-12	0.75	0.39	0.19	6.64E-09
<i>Aldob</i>	1.11E-07	0.75	0.30	0.19	3.34E-04
<i>Slco2a1</i>	3.84E-15	0.74	0.36	0.23	1.15E-11
<i>Plekhf1</i>	1.77E-09	0.74	0.37	0.24	5.32E-06
<i>Ehbp111</i>	1.85E-10	0.74	0.31	0.14	5.56E-07
<i>Tcrg-C1</i>	6.93E-10	0.73	0.33	0.18	2.08E-06
<i>Col3a1</i>	4.13E-20	0.72	0.71	0.37	1.24E-16
<i>Col6a3</i>	1.75E-16	0.72	0.72	0.41	5.26E-13
<i>Nkd1</i>	8.66E-15	0.72	0.55	0.27	2.60E-11
<i>Myom1</i>	1.92E-09	0.71	0.38	0.22	5.75E-06
<i>Mgl2</i>	5.33E-10	0.71	0.55	0.19	1.60E-06
<i>Rabep2</i>	8.76E-07	0.70	0.55	0.35	2.63E-03
<i>Dnaja4</i>	2.49E-11	0.70	0.50	0.29	7.47E-08
<i>Hspe1-rs1</i>	8.97E-09	0.70	0.71	0.53	2.69E-05
<i>Oxct1</i>	3.85E-09	0.70	0.62	0.42	1.15E-05
<i>Porcn</i>	2.01E-12	0.69	0.47	0.22	6.04E-09
<i>Tcirg1</i>	1.82E-08	0.69	0.48	0.30	5.45E-05
<i>Plpp1</i>	3.94E-10	0.69	0.45	0.25	1.18E-06
<i>Dstn</i>	1.68E-15	0.68	0.32	0.12	5.03E-12
<i>Ifi2712a</i>	4.53E-12	0.68	0.40	0.21	1.36E-08
<i>Nfib</i>	6.52E-09	0.68	0.39	0.19	1.96E-05
<i>Xcl1</i>	2.66E-12	0.68	0.42	0.10	7.97E-09
<i>Galnt15</i>	1.26E-05	0.67	0.51	0.37	3.78E-02
<i>Ndrgr1</i>	4.62E-11	0.67	0.40	0.19	1.39E-07
<i>Oxtr</i>	1.78E-08	0.67	0.35	0.24	5.34E-05
<i>Hspa2</i>	1.14E-06	0.66	0.35	0.21	3.42E-03
<i>Tmem159</i>	6.7E-18	0.66	0.47	0.20	2.01E-14
<i>Fcer1g</i>	3.66E-16	0.65	0.39	0.18	1.10E-12
<i>Bves</i>	3.72E-06	0.64	0.47	0.25	1.12E-02
<i>Pak6</i>	2.6E-06	0.64	0.32	0.24	7.79E-03
<i>Atpif1</i>	1.51E-13	0.63	0.45	0.20	4.53E-10

<i>Tspan15</i>	1.13E-06	0.63	0.40	0.27	3.39E-03
<i>Fln</i>	4.96E-12	0.63	0.59	0.36	1.49E-08
<i>Elovl5</i>	1.41E-09	0.63	0.38	0.19	4.23E-06
<i>Stat1</i>	2.43E-06	0.61	0.37	0.21	7.30E-03
<i>Lrrc32</i>	1.02E-08	0.61	0.38	0.21	3.07E-05
<i>Rarb</i>	8.65E-07	0.61	0.35	0.22	2.60E-03
<i>Inf2</i>	2.43E-08	0.60	0.38	0.19	7.28E-05
<i>Rcn3</i>	6.99E-09	0.60	0.81	0.63	2.10E-05
<i>Fkbp8</i>	2.61E-12	0.60	0.36	0.16	7.82E-09
<i>Itgb3</i>	5.54E-07	0.60	0.57	0.38	1.66E-03
<i>Id3</i>	8.65E-08	0.60	0.42	0.24	2.60E-04
<i>Ptprb</i>	4.56E-08	0.59	0.40	0.23	1.37E-04
<i>Tgfb</i>	9.84E-18	0.59	0.43	0.19	2.95E-14
<i>Ifi35</i>	1.36E-10	0.57	0.41	0.22	4.09E-07
<i>Rac2</i>	1.91E-06	0.57	0.37	0.20	5.73E-03
<i>Calb1</i>	1.62E-07	0.57	0.42	0.31	4.85E-04
<i>Cst3</i>	1.3E-07	0.56	0.34	0.21	3.89E-04
<i>Akr1cl</i>	1.85E-11	0.56	0.62	0.35	5.56E-08
<i>Trp53i11</i>	4.31E-07	0.56	0.45	0.26	1.29E-03
<i>Cald1</i>	4.19E-12	0.56	0.69	0.40	1.26E-08
<i>Tmod1</i>	1.68E-14	0.55	0.34	0.12	5.05E-11
<i>Hoxa9</i>	2.07E-17	0.54	0.52	0.17	6.21E-14
<i>Ak3</i>	1.4E-06	0.54	0.31	0.17	4.21E-03
<i>Nos3</i>	7.9E-07	0.54	0.34	0.24	2.37E-03
<i>Pdlim4</i>	2.77E-12	0.53	0.37	0.20	8.32E-09
<i>Mob4</i>	1.8E-06	0.53	0.60	0.38	5.39E-03
<i>Nr1h4</i>	3.28E-08	0.52	0.34	0.15	9.85E-05
<i>Rbpms</i>	1.62E-10	0.52	0.65	0.44	4.86E-07
<i>Slc25a30</i>	1.67E-11	0.51	0.32	0.18	5.02E-08
<i>Abca1</i>	1.2E-07	0.50	0.65	0.44	3.61E-04
<i>Hist4h4</i>	2.16E-07	0.50	0.13	0.36	6.47E-04
<i>Lbh</i>	5.04E-08	0.48	0.43	0.24	1.51E-04
<i>Sod2</i>	4.57E-08	0.48	0.38	0.23	1.37E-04
<i>Tie1</i>	7.12E-11	0.46	0.38	0.21	2.14E-07
<i>Fasn</i>	2.59E-06	0.46	0.45	0.27	7.76E-03
<i>Zfp36l1</i>	1.47E-11	0.45	0.48	0.26	4.40E-08
<i>Ssu2</i>	5.16E-13	0.42	0.32	0.13	1.55E-09
<i>Il7r</i>	3.88E-18	0.42	0.33	0.17	1.16E-14
<i>Sorbs2</i>	5.92E-07	0.41	0.31	0.20	1.78E-03
<i>Kank3</i>	6.81E-11	0.41	0.48	0.23	2.04E-07
<i>Tgm2</i>	3.68E-20	0.41	0.60	0.29	1.10E-16
<i>Srgn</i>	2.27E-10	0.40	0.43	0.22	6.82E-07
<i>Olfml3</i>	6.74E-08	0.39	0.33	0.22	2.02E-04
<i>Actr3b</i>	7.22E-21	0.38	0.62	0.28	2.16E-17
<i>Cavin1</i>	4.58E-12	0.37	0.67	0.40	1.37E-08
<i>Npas3</i>	2.16E-11	0.37	0.52	0.36	6.48E-08
<i>Parp10</i>	1.74E-07	0.36	0.48	0.30	5.23E-04
<i>Mpeg1</i>	2.46E-09	0.36	0.35	0.15	7.39E-06
<i>Hmcn2</i>	4.4E-07	0.36	0.36	0.17	1.32E-03
<i>Loxl2</i>	2.44E-07	0.35	0.38	0.25	7.31E-04

<i>Podxl</i>	1.02E-05	0.34	0.33	0.22	3.07E-02
<i>Snx9</i>	1.22E-05	0.34	0.38	0.26	3.67E-02
<i>Fxyd6</i>	1.47E-05	0.34	0.57	0.39	4.40E-02
<i>Fam227a</i>	9.61E-12	0.34	0.42	0.19	2.88E-08
<i>Vwa5a</i>	6.95E-09	0.32	0.31	0.22	2.09E-05
<i>Wnt10a</i>	5.79E-20	0.31	0.36	0.07	1.74E-16
<i>Chpt1</i>	3.3E-07	0.31	0.39	0.24	9.89E-04
<i>Galnt18</i>	2.03E-08	0.31	0.30	0.14	6.08E-05
<i>Tns2</i>	5.49E-12	0.30	0.40	0.22	1.65E-08
<i>Nt5e</i>	1.36E-22	0.30	0.41	0.06	4.09E-19
<i>Pde3a</i>	8.99E-08	0.29	0.35	0.21	2.70E-04
<i>Dcn</i>	5.92E-14	0.29	0.37	0.21	1.78E-10
<i>Adam19</i>	6.92E-07	0.26	0.43	0.23	2.07E-03
<i>Pdgfra</i>	8.79E-07	0.25	0.54	0.35	2.64E-03
<i>Hsd17b7</i>	1.55E-11	0.24	0.42	0.21	4.64E-08
<i>Zfp36</i>	3.74E-08	0.24	0.33	0.17	1.12E-04
<i>Ly6e</i>	8.71E-19	0.24	0.38	0.18	2.61E-15
<i>Ggt5</i>	7.24E-10	0.23	0.36	0.20	2.17E-06
<i>Gngt2</i>	5.39E-06	0.23	0.35	0.20	1.62E-02
<i>Folr1</i>	4.85E-10	0.22	0.54	0.31	1.45E-06
<i>Mamdc2</i>	4.99E-07	0.22	0.30	0.22	1.50E-03
<i>Bace2</i>	6.8E-09	0.21	0.36	0.21	2.04E-05
<i>Plekha4</i>	1.36E-05	0.20	0.42	0.24	4.08E-02
<i>Ces2a</i>	6.93E-22	0.19	0.42	0.08	2.08E-18
<i>Rian</i>	9.27E-10	0.17	0.24	0.53	2.78E-06
<i>Igfbp2</i>	1.57E-08	0.17	0.38	0.23	4.71E-05
<i>Lrrc51</i>	1.56E-06	0.17	0.35	0.23	4.67E-03
<i>Cpe</i>	2.84E-10	0.16	0.52	0.30	8.52E-07
<i>Dio3</i>	1.03E-10	0.15	0.41	0.20	3.09E-07
<i>Col18a1</i>	1.59E-06	0.15	0.30	0.18	4.78E-03
<i>Alpl</i>	3.95E-16	0.14	0.36	0.15	1.18E-12
<i>Cftr</i>	4.2E-22	0.13	0.39	0.16	1.26E-18
<i>Sh3gl3</i>	6.86E-12	0.12	0.34	0.14	2.06E-08
<i>Vim</i>	2.24E-18	0.10	0.39	0.15	6.73E-15
<i>Gdnf</i>	4.3E-07	0.06	0.55	0.38	1.29E-03
<i>Sox17</i>	1.61E-05	0.06	0.34	0.17	4.83E-02
<i>Flt4</i>	7.07E-06	0.06	0.33	0.21	2.12E-02
<i>C1s1</i>	4.33E-06	0.05	0.35	0.18	1.30E-02
<i>Hal</i>	1.29E-11	0.04	0.30	0.05	3.87E-08
<i>Ctsc</i>	1.07E-05	0.01	0.38	0.24	3.21E-02

Table S4. Genes differentially expressed between FC3 and other sub-clusters. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
<i>Gtf2a1l</i>	2.55E-48	6.12	0.86	0.26	7.66E-45
<i>Agr3</i>	5.12E-32	6.01	0.69	0.12	1.54E-28
<i>Gm3143</i>	1.5E-57	5.85	0.92	0.29	4.50E-54
<i>Bmp15</i>	8.27E-38	5.74	0.80	0.17	2.48E-34
<i>Arhgap20os</i>	1.78E-40	5.59	0.84	0.33	5.34E-37
<i>Fbxw26</i>	2.22E-56	5.51	0.93	0.25	6.67E-53
<i>Ggct</i>	1.13E-32	5.44	0.82	0.49	3.39E-29
<i>Gm1965</i>	6.34E-46	5.36	0.86	0.27	1.90E-42
<i>Oog4</i>	9.4E-35	5.30	0.77	0.26	2.82E-31
<i>Tcl1</i>	2.77E-39	5.29	0.86	0.41	8.31E-36
<i>Tle6</i>	1.57E-37	5.28	0.74	0.25	4.71E-34
<i>Btg4</i>	1.9E-52	5.27	0.88	0.22	5.71E-49
<i>Fbxw27</i>	2.91E-48	5.25	0.89	0.35	8.73E-45
<i>Oosp3</i>	4.46E-42	5.25	0.81	0.33	1.34E-38
<i>Mtmr14</i>	3.69E-40	5.20	0.86	0.43	1.11E-36
<i>Gm839</i>	3.61E-37	5.20	0.78	0.30	1.08E-33
<i>Fbxw15</i>	7.78E-55	5.19	0.91	0.28	2.33E-51
<i>E330021D16Rik</i>	2.42E-59	5.19	0.95	0.31	7.26E-56
<i>Elobl</i>	5.44E-61	5.16	0.97	0.28	1.63E-57
<i>Trim61</i>	7.1E-43	5.14	0.85	0.35	2.13E-39
<i>Spin1</i>	6.38E-33	5.08	0.86	0.52	1.91E-29
<i>Oas1e</i>	1.03E-48	5.07	0.87	0.25	3.08E-45
<i>Gm13023</i>	4.08E-55	5.05	0.94	0.29	1.22E-51
<i>Nobox</i>	4.69E-30	5.05	0.67	0.26	1.41E-26
<i>E330017A01Rik</i>	1.33E-56	5.04	0.92	0.31	3.98E-53
<i>Zbed3</i>	2.4E-49	5.00	0.95	0.51	7.20E-46
<i>Fbxw19</i>	9.25E-51	5.00	0.87	0.21	2.78E-47
<i>Nlrp14</i>	1.66E-59	4.99	0.95	0.26	4.99E-56
<i>Gdf9</i>	1.04E-47	4.93	0.88	0.30	3.13E-44
<i>Ninj2</i>	1.19E-33	4.93	0.78	0.30	3.57E-30
<i>Pkd2l2</i>	3.05E-48	4.91	0.91	0.42	9.16E-45
<i>Tent5b</i>	3.04E-41	4.87	0.80	0.20	9.13E-38
<i>Gm16497</i>	8.48E-40	4.84	0.81	0.26	2.54E-36
<i>Obox1</i>	4.25E-10	4.82	0.57	0.15	1.28E-06
<i>Fbxw24</i>	5.14E-46	4.81	0.88	0.35	1.54E-42
<i>Umodl1</i>	4.09E-25	4.78	0.75	0.34	1.23E-21
<i>Npm2</i>	4.1E-52	4.77	0.92	0.24	1.23E-48
<i>Tmem108</i>	5.8E-09	4.75	0.55	0.24	1.74E-05
<i>E330011O21Rik</i>	4.44E-37	4.72	0.78	0.28	1.33E-33
<i>Fbxw18</i>	4E-45	4.69	0.88	0.29	1.20E-41
<i>D10Wsu102e</i>	6.21E-28	4.69	0.82	0.47	1.86E-24
<i>H1foo</i>	1.94E-57	4.68	0.94	0.35	5.83E-54
<i>AU016765</i>	1.35E-30	4.67	0.79	0.33	4.05E-27

<i>Khdc3</i>	2.51E-58	4.65	0.97	0.34	7.54E-55
<i>1700018B24Rik</i>	1.02E-35	4.64	0.73	0.16	3.07E-32
<i>Gm813</i>	2.56E-58	4.64	0.95	0.32	7.67E-55
<i>Aurkc</i>	3.19E-32	4.63	0.74	0.28	9.58E-29
<i>Oosp1</i>	3.35E-43	4.62	0.84	0.21	1.00E-39
<i>Chga</i>	7.15E-25	4.62	0.71	0.26	2.14E-21
<i>Gm43269</i>	1.99E-37	4.62	0.82	0.33	5.96E-34
<i>Cd164l2</i>	2.9E-32	4.59	0.76	0.24	8.69E-29
<i>Rfpl4</i>	7.78E-09	4.58	0.52	0.10	2.33E-05
<i>Oog3</i>	5E-37	4.52	0.76	0.20	1.50E-33
<i>Khdc1b</i>	4.9E-52	4.52	0.92	0.30	1.47E-48
<i>Myocos</i>	2.82E-46	4.50	0.83	0.22	8.46E-43
<i>Gckr</i>	4.13E-19	4.50	0.68	0.28	1.24E-15
<i>Izumo1r</i>	5.6E-46	4.49	0.88	0.24	1.68E-42
<i>E330034G19Rik</i>	4.35E-43	4.49	0.81	0.22	1.30E-39
<i>Bcl2l10</i>	8.47E-48	4.48	0.89	0.31	2.54E-44
<i>Oog2</i>	1.83E-15	4.47	0.67	0.32	5.50E-12
<i>Zar1l</i>	1.26E-40	4.43	0.80	0.27	3.77E-37
<i>Bpgm</i>	2.94E-24	4.42	0.79	0.47	8.81E-21
<i>Gng3</i>	1.02E-52	4.41	0.91	0.27	3.06E-49
<i>Serpinc1</i>	1.56E-33	4.40	0.76	0.24	4.67E-30
<i>Foxr1</i>	2.16E-38	4.40	0.80	0.29	6.48E-35
<i>Cfap58</i>	7.23E-15	4.40	0.63	0.23	2.17E-11
<i>Zar1</i>	1.09E-46	4.39	0.90	0.41	3.28E-43
<i>Fbxw21</i>	4.94E-30	4.37	0.70	0.16	1.48E-26
<i>Oas1c</i>	5.77E-42	4.36	0.81	0.16	1.73E-38
<i>Fbxw22</i>	1.96E-47	4.36	0.88	0.31	5.88E-44
<i>Rspo2</i>	2.17E-31	4.35	0.77	0.31	6.52E-28
<i>Fbxw14</i>	4.49E-34	4.35	0.78	0.23	1.35E-30
<i>C87977</i>	2.09E-45	4.35	0.86	0.29	6.27E-42
<i>D6Ert527e</i>	8.41E-35	4.35	0.79	0.32	2.52E-31
<i>Tent5c</i>	2.43E-27	4.34	0.73	0.29	7.29E-24
<i>Obox2</i>	2.16E-18	4.33	0.62	0.20	6.47E-15
<i>AU015836</i>	5.59E-10	4.33	0.54	0.12	1.68E-06
<i>Pabpc1l</i>	5.87E-28	4.32	0.69	0.19	1.76E-24
<i>Myo5b</i>	1.06E-17	4.26	0.57	0.19	3.19E-14
<i>Mbl2</i>	3.71E-10	4.24	0.55	0.23	1.11E-06
<i>Tcl1b2</i>	7.19E-25	4.23	0.69	0.25	2.16E-21
<i>Fbxw20</i>	6.94E-38	4.22	0.80	0.21	2.08E-34
<i>Dppa2</i>	1E-34	4.21	0.77	0.27	3.01E-31
<i>Ldhb</i>	9.26E-50	4.20	0.99	0.77	2.78E-46
<i>Ehf</i>	1.79E-24	4.19	0.67	0.24	5.38E-21
<i>Gyg</i>	6.04E-24	4.18	0.80	0.47	1.81E-20
<i>Omt2b</i>	1.01E-33	4.17	0.79	0.29	3.02E-30
<i>Gm29811</i>	2.84E-13	4.17	0.65	0.26	8.52E-10
<i>Zp3</i>	1.05E-53	4.17	0.94	0.36	3.15E-50
<i>Dppa5a</i>	4.15E-35	4.15	0.75	0.18	1.25E-31
<i>Nlrp9a</i>	3.19E-25	4.15	0.74	0.39	9.57E-22
<i>C87499</i>	1.99E-24	4.11	0.62	0.17	5.98E-21
<i>Pla2g4c</i>	5.56E-31	4.10	0.80	0.39	1.67E-27

<i>Mos</i>	1.89E-16	4.10	0.57	0.16	5.66E-13
<i>Zfp57</i>	1.59E-09	4.09	0.52	0.23	4.78E-06
<i>Accsl</i>	2.04E-32	4.09	0.75	0.23	6.12E-29
<i>Igf2bp2</i>	2.57E-28	4.09	0.79	0.28	7.70E-25
<i>Gm13084</i>	8.73E-37	4.08	0.81	0.26	2.62E-33
<i>Dnmt1</i>	1.26E-33	4.07	0.89	0.53	3.79E-30
<i>Oosp2</i>	1.46E-31	4.05	0.80	0.41	4.38E-28
<i>Fbxw16</i>	1.7E-42	4.05	0.85	0.33	5.09E-39
<i>C86187</i>	1.63E-22	4.04	0.71	0.28	4.89E-19
<i>Ccno</i>	3.46E-20	4.04	0.71	0.21	1.04E-16
<i>Kpna7</i>	1.38E-33	4.02	0.74	0.18	4.14E-30
<i>4931428L18Rik</i>	1.13E-23	4.02	0.69	0.26	3.38E-20
<i>Igsf23</i>	1.57E-24	4.01	0.72	0.21	4.70E-21
<i>Nlrp2</i>	2.04E-24	4.00	0.68	0.19	6.12E-21
<i>Kif17</i>	2.87E-28	3.99	0.73	0.24	8.61E-25
<i>Skap1</i>	3.79E-34	3.98	0.78	0.21	1.14E-30
<i>Ooep</i>	5.4E-61	3.97	0.98	0.47	1.62E-57
<i>Sp110</i>	3.19E-32	3.97	0.73	0.20	9.58E-29
<i>Cdk20</i>	6.87E-14	3.97	0.58	0.27	2.06E-10
<i>Zp2</i>	1.12E-36	3.95	0.84	0.41	3.37E-33
<i>AA545190</i>	4.38E-15	3.95	0.70	0.38	1.31E-11
<i>Gtsf1</i>	1.98E-37	3.94	0.77	0.23	5.94E-34
<i>Enox1</i>	7.65E-24	3.94	0.61	0.18	2.29E-20
<i>Pdzk1</i>	1.85E-17	3.94	0.65	0.18	5.56E-14
<i>Astl</i>	3.46E-38	3.93	0.86	0.31	1.04E-34
<i>Cd5</i>	1.01E-17	3.92	0.54	0.08	3.02E-14
<i>Dppa3</i>	2.26E-52	3.91	0.93	0.38	6.77E-49
<i>Wee2</i>	3.39E-15	3.91	0.66	0.38	1.02E-11
<i>Gm20548</i>	2.8E-38	3.89	0.82	0.31	8.40E-35
<i>Uchl1</i>	1.98E-52	3.89	0.98	0.68	5.94E-49
<i>Krt12</i>	2.45E-44	3.89	0.87	0.44	7.35E-41
<i>Ifitm6</i>	5.14E-35	3.88	0.82	0.32	1.54E-31
<i>A530032D15Rik</i>	1.74E-09	3.86	0.48	0.21	5.22E-06
<i>Gm42817</i>	3.49E-13	3.82	0.58	0.27	1.05E-09
<i>Oas1h</i>	1.26E-39	3.81	0.83	0.38	3.79E-36
<i>Klhl8</i>	9.36E-26	3.80	0.78	0.32	2.81E-22
<i>BC023719</i>	1.51E-13	3.79	0.55	0.22	4.53E-10
<i>Cpa1</i>	3.06E-41	3.78	0.84	0.26	9.17E-38
<i>Esrp1</i>	6.17E-18	3.77	0.57	0.19	1.85E-14
<i>Vrtn</i>	9.71E-35	3.76	0.78	0.22	2.91E-31
<i>Tsga10ip</i>	1.23E-20	3.76	0.71	0.28	3.70E-17
<i>Obox5</i>	4.27E-15	3.75	0.61	0.18	1.28E-11
<i>Rpl39l</i>	4.63E-10	3.74	0.54	0.20	1.39E-06
<i>Nlrp9b</i>	1.88E-15	3.70	0.64	0.31	5.63E-12
<i>Tctex1d1</i>	4.98E-17	3.70	0.67	0.26	1.49E-13
<i>Nlrp5</i>	1.6E-27	3.69	0.76	0.31	4.80E-24
<i>Tfap2e</i>	3.96E-18	3.69	0.64	0.24	1.19E-14
<i>Map3k6</i>	2.58E-23	3.67	0.67	0.25	7.73E-20
<i>Tmem232</i>	6E-20	3.66	0.70	0.22	1.80E-16
<i>Fbxw28</i>	8.97E-39	3.63	0.82	0.34	2.69E-35

<i>Sall4</i>	8.03E-12	3.63	0.59	0.20	2.41E-08
<i>Aspm</i>	5.75E-10	3.63	0.67	0.40	1.72E-06
<i>Cpeb1</i>	6.67E-25	3.61	0.52	0.13	2.00E-21
<i>AU022751</i>	9.28E-34	3.61	0.78	0.39	2.78E-30
<i>Bfsp1</i>	1.25E-32	3.56	0.85	0.41	3.74E-29
<i>Nlrp4f</i>	4.54E-17	3.56	0.68	0.29	1.36E-13
<i>Fbxw13</i>	4.93E-19	3.55	0.65	0.21	1.48E-15
<i>Gm11827</i>	1.73E-32	3.54	0.81	0.34	5.20E-29
<i>Th</i>	1.35E-31	3.53	0.80	0.24	4.04E-28
<i>D030018L15Rik</i>	1.86E-18	3.52	0.61	0.19	5.57E-15
<i>Nrn1l</i>	9.3E-10	3.52	0.47	0.13	2.79E-06
<i>Fbxw25</i>	1.15E-32	3.51	0.79	0.23	3.46E-29
<i>Pabpn1l</i>	5.6E-18	3.49	0.63	0.28	1.68E-14
<i>Efcab6</i>	2.24E-06	3.48	0.50	0.19	6.71E-03
<i>Slc30a3</i>	8.22E-11	3.47	0.54	0.28	2.47E-07
<i>Grm2</i>	3.24E-28	3.47	0.71	0.31	9.71E-25
<i>Setd4</i>	3.64E-15	3.47	0.69	0.37	1.09E-11
<i>Padi6</i>	4.33E-52	3.45	0.97	0.38	1.30E-48
<i>Gm14820</i>	1.18E-33	3.45	0.79	0.36	3.54E-30
<i>Cpb2</i>	1.5E-15	3.44	0.66	0.34	4.50E-12
<i>Patl2</i>	2.15E-08	3.44	0.50	0.15	6.44E-05
<i>Fam47e</i>	7.63E-09	3.43	0.52	0.13	2.29E-05
<i>Grm4</i>	1.2E-18	3.43	0.66	0.23	3.59E-15
<i>Ybx2</i>	4.64E-16	3.42	0.61	0.32	1.39E-12
<i>Asz1</i>	1.11E-08	3.42	0.55	0.25	3.32E-05
<i>Cpsf4l</i>	1.42E-12	3.36	0.63	0.37	4.25E-09
<i>Khdc1a</i>	1.06E-06	3.32	0.59	0.40	3.18E-03
<i>Dcpp2</i>	1.7E-06	3.32	0.56	0.32	5.10E-03
<i>Nrp1</i>	9.21E-17	3.32	0.59	0.25	2.76E-13
<i>Gm36307</i>	2.93E-08	3.31	0.57	0.23	8.78E-05
<i>Dcpp1</i>	1.98E-14	3.29	0.64	0.28	5.95E-11
<i>Zp1</i>	3.06E-41	3.26	0.79	0.23	9.17E-38
<i>Cdo1</i>	1.28E-26	3.26	0.82	0.36	3.84E-23
<i>Rasa4</i>	3.51E-24	3.24	0.82	0.35	1.05E-20
<i>Oas1d</i>	1.1E-28	3.24	0.69	0.17	3.31E-25
<i>Nlrp9c</i>	4.85E-26	3.23	0.77	0.33	1.46E-22
<i>Ffar2</i>	5.43E-21	3.21	0.34	0.07	1.63E-17
<i>Elavl2</i>	8.81E-13	3.21	0.59	0.29	2.64E-09
<i>Dpep3</i>	1.23E-09	3.19	0.63	0.32	3.68E-06
<i>Gm15691</i>	2.15E-25	3.18	0.76	0.38	6.44E-22
<i>Ccdc92</i>	1.63E-26	3.17	0.67	0.21	4.89E-23
<i>Pdpm</i>	7.35E-31	3.15	0.86	0.39	2.21E-27
<i>Rhpn2</i>	2.33E-12	3.13	0.52	0.12	6.98E-09
<i>Khdc1c</i>	9.27E-09	3.13	0.60	0.26	2.78E-05
<i>Miox</i>	6.81E-27	3.12	0.50	0.10	2.04E-23
<i>Pin1rt1</i>	1.12E-23	3.10	0.74	0.37	3.36E-20
<i>A230005M16Rik</i>	4.81E-10	3.10	0.57	0.26	1.44E-06
<i>Figla</i>	4.74E-32	3.09	0.81	0.26	1.42E-28
<i>Tgfb2</i>	4.24E-36	3.07	0.81	0.22	1.27E-32
<i>Tubb2a</i>	9.45E-07	3.06	0.63	0.46	2.83E-03

<i>Pinlyp</i>	2.13E-16	3.06	0.69	0.36	6.38E-13
<i>R3hdml</i>	5.48E-36	3.02	0.77	0.15	1.64E-32
<i>1700116B05Rik</i>	9.58E-12	3.01	0.67	0.38	2.87E-08
<i>Gbx2</i>	9.9E-17	3.00	0.66	0.35	2.97E-13
<i>Slc35f1</i>	2.37E-27	3.00	0.69	0.23	7.11E-24
<i>Gja4</i>	7.21E-30	3.00	0.67	0.25	2.16E-26
<i>Uhrf1</i>	1.94E-10	2.92	0.69	0.47	5.82E-07
<i>Tubb2b</i>	6.28E-13	2.90	0.65	0.32	1.88E-09
<i>Meis2</i>	3.89E-11	2.87	0.52	0.23	1.17E-07
<i>Mael</i>	1.29E-15	2.87	0.70	0.36	3.86E-12
<i>Slc25a48</i>	4.17E-13	2.86	0.62	0.30	1.25E-09
<i>E330020D12Rik</i>	1.49E-24	2.83	0.80	0.35	4.47E-21
<i>Ipcef1</i>	1.95E-06	2.83	0.45	0.15	5.86E-03
<i>Zfp957</i>	3.93E-10	2.81	0.55	0.31	1.18E-06
<i>1700067K01Rik</i>	1.18E-10	2.80	0.62	0.24	3.53E-07
<i>Gm14004</i>	2.78E-10	2.78	0.59	0.26	8.34E-07
<i>Lypd6b</i>	3.06E-08	2.78	0.42	0.13	9.18E-05
<i>Gm43303</i>	2.78E-23	2.75	0.63	0.17	8.35E-20
<i>Lrrc36</i>	9.45E-06	2.75	0.53	0.25	2.83E-02
<i>D7Ertd443e</i>	3.61E-15	2.74	0.53	0.16	1.08E-11
<i>Tpgs2</i>	7.4E-14	2.70	0.87	0.62	2.22E-10
<i>Pttg1</i>	7.43E-23	2.69	0.88	0.58	2.23E-19
<i>Spink2</i>	2.74E-06	2.67	0.53	0.36	8.23E-03
<i>Tspan33</i>	5.53E-13	2.66	0.45	0.13	1.66E-09
<i>Mphosph6</i>	1.66E-08	2.63	0.70	0.52	4.99E-05
<i>Hsd3b3</i>	7.77E-08	2.60	0.61	0.25	2.33E-04
<i>Bnc1</i>	3.36E-23	2.56	0.67	0.21	1.01E-19
<i>Diras2</i>	1.8E-28	2.56	0.56	0.09	5.40E-25
<i>Tmem151a</i>	2.52E-12	2.49	0.39	0.08	7.56E-09
<i>Dazl</i>	3.44E-23	2.48	0.69	0.28	1.03E-19
<i>Kctd14</i>	1.52E-23	2.46	0.92	0.57	4.57E-20
<i>Cldn4</i>	5.59E-19	2.40	0.55	0.16	1.68E-15
<i>Arg2</i>	1.46E-06	2.40	0.57	0.41	4.39E-03
<i>Foxq1</i>	7.31E-06	2.36	0.31	0.19	2.19E-02
<i>Igfbp5</i>	7.9E-08	2.35	0.55	0.39	2.37E-04
<i>Cdc34b</i>	1.52E-10	2.35	0.56	0.29	4.56E-07
<i>Map7d2</i>	3.37E-11	2.34	0.67	0.37	1.01E-07
<i>Slbp</i>	1.1E-18	2.33	0.89	0.64	3.30E-15
<i>Gata3</i>	6.28E-24	2.29	0.69	0.22	1.88E-20
<i>Crip3</i>	1.93E-09	2.29	0.63	0.32	5.80E-06
<i>Kbtbd8</i>	2.64E-22	2.28	0.65	0.26	7.92E-19
<i>Aig1</i>	6.33E-06	2.28	0.40	0.23	1.90E-02
<i>Rasd1</i>	6.73E-09	2.27	0.85	0.65	2.02E-05
<i>Tac2</i>	6.18E-17	2.24	0.65	0.24	1.85E-13
<i>Unc13c</i>	7.96E-12	2.22	0.65	0.39	2.39E-08
<i>Hsp90aa1</i>	8E-16	2.21	0.91	0.72	2.40E-12
<i>Epha1</i>	5.57E-19	2.17	0.38	0.09	1.67E-15
<i>Rad51</i>	6.06E-07	2.17	0.63	0.52	1.82E-03
<i>Nod2</i>	9.07E-20	2.15	0.46	0.09	2.72E-16
<i>Tacc3</i>	5.18E-13	2.14	0.78	0.54	1.55E-09

