ADVANCES IN Immunology

EDITED BY

FRANK J. DIXON

The Scripps Research Institute La Jolla, California

ASSOCIATE EDITORS

Frederick Alt
K. Frank Austen
Tadamitsu Kishimoto
Fritz Melchers
Jonathan W. Uhr

VOLUME 73



ACADEMIC PRESS

San Diego London Boston New York Sydney Tokyo Toronto

CONTENTS

ix

CONTRIBUTORS

Mechanisms of Exogenous Antigen Presentation by MHC Class I Molecules <i>in Vitro</i> and <i>in Vivo:</i> Implications for Generating CD8 ⁺ T Cell Responses to Infectious Agents, Tumors, Transplants, and Vaccines	
JONATHAN W. YEWDELL, CHRISTOPHER C. NORBURY, AND JACK R. BENNINK	
 I. Introduction II. Supporting Information III. Processing and Presentation of Exogenous Antigens: Reviewing the Recent Literature IV. Conclusion: Basic Questions References 	1 4 26 63 64
Signal Transduction Pathways That Regulate the Fate of B Lymphocytes Andrew Craxton, Kevin Otipoby, Aimin Jiang, and Edward A. Clark	
 I. Introduction II. B Cell Antigen Receptor Complex III. Coreceptor Regulation of BCR Signaling IV. Regulation of BCR-Induced Responses by CD40 V. CD95/Fas-Mediated Signaling and BCR-Mediated Resistance to CD95/Fas-Induced Death VI. General Comments and Concluding Remarks References 	79 89 106 122 132 134 135
Oral Tolerance: Mechanisms and Therapeutic Applications Ana Faria and Howard L. Weiner	
 I. Introduction II. Mechanisms of Oral Tolerance III. Immune Functions Affected by Oral Tolerance IV. Factors Affecting Oral Tolerance Induction and Maintenance 	153 158 174 178

vi CONTENTS

VI. No VII. On VIII. To IX. To X. Fo	asal Tolerance ther Forms of Antigen-Driven Tolerance reatment of Autoimmune and Inflammatory Diseases in Animals reatment of Autoimmune Diseases in Humans uture Directions	201 203 206 208 225 232 232
Caspases	s and Cytokines: Roles in Inflammation and Autoimmunity	
Јони С. Р	REED	
II. Th III. Ca IV. Ca	he Caspase Family Paspases and Cytokines Ponclusions	265 265 267 287 287
T Cell Dy	vnamics in HIV-1 Infection	
•	Clark, Rob J. de Boer, Katja C. Wolthers, and Frank Miedema	
II. N III. T IV. G V. M VI. W VII. A _J	formal T Cell Renewal from Progenitors Cell Renewal from Progenitors in HIV-1 Infection Cetting Quantitative on CD4 ⁺ T Cell Production Measuring Cell Division with the Ki67 mAb What Is the Cause of CD4 ⁺ T Cell Depletion in HIV-1 Infection? Peppendix: Summarizing in Terms of a Mathematical Model	301 303 305 309 316 320 323 324
Bacterial	CpG DNA Activates Immune Cells to Signal Infectious Danger	
	n Wagner	
I. In		329
III. Bi IV. Se V. C VI. C VII. C VIII. C IX. C	Unraveling Immunobiology Sinding and Cellular Uptake of ODNs equence-Independent Effects of the Backbone EpG DNA Sequence-Specific Effects on B Cells EpG DNA Sequence-Specific Effects on APCs EpG DNA Effects on T Cells EpG[S]ODN Effects on NK Cells EpG Motifs Affect Plasmid DNA Biology in Gene Vaccination	331 333 334 336 338 339 340
XI. Ir	equence-Specific Effects of Poly(G) Motifs mmunosuppressive CpG DNA Motifs cpG-ODN-Mediated Signaling	341 342 342

CONTENTS	vii
----------	-----

XIII. Sensing of Pathogen DNA: Evolutionary Vestige of Foreign I XIV. CpG DNA Acts as Adjuvant for Th1 Responses XV. CpG DNA Mediates Harmful Effects in Vivo XVI. CpG DNA Acts as Adjuvant for Antitumor Responses XVII. CpG DNA Reverts Th2-Oriented Pathology XVIII. CpG DNA Acts as Adjuvant for Mucosal Immunity XIX. CpG DNA Causes Extramedullary Hematopoiesis XX. CpG DNA Activates Human Immune Cells XXI. CpG DNA Mediates Signaling: Stimulation versus Costimulat XXII. CpG DNA Allows MHC Class I-Restricted CTL Responses t Exogeneous Antigens XXIII. Concluding Remarks References	348 349 349 350 351 351 352 tion 352
Neutrophil-Derived Proteins: Selling Cytokines by the Pound	
Marco Antonio Cassatella	
 I. Introduction II. General Features of Cytokine Production by Neutrophils III. Production of Specific Cytokines by Neutrophils in Vitro IV. Production of Cytokines by Neutrophils Isolated from Individent Affected by Different Pathologies V. Modulation of Cytokine Production in Human Neutrophils VI. Molecular Regulation of Cytokine Production in Neutrophils VII. Cytokine Production by Neutrophils in Vivo VIII. Concluding Remarks References 	369 369 373 duals 426 440 447 453 476 479
Murine Models of Thymic Lymphomas: Premalignant Scenarios Amer	nable to
EITAN YEFENOF	
I. Introduction II. Immunobiology of the Thymus in Relation to Lymphomagent III. Thymic Lymphomas of AKR Mice IV. Prelymphoma Cells in AKR Mice V. Carcinogen-Induced Lymphomas VI. Thymic Lymphomas Induced by Fractionated Irradiation VII. RadLV-Induced Lymphomagenesis VIII. Preventive Therapy of Prelymphoma Mice IX. Concluding Remarks References	esis 511 513 514 515 516 518 520 525 530 531
Index Contents of Recent Volumes	541 557