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 68



ACADEMIC PRESS

San Diego London Boston New York Sydney Tokyo Toronto

CONTENTS

CONTRIBUTORS	ix
Posttranscriptional Regulation of mRNAs Important in T Cell Function	
I. Introduction II. Measurement of mRNA Decay Rates III. Measurement of Translation IV. mRNAs Regulated by Posttranscriptional Control V. <i>cis</i> Elements VI. <i>trans</i> Factors VII. Concluding Remarks References	$1 \\ 1 \\ 3 \\ 4 \\ 18 \\ 29 \\ 36 \\ 37 \\$
Molecular and Cellular Mechanisms of T Lymphocyte Apoptosis	
I. Introduction II. Degradation Phase of Apoptosis III. Effector Phase of Apoptosis IV. Initiation Phase of Apoptosis V. Conclusions References	51 54 65 89 122 124
Prenylation of Ras GTPase Superfamily Proteins and Their Function in Immunobiology	
Robert B. Lobell	
 I. Introduction II. The Ras Superfamily Members III. The GTPase Cycle IV. Downstream Signaling Effectors: Ras and the Rho/Rac Connection V. Rho/Rac Effectors VI. Prenylation of the Ras Superfamily Members VII. Prenylation and Processing of CaaX Substrates 	$145 \\ 145 \\ 147 \\ 148 \\ 150 \\ 150 \\ 152$

CONTENTS

VIII. IX. X.	CaaX Prenyltransferases CaaX Protease and Carboxymethyltransferase Bab GGTase-II	$152 \\ 157 \\ 158$
XI.	Role of Prenylation in Membrane Binding and in Protein–Protein Interactions	162
XII. XIII. XIV. XV. XVI. XVII. XVII. XVII. XIX. XX.	Role of Ras GTPase Family Members in Immunobiology: The Ras Pathway The Rho/Rac Pathway and Leukocyte Function Regulation of the Neutrophil NADPH Oxidase by Rac and Rap Regulation of Phospholipase D by RhoA Role of C-Terminal Methylation of Prenylated Proteins in NADPH Oxidase Regulation and Other Leukocyte Functions Role of Rab Proteins in Membrane Transport in Leukocytes Regulation of Vesicular Transport by Rho Proteins Other Prenylated Proteins Prenyltransferase Inhibitors	166 168 169 171 171 172 174 174 175
XXI. XXII.	Effects of Prenylation Inhibitors on Leukocyte Function Conclusion References	178 179 180
Genera Histoco	ation and TAP-Mediated Transport of Peptides for Major	
Frank	Momburg and Günter J. Hämmerling	
I. III. IV. VI. VII. VIII. XII. XII. XII	Introduction TAP as the Principal Peptide Supplier for MHC Class I Molecules Generation of Antigenic Peptides from Endogenous Antigens Peptide Loading of Class I Molecules in the ER TAP Genes and Their Regulation TAP Proteins in Different Species TAP as a Member of the ABC Transporter Superfamily Structure of TAP Molecules <i>In Vitro</i> Assays for Peptide Binding and Transport by TAP Substrate Specificity of Peptide Transport Biochemical Characteristics of Peptide Transport Linking TAP Structure and Function Export of Peptides from the ER Involvement of TAP in Diseases Concluding Remarks References	191 192 205 209 211 213 214 215 218 228 231 233 234 239 240
Adopti Antige	ve Tumor Immunity Mediated by Lymphocytes Bearing Modified n-Specific Receptors	
Тном	as Brocker and Klaus Karjalainen	
I. II. III.	Adoptive Tumor Therapy Single-Chain Fv Receptors New Approaches References	257 258 266 267

Membrane Molecules as Differentiation Antigens of Murine Macrophages

ANDREW J. MCKNIGHT AND SIAMON GORDON

I Introduction	271
II. Differentiation Antigens Expressed by Murine Monocytes	
and Macrophages	271
III. Use of Differentiation Antigens to Characterize Macropha	ges
in Situ and in Vitro	298
IV. Conclusion	303
References	305

Major Histocompatibility Complex-Directed Susceptibility to Rheumatoid Arthritis

GERALD T. NEPOM

I. Introduction	315
II . Mechanisms to Account for the Association of the Shared Epitope	
with RA	318
III Clinical Applications	326
References	327

Immunological Treatment of Autoimmune Diseases

R. KALDEN, F. C. BREEDVELD, H. BURKHARDT, AND G. R. BURMESTER

2000000000		
I.	Introduction	333
II.	Cytokines and Anticytokine-Related Treatment Principles in	
	Autoimmune Diseases	337
Ш.	Anti-CD4 mAb in the Treatment of Autoimmune Diseases	347
IV.	Monoclonal Antibody Treatment against Cell Surface Antigen of	
	T Cells (with the Exception of Anti-CD4)	353
V.	Immunological Treatment Principles in Animal Models of	
	Autoimmune Disease	365
	References	397

INDEX Contents of Recent Volumes vii

419

431