<i>Epn3</i>	1.67E-17	2.13	0.31	0.13	5.01E-14
<i>Klhl31</i>	5.95E-07	2.10	0.59	0.35	1.78E-03
<i>Kcnmb2</i>	3.09E-15	2.07	0.42	0.05	9.26E-12
<i>Birc5</i>	2.75E-24	2.07	0.97	0.70	8.24E-21
<i>Amh</i>	4.63E-06	2.06	0.52	0.21	1.39E-02
<i>Isyna1</i>	2.34E-07	2.05	0.74	0.58	7.01E-04
<i>Arhgef39</i>	2.53E-17	2.02	0.86	0.51	7.60E-14
<i>Scn8a</i>	1.95E-11	2.01	0.59	0.33	5.84E-08
<i>Rap2b</i>	7.16E-16	1.94	0.76	0.45	2.15E-12
<i>Pcsk6</i>	2.83E-12	1.94	0.69	0.43	8.50E-09
<i>Errfi1</i>	1.19E-05	1.93	0.44	0.31	3.56E-02
<i>Tesc</i>	1.05E-05	1.93	0.42	0.15	3.14E-02
<i>4933413J09Rik</i>	4.45E-17	1.90	0.53	0.24	1.34E-13
<i>Calb1</i>	6.7E-07	1.87	0.57	0.28	2.01E-03
<i>Ablim1</i>	2.79E-13	1.86	0.81	0.60	8.37E-10
<i>Tcea3</i>	8E-20	1.86	0.40	0.14	2.40E-16
<i>Cdca5</i>	5.67E-09	1.86	0.71	0.46	1.70E-05
<i>Vwa3a</i>	4.98E-27	1.84	0.69	0.20	1.49E-23
<i>Rarb</i>	3.38E-21	1.83	0.55	0.18	1.01E-17
<i>Tub</i>	1.98E-09	1.81	0.58	0.28	5.93E-06
<i>Sohlh1</i>	1.93E-08	1.80	0.66	0.40	5.80E-05
<i>Crabp1</i>	4.1E-09	1.76	0.70	0.53	1.23E-05
<i>Wt1</i>	5.73E-06	1.73	0.60	0.45	1.72E-02
<i>Gm11266</i>	7.86E-19	1.73	0.37	0.07	2.36E-15
<i>Bank1</i>	4.63E-20	1.72	0.69	0.24	1.39E-16
<i>Aim2</i>	8.28E-24	1.72	0.65	0.21	2.49E-20
<i>Tmem184a</i>	8.8E-22	1.72	0.88	0.48	2.64E-18
<i>Gm13010</i>	1.06E-06	1.71	0.34	0.14	3.19E-03
<i>Tdh</i>	2.45E-09	1.70	0.58	0.18	7.36E-06
<i>Bub1b</i>	4.08E-06	1.69	0.64	0.45	1.22E-02
<i>Amhr2</i>	1.3E-09	1.68	0.93	0.74	3.90E-06
<i>Emx2</i>	3.77E-20	1.67	0.75	0.32	1.13E-16
<i>Cryl1</i>	1.35E-05	1.66	0.80	0.63	4.04E-02
<i>Vil1</i>	1.05E-09	1.66	0.59	0.28	3.14E-06
<i>Krt79</i>	2.63E-15	1.64	0.79	0.43	7.90E-12
<i>Cd274</i>	2.89E-12	1.62	0.51	0.21	8.67E-09
<i>Cetn4</i>	9.26E-07	1.61	0.49	0.24	2.78E-03
<i>Ppp1r3d</i>	9.32E-11	1.61	0.54	0.19	2.80E-07
<i>Fndc5</i>	1.98E-12	1.60	0.77	0.42	5.94E-09
<i>H2-Oa</i>	1.09E-07	1.56	0.54	0.29	3.26E-04
<i>Cdh8</i>	4.63E-11	1.56	0.32	0.09	1.39E-07
<i>9330102E08Rik</i>	3.13E-11	1.55	0.51	0.25	9.38E-08
<i>Slc6a7</i>	2.31E-10	1.55	0.46	0.14	6.93E-07
<i>Hif3a</i>	4.55E-12	1.55	0.48	0.24	1.36E-08
<i>Acpp</i>	1.07E-16	1.54	0.54	0.10	3.21E-13
<i>Jakmip1</i>	4.28E-22	1.54	0.57	0.14	1.28E-18
<i>Xlr4c</i>	4.8E-11	1.52	0.50	0.22	1.44E-07
<i>Mylk3</i>	2.11E-11	1.52	0.44	0.24	6.32E-08
<i>Trim9</i>	3.62E-07	1.48	0.61	0.35	1.09E-03
<i>Cgn</i>	1.32E-06	1.46	0.52	0.29	3.95E-03

<i>Mmd2</i>	2.94E-06	1.43	0.79	0.60	8.81E-03
<i>Hirip3</i>	9.19E-13	1.42	0.70	0.46	2.76E-09
<i>Ppp1r1b</i>	2.35E-08	1.42	0.40	0.14	7.04E-05
<i>Ap3b2</i>	8.95E-20	1.41	0.61	0.18	2.69E-16
<i>Cnksr1</i>	1.83E-17	1.41	0.50	0.10	5.48E-14
<i>Fut2</i>	1.8E-08	1.35	0.52	0.26	5.40E-05
<i>Slc6a4</i>	8.44E-09	1.34	0.47	0.15	2.53E-05
<i>Tppp</i>	3.53E-11	1.33	0.33	0.08	1.06E-07
<i>Ovgp1</i>	9.13E-09	1.32	0.44	0.18	2.74E-05
<i>Fyb2</i>	2.75E-17	1.32	0.66	0.33	8.24E-14
<i>Serpinb6a</i>	3.96E-18	1.30	0.67	0.33	1.19E-14
<i>Ubxn10</i>	5.36E-07	1.30	0.56	0.29	1.61E-03
<i>Foxm1</i>	6.73E-10	1.28	0.71	0.47	2.02E-06
<i>Gm49719</i>	2.09E-13	1.25	0.60	0.30	6.26E-10
<i>Wfdc10</i>	2.44E-11	1.25	0.84	0.73	7.33E-08
<i>Acan</i>	8.13E-10	1.24	0.31	0.10	2.44E-06
<i>Chchd6</i>	7.06E-07	1.24	0.54	0.37	2.12E-03
<i>Gm11973</i>	2.65E-21	1.17	0.63	0.20	7.96E-18
<i>Nexn</i>	6.07E-08	1.17	0.64	0.49	1.82E-04
<i>Tmem25</i>	3.83E-08	1.14	0.49	0.28	1.15E-04
<i>Far2os1</i>	3.17E-29	1.14	0.71	0.17	9.51E-26
<i>Kif4</i>	8.32E-06	1.14	0.54	0.35	2.50E-02
<i>Myom2</i>	1.55E-05	1.13	0.48	0.33	4.66E-02
<i>Tmem100</i>	3.76E-06	1.13	0.54	0.29	1.13E-02
<i>Gm2044</i>	4.62E-06	1.12	0.91	0.76	1.39E-02
<i>Rab3b</i>	5.24E-06	1.10	0.71	0.54	1.57E-02
<i>Slc45a3</i>	7.55E-16	1.10	0.77	0.43	2.26E-12
<i>Zmym3</i>	4.18E-07	1.10	0.81	0.59	1.25E-03
<i>Clec9a</i>	1.16E-23	1.10	0.61	0.15	3.48E-20
<i>Cdc20</i>	3.11E-10	1.09	0.82	0.52	9.32E-07
<i>Gm5868</i>	1.41E-12	1.09	0.71	0.37	4.24E-09
<i>Fam162b</i>	7.28E-11	1.09	0.52	0.22	2.18E-07
<i>Apoa5</i>	2.89E-18	1.09	0.62	0.24	8.67E-15
<i>Ppp2r2b</i>	1.18E-07	1.03	0.31	0.06	3.55E-04
<i>Il7r</i>	1.28E-15	0.96	0.46	0.15	3.85E-12
<i>Steap1</i>	5.85E-17	0.95	0.65	0.31	1.75E-13
<i>Mybpc3</i>	1.73E-12	0.94	0.63	0.33	5.18E-09
<i>Ano1</i>	6.69E-08	0.94	0.54	0.33	2.01E-04
<i>Dnah10</i>	2.05E-09	0.92	0.40	0.07	6.15E-06
<i>Ak7</i>	1.01E-06	0.92	0.38	0.19	3.04E-03
<i>Slc18a2</i>	1.09E-23	0.89	0.99	0.81	3.26E-20
<i>Ncapg</i>	6.17E-06	0.89	0.71	0.55	1.85E-02
<i>Gm5741</i>	4.79E-07	0.86	0.40	0.19	1.44E-03
<i>Clec3b</i>	5.4E-09	0.85	0.35	0.16	1.62E-05
<i>Il18r1</i>	3.21E-19	0.84	0.10	0.30	9.63E-16
<i>Arhgap29</i>	1.45E-10	0.83	0.98	0.78	4.34E-07
<i>Tmem114</i>	6.65E-18	0.82	0.69	0.29	1.99E-14
<i>Plce1</i>	1.23E-11	0.82	0.49	0.19	3.69E-08
<i>Cdt1</i>	1.53E-08	0.81	0.69	0.42	4.59E-05
<i>Fam83d</i>	1.22E-07	0.80	0.71	0.50	3.66E-04

<i>Dynlrb2</i>	5.73E-10	0.80	0.44	0.11	1.72E-06
<i>Npas3</i>	7.99E-12	0.79	0.59	0.35	2.40E-08
<i>Aard</i>	1.28E-13	0.77	0.86	0.51	3.83E-10
<i>Rpl22l1</i>	1.65E-05	0.74	0.73	0.58	4.95E-02
<i>Gm40841</i>	5.55E-09	0.73	0.59	0.30	1.67E-05
<i>Gm36595</i>	3.22E-17	0.73	0.76	0.40	9.67E-14
<i>Mag</i>	1.19E-17	0.71	0.42	0.14	3.56E-14
<i>Dab1</i>	1.73E-07	0.69	0.47	0.16	5.19E-04
<i>Cenpe</i>	1.26E-07	0.69	0.67	0.46	3.78E-04
<i>Rps10</i>	1.06E-07	0.69	0.91	0.80	3.19E-04
<i>Rps8</i>	5.78E-08	0.68	0.96	0.91	1.73E-04
<i>Ammecr1l</i>	1.7E-18	0.68	0.74	0.36	5.09E-15
<i>Ranbp1</i>	9.62E-06	0.67	0.89	0.76	2.89E-02
<i>Zkscan2</i>	1.33E-05	0.66	0.37	0.21	3.99E-02
<i>Gdnf</i>	1.15E-07	0.66	0.60	0.37	3.45E-04
<i>Col9a2</i>	1.68E-08	0.65	0.91	0.59	5.03E-05
<i>Zfp280b</i>	2.12E-06	0.62	0.54	0.40	6.37E-03
<i>Dctpp1</i>	5.08E-09	0.60	0.84	0.65	1.52E-05
<i>Esco2</i>	5.86E-07	0.60	0.71	0.49	1.76E-03
<i>Al661453</i>	2.98E-26	0.59	0.52	0.10	8.95E-23
<i>Slc27a2</i>	9.21E-13	0.58	0.52	0.21	2.76E-09
<i>Rpl39</i>	1.94E-06	0.57	0.74	0.57	5.82E-03
<i>Spc25</i>	5.37E-06	0.55	0.84	0.63	1.61E-02
<i>Cks2</i>	5.03E-07	0.54	0.80	0.64	1.51E-03
<i>mt-Co3</i>	4.34E-09	0.54	0.76	0.55	1.30E-05
<i>Pln</i>	9.08E-15	0.54	0.59	0.17	2.73E-11
<i>Penk</i>	1.14E-05	0.54	0.29	0.38	3.43E-02
<i>Rpl12</i>	4.85E-07	0.52	0.91	0.82	1.45E-03
<i>Plxna2</i>	1.64E-07	0.51	0.81	0.63	4.91E-04
<i>Zfp41</i>	5.13E-06	0.50	0.90	0.68	1.54E-02
<i>Kazald1</i>	3.38E-07	0.46	0.90	0.73	1.01E-03
<i>Syt7</i>	8.35E-06	0.45	0.81	0.66	2.51E-02
<i>Racgap1</i>	1.16E-05	0.45	0.71	0.55	3.49E-02
<i>Gadd45g</i>	1.38E-06	0.42	0.67	0.51	4.14E-03
<i>Rnf125</i>	1.67E-09	0.40	0.49	0.27	5.00E-06
<i>Gm16364.1</i>	8.24E-07	0.40	0.49	0.14	2.47E-03
<i>H2afz</i>	7.96E-07	0.38	0.82	0.63	2.39E-03
<i>Wwc2</i>	1.3E-06	0.38	0.52	0.33	3.89E-03
<i>Cd2</i>	1.42E-06	0.36	0.49	0.20	4.27E-03
<i>Gm32817</i>	1.9E-20	0.33	0.63	0.22	5.71E-17
<i>Ubash3a</i>	2.69E-11	0.33	0.57	0.29	8.06E-08
<i>mt-Atp6</i>	3.72E-08	0.32	0.65	0.40	1.11E-04
<i>Shroom3</i>	1.31E-06	0.30	0.48	0.30	3.94E-03
<i>AV039307</i>	1.43E-08	0.30	0.64	0.34	4.30E-05
<i>Gm49980</i>	1.57E-06	0.29	0.69	0.47	4.72E-03
<i>Rps14</i>	4.63E-10	0.28	0.81	0.55	1.39E-06
<i>Adcy2</i>	2.39E-09	0.28	0.39	0.26	7.17E-06
<i>Hdac11</i>	3.02E-08	0.26	0.42	0.26	9.05E-05
<i>Rpl32</i>	1.5E-05	0.26	0.91	0.86	4.50E-02
<i>Ttc39a</i>	5.97E-12	0.24	0.40	0.14	1.79E-08

<i>Vasn</i>	1.75E-09	0.23	0.71	0.46	5.24E-06
<i>Nnat</i>	4.42E-08	0.22	0.95	0.78	1.33E-04
<i>Mgat4c</i>	2.4E-08	0.20	0.44	0.24	7.20E-05
<i>Samd12</i>	9.78E-12	0.17	0.48	0.18	2.93E-08
<i>Bdh1</i>	6.29E-11	0.17	0.46	0.18	1.89E-07
<i>Akr1c13</i>	3.3E-06	0.14	0.61	0.39	9.90E-03
<i>Socs2</i>	1.04E-05	0.12	0.91	0.74	3.13E-02
<i>Col4a4</i>	5.29E-06	0.12	0.47	0.36	1.59E-02
<i>Zfr2</i>	6.01E-06	0.11	0.34	0.30	1.80E-02
<i>Meiob</i>	2.28E-15	0.11	0.61	0.28	6.83E-12
<i>Grik4</i>	2.17E-12	0.10	0.34	0.11	6.50E-09
<i>Runx1t1</i>	1.28E-16	0.09	0.60	0.29	3.85E-13
<i>6030442K20Rik</i>	2.07E-06	0.09	0.46	0.19	6.20E-03
<i>Spin2c</i>	5.32E-06	0.09	0.81	0.64	1.60E-02
<i>mt-Co1</i>	2.03E-06	0.09	0.85	0.66	6.08E-03
<i>Dnah6</i>	7.07E-12	0.07	0.46	0.08	2.12E-08
<i>Sorbs1</i>	7.99E-17	0.06	0.54	0.17	2.40E-13
<i>4930404N11Rik</i>	2.48E-22	0.06	0.74	0.33	7.44E-19
<i>Prkx</i>	8.84E-10	0.03	0.57	0.29	2.65E-06
<i>Slfn4</i>	2.43E-07	0.02	0.48	0.30	7.30E-04
<i>mt-Co2</i>	4.52E-06	0.02	0.52	0.32	1.36E-02
<i>Tekt4</i>	7.82E-13	0.00	0.42	0.19	2.34E-09

Table S5. Genes differentially expressed between FC4 and other sub-clusters. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
<i>Inhba</i>	7.01E-73	5.91	0.97	0.33	2.10E-69
<i>Serpina3a</i>	3.98E-45	5.01	0.93	0.69	1.19E-41
<i>Slc26a7</i>	3.2E-54	4.65	0.95	0.62	9.59E-51
<i>Inhbb</i>	8.03E-63	4.57	0.95	0.33	2.41E-59
<i>Hoxd11</i>	1.37E-13	4.55	0.61	0.22	4.12E-10
<i>Nppc</i>	2.22E-42	4.50	0.84	0.31	6.67E-39
<i>Htra1</i>	6.72E-43	4.26	0.86	0.38	2.02E-39
<i>Gata6</i>	2.73E-11	4.17	0.65	0.40	8.20E-08
<i>Trib2</i>	1.64E-46	4.11	0.93	0.68	4.91E-43
<i>Hsd17b1</i>	2.01E-44	4.08	0.94	0.63	6.04E-41
<i>Fcna</i>	9.52E-31	3.97	0.69	0.11	2.85E-27
<i>Atp1b2</i>	8.68E-20	3.84	0.78	0.48	2.60E-16
<i>Frzb</i>	3.29E-16	3.81	0.63	0.27	9.87E-13
<i>Gm32585</i>	2.35E-21	3.79	0.65	0.24	7.06E-18
<i>Nrep</i>	7.89E-26	3.79	0.88	0.60	2.37E-22
<i>Eno1</i>	4.48E-28	3.69	0.80	0.41	1.34E-24
<i>Grem1</i>	3.84E-27	3.65	0.70	0.19	1.15E-23
<i>Prkar2b</i>	6.03E-52	3.61	0.96	0.86	1.81E-48
<i>Wfdc17</i>	4.5E-10	3.61	0.43	0.17	1.35E-06
<i>Pacc1</i>	4.2E-28	3.57	0.85	0.49	1.26E-24
<i>Fcgr3</i>	1.05E-15	3.57	0.40	0.16	3.14E-12
<i>Grin2c</i>	1.98E-24	3.45	0.72	0.27	5.93E-21
<i>Clu</i>	1.1E-13	3.40	0.67	0.38	3.29E-10
<i>Gm11110</i>	4.12E-15	3.40	0.63	0.26	1.24E-11
<i>Greb1</i>	5.99E-46	3.38	0.96	0.75	1.80E-42
<i>Nup62cl</i>	1.85E-06	3.34	0.52	0.28	5.54E-03
<i>Meg3</i>	3.91E-17	3.29	0.74	0.49	1.17E-13
<i>Gramd1b</i>	7.12E-22	3.14	0.72	0.43	2.14E-18
<i>Smim10l2a</i>	4.09E-20	3.13	0.69	0.30	1.23E-16
<i>Vcan</i>	1.52E-12	3.10	0.68	0.42	4.57E-09
<i>Fosl2</i>	1.82E-14	3.07	0.51	0.13	5.46E-11
<i>Cyb5a</i>	4.54E-37	3.02	0.99	0.86	1.36E-33
<i>Enc1</i>	1.08E-15	3.00	0.76	0.54	3.24E-12
<i>Hsd3b6</i>	2.76E-27	2.99	0.67	0.14	8.29E-24
<i>Pgk1</i>	5.48E-19	2.99	0.74	0.46	1.64E-15
<i>Chodl</i>	1.46E-34	2.97	0.65	0.11	4.38E-31
<i>Pak3</i>	1.06E-23	2.94	0.82	0.41	3.17E-20
<i>Masp1</i>	3.14E-36	2.91	0.82	0.37	9.43E-33
<i>Tnni3</i>	1.44E-25	2.88	0.95	0.79	4.31E-22
<i>Phex</i>	8.26E-19	2.87	0.76	0.39	2.48E-15
<i>Acot7</i>	3.7E-06	2.87	0.46	0.21	1.11E-02
<i>Vnn1</i>	3.9E-21	2.86	0.79	0.48	1.17E-17
<i>Csf1r</i>	5.19E-09	2.81	0.33	0.21	1.56E-05

<i>Rnd2</i>	7.37E-10	2.80	0.63	0.43	2.21E-06
<i>Socs2</i>	9.37E-20	2.79	0.87	0.75	2.81E-16
<i>Psd</i>	1.35E-12	2.79	0.63	0.30	4.04E-09
<i>Scn3a</i>	4.56E-15	2.78	0.53	0.13	1.37E-11
<i>Plxnc1</i>	3.94E-39	2.78	0.96	0.79	1.18E-35
<i>Ext1</i>	7.85E-20	2.77	0.69	0.31	2.35E-16
<i>Sema7a</i>	8.68E-13	2.76	0.68	0.41	2.60E-09
<i>Cited2</i>	5.11E-06	2.73	0.63	0.45	1.53E-02
<i>Angpt2</i>	8.03E-16	2.73	0.78	0.47	2.41E-12
<i>Jak1</i>	1.52E-20	2.70	0.86	0.67	4.57E-17
<i>Lsamp</i>	6.42E-22	2.70	0.71	0.26	1.93E-18
<i>Trim14</i>	1.07E-28	2.65	0.64	0.09	3.20E-25
<i>Slc7a8</i>	2.03E-19	2.64	0.82	0.54	6.08E-16
<i>Fam20c</i>	5.92E-14	2.61	0.82	0.64	1.77E-10
<i>Cyp4f15</i>	2.6E-08	2.59	0.46	0.20	7.81E-05
<i>Rimklb</i>	1.95E-17	2.58	0.90	0.67	5.86E-14
<i>Dag1</i>	2.46E-19	2.56	0.91	0.66	7.39E-16
<i>Egr2</i>	1.16E-07	2.54	0.57	0.39	3.48E-04
<i>Comp</i>	3.25E-14	2.51	0.54	0.21	9.75E-11
<i>1700007K13Rik</i>	2.81E-06	2.51	0.52	0.26	8.42E-03
<i>Hsd11b2</i>	1.62E-11	2.47	0.82	0.62	4.85E-08
<i>Bnip3</i>	2.69E-18	2.46	0.57	0.20	8.08E-15
<i>Tox2</i>	3.81E-08	2.45	0.62	0.42	1.14E-04
<i>Adgrg1</i>	5.54E-25	2.44	0.91	0.66	1.66E-21
<i>Plekhhl1</i>	1.45E-05	2.42	0.69	0.56	4.36E-02
<i>Phyhip</i>	8.83E-37	2.39	0.65	0.11	2.65E-33
<i>Fscn1</i>	1.2E-22	2.38	0.91	0.68	3.61E-19
<i>Gm26771</i>	4.85E-12	2.36	0.47	0.11	1.45E-08
<i>Ndufs4</i>	1.37E-16	2.34	0.84	0.62	4.10E-13
<i>Mid1ip1</i>	8.87E-16	2.33	0.88	0.82	2.66E-12
<i>Gldn</i>	1.81E-08	2.33	0.57	0.35	5.43E-05
<i>Gm16499.1</i>	4.75E-16	2.32	0.48	0.10	1.43E-12
<i>Cyp19a1</i>	3.31E-24	2.30	0.62	0.18	9.94E-21
<i>Neu3</i>	1.5E-07	2.27	0.67	0.49	4.51E-04
<i>Tmsb15b2</i>	5.4E-34	2.27	0.95	0.72	1.62E-30
<i>Ccnd2</i>	9.75E-09	2.27	0.79	0.57	2.93E-05
<i>Gch1</i>	1.52E-15	2.23	0.51	0.14	4.56E-12
<i>Kcnh2</i>	3.24E-13	2.22	0.70	0.45	9.73E-10
<i>Spic</i>	2.98E-08	2.21	0.42	0.10	8.95E-05
<i>Coasy</i>	4.12E-21	2.21	0.72	0.36	1.24E-17
<i>4930581F22Rik</i>	1.73E-15	2.21	0.75	0.49	5.20E-12
<i>Myom3</i>	4.92E-27	2.20	0.46	0.10	1.48E-23
<i>Nap1l5</i>	3.85E-42	2.15	0.99	0.75	1.15E-38
<i>Heph</i>	6.87E-17	2.14	0.95	0.78	2.06E-13
<i>Fbln1</i>	5.46E-19	2.14	0.84	0.69	1.64E-15
<i>Igf1</i>	4.01E-18	2.14	0.78	0.42	1.20E-14
<i>Fut8</i>	4.26E-11	2.12	0.52	0.28	1.28E-07
<i>AC149090.1</i>	2.88E-12	2.09	0.49	0.26	8.63E-09
<i>Nek6</i>	7.33E-06	2.08	0.67	0.52	2.20E-02
<i>Map3k5</i>	9.86E-13	2.07	0.74	0.52	2.96E-09

<i>Enpp6</i>	4.11E-26	2.06	0.58	0.10	1.23E-22
<i>Hopx</i>	3.28E-13	2.05	0.69	0.37	9.84E-10
<i>Fabp5</i>	2.26E-20	2.01	0.89	0.63	6.77E-17
<i>Gm13710</i>	1.06E-20	2.01	0.57	0.15	3.19E-17
<i>Myf5</i>	3.97E-32	2.00	0.66	0.21	1.19E-28
<i>Fn1</i>	1.32E-06	1.99	0.66	0.48	3.97E-03
<i>Obsl1</i>	6.31E-26	1.98	0.97	0.84	1.89E-22
<i>Gm4926</i>	6.93E-06	1.98	0.60	0.44	2.08E-02
<i>Gsta4</i>	7.1E-12	1.97	0.42	0.13	2.13E-08
<i>St3gal5</i>	1.15E-09	1.97	0.80	0.68	3.44E-06
<i>Gpam</i>	1.12E-22	1.95	0.41	0.10	3.35E-19
<i>Papss2</i>	5.18E-08	1.95	0.59	0.36	1.56E-04
<i>Erg28</i>	1.3E-11	1.94	0.62	0.37	3.90E-08
<i>Mia</i>	1.01E-24	1.94	0.80	0.32	3.04E-21
<i>Sdr42e1</i>	4.6E-09	1.94	0.35	0.10	1.38E-05
<i>St3gal4</i>	2.59E-29	1.93	0.95	0.81	7.77E-26
<i>Xpnpep2</i>	7.25E-16	1.92	0.59	0.23	2.17E-12
<i>Tdrd5</i>	4.35E-11	1.92	0.91	0.79	1.31E-07
<i>Gm11508</i>	3.81E-06	1.91	0.44	0.18	1.14E-02
<i>Gm16075</i>	3.24E-30	1.90	0.64	0.20	9.71E-27
<i>Rrm2</i>	8.9E-06	1.90	0.63	0.47	2.67E-02
<i>Chst8</i>	8.16E-08	1.87	0.69	0.55	2.45E-04
<i>Soat1</i>	2.83E-23	1.87	0.71	0.30	8.49E-20
<i>Mfsd2a</i>	2.95E-12	1.86	0.65	0.37	8.86E-09
<i>Defb19</i>	1.69E-14	1.85	0.86	0.71	5.06E-11
<i>Plod2</i>	2.22E-11	1.83	0.88	0.75	6.67E-08
<i>Gjb2</i>	1.01E-12	1.82	0.52	0.15	3.03E-09
<i>Il21r</i>	3.63E-30	1.81	0.69	0.25	1.09E-26
<i>Elovl6</i>	4.4E-06	1.80	0.61	0.39	1.32E-02
<i>Bmpr2</i>	6.26E-15	1.80	0.88	0.75	1.88E-11
<i>Gm19569</i>	4.71E-19	1.78	0.65	0.30	1.41E-15
<i>Tubd1</i>	5.21E-09	1.77	0.54	0.28	1.56E-05
<i>Fat1</i>	6.83E-08	1.76	0.65	0.46	2.05E-04
<i>Cadm3</i>	2.55E-08	1.75	0.25	0.38	7.66E-05
<i>6720483E21Rik</i>	3.47E-07	1.74	0.46	0.21	1.04E-03
<i>Ldha</i>	2.86E-14	1.72	0.90	0.69	8.59E-11
<i>Myo1e</i>	3.58E-14	1.71	0.80	0.50	1.07E-10
<i>Akr1c14</i>	6.65E-19	1.69	0.97	0.82	2.00E-15
<i>Ccr2</i>	6.16E-21	1.68	0.42	0.06	1.85E-17
<i>Tcrg-C1</i>	1.27E-10	1.68	0.34	0.19	3.80E-07
<i>Tom1l1</i>	1.54E-05	1.68	0.50	0.29	4.61E-02
<i>Slc25a35</i>	9.04E-19	1.68	0.74	0.39	2.71E-15
<i>Prkcd</i>	6E-08	1.67	0.83	0.69	1.80E-04
<i>Ptpre</i>	1.6E-05	1.64	0.57	0.36	4.80E-02
<i>Nr5a2</i>	1.64E-24	1.62	0.95	0.81	4.91E-21
<i>4930502E18Rik</i>	4.71E-19	1.61	0.75	0.33	1.41E-15
<i>Dgat2</i>	7.39E-09	1.60	0.53	0.24	2.22E-05
<i>Cavin1</i>	1.07E-14	1.60	0.71	0.39	3.22E-11
<i>Car14</i>	2.05E-12	1.58	0.86	0.70	6.14E-09
<i>Gm20594</i>	1.27E-18	1.58	0.52	0.13	3.80E-15

<i>Slc15a2</i>	9.35E-21	1.57	0.42	0.07	2.80E-17
<i>Gm28410</i>	3.55E-11	1.56	0.63	0.34	1.07E-07
<i>Minar2</i>	5.19E-16	1.53	0.63	0.29	1.56E-12
<i>Mex3c</i>	2.17E-12	1.52	0.85	0.71	6.50E-09
<i>Gja1</i>	1.47E-33	1.51	1.00	0.82	4.40E-30
<i>Scd2</i>	6.6E-16	1.50	0.51	0.24	1.98E-12
<i>Camk2g</i>	3.76E-06	1.45	0.57	0.40	1.13E-02
<i>Myo1b</i>	3.35E-11	1.43	0.84	0.65	1.01E-07
<i>Tgfbr1</i>	5.58E-06	1.43	0.49	0.37	1.67E-02
<i>Csrp2</i>	3.39E-16	1.42	0.89	0.70	1.02E-12
<i>Cxcr3</i>	5.68E-14	1.41	0.44	0.13	1.70E-10
<i>Cd163l1</i>	5.2E-10	1.40	0.35	0.13	1.56E-06
<i>Plxnb1</i>	8.62E-06	1.40	0.34	0.13	2.59E-02
<i>Plk1</i>	1.06E-07	1.40	0.71	0.44	3.17E-04
<i>Ak4</i>	9.29E-14	1.40	0.64	0.35	2.79E-10
<i>Tbca</i>	6.17E-16	1.39	0.94	0.72	1.85E-12
<i>Manf</i>	3.83E-06	1.37	0.82	0.78	1.15E-02
<i>Thbs1</i>	6.56E-13	1.37	0.97	0.79	1.97E-09
<i>Magee2</i>	8.44E-06	1.36	0.40	0.28	2.53E-02
<i>Aif1l</i>	2.19E-10	1.36	0.77	0.53	6.58E-07
<i>Bcan</i>	8.53E-18	1.34	0.74	0.42	2.56E-14
<i>Gm37336</i>	3.09E-09	1.34	0.50	0.21	9.28E-06
<i>Ambp</i>	4.83E-10	1.34	0.31	0.19	1.45E-06
<i>Ivns1abp</i>	1.95E-17	1.32	0.98	0.79	5.85E-14
<i>Mro</i>	2.42E-10	1.31	0.61	0.36	7.27E-07
<i>Cd300c2</i>	7.17E-12	1.30	0.35	0.15	2.15E-08
<i>Agtr2</i>	1.61E-19	1.29	0.76	0.32	4.83E-16
<i>Hmcn2</i>	3.12E-14	1.27	0.41	0.16	9.35E-11
<i>Cst12</i>	1.1E-24	1.25	0.42	0.09	3.29E-21
<i>Tmem45a</i>	4.7E-09	1.24	0.71	0.41	1.41E-05
<i>6330403K07Rik</i>	1.23E-05	1.23	0.63	0.39	3.68E-02
<i>Aldoc</i>	1.11E-25	1.23	0.63	0.13	3.33E-22
<i>Alms1</i>	2.94E-09	1.22	0.65	0.38	8.81E-06
<i>Gm2044</i>	2.27E-17	1.20	0.91	0.76	6.80E-14
<i>Zfand4</i>	4.97E-09	1.19	0.44	0.21	1.49E-05
<i>Hsp90b1</i>	7.32E-10	1.19	0.86	0.82	2.20E-06
<i>Cnot6</i>	4.5E-09	1.19	0.80	0.62	1.35E-05
<i>Scara5</i>	1.05E-06	1.18	0.56	0.35	3.14E-03
<i>Ypel2</i>	7.85E-07	1.18	0.63	0.42	2.36E-03
<i>Dek</i>	7.63E-08	1.17	0.76	0.56	2.29E-04
<i>Pgbd5</i>	4.29E-09	1.15	0.58	0.30	1.29E-05
<i>Greb1l</i>	1.3E-08	1.15	0.76	0.63	3.90E-05
<i>Gbp8</i>	5.77E-27	1.13	0.58	0.16	1.73E-23
<i>Pbk</i>	8.78E-06	1.12	0.74	0.59	2.63E-02
<i>Bank1</i>	2.83E-06	1.12	0.50	0.28	8.50E-03
<i>Ras110a</i>	3.27E-07	1.12	0.90	0.72	9.80E-04
<i>Slc38a5</i>	1.57E-05	1.12	0.84	0.71	4.70E-02
<i>Pclaf</i>	4.92E-06	1.08	0.84	0.66	1.48E-02
<i>Gab3</i>	1.14E-26	1.08	0.67	0.17	3.41E-23
<i>Psmb9</i>	1.43E-08	1.08	0.38	0.24	4.29E-05

<i>Fst</i>	5.99E-18	1.07	0.93	0.83	1.80E-14
<i>Zmym3</i>	1.9E-11	1.06	0.84	0.58	5.71E-08
<i>Arhgef28</i>	1.58E-05	1.06	0.75	0.63	4.73E-02
<i>Bmpr1b</i>	3.68E-12	1.06	0.90	0.74	1.10E-08
<i>Tmem266</i>	5.13E-30	1.06	0.67	0.14	1.54E-26
<i>Dock4</i>	1.64E-05	1.06	0.70	0.53	4.92E-02
<i>Junb</i>	8.01E-07	1.05	0.44	0.29	2.40E-03
<i>Pdlim4</i>	3.5E-07	1.04	0.35	0.20	1.05E-03
<i>Arxes2</i>	2.21E-10	1.04	0.97	0.79	6.64E-07
<i>Gm20342</i>	4.85E-07	1.03	0.35	0.18	1.45E-03
<i>Akr1cl</i>	1.99E-09	1.03	0.62	0.35	5.98E-06
<i>Hpse</i>	2.11E-12	1.03	0.31	0.08	6.32E-09
<i>Rpgrip1</i>	4.05E-10	1.03	0.52	0.27	1.21E-06
<i>Susd3</i>	6.54E-12	1.02	0.86	0.69	1.96E-08
<i>Ier3</i>	6.81E-06	0.99	0.46	0.31	2.04E-02
<i>Mcm4</i>	2.67E-07	0.98	0.74	0.54	8.02E-04
<i>Dbi</i>	2.24E-11	0.98	0.33	0.14	6.72E-08
<i>Prelid3a</i>	5.09E-07	0.97	0.14	0.31	1.53E-03
<i>Slc2a10</i>	3.42E-08	0.97	0.46	0.25	1.03E-04
<i>Fam13a</i>	3.87E-16	0.97	0.93	0.77	1.16E-12
<i>Crabp2</i>	2.73E-06	0.96	0.68	0.53	8.20E-03
<i>Gdap1l1</i>	5.74E-26	0.95	0.54	0.09	1.72E-22
<i>Thbs4</i>	1.27E-09	0.95	0.90	0.76	3.82E-06
<i>Mcm2</i>	1.22E-08	0.93	0.76	0.56	3.66E-05
<i>Apba1</i>	3.85E-07	0.93	0.31	0.15	1.16E-03
<i>Ms4a7</i>	2.09E-11	0.92	0.44	0.18	6.28E-08
<i>Foxo1</i>	2.08E-11	0.90	0.95	0.82	6.24E-08
<i>Pcdh9</i>	5.06E-12	0.89	0.37	0.21	1.52E-08
<i>Fndc5</i>	5.15E-07	0.89	0.63	0.45	1.55E-03
<i>AY036118</i>	6.96E-08	0.88	0.46	0.26	2.09E-04
<i>Grem2</i>	1.48E-06	0.87	0.78	0.69	4.44E-03
<i>B3gnt4</i>	2.14E-12	0.87	0.61	0.28	6.41E-09
<i>Abca1</i>	2.15E-06	0.87	0.64	0.45	6.44E-03
<i>Atf7ip2</i>	1.15E-05	0.85	0.59	0.38	3.45E-02
<i>Lrrc74b</i>	1.18E-16	0.84	0.46	0.09	3.55E-13
<i>Tut4</i>	6.34E-06	0.84	0.86	0.69	1.90E-02
<i>Pimreg</i>	3.21E-06	0.84	0.70	0.44	9.62E-03
<i>Car12</i>	8.37E-06	0.83	0.33	0.14	2.51E-02
<i>Gm41271</i>	3.8E-08	0.83	0.66	0.46	1.14E-04
<i>Cfap126</i>	7.02E-06	0.83	0.45	0.21	2.11E-02
<i>Slc12a7</i>	6.7E-06	0.81	0.48	0.29	2.01E-02
<i>Scap</i>	1.19E-09	0.80	0.46	0.22	3.58E-06
<i>Lingo1</i>	8.92E-23	0.80	0.57	0.21	2.68E-19
<i>Gpx7</i>	3.75E-07	0.78	0.89	0.82	1.12E-03
<i>Strn3</i>	1.05E-12	0.77	0.33	0.11	3.16E-09
<i>Bex4</i>	2.47E-14	0.77	0.99	0.87	7.41E-11
<i>4933439K11Rik</i>	2.32E-18	0.76	0.34	0.12	6.95E-15
<i>Zmym6</i>	4.51E-08	0.75	0.49	0.18	1.35E-04
<i>Serpine2</i>	6.37E-13	0.74	0.99	0.92	1.91E-09
<i>Gm45311</i>	1.26E-25	0.74	0.69	0.36	3.77E-22

