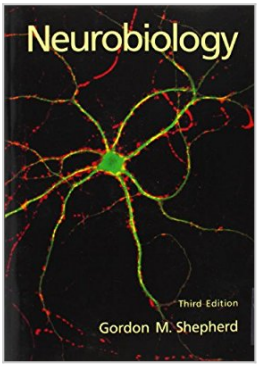

Neurobiology

By Gordon M. Shepherd

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This widely used and highly praised textbook has been extensively revised to reflect the most exciting research across the entire range of neuroscience. A new feature is an introductory discussion of the mechanisms of gene regulation, while the superfamily of molecules responsible for membrane signaling is given new emphasis as a unifying theme throughout molecular and cellular neurobiology. The roles of these molecules in impulse conduction and synaptic transmission are fully explained, and illustrated by computer models. For the first time in a neurobiology text, these mechanisms can be explored by using a state-of-the-art interactive computer program provided with an accompanying tutorial handbook. In the sections dealing with neural systems, the comparative approach continues to be used to illustrate general principles. Students learn about the progress being made toward a molecular basis for sensory perception and new methods for revealing the neural activity underlying sensory and motor functions are described. There is an emphasis on the plasticity of both sensory and the motor circuits in mediating functions that reflect the effects of activity or recovery from injury. Central systems continue to be featured as the culmination of neural evolution. These include the systems vital for all animals, such as sleeping, feeding and reproduction, as well as the systems for language, emotion and higher cognitive functions that reach their peak in humans. There is special emphasis on recent work on memory, contrasting the mechanisms for short-term working memory and long-term memory and summarizing the present understanding of the mechanisms of long-term potential. The twin themes of organizational levels and comparative systems help bring together the vast range of studies and provides a conceptual framework that unifies the field of neurobiology. As in previous editions, the text continues to draw on the advantages of having a single author. In addition, leaders in a number of specialties have assisted the author, so that the text represents the most up-to-date views of current research on the nervous system.

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Editorial Review

Review
"Very impressive; clear writing and a well-rounded overview of modern neurobiology."--Dr. Duane McPherson, SUNY Geneseo

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About the Author

Gordon M. Shepherd is Professor of Neuroscience at Yale University. He is the author of The Synaptic Organization of the Brain (Oxford University Press, 1979).

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