

CONTENTS

Contributors

vii

1. $\gamma\delta$ T Cells and B Cells

1

Willi K. Born, Yafei Huang, R. Lee Reinhardt, Hua Huang, Deming Sun,
and Rebecca L. O'Brien

- | | |
|---|----|
| 1. Tripartite Adaptive Immune System | 2 |
| 2. $\gamma\delta$ T Cells | 3 |
| 3. Interaction Between $\gamma\delta$ T Cells and B Cells | 13 |
| References | 32 |

2. A Chemoattractant-Guided Walk Through Lymphopoiesis: From Hematopoietic Stem Cells to Mature B Lymphocytes

47

Vivian Y. Lim, Sandra Zehentmeier, Chris Fistonich, and João P. Pereira

- | | |
|---|----|
| 1. Introduction | 48 |
| 2. HSC Niches | 50 |
| 3. Hematopoietic Multipotent Progenitor Niches | 56 |
| 4. Bone Marrow Niches Controlling Lymphoid Lineage Commitment | 57 |
| 5. Transition From ProB to PreB to Immature B Cell | 62 |
| 6. Egress From Bone Marrow | 64 |
| 7. Transitional Differentiation in Periphery | 71 |
| 8. Concluding Remarks | 76 |
| Acknowledgments | 77 |
| References | 77 |

3. Tissue-Specific Diversity and Functions of Conventional Dendritic Cells

89

Dalia Pakalniškytė and Barbara U. Schraml

- | | |
|-------------------------------|-----|
| 1. Dendritic Cell Development | 90 |
| 2. cDCs in Lymphoid Organs | 95 |
| 3. cDCs in Nonlymphoid Organs | 105 |
| 4. Concluding Remarks | 120 |
| Acknowledgments | 121 |
| References | 121 |

4. Regulation of Innate and Adaptive Immunity by TGFβ	137
Aoife Kelly, Stephanie A. Houston, Eleanor Sherwood, Joshua Casulli, and Mark A. Travis	
1. Introduction	138
2. TGF β and the Adaptive Immune System	144
3. TGF β and the Innate Immune System	166
4. Concluding Remarks	204
Acknowledgments	205
References	205
 5. Humanized Immunoglobulin Mice: Models for HIV Vaccine Testing and Studying the Broadly Neutralizing Antibody Problem	 235
Laurent Verkoczy	
1. Overview of the Current State of HIV Vaccine Research	237
2. Characteristics of bnAbs Isolated During Infection and Their Env Targets: Clues for Vaccine Design	239
3. Current Gaps in HIV Vaccinology	251
4. Human Ig KI Models in Elucidating bnAb Tolerance Controls and Testing Ways to Overcome Them	266
5. bnAb KI Models for Testing New HIV Vaccine Strategies	286
6. Ig KI-Related Methodological Advances Relevant for Studying bnAb Development	318
7. Perspectives	333
Acknowledgments	335
References	335