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RECTIFYING K<sup>+</sup> CHANNELS; Diseases Associated with Kir Channels; CHAPTER 9. VOLTAGE-GATED Ca<sup>2+</sup> CHANNELS; Diseases of Skeletal Muscle Ca<sup>2+</sup> Channels; Diseases of Neuronal Calcium Channels; CHAPTER 10. VOLTAGE-GATED Cl<sup>-</sup> CHANNELS Cl<sup>-</sup> Channel Diseases CHAPTER 11. CYCLIC NUCLEOTIDE-GATED CHANNELS; Cyclic Nucleotide-Gated Channels; CNG Channel Mutations Associated with Disease; Hyperpolarization-Activated Cyclic-Nucleotide-Gated Channels; CHAPTER 12. CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR; Cystic Fibrosis; CHAPTER 13. EPITHELIAL Na<sup>+</sup> CHANNEL; Diseases Associated with ENaC Channels; CHAPTER 14. LIGAND-GATED Ca<sup>2+</sup> CHANNELS; Ryanodine Receptors; Diseases Associated with Ryanodine; IP<sub>3</sub> Receptors; Diseases Associated with IP<sub>3</sub> Receptors; CHAPTER 15. ACETYLCHOLINE RECEPTORS; Diseases of Skeletal Muscle AChRs Diseases of Neuronal AChR CHAPTER 16. GLUTAMATE RECEPTORS; Non-NMDA Receptors; NMDA Receptors; Glutamate Channels and Disease; CHAPTER 17. GLYCINE RECEPTORS; Glycine Receptors and Disease; CHAPTER 18. GABAA RECEPTORS; Diseases Associated with GABAA Channels; CHAPTER 19. WATER CHANNELS; CHAPTER 20. GAP JUNCTION CHANNELS; Diseases of Gap Junction Channels; CHAPTER 21. AUTOANTIBODIES TO ION CHANNELS; Basic Immunology; Autoantibodies Affecting Neuromuscular Transmission; Autoantibodies to Ion Channels Not Involved in Neuromuscular Transmission; CHAPTER 22. ION CHANNELS IN VIRUSES; Influenza Virus Other Types of Viruses CHAPTER 23. ION CHANNELS AS LETHAL AGENTS; Ion Channels of the Vertebrate Immune System; Ion Channels of Bacteria, Fungi and Protozoans; Venoms; CHAPTER 24. A RAGBAG OF CHANNELS; ATP-Gated Ion Channels; Vanilloid Receptors; Channels Involved in Programmed Cell Death;  $\beta$ -Amyloid Peptide; A LAST WORD; BIBLIOGRAPHY; INDEX

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## Sommario/riassunto

Ion channels are membrane proteins that act as gated pathways for the movement of ions across cell membranes. They play essential roles in the physiology of all cells. In recent years, an ever-increasing number of human and animal diseases have been found to result from defects in ion channel function. Most of these diseases arise from mutations in the genes encoding ion channel proteins, and they are now referred to as the channelopathies. Ion Channels and Disease provides an informative and up-to-date account of our present understanding of ion channels and the molecular basis of i

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