Clinical Cellular Immunology

Molecular and Therapeutic Reviews

Edited by

ALBERT A. LUDERER AND HOWARD H. WEETALL

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Clinical Cellular Immunology

Contemporary Immunology

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Preface

The initial impetus to create a work combining aspects of cellular immunology with their clinical applications grew from the editors' discussions of the area's needs with many of the leaders in the field over a period of time. From the nucleus of ideas that emerged, we have here attempted to create a unified and integrated coverage of the rapidly growing field of cellular immunology research and to trace out—from what seems at times a genuine plethora of important new findings—the many and often important clinical implications.

Because of this approach, the chapters of *Clinical Cellular Immunology* attempt to be more than critical reviews of research and clinical data, going beyond analysis to synthesize working hypotheses about the functional meaning of cellular immunological phenomena and their likely clinical significance. To accomplish this undertaking, the text begins first with a consideration of the molecular aspects of antigen recognition (Luderer and Harvey) and of the ensuing regulatory program initiation (Fathman). Then, the functional subsets of lymphocytes as they interact to produce and control the developing immune response are explored in detail (Sigel et al.), followed by a unique analytical dissection of the action of immunosuppressive agents on the sundry inductive and regulatory immunologic pathways (Sigel et al.).

A majority of the data and conclusions drawn by the authors in the previous chapters arise from work on murine systems, although wherever appropriate, human data has been introduced. But Keller et al., in an interesting dissection of the immunobiology of human non-Hodgkin's lymphomas, add an important dimension to the previous chapters as they demonstrate how the non-Hodgkin's lymphomas appear to represent various functional or prefunctional lymphoid subsets that have been locked at a particular differentiative state by the neoplastic process. Keller et al. then

bridge the gap between mouse and humankind with a good synthesis of functional and molecular evidence showing the general validity of the murine T and B subsets as models for human immunology.

Thorough analyses of cell-mediated immunity in autoimmune disease (Burek, Rose, and Lillehoj) and of tumor immunity (Specter and Friedman) are then presented. These chapters emphasize the contribution of different lymphoid subsets to frank disease. This is especially appropriate since increasingly convincing evidence suggests that pathologic alterations in the T cell regulatory network, especially that of T suppressor cells, are at least partially responsible for the onset of disease.

The elegant and effective means of cell–cell communication that have evolved to modulate the immune response possess real clinical significance, both therapeutically and (possibly) diagnostically. Thus, Maziarz and Gottlieb chose to discuss the group of molecules collectively present in leukocyte diazylates that are operationally termed transfer factor. This is a timely analysis since the literature on the subject is large and both experimental and clinical investigations have proceeded with various transfer factor preparations. The difficulties experienced in drawing clinical conclusions for the establishment of a regular therapeutic role for transfer factor are also likely to be experienced with other immunomodulatory substances (e.g., interferon) as clinical trials are begun. Since many therapeutic regimens will attempt to address replacement of a particular function of a dysfunctional cell population, the proper assay of defective cell function(s) becomes a necessity. To this end, Fudenberg et al. describe a battery of immunologic tests for the diagnosis and monitoring of defects in immunodeficiency.

In the final chapter, Guarnatta and Parkhouse summarize the experimental approaches to the hybridization of lymphocytes. It is appropriate to end the text with the technical aspects of hybridoma production since this technology is currently redefining the cell surfaces of the lymphocyte subsets and both neoplastic and normal cells. In addition to the obvious diagnostic significance, therapeutic possibilities exist for specific cytotoxic drug targeting to tumor (primary and metastatic) or for removal of deleterious lymphoid subpopulations, to cite only a few examples. It is our hope that this work will provide a meaningful explanation of cellular immunology as its special relevance to disease processes and clinical medicine begins to emerge.

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