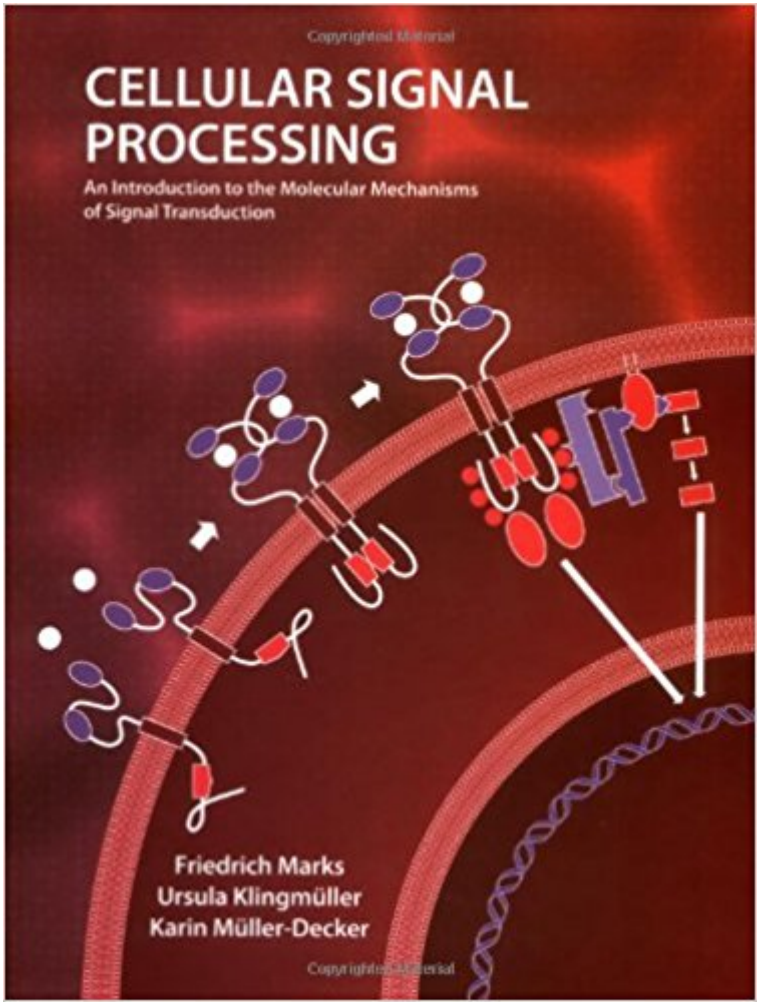
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Cellular Signal Processing: An Introduction To The Molecular Mechanisms Of Signal Transduction



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Synopsis

Cellular Signal Processing is intended for use in signal transduction courses for undergraduate and graduate students. It offers a unifying view of cell signaling that is based on the concept of protein interactions acting as sophisticated data processing networks that govern intracellular and extracellular communication. The content is guided by three major principles that are central to signal transduction: the protein network, its energy supply, and its evolution. It includes coverage of all important aspects of cell signaling, ranging from prokaryotic signal transduction to neuronal signaling. It also highlights the clinical aspects of cell signaling in health and disease.

Book Information

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Customer Reviews

"This book would be highly useful to undergraduate students in medical, bioinformatics or biological science that are studying or pursuing research into signal transduction, network or systems biology.Ã Â This book would also appeal to graduate students or professionals moving into this field of research, without prior knowledge or experience....each chapter engages the reader and conveys the importance of biological systems and networks adequately, thus challenging the reader to continue viewing their specific focus or field of research in complete isolation." Immunology News, November 2010 Ã Â "This book provides comprehensive coverage of signal transduction.Ã Â Unlike other texts currently available, a common theme of data processing by cellular machinery runs through this book which makes it stand out favorably against the competition.Ã Â Material is up-to-date and covers the areas that are at the forefront of cell signaling research today."Alexey

Veraksa, University of Massachusetts, Boston "The diversity of appropriate cell cycle topics covered is impressive.Ã Â Impressive amount of important information.Ã Â Best summary of cell cycle biochemistry in a text."Bradley J Stith, University of Colorado "The organization of the proposed book is excellent.Ã Â The fundamentals of data processing by protein networks and evolution of this data processing in the first two chapters is the unique feature of the book and sets up the framework of cell signal transduction.Ã Â This should allow students to get a firm grip of the overall pictures of cell signalling networks before zooming into the specific topics.Ã Â Such chapters are largely missing from other textbooks.Ã Â Figures are well executed and informative."Wei-Jen Tang, Univesrity of Chicago

Friedrich Marks, PhD, is Professor of Biochemistry at the University of Heidelberg and Emeritus Department head, German Cancer Research Center. Dr. Marks has been teaching biochemistry, in particular signal transduction, for more than 30 years. His research has focused on the role of signaling reactions in tumor development. Ursula KlingmÃƒÂ ller, PhD, is a lecturer at the University of Heidelberg and Head of the Systems Biology of Signal Transduction Division, German Cancer Research Center. Dr. KlingmÃƒÂ ller's research focuses on systems biology of signal transduction and dynamic pathway modeling. Karin MÃƒÂ ller-Decker, PhD, is a lecturer at the University of Heidelberg and Head of the Tumor Models Units, German Cancer Research Center. Dr. MÃƒÂ ller-Decker is conducting pioneering work on eicosanoid signaling in tumor development.

