

Decoding Ion Channels Structure and Function

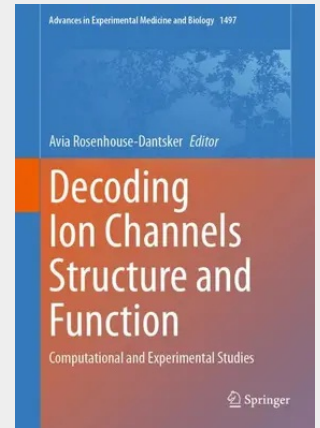
Computational and Experimental Studies

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This volume highlights cutting-edge approaches for studying ion channel structure and function, providing methodological advances with broad applications and offering targeted insights into various channels, organized into two sections. The first section presents fundamental computational and experimental approaches central to ion channel research, including theoretical frameworks for delineating the forces that govern ion selectivity, molecular dynamics simulations for elucidating ion channel gating, advanced structural and fluorescence-based techniques, and mutagenesis-centered integrative methods. The second section explores the structure and function of a wide array of channel types, including the voltage-gated hERG potassium channel, two-pore domain potassium channels, the ryanodine receptor intracellular calcium channel, transient receptor potential vanilloid (TRPV) channels, pentameric ligand-gated ion channels, and aquaporin ion channels.

Together, these chapters demonstrate how contemporary experimental and computational methods advance our understanding of ion channel structure and function. Showcasing these advances, this book is an invaluable resource for researchers and professionals in the ion channel field and the pharmaceutical industry.

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