ADVANCES IN IMMUNOLOGY

VOLUME 23

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PREFACE

The familiar and somewhat tiresome debate over the relative merits of fundamental versus applied research has if anything intensified in the last few years. This has occurred largely as a result of the greatly increased competition for funds that exists today. It has been fostered to a considerable degree by the "somewhat snobbish attitude of many academics to applied research." The distinction is purely arbitrary; scientific knowledge is a continuum in which every component part can and does feed back on every other. Nowhere is this more clearly apparent than in the field of immunology, as exemplified by the articles in Volume 23.

The first paper is by Dr. Kimishige Ishizaka, the individual primarily responsible for the basic work on IgE antibodies and their role in reaginic hypersensitivity. The initial definitive work was carried out in the human system, and the extension to the cellular regulation of IgE antibodies, the main topic of the review, was continued in various experimental animals. The important role of both helper and suppressor T cells in this regulation is quite apparent. It is still uncertain whether the same cells are involved as those defined for the major immunoglobulin classes. Promising approaches to therapy derived from the animal-model work are discussed.

The work of Dr. T. P. King, author of the second article, has centered on the chemistry of the allergens, a subject which has advanced markedly in the last few years, largely through his efforts. Ragweed pollen allergens have received the most attention, and antigen E, the dominant antigen involved in hypersensitivity, has been isolated and characterized in considerable detail. It consists of two non-identical polypeptide chains with molecular weights of approximately 26,000 and 13,000. Additional ragweed allergens have been isolated, but their significance relative to antigen E remains to be defined. Many other types of allergens have been isolated as well. Of special interest is the current active work on the chemical modification of these isolated proteins for possible therapeutic immunization.

The third article is written by Drs. Dupont, Hansen, and Yunis, and deals primarily with the new and exciting developments in MLC typing in human histocompatibility studies. These workers have played a major role in placing this system on a firm scientific basis. The use of homozygous cells from specific individuals has made it possible to delineate at least six different distinct MLC antigens, and there are clearly more. Some of these can also be recognized by B-cell-specific alloantisera and clearly relate to the Ia antigens of the murine system. It is of special

interest that certain disease associations, as well as the genes involved in certain of the complement components, appear more closely linked to the MLC genes than to the other components of the HLA system.

The last paper covers the somewhat neglected area of the immunology of lipids and glycolipids. The authors, Drs. Marcus and Schwarting, have had wide experience in this field and their contributions have played a major role in current recognition of the significance of these antigens. Suddenly, with the great expansion of interest in cell membranes, the glycolipids have assumed a particular importance and their study by immunological procedures as specific moieties of the cell membrane is receiving great emphasis. Much remains to be learned about the many different types of lipid antigens and their cross reactions, but this review provides the many interested investigators with an up-to-date treatment of the subject.

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Cellular Events in the IgE Antibody Response[1]

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I. Introduction

Since the discovery of IgE in the serum of hay fever patients (45), much progress has been made in the field of reaginic hypersensitivity. It is now established that reaginic hypersensitivity reactions in atopic diseases are mediated by IgE antibody [reviewed by Ishizaka and Ishizaka (53)]. Meanwhile, homocytotropic antibodies, which are similar to human IgE antibodies, were detected in experimental animals. Mota (109) and Binaghi *et al.* (11) first described production of rat "reaginic" antibodies after immunization with antigen plus *Bordetella pertussis* vaccine. Subsequently, antibodies that were capable of sensitizing homologous skin

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