Cellular Signal Processing presents a well-structured and comprehensive discussion of all of the elements in cell signalling. The book provides a superb source of information as well as structure to understand the nuances of many of the cellular signalling mechanisms. It is an excellent desk reference which one can come back to time and again to be used in systems modeling as well as other applications.It begins with a simple overview of the elements of cell signalling and discusses the reaction dynamics leading to the temporal characteristics of signalling, specifically the simple biochemical switch. Unlike Klipp et alÃ Â Systems Biology: A TextbookÃ Â , this book presents a high level description of the signalling rather than developing and demonstrating the specifics of the mathematical model and its actual dynamics. Again using Klipp as a backup would be perfect.Chapter 2 discusses some of the cell energy considerations and the discussion on protein phosphorylation is exceptionally good. The introduction of protein kinases and their importance in transduction is well placed and sets the stage for later development. Chapter 3 discusses the evolutionary development of cell signalling and this is a good vehicle to demonstrate the

development of various specific signalling elements.Chapter 4 discusses the protein kinases in more detail and the inclusion of many medical applications is exceptionally good. For example the discussion on p 163 regarding the use of aspirin is a nice blend of the practical and the scientific. This type of discussion is diffused throughout the text and makes for enlightening elements.Chapter 6 is a good presentation of signal transduction and it provides a full description of how the signal paths are activated.Chapter 9 is a very well done presentation on signals controlling mRNA translation, key to many cancer pathways. For example the discussion on the mTOR pathway, p 337, is quite enlightening as the clinical discussion of diabetes on p 343. Chapter 11 discusses mitogen activation which is essential for understanding the dynamics of cancer pathways. The discussion of NFkB is well done on p 409. This is extended to the application to cancer on p 415. This again is an excellent blending of the science and the application to specific medical uses.Chapter 12 is on cancer and cell signalling. It focuses on cell cycles and signalling and is an superb complement to Morgan'sÃ Â The Cell Cycle: Principles of Control (Primers in Biology) (Primers in Biology)Ã Â book. Chapter 13 discusses apoptosis. This is a good complement to the cancer discussion and the cell cycle. Chapter 17 is a short discussion of systems biology. It could have been expanded yet it may have gone beyond the scope of the book.Overall the book covers all of the signalling pathways and demonstrates with adequate detail the pathways dependencies and allows for an understanding of their dynamics. The book is comprehensive and provides more than adequate reference materials. I have used this book to gain specific details and refresh an understanding or to see an different approach. It is an invaluable addition to any bookshelf.

Prof. Friedrich Marks and colleages did an outstanding job. The book is well organized, easy to read and understand. It is great that they have included a chapter on energetics for signaling transduction mechanisms. It makes this book not a repetition of what has been written so far. The only thing authors should consider to improve is the artwork, but in no way this fact decreases the quality of the book.Victor Baizabal, PhDProfessorChair of Molecular Immunology and Signal Transduction LaboratoryUniversidad Michoacana de San NicolÃƒÂ¡s de Hidalgo

A clear, crisp, comprehensive [at the current state of knowledge] description of cell signal processing. Friedrich Marks steps through each element of signal processing in carefully bounded segments closed with summaries. He does a good job of defining terms to aid clarity.

GOOD BOOD-NICE ILLUSTRATIONS-FOR EVERYBODY IN THE FIELD TO HAVE ON THE

SHELF AS A REFERENCE

The usefulness of this book depends upon how intricately you wish to understand the signal pathways and the roles they play in various cellular processes. Overall, the depth of the book is somewhat "basic." The images are not in color - some are shaded red, but the pictures and text boxes throughout the book only use black and red as the colors. If you can find the book for $50 or cheaper, it is a decent purchase, and it certainly has a solid amount of information. However, the text puts a bit much emphasis on protein motifs rather than signal pathway intricacies. I recently purchased another textbook that (in my 4 days of reading it so far) has a far superior description of cell signal regulation. The book, published by CSH Press, is "Signal Transduction: Principles, Pathways, and Processes" by Lewis C. Cantley. It is a bit pricier for a paperback but far worth the extra money. In fact, I wish I purchased it in a hardcover so it would last longer.A gripe I have about this book by F. Marks, other than the lackluster visual depictions, is the fact that the reference sources are not listed within the text. At the end of each chapter, there is an "Additional Reading" list of published papers regarding the topics covered in the chapter; however the textbook is not entirely useful if you would like to read further regarding a fact or concept listed in a chapter, as you do not know where the fact came from. The book by Cantley has in-text citations, which is a huge help considering details about the paper you are interested in can be found easily using the reference list at the end of each chapter.If the class you are using the textbook for is an undergraduate class, this textbook is enough information. It will give a basic introduction to cell signaling and regulation of signaling networks. If the course is a graduate class, go with the book by Cantley.

Very good book, beautifully illustrated, written in a clear and comprehensive

This was recommended to me by a Prof. in Biochemistry and he suggested that it is the only source that includes all principles of cell signaling as it does not appear in any other book available.

It arrived in perfect condition but this is an awful textbook. Extremely difficult to read as it was translated out of German and the grammar never fixed.

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