<i>Cftr</i>	8.91E-15	0.74	0.47	0.14	2.67E-11
<i>Ank1</i>	6.83E-26	0.74	0.71	0.23	2.05E-22
<i>Rapgef4</i>	6.77E-06	0.73	0.64	0.46	2.03E-02
<i>Igsf3</i>	1.72E-07	0.72	0.53	0.33	5.15E-04
<i>Egr1</i>	5.3E-06	0.72	0.80	0.55	1.59E-02
<i>Reep1</i>	1.96E-23	0.71	0.54	0.15	5.88E-20
<i>Cltc</i>	8.24E-09	0.71	0.52	0.30	2.47E-05
<i>Ccn1</i>	6.14E-09	0.70	0.63	0.34	1.84E-05
<i>Fgf1</i>	5.45E-12	0.68	0.35	0.08	1.64E-08
<i>Inha</i>	5.12E-17	0.67	1.00	0.98	1.53E-13
<i>Cacna1g</i>	4.27E-13	0.66	0.52	0.14	1.28E-09
<i>Ihh</i>	9.96E-08	0.65	0.69	0.53	2.99E-04
<i>Arhgap30</i>	4.73E-07	0.65	0.39	0.10	1.42E-03
<i>Tceal9</i>	2.26E-10	0.61	0.96	0.87	6.77E-07
<i>Slamf8</i>	5.13E-34	0.61	0.62	0.05	1.54E-30
<i>Itga6</i>	1.18E-10	0.61	0.76	0.53	3.55E-07
<i>Tmem74b</i>	2.77E-24	0.60	0.59	0.17	8.32E-21
<i>Tbxas1</i>	2.57E-13	0.59	0.33	0.13	7.71E-10
<i>Stc2</i>	1.88E-11	0.58	0.33	0.18	5.64E-08
<i>C430049B03Rik</i>	6.01E-07	0.54	0.70	0.51	1.80E-03
<i>Slc27a2</i>	2.39E-07	0.53	0.31	0.26	7.17E-04
<i>Bst2</i>	1.39E-06	0.53	0.43	0.27	4.17E-03
<i>Gm47920</i>	3.76E-32	0.51	0.33	0.10	1.13E-28
<i>Cd36</i>	3.16E-07	0.50	0.89	0.65	9.48E-04
<i>Cyp2s1</i>	9.96E-07	0.46	0.64	0.42	2.99E-03
<i>Gm36595</i>	3.81E-35	0.44	0.08	0.53	1.14E-31
<i>Oxtr</i>	4.03E-07	0.43	0.33	0.25	1.21E-03
<i>Grb14</i>	3.48E-06	0.43	0.96	0.83	1.04E-02
<i>P3h4</i>	1.21E-05	0.42	0.71	0.54	3.63E-02
<i>Ctsl</i>	3.18E-06	0.42	0.72	0.54	9.54E-03
<i>A830052D11Rik</i>	8.89E-40	0.41	0.55	0.06	2.67E-36
<i>Phf20l1</i>	6.1E-06	0.40	0.50	0.30	1.83E-02
<i>Gm49032</i>	5.57E-09	0.40	0.36	0.14	1.67E-05
<i>Ndufa1</i>	9.23E-06	0.37	0.38	0.22	2.77E-02
<i>Sesn3</i>	3.72E-09	0.37	0.67	0.39	1.12E-05
<i>Esr1</i>	9.73E-06	0.35	0.44	0.29	2.92E-02
<i>Stag3</i>	6.56E-10	0.34	0.59	0.32	1.97E-06
<i>Fbn2</i>	1.26E-07	0.33	0.76	0.53	3.79E-04
<i>Slc35g1</i>	2.35E-20	0.32	0.57	0.21	7.06E-17
<i>1110032F04Rik</i>	2.75E-06	0.28	0.76	0.70	8.26E-03
<i>Mllt6</i>	9.05E-09	0.28	0.50	0.33	2.71E-05
<i>Tmsb10</i>	1.27E-13	0.27	0.89	0.70	3.80E-10
<i>Pik3r1</i>	3.76E-15	0.24	0.93	0.64	1.13E-11
<i>Rgs13</i>	1.16E-05	0.22	0.76	0.57	3.47E-02
<i>Cd82</i>	3.6E-06	0.22	0.51	0.32	1.08E-02
<i>Thra</i>	2.36E-08	0.21	0.69	0.44	7.09E-05
<i>Lama1</i>	4.51E-07	0.21	0.86	0.68	1.35E-03
<i>Adamts11</i>	2.1E-06	0.21	0.34	0.21	6.29E-03
<i>Cfap299</i>	1.61E-14	0.19	0.61	0.16	4.83E-11
<i>AV039307</i>	6.46E-08	0.17	0.54	0.36	1.94E-04

<i>Gja5</i>	1.98E-14	0.17	0.31	0.11	5.95E-11
<i>Cxxc4</i>	1.52E-05	0.17	0.71	0.49	4.56E-02
<i>9330179D12Rik</i>	1.59E-15	0.16	0.42	0.11	4.77E-12
<i>Vwa5b1</i>	8.62E-10	0.15	0.14	0.37	2.59E-06
<i>B3gat2</i>	2.11E-10	0.14	0.59	0.33	6.34E-07
<i>Cnnm1</i>	1.51E-06	0.14	0.75	0.43	4.52E-03
<i>Ccdc103</i>	3.85E-18	0.13	0.44	0.10	1.16E-14
<i>Wdr31</i>	2.09E-16	0.12	0.10	0.37	6.28E-13
<i>Gpha2</i>	2.25E-13	0.12	0.51	0.26	6.74E-10
<i>Clspn</i>	4.02E-09	0.11	0.22	0.46	1.21E-05
<i>Dazl</i>	2.72E-13	0.10	0.23	0.37	8.16E-10
<i>Lgals2</i>	1.55E-05	0.10	0.31	0.17	4.66E-02
<i>Top2a</i>	5.46E-06	0.07	0.82	0.69	1.64E-02
<i>Pawr</i>	1.59E-08	0.06	0.20	0.44	4.77E-05
<i>Albfn1</i>	1.47E-16	0.06	0.63	0.27	4.40E-13
<i>Zfp280b</i>	3.68E-06	0.04	0.35	0.44	1.10E-02
<i>Ltbp2</i>	7.1E-07	0.03	0.19	0.35	2.13E-03
<i>Vwa3a</i>	9.63E-18	0.03	0.11	0.31	2.89E-14
<i>Plin1</i>	1.99E-08	0.00	0.44	0.30	5.97E-05

Table S6. Genes differentially expressed between FC5 and other sub-clusters. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
<i>Efl1</i>	1.14E-37	3.92	1.00	0.61	3.43E-34
<i>Snrpd1</i>	8.25E-37	3.48	1.00	0.76	2.47E-33
<i>Ckap2l</i>	1.32E-17	3.47	0.81	0.32	3.96E-14
<i>Hmgn2</i>	7.54E-28	3.45	0.97	0.63	2.26E-24
<i>Top2a</i>	2.01E-29	3.39	0.97	0.68	6.02E-26
<i>Mycn</i>	6.14E-22	3.35	0.92	0.46	1.84E-18
<i>Dsp</i>	1.34E-25	3.35	0.87	0.37	4.03E-22
<i>Hmgb2</i>	3.63E-36	3.32	0.99	0.69	1.09E-32
<i>Tubb5</i>	1.55E-31	3.29	1.00	0.81	4.66E-28
<i>Psat1</i>	6.48E-16	3.29	0.80	0.40	1.94E-12
<i>H2afz</i>	6.5E-36	3.23	0.98	0.63	1.95E-32
<i>Aurkb</i>	2.14E-18	3.17	0.88	0.47	6.41E-15
<i>Strip2</i>	1.01E-25	3.10	0.86	0.37	3.04E-22
<i>Gm5868</i>	6.81E-26	3.05	0.87	0.38	2.04E-22
<i>Spc25</i>	1.08E-24	3.00	0.97	0.63	3.25E-21
<i>Mki67</i>	2.25E-30	2.99	0.99	0.61	6.76E-27
<i>Mak</i>	3.07E-09	2.93	0.48	0.11	9.22E-06
<i>Mycl</i>	4.03E-32	2.93	1.00	0.67	1.21E-28
<i>Slc6a15</i>	1.71E-19	2.92	0.88	0.58	5.14E-16
<i>Dut</i>	1.71E-28	2.88	0.97	0.70	5.12E-25
<i>Alpk3</i>	3.38E-15	2.85	0.74	0.38	1.01E-11
<i>Gprasp1</i>	9.01E-25	2.85	0.97	0.76	2.70E-21
<i>Vipr2</i>	2.7E-16	2.84	0.41	0.07	8.10E-13
<i>Esco2</i>	5.73E-20	2.83	0.89	0.48	1.72E-16
<i>Cks1b</i>	9.26E-23	2.80	0.97	0.71	2.78E-19
<i>Meox2</i>	1.18E-11	2.78	0.57	0.17	3.54E-08
<i>Tuba1b</i>	5.36E-35	2.78	0.99	0.63	1.61E-31
<i>Myo5c</i>	1.73E-16	2.78	0.86	0.43	5.18E-13
<i>Ran</i>	7.29E-33	2.76	0.99	0.78	2.19E-29
<i>Ihh</i>	1.58E-26	2.73	0.94	0.52	4.73E-23
<i>Aard</i>	3.29E-19	2.70	0.93	0.52	9.88E-16
<i>Ccna2</i>	1.69E-23	2.65	0.93	0.56	5.08E-20
<i>Bend4</i>	1.61E-26	2.64	0.98	0.68	4.84E-23
<i>Bok</i>	5.7E-25	2.63	0.98	0.72	1.71E-21
<i>Ank1</i>	1.11E-06	2.63	0.57	0.28	3.32E-03
<i>Nusap1</i>	9.74E-21	2.62	0.91	0.44	2.92E-17
<i>Gm9961</i>	2.25E-26	2.62	0.94	0.45	6.74E-23
<i>Dynap</i>	4.1E-13	2.60	0.82	0.53	1.23E-09
<i>Pbk</i>	1.33E-24	2.57	0.93	0.58	3.98E-21
<i>Tex15</i>	3.04E-25	2.57	0.98	0.65	9.11E-22
<i>Pclaf</i>	3.58E-33	2.56	0.98	0.65	1.07E-29
<i>Dtl</i>	1.84E-08	2.56	0.69	0.36	5.51E-05
<i>Cnmd</i>	1.38E-24	2.53	0.99	0.78	4.15E-21

<i>Cenpa</i>	1.3E-22	2.53	0.97	0.56	3.89E-19
<i>Prim1</i>	4.7E-25	2.50	0.96	0.45	1.41E-21
<i>Pbld1</i>	6.58E-20	2.50	0.73	0.23	1.98E-16
<i>Hnrnpa1</i>	7.03E-31	2.50	1.00	0.77	2.11E-27
<i>Plxna2</i>	1.07E-23	2.50	0.98	0.63	3.21E-20
<i>Kazald1</i>	1.48E-29	2.46	0.99	0.73	4.44E-26
<i>Fam25c</i>	2.92E-23	2.46	0.81	0.41	8.75E-20
<i>Selenoh</i>	1.32E-22	2.43	0.93	0.69	3.97E-19
<i>Mug2</i>	3.74E-23	2.41	0.94	0.45	1.12E-19
<i>Fam13a</i>	3.32E-27	2.38	0.99	0.78	9.95E-24
<i>Pdia6</i>	9.98E-29	2.31	0.99	0.86	2.99E-25
<i>Akr1c13</i>	5.9E-22	2.30	0.88	0.38	1.77E-18
<i>Dnajb13</i>	1.7E-12	2.29	0.81	0.47	5.09E-09
<i>Lig1</i>	2.47E-11	2.29	0.86	0.49	7.40E-08
<i>Tpx2</i>	1.74E-14	2.28	0.88	0.50	5.22E-11
<i>Gm36595</i>	1.05E-15	2.27	0.78	0.42	3.14E-12
<i>Rps4x</i>	9.98E-29	2.22	1.00	0.90	2.99E-25
<i>Carmil2</i>	2.84E-19	2.22	0.47	0.08	8.53E-16
<i>Snhg11</i>	2.59E-14	2.21	0.64	0.16	7.76E-11
<i>Idh2</i>	4.27E-12	2.21	0.91	0.74	1.28E-08
<i>Gm49980</i>	3.09E-17	2.20	0.89	0.46	9.26E-14
<i>Cdca3</i>	2.04E-16	2.18	0.88	0.47	6.13E-13
<i>Cdca8</i>	2.15E-15	2.17	0.90	0.47	6.46E-12
<i>Fam78a</i>	2.66E-24	2.16	1.00	0.66	7.97E-21
<i>Spc24</i>	1.45E-16	2.15	0.87	0.45	4.34E-13
<i>Cyp2s1</i>	1.64E-12	2.13	0.72	0.43	4.93E-09
<i>Pygb</i>	2.54E-20	2.12	0.93	0.69	7.63E-17
<i>Ptma</i>	1.28E-32	2.10	1.00	0.90	3.83E-29
<i>Stmn1</i>	1.34E-31	2.10	1.00	0.82	4.03E-28
<i>Cdc20</i>	5.29E-08	2.10	0.79	0.55	1.59E-04
<i>Cenpw</i>	1.53E-17	2.08	0.90	0.55	4.60E-14
<i>Bex2</i>	7.16E-18	2.07	0.87	0.55	2.15E-14
<i>Gm26879</i>	5.32E-08	2.06	0.41	0.14	1.60E-04
<i>Nnat</i>	2.6E-19	2.06	0.94	0.79	7.81E-16
<i>Il18rap</i>	3.58E-19	2.06	0.68	0.14	1.07E-15
<i>Creld2</i>	5.96E-21	2.05	0.96	0.64	1.79E-17
<i>Npm1</i>	2.38E-28	2.05	1.00	0.90	7.15E-25
<i>Psd2</i>	1.37E-20	2.04	0.71	0.09	4.12E-17
<i>Snrpf</i>	1.43E-25	2.04	0.96	0.72	4.28E-22
<i>Cks2</i>	1.97E-18	2.04	0.92	0.64	5.91E-15
<i>Cenpm</i>	6.1E-16	2.03	0.87	0.47	1.83E-12
<i>Rad51</i>	3.62E-11	2.01	0.81	0.51	1.09E-07
<i>Ahrr</i>	6.44E-14	2.00	0.60	0.23	1.93E-10
<i>Hey2</i>	1.37E-18	1.99	0.93	0.48	4.10E-15
<i>Racgap1</i>	2.41E-19	1.99	0.94	0.53	7.24E-16
<i>Prkg2</i>	1E-06	1.98	0.38	0.11	3.01E-03
<i>Slc38a3</i>	2.69E-19	1.97	0.99	0.76	8.06E-16
<i>Birc5</i>	9.52E-25	1.96	0.98	0.72	2.86E-21
<i>Ranbp1</i>	6.84E-20	1.95	0.99	0.76	2.05E-16
<i>Edn2</i>	6.46E-07	1.95	0.38	0.23	1.94E-03

<i>Fgb</i>	8.63E-15	1.94	0.56	0.11	2.59E-11
<i>Ncapg</i>	9.02E-17	1.93	0.90	0.54	2.71E-13
<i>Grem2</i>	1.62E-19	1.93	1.00	0.67	4.86E-16
<i>Mcm5</i>	2.14E-13	1.91	0.88	0.59	6.42E-10
<i>Manf</i>	5.36E-26	1.90	0.99	0.76	1.61E-22
<i>Evc2</i>	1.28E-15	1.89	0.96	0.69	3.83E-12
<i>Nop56</i>	2.49E-20	1.88	0.98	0.70	7.47E-17
<i>Mcm7</i>	4.73E-11	1.87	0.90	0.67	1.42E-07
<i>Rasl10a</i>	1.73E-13	1.87	0.90	0.73	5.20E-10
<i>Nap111</i>	8.52E-24	1.87	1.00	0.83	2.56E-20
<i>Rps24</i>	9.67E-27	1.86	1.00	0.92	2.90E-23
<i>Otor</i>	5.62E-19	1.86	0.86	0.46	1.68E-15
<i>Arhgef39</i>	1.08E-15	1.84	0.87	0.53	3.24E-12
<i>Perp</i>	3.01E-06	1.83	0.78	0.62	9.04E-03
<i>Tex14</i>	1.77E-22	1.83	0.99	0.77	5.32E-19
<i>Rrm1</i>	7.83E-15	1.82	0.84	0.58	2.35E-11
<i>Myef2</i>	1.25E-09	1.81	0.86	0.55	3.75E-06
<i>Cdk1</i>	2.7E-19	1.78	0.94	0.76	8.09E-16
<i>Fgf9</i>	3.04E-28	1.77	0.76	0.07	9.13E-25
<i>Car14</i>	1.51E-26	1.76	1.00	0.70	4.53E-23
<i>Adamts19</i>	1.27E-11	1.76	0.87	0.56	3.80E-08
<i>Pimreg</i>	1.12E-13	1.76	0.83	0.44	3.35E-10
<i>Fshr</i>	2.15E-13	1.75	0.90	0.54	6.44E-10
<i>Syt7</i>	7.18E-12	1.75	0.90	0.66	2.15E-08
<i>Cited1</i>	3.15E-08	1.74	0.74	0.50	9.44E-05
<i>Rps26</i>	7.23E-26	1.73	1.00	0.88	2.17E-22
<i>Spin2c</i>	7.41E-16	1.69	0.93	0.64	2.22E-12
<i>Snrpd3</i>	7.93E-19	1.68	0.98	0.76	2.38E-15
<i>Fam83d</i>	1.05E-19	1.68	0.91	0.49	3.16E-16
<i>Hspa5</i>	1.17E-19	1.67	0.99	0.83	3.52E-16
<i>Ube2c</i>	7.28E-21	1.67	0.97	0.73	2.18E-17
<i>Eef1b2</i>	1.25E-21	1.66	1.00	0.86	3.75E-18
<i>Spag9</i>	6.26E-20	1.66	0.97	0.67	1.88E-16
<i>Myo1b</i>	3.51E-19	1.65	0.94	0.65	1.05E-15
<i>Rap2b</i>	6.36E-09	1.65	0.80	0.47	1.91E-05
<i>Ezh2</i>	2.6E-09	1.65	0.89	0.62	7.79E-06
<i>Cyp26a1</i>	2.57E-22	1.64	0.78	0.11	7.72E-19
<i>H2afx</i>	1.43E-13	1.63	0.91	0.61	4.29E-10
<i>Carhsp1</i>	5.75E-26	1.62	1.00	0.84	1.73E-22
<i>Snhg1</i>	3.4E-08	1.62	0.93	0.71	1.02E-04
<i>Mcm6</i>	6.37E-16	1.62	0.94	0.71	1.91E-12
<i>Odc1</i>	1.04E-12	1.62	0.81	0.51	3.11E-09
<i>Igf1</i>	4.5E-22	1.59	0.89	0.43	1.35E-18
<i>Nr5a2</i>	4.32E-19	1.59	0.99	0.81	1.30E-15
<i>Cdt1</i>	1.08E-12	1.58	0.82	0.42	3.25E-09
<i>Dctpp1</i>	4.22E-14	1.58	0.89	0.66	1.26E-10
<i>Kif23</i>	5.34E-14	1.58	0.84	0.50	1.60E-10
<i>Gm13411</i>	1.06E-19	1.57	0.79	0.31	3.18E-16
<i>Ptges</i>	2.99E-10	1.55	0.81	0.49	8.98E-07
<i>Pdia4</i>	1.4E-08	1.54	0.81	0.59	4.19E-05

<i>Cenpf</i>	1.41E-06	1.54	0.64	0.34	4.22E-03
<i>Emx2</i>	5.01E-06	1.54	0.61	0.36	1.50E-02
<i>Ncl</i>	9.29E-14	1.54	0.97	0.71	2.79E-10
<i>Fam3c</i>	3.61E-11	1.54	0.90	0.63	1.08E-07
<i>Rpl22</i>	2.32E-25	1.54	1.00	0.86	6.97E-22
<i>Dnph1</i>	7.14E-12	1.53	0.83	0.54	2.14E-08
<i>Zfp277</i>	7.69E-11	1.53	0.88	0.63	2.31E-07
<i>Hsp90b1</i>	1.06E-20	1.52	0.99	0.81	3.19E-17
<i>Rrm2</i>	2.81E-11	1.52	0.81	0.46	8.42E-08
<i>Jam2</i>	5.51E-18	1.49	0.99	0.69	1.65E-14
<i>Slc24a5</i>	8.23E-06	1.49	0.69	0.43	2.47E-02
<i>Clspn</i>	5.39E-10	1.49	0.70	0.39	1.62E-06
<i>Inha</i>	1.27E-23	1.49	1.00	0.98	3.80E-20
<i>Rpl4</i>	2.41E-14	1.48	1.00	0.90	7.24E-11
<i>Gtf2e2</i>	1.01E-08	1.47	0.88	0.64	3.02E-05
<i>Nat1</i>	1.41E-19	1.47	0.78	0.33	4.22E-16
<i>Rps3a1</i>	3.14E-24	1.47	1.00	0.91	9.42E-21
<i>Trim9</i>	2.35E-07	1.46	0.72	0.36	7.05E-04
<i>Ano4</i>	1.64E-16	1.45	1.00	0.78	4.93E-13
<i>Ccnb1</i>	3.39E-16	1.45	0.89	0.53	1.02E-12
<i>Scn3b</i>	6.04E-13	1.44	0.52	0.14	1.81E-09
<i>Pcdhga4</i>	6.84E-18	1.44	0.79	0.42	2.05E-14
<i>Fst</i>	3.5E-17	1.41	1.00	0.83	1.05E-13
<i>Slc18a2</i>	1.16E-23	1.41	0.98	0.83	3.48E-20
<i>Efhb</i>	8.98E-14	1.40	0.58	0.14	2.69E-10
<i>Bub1b</i>	1.7E-08	1.40	0.76	0.45	5.09E-05
<i>Oca2</i>	3.48E-06	1.39	0.51	0.29	1.05E-02
<i>Rps20</i>	8.85E-19	1.37	1.00	0.93	2.66E-15
<i>Kif4</i>	1.49E-05	1.36	0.62	0.36	4.48E-02
<i>Fam107b</i>	2.25E-09	1.36	0.71	0.37	6.75E-06
<i>Mras</i>	1.32E-12	1.34	0.92	0.70	3.95E-09
<i>Foxm1</i>	6.71E-13	1.33	0.87	0.47	2.01E-09
<i>Eya1</i>	1.39E-05	1.33	0.40	0.16	4.17E-02
<i>Rhobtb1</i>	1.45E-11	1.32	1.00	0.79	4.35E-08
<i>Tanc2</i>	4.48E-13	1.32	0.97	0.72	1.34E-09
<i>Plekhh1</i>	4.74E-12	1.32	0.87	0.55	1.42E-08
<i>Ccnf</i>	4.07E-12	1.31	0.88	0.46	1.22E-08
<i>Xlr4c</i>	7.43E-14	1.30	0.68	0.22	2.23E-10
<i>Gm15222</i>	1.23E-25	1.30	0.68	0.11	3.69E-22
<i>Dpysl5</i>	5.05E-11	1.29	0.91	0.55	1.51E-07
<i>Epn2</i>	4.84E-09	1.27	0.93	0.70	1.45E-05
<i>Tmem107</i>	4.63E-06	1.27	0.64	0.45	1.39E-02
<i>Mat1a</i>	1.79E-19	1.27	0.81	0.27	5.38E-16
<i>Gm45650</i>	1.85E-06	1.27	0.70	0.44	5.55E-03
<i>Scd2</i>	4.69E-21	1.26	0.70	0.24	1.41E-17
<i>Tmsb15b2</i>	4.27E-14	1.26	0.97	0.73	1.28E-10
<i>Derl3</i>	6.56E-17	1.25	1.00	0.79	1.97E-13
<i>Dab1</i>	1.19E-13	1.24	0.60	0.17	3.56E-10
<i>Gpsm1</i>	1.66E-06	1.23	0.82	0.63	4.99E-03
<i>Gm12992</i>	1.38E-10	1.23	0.46	0.18	4.15E-07

<i>Atad2</i>	7.4E-08	1.23	0.76	0.53	2.22E-04
<i>Rpl36a</i>	1.61E-08	1.21	0.97	0.85	4.82E-05
<i>Tut4</i>	1.49E-16	1.19	0.98	0.69	4.47E-13
<i>Arhgap28</i>	1.65E-13	1.19	0.98	0.70	4.95E-10
<i>Arhgef28</i>	3.75E-09	1.18	0.90	0.62	1.12E-05
<i>Rpl41</i>	3.29E-17	1.18	1.00	0.71	9.88E-14
<i>Farsb</i>	1.11E-05	1.18	0.61	0.44	3.33E-02
<i>Aif1l</i>	8.45E-08	1.18	0.78	0.55	2.53E-04
<i>Gja1</i>	4.94E-15	1.18	1.00	0.83	1.48E-11
<i>Dock9</i>	2.77E-07	1.17	0.84	0.69	8.31E-04
<i>Rbbp7</i>	1.51E-06	1.14	0.92	0.80	4.52E-03
<i>Ctnna3</i>	4.21E-20	1.14	0.79	0.26	1.26E-16
<i>Arhgap31</i>	7.69E-11	1.14	0.93	0.75	2.31E-07
<i>Mid1ip1</i>	7.76E-13	1.13	0.98	0.81	2.33E-09
<i>Aldob</i>	2.99E-21	1.13	0.72	0.15	8.98E-18
<i>Il13ra2</i>	2.73E-08	1.12	0.64	0.27	8.20E-05
<i>Cfap47</i>	4.15E-07	1.12	0.34	0.13	1.24E-03
<i>Gdpd2</i>	2.55E-08	1.12	0.79	0.48	7.64E-05
<i>Hmgb3</i>	1.79E-07	1.11	0.91	0.72	5.36E-04
<i>Gabra4</i>	3.1E-26	1.10	0.59	0.08	9.29E-23
<i>Ptbp3</i>	3.12E-08	1.09	0.89	0.67	9.35E-05
<i>Ucp2</i>	5.65E-06	1.09	0.46	0.28	1.69E-02
<i>Serpib6a</i>	1.98E-13	1.09	0.70	0.35	5.95E-10
<i>Insl6</i>	6.42E-07	1.08	0.64	0.28	1.93E-03
<i>Rgs2</i>	7.83E-19	1.07	1.00	0.89	2.35E-15
<i>Lnx1</i>	1.66E-10	1.06	0.73	0.38	4.99E-07
<i>Rnf19b</i>	4.2E-06	1.05	0.82	0.64	1.26E-02
<i>Obsl1</i>	3.01E-14	1.03	1.00	0.85	9.04E-11
<i>Mex3c</i>	1.73E-14	1.03	0.96	0.70	5.18E-11
<i>Ttc29</i>	3.69E-15	1.03	0.60	0.16	1.11E-11
<i>Fam122a</i>	2.51E-09	1.02	0.68	0.35	7.52E-06
<i>Rpsa</i>	1.1E-16	1.02	1.00	0.81	3.30E-13
<i>Nap1l5</i>	3.77E-12	1.02	0.94	0.77	1.13E-08
<i>Rps8</i>	1.56E-14	1.02	0.99	0.91	4.69E-11
<i>Mboat2</i>	4.37E-13	1.01	0.98	0.80	1.31E-09
<i>Ldha</i>	2.02E-07	0.99	0.84	0.71	6.07E-04
<i>Nlrp10</i>	4.91E-16	0.98	0.73	0.31	1.47E-12
<i>Ccnd2</i>	1.96E-09	0.97	0.80	0.58	5.88E-06
<i>Col9a2</i>	1.78E-08	0.96	0.91	0.61	5.34E-05
<i>Nectin1</i>	1.64E-06	0.95	0.72	0.48	4.92E-03
<i>Rps28</i>	4.05E-10	0.94	0.98	0.84	1.22E-06
<i>E430024P14Rik</i>	8.53E-06	0.94	0.57	0.29	2.56E-02
<i>Rpl37</i>	2.63E-12	0.93	0.99	0.89	7.89E-09
<i>Rps11</i>	1.19E-15	0.93	1.00	0.87	3.56E-12
<i>Rpl13</i>	5.16E-12	0.92	0.99	0.88	1.55E-08
<i>Serpine2</i>	8.99E-15	0.90	1.00	0.92	2.70E-11
<i>4933413J09Rik</i>	1.53E-05	0.89	0.59	0.26	4.60E-02
<i>Cables1</i>	3.73E-14	0.88	1.00	0.82	1.12E-10
<i>Gm41271</i>	9.54E-15	0.87	0.79	0.46	2.86E-11
<i>Rps5</i>	3.08E-11	0.87	1.00	0.88	9.24E-08

<i>Lrrtm3</i>	9.42E-12	0.87	0.82	0.48	2.83E-08
<i>Prc1</i>	1.32E-05	0.87	0.78	0.49	3.96E-02
<i>Ccdc88c</i>	1.36E-05	0.87	0.47	0.14	4.08E-02
<i>Rps12</i>	7.09E-10	0.85	0.98	0.85	2.13E-06
<i>Sdf2l1</i>	3.33E-08	0.85	0.69	0.43	9.98E-05
<i>Ccdc40</i>	1.71E-23	0.83	0.76	0.16	5.12E-20
<i>Foxo1</i>	3.14E-09	0.83	0.99	0.82	9.42E-06
<i>Knstrn</i>	6.14E-08	0.82	0.84	0.51	1.84E-04
<i>Lrrc10b</i>	4.8E-16	0.81	0.76	0.22	1.44E-12
<i>Rps15a</i>	4.52E-11	0.81	0.99	0.86	1.36E-07
<i>Rpl32</i>	1.25E-10	0.81	0.96	0.86	3.75E-07
<i>Zfp442</i>	5.92E-08	0.80	0.51	0.10	1.78E-04
<i>Tbca</i>	1.48E-09	0.78	0.97	0.74	4.44E-06
<i>Sema3c</i>	4.25E-13	0.76	0.99	0.68	1.28E-09
<i>Rpl28</i>	5.98E-10	0.76	0.98	0.87	1.79E-06
<i>Amhr2</i>	3.73E-07	0.76	0.93	0.76	1.12E-03
<i>Smc4</i>	3.43E-09	0.75	0.84	0.59	1.03E-05
<i>Bcar3</i>	1.17E-06	0.73	0.82	0.54	3.52E-03
<i>Hpgd</i>	2.31E-09	0.73	0.96	0.74	6.92E-06
<i>Rpl27a</i>	9.29E-12	0.72	0.99	0.84	2.79E-08
<i>Rplp2</i>	1.22E-08	0.72	0.92	0.72	3.65E-05
<i>Spint1</i>	1.86E-11	0.71	0.32	0.13	5.58E-08
<i>Gm48053</i>	3.56E-07	0.71	0.56	0.30	1.07E-03
<i>Spsb1</i>	8.2E-11	0.70	0.97	0.76	2.46E-07
<i>Rpl22l1</i>	7.15E-08	0.70	0.84	0.58	2.15E-04
<i>Gulo</i>	9.26E-06	0.70	0.70	0.45	2.78E-02
<i>Rps19</i>	6.62E-10	0.69	0.98	0.82	1.98E-06
<i>Peli2</i>	3.77E-08	0.69	0.86	0.55	1.13E-04
<i>Cd274</i>	5.89E-20	0.68	0.77	0.21	1.77E-16
<i>Lmnbl</i>	1.88E-11	0.67	0.83	0.41	5.65E-08
<i>Fbxo5</i>	8.34E-11	0.64	0.80	0.44	2.50E-07
<i>Tubb4b</i>	7.51E-11	0.63	0.72	0.41	2.25E-07
<i>Bex4</i>	2.58E-09	0.62	1.00	0.88	7.73E-06
<i>Syngap1</i>	1.42E-10	0.62	0.41	0.18	4.26E-07
<i>Igfbp3</i>	1.24E-05	0.61	0.33	0.24	3.71E-02
<i>Zmym3</i>	7.44E-08	0.61	0.81	0.60	2.23E-04
<i>Tram2</i>	9.6E-06	0.60	0.90	0.63	2.88E-02
<i>Alcam</i>	1.17E-09	0.60	0.48	0.25	3.50E-06
<i>Zbtb8b</i>	1.96E-07	0.60	0.87	0.56	5.88E-04
<i>Plp1</i>	7.21E-08	0.59	0.84	0.46	2.16E-04
<i>Synpo</i>	1.34E-08	0.58	0.88	0.69	4.02E-05
<i>Sorcs1</i>	4.17E-10	0.58	0.56	0.14	1.25E-06
<i>Rpl23</i>	2.06E-13	0.57	1.00	0.90	6.19E-10
<i>Pabpc1</i>	2.22E-08	0.57	0.91	0.75	6.67E-05
<i>Rpl9</i>	3.64E-08	0.57	0.92	0.66	1.09E-04
<i>Rpl12</i>	1.87E-08	0.56	0.97	0.82	5.62E-05
<i>Bmp3</i>	2.35E-11	0.56	0.97	0.65	7.06E-08
<i>Drc3</i>	4.02E-18	0.54	0.61	0.14	1.20E-14
<i>Apoc3</i>	8.83E-07	0.53	0.73	0.45	2.65E-03
<i>Rplp1</i>	4.05E-06	0.52	0.90	0.77	1.22E-02

