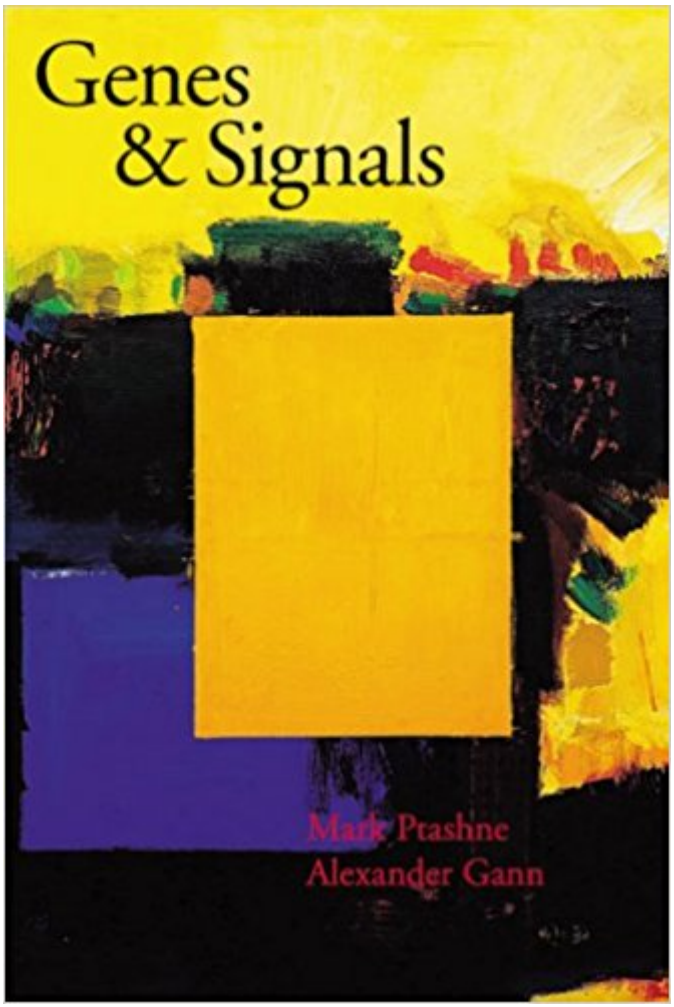
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Genes & Signals



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Synopsis

Genes & Signals analyzes gene regulation from a new perspective. The first chapter describes mechanisms found in bacteria, and two subsequent chapters discuss which of these is most highly exploited in higher organisms. A final chapter relates these molecular strategies to other enzymatic processes, including those involving kinases, RNA splicing enzymes, proteases, and others. A general theme emerges, one that proposes how a rather restricted set of signals and enzymatic functions has been used in evolution to generate complex life forms of different types.The Genes & Signals web site is now live.This site is a companion to the book and provides free access to downloadable versions of all the figures found in the book and references to work discussed in the footnotes. We hope you'll take the time to browse the site and send us your feedback."This book opens up the basic molecular language that cells use for their internal organization and to communicate with the outside world. This is important, and fascinating, for anyone interested in how cells work and how regulatory systems evolve."-Ã¢â ¬â •From the Foreword by Tony Pawson"In Genes & Signals, Ptashne and Gann have written a unique book that is driven by ideas and broad concepts, yet is based on solid information. It is accessible to undergraduates with some knowledge of biology, yet it is also valuable to experts in the field. I highly recommend it."
Ã¢â ¬â •Nature"Ptashne and Gann have written a clear and intelligent distillation of the various assembly pathways, especially in transcription initiation.The authors start with the simplest systems, phage and bacteria, and work toward the more complex. . . .. . . A major strength of Genes & Signals is the spare use of experimental detail. An experimental approach is described briefly, e.g., crosslinking, and the results of the experiment and its implication for the biochemistry of the reaction under study are stressed. This approach is highly successful and the inverse of more conventional presentations, where experimental detail is laboriously elaborated and the conclusions to be drawn given short shrift. The artwork, by the way, is a pleasure. . . .Because of the clarity and logic of the presentation, Genes & Signals can be recommended for a very wide audience, from college students to experienced researchers. It is not long, it's fun, and it makes you think."Ã¢â ¬â •Cell"I read this book with great pleasure. I have always been convinced that the same principles operating in bacteria are also operating in higher organisms with added complexity. The question therefore is to understand what kind of complexity is involved and how it is geared. This is a necessary book (which is a rare thing!)." Ã¢â ¬â •FranÃƒÂ§ois Jacob

Book Information

File Size: 1895 KB

Print Length: 192 pages

Publisher: Cold Spring Harbor Laboratory Press (November 1, 2002)

Publication Date: November 1, 2002

Sold by:Ã Â Digital Services LLC

Language: English

ASIN: B001WAKRO6

Text-to-Speech: Enabled

X-Ray: Not Enabled

Word Wise: Not Enabled

Lending: Not Enabled

Screen Reader: Supported

Enhanced Typesetting: Enabled

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Customer Reviews

I got this book my freshman year in college, and it seemed as a bit complicated, but when I re-read it my junior year I realized that there were a lot of oversimplifications...It is a good book to start with---it explains ideas very well with out too much fuss.However, if you already have a BS in biology or related field you might be better off looking for something more advanced.

I care about signalling. this is the most half-assed biochemistry book ever. a complete waste of time and money.

Transcription is digital. It was the concept first introduced by FranÃƒÆ'Ã Â§ois Jacob, AndrÃƒÂ© Lwoff and Jacques Monod that won them the Nobel Prize in Physiology or Medicine in 1965. Switching between ON/OFF states, cells are constantly faced with a decision-making process (to transcibe or not?) that contributes to its fate- be it differentiation (as in development), survival or suicide (as in programmed cell death).Mark Ptashne is one of the leading gurus in this area of research, especially in the area of transcriptional regulation in prokaryotes (author of the Genetic

Switch). In this book, Ptashne and Gann emphasize on how cells execute this elaborate process. Signaling specificity is the major focus in this area of research. How does a cell know when to transcribe a particular gene in response to a signal (extracellular or intracellular)? Put differently, how does the same signal upstream result in a different output (transcription of a particular gene) at any given time? The authors provide answers to such questions and take it a step further by discussing the plasticity or `evolvability' in transcription.The book is beautifully organized with four chapters (forward by Tony Pawson), from transcription in prokaryotes and lower eukaryotes to metazoans that allows the reader to appreciate the evolutionarily conserved biochemistry behind the process. They drive home the idea of regulated recruitment at the proximal and distal promoter regions of the gene- protein-protein interactions (by cooperrativity and allostery) on DNA involve low affinity interactions, that help increase local concentrations of transcription factors at cis-acting regions. The conclusions are simple and very elegant. The book features excellent illustrations without too many details that one normally encounters with gene structures. The reader is referred to papers and articles that are all categorized under subtitles that complement the text. On-line material at genesandsignals.org provides references that link to Pubmed. The website also features four lectures (one on each chapter) delivered by Ptashne at Rockefeller University. The parts of the book that I most liked were the footnotes. The footnotes in each chapter takes the reader to more details on ongoing research. The entire book is meant to be read beginning from the first chapter. I thoroughly recommend this book that should be used for graduate course work. As a graduate student myself, I found this book extremely helpful and a valuable reference. A definite must-read!

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