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Underlying Propagation in Axons; Electrotonic Spread in Dendrites
Dynamic Properties of Passive Electrotonic StructureRelating Passive to Active Potentials; Chapter 5. Membrane Potential and Action Potential; The Membrane Potential; The Action Potential; Chapter 6. Molecular Properties of Ion Channels; Families of Ion Channels; Channel Gating; Ion Permeation; Ion Channel Distribution; Summary; Chapter 7. Dynamical Properties of Excitable Membranes; The Hodgkin-Huxley Model; A Geometric Analysis of Excitability; Chapter 8. Release of Neurotransmitters; Organization of the Chemical Synapse; Excitation-Secretion Coupling
The Molecular Mechanisms of the Nerve TerminalQuantal Analysis; Short-Term Synaptic Plasticity; Chapter 9. Pharmacology and Biochemistry of Synaptic Transmission: Classic Transmitters; Diverse Modes of Neuronal Communication; Chemical Transmission; Classic Neurotransmitters; Summary; Chapter 10. Nonclassic Signaling in the Brain; Peptide Neurotransmitters; Neurotensin as an Example of Peptide Neurotransmitters; Unconventional Transmitters; Synaptic Transmitters in Perspective; Chapter 11. Neurotransmitter Receptors; Ionotropic Receptors; G Protein-Coupled Receptors
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Chapter 15. Cell-Cell Communication: An Overview Emphasizing Gap Junctions

Sommario/riassunto

An understanding of the nervous system at virtually any level of analysis requires an understanding of its basic building block, the neuron. This book provides the solid foundation of the morphological, biochemical, and biophysical properties of nerve cells that is needed by advanced undergraduates and graduate students, as well as researchers in need of a thorough reference.* Highly referenced for readers to pursue topics of interest in greater detail* Unique coverage of the application of mathematical modeling and simulation approaches not found in other textbooks* Richly ill