STUDIES ON ABLASTIN

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ABSTRACT

A study has been made of the properties of ablastin, a factor found in the serum of rats infected with *Trypanosoma lewisi*, which inhibits the parasites' division. Ablastin has been considered to be an IgG antibody.

A culture system was established which supported the *in vitro* growth and division of infective, blood stream forms of *T. lewisi*. In cultures supplemented with normal rat serum, *T. lewisi* incorporated significant concentrations of tritiated thymidine, but this incorporation was inhibited by serum prepared from rats either late in or soon after the infection. This inhibition, which correlated with an absence of division forms in the cultures, was due to ablastin. An assay for ablastin was developed which measured the ability of a serum to inhibit the incorporation of tritiated thymidine by *T. lewisi* cultured *in vitro*.

Metabolic studies indicated that ablastin did not reduce amino acid metabolism and only partially inhibited RNA synthesis. Ablastin inhibited DNA synthesis if it were added to the cultures before the 5th hour, but was without effect if it were added after the 14th hour. The results suggested that ablastin did not inhibit division simply by blocking the uptake of essential metabolic precursors.

A number of physico-chemical characteristics of ablastin differed from those of an IgG anti-SRBC antibody. Ablastin was denatured by exposure to 5M urea and acid at pH 1.8, was resistant to digestion by trypsin, could not be recovered from serum following octanoic acid fractionation and was not precipitated from serum by a goat antibody to rat $F(ab)_2$ fragments.

Ablastin could not be adsorbed from serum by _T. lewisi_ prepared either from blood or _in vitro_ cultures. It was not possible to induce ablastin by any immunisation schedule using a variety of trypanosomal antigen preparations with or without adjuvants. No ablastinic secondary response could be generated by hyperimmunising immune rats. The production of ablastin was not altered in T lymphocyte depleted or splenectomised rats.

These properties of ablastin suggest that it is not an antibody, particularly IgG. Results presented suggest that ablastin is unlikely to be an antibody, lymphokine or monokine, chalone or acute phase reactant.