<i>Aff3</i>	1.13E-05	0.48	0.82	0.64	3.40E-02
<i>Adgrg1</i>	9.46E-07	0.48	0.91	0.67	2.84E-03
<i>Ivns1abp</i>	9.49E-11	0.47	1.00	0.80	2.85E-07
<i>Rpl35a</i>	5.86E-06	0.46	0.92	0.74	1.76E-02
<i>Lhfp12</i>	1.64E-05	0.45	0.87	0.70	4.91E-02
<i>Dtx1</i>	3.86E-14	0.43	0.42	0.10	1.16E-10
<i>Tox2</i>	2.88E-07	0.43	0.76	0.42	8.63E-04
<i>Mif</i>	1.74E-06	0.43	0.93	0.81	5.21E-03
<i>Arhgap19</i>	7.55E-06	0.43	0.67	0.41	2.27E-02
<i>Socs2</i>	8.26E-14	0.43	0.96	0.75	2.48E-10
<i>Nos2</i>	6.6E-07	0.42	0.92	0.72	1.98E-03
<i>D030007L05Rik</i>	5.82E-10	0.41	0.58	0.12	1.75E-06
<i>Nasp</i>	1.71E-06	0.40	0.78	0.56	5.12E-03
<i>Arhgap29</i>	1.69E-10	0.40	0.99	0.80	5.08E-07
<i>Mest</i>	1.37E-09	0.40	0.79	0.45	4.10E-06
<i>Ppp2r2c</i>	7.76E-26	0.40	0.47	0.03	2.33E-22
<i>Ccnb2</i>	2.11E-08	0.39	0.82	0.55	6.34E-05
<i>Khdc1c</i>	6.39E-07	0.39	0.63	0.28	1.92E-03
<i>Slc38a5</i>	1.91E-12	0.38	0.99	0.70	5.74E-09
<i>Uhrf1</i>	1.39E-11	0.37	0.83	0.47	4.17E-08
<i>Hjurp</i>	1.13E-12	0.37	0.89	0.66	3.38E-09
<i>C130074G19Rik</i>	1.04E-07	0.33	0.88	0.71	3.12E-04
<i>Cyb5a</i>	1.05E-12	0.30	1.00	0.86	3.15E-09
<i>Gbp8</i>	3.36E-12	0.30	0.64	0.19	1.01E-08
<i>Defb19</i>	7.71E-06	0.30	0.89	0.72	2.31E-02
<i>Dhh</i>	1.93E-09	0.30	0.76	0.42	5.80E-06
<i>Esr2</i>	1.03E-09	0.29	0.97	0.65	3.08E-06
<i>Dcaf12l1</i>	1.33E-12	0.29	0.69	0.26	3.98E-09
<i>Pax8</i>	4.61E-13	0.27	0.43	0.05	1.38E-09
<i>Cnot6</i>	1.18E-07	0.27	0.93	0.62	3.54E-04
<i>Hsd11b2</i>	1.39E-09	0.26	0.89	0.62	4.17E-06
<i>Fbln1</i>	8.68E-08	0.26	0.89	0.70	2.60E-04
<i>Ttc25</i>	1.91E-11	0.22	0.68	0.21	5.73E-08
<i>Mobp</i>	4.95E-10	0.22	0.63	0.32	1.48E-06
<i>Zdhhc23</i>	6.65E-08	0.22	0.83	0.58	1.99E-04
<i>Gbx2</i>	4E-13	0.22	0.74	0.36	1.20E-09
<i>Tceal9</i>	4E-11	0.21	0.99	0.87	1.20E-07
<i>Wfdc10</i>	7.1E-08	0.20	0.88	0.73	2.13E-04
<i>Tpd52l1</i>	6.84E-06	0.18	0.80	0.56	2.05E-02
<i>Dab2</i>	7.01E-06	0.18	0.92	0.75	2.10E-02
<i>Ndufs4</i>	1.14E-07	0.18	0.90	0.63	3.41E-04
<i>Pdlim1</i>	4.72E-06	0.17	0.83	0.62	1.41E-02
<i>Cfap74</i>	1E-16	0.17	0.59	0.15	3.01E-13
<i>Tctex1d1</i>	1.18E-08	0.17	0.69	0.28	3.54E-05
<i>B3gnt4</i>	9.99E-07	0.14	0.60	0.31	3.00E-03
<i>Vcan</i>	1.18E-08	0.13	0.71	0.44	3.54E-05
<i>Megf6</i>	6.41E-08	0.12	0.38	0.17	1.92E-04
<i>Adamts5</i>	1.45E-06	0.11	0.81	0.46	4.36E-03
<i>Tcl1b2</i>	4E-06	0.10	0.61	0.29	1.20E-02
<i>Apoa4</i>	3.63E-07	0.10	0.94	0.79	1.09E-03

<i>Arxes2</i>	8.1E-09	0.09	0.97	0.80	2.43E-05
<i>Pawr</i>	5.59E-16	0.08	0.74	0.36	1.68E-12
<i>Prkcd</i>	1.08E-05	0.07	0.88	0.69	3.25E-02
<i>Apoa2</i>	3.09E-12	0.07	0.56	0.19	9.26E-09
<i>Map3k5</i>	2.2E-07	0.03	0.87	0.52	6.60E-04
<i>Krt79</i>	9.71E-11	0.02	0.82	0.46	2.91E-07
<i>Hsd17b1</i>	6.9E-08	0.01	0.89	0.66	2.07E-04
<i>8030451A03Rik</i>	3.56E-06	0.00	0.96	0.79	1.07E-02

Table S7. Genes differentially expressed between advanced aged and young mice in FC0. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value; FDR - FDR-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj	FDR
Upregulated DEGs						
<i>mt-Nd2</i>	2.23E-06	3.16	1.00	0.96	7.20E-02	1.27E-03
<i>mt-Atp6</i>	2.49E-06	2.92	1.00	0.99	8.05E-02	1.27E-03
<i>mt-Co2</i>	4.64E-06	2.90	1.00	1.00	1.50E-01	1.31E-03
<i>mt-Nd1</i>	4.48E-06	2.89	1.00	0.99	1.45E-01	1.31E-03
<i>mt-Nd4</i>	3.60E-06	2.69	1.00	1.00	1.16E-01	1.30E-03
<i>Inhba</i>	4.05E-05	2.64	0.88	0.50	1.00E+00	3.29E-03
<i>mt-Nd3</i>	2.11E-06	2.38	1.00	0.53	6.81E-02	1.27E-03
<i>mt-Co1</i>	2.40E-06	2.27	1.00	1.00	7.76E-02	1.27E-03
<i>mt-Co3</i>	5.17E-06	2.26	1.00	1.00	1.67E-01	1.31E-03
<i>Soat1</i>	1.99E-06	2.10	1.00	0.95	6.44E-02	1.27E-03
<i>Inhbb</i>	4.43E-05	1.99	0.88	0.41	1.00E+00	3.42E-03
<i>Zbtb8b</i>	1.18E-06	1.85	1.00	0.60	3.82E-02	1.27E-03
<i>Prkar2b</i>	3.42E-04	1.84	0.88	0.96	1.00E+00	1.19E-02
<i>Tox2</i>	1.65E-06	1.83	1.00	0.53	5.34E-02	1.27E-03
<i>Fndc3b</i>	1.84E-06	1.78	1.00	0.75	5.95E-02	1.27E-03
<i>Gramd1b</i>	4.88E-04	1.71	0.88	0.87	1.00E+00	1.49E-02
<i>Crim1</i>	4.95E-06	1.69	1.00	0.91	1.60E-01	1.31E-03
<i>Dpysl3</i>	1.47E-05	1.66	1.00	0.90	4.74E-01	1.86E-03
<i>Nr5a2</i>	4.98E-06	1.65	1.00	0.96	1.61E-01	1.31E-03
<i>Nap1l5</i>	5.96E-04	1.62	0.88	0.88	1.00E+00	1.65E-02
<i>Arxes2</i>	2.06E-05	1.61	1.00	0.83	6.66E-01	2.26E-03
<i>Thbs1</i>	2.54E-05	1.60	1.00	0.98	8.21E-01	2.48E-03
<i>Gm2a</i>	5.57E-05	1.59	1.00	0.95	1.00E+00	4.02E-03
<i>Itga2</i>	1.14E-04	1.59	0.88	0.53	1.00E+00	6.02E-03
<i>Robo1</i>	1.15E-05	1.53	0.88	0.39	3.72E-01	1.70E-03
<i>Cnot6</i>	8.26E-04	1.50	0.88	0.87	1.00E+00	1.96E-02
<i>Cbs</i>	1.11E-04	1.49	0.88	0.56	1.00E+00	6.00E-03
<i>Inha</i>	1.08E-04	1.48	1.00	1.00	1.00E+00	5.87E-03
<i>Hnrnpa0</i>	1.07E-05	1.48	1.00	0.87	3.44E-01	1.65E-03
<i>Akr1c18</i>	3.16E-03	1.48	1.00	0.99	1.00E+00	4.55E-02
<i>Bmpr2</i>	2.49E-06	1.44	1.00	0.95	8.04E-02	1.27E-03
<i>Malat1</i>	4.00E-05	1.44	1.00	0.82	1.00E+00	3.27E-03
<i>Fst</i>	1.38E-05	1.40	1.00	0.92	4.44E-01	1.84E-03
<i>Tgif1</i>	6.81E-04	1.40	1.00	0.92	1.00E+00	1.79E-02
<i>mt-Cytb</i>	2.38E-05	1.38	1.00	1.00	7.68E-01	2.37E-03
<i>Ext1</i>	2.13E-03	1.37	0.88	0.80	1.00E+00	3.60E-02
<i>Fhdc1</i>	7.95E-06	1.35	1.00	0.61	2.57E-01	1.48E-03
<i>Purb</i>	1.13E-04	1.35	1.00	0.86	1.00E+00	6.01E-03
<i>Tenm4</i>	5.06E-05	1.35	1.00	0.99	1.00E+00	3.82E-03

<i>Insr</i>	4.21E-05	1.34	1.00	0.73	1.00E+00	3.32E-03
<i>Hsd3b1</i>	1.87E-04	1.32	1.00	1.00	1.00E+00	8.12E-03
<i>Arhgef28</i>	3.76E-04	1.31	0.88	0.79	1.00E+00	1.25E-02
<i>Slc26a7</i>	1.66E-04	1.31	0.88	0.44	1.00E+00	7.42E-03
<i>Greb1l</i>	3.38E-04	1.29	0.88	0.80	1.00E+00	1.19E-02
<i>Irs1</i>	9.36E-04	1.28	0.88	0.72	1.00E+00	2.16E-02
<i>Akr1c14</i>	1.88E-05	1.25	1.00	0.96	6.06E-01	2.15E-03
<i>Plxnc1</i>	1.15E-05	1.25	1.00	0.90	3.72E-01	1.70E-03
<i>Sppl3</i>	3.66E-04	1.24	0.88	0.92	1.00E+00	1.24E-02
<i>Tanc1</i>	2.75E-04	1.24	0.88	0.88	1.00E+00	1.04E-02
<i>Sytl4</i>	3.48E-06	1.23	1.00	0.85	1.12E-01	1.30E-03
<i>Mex3c</i>	2.12E-04	1.23	1.00	0.85	1.00E+00	8.91E-03
<i>Grb14</i>	8.20E-06	1.23	1.00	0.99	2.65E-01	1.48E-03
<i>Eif3e</i>	4.80E-06	1.21	1.00	0.94	1.55E-01	1.31E-03
<i>Arrdc3</i>	1.12E-04	1.21	1.00	0.84	1.00E+00	6.00E-03
<i>Plod2</i>	2.38E-05	1.20	1.00	0.99	7.68E-01	2.37E-03
<i>Tle5</i>	2.83E-04	1.20	1.00	0.98	1.00E+00	1.07E-02
<i>Trim37</i>	1.41E-04	1.20	0.88	0.64	1.00E+00	6.84E-03
<i>Jak1</i>	1.35E-03	1.19	0.88	0.98	1.00E+00	2.73E-02
<i>Tdrd5</i>	1.10E-03	1.19	0.88	0.97	1.00E+00	2.45E-02
<i>Bmpr1b</i>	6.50E-04	1.18	0.88	0.85	1.00E+00	1.76E-02
<i>St3gal5</i>	3.40E-04	1.18	0.88	0.86	1.00E+00	1.19E-02
<i>Creb3l2</i>	6.62E-06	1.17	1.00	0.94	2.14E-01	1.41E-03
<i>Gm42418</i>	1.08E-03	1.17	1.00	0.98	1.00E+00	2.42E-02
<i>Pank3</i>	2.17E-04	1.15	0.88	0.60	1.00E+00	8.99E-03
<i>Ints6l</i>	3.57E-03	1.14	0.75	0.59	1.00E+00	4.90E-02
<i>Tut4</i>	1.60E-04	1.13	1.00	0.92	1.00E+00	7.40E-03
<i>Aldh3a2</i>	3.89E-04	1.13	0.88	0.69	1.00E+00	1.28E-02
<i>Mapkapk2</i>	6.13E-04	1.13	0.88	0.82	1.00E+00	1.68E-02
<i>1110032F04Rik</i>	7.76E-04	1.11	0.88	0.67	1.00E+00	1.90E-02
<i>Phf20l1</i>	5.78E-04	1.10	1.00	0.73	1.00E+00	1.63E-02
<i>Ivns1abp</i>	2.67E-04	1.10	1.00	1.00	1.00E+00	1.03E-02
<i>Hey2</i>	1.61E-03	1.09	0.75	0.44	1.00E+00	3.04E-02
<i>Rnasel</i>	1.72E-05	1.09	0.88	0.37	5.54E-01	2.07E-03
<i>Sema5a</i>	1.82E-05	1.09	1.00	0.98	5.86E-01	2.13E-03
<i>Casp3</i>	9.18E-05	1.07	0.88	0.48	1.00E+00	5.28E-03
<i>Gls</i>	1.43E-05	1.05	1.00	0.99	4.62E-01	1.85E-03
<i>Sfrp4</i>	5.94E-04	1.04	1.00	0.99	1.00E+00	1.65E-02
<i>Zfp362</i>	6.41E-04	1.04	0.88	0.63	1.00E+00	1.74E-02
<i>Kdelr2</i>	7.19E-04	1.04	0.88	0.92	1.00E+00	1.84E-02
<i>Lratd2</i>	2.67E-03	1.03	0.63	0.29	1.00E+00	4.11E-02
<i>Txndc5</i>	2.59E-03	1.03	0.88	0.95	1.00E+00	4.05E-02
<i>Chd4</i>	6.33E-05	1.03	1.00	0.94	1.00E+00	4.23E-03
<i>Sod1</i>	8.69E-05	1.02	1.00	0.99	1.00E+00	5.07E-03
<i>H2afy</i>	7.65E-05	1.01	1.00	0.94	1.00E+00	4.76E-03
<i>Igf1</i>	1.66E-04	1.00	1.00	0.96	1.00E+00	7.42E-03
<i>Obsl1</i>	1.30E-03	1.00	0.88	1.00	1.00E+00	2.66E-02

<i>Gja1</i>	6.75E-05	1.00	1.00	1.00	1.00E+00	4.38E-03
<i>Tceal9</i>	1.01E-05	1.00	1.00	1.00	3.27E-01	1.60E-03
<i>Prrc2a</i>	1.50E-03	0.99	0.88	0.80	1.00E+00	2.93E-02
<i>Etl4</i>	2.89E-03	0.99	0.75	0.46	1.00E+00	4.30E-02
<i>Tut7</i>	1.91E-03	0.98	0.88	0.69	1.00E+00	3.36E-02
<i>Pfas</i>	6.72E-04	0.97	0.75	0.36	1.00E+00	1.79E-02
<i>Fat1</i>	1.37E-03	0.97	0.88	0.79	1.00E+00	2.75E-02
<i>Antxr2</i>	5.60E-05	0.96	0.88	0.44	1.00E+00	4.02E-03
<i>Lgr4</i>	2.19E-05	0.96	1.00	0.56	7.06E-01	2.32E-03
<i>Ssr3</i>	2.37E-04	0.96	1.00	1.00	1.00E+00	9.50E-03
<i>Zfp266</i>	1.88E-05	0.96	1.00	0.65	6.07E-01	2.15E-03
<i>Sec31a</i>	7.17E-04	0.95	1.00	0.91	1.00E+00	1.84E-02
<i>Arf5</i>	1.33E-03	0.95	0.88	0.92	1.00E+00	2.70E-02
<i>Sgk1</i>	3.73E-05	0.95	1.00	0.73	1.00E+00	3.17E-03
<i>Marcksl1</i>	2.90E-05	0.95	1.00	1.00	9.38E-01	2.74E-03
<i>Serinc1</i>	3.40E-03	0.94	1.00	0.96	1.00E+00	4.71E-02
<i>Slc16a1</i>	1.79E-03	0.94	0.75	0.49	1.00E+00	3.23E-02
<i>Cables1</i>	6.82E-04	0.93	1.00	0.98	1.00E+00	1.79E-02
<i>Cyp4f13</i>	1.24E-03	0.93	0.75	0.42	1.00E+00	2.63E-02
<i>Pcbp2</i>	2.23E-03	0.92	0.88	1.00	1.00E+00	3.69E-02
<i>Zfp579</i>	1.57E-04	0.92	1.00	0.70	1.00E+00	7.31E-03
<i>Ddb1</i>	3.91E-05	0.91	1.00	0.99	1.00E+00	3.23E-03
<i>St3gal4</i>	1.54E-03	0.91	0.88	0.99	1.00E+00	2.96E-02
<i>Son</i>	1.25E-05	0.91	1.00	0.98	4.02E-01	1.75E-03
<i>Dhx32</i>	1.91E-04	0.90	1.00	0.71	1.00E+00	8.25E-03
<i>Mid1ip1</i>	3.01E-03	0.90	0.88	0.96	1.00E+00	4.40E-02
<i>Adgrg1</i>	8.92E-04	0.90	0.88	0.77	1.00E+00	2.08E-02
<i>N4bp2l2</i>	6.20E-05	0.90	1.00	0.67	1.00E+00	4.22E-03
<i>Tafa5</i>	1.72E-07	0.90	0.75	0.13	5.55E-03	1.27E-03
<i>Itsn1</i>	1.22E-04	0.89	1.00	0.96	1.00E+00	6.25E-03
<i>Serpine2</i>	1.82E-03	0.88	1.00	1.00	1.00E+00	3.28E-02
<i>Dpysl4</i>	1.65E-04	0.88	0.88	0.53	1.00E+00	7.42E-03
<i>Ccnl1</i>	1.19E-03	0.88	0.88	0.75	1.00E+00	2.58E-02
<i>Mdfic</i>	5.33E-04	0.87	0.88	0.78	1.00E+00	1.56E-02
<i>Idh1</i>	1.66E-04	0.87	1.00	0.99	1.00E+00	7.42E-03
<i>Atrx</i>	1.29E-03	0.87	0.88	0.84	1.00E+00	2.66E-02
<i>Ece1</i>	6.99E-04	0.86	1.00	0.91	1.00E+00	1.82E-02
<i>Mir22hg</i>	4.16E-04	0.86	0.75	0.33	1.00E+00	1.34E-02
<i>Srsf5</i>	1.22E-04	0.86	1.00	0.98	1.00E+00	6.25E-03
<i>C130074G19Rik</i>	2.62E-03	0.86	1.00	0.79	1.00E+00	4.08E-02
<i>Frzb</i>	5.21E-04	0.85	0.75	0.32	1.00E+00	1.56E-02
<i>Klhl9</i>	5.88E-04	0.85	0.88	0.63	1.00E+00	1.65E-02
<i>Gpam</i>	3.23E-03	0.84	0.88	0.92	1.00E+00	4.59E-02
<i>Eif4a2</i>	2.38E-05	0.83	1.00	1.00	7.68E-01	2.37E-03
<i>Pspc1</i>	5.33E-04	0.83	0.88	0.60	1.00E+00	1.56E-02
<i>Khdrbs3</i>	1.37E-03	0.83	0.88	0.67	1.00E+00	2.75E-02
<i>Greb1</i>	1.52E-03	0.83	0.88	1.00	1.00E+00	2.95E-02

<i>Ythdf3</i>	1.41E-03	0.83	0.88	0.67	1.00E+00	2.81E-02
<i>Dock4</i>	2.09E-03	0.82	0.88	0.67	1.00E+00	3.55E-02
<i>4931406P16Rik</i>	3.43E-03	0.82	0.75	0.54	1.00E+00	4.74E-02
<i>Rps29</i>	2.17E-04	0.82	1.00	1.00	1.00E+00	8.99E-03
<i>Fbrsl1</i>	7.75E-04	0.81	0.88	0.61	1.00E+00	1.90E-02
<i>Socs2</i>	2.50E-03	0.81	0.88	0.97	1.00E+00	3.95E-02
<i>Map2k1</i>	9.03E-04	0.81	0.88	0.70	1.00E+00	2.10E-02
<i>Enah</i>	3.64E-03	0.81	0.88	0.90	1.00E+00	4.93E-02
<i>Otud5</i>	1.92E-03	0.80	0.88	0.72	1.00E+00	3.36E-02
<i>Marcks</i>	3.42E-05	0.80	1.00	0.96	1.00E+00	3.01E-03
<i>Ralgapa1</i>	6.09E-05	0.80	1.00	0.67	1.00E+00	4.20E-03
<i>Sptbn1</i>	2.35E-03	0.79	1.00	0.96	1.00E+00	3.83E-02
<i>Nrip1</i>	2.01E-03	0.78	0.88	0.69	1.00E+00	3.47E-02
<i>Actb</i>	7.82E-04	0.78	1.00	1.00	1.00E+00	1.90E-02
<i>Paip1</i>	2.89E-03	0.78	0.75	0.46	1.00E+00	4.30E-02
<i>Mbnl2</i>	2.54E-05	0.78	1.00	0.94	8.19E-01	2.48E-03
<i>Syne2</i>	2.44E-03	0.77	0.88	0.98	1.00E+00	3.88E-02
<i>Nudt12</i>	6.23E-05	0.76	0.38	0.04	1.00E+00	4.22E-03
<i>Tmem230</i>	3.60E-03	0.75	0.88	0.68	1.00E+00	4.91E-02
<i>Atg12</i>	1.24E-03	0.75	1.00	0.75	1.00E+00	2.63E-02
<i>Hopx</i>	5.79E-04	0.75	0.75	0.33	1.00E+00	1.63E-02
<i>Nedd4</i>	3.57E-04	0.74	1.00	1.00	1.00E+00	1.22E-02
<i>Hps4</i>	3.25E-03	0.74	0.75	0.52	1.00E+00	4.61E-02
<i>Cherp</i>	3.61E-03	0.73	0.88	0.68	1.00E+00	4.92E-02
<i>Eif2ak4</i>	2.47E-03	0.73	0.75	0.42	1.00E+00	3.92E-02
<i>Ston2</i>	1.36E-03	0.73	0.75	0.44	1.00E+00	2.74E-02
<i>Bdp1</i>	2.66E-03	0.73	0.75	0.51	1.00E+00	4.11E-02
<i>Ephx2</i>	4.61E-04	0.72	1.00	0.99	1.00E+00	1.44E-02
<i>Plxnb2</i>	2.83E-03	0.72	0.88	0.97	1.00E+00	4.28E-02
<i>March7</i>	5.14E-04	0.72	0.88	0.53	1.00E+00	1.55E-02
<i>Chst11</i>	7.14E-04	0.71	0.88	0.61	1.00E+00	1.84E-02
<i>Usp9x</i>	6.10E-04	0.71	1.00	0.94	1.00E+00	1.68E-02
<i>Mob1a</i>	1.67E-03	0.71	1.00	0.88	1.00E+00	3.11E-02
<i>A530017D24Rik</i>	1.93E-03	0.69	0.38	0.08	1.00E+00	3.37E-02
<i>Bzw1</i>	3.32E-03	0.69	1.00	0.99	1.00E+00	4.67E-02
<i>Fam204a</i>	2.59E-03	0.69	0.75	0.45	1.00E+00	4.05E-02
<i>Trim28</i>	4.48E-04	0.69	1.00	0.98	1.00E+00	1.42E-02
<i>Slc25a28</i>	2.34E-03	0.69	0.88	0.62	1.00E+00	3.83E-02
<i>Strn</i>	1.00E-03	0.68	0.88	0.63	1.00E+00	2.29E-02
<i>Ptprd</i>	2.18E-03	0.68	1.00	0.99	1.00E+00	3.64E-02
<i>Dmxl2</i>	7.12E-05	0.68	0.88	0.43	1.00E+00	4.55E-03
<i>Pabpc1</i>	1.52E-03	0.67	1.00	1.00	1.00E+00	2.95E-02
<i>Exoc2</i>	2.77E-03	0.66	0.75	0.43	1.00E+00	4.22E-02
<i>Adam17</i>	2.12E-04	0.66	1.00	0.84	1.00E+00	8.91E-03
<i>Prkcd</i>	2.41E-03	0.65	1.00	0.96	1.00E+00	3.88E-02
<i>Ncdn</i>	2.46E-03	0.64	0.88	0.60	1.00E+00	3.91E-02
<i>Clk1</i>	3.27E-04	0.64	1.00	0.98	1.00E+00	1.16E-02

<i>Orc3</i>	7.77E-04	0.64	0.88	0.61	1.00E+00	1.90E-02
<i>Trip11</i>	3.38E-03	0.63	0.75	0.49	1.00E+00	4.71E-02
<i>Sec24a</i>	1.10E-03	0.63	0.75	0.38	1.00E+00	2.45E-02
<i>Fkbp8</i>	2.18E-03	0.63	1.00	0.99	1.00E+00	3.64E-02
<i>Ccnt2</i>	2.10E-03	0.63	0.88	0.66	1.00E+00	3.56E-02
<i>Pdia5</i>	7.80E-04	0.63	0.88	0.64	1.00E+00	1.90E-02
<i>Ranbp6</i>	3.66E-04	0.60	0.50	0.11	1.00E+00	1.24E-02
<i>9530068E07Rik</i>	3.78E-04	0.58	1.00	0.98	1.00E+00	1.25E-02
<i>Sectm1b</i>	1.76E-04	0.58	0.50	0.09	1.00E+00	7.81E-03
<i>Fzd6</i>	5.72E-04	0.57	0.63	0.22	1.00E+00	1.63E-02
<i>Zfp383</i>	2.70E-03	0.56	0.50	0.15	1.00E+00	4.15E-02
<i>Nphp3</i>	2.22E-03	0.56	0.63	0.27	1.00E+00	3.69E-02
<i>Tjp1</i>	2.16E-03	0.55	0.88	0.61	1.00E+00	3.64E-02
<i>Eif3h</i>	2.18E-03	0.55	1.00	0.99	1.00E+00	3.64E-02
<i>Mfap3l</i>	1.91E-03	0.55	0.50	0.15	1.00E+00	3.36E-02
<i>Olfr1250</i>	8.60E-06	0.55	0.50	0.07	2.78E-01	1.49E-03
<i>Lrp11</i>	2.49E-04	0.55	0.63	0.19	1.00E+00	9.82E-03
<i>4930503L19Rik</i>	6.83E-04	0.55	0.50	0.13	1.00E+00	1.79E-02
<i>Plekhdl1</i>	3.74E-04	0.54	0.75	0.29	1.00E+00	1.25E-02
<i>Fbxl6</i>	2.53E-03	0.53	0.75	0.39	1.00E+00	4.00E-02
<i>Polr3f</i>	1.21E-03	0.51	0.50	0.14	1.00E+00	2.59E-02
<i>Thap11</i>	3.16E-03	0.51	0.88	0.64	1.00E+00	4.55E-02
<i>Rps17</i>	2.35E-03	0.51	1.00	1.00	1.00E+00	3.83E-02
Downregulated DEGs						
<i>Hspe1</i>	1.92E-06	-2.55	0.50	1.00	6.21E-02	1.27E-03
<i>Rps4x</i>	4.16E-06	-2.36	1.00	1.00	1.34E-01	1.31E-03
<i>Rps24</i>	2.15E-06	-2.33	1.00	1.00	6.94E-02	1.27E-03
<i>Stmn1</i>	7.12E-06	-2.05	0.50	0.99	2.30E-01	1.44E-03
<i>Acta2</i>	6.65E-05	-2.03	0.38	0.99	1.00E+00	4.37E-03
<i>Rpl22</i>	2.23E-06	-1.83	1.00	1.00	7.21E-02	1.27E-03
<i>Fau</i>	2.23E-06	-1.76	1.00	1.00	7.21E-02	1.27E-03
<i>Fth1</i>	3.11E-06	-1.72	1.00	1.00	1.00E-01	1.27E-03
<i>Cox5a</i>	8.79E-06	-1.71	0.38	0.99	2.84E-01	1.50E-03
<i>Cyp17a1</i>	8.24E-04	-1.71	0.50	0.95	1.00E+00	1.96E-02
<i>Mgp</i>	1.53E-05	-1.70	1.00	1.00	4.95E-01	1.90E-03
<i>Ndufa4</i>	7.12E-06	-1.64	0.75	1.00	2.30E-01	1.44E-03
<i>Cst3</i>	8.50E-06	-1.61	1.00	1.00	2.74E-01	1.49E-03
<i>Myl6</i>	2.59E-06	-1.59	1.00	1.00	8.36E-02	1.27E-03
<i>Rgcc</i>	8.97E-05	-1.58	0.38	1.00	1.00E+00	5.19E-03
<i>Gpx1</i>	9.12E-06	-1.56	0.88	1.00	2.94E-01	1.52E-03
<i>Myl9</i>	2.91E-04	-1.56	0.50	0.97	1.00E+00	1.07E-02
<i>Selenow</i>	4.32E-06	-1.54	0.75	0.99	1.39E-01	1.31E-03
<i>Atpif1</i>	3.11E-06	-1.46	0.88	1.00	1.00E-01	1.27E-03
<i>Dynll1</i>	4.45E-05	-1.44	1.00	0.99	1.00E+00	3.42E-03
<i>Prelid1</i>	8.20E-06	-1.44	0.75	1.00	2.65E-01	1.48E-03
<i>Slc18a2</i>	5.30E-04	-1.42	0.63	0.94	1.00E+00	1.56E-02
<i>Rps27a</i>	3.23E-06	-1.41	1.00	1.00	1.04E-01	1.27E-03

<i>Pomp</i>	5.65E-06	-1.41	0.38	0.98	1.82E-01	1.32E-03
<i>Cox6a1</i>	6.64E-06	-1.41	0.75	1.00	2.14E-01	1.41E-03
<i>Rpl9</i>	1.14E-04	-1.37	0.25	0.95	1.00E+00	6.02E-03
<i>Nupr1</i>	2.86E-03	-1.36	1.00	1.00	1.00E+00	4.29E-02
<i>Tomm5</i>	3.58E-05	-1.36	0.13	0.96	1.00E+00	3.08E-03
<i>Magoh</i>	8.10E-06	-1.33	0.00	0.94	2.61E-01	1.48E-03
<i>H2afz</i>	1.26E-04	-1.32	0.88	1.00	1.00E+00	6.40E-03
<i>D8Ertd738e</i>	5.76E-06	-1.31	0.75	1.00	1.86E-01	1.32E-03
<i>Spcs2</i>	4.30E-05	-1.31	0.38	0.99	1.00E+00	3.37E-03
<i>Eef1b2</i>	1.64E-05	-1.29	0.88	1.00	5.29E-01	2.01E-03
<i>Rps7</i>	7.38E-06	-1.28	1.00	1.00	2.38E-01	1.46E-03
<i>Nedd8</i>	1.20E-05	-1.27	0.75	1.00	3.89E-01	1.71E-03
<i>Ppic</i>	7.42E-05	-1.27	0.50	0.99	1.00E+00	4.67E-03
<i>Rarres2</i>	1.42E-04	-1.24	0.75	0.99	1.00E+00	6.84E-03
<i>Srp14</i>	5.26E-06	-1.23	0.88	0.99	1.70E-01	1.31E-03
<i>Ppia</i>	4.64E-06	-1.23	1.00	1.00	1.50E-01	1.31E-03
<i>Smoc2</i>	2.10E-04	-1.23	0.38	0.98	1.00E+00	8.91E-03
<i>Rps8</i>	3.87E-06	-1.21	1.00	1.00	1.25E-01	1.31E-03
<i>Col1a2</i>	1.69E-03	-1.21	0.75	0.99	1.00E+00	3.12E-02
<i>Txnl4a</i>	5.91E-05	-1.21	0.25	0.94	1.00E+00	4.12E-03
<i>Nme1</i>	1.09E-05	-1.20	0.75	0.99	3.50E-01	1.65E-03
<i>Mfap4</i>	6.49E-05	-1.20	0.00	0.84	1.00E+00	4.30E-03
<i>Hsp90aa1</i>	1.78E-03	-1.20	0.75	1.00	1.00E+00	3.21E-02
<i>Hspd1</i>	8.16E-05	-1.19	0.63	1.00	1.00E+00	4.96E-03
<i>Lsm6</i>	5.84E-05	-1.19	0.38	0.97	1.00E+00	4.12E-03
<i>Cox6c</i>	2.89E-06	-1.19	1.00	1.00	9.33E-02	1.27E-03
<i>Naa38</i>	2.07E-05	-1.19	0.25	0.97	6.69E-01	2.26E-03
<i>BC004004</i>	1.94E-05	-1.19	0.88	1.00	6.27E-01	2.19E-03
<i>Rps3a1</i>	1.48E-05	-1.18	1.00	1.00	4.78E-01	1.86E-03
<i>Spcs1</i>	3.91E-05	-1.18	0.75	0.98	1.00E+00	3.23E-03
<i>Lamtor5</i>	4.10E-05	-1.18	0.38	0.99	1.00E+00	3.30E-03
<i>Col3a1</i>	1.64E-03	-1.17	0.50	0.98	1.00E+00	3.07E-02
<i>Rpl23</i>	2.69E-06	-1.17	1.00	1.00	8.67E-02	1.27E-03
<i>Myh11</i>	8.22E-04	-1.17	0.13	0.80	1.00E+00	1.96E-02
<i>Hnrnpm</i>	1.00E-04	-1.17	0.38	0.99	1.00E+00	5.53E-03
<i>Mlf2</i>	1.56E-04	-1.16	0.38	0.99	1.00E+00	7.28E-03
<i>Rpl4</i>	3.11E-06	-1.15	1.00	1.00	1.00E-01	1.27E-03
<i>Ace</i>	8.84E-04	-1.15	0.00	0.68	1.00E+00	2.07E-02
<i>Ubb</i>	9.44E-06	-1.15	1.00	1.00	3.05E-01	1.55E-03
<i>Apoe</i>	5.02E-04	-1.15	1.00	1.00	1.00E+00	1.52E-02
<i>Mrpl42</i>	6.97E-05	-1.15	0.50	0.99	1.00E+00	4.48E-03
<i>Mcrip1</i>	3.42E-05	-1.14	0.50	0.97	1.00E+00	3.01E-03
<i>Mrps33</i>	8.29E-05	-1.13	0.63	0.99	1.00E+00	4.97E-03
<i>Hspa5</i>	1.47E-04	-1.13	0.88	1.00	1.00E+00	6.97E-03
<i>Gabarap</i>	5.40E-05	-1.13	0.88	1.00	1.00E+00	3.98E-03
<i>Serpinb6a</i>	5.40E-05	-1.13	0.75	1.00	1.00E+00	3.98E-03
<i>Actg1</i>	9.85E-05	-1.12	1.00	1.00	1.00E+00	5.52E-03

