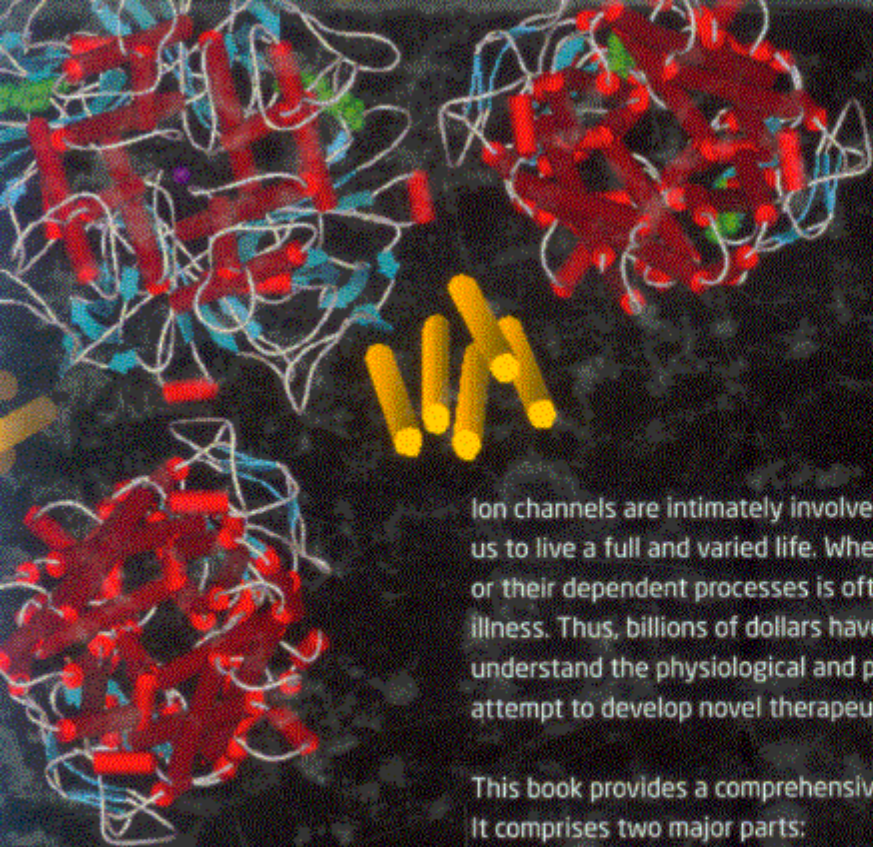




Ion channels are intimately involved in everyday physiological functions that enable us to live a full and varied life. When disease strikes, malfunction of ion channels or their dependent processes is often involved, either as the cause or effect of the illness. Thus, billions of dollars have been, and still are being, invested in research to understand the physiological and pathophysiological functions of ion channels in an attempt to develop novel therapeutic treatments for a wide range of diseases.

This book provides a comprehensive overview of ion channel structure and function. It comprises two major parts:

Part one provides an introductory overview of the ion channel superfamily and the generic aspects of ion channel function. This part also reviews the methodologies by which ion channel function can be studied from the perspective of performing detailed biophysical characterization through to the deployment of high throughput approaches for identifying novel ion channel ligands.

Part two of the book provides an in-depth review of the individual ion channel subfamilies and, as such, is subdivided into four broad sections: Voltage-Gated Ion Channels, Extracellular Ligand-Gated Ion Channels, Intracellular Ligand-Gated Ion Channels, and Polymodal-Gated Ion Channels, with each chapter therein focussed on specific family members. These chapters have been written by world leading experts and provide a detailed overview of the structure, biophysics, localization, pharmacology, physiology, and disease relevance of each particular ion channel subfamily.

Reviewing both the basic principles of ion channel function and providing a detailed up-to-date review of the physiological and pharmacological aspects of individual ion channel sub-families, this book constitutes both an excellent introduction to the field for non-specialists as well as a highly valuable reference text for experienced researchers already working in the ion channel area.

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