

CONTENTS

Preface	v
Contributors	xi

PART I. HISTORY

1 History and Overview of Orexin/Hypocretin Research: <i>From Orphan GPCR to Integrative Physiology</i>	3
<i>Michihiro Mieda and Takeshi Sakurai</i>	

PART II. OVERVIEW OF THE OREXIN/HYPOCRETIN NEURONAL SYSTEM

2 Orexin and Orexin Receptors	13
<i>Takeshi Sakurai</i>	
3 Orexin Projections and Localization of Orexin Receptors	21
<i>Jacob N. Marcus and Joel K. Elmquist</i>	
4 Neuronal Responses to Hypocretin/Orexin	45
<i>Anthony N. van den Pol and Claudio Acuna-Goycolea</i>	
5 Afferent System of Orexin Neurons	61
<i>Akihiro Yamanaka</i>	

PART III. ASSESSMENT OF OREXIN/HYPOCRETIN FUNCTIONS IN TISSUE AND BIOLOGICAL FLUIDS

6 Hypocretin Measurements in the CSF, and Blood and Brain Tissue: <i>Basic and Clinical Applications</i>	73
<i>Seiji Nishino</i>	
7 Hypocretin Receptor-Activated G Proteins Revealed by [³⁵ S]GTPγS Autoradiography	83
<i>René Bernard, Ralph Lydic, and Helen A. Baghdoyan</i>	

PART IV. PHYSIOLOGY

A. Orexin/Hypocretin System and Hypothalamic Function

8 Orexin System and Feeding Behavior	99
<i>Takeshi Sakurai</i>	
9 Orexins and the Autonomic Nervous System	107
<i>Tetsuro Shirasaka and Masamitsu Nakazato</i>	
10 Neuroendocrine Role of the Orexins (Hypocretins)	119
<i>Shahrad Taheri</i>	

11	The Orexin/Hypocretin System and Stress and Emotion	131
	<i>Yoichi Ueta and Hiroaki Fujihara</i>	
	<i>B. Orexins/Hypocretins and Sleep Regulation</i>	
12	Hypocretin as a Wakefulness Regulatory Peptide	143
	<i>Luis de Lecea and J. Gregor Sutcliffe</i>	
13	Hypocretin/Orexin Tonus and Vigilance Control	155
	<i>Yasushi Yoshida and Seiji Nishino</i>	
14	Hypocretin System and Aminergic and Cholinergic Systems in the Control of Vigilance	175
	<i>Krister S. Eriksson and Helmut L. Haas</i>	
15	Orexin and Hypothalamic Control of Sleep and Waking	189
	<i>Rodrigo A. España and Thomas E. Scammell</i>	
16	Hypocretin/Orexin and Motor Function	209
	<i>Jerome M. Siegel</i>	
PART V. PATHOPHYSIOLOGY: NARCOLEPSY AND OREXIN/HYPOCRETIN DEFICIENCY		
	<i>A. Orexin/Hypocretin Deficiency and Narcolepsy</i>	
17	Overview of Human Narcolepsy	221
	<i>Scott Fromherz and Emmanuel Mignot</i>	
18	Canine Models of Narcolepsy	233
	<i>Seiji Nishino</i>	
19	Rodent Models of Human Narcolepsy-Cataplexy	255
	<i>Michihiro Mieda and Masashi Yanagisawa</i>	
	<i>B. Orexin/Hypocretin Deficiency in Human Narcolepsy and Other Conditions</i>	
20	Hypocretin Deficiency in Human Narcolepsy: <i>Mutation Screening, Neuropathology, and CSF Hypocretin-1 Level</i>	269
	<i>Patrice Bourgin, Jamie M. Zeitzer, and Emmanuel Mignot</i>	
21	Hypocretin Status in Neurological Disorders in Relation to Excessive Sleepiness and Cataplexy	287
	<i>Takashi Kanbayashi, Junko Arai, Hideaki Kondo, Tetsuo Shimizu, and Seiji Nishino</i>	
22	Hypocretin Measures in Psychiatric Disorders	317
	<i>Ronald M. Salomon</i>	
23	Neuroendocrinology of Human Narcolepsy	329
	<i>Gert Jan Lammers, Sebastiaan Overeem, and Hanno Pijl</i>	
24	Narcolepsy and Autoimmunity	341
	<i>Shahrad Taheri, Jose Paterno, Ling Lin, and Emmanuel Mignot</i>	

<i>C. Treatment/Pharmacology</i>	
25	Pharmacology of Orexin/Hypocretin Peptides and Small Molecules 349 <i>Stephen J. Perry, David A. Schwarz, and Richard A. Maki</i>
26	Rescue of Narcoleptic Orexin Neuron-Ablated Mice by Ectopic Overexpression of Orexin Peptides 359 <i>Michihiro Mieda, Jon T. Willie, and Takeshi Sakurai</i>
27	Hypocretin/Orexin Replacement Therapy in Hypocretin/Orexin-Deficient Narcolepsy: <i>An Overview</i> 367 <i>Nobuhiro Fujiki and Seiji Nishino</i>
Index 389	