<i>Swi5</i>	7.20E-05	-1.11	0.88	1.00	1.00E+00	4.56E-03
<i>Atp5d</i>	7.67E-05	-1.10	0.88	1.00	1.00E+00	4.76E-03
<i>Bgn</i>	3.14E-04	-1.10	0.25	0.91	1.00E+00	1.13E-02
<i>Snrpg</i>	3.43E-05	-1.09	1.00	1.00	1.00E+00	3.01E-03
<i>Ahnak</i>	5.94E-05	-1.09	0.25	0.98	1.00E+00	4.12E-03
<i>Cct3</i>	1.02E-04	-1.09	0.50	0.99	1.00E+00	5.58E-03
<i>Calm2</i>	8.69E-05	-1.09	0.75	1.00	1.00E+00	5.07E-03
<i>Dcn</i>	2.31E-04	-1.09	0.13	0.92	1.00E+00	9.47E-03
<i>Btf3</i>	2.72E-05	-1.08	0.88	1.00	8.78E-01	2.62E-03
<i>Ndufb11</i>	1.40E-04	-1.07	0.88	0.99	1.00E+00	6.84E-03
<i>Bud31</i>	2.17E-05	-1.07	0.13	0.94	7.00E-01	2.32E-03
<i>Mrpl23</i>	1.34E-05	-1.06	0.63	0.99	4.31E-01	1.81E-03
<i>Tbca</i>	1.43E-05	-1.06	1.00	1.00	4.62E-01	1.85E-03
<i>Ifitm2</i>	2.37E-04	-1.05	0.88	1.00	1.00E+00	9.50E-03
<i>Snrpd3</i>	1.05E-04	-1.05	0.75	1.00	1.00E+00	5.72E-03
<i>Dnajc15</i>	8.69E-05	-1.05	0.63	0.99	1.00E+00	5.07E-03
<i>Rps20</i>	5.96E-06	-1.04	1.00	1.00	1.93E-01	1.33E-03
<i>Chchd10</i>	3.01E-03	-1.04	1.00	1.00	1.00E+00	4.40E-02
<i>Atp5mpl</i>	1.76E-05	-1.04	1.00	1.00	5.67E-01	2.09E-03
<i>Hint1</i>	6.34E-05	-1.03	0.88	1.00	1.00E+00	4.23E-03
<i>Rpl10a</i>	1.01E-05	-1.03	1.00	1.00	3.27E-01	1.60E-03
<i>Gem</i>	2.03E-03	-1.03	0.25	0.87	1.00E+00	3.48E-02
<i>Rnase4</i>	1.07E-03	-1.03	0.25	0.85	1.00E+00	2.41E-02
<i>Ubl5</i>	1.30E-04	-1.02	0.75	1.00	1.00E+00	6.56E-03
<i>Cnpy2</i>	4.81E-04	-1.01	0.63	0.99	1.00E+00	1.49E-02
<i>Manf</i>	2.75E-04	-1.01	0.88	1.00	1.00E+00	1.04E-02
<i>Cd63</i>	2.91E-04	-1.01	1.00	1.00	1.00E+00	1.07E-02
<i>Lyz2</i>	1.19E-03	-1.01	0.13	0.81	1.00E+00	2.58E-02
<i>Oaz1</i>	4.17E-05	-1.01	0.88	1.00	1.00E+00	3.32E-03
<i>Cd81</i>	5.62E-04	-1.00	0.88	1.00	1.00E+00	1.61E-02
<i>Fam162a</i>	1.00E-04	-1.00	0.88	0.99	1.00E+00	5.53E-03
<i>Snrpd1</i>	2.52E-04	-1.00	1.00	1.00	1.00E+00	9.89E-03
<i>Cxcl14</i>	4.30E-04	-1.00	0.13	0.83	1.00E+00	1.37E-02
<i>Snrpb</i>	5.06E-05	-1.00	0.75	0.99	1.00E+00	3.82E-03
<i>Fhl2</i>	2.37E-05	-1.00	0.00	0.89	7.66E-01	2.37E-03
<i>Nenf</i>	2.05E-04	-0.99	0.75	1.00	1.00E+00	8.79E-03
<i>Rpl13</i>	5.55E-06	-0.99	1.00	1.00	1.79E-01	1.32E-03
<i>Hmgn1</i>	7.93E-04	-0.98	0.88	0.99	1.00E+00	1.91E-02
<i>Bax</i>	5.23E-05	-0.97	0.75	0.99	1.00E+00	3.92E-03
<i>Eif5a</i>	1.29E-05	-0.96	1.00	1.00	4.17E-01	1.78E-03
<i>Tpm2</i>	6.99E-04	-0.96	0.13	0.82	1.00E+00	1.82E-02
<i>Tomm6</i>	5.01E-04	-0.95	0.50	0.96	1.00E+00	1.52E-02
<i>Sarnp</i>	3.46E-04	-0.95	0.50	0.97	1.00E+00	1.19E-02
<i>Phf5a</i>	1.51E-04	-0.95	0.38	0.96	1.00E+00	7.09E-03
<i>Myl12a</i>	1.42E-04	-0.95	0.88	1.00	1.00E+00	6.84E-03
<i>Atp6v0b</i>	6.19E-04	-0.95	0.63	0.99	1.00E+00	1.69E-02
<i>Nop10</i>	4.36E-04	-0.94	0.88	1.00	1.00E+00	1.39E-02

<i>Eif3i</i>	2.17E-04	-0.94	0.25	0.99	1.00E+00	8.99E-03
<i>Coa3</i>	1.79E-04	-0.94	0.63	0.99	1.00E+00	7.88E-03
<i>Tmem14c</i>	4.87E-04	-0.93	0.38	0.95	1.00E+00	1.49E-02
<i>Rplp1</i>	1.15E-04	-0.93	1.00	1.00	1.00E+00	6.02E-03
<i>Rtraf</i>	4.55E-04	-0.92	0.63	0.98	1.00E+00	1.43E-02
<i>Sec61b</i>	6.82E-04	-0.92	0.75	1.00	1.00E+00	1.79E-02
<i>Ckb</i>	8.25E-05	-0.92	0.00	0.82	1.00E+00	4.97E-03
<i>Cmtm3</i>	6.10E-04	-0.92	0.50	0.98	1.00E+00	1.68E-02
<i>Dbi</i>	1.66E-04	-0.92	1.00	1.00	1.00E+00	7.42E-03
<i>Mrps16</i>	8.05E-05	-0.92	0.25	0.91	1.00E+00	4.96E-03
<i>Rpl37</i>	2.89E-06	-0.92	1.00	1.00	9.33E-02	1.27E-03
<i>Rpl30</i>	3.43E-05	-0.92	1.00	1.00	1.00E+00	3.01E-03
<i>Map1lc3b</i>	7.41E-04	-0.91	0.75	1.00	1.00E+00	1.85E-02
<i>Rpl6</i>	3.43E-05	-0.91	1.00	1.00	1.00E+00	3.01E-03
<i>Pqlc1</i>	7.90E-04	-0.91	0.38	0.94	1.00E+00	1.91E-02
<i>Npc2</i>	3.09E-04	-0.91	0.88	1.00	1.00E+00	1.12E-02
<i>1110008P14Rik</i>	3.50E-04	-0.91	0.25	0.89	1.00E+00	1.20E-02
<i>Banf1</i>	2.59E-04	-0.90	0.88	1.00	1.00E+00	1.00E-02
<i>Cd302</i>	2.36E-04	-0.90	0.38	0.94	1.00E+00	9.50E-03
<i>Ndufs6</i>	3.67E-04	-0.90	0.63	0.98	1.00E+00	1.24E-02
<i>Ifitm1</i>	1.32E-04	-0.90	0.00	0.80	1.00E+00	6.58E-03
<i>Chmp5</i>	9.78E-05	-0.89	0.25	0.94	1.00E+00	5.51E-03
<i>Clic1</i>	7.01E-04	-0.89	0.50	0.99	1.00E+00	1.82E-02
<i>Col4a1</i>	2.02E-03	-0.88	1.00	0.99	1.00E+00	3.47E-02
<i>Cops9</i>	2.08E-05	-0.88	1.00	1.00	6.71E-01	2.26E-03
<i>Rps13</i>	6.75E-05	-0.88	1.00	1.00	1.00E+00	4.38E-03
<i>Tmsb4x</i>	5.78E-04	-0.88	1.00	0.99	1.00E+00	1.63E-02
<i>Uqcr11</i>	2.44E-04	-0.88	1.00	1.00	1.00E+00	9.69E-03
<i>Mrto4</i>	6.44E-04	-0.88	0.38	0.95	1.00E+00	1.75E-02
<i>Ran</i>	7.31E-04	-0.88	0.88	0.99	1.00E+00	1.84E-02
<i>Dync1h1</i>	1.42E-04	-0.87	0.75	0.99	1.00E+00	6.84E-03
<i>Ifitm3</i>	2.23E-03	-0.87	0.75	0.98	1.00E+00	3.69E-02
<i>Fkbp2</i>	5.31E-04	-0.87	0.50	0.98	1.00E+00	1.56E-02
<i>Wfdc10</i>	1.48E-04	-0.87	0.00	0.79	1.00E+00	6.97E-03
<i>Gadd45b</i>	2.87E-04	-0.87	0.00	0.75	1.00E+00	1.07E-02
<i>Mrps18c</i>	2.72E-04	-0.87	0.25	0.92	1.00E+00	1.04E-02
<i>Mrpl15</i>	5.74E-05	-0.87	0.00	0.84	1.00E+00	4.09E-03
<i>Rpl15</i>	1.71E-04	-0.87	1.00	1.00	1.00E+00	7.61E-03
<i>Mtch2</i>	2.95E-04	-0.87	0.38	0.97	1.00E+00	1.08E-02
<i>Ndufs5</i>	2.12E-03	-0.87	0.75	1.00	1.00E+00	3.60E-02
<i>Bex1</i>	1.66E-03	-0.86	0.38	0.96	1.00E+00	3.10E-02
<i>Thoc7</i>	1.20E-03	-0.86	0.50	1.00	1.00E+00	2.58E-02
<i>Rps26</i>	8.16E-05	-0.86	1.00	1.00	1.00E+00	4.96E-03
<i>Atp5j2</i>	3.21E-05	-0.86	1.00	1.00	1.00E+00	2.96E-03
<i>Fkbp1a</i>	1.38E-04	-0.86	1.00	1.00	1.00E+00	6.84E-03
<i>Grhpr</i>	4.61E-04	-0.86	0.50	0.98	1.00E+00	1.44E-02
<i>Trmt112</i>	2.91E-04	-0.86	0.75	0.99	1.00E+00	1.07E-02

<i>Anp32e</i>	1.32E-04	-0.85	0.00	0.80	1.00E+00	6.58E-03
<i>Cops6</i>	6.61E-04	-0.85	0.50	0.93	1.00E+00	1.77E-02
<i>Mrpl51</i>	2.44E-04	-0.85	0.63	0.98	1.00E+00	9.69E-03
<i>Tpm1</i>	8.72E-04	-0.85	1.00	1.00	1.00E+00	2.05E-02
<i>Spq21</i>	2.37E-05	-0.85	0.00	0.89	7.66E-01	2.37E-03
<i>Smdt1</i>	7.21E-04	-0.85	0.75	1.00	1.00E+00	1.84E-02
<i>Rpl8</i>	2.90E-05	-0.84	1.00	1.00	9.38E-01	2.74E-03
<i>Atp6v1f</i>	3.09E-04	-0.84	0.75	0.99	1.00E+00	1.12E-02
<i>Actr3b</i>	2.07E-04	-0.84	0.00	0.77	1.00E+00	8.81E-03
<i>Mrps28</i>	2.36E-04	-0.84	0.13	0.84	1.00E+00	9.50E-03
<i>Tmem147</i>	2.59E-03	-0.83	0.50	0.97	1.00E+00	4.05E-02
<i>Col9a2</i>	3.95E-04	-0.83	0.00	0.73	1.00E+00	1.28E-02
<i>Mrpl40</i>	3.49E-05	-0.83	0.00	0.87	1.00E+00	3.03E-03
<i>Cnmd</i>	8.00E-04	-0.83	0.13	0.80	1.00E+00	1.93E-02
<i>Chrac1</i>	5.73E-04	-0.83	0.25	0.92	1.00E+00	1.63E-02
<i>Psme1</i>	7.51E-04	-0.83	0.63	0.99	1.00E+00	1.86E-02
<i>Adh1</i>	3.56E-04	-0.82	0.00	0.74	1.00E+00	1.22E-02
<i>Tmed10</i>	5.62E-04	-0.81	0.88	1.00	1.00E+00	1.61E-02
<i>Prmt1</i>	7.17E-04	-0.81	0.25	0.94	1.00E+00	1.84E-02
<i>Acadl</i>	7.00E-04	-0.81	0.25	0.96	1.00E+00	1.82E-02
<i>Tmem256</i>	5.39E-04	-0.81	0.88	0.98	1.00E+00	1.56E-02
<i>Rbbp7</i>	1.52E-03	-0.81	0.75	0.99	1.00E+00	2.95E-02
<i>Gtf3c6</i>	1.32E-03	-0.80	0.25	0.92	1.00E+00	2.70E-02
<i>Zcrb1</i>	1.39E-03	-0.80	0.25	0.91	1.00E+00	2.79E-02
<i>Ptgis</i>	1.10E-03	-0.80	0.13	0.88	1.00E+00	2.45E-02
<i>Pdia6</i>	3.18E-04	-0.80	1.00	0.99	1.00E+00	1.14E-02
<i>Rps15a</i>	3.47E-04	-0.80	1.00	1.00	1.00E+00	1.19E-02
<i>Cdk1</i>	1.17E-03	-0.80	0.25	0.86	1.00E+00	2.57E-02
<i>Chchd1</i>	2.85E-03	-0.80	0.25	0.94	1.00E+00	4.29E-02
<i>Mcm6</i>	9.27E-04	-0.80	0.13	0.89	1.00E+00	2.15E-02
<i>Bok</i>	1.06E-03	-0.80	0.63	0.94	1.00E+00	2.41E-02
<i>Eef1d</i>	3.65E-03	-0.79	0.75	1.00	1.00E+00	4.94E-02
<i>Rps10</i>	3.91E-05	-0.79	1.00	1.00	1.00E+00	3.23E-03
<i>Mmp2</i>	3.19E-03	-0.79	0.25	0.89	1.00E+00	4.58E-02
<i>Nfu1</i>	4.18E-04	-0.79	0.25	0.91	1.00E+00	1.34E-02
<i>Ahsa2</i>	2.56E-03	-0.79	0.38	0.85	1.00E+00	4.03E-02
<i>Prdx1</i>	4.24E-04	-0.78	1.00	1.00	1.00E+00	1.36E-02
<i>Bex3</i>	2.73E-03	-0.78	0.75	0.99	1.00E+00	4.16E-02
<i>Mapre1</i>	7.71E-04	-0.78	0.38	0.97	1.00E+00	1.90E-02
<i>Cox7a2</i>	5.16E-04	-0.78	1.00	0.99	1.00E+00	1.55E-02
<i>Col6a2</i>	2.56E-03	-0.78	0.13	0.75	1.00E+00	4.02E-02
<i>Eif1ax</i>	3.00E-04	-0.78	0.75	0.97	1.00E+00	1.09E-02
<i>Timm17a</i>	8.57E-04	-0.78	0.25	0.89	1.00E+00	2.03E-02
<i>Rpl24</i>	5.58E-05	-0.78	1.00	1.00	1.00E+00	4.02E-03
<i>Arhgdia</i>	6.82E-04	-0.78	0.88	1.00	1.00E+00	1.79E-02
<i>Anapc11</i>	1.64E-03	-0.78	0.63	0.94	1.00E+00	3.07E-02
<i>Ywhah</i>	3.23E-03	-0.78	0.50	0.97	1.00E+00	4.59E-02

<i>Slc35b1</i>	8.99E-04	-0.78	0.13	0.92	1.00E+00	2.09E-02
<i>Plbd1</i>	2.96E-03	-0.78	0.25	0.89	1.00E+00	4.37E-02
<i>Gemin7</i>	1.03E-03	-0.78	0.25	0.87	1.00E+00	2.34E-02
<i>Atp6v0e</i>	9.46E-04	-0.78	0.63	0.99	1.00E+00	2.17E-02
<i>Tpi1</i>	1.60E-03	-0.78	0.75	0.99	1.00E+00	3.03E-02
<i>Rwdd1</i>	4.95E-04	-0.77	0.13	0.83	1.00E+00	1.51E-02
<i>Timm23</i>	2.82E-03	-0.77	0.38	0.96	1.00E+00	4.28E-02
<i>Eif3k</i>	1.20E-03	-0.77	0.88	1.00	1.00E+00	2.58E-02
<i>Micos10</i>	8.72E-04	-0.77	1.00	1.00	1.00E+00	2.05E-02
<i>Mrpl12</i>	1.82E-03	-0.77	0.50	0.95	1.00E+00	3.28E-02
<i>Plagl1</i>	7.66E-04	-0.77	0.13	0.82	1.00E+00	1.89E-02
<i>Rbmxl1</i>	1.17E-04	-0.77	0.00	0.80	1.00E+00	6.11E-03
<i>Mien1</i>	2.01E-03	-0.76	0.38	0.95	1.00E+00	3.47E-02
<i>Rbp1</i>	1.77E-03	-0.76	0.50	0.94	1.00E+00	3.21E-02
<i>Psmb1</i>	6.64E-04	-0.76	0.75	1.00	1.00E+00	1.77E-02
<i>Ndufv3</i>	1.92E-03	-0.76	0.63	0.99	1.00E+00	3.36E-02
<i>Uqcr10</i>	2.04E-03	-0.76	0.88	0.99	1.00E+00	3.49E-02
<i>Efl1</i>	1.55E-03	-0.76	0.00	0.65	1.00E+00	2.96E-02
<i>Siva1</i>	2.44E-03	-0.76	0.63	0.97	1.00E+00	3.88E-02
<i>1110038F14Rik</i>	2.87E-04	-0.76	0.13	0.85	1.00E+00	1.07E-02
<i>Ndufb3</i>	3.23E-03	-0.76	0.50	0.95	1.00E+00	4.59E-02
<i>Tmem50a</i>	1.27E-03	-0.76	0.63	1.00	1.00E+00	2.66E-02
<i>Vps29</i>	1.20E-03	-0.76	0.25	0.96	1.00E+00	2.58E-02
<i>Arl8b</i>	1.48E-04	-0.76	0.00	0.79	1.00E+00	6.97E-03
<i>Sqstm1</i>	3.24E-03	-0.76	0.75	1.00	1.00E+00	4.59E-02
<i>Ndufc2</i>	8.60E-04	-0.76	0.88	0.99	1.00E+00	2.03E-02
<i>Wasf2</i>	2.31E-03	-0.76	0.38	0.94	1.00E+00	3.80E-02
<i>Cnih4</i>	2.48E-03	-0.76	0.38	0.91	1.00E+00	3.93E-02
<i>Rpl41</i>	5.78E-04	-0.75	1.00	1.00	1.00E+00	1.63E-02
<i>Pdlim7</i>	3.86E-04	-0.75	0.13	0.86	1.00E+00	1.28E-02
<i>Tmem134</i>	1.23E-03	-0.75	0.38	0.94	1.00E+00	2.62E-02
<i>Mrps6</i>	3.39E-03	-0.75	0.38	0.95	1.00E+00	4.71E-02
<i>Rpl3</i>	1.08E-03	-0.75	1.00	1.00	1.00E+00	2.42E-02
<i>Sec11a</i>	2.66E-03	-0.74	0.63	0.95	1.00E+00	4.10E-02
<i>Mrpl32</i>	7.34E-04	-0.74	0.25	0.85	1.00E+00	1.84E-02
<i>Timm8a1</i>	9.29E-05	-0.74	0.00	0.82	1.00E+00	5.31E-03
<i>Erh</i>	7.25E-04	-0.74	0.25	0.88	1.00E+00	1.84E-02
<i>Kxd1</i>	1.72E-03	-0.73	0.50	0.92	1.00E+00	3.15E-02
<i>Tmsb10</i>	9.46E-04	-0.73	1.00	1.00	1.00E+00	2.17E-02
<i>Cmtm7</i>	4.72E-04	-0.73	0.13	0.84	1.00E+00	1.47E-02
<i>Cenpx</i>	1.28E-03	-0.73	0.38	0.93	1.00E+00	2.66E-02
<i>Ndufs7</i>	1.11E-03	-0.73	0.63	0.98	1.00E+00	2.46E-02
<i>Ssr4</i>	1.92E-03	-0.73	0.75	1.00	1.00E+00	3.36E-02
<i>Snhg1</i>	1.34E-03	-0.73	0.75	0.97	1.00E+00	2.70E-02
<i>Eef1g</i>	2.02E-03	-0.72	1.00	1.00	1.00E+00	3.47E-02
<i>Guk1</i>	1.44E-03	-0.72	0.38	0.95	1.00E+00	2.85E-02
<i>Eif4e</i>	9.60E-04	-0.72	0.25	0.91	1.00E+00	2.20E-02

<i>St13</i>	1.92E-03	-0.72	0.75	0.98	1.00E+00	3.36E-02
<i>Mpc1</i>	1.50E-03	-0.72	0.25	0.89	1.00E+00	2.93E-02
<i>Alas1</i>	2.37E-03	-0.72	0.25	0.88	1.00E+00	3.86E-02
<i>Cycs</i>	3.64E-03	-0.72	0.50	0.94	1.00E+00	4.93E-02
<i>Sem1</i>	9.55E-05	-0.72	1.00	1.00	1.00E+00	5.42E-03
<i>Ahsa1</i>	2.86E-03	-0.71	0.38	0.95	1.00E+00	4.29E-02
<i>Chchd2</i>	1.27E-03	-0.71	1.00	1.00	1.00E+00	2.66E-02
<i>AU021092</i>	1.18E-03	-0.71	0.00	0.67	1.00E+00	2.57E-02
<i>Tpd52l1</i>	1.30E-03	-0.71	0.13	0.86	1.00E+00	2.66E-02
<i>Rpl18</i>	8.42E-05	-0.71	1.00	1.00	1.00E+00	5.01E-03
<i>Scamp3</i>	7.51E-04	-0.71	0.25	0.90	1.00E+00	1.86E-02
<i>Supt4a</i>	1.58E-03	-0.70	0.63	0.97	1.00E+00	3.01E-02
<i>Timm8b</i>	3.24E-03	-0.70	0.75	0.99	1.00E+00	4.59E-02
<i>Park7</i>	2.94E-03	-0.70	0.75	1.00	1.00E+00	4.34E-02
<i>Psmc8</i>	2.92E-03	-0.70	0.25	0.92	1.00E+00	4.32E-02
<i>Arnt2</i>	5.38E-04	-0.70	0.00	0.72	1.00E+00	1.56E-02
<i>Snx5</i>	1.75E-03	-0.70	0.38	0.94	1.00E+00	3.18E-02
<i>Glrx2</i>	1.30E-03	-0.70	0.25	0.87	1.00E+00	2.66E-02
<i>Card19</i>	7.80E-04	-0.70	0.13	0.82	1.00E+00	1.90E-02
<i>Rpl11</i>	1.20E-05	-0.70	1.00	1.00	3.89E-01	1.71E-03
<i>Ndufb9</i>	2.91E-04	-0.70	1.00	1.00	1.00E+00	1.07E-02
<i>Arpc5l</i>	2.31E-03	-0.70	0.38	0.93	1.00E+00	3.80E-02
<i>Naca</i>	1.23E-03	-0.70	1.00	1.00	1.00E+00	2.63E-02
<i>Psmc1</i>	1.60E-03	-0.70	0.75	0.98	1.00E+00	3.03E-02
<i>Mt1</i>	1.48E-03	-0.69	1.00	1.00	1.00E+00	2.92E-02
<i>Sumo1</i>	3.32E-03	-0.69	0.75	0.98	1.00E+00	4.67E-02
<i>Pdgfra</i>	1.73E-03	-0.69	0.13	0.79	1.00E+00	3.15E-02
<i>Ostc</i>	3.39E-03	-0.69	0.75	0.95	1.00E+00	4.71E-02
<i>Mrpl36</i>	2.34E-03	-0.69	0.38	0.95	1.00E+00	3.83E-02
<i>Lama2</i>	5.38E-04	-0.69	0.00	0.72	1.00E+00	1.56E-02
<i>Lsm7</i>	1.20E-03	-0.68	0.88	1.00	1.00E+00	2.58E-02
<i>Thrap3</i>	7.40E-04	-0.68	0.63	0.96	1.00E+00	1.85E-02
<i>Mrpl53</i>	1.12E-03	-0.68	0.63	0.96	1.00E+00	2.48E-02
<i>Ndufaf2</i>	1.30E-03	-0.68	0.13	0.86	1.00E+00	2.66E-02
<i>Chsy1</i>	2.58E-04	-0.68	0.00	0.76	1.00E+00	1.00E-02
<i>Rgs11</i>	3.12E-03	-0.68	0.25	0.89	1.00E+00	4.53E-02
<i>Pfdn5</i>	2.41E-03	-0.68	1.00	1.00	1.00E+00	3.88E-02
<i>Mak16</i>	2.07E-04	-0.68	0.00	0.77	1.00E+00	8.81E-03
<i>Rexo2</i>	3.56E-03	-0.68	0.50	0.94	1.00E+00	4.89E-02
<i>Rpl36a</i>	1.02E-03	-0.68	0.88	1.00	1.00E+00	2.34E-02
<i>Hmox2</i>	1.42E-03	-0.68	0.13	0.80	1.00E+00	2.81E-02
<i>Tomm7</i>	1.05E-03	-0.68	1.00	1.00	1.00E+00	2.39E-02
<i>Tcf21</i>	2.97E-03	-0.67	0.13	0.75	1.00E+00	4.37E-02
<i>Ten1</i>	4.38E-04	-0.67	0.00	0.73	1.00E+00	1.39E-02
<i>Rpl7</i>	3.47E-04	-0.67	1.00	1.00	1.00E+00	1.19E-02
<i>Rab9</i>	8.06E-04	-0.67	0.13	0.80	1.00E+00	1.93E-02
<i>Edf1</i>	3.24E-03	-0.67	0.75	1.00	1.00E+00	4.59E-02

<i>Med28</i>	3.35E-03	-0.67	0.38	0.96	1.00E+00	4.69E-02
<i>Prmt2</i>	3.20E-04	-0.66	0.00	0.75	1.00E+00	1.14E-02
<i>Cks1b</i>	1.99E-03	-0.66	0.25	0.84	1.00E+00	3.46E-02
<i>Col6a4</i>	3.57E-03	-0.66	0.13	0.79	1.00E+00	4.90E-02
<i>Uqcc2</i>	6.02E-04	-0.66	0.88	0.99	1.00E+00	1.67E-02
<i>Tmem208</i>	3.31E-03	-0.66	0.50	0.95	1.00E+00	4.67E-02
<i>Rps3</i>	3.10E-05	-0.66	1.00	1.00	1.00E+00	2.90E-03
<i>Bsg</i>	3.78E-04	-0.66	1.00	1.00	1.00E+00	1.25E-02
<i>Nme2</i>	4.00E-04	-0.66	1.00	1.00	1.00E+00	1.30E-02
<i>Vta1</i>	1.85E-04	-0.66	0.00	0.78	1.00E+00	8.08E-03
<i>Rce1</i>	3.95E-04	-0.65	0.00	0.73	1.00E+00	1.28E-02
<i>Tmem9b</i>	2.31E-04	-0.65	0.00	0.77	1.00E+00	9.47E-03
<i>Epb41l2</i>	1.59E-03	-0.65	0.38	0.92	1.00E+00	3.02E-02
<i>Rps16</i>	1.42E-04	-0.65	1.00	1.00	1.00E+00	6.84E-03
<i>Atox1</i>	1.44E-03	-0.64	1.00	1.00	1.00E+00	2.85E-02
<i>Nop16</i>	3.62E-03	-0.64	0.25	0.91	1.00E+00	4.92E-02
<i>Mrpl58</i>	3.07E-03	-0.64	0.38	0.92	1.00E+00	4.48E-02
<i>Angptl2</i>	2.58E-04	-0.64	0.00	0.76	1.00E+00	1.00E-02
<i>Farsb</i>	6.58E-04	-0.63	0.00	0.70	1.00E+00	1.77E-02
<i>Arhgdig</i>	1.29E-03	-0.63	0.00	0.66	1.00E+00	2.66E-02
<i>Eef1akmt1</i>	3.33E-03	-0.63	0.13	0.76	1.00E+00	4.67E-02
<i>Atp5md</i>	3.08E-03	-0.63	1.00	1.00	1.00E+00	4.49E-02
<i>Utp11</i>	1.88E-03	-0.63	0.13	0.75	1.00E+00	3.33E-02
<i>Armcx2</i>	2.02E-03	-0.62	0.63	0.95	1.00E+00	3.47E-02
<i>Tmem120a</i>	5.54E-04	-0.62	0.13	0.83	1.00E+00	1.60E-02
<i>Spr</i>	2.71E-03	-0.62	0.25	0.85	1.00E+00	4.16E-02
<i>Cog6</i>	5.38E-04	-0.62	0.00	0.72	1.00E+00	1.56E-02
<i>Cald1</i>	2.85E-03	-0.62	0.25	0.93	1.00E+00	4.29E-02
<i>Rpl34</i>	2.37E-04	-0.62	1.00	1.00	1.00E+00	9.50E-03
<i>Pop7</i>	5.38E-04	-0.62	0.00	0.72	1.00E+00	1.56E-02
<i>Ccdc28b</i>	1.55E-03	-0.62	0.13	0.81	1.00E+00	2.96E-02
<i>Cbr1</i>	1.85E-03	-0.62	0.13	0.85	1.00E+00	3.31E-02
<i>A430005L14Rik</i>	4.86E-04	-0.62	0.00	0.72	1.00E+00	1.49E-02
<i>Psap</i>	2.18E-03	-0.62	1.00	1.00	1.00E+00	3.64E-02
<i>Aoc3</i>	2.64E-03	-0.62	0.00	0.61	1.00E+00	4.09E-02
<i>Carmil1</i>	1.29E-03	-0.61	0.00	0.66	1.00E+00	2.66E-02
<i>Tgfb3</i>	3.95E-04	-0.61	0.00	0.73	1.00E+00	1.28E-02
<i>Ddx27</i>	1.07E-03	-0.61	0.00	0.67	1.00E+00	2.41E-02
<i>Plxna2</i>	1.70E-03	-0.60	0.00	0.64	1.00E+00	3.12E-02
<i>Znhit6</i>	6.58E-04	-0.60	0.00	0.70	1.00E+00	1.77E-02
<i>Rps11</i>	2.75E-04	-0.60	1.00	1.00	1.00E+00	1.04E-02
<i>Chchd4</i>	1.50E-03	-0.60	0.13	0.77	1.00E+00	2.94E-02
<i>Ss18l2</i>	1.85E-03	-0.60	0.13	0.77	1.00E+00	3.31E-02
<i>Idnk</i>	1.52E-03	-0.60	0.13	0.82	1.00E+00	2.95E-02
<i>Trap1</i>	3.59E-03	-0.60	0.25	0.87	1.00E+00	4.91E-02
<i>2310009A05Rik</i>	3.30E-03	-0.59	0.25	0.84	1.00E+00	4.66E-02
<i>Nsmce3</i>	1.77E-03	-0.59	0.13	0.76	1.00E+00	3.21E-02

<i>Cox4i1</i>	1.30E-03	-0.59	1.00	1.00	1.00E+00	2.66E-02
<i>Gadd45g</i>	3.44E-03	-0.59	0.25	0.79	1.00E+00	4.74E-02
<i>Tiprl</i>	1.25E-03	-0.59	0.13	0.81	1.00E+00	2.65E-02
<i>Nid1</i>	3.20E-04	-0.59	0.00	0.75	1.00E+00	1.14E-02
<i>Phax</i>	2.16E-03	-0.59	0.13	0.79	1.00E+00	3.64E-02
<i>Ndufa2</i>	8.49E-04	-0.59	1.00	1.00	1.00E+00	2.01E-02
<i>Smtn</i>	2.85E-03	-0.58	0.13	0.77	1.00E+00	4.29E-02
<i>Ddx39</i>	3.33E-03	-0.58	0.13	0.76	1.00E+00	4.67E-02
<i>Fkbp11</i>	1.55E-03	-0.58	0.00	0.65	1.00E+00	2.96E-02
<i>Tmem222</i>	5.96E-04	-0.58	0.00	0.71	1.00E+00	1.65E-02
<i>Mxra8</i>	3.62E-03	-0.58	0.13	0.75	1.00E+00	4.92E-02
<i>Zyx</i>	1.61E-03	-0.57	0.13	0.89	1.00E+00	3.04E-02
<i>Naa10</i>	3.14E-03	-0.57	0.13	0.79	1.00E+00	4.53E-02
<i>P3h2</i>	1.29E-03	-0.57	0.00	0.66	1.00E+00	2.66E-02
<i>Trim25</i>	1.20E-03	-0.57	0.13	0.78	1.00E+00	2.58E-02
<i>Atp5l</i>	1.34E-03	-0.57	1.00	1.00	1.00E+00	2.70E-02
<i>Fam171a1</i>	7.27E-04	-0.57	0.00	0.70	1.00E+00	1.84E-02
<i>Rpl29</i>	2.56E-03	-0.57	0.13	0.84	1.00E+00	4.02E-02
<i>Uqcrq</i>	5.62E-04	-0.57	1.00	1.00	1.00E+00	1.61E-02
<i>Snhg5</i>	1.55E-03	-0.57	0.00	0.65	1.00E+00	2.96E-02
<i>Tubg1</i>	4.86E-04	-0.56	0.00	0.72	1.00E+00	1.49E-02
<i>Trappc4</i>	3.34E-03	-0.56	0.13	0.75	1.00E+00	4.68E-02
<i>Eif4e2</i>	3.47E-03	-0.56	0.38	0.94	1.00E+00	4.78E-02
<i>Slc16a2</i>	1.42E-03	-0.56	0.00	0.65	1.00E+00	2.81E-02
<i>Gins4</i>	1.70E-03	-0.56	0.00	0.64	1.00E+00	3.12E-02
<i>Ifi35</i>	1.70E-03	-0.56	0.00	0.64	1.00E+00	3.12E-02
<i>1700021F05Rik</i>	2.24E-03	-0.56	0.13	0.82	1.00E+00	3.70E-02
<i>Ccnq</i>	2.86E-03	-0.55	0.13	0.73	1.00E+00	4.29E-02
<i>Gfer</i>	3.19E-03	-0.55	0.13	0.80	1.00E+00	4.58E-02
<i>Uck2</i>	7.27E-04	-0.55	0.00	0.70	1.00E+00	1.84E-02
<i>Rexo4</i>	7.27E-04	-0.55	0.00	0.70	1.00E+00	1.84E-02
<i>Atp6v0a2</i>	1.18E-03	-0.54	0.00	0.67	1.00E+00	2.57E-02
<i>Ptpn2</i>	1.94E-03	-0.54	0.13	0.77	1.00E+00	3.37E-02
<i>Eno1</i>	2.18E-03	-0.53	0.13	0.87	1.00E+00	3.65E-02
<i>Snpc5</i>	2.69E-03	-0.53	0.13	0.82	1.00E+00	4.14E-02
<i>Serf2</i>	1.41E-03	-0.53	1.00	1.00	1.00E+00	2.81E-02
<i>Psmc10</i>	2.42E-03	-0.53	0.00	0.61	1.00E+00	3.88E-02
<i>Ppil1</i>	1.29E-03	-0.53	0.00	0.66	1.00E+00	2.66E-02
<i>Acat2</i>	1.86E-03	-0.53	0.00	0.63	1.00E+00	3.31E-02
<i>Slc25a17</i>	2.59E-03	-0.52	0.13	0.76	1.00E+00	4.05E-02
<i>Ccdc80</i>	1.70E-03	-0.52	0.00	0.64	1.00E+00	3.12E-02
<i>Bphl</i>	1.55E-03	-0.52	0.00	0.65	1.00E+00	2.96E-02
<i>Hars</i>	2.03E-03	-0.52	0.00	0.63	1.00E+00	3.48E-02
<i>Cstf1</i>	1.29E-03	-0.51	0.00	0.66	1.00E+00	2.66E-02
<i>Hmgn3</i>	2.42E-03	-0.51	0.00	0.61	1.00E+00	3.88E-02
<i>BC005624</i>	1.18E-03	-0.51	0.00	0.67	1.00E+00	2.57E-02
<i>Fbxw2</i>	1.70E-03	-0.51	0.00	0.64	1.00E+00	3.12E-02

