# *In Vitro* Methods in Cell-Mediated and Tumor Immunity

Edited by

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# PREFACE

The cell-mediated immune response is known to be crucially involved in such diverse phenomena as resistance to intracellular parasites (including viral, bacterial, fungal, and protozoal infection), contact allergy, rejection of transplanted organs and tissues, autoimmune disorders, and rejection of tumors. In the five years that have elapsed since the publication of the first volume of "*In Vitro* Methods in Cell-Mediated Immunity" there has been an explosion of interest and knowledge in the field of cell-mediated immunity. *In vitro* methods have been vital at two levels: first, in providing appropriate models and tools for understanding the basic mechanisms which underlie the response *in vivo;* and second, at the clinical level, in establishing useful indices of the actual and potential immune responsiveness of patients. Many of the methods appearing in the first volume had been developed only for animal models and have now been adapted and refined for application to human systems. Many novel techniques, which would not have been dreamed of five years ago, have been introduced for characterizing, separating, and assaying functions of the cell populations involved in cell-mediated immunity.

As is the case in all fields of science, our understanding of cell-mediated immunity can proceed no further than the methods by which it is studied will permit. It is the purpose of this book to make available, as widely as possible, much of the recently developed methodology in cell-mediated immunity so that it may be applied to diverse problems of fundamental and clinical importance. The book should serve both as a guide to investigators who will rely on the methods presented and as a stimulus for development of better methods and wider application of available methods to human disease.

The scope of this volume reflects the tremendous progress made, particularly in two broad areas. The first encompasses the characterization and enrichment of lymphocyte and macrophage populations, the basic cell types mediating the cell-mediated immune response. The second is tumor immunology, which we believe to hold enormous potential clinical importance for vast numbers of people. Because of the complexities and subtleties associated with the various methods and their applications, two expert panels were convened, with the support of the National Cancer Institute, to review critically the "state of the art" in each of the major areas and to evaluate the strengths, limitations, and

applications of the methods. Their contribution has been invaluable in providing a thoughtful and balanced perspective of the field.

We have indeed been privileged to have had such generous cooperation of the many scientists who have recorded their methods in detail for others to use. Because it was simply not feasible to include chapters from all of the many laboratories which have made significant contributions to methods in the field, we have had to select representative methods in a variety of areas, with the realization that those from other outstanding laboratories regrettably could not be included.

We wish to express our deep appreciation to the many people on whom this book depended. We thank Ms. Theodora Polihrom, Ms. Grace Sylvestri, and Ms. Karen Lahey for outstanding secretarial assistance. The expertise of the staff of Academic Press has been invaluable. We gratefully acknowledge the encouragement and advice of Dr. William Terry, the valuable assistance of Mr. William Fitzsimmons, and the support of the National Cancer Institute. We are indebted to Dr. Zanvil Cohn and The Rockefeller University for generously making available their outstanding facilities to the members of the expert panels. And, finally, we wish to express our sincere gratitude to all those contributors and expert panel members who generously agreed to give their valuable time and share their special knowledge with all who read this book.

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*John R. David*

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