Molecular and Cellular Physiology of Neurons

Gordon L. Fain
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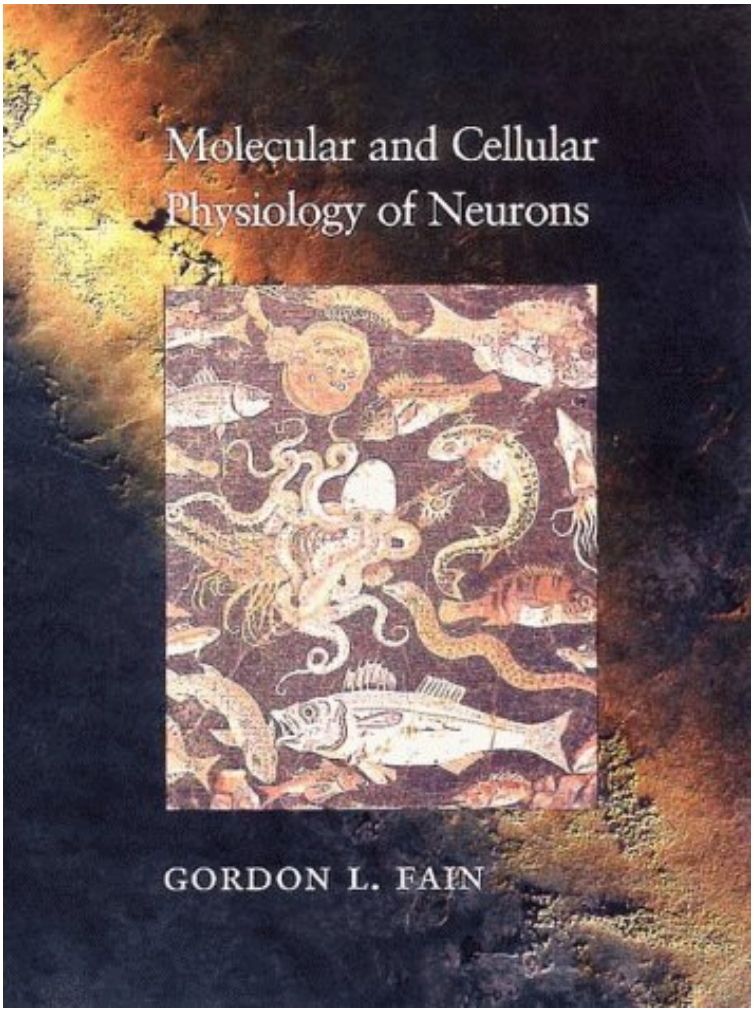

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Gordon L. Fain : Molecular and Cellular Physiology of Neurons before purchasing it in order to gage whether or not it would be worth my time, and all praised Molecular and Cellular Physiology of Neurons:

2 of 2 people found the following review helpful. A useful book, not a referenceBy AustinThis book has some good qualities, but I wouldn't say it's outstanding. It does a great job presenting concepts to readers without demanding a lot of neuroscience background. However, it falls short of much higher-level technical precision. The text introduces ideas in an approachable manner and usually provides explanations in the context of specific examples, but often it lacks strong, generally applicable conclusions. I found myself having to infer what would happen in situations unlike the examples.Older undergraduates and 1st-year grads should find this book approachable and helpful in an appropriate class. However, I think the book is limited in its usefulness as a reference to pull off the bookshelf from time to time. Sometimes I had the feeling I was reading a journal article rather than a textbook. Many of the figures seem to present

data as opposed to illustrating concepts, and the figures and equations only make sense as part of the text. There are no standalone equation boxes for quick review, and the appendix simply identifies symbols used.0 of 1 people found the following review helpful. Expensive but worth it.By Gregory D. ParkerIndispensable background.8 of 8 people found the following review helpful. I LOVE this book!By A CustomerDr. Fain rocks! He explains things so clearly that even though this text is intended for advanced undergrads or beginning grad students, it can be understood by most people who have taken just one semester of introductory neurobiology. There is so much good stuff in this book that I consult it very often, even though I am a pretty experienced neurophysiologist and "am suppposed" not to need this book any more.However, if you haven't taken an introductory neuroscience course and need a more basic text, then I highly recommend "The Neuron: Cell and Molecular Biology" by Irwin Levitan and Leonard Kaczmarek. After that, if you want to know more about neurophysiology, read the Fain book.

