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THE DISTRIBUTION OF HISTOCOMPATIBILITY ANTIGENS IN THE RABBIT[1]

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SUMMARY

The distribution of the histocompatibility antigens responsible for positive antiglobulin consumption reactions have been studied along with some of the antigens' characteristics. These antigens are present in highest concentration in liver, with kidney being second, muscle and brain third. Little if any were found in spleen and lymph nodes, and none in endocrine tissue. The antigens were found to be rendered nonreactive by lyophilization, repeated freezing and thawing, and heat of 56C for 45 minutes.

In experiments previously published the antiglobulin consumption test (ACT) was adapted to demonstrate serum factors (presumably antibodies, and hereafter referred to as such) occurring in response to skin homografts in rabbits (*8*). Characteristically the ACT became positive 10–14 days after the initial homograft, reactions were maximal between 20–30 days post-graft, and became negative by 42 days. The second set response was prompt and vigorous but by 6 weeks after grafting had again subsided. This pattern of response resembled somewhat an IgM response (*14*), and, indeed, experiments to be published show that these antibodies are IgM, both first- and second-set. This is of interest since cytotoxins (*13*) and antibodies giving positive mixed agglutination reactions are primarily IgG (unpublished observation).

In addition, there is a further difference between this system and others used to demonstrate serum antibodies in transplantation experiments. The ACT as used in this laboratory utilizes as antigens a powder prepared by desiccating an organ suspension. This preparation presumably presents intracellular as well as cell surface antigens to the serum being tested; however, cytotoxicity, leukoagglutination, hemagglutination, and mixed agglutination utilize intact cells to provide antigens, and therefore make available for reaction only those antigens which are on or near the cell surface.

It was therefore of some interest to study the distribution of the histocompatibility antigens responsible for the positive ACT and some of their characteristics. Available information on the distribution of histocompatibility antigens is confined largely to the mouse and antigens determined by the *H-2* locus (*1, 2, 5, 9*). This paper will present data which differ considerably from the data of those excellent studies.

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