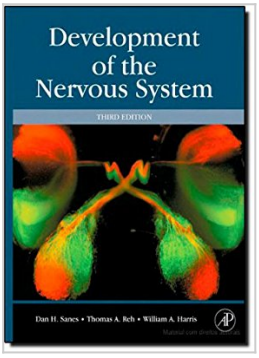

Development of the Nervous System, Third Edition

By Dan H. Sanes, Thomas A. Reh, William A. Harris

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- Sales Rank: #525085 in Books
- Brand: imusti
- Published on: 2011-04-15
- Original language: English
- Number of items: 1
- Dimensions: 11.16" h x .95" w x 8.52" l, 3.04 pounds
- Binding: Hardcover
- 360 pages

Editorial Review

Amazon.com Review

Development of the Nervous System presents a broad and basic treatment of the established and evolving principles of neural development as exemplified by key experiments and observations from past and recent times. The text is organized ontogenically. It begins with the emergence of the neural primordium, and takes a chapter by chapter approach in succeeding events in neural development: patterning and growth of the nervous system, neuronal determination, axonal navigation and targeting, neuron survival and death, synapse formation and developmental plasticity. Finally, in the last chapter, with the construction phase nearing completion, we examine the emergence of behavior. This new edition reflects the complete modernization of the field that has been achieved through the intensive application of molecular, genetic, and cell biological approaches. It is richly illustrated with color photographs and original drawings. Combined with the clear and concise writing the illustrations make this a book which is well suited to students approaching this intriguing field for the first time.

Features

- Thorough survey of the field of neural development
- Concise but complete, suitable for a one semester course on upper level undergraduate or graduate level
- Focus on fundamental principles of organogenesis in the nervous system
- Integrates information from a variety of model systems, relating them to human nervous system development, including disorders of development
- Systematically develops knowledge from the description of key experiments and results.
- Organized ontologically
- Carefully edited to be presented in one voice
- New edition thoroughly updated and revised to include major new findings
- All figures in full color, updated and revised
- Specific attention on revising the chapter on cognitive and behavioral development to provide a foundation and outlook towards those very fast moving areas
- Instructor website with figure bank and test questions

Benefits

- The only thorough textbook of developmental neuroscience on the market
- Carefully structured and edited to map onto the syllabus of most developmental neuroscience courses
- Priced to be affordable for undergraduates even in addition to broader textbooks
- Carefully constructed instructor's Web site
- Specifically designed to make teaching of complicated subjects easy and fun for instructors and students alike

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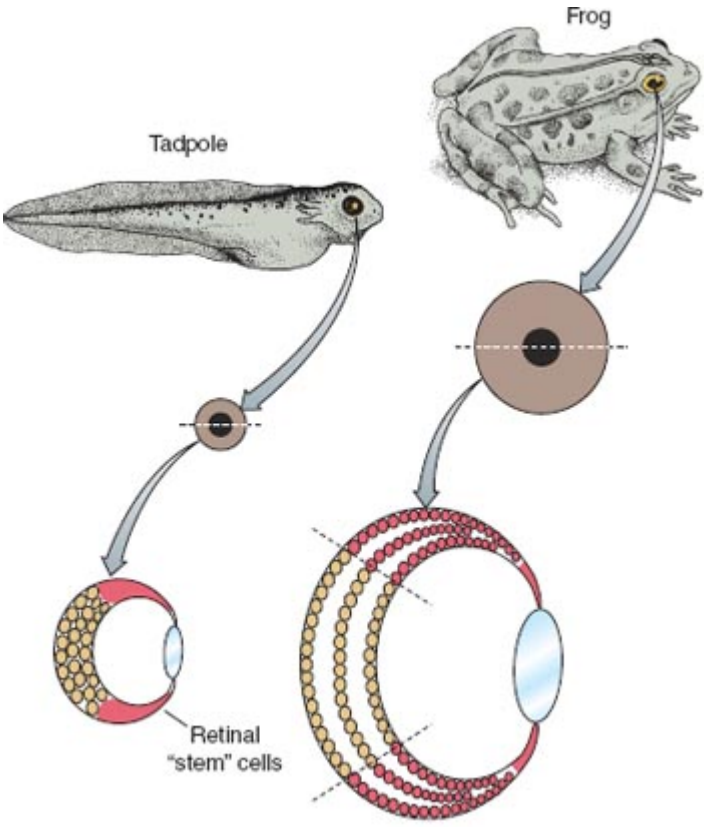
Featured Excerpt from *Development of the Nervous System*

In a field of science where the tools of investigation continue to improve dramatically and the challenge is to understand the construction of what is, arguably, the most complex object in our known universe, it is not unexpected that this third edition of *Development of the Nervous System* required extensive revision.

Moreover, it has become increasingly clear that, in many respects, the processes of neural development continue in the “mature” adult brain. Discoveries in adult neurogenesis and plasticity have profound implications for brain function throughout life. Moreover, abnormalities in developmental mechanisms lead to brain disorders that only become manifest in adulthood. Our understanding of these developmental processes holds the promise for emerging therapies, such as deriving neurons and glia from embryonic stem cells. In this way, the study of neural development has never been more relevant.

Experts in various subfields of neural development helped us by reviewing each chapter, telling us what they thought was missing, wrong, needed updating, or should be removed from the text. They also suggested where entire sections of the book should be approached afresh, emphasizing new conceptual angles. We took most of their excellent advice. However, we were mindful that many of the older studies in our field have stood the test of time, and continue to serve as the core knowledge of neural development. This core still forms the storyline of the textbook. We hope that those of you who were content with our second edition, particularly for teaching purposes, will be comfortable with the third edition. The book is built on the same foundation, yet we have embraced ideas that have gained in acceptance and included several new studies to convey the excitement that is part of a field where very recent discoveries continue to have enormous impact. We were cautious, however, about including too much of this new material for two reasons. First, we wanted to keep the size of the book the same. Second, experience has taught us that what is new and exciting will not always turn out to be as pivotal for the field as it now appears. The future will be the best judge of which studies become classics and which studies will form the core of future textbooks.



Read a sample chapter on genesis and migration from *Development of the Nervous System*

About the Author

Dr. Sanes is Professor in the Center for Neural Science and Department of Biology at New York University. Named a Fellow of the American Association for the Advancement of Science (AAAS) in 2010 for his research in auditory central nervous system development, his research has been supported by the National

Institute on Deafness and Other Communication Disorders and the National Science Foundation. His lab studies synaptic plasticity and central auditory processing, and the phenomenon of hearing loss during development.

Dr. Reh is Professor of Biological Structure and Director of the Neurobiology and Behavior Program at the University of Washington. He is currently a member of the Scientific Advisory Board of the Foundation Fighting Blindness, and of a start-up biotechnology company, Acucela. He has received several awards for his work, including the AHFMR and Sloan Scholar awards and has published over 100 journal articles, reviews and books. Funded by numerous N.I.H. and private foundation grants, his lab is focused on the development and repair of the retina, with an overall goal of understanding the cellular and molecular biology of regeneration in the eye.

Dr. Harris is co-chair of Cambridge Neuroscience and Director of Studies in Neuroscience. He is also Head of the Department of Physiology, Development, and Neuroscience, and is Professor of Anatomy. Elected a Fellow of the Royal Society of London in 2007, he was Professor of Biology at UCSD prior to accepting a position at Cambridge. His lab is working to elucidate the cellular and molecular events that are used to push or induce cells to transition from proliferating stem cells to differentiated neurons and glia, and how particular regions of the nervous system produce the right number of neurons and the right proportions of different neuron subtypes.

Users Review

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