

Book Review

Cellular Adhesion. Molecular Definition to Therapeutic Potential

(New Horizons in Therapeutics. SmithKline Beecham Pharmaceuticals US Research Symposia Series)

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Published 1994 Plenum Press, New York

xxi + 318 pages

ISBN 0 306 44685 5 \$79.50

This book marks the eighth in the series entitled *New Horizons in Therapeutics* and represents papers presented at the SmithKline Beecham Pharmaceuticals Seventh US Research Symposium, in 1992. The book comprises 16 papers or chapters, grouped into three parts, which together provide the reader with an insight into the major groups of cell adhesion molecules, their structure-function relationships, pathophysiological roles and potential therapeutic applications.

Part I of the book, entitled "Molecular definition—adhesion molecule structure and function", comprises seven chapters which introduce the various families of cell adhesion molecules (CAMs) and discuss their structural and biological properties, biochemistry, ligand specificities and affinities. Chapters 1 and 2 focus on the family of integrin cell adhesion molecules, with chapter 1 comparing the biological roles of $\alpha_v\beta_3$ and $\alpha_v\beta_5$ integrins and chapter 2 concentrating on the leucocyte associated integrins, the CD18 antigens. Chapter 3 discusses the structure-function relationships of the E- and P-selectins and chapter 4 provides a review of other C-type lectins before moving to a more in-depth discussion on the carbohydrate recognition domains of the serum mannose-binding proteins. Chapter 5 describes the structure and biological properties of the classical cadherins, focusing on the epithelial cadherin uvomorulin. Chapter 6 concerns the structural and functional properties of the developmentally important cell adhesion glycoprotein cytotactin. The final chapter in this first section discusses the potential role of integrins in bone physiology and provides an excellent introduction to this relatively new field. It is my personal opinion, however, that this chapter is more suited to the second section of this book.

Part II—"Biological consequences of cellular adhesion"—comprises chapters 8–13 inclusive and pertains to discussions on the physiological relevance of CAM-ligand interactions, in both health and disease. The main focus of this section is the interaction between leucocytes and endothelial cells during the

inflammatory response. Chapters 8 and 9 examine neutrophil-endothelial interactions in both in-vitro and in-vivo models and chapter 10 focuses on the role of the cytokine MIP-1 β in CD8+ T cell migration into lymphoid tissue. Chapters 11 and 12 discuss the role of CAMs in the pathology of lung inflammatory conditions and ischaemic heart disease, respectively. The final chapter in this section introduces the concept of designing therapeutic agents directed against these cell adhesion mechanisms in the development of novel treatments and focuses in particular on the use of GPIIb/IIIa antagonists in the treatment of thrombosis; a theme which is extended in the final section of this book. Overall, I found this section particularly interesting as it clarified to the reader both the relevance and need for research in this exciting area of cell biology.

The final three chapters of the volume constitute part III, entitled "Targetting adhesion molecules—therapeutic potential". Chapter 14 discusses novel approaches to the treatment of antibiotic-resistant bacterial colonization of medical devices such as catheters, IUDs and pacemakers. Chapter 15 provides a detailed account of the development of RGD-peptide antagonists to GPIIb/IIIa, but reiterates much of the information contained in chapter 13. Finally, chapter 16 describes the humanizing and veneering of an anti-integrin (anti-CD18) monoclonal antibody for use as a potential therapeutic agent. This section provides examples of novel approaches to the design of therapeutic strategies targetted at the cell adhesion mechanisms which mediate the pathology of specific diseases.

Overall, I found the book gave a well-balanced, relatively up-to-date review of important areas of investigation of this fascinating area of cell biology. The information contained in each chapter, with the exception of the first, is presented in a review-type format providing the reader with a general introduction and background to the subject area before embarking on a more in-depth discussion of a specific area of study. This makes the book very readable and easy to understand, thus allowing the reader to acquire quickly an appreciation of the diversity and complexity of cell adhesion systems and the relevance of the many topics currently under investigation in this field of study. I would, therefore, recommend this book both to readers unfamiliar with the field and to established investigators who wish to keep abreast of current developments in this rapidly expanding area of biology.

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