If we are to understand the brain, we must understand how the individual molecules and cells of the nervous system function and ultimately contribute to our behavior. Molecular and Cellular Physiology of Neurons provides a comprehensive and up-to-date account of what we now know--and what we want to know and can reasonably expect to discover in the near future--about the functioning of the brain at the level of molecules and cells. Molecular and Cellular Physiology of Neurons takes readers from the fundamentals to the most sophisticated concepts and latest discoveries: from membrane potentials to recent experiments on voltage-gated ion channels, from descriptions of receptors, G proteins, effector molecules, and second messengers to an account of our current understanding of long-term potentiation. In each chapter Fain discusses individual experiments that have made crucial contributions to our knowledge and that illustrate the techniques and approaches that have formed our present view of nerve cell function. Extensive illustrations add to this vivid account of not only what we know about cellular and molecular neurophysiology but how we know it.

Fain is an expert on the physiology of vision, and has based his book on lectures he gave to advanced undergraduates and postgraduates at the University of California at Los Angeles. As someone who has struggled for 25 years to get similar ideas on neural signaling across to my students, I know this will be a joy to use in teaching. Fain explains complex concepts with exquisite clarity. (David Wallis New Scientist)The choice of topics has the liveliness that reflects the day-to-day enthusiasms of a subject in its prime. Here are topics that are difficult to integrate completely under one banner because the molecular mechanisms neurons use to signal are genuinely so diverseI find Fain's approach remarkably refreshing. (Jonathan Ashmore Trends in Neuroscience)What is so wonderful about this book is the way Fain has removed [the] dichotomy [between molecular and cellular biology] by interweaving cellular and molecular studies into a seamless discussion of how neurons work. The sense of unity is further nurtured by redrawing original data from numerous classic papers to conform to common display formats, aided by many helpful illustrations by the author's wife...An excellent work. (D. M. Senseman Choice)A beautifully written book for the advanced undergraduate or beginning graduate student. Fain explains complex concepts exquisitely and clearly. This handsome volume will be a joy to teach from. (John Dowling, Harvard University)Every student of the brain needs to understand how the electrical events that underlie neural signaling are generated. With the publication of Gordon Fain's book, we now have a place to turn for a clear and thorough exposition of the origin of action potentials and synaptic signals. Fain's unique contribution is to integrate seamlessly the new and the old. His serious treatment of classical experiments reflects the rigor of the masters that founded this field: Katz, Hodgkin and Huxley. At the same time, Fain brings us up to date on the more recent single-channel and molecular work that has identified the properties of the individual proteins that generate neural signals. (John Lisman, Brandeis University)From the Back CoverIf we are to understand the brain, we must understand how the individual molecules and cells of the nervous system function and ultimately contribute to our behavior. Molecular and Cellular Physiology of Neurons provides a comprehensive and up-to-date account of what we now know -- and what we want to know and can reasonably expect to discover in the near future -- about the functioning of the brain at the level of molecules and cells.Gordon Fain takes readers from the fundamentals to the most sophisticated concepts and latest discoveries: from membrane potentials to recent experiments on voltage-gated ion channels, from descriptions of receptors, G proteins, effector molecules, and secondary messengers to an account of our current understanding of long-term potentiation.In each chapter Fain discusses individual experiments that have made crucial contributions to our knowledge and that illustrate the techniques and approaches that have formed our present view of nerve-cell function.About the AuthorGordon L. Fain is Distinguished Professor of Integrative Biology and Physiology, Ophthalmology, and Neuroscience at the University of California, Los Angeles.