<i>Ift27</i>	2.64E-03	-0.51	0.00	0.61	1.00E+00	4.09E-02
<i>Cenpm</i>	3.41E-03	-0.51	0.00	0.59	1.00E+00	4.71E-02
<i>Eef1e1</i>	2.42E-03	-0.50	0.00	0.61	1.00E+00	3.88E-02
<i>Rnf103</i>	1.55E-03	-0.50	0.00	0.65	1.00E+00	2.96E-02
<i>Znhit1</i>	1.64E-03	-0.50	0.25	0.96	1.00E+00	3.07E-02
<i>Gstk1</i>	2.88E-03	-0.50	0.00	0.60	1.00E+00	4.30E-02
<i>Klhdc8b</i>	2.42E-03	-0.50	0.00	0.61	1.00E+00	3.88E-02
<i>Ube2d1</i>	1.70E-03	-0.50	0.00	0.64	1.00E+00	3.12E-02

Table S8. Genes differentially expressed between advanced aged and young mice in FC1. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value; FDR - FDR-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj	FDR
Upregulated DEGs						
<i>Igkc</i>	2.50E-03	2.64	0.40	0.26	1.00E+00	1.00E-02
<i>Malat1</i>	1.91E-08	2.20	0.87	0.88	6.17E-04	3.24E-06
<i>mt-Nd2</i>	4.40E-09	1.70	0.96	0.97	1.42E-04	1.08E-06
<i>mt-Co2</i>	1.42E-08	1.67	0.98	0.99	4.57E-04	2.59E-06
<i>mt-Nd1</i>	2.59E-08	1.62	0.94	0.97	8.36E-04	3.57E-06
<i>mt-Nd3</i>	2.50E-07	1.60	0.81	0.70	8.08E-03	2.07E-05
<i>mt-Nd4</i>	8.49E-08	1.45	0.96	0.98	2.74E-03	9.19E-06
<i>H1foo</i>	3.21E-04	1.40	0.50	0.34	1.00E+00	2.58E-03
<i>mt-Atp6</i>	8.99E-08	1.37	0.98	1.00	2.90E-03	9.26E-06
<i>Cyp4f18</i>	1.61E-02	1.33	0.60	0.64	1.00E+00	3.59E-02
<i>Gm42418</i>	2.16E-08	1.26	0.94	0.99	6.98E-04	3.40E-06
<i>mt-Co1</i>	6.55E-09	1.13	1.00	1.00	2.11E-04	1.35E-06
<i>mt-Co3</i>	1.84E-09	1.08	1.00	1.00	5.95E-05	5.62E-07
<i>mt-Cytb</i>	8.50E-11	1.06	1.00	1.00	2.74E-06	5.40E-08
<i>Gyg</i>	6.74E-03	0.97	0.27	0.68	1.00E+00	1.96E-02
<i>Rgs2</i>	1.78E-04	0.96	0.85	0.88	1.00E+00	1.79E-03
<i>mt-Nd5</i>	1.78E-02	0.95	0.64	0.69	1.00E+00	3.83E-02
<i>Slc18a2</i>	5.43E-04	0.94	0.79	0.81	1.00E+00	3.61E-03
<i>Gm2a</i>	2.55E-03	0.88	0.89	0.98	1.00E+00	1.01E-02
<i>Nr5a2</i>	4.82E-03	0.85	0.67	0.77	1.00E+00	1.56E-02
<i>Nrn1</i>	9.35E-03	0.81	0.54	0.51	1.00E+00	2.44E-02
<i>Kazald1</i>	6.39E-05	0.78	0.73	0.68	1.00E+00	9.29E-04
<i>C3</i>	1.46E-02	0.73	0.46	0.36	1.00E+00	3.35E-02
<i>Hsd17b1</i>	8.50E-03	0.69	0.64	0.70	1.00E+00	2.29E-02
<i>Sema7a</i>	9.38E-03	0.67	0.44	0.34	1.00E+00	2.45E-02
<i>Rab10</i>	1.74E-02	0.66	0.65	0.76	1.00E+00	3.78E-02
<i>Inha</i>	1.96E-07	0.66	0.98	1.00	6.32E-03	1.66E-05
<i>Gja1</i>	1.84E-02	0.65	0.90	0.96	1.00E+00	3.93E-02
<i>Tmbim6</i>	1.21E-02	0.61	0.77	0.90	1.00E+00	2.93E-02
<i>Thap4</i>	5.88E-03	0.52	0.15	0.44	1.00E+00	1.79E-02
<i>Soat1</i>	1.19E-02	0.51	0.81	0.97	1.00E+00	2.89E-02
<i>Snx27</i>	9.76E-03	0.50	0.15	0.41	1.00E+00	2.51E-02
Downregulated DEGs						
<i>Cyp17a1</i>	3.37E-18	-1.89	0.27	0.97	1.09E-13	2.57E-14
<i>Cyp11a1</i>	1.09E-07	-0.98	0.96	1.00	3.52E-03	1.06E-05
<i>Mgarp</i>	3.06E-08	-0.96	0.71	0.99	9.87E-04	4.08E-06
<i>Alas1</i>	5.49E-10	-0.94	0.37	0.89	1.77E-05	2.20E-07
<i>Ccn2</i>	3.68E-12	-0.91	0.12	0.75	1.19E-07	4.00E-09
<i>Hspe1</i>	1.70E-12	-0.91	0.75	1.00	5.49E-08	2.16E-09

<i>Acsbg1</i>	3.04E-13	-0.90	0.87	1.00	9.83E-09	1.16E-09
<i>Hsph1</i>	8.85E-08	-0.88	0.27	0.76	2.86E-03	9.24E-06
<i>Fads2</i>	4.85E-09	-0.88	0.27	0.83	1.57E-04	1.12E-06
<i>Tagln</i>	1.63E-07	-0.88	0.54	0.98	5.25E-03	1.44E-05
<i>Tpm1</i>	8.20E-13	-0.87	0.77	1.00	2.65E-08	2.08E-09
<i>Hbb-bs</i>	3.50E-06	-0.86	0.23	0.67	1.13E-01	1.46E-04
<i>Tcaf1</i>	3.41E-10	-0.86	0.27	0.84	1.10E-05	1.53E-07
<i>Ephx1</i>	1.93E-09	-0.84	0.40	0.94	6.23E-05	5.66E-07
<i>H2-Eb1</i>	5.81E-10	-0.84	0.15	0.73	1.87E-05	2.21E-07
<i>Ctla2a</i>	4.20E-12	-0.83	0.14	0.82	1.36E-07	4.00E-09
<i>Smoc2</i>	4.31E-09	-0.80	0.54	0.97	1.39E-04	1.08E-06
<i>Hspb1</i>	1.51E-06	-0.80	0.29	0.78	4.88E-02	7.90E-05
<i>Acta2</i>	9.93E-08	-0.78	0.71	0.98	3.21E-03	9.96E-06
<i>Col4a1</i>	5.42E-11	-0.78	0.77	1.00	1.75E-06	4.13E-08
<i>Ndufa1</i>	8.56E-08	-0.75	0.64	0.98	2.76E-03	9.19E-06
<i>Cavin3</i>	1.12E-09	-0.75	0.37	0.93	3.60E-05	3.87E-07
<i>Dnajc15</i>	1.21E-08	-0.75	0.69	0.97	3.90E-04	2.30E-06
<i>Tmsb10</i>	3.80E-10	-0.75	0.87	1.00	1.23E-05	1.61E-07
<i>Flna</i>	1.73E-08	-0.75	0.69	1.00	5.57E-04	3.06E-06
<i>Tmem176b</i>	4.28E-08	-0.74	0.83	1.00	1.38E-03	5.45E-06
<i>Arpc1b</i>	8.28E-08	-0.73	0.60	0.99	2.67E-03	9.19E-06
<i>Fabp3</i>	1.72E-09	-0.73	0.25	0.84	5.54E-05	5.44E-07
<i>Agt</i>	6.28E-06	-0.73	0.62	0.99	2.03E-01	2.05E-04
<i>Serpina5</i>	2.46E-10	-0.72	0.10	0.67	7.95E-06	1.17E-07
<i>Fdx1</i>	6.23E-07	-0.70	0.98	1.00	2.01E-02	4.16E-05
<i>Cst3</i>	2.18E-08	-0.69	0.89	1.00	7.05E-04	3.40E-06
<i>Akr1cl</i>	1.27E-12	-0.69	1.00	1.00	4.11E-08	2.14E-09
<i>Pkdcc</i>	1.19E-06	-0.68	0.54	0.96	3.84E-02	6.66E-05
<i>Mgp</i>	2.46E-08	-0.68	0.87	1.00	7.95E-04	3.54E-06
<i>Prxl2a</i>	1.54E-07	-0.67	0.23	0.75	4.98E-03	1.39E-05
<i>Polr2l</i>	2.35E-08	-0.67	0.29	0.87	7.59E-04	3.54E-06
<i>AU021092</i>	2.90E-11	-0.67	0.21	0.86	9.35E-07	2.45E-08
<i>Rps24</i>	5.99E-08	-0.66	1.00	1.00	1.93E-03	7.02E-06
<i>Aldh1a1</i>	2.51E-06	-0.66	0.90	0.99	8.11E-02	1.17E-04
<i>Fkbp4</i>	1.01E-06	-0.65	0.58	0.96	3.26E-02	5.86E-05
<i>Tpd52l2</i>	1.75E-07	-0.64	0.42	0.91	5.65E-03	1.50E-05
<i>Ostc</i>	4.65E-08	-0.64	0.40	0.94	1.50E-03	5.81E-06
<i>Gsta4</i>	2.16E-06	-0.63	0.50	0.94	6.97E-02	1.04E-04
<i>Myl6</i>	7.40E-11	-0.63	0.90	1.00	2.39E-06	5.12E-08
<i>Unc119</i>	5.13E-09	-0.63	0.33	0.88	1.66E-04	1.15E-06
<i>Ndufb6</i>	7.03E-07	-0.63	0.56	0.95	2.27E-02	4.58E-05
<i>Rps7</i>	3.21E-09	-0.62	0.94	1.00	1.04E-04	8.73E-07
<i>Atp6v1f</i>	5.26E-07	-0.62	0.65	0.96	1.70E-02	3.63E-05
<i>Adamts10</i>	3.48E-08	-0.62	0.44	0.90	1.12E-03	4.57E-06
<i>Pgam1</i>	4.10E-07	-0.62	0.69	0.97	1.32E-02	3.00E-05
<i>Gpx1</i>	5.18E-07	-0.61	0.77	1.00	1.67E-02	3.62E-05
<i>Myl12a</i>	2.58E-07	-0.61	0.81	0.99	8.33E-03	2.10E-05

<i>Srp14</i>	3.71E-07	-0.61	0.62	0.96	1.20E-02	2.77E-05
<i>Slc25a39</i>	5.44E-06	-0.61	0.58	0.97	1.76E-01	1.89E-04
<i>Rgcc</i>	1.53E-04	-0.61	0.67	0.97	1.00E+00	1.64E-03
<i>Tnfrsf1a</i>	1.03E-05	-0.61	0.50	0.93	3.32E-01	2.90E-04
<i>Selenow</i>	4.45E-06	-0.61	0.65	0.98	1.44E-01	1.66E-04
<i>Mfap5</i>	5.52E-09	-0.61	0.12	0.67	1.78E-04	1.20E-06
<i>Cald1</i>	1.19E-06	-0.61	0.44	0.89	3.83E-02	6.66E-05
<i>Col3a1</i>	9.90E-07	-0.61	0.65	0.99	3.20E-02	5.80E-05
<i>Il4ra</i>	4.84E-08	-0.61	0.12	0.61	1.56E-03	5.95E-06
<i>Cfh</i>	5.04E-07	-0.60	0.77	1.00	1.63E-02	3.59E-05
<i>2410006H16Rik</i>	9.33E-07	-0.60	0.64	0.98	3.01E-02	5.64E-05
<i>Iscu</i>	4.35E-06	-0.59	0.67	0.98	1.40E-01	1.66E-04
<i>Prss35</i>	4.36E-06	-0.59	0.58	0.96	1.41E-01	1.66E-04
<i>Hspa1b</i>	8.89E-05	-0.59	0.23	0.59	1.00E+00	1.16E-03
<i>Actg1</i>	1.41E-12	-0.58	0.96	1.00	4.54E-08	2.14E-09
<i>Imp3</i>	2.65E-06	-0.58	0.54	0.90	8.56E-02	1.21E-04
<i>Cxcl14</i>	2.18E-08	-0.58	0.37	0.91	7.05E-04	3.40E-06
<i>Zyx</i>	2.37E-07	-0.58	0.37	0.90	7.64E-03	1.98E-05
<i>Rarres2</i>	8.78E-06	-0.58	0.67	0.99	2.83E-01	2.57E-04
<i>Ilf2</i>	5.65E-06	-0.57	0.52	0.95	1.82E-01	1.92E-04
<i>Dbi</i>	1.52E-05	-0.57	0.83	1.00	4.90E-01	3.83E-04
<i>Adh1</i>	8.02E-05	-0.56	0.46	0.92	1.00E+00	1.09E-03
<i>Rasl11a</i>	3.21E-09	-0.56	0.06	0.58	1.04E-04	8.73E-07
<i>Ergic3</i>	6.45E-06	-0.56	0.58	0.97	2.08E-01	2.10E-04
<i>Mrps12</i>	5.12E-06	-0.56	0.48	0.95	1.65E-01	1.82E-04
<i>Rbp1</i>	1.51E-06	-0.55	0.62	0.97	4.89E-02	7.90E-05
<i>Col4a2</i>	2.48E-06	-0.55	0.62	0.96	8.00E-02	1.16E-04
<i>S100a10</i>	4.25E-05	-0.55	0.79	0.98	1.00E+00	7.27E-04
<i>Hao2</i>	3.25E-06	-0.55	0.54	0.92	1.05E-01	1.37E-04
<i>Bud31</i>	5.92E-08	-0.55	0.33	0.85	1.91E-03	7.02E-06
<i>Cd63</i>	2.57E-05	-0.55	0.73	1.00	8.29E-01	5.42E-04
<i>Hmgcs2</i>	2.01E-04	-0.54	0.79	1.00	1.00E+00	1.95E-03
<i>Tmem147</i>	3.68E-05	-0.54	0.54	0.94	1.00E+00	6.68E-04
<i>Susd3</i>	2.11E-06	-0.54	0.39	0.89	6.82E-02	1.03E-04
<i>Rpl9-ps6</i>	3.18E-07	-0.54	0.33	0.83	1.03E-02	2.42E-05
<i>Angptl4</i>	5.14E-06	-0.53	0.42	0.90	1.66E-01	1.82E-04
<i>Pomp</i>	4.74E-05	-0.53	0.52	0.96	1.00E+00	7.82E-04
<i>Tspan4</i>	2.44E-05	-0.53	0.62	0.97	7.88E-01	5.31E-04
<i>Aldh1b1</i>	1.02E-07	-0.53	0.15	0.65	3.29E-03	1.01E-05
<i>Ndufs3</i>	2.83E-05	-0.52	0.60	0.97	9.13E-01	5.71E-04
<i>Dtx4</i>	2.43E-08	-0.52	0.15	0.69	7.83E-04	3.54E-06
<i>Myl9</i>	3.23E-06	-0.52	0.62	0.97	1.04E-01	1.37E-04
<i>Gem</i>	5.89E-09	-0.52	0.12	0.69	1.90E-04	1.25E-06
<i>Vps28</i>	2.75E-05	-0.52	0.58	0.98	8.89E-01	5.64E-04
<i>Insl3</i>	3.13E-06	-0.52	0.04	0.41	1.01E-01	1.36E-04
<i>Cebpa</i>	1.88E-08	-0.51	0.04	0.53	6.06E-04	3.24E-06
<i>Fau</i>	1.77E-10	-0.51	1.00	1.00	5.72E-06	9.63E-08

<i>Fam162a</i>	7.98E-06	-0.51	0.60	0.97	2.58E-01	2.37E-04
<i>Cd302</i>	4.03E-05	-0.50	0.40	0.82	1.00E+00	7.10E-04
<i>Rpl18</i>	8.45E-10	-0.50	0.96	1.00	2.73E-05	3.06E-07
<i>Hspa1a</i>	1.29E-03	-0.50	0.19	0.48	1.00E+00	6.40E-03
<i>Mrps16</i>	1.16E-05	-0.50	0.44	0.89	3.73E-01	3.18E-04

Table S9. Genes differentially expressed between advanced aged and young mice in FC2.
 (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value; FDR - FDR-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj	FDR
Upregulated DEGS						
<i>Fat1</i>	2.20E-05	1.39	1.00	0.66	7.11E-01	2.97E-02
<i>Tcrg-C2</i>	5.42E-10	0.83	0.43	0.01	1.75E-05	4.39E-06
<i>Met</i>	2.05E-05	0.71	0.43	0.05	6.61E-01	2.97E-02
<i>1700001G11Rik</i>	2.92E-05	0.68	0.43	0.05	9.41E-01	3.38E-02
<i>C530008M17Rik</i>	1.99E-06	0.66	0.43	0.03	6.43E-02	8.07E-03
<i>Tmem212</i>	8.39E-06	0.64	0.43	0.04	2.71E-01	2.27E-02

Table S10. Genes differentially expressed between advanced aged and young mice in FC3. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value; FDR - FDR-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj	FDR
Upregulated DEGs						
<i>mt-Nd2</i>	2.08E-18	2.36	1.00	0.89	6.73E-14	2.99E-15
<i>mt-Nd1</i>	5.62E-17	2.08	0.98	0.99	1.82E-12	3.72E-14
<i>Malat1</i>	4.89E-12	2.00	0.94	0.85	1.58E-07	7.95E-10
<i>mt-Atp6</i>	1.52E-18	1.95	1.00	0.99	4.91E-14	2.62E-15
<i>mt-Nd4</i>	8.40E-17	1.83	1.00	0.98	2.71E-12	5.17E-14
<i>mt-Co2</i>	2.63E-17	1.78	1.00	0.97	8.51E-13	2.06E-14
<i>mt-Nd3</i>	3.49E-14	1.74	0.90	0.66	1.13E-09	1.01E-11
<i>Gm42418</i>	2.32E-14	1.70	1.00	0.97	7.49E-10	7.14E-12
<i>Igf1</i>	3.79E-12	1.29	0.92	0.76	1.22E-07	6.79E-10
<i>mt-Co3</i>	7.83E-16	1.25	1.00	0.99	2.53E-11	3.55E-13
<i>mt-Co1</i>	3.58E-16	1.23	1.00	1.00	1.16E-11	1.81E-13
<i>Mycl</i>	3.26E-12	1.20	0.90	0.74	1.05E-07	6.10E-10
<i>Tex15</i>	1.85E-13	1.19	0.88	0.62	5.98E-09	4.20E-11
<i>Cyp4f18</i>	9.29E-08	1.17	0.85	0.60	3.00E-03	4.14E-06
<i>Smc4</i>	7.88E-09	1.17	0.88	0.63	2.55E-04	5.14E-07
<i>Zbed3</i>	5.68E-03	1.17	1.00	0.93	1.00E+00	2.45E-02
<i>Gm26917</i>	6.20E-09	1.12	0.81	0.51	2.00E-04	4.12E-07
<i>C86187</i>	2.66E-03	1.10	0.21	0.52	1.00E+00	1.40E-02
<i>mt-Cytb</i>	1.43E-14	1.04	1.00	1.00	4.63E-10	5.14E-12
<i>Nap1l5</i>	5.31E-10	1.03	0.90	0.71	1.71E-05	4.97E-08
<i>Hmgb2</i>	3.90E-06	1.01	0.90	0.86	1.26E-01	9.04E-05
<i>Hsd17b1</i>	3.20E-10	0.98	0.92	0.84	1.03E-05	3.17E-08
<i>Gja1</i>	4.36E-12	0.98	1.00	1.00	1.41E-07	7.22E-10
<i>Rps29</i>	1.19E-16	0.97	0.98	1.00	3.84E-12	6.83E-14
<i>Rhpn2</i>	4.71E-04	0.96	0.50	0.30	1.00E+00	3.83E-03
<i>Tshz1</i>	2.45E-07	0.95	0.83	0.75	7.90E-03	9.01E-06
<i>Map1b</i>	8.54E-09	0.93	0.92	0.82	2.76E-04	5.49E-07
<i>Ccnb2</i>	7.98E-06	0.91	0.75	0.59	2.58E-01	1.59E-04
<i>Inha</i>	1.30E-14	0.91	0.98	1.00	4.20E-10	4.87E-12
<i>Thbs4</i>	9.34E-08	0.90	0.88	0.75	3.01E-03	4.14E-06
<i>Inhbb</i>	6.09E-08	0.89	0.79	0.49	1.97E-03	2.91E-06
<i>Nrn1</i>	1.34E-08	0.89	0.81	0.70	4.32E-04	7.94E-07
<i>Nt5dc2</i>	1.21E-08	0.88	0.81	0.55	3.90E-04	7.32E-07
<i>Txn1</i>	4.63E-11	0.88	0.96	1.00	1.50E-06	5.47E-09
<i>Efl1</i>	1.29E-05	0.88	0.63	0.42	4.15E-01	2.31E-04
<i>Pabpc1</i>	1.54E-13	0.88	0.96	1.00	4.97E-09	3.59E-11
<i>Rbm3</i>	1.77E-12	0.83	0.94	0.99	5.73E-08	3.40E-10
<i>Cnot6</i>	1.53E-04	0.83	0.81	0.83	1.00E+00	1.62E-03
<i>Rps27</i>	4.02E-11	0.82	0.96	0.94	1.30E-06	4.81E-09
<i>Hnrnpa0</i>	1.22E-07	0.81	0.94	0.87	3.93E-03	5.16E-06

<i>Fst</i>	7.70E-07	0.80	0.85	0.83	2.49E-02	2.34E-05
<i>Rpl17</i>	1.06E-13	0.80	1.00	1.00	3.42E-09	2.54E-11
<i>Sema7a</i>	3.78E-06	0.80	0.69	0.56	1.22E-01	8.86E-05
<i>Ptbp3</i>	9.03E-09	0.79	0.88	0.85	2.92E-04	5.75E-07
<i>Cenpw</i>	1.53E-06	0.78	0.75	0.58	4.95E-02	4.18E-05
<i>Ccnk</i>	1.08E-02	0.78	0.56	0.49	1.00E+00	3.87E-02
<i>Carhsp1</i>	1.20E-11	0.77	0.98	1.00	3.87E-07	1.77E-09
<i>Txndc5</i>	9.14E-09	0.77	0.94	0.97	2.95E-04	5.75E-07
<i>Mif</i>	1.84E-11	0.77	0.98	1.00	5.93E-07	2.51E-09
<i>Cited1</i>	5.59E-04	0.76	0.60	0.49	1.00E+00	4.38E-03
<i>Slc7a5</i>	5.58E-07	0.76	0.81	0.74	1.80E-02	1.79E-05
<i>Slc18a2</i>	6.26E-10	0.76	0.98	0.97	2.02E-05	5.56E-08
<i>Ube2c</i>	1.14E-05	0.76	0.90	0.91	3.68E-01	2.09E-04
<i>Car14</i>	2.84E-05	0.75	0.79	0.81	9.17E-01	4.33E-04
<i>Prkar2b</i>	1.35E-06	0.75	0.88	0.95	4.37E-02	3.80E-05
<i>Snrpd2</i>	2.24E-09	0.75	0.98	1.00	7.24E-05	1.71E-07
<i>Kazald1</i>	2.23E-07	0.74	0.90	0.82	7.18E-03	8.38E-06
<i>Snrpf</i>	2.45E-10	0.74	0.94	1.00	7.90E-06	2.48E-08
<i>Rpl37a</i>	6.62E-14	0.74	1.00	1.00	2.14E-09	1.68E-11
<i>Ucp2</i>	1.12E-07	0.73	0.94	0.98	3.62E-03	4.80E-06
<i>Mex3c</i>	4.24E-07	0.73	0.88	0.89	1.37E-02	1.43E-05
<i>Bmpr2</i>	3.41E-05	0.73	0.83	0.82	1.00E+00	5.02E-04
<i>Serpina3a</i>	2.31E-05	0.73	0.63	0.37	7.45E-01	3.67E-04
<i>Tex14</i>	2.16E-07	0.73	0.81	0.62	6.98E-03	8.24E-06
<i>Socs2</i>	5.91E-08	0.73	0.92	0.99	1.91E-03	2.86E-06
<i>Cks2</i>	1.63E-06	0.73	0.94	0.87	5.26E-02	4.38E-05
<i>Trrap</i>	2.01E-05	0.73	0.85	0.87	6.48E-01	3.30E-04
<i>Nr5a2</i>	4.30E-06	0.73	0.85	0.88	1.39E-01	9.71E-05
<i>Obsl1</i>	5.73E-09	0.72	0.94	0.99	1.85E-04	3.95E-07
<i>Mcm2</i>	3.61E-03	0.72	0.69	0.66	1.00E+00	1.75E-02
<i>mt-Nd5</i>	8.26E-03	0.72	0.67	0.67	1.00E+00	3.19E-02
<i>Fam13a</i>	5.48E-07	0.72	0.88	0.84	1.77E-02	1.76E-05
<i>Rpl27</i>	4.66E-13	0.72	1.00	1.00	1.50E-08	1.00E-10
<i>Cbx3</i>	2.22E-08	0.72	0.94	0.88	7.17E-04	1.24E-06
<i>Bok</i>	8.23E-08	0.72	0.90	0.97	2.66E-03	3.77E-06
<i>Pcbp2</i>	2.42E-09	0.71	0.98	1.00	7.81E-05	1.83E-07
<i>Rps17</i>	1.10E-15	0.70	0.98	1.00	3.54E-11	4.49E-13
<i>Rps25</i>	5.34E-12	0.69	0.98	1.00	1.72E-07	8.52E-10
<i>S100a11</i>	6.03E-09	0.69	0.94	0.99	1.95E-04	4.05E-07
<i>Cdca8</i>	3.32E-03	0.69	0.69	0.56	1.00E+00	1.65E-02
<i>Apoa4</i>	9.54E-06	0.69	0.90	0.83	3.08E-01	1.82E-04
<i>Fam78a</i>	6.44E-05	0.68	0.71	0.61	1.00E+00	8.24E-04
<i>Jak1</i>	7.76E-06	0.68	0.92	0.96	2.50E-01	1.56E-04
<i>Rbbp4</i>	4.08E-05	0.68	0.85	0.90	1.00E+00	5.75E-04
<i>Grb14</i>	1.07E-05	0.68	0.96	0.93	3.47E-01	2.01E-04
<i>Tuba1b</i>	8.03E-10	0.68	0.96	1.00	2.59E-05	6.71E-08
<i>Srsf2</i>	4.79E-08	0.67	0.96	0.98	1.55E-03	2.40E-06

<i>Creb3l2</i>	3.13E-08	0.67	0.92	0.82	1.01E-03	1.74E-06
<i>Psm2</i>	3.53E-09	0.67	0.94	0.98	1.14E-04	2.60E-07
<i>Rpl39</i>	7.42E-10	0.66	1.00	1.00	2.40E-05	6.39E-08
<i>Rcc2</i>	1.13E-06	0.66	0.88	0.89	3.65E-02	3.22E-05
<i>Thbs1</i>	5.67E-05	0.66	0.90	0.94	1.00E+00	7.50E-04
<i>Ssr3</i>	1.07E-07	0.66	0.92	1.00	3.46E-03	4.64E-06
<i>Spin2c</i>	7.31E-06	0.65	0.71	0.57	2.36E-01	1.50E-04
<i>Foxo1</i>	5.21E-06	0.65	0.92	0.90	1.68E-01	1.15E-04
<i>Derl3</i>	5.20E-06	0.65	0.90	0.79	1.68E-01	1.15E-04
<i>Jam2</i>	8.29E-04	0.65	0.79	0.82	1.00E+00	5.89E-03
<i>Pcna</i>	1.88E-04	0.65	0.88	0.89	1.00E+00	1.90E-03
<i>Sri</i>	5.26E-06	0.64	0.90	0.91	1.70E-01	1.15E-04
<i>Lsm5</i>	1.55E-07	0.64	0.88	0.80	5.02E-03	6.25E-06
<i>Mdfic</i>	1.02E-04	0.64	0.77	0.77	1.00E+00	1.17E-03
<i>Bend4</i>	4.05E-06	0.64	0.71	0.58	1.31E-01	9.32E-05
<i>Aqp8</i>	6.81E-10	0.63	0.42	0.03	2.20E-05	5.99E-08
<i>Tenm4</i>	1.66E-07	0.62	0.92	0.99	5.36E-03	6.62E-06
<i>Nmral1</i>	2.02E-04	0.62	0.63	0.40	1.00E+00	2.00E-03
<i>Zfp277</i>	5.17E-03	0.61	0.73	0.72	1.00E+00	2.29E-02
<i>Ppp4c</i>	3.63E-04	0.61	0.71	0.66	1.00E+00	3.13E-03
<i>Elobl</i>	9.47E-03	0.61	0.58	0.90	1.00E+00	3.53E-02
<i>Gm49336</i>	2.96E-04	0.61	0.63	0.51	1.00E+00	2.72E-03
<i>Large2</i>	5.21E-07	0.61	0.54	0.22	1.68E-02	1.68E-05
<i>Rgs2</i>	8.05E-07	0.61	0.94	1.00	2.60E-02	2.41E-05
<i>Larp1</i>	3.31E-03	0.61	0.73	0.73	1.00E+00	1.64E-02
<i>Bmp15</i>	1.48E-02	0.60	0.67	0.54	1.00E+00	4.88E-02
<i>Gm10260</i>	7.88E-07	0.60	0.98	0.98	2.54E-02	2.37E-05
<i>Kars</i>	8.40E-05	0.60	0.77	0.81	1.00E+00	1.01E-03
<i>Rpl36</i>	6.64E-11	0.60	1.00	1.00	2.14E-06	7.52E-09
<i>Arhgap28</i>	1.21E-03	0.60	0.71	0.76	1.00E+00	7.85E-03
<i>Tkt</i>	2.23E-07	0.60	0.92	0.92	7.19E-03	8.38E-06
<i>Tut4</i>	4.13E-06	0.60	0.81	0.78	1.33E-01	9.46E-05
<i>Arhgap31</i>	3.91E-05	0.60	0.90	0.89	1.00E+00	5.59E-04
<i>Ybx1</i>	2.01E-06	0.59	0.92	0.99	6.49E-02	5.20E-05
<i>Ranbp1</i>	1.05E-07	0.59	0.94	1.00	3.38E-03	4.56E-06
<i>Mrpl33</i>	4.82E-07	0.58	0.96	1.00	1.56E-02	1.58E-05
<i>Atl2</i>	7.46E-06	0.58	0.73	0.56	2.41E-01	1.52E-04
<i>Gm9961</i>	2.97E-04	0.58	0.52	0.33	1.00E+00	2.73E-03
<i>Nectin1</i>	2.14E-04	0.58	0.58	0.41	1.00E+00	2.09E-03
<i>Grem2</i>	9.41E-06	0.58	0.85	0.76	3.04E-01	1.80E-04
<i>Ruvbl2</i>	1.28E-02	0.57	0.75	0.81	1.00E+00	4.37E-02
<i>Soat1</i>	1.74E-06	0.56	0.92	0.95	5.61E-02	4.57E-05
<i>Cables1</i>	1.08E-04	0.56	0.90	0.91	1.00E+00	1.22E-03
<i>Gpsm1</i>	3.08E-04	0.56	0.83	0.88	1.00E+00	2.78E-03
<i>Arhgef7</i>	1.12E-04	0.56	0.73	0.70	1.00E+00	1.25E-03
<i>Taf4b</i>	3.04E-04	0.56	0.50	0.29	1.00E+00	2.77E-03
<i>Sfpq</i>	1.37E-04	0.56	0.88	0.89	1.00E+00	1.48E-03

<i>Mras</i>	4.76E-05	0.56	0.90	0.96	1.00E+00	6.54E-04
<i>Tmsb15b2</i>	2.34E-04	0.56	0.77	0.74	1.00E+00	2.23E-03
<i>Prdx4</i>	1.78E-05	0.56	0.92	0.91	5.74E-01	3.02E-04
<i>Npm1</i>	3.71E-09	0.56	0.98	1.00	1.20E-04	2.66E-07
<i>Trim8</i>	4.60E-03	0.56	0.67	0.75	1.00E+00	2.09E-02
<i>H2afx</i>	1.76E-05	0.56	0.81	0.76	5.68E-01	3.00E-04
<i>Rps6</i>	4.01E-15	0.55	0.98	1.00	1.30E-10	1.57E-12
<i>Ptms</i>	5.06E-06	0.55	0.96	0.98	1.63E-01	1.12E-04
<i>Cyp1b1</i>	1.62E-04	0.55	0.81	0.86	1.00E+00	1.69E-03
<i>Pfn1</i>	1.42E-06	0.55	0.98	1.00	4.58E-02	3.94E-05
<i>Ppp2r5c</i>	1.60E-03	0.55	0.75	0.79	1.00E+00	9.68E-03
<i>Hnrnpd</i>	2.50E-03	0.55	0.75	0.78	1.00E+00	1.34E-02
<i>Ndufa12</i>	5.69E-06	0.55	0.92	1.00	1.84E-01	1.23E-04
<i>Fam83d</i>	1.51E-04	0.55	0.65	0.48	1.00E+00	1.61E-03
<i>Wdr59</i>	7.06E-06	0.55	0.71	0.56	2.28E-01	1.46E-04
<i>Fbxw8</i>	3.17E-05	0.54	0.85	0.87	1.00E+00	4.77E-04
<i>Nap1l1</i>	7.85E-05	0.54	0.94	1.00	1.00E+00	9.53E-04
<i>Mrpl2</i>	3.48E-05	0.53	0.79	0.77	1.00E+00	5.09E-04
<i>Sec23a</i>	2.49E-04	0.53	0.67	0.55	1.00E+00	2.35E-03
<i>Eif3e</i>	2.08E-03	0.53	0.83	0.90	1.00E+00	1.17E-02
<i>Lsm3</i>	1.59E-05	0.53	0.85	0.71	5.15E-01	2.77E-04
<i>Hdac3</i>	2.19E-03	0.53	0.63	0.57	1.00E+00	1.22E-02
<i>Rps19</i>	3.55E-12	0.53	1.00	1.00	1.15E-07	6.51E-10
<i>Rps23</i>	1.94E-11	0.53	1.00	1.00	6.27E-07	2.53E-09
<i>Rps28</i>	1.84E-11	0.52	1.00	1.00	5.93E-07	2.51E-09
<i>Amfr</i>	1.62E-03	0.52	0.88	0.90	1.00E+00	9.76E-03
<i>Mapk1</i>	8.48E-03	0.52	0.83	0.88	1.00E+00	3.26E-02
<i>Rad50</i>	4.26E-03	0.52	0.65	0.60	1.00E+00	1.98E-02
<i>Fam120a</i>	1.42E-03	0.52	0.81	0.93	1.00E+00	8.82E-03
<i>Ncl</i>	1.97E-07	0.52	1.00	1.00	6.34E-03	7.62E-06
<i>Akr1c14</i>	9.19E-05	0.52	0.83	0.83	1.00E+00	1.09E-03
<i>Dnajc10</i>	7.16E-04	0.52	0.77	0.77	1.00E+00	5.25E-03
<i>Adamts19</i>	1.52E-04	0.51	0.69	0.60	1.00E+00	1.62E-03
<i>Cwc27</i>	6.07E-04	0.51	0.58	0.41	1.00E+00	4.65E-03
<i>Snhg3</i>	1.19E-03	0.51	0.77	0.93	1.00E+00	7.73E-03
<i>Sppl3</i>	4.24E-06	0.51	0.90	0.92	1.37E-01	9.64E-05
<i>Ddx21</i>	1.07E-04	0.51	0.71	0.58	1.00E+00	1.21E-03
<i>Eprs</i>	2.70E-03	0.51	0.85	0.88	1.00E+00	1.42E-02
<i>Rbbp7</i>	3.65E-06	0.51	0.98	0.99	1.18E-01	8.63E-05
<i>Med17</i>	1.93E-03	0.51	0.65	0.56	1.00E+00	1.11E-02
<i>Slc6a15</i>	4.67E-04	0.50	0.54	0.35	1.00E+00	3.80E-03
<i>Cdca3</i>	1.12E-03	0.50	0.60	0.47	1.00E+00	7.39E-03
Downregulated DEGs						
<i>Mgp</i>	2.20E-17	-1.64	0.85	1.00	7.10E-13	1.89E-14
<i>Zp3</i>	5.91E-09	-1.62	0.65	0.97	1.91E-04	4.04E-07
<i>Padi6</i>	6.04E-10	-1.58	0.58	0.97	1.95E-05	5.42E-08
<i>Gstm2</i>	4.98E-14	-1.36	0.94	1.00	1.61E-09	1.34E-11

