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 65



ACADEMIC PRESS

San Diego London Boston New York Sydney Tokyo Toronto

CONTENTS

ix

Contributors

NF-IL6 and NF-κB in Cytokine Gene Regulation	
Shizuo Akira and Tadamitsu Kishimoto	.*
 I. Introduction II. NF-IL6 III. NF-κΒ IV. Protein—Protein Interaction in Gene Regulation V. Cytokine Gene Regulation VI. Cytokine Induction in NF-IL6 Family Knockout Mice VII. Cytokine Induction in NF-κB Knockout Mice VIII. Conclusion References 	1 11 16 25 29 30 32 33
Transporter Associated with Antigen Processing	
TIM ELLIOTT	
I. Introduction II. ABC Transporters III. Gene Structure of TAP and Its Regulation IV. TAP Protein Structure V. TAP Polymorphism VI. Function of the TAP Complex VII. TAP and MHC Class I Assembly VIII. TAP in Disease IX. Concluding Remarks References	47 56 58 61 71 75 87 92 96

vi CONTENTS

NF-κB as a Freq	uent Target for	Immunosuppressive a	and
Anti-Inflammator	y Molecules		

PATRICK A. BA	EUERLE AND	VIJAY R.	BAICHWAL
---------------	------------	----------	----------

II. IV. V. VI. VII. VIII. IX. X. XI. XII.	Introduction Glucocorticoids and Other Steroid Hormones Cyclosporin A and FK506 Rapamycin Salicylates Antioxidants and Inhibitors of Enzymes Generating Reactive Oxygen Intermediates Anti-TNF- α Antibodies and Gold Compounds in Treatment of Rheumatoid Arthritis Immunosuppressive Activity of cAMP The Bacterial Metabolite Spergualin The Fungal Metabolite Gliotoxin Viral Strategies to Control NF- κ B Conclusion References	111 118 120 121 121 122 123 124 125 126 127 128 132
Mouse and H	e Mammary Tumor Virus: Immunological Interplays between Virus lost	
Sanjiv	VA. LUTHER AND HANS ACHA-ORBEA	
II. III. IV. V. VI.	Introduction Mouse Mammary Tumor Virus Structure of the SAg Protein Immune Response to MMTV T and B Cell Response to Endogenous Mtv Comparison with Other SAgs Conclusions References	139 140 157 167 196 208 211 212
lgA D	eficiency	
Ретен	R D. Burrows and Max D. Cooper	
II. III. IV. V.	Introduction Clinical Manifestations of IgA Deficiency IgA Structure, Production, and Function IgA Deficiency Viewed in the Context of the Genesis of IgA-Producing Cells Relationship of IgAD with Common Variable Immunodeficiency	245 246 248 251 256 256
VII.	Genetic Susceptibility for IgAD and CVID Pathogenesis of IgA Deficiency	260
VIII.	Conclusions References	263 263

vii

407

CONTENTS	Vli
Role of Cellular Immunity in Protection against HIV Infection	
Sarah Rowland-Jones, Rusung Tan, and Andrew McMichael	
 I. Introduction II. Cellular Immunity in the Control of Other Viruses III. CTL Effector Mechanisms IV. HLA and HIV Infection V. The Nature of HIV-Specific CTLs VI. Measurement of HIV-Specific CTLs VII. Role of HIV-Specific CTLs in the Natural History of HIV Infection VIII. Does HIV Escape from the CTL Response? IX. Therapeutic Implications of the Importance of HIV-Specific CTLs X. Conclusions References 	277 278 280 284 286 287 290 311 317 322 323
High Endothelial Venules: Lymphocyte Traffic Control and Controlled Traffic	
GEORG KRAAL AND REINA E. MEBIUS	
 I. Introduction II. Structure of High Endothelial Venules III. Role of HEVs and Lymphocyte Migration IV. In Vitro HEV Binding Assay V. Molecules Determining HEV-Lymphocyte Interactions VI. L Selectin VII. Integrins and Their Role in Lymphocyte-HEV Interactions VIII. CD44 and Lymphocyte Homing IX. Homing Receptor Ligands on High Endothelial Cells X. Additional Molecules on High Endothelial Venules Involved in Lymphocyte Migration XI. Adhesion and Extravasation XII. Adhesion Cascade and Specificity of Lymphocyte Homing XIII. Regulation of the Unique Features of the High Endothelial Venule XIV. Concluding Remarks References 	347 348 350 351 352 352 358 359 360 365 365 365 369 372 379 380
Index	397

CONTENTS OF RECENT VOLUMES