

CONTENTS

Preface	ix
Contributors	xi
PART I NEURONAL VOLTAGE-GATED ION CHANNEL FUNCTIONS	1
1 Neuronal L-Type Voltage-Gated Calcium Channels	3
<i>Alexander Scriabine and David J. Triggle</i>	
2 Voltage-Gated N-Type and T-Type Calcium Channels and Excitability Disorders	35
<i>Elizabeth Tringham and Terrance P. Snutch</i>	
3 Voltage-Gated Sodium Channels: Multiple Roles in the Pathophysiology of Pain	67
<i>Sulayman D. Dib-Hajj, Bryan C. Hains, Joel A. Black, and Stephen G. Waxman</i>	
4 The Role of Ion Channels in the Etiology and Development of Gliomas	105
<i>Amy K. Weaver and Harald Sontheimer</i>	
5 Shaker Family K_v1 Voltage-Gated Potassium Channels in Mammalian Brain Neurons	127
<i>Helene Vacher and James S. Trimmer</i>	

6	Unique Mitochondrial Ion Channels: Roles in Synaptic Transmission and Programmed Cell Death	155
	<i>Elizabeth A. Jonas</i>	
7	Regulation of Neuronal Excitability by the Sodium-Activated Potassium Channels Slick (SLO2.1) and Slack (SLO2.2)	193
	<i>Valentin K. Gribkoff and Leonard K. Kaczmarek</i>	
PART II MODULATORY MECHANISMS AND INFLUENCES ON NEURONAL VOLTAGE-GATED ION CHANNEL FUNCTION		217
8	Alternative Splicing of Neuronal Ca_v2 Calcium Channels	219
	<i>Diane Lipscombe, Summer E. Allen, Annette C. Gray, Spiro Marangoudakis, and Jessica Raingo</i>	
9	Effect of Hypoxia/Ischemia on Voltage-Dependent Channels	251
	<i>Xiang Q. Gu, Hang Yao, and Gabriel G. Haddad</i>	
10	<i>In Vivo</i> Roles of Ion Channel Regulatory Protein Complexes in Neuronal Physiology and Behavior	279
	<i>Smitha Reddy, Mohammad Shahidullah, and Irwin B. Levitan</i>	
11	Regulation of Neuronal Ion Channels by G-Protein-Coupled Receptors in Sympathetic Neurons	291
	<i>Mark S. Shapiro and Nikita Gamper</i>	
12	BK Channels: Regulation of Expression and Physiological Impact	317
	<i>Pallob Kundu, Abderrahmane Alioua, Yogesh Kumar, Rong Lu, Jimmy W. Ou, Enrique Sanchez-Pastor, Min Li, Enrico Stefani, and Ligia Toro</i>	
13	Structural Basis for Auxiliary KChIP Modulation of K_v4 Channels	343
	<i>KeWei Wang and Jijie Chai</i>	
PART III DRUG DISCOVERY TARGETS AND TECHNOLOGY		363
14	Sodium Channel Blockers for the Treatment of Chronic Pain	365
	<i>Mark R. Bowlby and Edward Kaftan</i>	
15	Neuronal K_v7 Potassium Channels as Emerging Targets for the Treatment of Pain	393
	<i>Steven I. Dworketzky and Valentin K. Gribkoff</i>	

16	Small-Molecule Modulators of Large-Conductance, Calcium-Activated (BK) Channels	423
	<i>John E. Starrett Jr.</i>	
17	High-Throughput Screening Technologies in Ion Channel Drug Discovery	443
	<i>Edward B. Stevens, Andrew D. Whymant, and J. Mark Treherne</i>	
	Index	467