<i>Cpe</i>	1.12E-18	-1.33	0.81	1.00	3.63E-14	2.62E-15
<i>Fth1</i>	5.82E-19	-1.25	1.00	1.00	1.88E-14	2.51E-15
<i>Igfbp5</i>	4.60E-10	-1.18	0.33	0.86	1.48E-05	4.35E-08
<i>Tmsb10</i>	4.17E-17	-1.18	0.94	1.00	1.35E-12	2.99E-14
<i>Cst3</i>	1.57E-16	-1.14	0.96	1.00	5.07E-12	8.45E-14
<i>Timp1</i>	4.53E-05	-1.14	0.67	0.93	1.00E+00	6.27E-04
<i>Myl6</i>	9.71E-18	-1.12	0.96	1.00	3.13E-13	9.29E-15
<i>Hspb1</i>	5.82E-10	-1.08	0.29	0.86	1.88E-05	5.27E-08
<i>Selenow</i>	3.51E-14	-1.08	0.85	1.00	1.13E-09	1.01E-11
<i>Mmp2</i>	1.65E-14	-1.07	0.38	0.95	5.34E-10	5.69E-12
<i>Myl9</i>	6.14E-11	-1.06	0.71	0.99	1.98E-06	7.05E-09
<i>Ifitm3</i>	1.65E-12	-1.06	0.69	1.00	5.34E-08	3.24E-10
<i>Rps4x</i>	5.04E-16	-1.05	0.98	1.00	1.63E-11	2.41E-13
<i>Igfbp6</i>	2.35E-11	-1.03	0.54	0.93	7.60E-07	3.02E-09
<i>Tagln</i>	3.52E-08	-1.02	0.50	0.93	1.14E-03	1.89E-06
<i>Rgcc</i>	7.41E-11	-1.02	0.63	0.95	2.39E-06	8.29E-09
<i>S100a6</i>	3.71E-03	-1.01	1.00	1.00	1.00E+00	1.78E-02
<i>Rarres2</i>	1.21E-11	-1.01	0.73	1.00	3.91E-07	1.77E-09
<i>Clu</i>	1.42E-12	-1.01	0.96	1.00	4.59E-08	2.84E-10
<i>Tmsb4x</i>	8.02E-10	-1.00	0.92	1.00	2.59E-05	6.71E-08
<i>Rps7</i>	2.64E-18	-0.99	1.00	1.00	8.51E-14	3.24E-15
<i>Nupr1</i>	1.08E-05	-0.98	0.90	1.00	3.47E-01	2.01E-04
<i>Actg1</i>	1.52E-18	-0.97	1.00	1.00	4.91E-14	2.62E-15
<i>Hsph1</i>	1.19E-10	-0.97	0.46	0.93	3.83E-06	1.29E-08
<i>Hspe1</i>	5.48E-14	-0.94	0.92	1.00	1.77E-09	1.43E-11
<i>Gpx1</i>	1.74E-14	-0.93	0.90	1.00	5.61E-10	5.75E-12
<i>Fau</i>	5.20E-20	-0.92	0.98	1.00	1.68E-15	4.48E-16
<i>Ly6e</i>	1.73E-10	-0.91	0.58	0.97	5.58E-06	1.85E-08
<i>Tsc22d1</i>	2.25E-14	-0.91	0.98	1.00	7.26E-10	7.14E-12
<i>Cfh</i>	8.98E-12	-0.91	0.88	1.00	2.90E-07	1.38E-09
<i>Cyp11a1</i>	5.92E-06	-0.90	1.00	1.00	1.91E-01	1.27E-04
<i>Cyp17a1</i>	5.64E-07	-0.89	0.54	0.95	1.82E-02	1.80E-05
<i>Rps24</i>	5.65E-18	-0.89	1.00	1.00	1.83E-13	6.09E-15
<i>Cd74</i>	5.69E-10	-0.89	0.29	0.83	1.84E-05	5.21E-08
<i>Fbxw24</i>	3.48E-05	-0.89	0.48	0.85	1.00E+00	5.09E-04
<i>Gramd1a</i>	1.02E-13	-0.87	0.35	0.93	3.31E-09	2.52E-11
<i>Rasd1</i>	1.68E-09	-0.86	0.31	0.84	5.44E-05	1.33E-07
<i>Gm2044</i>	3.19E-08	-0.86	0.48	0.89	1.03E-03	1.76E-06
<i>Ldhb</i>	1.62E-08	-0.85	1.00	1.00	5.22E-04	9.53E-07
<i>Sparc</i>	1.16E-11	-0.85	0.96	1.00	3.76E-07	1.76E-09
<i>Sparcl1</i>	7.99E-09	-0.84	0.67	0.92	2.58E-04	5.17E-07
<i>Col18a1</i>	1.74E-10	-0.84	0.27	0.82	5.63E-06	1.85E-08
<i>Fabp3</i>	4.32E-12	-0.83	0.25	0.86	1.39E-07	7.22E-10
<i>Hspa1b</i>	1.27E-07	-0.82	0.19	0.62	4.10E-03	5.29E-06
<i>Rhoc</i>	1.92E-11	-0.82	0.40	0.93	6.19E-07	2.53E-09
<i>Crip1</i>	3.81E-05	-0.82	0.56	0.88	1.00E+00	5.48E-04
<i>Ccl21a</i>	2.36E-06	-0.81	0.31	0.80	7.63E-02	5.95E-05

<i>Ergic3</i>	3.54E-11	-0.81	0.71	1.00	1.14E-06	4.35E-09
<i>Serpinb6a</i>	2.38E-10	-0.80	0.88	1.00	7.68E-06	2.44E-08
<i>Map1lc3a</i>	1.26E-09	-0.79	0.73	1.00	4.08E-05	1.02E-07
<i>Cox5a</i>	1.68E-11	-0.79	0.85	1.00	5.43E-07	2.41E-09
<i>Atp6v0b</i>	6.93E-10	-0.78	0.73	0.99	2.24E-05	6.03E-08
<i>Gsn</i>	2.38E-10	-0.78	0.31	0.93	7.69E-06	2.44E-08
<i>Selenom</i>	3.69E-08	-0.78	0.71	0.92	1.19E-03	1.96E-06
<i>Zp2</i>	2.15E-04	-0.78	0.67	0.90	1.00E+00	2.09E-03
<i>Nenf</i>	3.87E-12	-0.78	0.92	1.00	1.25E-07	6.81E-10
<i>Agt</i>	2.02E-04	-0.77	0.56	0.91	1.00E+00	2.00E-03
<i>Tpm1</i>	2.87E-10	-0.76	0.92	1.00	9.27E-06	2.88E-08
<i>Cd63</i>	1.78E-11	-0.75	0.92	0.99	5.75E-07	2.51E-09
<i>Ppic</i>	7.79E-10	-0.75	0.67	0.95	2.51E-05	6.64E-08
<i>Mfap4</i>	1.29E-08	-0.75	0.40	0.86	4.17E-04	7.72E-07
<i>Dnaja1</i>	3.88E-08	-0.75	0.88	1.00	1.25E-03	2.04E-06
<i>Spcs1</i>	5.69E-10	-0.74	0.81	1.00	1.84E-05	5.21E-08
<i>Dync1h1</i>	2.94E-09	-0.74	0.71	0.99	9.50E-05	2.20E-07
<i>Dbi</i>	3.71E-11	-0.74	0.90	1.00	1.20E-06	4.49E-09
<i>Zp1</i>	5.21E-05	-0.74	0.35	0.75	1.00E+00	7.02E-04
<i>Gsta4</i>	3.48E-08	-0.73	0.69	1.00	1.12E-03	1.89E-06
<i>Hspa1a</i>	1.46E-06	-0.72	0.10	0.52	4.70E-02	4.00E-05
<i>Map1lc3b</i>	4.10E-10	-0.72	0.75	0.98	1.32E-05	3.96E-08
<i>Psap</i>	4.76E-11	-0.71	0.98	1.00	1.54E-06	5.54E-09
<i>Npc2</i>	3.66E-09	-0.71	0.71	1.00	1.18E-04	2.66E-07
<i>1110008P14Rik</i>	7.77E-12	-0.71	0.50	0.94	2.51E-07	1.22E-09
<i>Acsbg1</i>	4.53E-09	-0.71	0.94	1.00	1.46E-04	3.20E-07
<i>Flna</i>	1.22E-07	-0.70	0.83	0.99	3.95E-03	5.16E-06
<i>Rps3a1</i>	9.91E-16	-0.68	1.00	1.00	3.20E-11	4.27E-13
<i>Lgmn</i>	9.53E-05	-0.68	0.79	0.99	1.00E+00	1.12E-03
<i>AU021092</i>	2.02E-09	-0.68	0.19	0.74	6.52E-05	1.57E-07
<i>Rbp1</i>	4.54E-08	-0.68	0.56	0.97	1.47E-03	2.30E-06
<i>Aldh1a1</i>	4.23E-06	-0.67	0.92	1.00	1.37E-01	9.64E-05
<i>Ddit4l</i>	3.25E-08	-0.67	0.46	0.88	1.05E-03	1.78E-06
<i>Tmem176b</i>	3.67E-07	-0.67	0.85	0.99	1.19E-02	1.26E-05
<i>Mmp11</i>	4.43E-07	-0.67	0.52	0.90	1.43E-02	1.47E-05
<i>Tmem14c</i>	8.52E-08	-0.67	0.77	0.97	2.75E-03	3.86E-06
<i>Rab34</i>	1.02E-08	-0.67	0.48	0.91	3.29E-04	6.31E-07
<i>Adh1</i>	4.75E-07	-0.67	0.35	0.81	1.53E-02	1.56E-05
<i>Mgst1</i>	1.21E-09	-0.66	0.96	1.00	3.92E-05	9.87E-08
<i>Fdx1</i>	1.76E-05	-0.66	0.96	1.00	5.67E-01	3.00E-04
<i>Txnl4a</i>	1.99E-08	-0.66	0.63	0.96	6.43E-04	1.14E-06
<i>Mgarp</i>	1.22E-04	-0.65	0.81	0.97	1.00E+00	1.35E-03
<i>Gstm1</i>	1.08E-05	-0.65	0.92	1.00	3.47E-01	2.01E-04
<i>Mlf2</i>	1.76E-07	-0.65	0.67	0.99	5.68E-03	6.92E-06
<i>Hao2</i>	3.08E-07	-0.65	0.35	0.88	9.95E-03	1.10E-05
<i>Tuba1c</i>	6.21E-09	-0.65	0.46	0.94	2.01E-04	4.12E-07
<i>Grcc10</i>	1.23E-08	-0.65	0.79	1.00	3.98E-04	7.43E-07

<i>Efemp2</i>	3.19E-09	-0.65	0.40	0.89	1.03E-04	2.37E-07
<i>2410006H16Rik</i>	2.15E-08	-0.64	0.83	1.00	6.94E-04	1.22E-06
<i>Arpc1b</i>	3.70E-09	-0.64	0.81	1.00	1.19E-04	2.66E-07
<i>Fis1</i>	1.18E-10	-0.64	0.81	1.00	3.79E-06	1.29E-08
<i>Cops9</i>	9.88E-10	-0.64	0.96	1.00	3.19E-05	8.18E-08
<i>Atpif1</i>	4.11E-12	-0.64	0.98	1.00	1.33E-07	7.08E-10
<i>Ephx1</i>	6.01E-08	-0.63	0.38	0.91	1.94E-03	2.89E-06
<i>Ifitm2</i>	4.31E-09	-0.63	0.92	1.00	1.39E-04	3.07E-07
<i>Vps4b</i>	4.01E-07	-0.63	0.60	0.97	1.29E-02	1.35E-05
<i>Ifitm1</i>	1.38E-07	-0.63	0.44	0.88	4.44E-03	5.59E-06
<i>Serping1</i>	3.73E-07	-0.63	0.40	0.87	1.20E-02	1.28E-05
<i>Egfl7</i>	8.16E-07	-0.63	0.46	0.88	2.64E-02	2.42E-05
<i>Bcas2</i>	1.04E-07	-0.63	0.65	0.93	3.36E-03	4.55E-06
<i>Rps8</i>	3.87E-14	-0.63	1.00	1.00	1.25E-09	1.07E-11
<i>Clic1</i>	9.79E-08	-0.62	0.56	0.94	3.16E-03	4.30E-06
<i>Hcfc1r1</i>	4.82E-08	-0.62	0.77	1.00	1.56E-03	2.40E-06
<i>Ctla2a</i>	5.42E-03	-0.62	0.31	0.67	1.00E+00	2.37E-02
<i>Dcn</i>	1.45E-05	-0.62	0.58	0.93	4.68E-01	2.55E-04
<i>Zar1</i>	1.05E-03	-0.61	0.71	0.90	1.00E+00	7.03E-03
<i>Srp14</i>	1.18E-08	-0.61	0.79	1.00	3.79E-04	7.23E-07
<i>Cmtm3</i>	4.24E-08	-0.61	0.56	0.96	1.37E-03	2.19E-06
<i>Cxcl14</i>	2.75E-07	-0.61	0.38	0.82	8.87E-03	9.94E-06
<i>Gabarap</i>	2.47E-07	-0.60	0.85	0.99	7.99E-03	9.07E-06
<i>Pacs2</i>	6.35E-08	-0.60	0.42	0.93	2.05E-03	3.00E-06
<i>Srp9</i>	7.61E-08	-0.60	0.69	0.98	2.46E-03	3.51E-06
<i>Cald1</i>	8.98E-08	-0.60	0.44	0.92	2.90E-03	4.05E-06
<i>Mat2a</i>	2.80E-07	-0.60	0.69	0.95	9.02E-03	1.00E-05
<i>Tbc1d10a</i>	2.03E-09	-0.60	0.23	0.80	6.55E-05	1.57E-07
<i>Aldh2</i>	9.13E-08	-0.60	0.88	1.00	2.95E-03	4.10E-06
<i>Timp2</i>	2.15E-06	-0.60	0.42	0.82	6.94E-02	5.51E-05
<i>Col6a3</i>	1.96E-08	-0.59	0.38	0.93	6.34E-04	1.14E-06
<i>Ecm1</i>	6.43E-07	-0.59	0.33	0.79	2.08E-02	1.99E-05
<i>Pcsk6</i>	6.83E-07	-0.59	0.25	0.75	2.21E-02	2.10E-05
<i>Crip2</i>	6.38E-09	-0.59	0.31	0.85	2.06E-04	4.20E-07
<i>Dynll1</i>	5.26E-06	-0.59	0.96	1.00	1.70E-01	1.15E-04
<i>Laptn4b</i>	6.84E-06	-0.59	0.75	0.97	2.21E-01	1.42E-04
<i>Dst</i>	1.63E-07	-0.59	0.44	0.87	5.27E-03	6.54E-06
<i>Wt1</i>	9.70E-06	-0.59	0.46	0.81	3.13E-01	1.85E-04
<i>Adamts10</i>	5.17E-07	-0.58	0.58	0.93	1.67E-02	1.67E-05
<i>Tspan4</i>	7.41E-07	-0.58	0.71	0.97	2.39E-02	2.26E-05
<i>Wfdc10</i>	2.60E-03	-0.58	0.67	0.88	1.00E+00	1.38E-02
<i>Cst12</i>	1.39E-06	-0.58	0.54	0.87	4.49E-02	3.88E-05
<i>Ypel5</i>	4.37E-08	-0.58	0.42	0.93	1.41E-03	2.23E-06
<i>Pin1</i>	1.32E-07	-0.58	0.60	0.97	4.28E-03	5.46E-06
<i>Sqstm1</i>	1.36E-06	-0.58	0.81	1.00	4.38E-02	3.80E-05
<i>Mea1</i>	1.98E-07	-0.57	0.75	0.97	6.39E-03	7.65E-06
<i>Anapc11</i>	1.95E-07	-0.57	0.65	0.98	6.29E-03	7.60E-06

<i>Idh2</i>	1.18E-07	-0.57	0.67	1.00	3.80E-03	5.02E-06
<i>Cd81</i>	4.27E-08	-0.57	0.94	1.00	1.38E-03	2.19E-06
<i>Mcrip1</i>	4.30E-07	-0.57	0.58	0.97	1.39E-02	1.44E-05
<i>Swi5</i>	3.80E-08	-0.57	0.96	1.00	1.23E-03	2.01E-06
<i>Fkbp1a</i>	5.13E-07	-0.57	0.81	1.00	1.66E-02	1.67E-05
<i>Bad</i>	5.22E-09	-0.57	0.33	0.85	1.69E-04	3.63E-07
<i>Dnajc15</i>	4.81E-06	-0.57	0.90	0.97	1.55E-01	1.07E-04
<i>Gm43269</i>	1.34E-05	-0.57	0.10	0.44	4.34E-01	2.39E-04
<i>Pfdn5</i>	1.82E-10	-0.57	1.00	1.00	5.88E-06	1.91E-08
<i>H2-D1</i>	7.19E-06	-0.57	0.67	0.90	2.32E-01	1.48E-04
<i>Fasn</i>	6.24E-07	-0.56	0.63	0.96	2.01E-02	1.95E-05
<i>Col16a1</i>	7.13E-08	-0.56	0.27	0.76	2.30E-03	3.30E-06
<i>Cdc42ep5</i>	2.75E-06	-0.56	0.60	0.93	8.87E-02	6.78E-05
<i>Rpl8</i>	8.80E-13	-0.56	0.98	1.00	2.84E-08	1.80E-10
<i>Axl</i>	2.53E-06	-0.55	0.60	0.94	8.15E-02	6.27E-05
<i>Rps27a</i>	2.95E-13	-0.55	1.00	1.00	9.51E-09	6.50E-11
<i>C87977</i>	9.18E-04	-0.55	0.35	0.64	1.00E+00	6.37E-03
<i>Prmt2</i>	1.21E-09	-0.55	0.25	0.85	3.92E-05	9.87E-08
<i>H2-Aa</i>	1.06E-06	-0.55	0.33	0.79	3.42E-02	3.04E-05
<i>Cd9</i>	2.37E-07	-0.55	0.48	0.93	7.67E-03	8.78E-06
<i>Htra3</i>	2.41E-05	-0.55	0.54	0.91	7.79E-01	3.78E-04
<i>Itm2c</i>	1.00E-06	-0.55	0.73	0.98	3.23E-02	2.89E-05
<i>Smdt1</i>	3.75E-06	-0.55	0.83	1.00	1.21E-01	8.83E-05
<i>Nisch</i>	2.74E-07	-0.55	0.92	1.00	8.84E-03	9.94E-06
<i>Gamt</i>	1.24E-07	-0.55	0.56	0.99	4.00E-03	5.20E-06
<i>H2-K1</i>	6.42E-06	-0.55	0.77	0.99	2.07E-01	1.35E-04
<i>Rpl22</i>	1.94E-11	-0.55	0.98	1.00	6.27E-07	2.53E-09
<i>Ubb</i>	3.37E-10	-0.55	1.00	1.00	1.09E-05	3.30E-08
<i>Mrps12</i>	2.63E-06	-0.54	0.63	0.93	8.49E-02	6.51E-05
<i>Fam32a</i>	2.00E-08	-0.54	0.56	0.93	6.44E-04	1.14E-06
<i>Spag9</i>	2.99E-06	-0.54	0.67	0.96	9.65E-02	7.27E-05
<i>Emp3</i>	1.18E-05	-0.54	0.69	0.96	3.81E-01	2.15E-04
<i>Smoc2</i>	3.39E-05	-0.54	0.88	1.00	1.00E+00	5.00E-04
<i>Clstn1</i>	6.43E-07	-0.54	0.42	0.82	2.08E-02	1.99E-05
<i>Rps20</i>	7.57E-13	-0.54	1.00	1.00	2.44E-08	1.59E-10
<i>Gadd45g</i>	1.69E-06	-0.53	0.52	0.94	5.46E-02	4.51E-05
<i>Pja1</i>	5.73E-07	-0.53	0.56	0.96	1.85E-02	1.81E-05
<i>Idnk</i>	1.85E-08	-0.53	0.27	0.78	5.99E-04	1.09E-06
<i>Fdxr</i>	8.55E-06	-0.53	0.88	1.00	2.76E-01	1.67E-04
<i>Fxyd6</i>	1.60E-06	-0.53	0.29	0.76	5.15E-02	4.31E-05
<i>Pmepa1</i>	2.01E-08	-0.53	0.25	0.76	6.48E-04	1.14E-06
<i>Rsrp1</i>	1.81E-06	-0.53	0.83	0.99	5.84E-02	4.74E-05
<i>Nudt5</i>	5.51E-06	-0.53	0.33	0.80	1.78E-01	1.19E-04
<i>Ier2</i>	7.27E-05	-0.52	0.46	0.82	1.00E+00	8.99E-04
<i>Tmem60</i>	6.38E-08	-0.52	0.27	0.79	2.06E-03	3.00E-06
<i>Hspa8</i>	1.69E-05	-0.52	0.98	1.00	5.46E-01	2.90E-04
<i>Mt3</i>	7.75E-06	-0.52	0.44	0.88	2.50E-01	1.56E-04

<i>Cygb</i>	4.50E-06	-0.52	0.50	0.90	1.45E-01	1.01E-04
<i>Mrpl18</i>	4.60E-06	-0.52	0.54	0.94	1.48E-01	1.03E-04
<i>Tmem208</i>	3.28E-07	-0.52	0.54	0.91	1.06E-02	1.15E-05
<i>Pdlim4</i>	8.14E-07	-0.52	0.35	0.83	2.63E-02	2.42E-05
<i>Actr3b</i>	2.19E-07	-0.52	0.40	0.87	7.06E-03	8.29E-06
<i>Gbp2</i>	7.89E-06	-0.52	0.13	0.52	2.55E-01	1.58E-04
<i>Auh</i>	1.69E-07	-0.51	0.42	0.88	5.45E-03	6.70E-06
<i>Smim1</i>	9.02E-05	-0.51	0.60	0.87	1.00E+00	1.07E-03
<i>Ypel3</i>	6.17E-06	-0.51	0.67	0.96	1.99E-01	1.31E-04
<i>Fads1</i>	3.31E-06	-0.51	0.44	0.94	1.07E-01	7.87E-05
<i>Eif1</i>	3.54E-08	-0.51	0.96	1.00	1.14E-03	1.89E-06
<i>Hmgn1</i>	1.67E-06	-0.51	0.96	1.00	5.40E-02	4.47E-05
<i>ApoE</i>	5.17E-04	-0.51	0.92	0.99	1.00E+00	4.09E-03
<i>Astl</i>	5.40E-06	-0.51	0.29	0.69	1.74E-01	1.17E-04
<i>Zfyve21</i>	3.84E-06	-0.51	0.60	0.95	1.24E-01	8.96E-05
<i>Arl6ip5</i>	9.23E-07	-0.51	0.27	0.69	2.98E-02	2.70E-05
<i>Bsg</i>	6.79E-08	-0.51	0.94	1.00	2.19E-03	3.18E-06
<i>Vkorc1</i>	4.90E-08	-0.50	0.73	0.99	1.58E-03	2.43E-06
<i>Manbal</i>	3.47E-07	-0.50	0.35	0.87	1.12E-02	1.21E-05
<i>Rps19bp1</i>	9.62E-07	-0.50	0.52	0.93	3.11E-02	2.79E-05
<i>Anxa3</i>	2.27E-07	-0.50	0.35	0.80	7.34E-03	8.48E-06
<i>Nedd8</i>	3.97E-07	-0.50	0.96	1.00	1.28E-02	1.35E-05

Table S11. Genes differentially expressed between advanced aged and young mice in FC4. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value; FDR - FDR-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj	FDR
Upregulated DEGs						
<i>Lhcgr</i>	2.63E-09	1.50	0.94	0.92	8.50E-05	2.17E-06
<i>Hao2</i>	3.86E-09	1.11	0.93	0.90	1.25E-04	2.79E-06
<i>Csrp2</i>	8.80E-07	1.10	0.96	0.98	2.84E-02	1.34E-04
<i>Clu</i>	3.17E-11	1.10	0.99	1.00	1.02E-06	6.87E-08
<i>Comp</i>	2.43E-04	0.98	0.64	0.31	1.00E+00	8.51E-03
<i>Tmsb15b2</i>	5.47E-08	0.96	0.94	0.92	1.77E-03	1.61E-05
<i>Adh1</i>	2.75E-09	0.94	0.90	0.76	8.89E-05	2.17E-06
<i>Nppc</i>	5.13E-05	0.93	0.85	0.76	1.00E+00	2.76E-03
<i>Masp1</i>	1.02E-05	0.91	0.91	0.82	3.29E-01	8.42E-04
<i>Rhox8</i>	9.69E-08	0.90	0.70	0.29	3.13E-03	2.51E-05
<i>Cited2</i>	8.73E-09	0.88	0.96	0.78	2.82E-04	5.04E-06
<i>Gsta4</i>	3.16E-06	0.85	0.95	0.98	1.02E-01	3.30E-04
<i>Timp1</i>	2.84E-05	0.84	0.96	0.90	9.18E-01	1.84E-03
<i>Prkar2b</i>	2.51E-06	0.82	0.96	1.00	8.11E-02	2.90E-04
<i>H2-D1</i>	3.94E-08	0.82	0.92	0.92	1.27E-03	1.41E-05
<i>Dbi</i>	6.15E-13	0.82	1.00	1.00	1.99E-08	1.78E-09
<i>Dcn</i>	8.32E-05	0.81	0.91	0.74	1.00E+00	3.76E-03
<i>Fat1</i>	3.02E-06	0.80	0.91	0.78	9.74E-02	3.30E-04
<i>Srbd1</i>	7.41E-05	0.76	0.76	0.53	1.00E+00	3.51E-03
<i>Tsc22d1</i>	2.22E-09	0.76	1.00	1.00	7.17E-05	2.17E-06
<i>Greb1</i>	4.06E-04	0.73	1.00	1.00	1.00E+00	1.18E-02
<i>Dnajc15</i>	9.77E-07	0.72	0.95	0.96	3.15E-02	1.46E-04
<i>1110032F04Rik</i>	1.67E-04	0.70	0.72	0.61	1.00E+00	6.57E-03
<i>Hbb-bs</i>	8.53E-04	0.69	0.52	0.25	1.00E+00	1.98E-02
<i>Cyp19a1</i>	4.39E-04	0.69	0.77	0.57	1.00E+00	1.25E-02
<i>Cpe</i>	8.18E-06	0.69	0.99	1.00	2.64E-01	7.38E-04
<i>Ddit4l</i>	2.30E-05	0.68	0.91	0.84	7.42E-01	1.56E-03
<i>Akr1c13</i>	1.43E-06	0.66	0.57	0.22	4.62E-02	1.94E-04
<i>Wfdc17</i>	1.60E-06	0.65	0.57	0.16	5.16E-02	2.08E-04
<i>Grem1</i>	8.58E-04	0.64	0.75	0.69	1.00E+00	1.98E-02
<i>1500011B03Rik</i>	1.36E-07	0.64	0.87	0.86	4.39E-03	3.02E-05
<i>Fabp4</i>	1.80E-04	0.64	0.48	0.20	1.00E+00	6.95E-03
<i>Acsbg1</i>	4.15E-05	0.62	0.99	1.00	1.00E+00	2.38E-03
<i>Hsd17b7</i>	7.90E-04	0.62	0.70	0.59	1.00E+00	1.89E-02
<i>Mgarp</i>	1.15E-07	0.62	0.99	0.98	3.72E-03	2.77E-05
<i>Lrp11</i>	7.96E-05	0.62	0.50	0.20	1.00E+00	3.65E-03
<i>Gja1</i>	1.13E-05	0.61	1.00	1.00	3.65E-01	9.14E-04
<i>Glo1</i>	2.10E-06	0.61	0.89	0.94	6.77E-02	2.49E-04
<i>1810058I24Rik</i>	4.62E-08	0.60	0.97	0.98	1.49E-03	1.43E-05
<i>Inhba</i>	1.24E-03	0.57	0.99	0.94	1.00E+00	2.57E-02

<i>Elovl6</i>	1.02E-05	0.57	0.83	0.61	3.29E-01	8.42E-04
<i>Plxnc1</i>	3.82E-04	0.57	0.95	0.96	1.00E+00	1.14E-02
<i>Ndufs4</i>	1.26E-04	0.56	0.95	0.98	1.00E+00	5.27E-03
<i>Gstm2</i>	3.01E-05	0.56	0.98	1.00	9.71E-01	1.92E-03
<i>C1qtnf6</i>	9.87E-08	0.55	0.91	0.80	3.19E-03	2.51E-05
<i>Gabarapl2</i>	3.00E-08	0.55	0.95	0.96	9.69E-04	1.18E-05
<i>Tmsb10</i>	2.21E-08	0.54	1.00	1.00	7.14E-04	1.01E-05
<i>Fth1</i>	1.36E-05	0.54	1.00	1.00	4.41E-01	1.02E-03
<i>Prss35</i>	8.19E-04	0.54	0.92	0.78	1.00E+00	1.93E-02
<i>Tom1l1</i>	1.68E-03	0.53	0.87	0.94	1.00E+00	3.17E-02
<i>Ift20</i>	5.95E-07	0.52	0.95	0.98	1.92E-02	9.73E-05
<i>Med10</i>	1.43E-07	0.52	0.97	0.96	4.60E-03	3.09E-05
<i>Serp2</i>	2.71E-03	0.52	0.34	0.12	1.00E+00	4.19E-02
<i>Cycs</i>	7.04E-04	0.52	0.89	0.90	1.00E+00	1.77E-02
<i>Tyrobp</i>	1.01E-04	0.51	0.61	0.33	1.00E+00	4.43E-03
<i>H2-K1</i>	9.35E-06	0.51	0.99	1.00	3.02E-01	8.10E-04
<i>Vps29</i>	7.86E-06	0.51	0.89	0.76	2.54E-01	7.17E-04
<i>Micos10</i>	5.56E-08	0.51	0.97	0.98	1.80E-03	1.61E-05
<i>Selenok</i>	2.62E-06	0.50	0.99	1.00	8.45E-02	2.98E-04
<i>Fabp3</i>	3.81E-04	0.50	0.80	0.78	1.00E+00	1.14E-02
Downregulated DEGs						
<i>Gpx3</i>	4.87E-05	-1.39	0.99	1.00	1.00E+00	2.65E-03
<i>AA465934</i>	4.33E-07	-1.28	0.14	0.47	1.40E-02	7.73E-05
<i>Sectm1b</i>	2.46E-13	-1.16	0.00	0.47	7.95E-09	1.07E-09
<i>Efemp1</i>	3.63E-10	-1.06	0.60	0.92	1.17E-05	5.26E-07
<i>Thbs4</i>	3.00E-08	-0.99	0.87	0.98	9.68E-04	1.18E-05
<i>Wsb1</i>	1.31E-04	-0.98	0.66	0.84	1.00E+00	5.41E-03
<i>Sema7a</i>	4.60E-07	-0.97	0.59	0.92	1.49E-02	7.98E-05
<i>Star</i>	1.61E-06	-0.95	0.99	1.00	5.19E-02	2.08E-04
<i>Tnc</i>	1.22E-03	-0.94	0.75	0.90	1.00E+00	2.57E-02
<i>S100a6</i>	1.68E-05	-0.93	1.00	1.00	5.41E-01	1.24E-03
<i>Abcb1b</i>	3.57E-06	-0.93	0.70	0.90	1.15E-01	3.68E-04
<i>Gm10320</i>	1.43E-13	-0.89	0.30	0.92	4.62E-09	1.07E-09
<i>Rgcc</i>	2.03E-08	-0.88	0.80	1.00	6.54E-04	9.94E-06
<i>Trim8</i>	4.14E-07	-0.86	0.59	0.94	1.34E-02	7.63E-05
<i>Cyp4f18</i>	9.82E-08	-0.81	0.66	0.86	3.17E-03	2.51E-05
<i>Slc38a5</i>	5.15E-06	-0.80	0.68	0.88	1.66E-01	5.07E-04
<i>Rgs2</i>	5.79E-06	-0.79	0.88	0.90	1.87E-01	5.64E-04
<i>Cables1</i>	3.64E-10	-0.77	0.57	0.94	1.18E-05	5.26E-07
<i>Nnat</i>	1.36E-07	-0.75	0.49	0.82	4.39E-03	3.02E-05
<i>Kcnk3</i>	7.00E-04	-0.72	0.52	0.80	1.00E+00	1.77E-02
<i>Slc18a2</i>	4.38E-09	-0.71	0.24	0.65	1.41E-04	2.83E-06
<i>Apoa4</i>	3.97E-08	-0.71	0.70	1.00	1.28E-03	1.41E-05
<i>Vegfa</i>	4.82E-04	-0.71	0.62	0.80	1.00E+00	1.32E-02
<i>Synpo</i>	5.68E-07	-0.70	0.76	0.94	1.83E-02	9.46E-05
<i>Rasl10a</i>	2.26E-07	-0.68	0.58	0.92	7.31E-03	4.56E-05
<i>Sema3g</i>	2.00E-03	-0.65	0.51	0.78	1.00E+00	3.54E-02

