Preface

This book has been written for people who already have a knowledge of basic immunology, and who wish to understand in greater depth how the immune system functions. We have concentrated on the central areas of immunology, namely immune recognition, the differentiation and cooperation of immunologically active cells and on immune effector systems. In order to keep the text to a manageable length we have not dwelt on basic data, which may be found elsewhere, on the assumption that readers will already be familiar with them.

This third edition has been completely rewritten to take account of the developments in molecular and cellular immunology which have occurred in the last 5 years. Some areas have faded from prominence, while other subjects which were at the leading edge of research have now found their way into basic textbooks. On the other hand, new technologies have opened up exciting areas which were previously just gaps in our understanding. Particularly notable are the advances in our knowledge of intracellular signalling and second messenger systems, together with the details of antigen-processing and presentation. The development of new transgenic strains and 'knockout' strains has given insight into the functions of particular systems and the degrees of redundancy within the immune system. The families of cytokines continue to expand and the interactive balance of T helper populations is now firmly established as a central pivot of the immune system. The definition and role of the chemokines in the control of inflammation and cell traffic is now viewed as an essential adjunct to the induction and expression of adhesion molecules. Even 'settled areas' such as the complement system continue to throw up surprises, with the description of a new lectin-mediated activation pathway.

The book is broadly divided into 5 main sections. Following the introduction, these sections deal with 1) immune recognition, 2) development of leukocytes, 3) initiation of the immune response, 4) interactions of immunologically active cells and 5) immunological effector systems. The book concludes with a totally new chapter on the ways in which this information is being used to modulate the immune system therapeutically.

As in previous editions, we have selected particular experiments from research papers to explain and illustrate specific points. We would like to acknowledge the work of the many scientists whose studies we have presented in the text and accompanying illustrations. These figures are intended to be illustrative, and many equally good studies have not been mentioned. We have included only those details of experimental designs that are essential to understand the point. Readers who wish to examine precise details of the work and see other supporting experiments are referred to the lists of additional reading at the end of each chapter. These contain the original sources for the experimental studies, together with a number of useful reviews.

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