

CONTENTS

Contributors

vii

1. The Interdisciplinary Science of T-cell Recognition

1

Johannes B. Huppa and Mark M. Davis

1. Introduction 2
2. The First Level of Complexity: The Kinetics and Structural Basis of TCR-pMHC Engagement 4
3. The Second Level of Complexity: The TCR-CD3 Complex and Approaches to Answers of How It Works 12
4. The Third Level of Complexity: Antigen Recognition and the Immunological Synapse 23
5. Perspective 40
- Acknowledgments 41
- References 41

2. Residual Immune Dysregulation Syndrome in Treated HIV Infection

51

Michael M. Lederman, Nicholas T. Funderburg, Rafick P. Sekaly,

Nichole R. Klatt, and Peter W. Hunt

1. The Role of Activation and Inflammation in the Natural History of Infection 52
2. Inflammatory and Coagulation Indices Predict Morbidity in Treated HIV Infection 54
3. Persistent CD4+ T Cell Lymphopenia Predicts Clinical Outcomes During ART 55
4. Immune Activation/Inflammation Predicts Morbidity and Mortality During ART 56
5. Failure to Restore Circulating CD4+ T Cells in HIV Infection 58
6. The LN in Treated HIV Infection 59
7. The Gut in Treated HIV Infection 61
8. Other Possible Drivers of Residual Immune Dysregulation in Treated HIV Infection 63
9. Therapeutic Approaches 66
10. Summary 69
- Acknowledgment 69
- References 70

3. Developmental Plasticity of Murine and Human Foxp3⁺ Regulatory T Cells	85
Adrian Liston and Ciriaco A. Piccirillo	
1. Introduction	86
2. Stability and Plasticity of Regulatory T Cells	87
3. A Transient Flexibility Model for Regulatory T Cell Plasticity	89
4. Differences in Foxp3/FOXP3 Between Mice and Humans	98
5. Significance and Future Directions	99
Acknowledgments	101
References	101
4. Logic of the Inflammation-Associated Transcriptional Response	107
Alexander Tarakhovsky	
1. Dynamic of Inflammatory Gene Expression—Bursts and Noise	112
2. Control of Inflammation by RNA Elongation	117
3. Pharmacological Targeting of RNA Elongation by BET Antagonists	120
4. Targeting of Inflammation by Pathogen-Derived Chromatin Modifiers	121
5. Concluding Remarks	125
References	126
5. Structural Basis of Signal Transduction in the TNF Receptor Superfamily	135
Jixi Li, Qian Yin, and Hao Wu	
1. Introduction	136
2. NF- κ B Activation	136
3. TNFR1 and Fas-Induced Apoptosis	141
4. TNFR1-Induced Programmed Necrosis	143
5. Conclusions	147
Acknowledgment	147
References	147
Index	155
Contents of Recent Volumes	161