<i>Dsp</i>	2.07E-08	-0.64	0.26	0.67	6.67E-04	9.94E-06
<i>Npr2</i>	2.30E-03	-0.63	0.65	0.88	1.00E+00	3.84E-02
<i>Mfsd2a</i>	1.12E-03	-0.61	0.39	0.63	1.00E+00	2.41E-02
<i>Sdc3</i>	3.60E-05	-0.60	0.66	0.92	1.00E+00	2.18E-03
<i>Zmym3</i>	1.26E-06	-0.60	0.77	0.96	4.06E-02	1.76E-04
<i>Tmem178</i>	1.24E-03	-0.59	0.44	0.67	1.00E+00	2.57E-02
<i>Hspb1</i>	1.41E-03	-0.59	0.49	0.69	1.00E+00	2.81E-02
<i>Kazald1</i>	3.67E-05	-0.59	0.37	0.69	1.00E+00	2.20E-03
<i>Nectin1</i>	2.95E-06	-0.58	0.35	0.69	9.53E-02	3.28E-04
<i>Carhsp1</i>	1.20E-06	-0.58	0.97	1.00	3.89E-02	1.71E-04
<i>Ccnl2</i>	2.83E-04	-0.58	0.92	1.00	1.00E+00	9.49E-03
<i>Derl3</i>	8.98E-08	-0.58	0.40	0.82	2.90E-03	2.51E-05
<i>Foxo1</i>	4.94E-06	-0.58	0.94	0.98	1.59E-01	4.92E-04
<i>Mycl</i>	1.28E-09	-0.58	0.20	0.67	4.13E-05	1.58E-06
<i>Plin4</i>	4.74E-05	-0.57	0.42	0.74	1.00E+00	2.61E-03
<i>Hsd11b2</i>	4.37E-07	-0.57	0.55	0.90	1.41E-02	7.73E-05
<i>Gm47015</i>	2.85E-06	-0.57	0.15	0.49	9.20E-02	3.21E-04
<i>Rgs11</i>	3.30E-05	-0.56	0.39	0.74	1.00E+00	2.04E-03
<i>Metap1d</i>	1.03E-03	-0.54	0.50	0.74	1.00E+00	2.27E-02
<i>Marc2</i>	7.35E-05	-0.53	0.79	0.92	1.00E+00	3.50E-03
<i>Igf1</i>	2.71E-04	-0.53	0.83	0.94	1.00E+00	9.22E-03
<i>Sytl4</i>	8.18E-07	-0.52	0.59	0.88	2.64E-02	1.27E-04
<i>Cyp2s1</i>	4.28E-08	-0.52	0.18	0.63	1.38E-03	1.41E-05
<i>Col6a5</i>	5.69E-04	-0.52	0.60	0.78	1.00E+00	1.51E-02
<i>Rnf19a</i>	1.90E-06	-0.52	0.64	0.92	6.13E-02	2.28E-04
<i>Plagl1</i>	2.36E-09	-0.52	0.27	0.76	7.63E-05	2.17E-06
<i>Srsf1</i>	1.06E-03	-0.52	0.90	1.00	1.00E+00	2.32E-02
<i>Thbs1</i>	1.70E-06	-0.51	0.89	1.00	5.49E-02	2.15E-04
<i>A730049H05Rik</i>	1.42E-03	-0.51	0.29	0.49	1.00E+00	2.82E-02
<i>Mylk</i>	2.08E-03	-0.50	0.59	0.78	1.00E+00	3.62E-02

Table S12. Genes differentially expressed between advanced aged and young mice in FC5. (p_val - p-value; avg_log2FC - average log2 fold change; pct.1 - the proportion of spots expressing specific gene in condition 1; pct.2 - the proportion of spots expressing specific gene in condition 2; p_val_adj - bonferroni-corrected p value; FDR - FDR-corrected p value)

gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj	FDR
Upregulated DEGs						
<i>mt-Atp6</i>	4.09E-06	1.48	0.96	1.00	1.32E-01	8.87E-04
<i>mt-Nd2</i>	1.34E-05	1.26	0.96	0.93	4.34E-01	2.02E-03
<i>mt-Co2</i>	6.44E-05	1.18	1.00	1.00	1.00E+00	6.03E-03
<i>mt-Nd3</i>	6.70E-06	1.17	0.87	0.54	2.16E-01	1.22E-03
<i>mt-Nd4</i>	2.38E-06	1.12	1.00	0.99	7.70E-02	5.30E-04
<i>Soat1</i>	5.03E-11	1.09	1.00	0.88	1.62E-06	4.47E-07
<i>mt-Nd1</i>	1.84E-05	1.04	1.00	0.99	5.95E-01	2.65E-03
<i>mt-Co3</i>	3.56E-04	1.00	1.00	1.00	1.00E+00	1.71E-02
<i>Rpl39</i>	5.60E-07	0.98	1.00	1.00	1.81E-02	1.78E-04
<i>Scand1</i>	5.91E-06	0.94	0.96	0.61	1.91E-01	1.17E-03
<i>Znrf1</i>	1.13E-08	0.90	1.00	0.87	3.64E-04	1.00E-05
<i>Rps29</i>	1.65E-06	0.80	1.00	1.00	5.34E-02	3.97E-04
<i>Hnrnpa0</i>	1.64E-08	0.78	1.00	0.85	5.28E-04	1.32E-05
<i>Defb19</i>	6.29E-06	0.78	1.00	0.87	2.03E-01	1.18E-03
<i>mt-Co1</i>	6.44E-05	0.77	1.00	1.00	1.00E+00	6.03E-03
<i>Sfrp4</i>	2.08E-06	0.77	1.00	0.97	6.71E-02	4.87E-04
<i>Mycl</i>	2.67E-05	0.76	1.00	0.96	8.62E-01	3.35E-03
<i>Bok</i>	1.04E-06	0.75	1.00	0.96	3.35E-02	2.71E-04
<i>Txndc5</i>	2.33E-07	0.74	1.00	1.00	7.51E-03	9.41E-05
<i>Gm42418</i>	9.27E-05	0.73	0.96	0.93	1.00E+00	7.11E-03
<i>Rpl36</i>	5.82E-06	0.72	1.00	1.00	1.88E-01	1.17E-03
<i>Vcan</i>	8.63E-05	0.71	0.83	0.64	1.00E+00	6.97E-03
<i>Rps28</i>	6.58E-08	0.69	1.00	1.00	2.12E-03	3.08E-05
<i>Srsf5</i>	5.07E-08	0.69	1.00	0.94	1.64E-03	2.82E-05
<i>Rpl37a</i>	1.92E-05	0.68	1.00	1.00	6.21E-01	2.71E-03
<i>Nrn1</i>	1.57E-03	0.67	0.74	0.61	1.00E+00	4.32E-02
<i>Ndufb1-ps</i>	3.01E-08	0.67	1.00	0.97	9.70E-04	2.06E-05
<i>Spin2c</i>	1.32E-05	0.67	0.87	0.73	4.26E-01	2.02E-03
<i>Rpl17</i>	1.15E-04	0.66	1.00	1.00	1.00E+00	8.10E-03
<i>Gas6</i>	1.07E-05	0.66	1.00	0.99	3.44E-01	1.76E-03
<i>Rbm3</i>	2.18E-06	0.66	1.00	0.99	7.03E-02	4.97E-04
<i>Rps27</i>	1.94E-03	0.65	0.91	0.91	1.00E+00	4.91E-02
<i>Map1b</i>	2.16E-05	0.65	0.96	0.88	6.96E-01	2.95E-03
<i>Tmsb15b2</i>	3.69E-05	0.64	1.00	0.78	1.00E+00	4.33E-03
<i>Thbs1</i>	1.37E-03	0.62	1.00	0.90	1.00E+00	3.96E-02
<i>Cyp1b1</i>	1.02E-04	0.61	0.96	0.79	1.00E+00	7.53E-03
<i>C130074G19Rik</i>	2.64E-04	0.60	0.96	0.85	1.00E+00	1.43E-02
<i>Actb</i>	6.41E-04	0.59	1.00	1.00	1.00E+00	2.49E-02
<i>Arhgef7</i>	3.30E-04	0.57	0.87	0.67	1.00E+00	1.63E-02
<i>Atp5e</i>	6.35E-06	0.57	1.00	1.00	2.05E-01	1.18E-03

<i>Mex3c</i>	4.17E-05	0.55	1.00	0.96	1.00E+00	4.81E-03
<i>St3gal5</i>	4.24E-04	0.55	0.87	0.78	1.00E+00	1.93E-02
<i>Mrpl33</i>	5.33E-06	0.55	1.00	1.00	1.72E-01	1.10E-03
<i>Lsm5</i>	8.12E-04	0.55	0.91	0.79	1.00E+00	2.86E-02
<i>Tnc</i>	1.25E-03	0.54	0.91	0.69	1.00E+00	3.77E-02
<i>Nfia</i>	1.74E-04	0.54	0.87	0.61	1.00E+00	1.11E-02
<i>Gm10260</i>	1.60E-04	0.53	1.00	0.94	1.00E+00	1.05E-02
<i>Fam120a</i>	1.16E-04	0.53	0.96	0.90	1.00E+00	8.10E-03
<i>Taf1d</i>	8.03E-04	0.53	0.87	0.88	1.00E+00	2.86E-02
<i>Ost4</i>	1.26E-05	0.53	1.00	1.00	4.08E-01	1.97E-03
<i>Psmg4</i>	3.65E-04	0.53	1.00	0.85	1.00E+00	1.75E-02
<i>Snhg3</i>	3.31E-04	0.52	1.00	0.91	1.00E+00	1.63E-02
<i>Wdr59</i>	3.00E-04	0.52	0.91	0.75	1.00E+00	1.53E-02
<i>Taf10</i>	2.36E-05	0.52	0.96	0.72	7.63E-01	3.05E-03
<i>Bcar3</i>	3.23E-04	0.52	0.78	0.45	1.00E+00	1.61E-02
<i>Plxnb2</i>	2.00E-04	0.51	0.96	0.94	1.00E+00	1.20E-02
<i>Arf3</i>	1.75E-04	0.51	1.00	0.73	1.00E+00	1.11E-02
<i>Gm11361</i>	8.42E-05	0.51	1.00	0.91	1.00E+00	6.89E-03
<i>Fam13a</i>	9.58E-04	0.50	1.00	0.99	1.00E+00	3.16E-02
Downregulated DEGs						
<i>Hsph1</i>	1.07E-10	-1.47	0.52	0.97	3.44E-06	4.74E-07
<i>Slc38a5</i>	2.40E-04	-1.01	0.91	0.96	1.00E+00	1.34E-02
<i>Rgcc</i>	1.22E-06	-0.93	0.96	0.96	3.94E-02	3.10E-04
<i>Dnaja1</i>	1.86E-08	-0.91	0.96	1.00	6.01E-04	1.38E-05
<i>Rps4x</i>	3.21E-09	-0.91	1.00	1.00	1.04E-04	3.57E-06
<i>Fth1</i>	5.09E-07	-0.90	1.00	1.00	1.64E-02	1.68E-04
<i>Hspe1</i>	3.57E-10	-0.88	1.00	1.00	1.15E-05	7.93E-07
<i>Txnl4a</i>	3.70E-07	-0.87	0.87	0.96	1.19E-02	1.37E-04
<i>Hsp90aa1</i>	4.12E-08	-0.86	0.91	1.00	1.33E-03	2.62E-05
<i>Mgp</i>	2.09E-05	-0.84	1.00	1.00	6.74E-01	2.90E-03
<i>Hsbp1</i>	1.54E-09	-0.83	0.96	1.00	4.96E-05	2.60E-06
<i>Cyp17a1</i>	6.38E-05	-0.82	0.78	0.94	1.00E+00	6.03E-03
<i>Cfh</i>	4.51E-07	-0.81	0.96	0.99	1.45E-02	1.60E-04
<i>Fam162a</i>	1.28E-07	-0.76	0.96	1.00	4.12E-03	5.41E-05
<i>Hspa8</i>	2.98E-10	-0.75	1.00	1.00	9.63E-06	7.93E-07
<i>Mrps6</i>	5.86E-07	-0.74	0.87	0.97	1.89E-02	1.80E-04
<i>Hspb1</i>	5.56E-04	-0.74	0.35	0.67	1.00E+00	2.27E-02
<i>Nnat</i>	4.24E-04	-0.72	0.91	0.94	1.00E+00	1.93E-02
<i>Dynll1</i>	5.93E-08	-0.72	1.00	1.00	1.92E-03	3.08E-05
<i>Rps24</i>	2.04E-09	-0.71	1.00	1.00	6.60E-05	2.60E-06
<i>Snx3</i>	3.62E-07	-0.70	1.00	1.00	1.17E-02	1.37E-04
<i>Anapc11</i>	6.33E-06	-0.66	0.83	0.97	2.04E-01	1.18E-03
<i>Hspa1b</i>	2.19E-05	-0.66	0.04	0.57	7.08E-01	2.95E-03
<i>Cyb5a</i>	1.02E-05	-0.65	1.00	1.00	3.30E-01	1.72E-03
<i>Ctsl</i>	6.78E-07	-0.64	1.00	1.00	2.19E-02	2.01E-04
<i>Rps3a1</i>	1.93E-09	-0.64	1.00	1.00	6.23E-05	2.60E-06
<i>Bex3</i>	8.20E-07	-0.63	1.00	1.00	2.65E-02	2.28E-04

<i>Rpl4</i>	1.86E-04	-0.63	1.00	1.00	1.00E+00	1.17E-02
<i>Tsc22d1</i>	1.02E-04	-0.63	1.00	1.00	1.00E+00	7.53E-03
<i>Creld2</i>	1.41E-04	-0.63	0.87	0.99	1.00E+00	9.42E-03
<i>Naca</i>	6.25E-08	-0.60	1.00	1.00	2.02E-03	3.08E-05
<i>Swi5</i>	9.01E-07	-0.60	1.00	1.00	2.91E-02	2.43E-04
<i>Myl6</i>	8.24E-06	-0.60	1.00	1.00	2.66E-01	1.47E-03
<i>Atp6v0b</i>	3.70E-05	-0.59	0.96	1.00	1.00E+00	4.33E-03
<i>Bcas2</i>	8.12E-05	-0.58	0.91	0.97	1.00E+00	6.88E-03
<i>8030451A03Rik</i>	1.15E-04	-0.58	0.65	0.90	1.00E+00	8.10E-03
<i>Bex1</i>	8.77E-05	-0.58	0.70	0.93	1.00E+00	6.97E-03
<i>Gabarap</i>	4.85E-07	-0.56	1.00	1.00	1.56E-02	1.66E-04
<i>Eif2s2</i>	7.23E-05	-0.56	0.96	0.97	1.00E+00	6.37E-03
<i>Hmgn1</i>	1.63E-05	-0.56	1.00	1.00	5.25E-01	2.37E-03
<i>Pgk1</i>	5.39E-05	-0.55	0.96	0.99	1.00E+00	5.35E-03
<i>Tmem176b</i>	7.33E-04	-0.55	0.83	0.97	1.00E+00	2.70E-02
<i>Selenow</i>	7.52E-05	-0.55	0.96	1.00	1.00E+00	6.49E-03
<i>Mfap5</i>	6.89E-05	-0.55	0.44	0.76	1.00E+00	6.37E-03
<i>Sparc</i>	6.41E-04	-0.55	1.00	1.00	1.00E+00	2.49E-02
<i>Spcs1</i>	9.79E-06	-0.54	1.00	1.00	3.16E-01	1.71E-03
<i>Hao2</i>	2.11E-04	-0.54	0.70	0.87	1.00E+00	1.24E-02
<i>Tmem147</i>	1.19E-04	-0.54	1.00	1.00	1.00E+00	8.21E-03
<i>Gpx1</i>	1.93E-04	-0.54	1.00	1.00	1.00E+00	1.18E-02
<i>Manf</i>	2.27E-05	-0.54	1.00	1.00	7.32E-01	3.01E-03
<i>Nisch</i>	2.88E-04	-0.53	1.00	1.00	1.00E+00	1.52E-02
<i>Stip1</i>	9.84E-05	-0.53	0.96	0.97	1.00E+00	7.42E-03
<i>Tmem50a</i>	7.58E-04	-0.53	0.83	0.97	1.00E+00	2.76E-02
<i>Srp14</i>	1.50E-05	-0.52	0.91	1.00	4.83E-01	2.22E-03
<i>Mgst1</i>	1.02E-04	-0.52	1.00	1.00	1.00E+00	7.53E-03
<i>Ywhah</i>	5.05E-04	-0.52	1.00	0.99	1.00E+00	2.20E-02
<i>Fabp3</i>	1.47E-03	-0.52	0.44	0.75	1.00E+00	4.13E-02
<i>Hcfc1r1</i>	1.10E-04	-0.52	0.91	0.99	1.00E+00	7.91E-03
<i>Ypel3</i>	5.90E-05	-0.52	0.83	0.93	1.00E+00	5.75E-03
<i>Gtf3c6</i>	2.07E-04	-0.52	0.91	0.96	1.00E+00	1.23E-02
<i>Cacybp</i>	1.10E-04	-0.51	0.91	0.99	1.00E+00	7.91E-03
<i>Tmem14c</i>	2.36E-05	-0.51	0.91	0.97	7.62E-01	3.05E-03
<i>Cpe</i>	1.66E-03	-0.51	1.00	1.00	1.00E+00	4.50E-02
<i>Nedd8</i>	1.11E-05	-0.50	1.00	1.00	3.59E-01	1.80E-03

Chapter 5

General Discussion and Conclusions

5.1 Significance of the Research Findings

Maintaining normal female reproductive function depends on two key ovarian physiological events including steroidogenesis and oocyte maturation. The former synthesises indispensable steroid hormones such as androgens in theca cells or oestrogens in granulosa cells, while the latter provides a metaphase II oocyte with fertilisation capability. To synthesise androgens and oestrogens, the electron transport chains (ETC) behind steroidogenic enzymes such as cytochrome P450 side-chain cleavage (gene *CYP11A1*), P450 17 α -hydroxylase 17,20 lyase (gene *CYP17A1*) and P450 aromatase (gene *CYP19A1*) is indispensable to make those enzymes functional. Involvement of ETCs is associated with leakage of electrons and the formation of dangerous reactive oxygen species (ROS) as seen with oxidative phosphorylation in mitochondria. To protect cells from ROS, non-enzymatic and enzymatic antioxidant systems in cells are required. However, if ROS overwhelm the antioxidant systems in the ovarian environment, oxidative stress may impair follicular oocyte quality. Furthermore, a positive correlation between ovarian aging and steroidogenic activity has been observed, indicating a potential higher risk of exposing the follicular oocyte to oxidative stress in older ovaries due to steroidogenesis-induced ROS. So far, there are few studies showing the interplay between steroidogenesis, ROS and antioxidants in granulosa cells. A comprehensive analysis to explore the key regulators during oocyte maturation and how ovarian aging regulates steroidogenesis, antioxidant genes and oocyte quality is also lacking. In this thesis, we sought to provide some insights regarding those interesting research gaps.

In Chapter 2, we examined KGN cells from the perspective of ROS, antioxidants and steroidogenesis and compared them to primary granulosa cells. Notably, we demonstrated that a significant upregulation of *CYP11A1* and *CYP19A1* after 1 mM dbcAMP or 10 μ M forskolin treatments occurs, whereas *FDX1* and *FDXR*, the electron donors required for *CYP11A1* activity, remained unchanged or decreased. *POR*, the electron donor for *CYP19A1*, was only increased with forskolin. This lack of stimulation of ETC in KGN cells may be due to much lower amounts of oestrogen produced compared to primary granulosa cells (Nishi *et al.*, 2001). Redox partners are generally expressed in excess and therefore an induction of steroidogenesis in KGN cells might still not require an upregulation of *FDXR*, *FDX* and *POR* to fulfil the increase in enzymatic activity. Most of the antioxidant genes (*GPX1*, *GPX8*, *SOD1*, *CAT*, *PRDX1*, *PRDX3*, *PRDX4*, *TXN2*, *TXNRD2* and *TXNRD3*) were not affected by either treatment. *SOD2*, *GSR* and *TXN* were significantly decreased and *PRDX2* was significantly increased by dbcAMP, while forskolin treatment caused a significant decrease of *GPX3* and *PRDX6*. *LRP8*

and *TXNRD1* were significantly downregulated by both treatments. The regulation of those antioxidant genes in KGN cells are contrary to primary granulosa cells where the upregulation of specific antioxidants such as *GPX1* and *TXN* counterbalance increased ROS produced by elevation of steroidogenesis (Ceko *et al.* , 2015, Kishi *et al.* , 2016). *TXNRD1*, *TXN* and *PRDX1* were the most highly expressed antioxidant genes in KGN cells. Stimulation of steroidogenesis resulted in no significant extracellular ROS levels or intracellular DNA damage. So, what might be the reason for this? Using public RNA sequencing data we compared KGN cells to human primary granulosa cells, and showed that KGN cells have substantially higher *TXNRD1* levels compared to human primary granulosa cells. These observations are consistent with the suggestion that any additional ROS produced in the KGN cells under stimulation could be still scavenged by the existing levels of antioxidants. We considered that such high basal levels of *TXNRD1* in KGN cells might affect overall antioxidant responses to steroidogenesis. Therefore, we knocked down *TXNRD1* in KGN cells and subsequently stimulated them with 1 mM dbcAMP. Surprisingly, this resulted in a significant decrease in *CYP11A1* and *CYP19A1*, whereas *POR* was significantly increased. Zaidi *et al.* had done similar observation, where a deficiency in *Sod2* in mice ovaries resulted in downregulation of *Star*, *Cyp11a1*, *Cyp17a1* and *Cyp19a1* (Zaidi *et al.* , 2021). Moreover, exposure to hydrogen peroxide inhibited progesterone production in rat granulosa cells stimulated with LH, cholera toxin, forskolin, and 8-bromo-cAMP (Margolin *et al.* , 1990). These findings suggest that steroidogenic cells, including KGN cells, have a system that recognises when the antioxidant system is likely to become overwhelmed, leading to a shutdown of steroidogenesis as a protective measure to avoid additional production of ROS. We further found *GSR* and *TXN* were significantly increased, whereas *GPX8* expression significantly declined in the cells irrespective of dbcAMP treatment. *POR*, *GPX3*, *SOD2* and *PRDX6* were only significantly elevated in *TXNRD1*-deficient cells without dbcAMP treatment. These results illustrate that *TXN-PRDX6* and *GPX3-SOD2* in *TXNRD1*-deficient KGN cells might serve as predominant antioxidant systems instead of *TXNRD1-TXN-PRDX1* in normal KGN cells. Thus, KGN cells differ from human primary granulosa cells in expression of steroidogenic and antioxidant genes whilst still showing downregulated steroidogenesis activity when the antioxidant system is impaired. These findings indicate that KGN cells might not be an appropriate model for human primary granulosa cells since distinctly regulating the interplay of steroidogenesis and antioxidant defence system. The unique expression profile of steroidogenic and antioxidant genes in KGN cells are neglected by most of researchers and should be concerned, especially doing steroidogenic and ROS study on KGN cells.

In Chapter 3, we present a high-quality transcriptome profile of pig oocytes at germinal vesicle (GV) and metaphase II (MII) stage and additionally of oocytes with a lower developmental competence (referring to oocytes without first polar body after *in vitro* incubation), which allowed us to explore major regulators across oocyte development. A public human oocyte RNA sequencing dataset was also employed for a comparative study. We found pig MII oocytes were similar to oocytes with lower developmental competence (no visible polar body) with no differentially expressed genes (DEGs) found by traditional differential expression (DE) analysis. Recent studies also found that developmentally delayed oocytes without first polar body after incubation have MII-like transcriptomic profile and these oocytes are still developmentally competent even though showing lower overall developmental competence than MII oocytes (Hu *et al.* , 2023, Moon *et al.* , 2023). Therefore, we assumed that those ‘damaged’ oocytes were still developmentally competent but were delayed in their development with postponed extrusion of first polar body.

By performing differential transcript usage (DTU) analysis we did find differences in the expression of isoform transcripts. Two genes (*DTNBP1* and *RAB4B*) had down-regulated isoforms without changing the overall gene expression. Interestingly, those two genes have been associated with oocyte/embryo progression (El-Jouni *et al.* , 2007, He *et al.* , 2002, Miao *et al.* , 2019, Salilew-Wondim *et al.* , 2010). We combined pig MII oocytes and damaged oocytes for further analysis (“MIX”). A DE analysis comparing pig MIX versus GV found 2,654 DEGs, whereas 3,696 DEGs were identified by comparing MII versus GV in human. Those DEGs identified in both datasets were abundant in chromosome segregation- and mitochondria-relevant pathways, which are essential for oocyte maturation. Previous studies have shown that the expression of ATP dependent microtubule-based motor proteins, such as *Kif4a*, *Kif18a* in mouse or *KIF11* in pig is required for oocyte development (Tang *et al.* , 2018a, Tang *et al.* , 2018b, Wan *et al.* , 2018). Consistent with this, we found in our study that some kinesin genes such as *KIF15*, *KIF18A* and *KIF20B* in pig MIX oocytes and *KIF4B*, *KIF5B*, *KIF5C* as well as *KIF20B* in human MII oocytes had significantly higher expression, suggesting that those kinesins were highly expressed during GV to MII transition, thereby facilitating oocyte maturation. Additionally, other genes including *NEDD1* and *CEP192*, which have been shown to be required for spindle assembly in the mouse oocyte (Clift and Schuh, 2015, So *et al.* , 2019), were expressed higher in pig MIX and human MII oocytes, respectively, compared to the GV stage. Furthermore, *SGO1*, *SGO2*, *CDC40* or *CDC42*, key genes regulating chromosome segregation and cell cycle as previously reported (Ben Yehuda

et al. , 1998, El Yakoubi *et al.* , 2017, Mei *et al.* , 2022, Yin *et al.* , 2013), also had high expression in MIX/MII oocytes in both datasets. Notably, those genes involved in chromosome segregation pathways were conserved during oocyte maturation in pig and human datasets. Moreover, oocyte maturation is an energy-intensive process and a positive correlation between oocyte developmental competence and amount of mitochondria DNA (mtDNA) as well as ATP has been observed (Van Blerkom *et al.* , 1995). Mitochondria rely on electron transport chains (ETC) containing four complexes to synthesise ATP via oxidative phosphorylation (OXPHOS) (Lemarie and Grimm, 2011). Those complexes are encoded by 92 protein-encoding genes, of which 79 genes are encoded by nuclear DNA and 13 genes are encoded by mtDNA (Mukherjee and Ghosh, 2020).

We examined those mtDNA- and nuclear DNA-encoded OXPHOS genes during oocyte maturation and found in both datasets most of mtDNA-encoded OXPHOS genes were upregulated, while nuclear-encoded OXPHOS genes were downregulated. The downregulation of most of the nuclear DNA-encoded OXPHOS genes may be associated with decreasing mitochondrial workload in MII oocytes compared to GV oocytes, which has been examined in bovine oocytes (Sugimura *et al.* , 2012). All DE ribosomal genes were downregulated in pig MIX oocytes. In human MII oocytes, 50% of DE ribosomal genes were downregulated and the other 50% were upregulated. Such different regulation of ribosomal genes during oocyte maturation between pig and human may be explained by the different time point (pig: four-cell stage; human: eight-cell stage) for embryonic genome activation (EGA) between human and pig (Cao *et al.* , 2014, Leng *et al.* , 2019). Another alternative possible reason for this difference is the different oocyte maturation system between two datasets – *in vitro* (IVT) maturation of our pig dataset and *in vivo* (IVV) maturation at public human dataset. Previous study has shown that the global transcriptome profile is generally similar between IVV and IVT oocytes, however, IVV oocytes have higher non-CpG methylation rate than IVT oocytes (Ye *et al.* , 2020). Since CpG islands normally distribute in the promoter region (Deaton and Bird, 2011) and DNA methylation is associated with gene inactivation (Suzuki and Bird, 2008), such considerably higher CpG methylation rate of IVT oocytes may explain different ribosomal genes expression patterns between the IVT-matured pig oocytes and the IVV-matured human oocytes. Furthermore, DTU analysis comparing MIX versus GV in the pig dataset or MII versus GV in the human dataset found many genes with DTU events (gDTUs) neglected by traditional differential gene expression (DGE) analysis. Those gDTUs were predominantly involved in intracellular transport pathways but using ATPase in pig oocytes and GTPase in

human oocytes. In summary, our analysis established a gene expression atlas of oocytes from GV to MII, identifying the key regulators of oocyte maturation at both gene and transcript isoform level in pig and human.

In Chapter 4, we explored the relationship of steroidogenesis and antioxidant enzymes in the ovary during aging by reanalysing public spatial transcriptomic data from mouse ovaries. We concisely identified the major cell types of the ovarian follicle, especially distinguishing between mature granulosa cells and immature granulosa cells. A DGE analysis was done to reveal gene expression differences regarding steroidogenesis and antioxidants in distinct ovarian cell types between advanced aged and younger mice. In mature granulosa cells, *Cyp19a1*, *Prdx1* as well as *Prdx2* were highly expressed and *Gpx3* was significantly reduced in advanced aged mice. Such phenomenon is consistent with the previous finding in human that *CYP19A1* expression in dominant follicle granulosa cells of advanced aged women was three times higher than in younger counterparts (Shaw *et al.* , 2015). Given several studies have observed electron leakage in P450 enzymes (Kil *et al.* , 2012, Rapoport *et al.* , 1995), high steroidogenesis activity found in granulosa cells from advanced aged animals or humans could result in ROS production. This in turn may cause ROS damage to follicular oocytes. In immature granulosa cells, *GPX1* was remarkably decreased in advanced aged mice. Similarly, a decrease in *GPX1* was also observed in vascular, lymphatic cells and oocytes in advanced aged mice. It has been reported that *GPX1* increases with follicular development and has a higher expression in the large follicle compared to the small follicle (Ceko *et al.*, 2015), indicating its major antioxidant role to counterbalance potential ROS damage. Therefore, the decreased *Gpx1* in advanced aged mice may impair the antioxidant defence system in the ovary. Other downregulated antioxidant genes were also found in vascular cells (*Prdx1*), lymphatic cells (*Gpx7*, *Gpx8*, *Cat*, *Gsr*, *Sod2*, *Txn2*, *Txnrd2*, *Prdx1* and *Prdx5*) and oocytes (*Gpx3*, *Gsr*, *Sod2*, *Prdx1*, *Prdx2* and *Prdx5*) of advanced aged mice. With aging, such an imbalance between impaired antioxidants and a potential increase in steroidogenesis-induced ROS may lead to aneuploid oocytes. To confirm this, we inferred how autosomal aneuploidies change in aging by calculating the aneuploidy score and found no aneuploidy among oocytes from young mice and 4 aneuploidies among oocytes from older mice. Collectively, our results suggest that ageing impairs the antioxidant response in the follicular environment and leads to increased steroidogenesis in mature granulosa cells. This imbalance of antioxidant and ROS might account for the poor oocyte health observed during ageing.

5.2 Limitations of the Study

The findings of this project have to be seen in light of some limitations. In Chapter 2, we may not have identified some other relevant genes affected by knockdown of *TXNRD1* in KGN cells since we only used qRT-PCR to measure main steroidogenic- and antioxidant-associated genes, which were our focus. A high-throughput sequencing of those *TXNRD1*-deficient samples could have helped to determine the role of *TXNRD1* in KGN cells. The public RNA sequencing profiles of KGN cells and human primary granulosa cells used in Chapter 2 were derived from two different datasets, which may have introduced an unexpected batch effect. To overcome this, even though we put batch information as a covariate when doing DE analysis comparing KGN cells versus human primary granulosa cells, it may or may not be enough to correct for any bias due to batch effect. In Chapter 3, since pig oocytes were matured *in vitro* to MII, there might be some differentially regulated genes that we observed in MII oocytes in the pig simply because of the *in vitro* maturation and not *in vivo* maturation. Moreover, gene expression differences between pig and human MII oocytes may not only be from species differences, but also from maturation strategy used in each species. In Chapter 4, we reanalysed public mouse ovary spatial transcriptomic profiles. The biggest advantage of spatial RNAseq is the ability to capture spatial information, which allows us to know the precise location of cells in the tissue. However, its resolution is not as high as single cell RNA sequencing. Therefore, identified signals are a sum of 5-10 cells. This weakness may decrease the reliability of our DE analysis within one cell type between conditions.

5.3 Future Directions

The following are things to consider for future studies. RNA sequencing analyses of *TXNRD1*-deficient/normal KGN cells under dbcAMP stimulation as conducted in Chapter 2 could be conducted, thereby providing an overview of the physiological role of *TXNRD1* in KGN cells. Besides, Western blot could be conducted to determine those candidate genes expression at protein level. Moreover, an *in vitro* RNAi study targeting *TXNRD1* in human primary granulosa cells (from patients with ovarian tumour underwent a surgery) could also be conducted and comparing the results with KGN cells would delineate the possibly of distinct role in KGN cells versus primary granulosa cells.

The role of key regulators driving oocyte maturation as identified by our RNA sequencing analysis in both pig and human datasets in Chapter 3 could be further expanded by *in vitro* or *in vivo* studies in additional species, such as knocking-down/knocking-out and overexpression

studies. This will further determine their role(s) and whether they are conserved across species. Furthermore, studying the role of inhibition or overexpression of upstream biological/chemical regulators identified in Chapter 3 could enhance our knowledge of oocyte maturation. Additionally, maturation of oocytes in the presence of ROS could be conducted to reveal how key genes required for oocyte maturation change. Moreover, biological upstream regulators such as HNF4A, COPS5, TP53 and MAP4K4 that are common to GV – MII transition in both and human oocytes as well as distinct chemical upstream regulators between human (Actinonin, CD437, GSKJ4 and ST1926) and pig oocytes (Torin 1, 3,5-dihydroxyphenylglycine, Acyline, LH, Metribolone, ST1926 and sirolimus) could be further investigated for their role in oocyte maturation.

Chapter 4 explored the effects of aging on ovarian physiology. Conditional knock-out models of candidate genes involved in aging could be conducted at an organ or cellular level by employing Cre-LoxP system, and at different time points. This would be helpful to identify the molecular mechanism of aging-associated decline in oocyte quality and reduced fertility.

5.4 Concluding Remarks

This project unravelled some of the underlying mechanisms of oocyte maturation and how steroidogenesis in granulosa cells or ovarian aging potentially impairs oocyte quality due to ROS in the ovarian environment. The findings of this study confirm the key genes and pathways required for the transition from a GV oocyte to MII oocyte in two species – pig and human. By comparing these two species, this study also identified conserved genes that ensure correct chromosome segregation in the first meiosis and therefore provide an overview of molecular regulation of oocyte maturation. Moreover, analysis at a transcript level examined such a process in a higher resolution. It also confirms that ovarian aging downregulates most of the antioxidant genes in a different ovarian cell type whilst upregulating steroidogenic genes in antral granulosa cells. Such an impaired antioxidant system and a higher risk of ROS production due to electron leakage in steroidogenesis are likely to have a negative effect on oocyte quality, as shown by more aneuploidy in older oocytes. Also, this project further revealed that KGN cells, a widely used model for studying steroidogenesis *in vitro*, cannot be treated as an equivalent of primary granulosa cells since it has unique features in the expression of steroidogenic and antioxidant genes. Together, this project interprets the interplay of steroidogenesis, ROS and oocyte maturation, providing an overall picture of how to obtain a healthy female gamete from the perspective of ovarian physiological processes.

230 **5.5 References**

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