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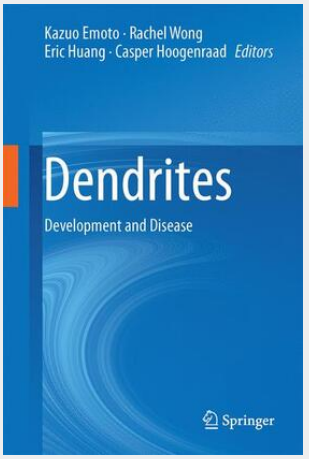
Dendrites

Development and Disease



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Studies in human patients and animal models of disease suggest a strong correlation between defects in dendrite development and common neurological disorders such as autism. Much of this book is thus dedicated toward highlighting recent advances in our understanding of the cellular and molecular mechanisms that regulate the development and maintenance of dendrites, a crucial component of neurons. The book begins by presenting the current state of knowledge on the building blocks or cell biology of dendrites. Mechanisms that sculpt the stereotypic architecture of dendritic arbors and shape their connectivity are also discussed, along with recent work describing how dendritic organization and connectivity are perturbed in disease. A unique aspect of the book is its exploration of diverse neuronal cell types across vertebrates and invertebrates, allowing a comparison of mechanisms across distinct circuits and species. The book comprises six parts, which cover the major advances in the field: Part 1, Introduction; Part 2, Basic Biology of Dendrites; Part 3, Patterning Dendritic Architecture of Neurons and Their Populations; Part 4, Cellular and Molecular Control of Dendrite Development and Maintenance; Part 5, Synapse Formation onto Dendrites; and Part 6, Dendrites in Disease. The book offers an excellent point of entry for students interested in neuroscience, as well as for clinicians.

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