

# **Cellular and Molecular Immunology**

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# Cellular and Molecular Immunology

SEVENTH EDITION

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**DEDICATION**

*To*

*Ann, Jonathan, Rehana*

*Sheila, Eben, Ariella, Amos, Ezra*

*Honorine, Sohini*

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# PREFACE

This seventh edition of *Cellular and Molecular Immunology* has been significantly rewritten and revised as part of our continuing effort to make the textbook current and, at the same time, preserve the easily understandable style that readers have enjoyed in past editions. We have added new information while striving to emphasize important concepts without increasing the length of the book. We have also changed many sections, when necessary, for increased clarity, accuracy, and completeness.

Among the major changes is a reorganization of the chapters in order to consolidate topics and present information in a more accessible manner. The chapter reorganization includes: a new chapter that discusses immune responses in mucosal tissues and other specialized sites; a new chapter on leukocyte migration, which brings together concepts that were previously discussed in multiple chapters; another new chapter that consolidates the discussions of immune receptors and signaling, which were also previously in several chapters; incorporation of discussions of cytokines into the relevant chapters rather than one chapter cataloging all cytokines; and moving the discussion of autoimmunity into the chapter on tolerance, so the establishment and failure of immunologic tolerance is discussed as one cohesive theme. In addition, the entire book has been updated to include many recent advances in immunology. Some of the topics that have been significantly revised are the inflammasome, the biology of  $T_H17$  cells, and the development and functions of follicular helper T cells. It is remarkable and fascinating to us that new principles continue to emerge from analysis of the complex systems that underlie immune responses. Perhaps one of the most satisfying developments for students of human disease is that basic principles of immunology are now laying the foundation for rational development of new immunologic therapies. Throughout the book, we have tried to emphasize these new therapeutics and the fundamental principles on which they are based.

Another major change in the seventh edition is a new illustration program, in which every figure in the book has been revised. The style of the new figures is based on the strengths of our popular illustrations in past editions, but incorporates many new features such as three dimensionality and new labeling conventions intended to enhance clarity and aesthetics. A large number of new illustrations have been added. We have also continued to improve the clarity of tables, and kept design features such as the use of bold italic text to highlight “take-home messages,” to make the book easy and pleasant to read. The lists of selected readings continue to emphasize recent review articles that provide in-depth coverage of particular topics for the interested reader. We have divided the lists into sections based on themes to help readers find the most useful articles for their needs. A new table listing cytokines, their receptors, and their major cellular sources and functions has been added (Appendix II).

Many individuals have made valuable contributions to this edition. Drs. Richard Blumberg, Lisa Coussens, Jason Cyster, Francis Luscinskas, and Scott Plevy reviewed various sections, and all were generous with advice and comments. We thank Drs. Thorsten Mempel, Uli von Andrian, and Jason Cyster for help with cover illustrations for this and previous editions. Our illustrators, David and Alexandra Baker of DNA Illustrations,

remain full partners in the book and provide invaluable suggestions for clarity and accuracy. Several members of the Elsevier staff played critical roles. Our editor, Bill Schmitt, has been a source of support and encouragement. Our managing editor, Rebecca Gruliow, shepherded the book through its preparation and into production. Lou Forgione is responsible for the design, and Sarah Wunderly took charge of the production stage. Finally, our students were the original inspiration for the first edition of this book, and we remain continually grateful to them, because from them we learn how to think about the science of immunology, and how to communicate knowledge in the clearest and most meaningful way.

ABUL K. ABBAS  
ANDREW H. LICHTMAN  
SHIV PILLAI



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