

184 Current Topics in Microbiology and Immunology

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Adhesion in Leukocyte Homing and Differentiation

Edited by D. Dunon, C. R. Mackay
and B. A. Imhof

With 37 Figures and 13 Tables



Springer-Verlag

Berlin Heidelberg New York
London Paris Tokyo
Hong Kong Barcelona
Budapest

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Cover illustration: Colonization of different organs (large spheres) by leukocytes (small spheres) is mediated by adhesion molecules. Leukocyte subsets can also undergo differentiation which is indicated by the colour changing to red. (Designed by André Traunecker, Basel Institute for Immunology.)

Cover design: Harald Lopka, JIvesheim

ISSN 0070-217X

ISBN-13:978-3-642-78255-8

e-ISBN-13:978-3-642-78253-4

DOI: 10.1007/978-3-642-78253-4

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Softcover reprint of the hardcover 1st edition 1993

Library of Congress Catalog Card Number 15-12910

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27/3020-5 4 3 2 1 0 – Printed on acid-free paper.

Preface

This volume of *Current Topics in Microbiology and Immunology* was planned in parallel with an EMBO workshop on cell–cell Interactions in Leukocyte Homing and Differentiation held at the Basel Institute for Immunology in November 1992, and many of the workshop speakers have contributed to it.

Cell adhesion is one of the most dynamic fields of biological research and presented in this book is the current knowledge on the structure and function of the major families of cell adhesion molecules—the integrins, the selectins, the immunoglobulin superfamily, and CD44. Complex interactions between the members of these families mediate diverse adhesion functions, including leukocyte–leukocyte interactions, lymphocyte homing, inflammation, and lymphocyte–stromal cell interaction during hematopoiesis. A great deal of emphasis is placed on the regulatory elements that control the expression and function of adhesion molecules. Cytokines not only induce the expression of certain adhesion molecules, but may also modify their functional status. For instance, the integrins exist in either an inactive nonfunctional form or an active functional form, and a number of intracellular or extracellular stimuli modify integrin function. This is particularly important during leukocyte binding to endothelium and transendothelial migration, which proceeds through a cascade of adhesion events. Although cell adhesion molecules play an important role in many processes, this book concentrates on their role within the immune system. A number of chapters discuss the migration of lymphocytes between hematopoietic organs such as the thymus, lymph nodes, Peyer's patches, and spleen. Other chapters discuss the changes in leukocyte migration during an inflammatory response. The underlying theme in all of these chapters is the regulation and function of cell adhesion molecules.

In brief, this book introduces new aspects of cell adhesion on the molecular and biological level. The tables in the appendix should be especially helpful for newcomers to the field.

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Contents

The Dominance of Antigen-Specific Receptors in Antigen-Specific Immune Responses F. MELCHERS	1
I Adhesion Molecules	
Integrins and Their Ligands A. SONNENBERG	7
Platelet Endothelial Cell Adhesion Molecule (CD31) H.M. DELISSER, P.J. NEWMAN, and S.M. ALBELDA ..	37
CD44: A Multitude of Isoforms with Diverse Functions U. GÜNTHERT	47
The Selectins and Their Ligands D. VESTWEBER	65
II Regulation of Leukocyte–Endothelial Cell Adhesion	
A Model of Leukocyte Adhesion to Vascular Endothelium N. HOGG	79
Regulation of Adhesion Receptor Expression in Endothelial Cells P. DEFILIPPI, L. SILENGO, and G. TARONE	87
Regulation of Leukocyte Recruitment by Proadhesive Cytokines Immobilized on Endothelial Proteoglycan Y. TANAKA, D.H. ADAMS, and S. SHAW	99
III Lymphoid Cell Homing Mechanisms	
Migration of Activated Lymphocytes A. HAMANN and S. REBSTOCK	109

The Peyer's Patch Homing Receptor M.C.-T. HU, B. HOLZMANN, D.T. CROWE, H. NEUHAUS, and I. L. WEISSMAN	125
Pro-T Cell Homing to the Thymus D. DUNON, P. RUIZ, and B.A. IMHOF	139
Quantitative Analysis of Lymphocyte Fluxes In Vivo R. PABST, R. M. BINNS, H. J. ROTHKÖTTER, and J. WESTERMANN	151
Lymphocyte Recirculation and Life Span In Vivo A.J. YOUNG, J.B. HAY, and C.R. MACKAY	161
IV Leukocyte Homing to Inflamed Tissues	
The Contributions of Integrins to Leukocyte Infiltration in Inflamed Tissues T.B. ISSEKUTZ	177
Regulation of Adhesion and Adhesion Molecules in Endothelium by Transforming Growth Factor- β Y. KHEW-GOODALL, J.R. GAMBLE, and M.A. VADAS	187
Transendothelial Migration C.W. SMITH	201
V Adhesion Molecules in Differentiation and Activation of Lymphocytes	
CD44 and Other Cell Interaction Molecules Contributing to B Lymphopoiesis P. W. KINCADE, Q. HE, K. ISHIHARA, K. MIYAKE, J. LESLEY, and R. HYMAN	215
CD4, CD8, and CD2 in T Cell Adhesion and Signaling T.L. COLLINS, W.C. HAHN, B.E. BIERER, and S.J. BURAKOFF	223
Activation and Inactivation of Adhesion Molecules Y. VAN KOOYK and C.G. FIGDOR	235
Appendix	249
Subject Index	257

Contributors

(Their addresses can be found at the beginning of their respective chapters.)

ADAMS D.H.	99	KHEW-GOODALL Y. . .	187
ALBELDA S.M.	37	KINCADE P.W.	215
BIERER B.E.	223	LESLEY J.	215
BINNS R.M.	151	MACKAY C.R.	161
BURAKOFF S.J.	223	MIYAKE K.	215
COLLINS T.L.	223	NEUHAUS H.	125
CROWE D.T.	125	NEWMAN P.J.	37
DeFILIPPI P.	87	PABST R.	151
DeLISSER H.M.	37	REBSTOCK S.	109
DUNON D.	139	ROTHKÖTTER H.J. ...	151
FIGDOR C.G.	235	RUIZ P.	139
GAMBLE J.R.	187	SHAW S.	99
GÜNTHERT U.	47	SILENGO L.	87
HAHN W.C.	223	SMITH C.W.	201
HAMANN A.	109	SONNENBERG A.	7
HAY J.B.	161	TANAKA Y.	99
HE Q.	215	TARONE G.	87
HOGG N.	79	VADAS M.A.	187
HOLZMANN B.	125	VAN KOOYK Y.	235
HU M.C.-T.	125	VESTWEBER D.	65
HYMAN R.	215	WEISSMAN I.L.	125
IMHOF B.A.	139	WESTERMANN J.	151
ISHIHARA K.	215	YOUNG A.J.	161
ISSEKUTZ T.B.	177		