

Contents

1 Introduction to Circadian Rhythms, Clocks, and Its Genes	1
Raúl Aguilar-Roblero	

Part I Circadian Systems

2 Oxidative Stress and Its Role in the Synchronization of Circadian Rhythms in Crustaceans: An Ecological Perspective	15
María Luisa Fanjul-Moles and Julio Prieto-Sagredo	
3 Control of Rest–Activity Behavior by the Central Clock in <i>Drosophila</i>	31
Shailesh Kumar and Amita Sehgal	
4 Biological Rhythmicity in Subterranean Animals: A Function Risking Extinction?	55
Luiz Menna-Barreto and Eleonora Trajano	
5 Avian Circadian Organization	69
Vincent M. Cassone	
6 Functional Organization of Circadian Timing System of a Diurnal Primate (Marmoset)	97
Christiane Andressa da Silva, Carolina Carrijo, Kathiane Santana, and John Fontenele Araujo	

Part II Mechanisms of Circadian Oscillation

7 Intracellular Calcium as a Clock Output from SCN Neurons.....	115
Raúl Aguilar-Roblero, Mauricio Díaz-Muñoz, Adrian Báez-Ruíz, Daniel Quinto-Muñoz, Gabriella Lundkvist, and Stephan Michel	

8	GABA_A Receptor-Mediated Neurotransmission in the Suprachiasmatic Nucleus.....	133
	Charles N. Allen, Nathan J. Klett, Robert P. Irwin, and Mykhaylo G. Moldavan	
9	Relevance of Network Organization in SCN Clock Function.....	149
	Elvira Morgado, Claudia Juárez-Portilla, Ann-Judith Silverman, and Rae Silver	
10	Behavioral, Physiological and Neuroendocrine Circadian Rhythms During Lactation	177
	Mario Caba, Stefan Waliszewski, and Enrique Meza	
11	A Time to Wake, a Time to Sleep.....	197
	Horacio O. de la Iglesia and Michael L. Lee	
 Part III Clinical Relevance of Circadian Rhythmicity		
12	Chronostasis: The Timing of Physiological Systems.....	221
	Raúl Aguilar-Roblero	
13	Circadian Rhythm and Food/Nutrition	237
	Yu Tahara and Shigenobu Shibata	
14	Physiopathology of Circadian Rhythms: Understanding the Biochemical Mechanisms of Obesity and Cancer.....	261
	Manuel Miranda-Anaya, Christian Molina-Aguilar, Olivia Vázquez-Martínez, and Mauricio Díaz-Muñoz	
15	Effects of Circadian Disruption on Physiology and Pathology: From Bench to Clinic (and Back)	289
	Juan J. Chiesa, José M. Duhart, Leandro P. Casiraghi, Natalia Paladino, Ivana L. Bussi, and Diego A. Golombek	
16	Circadian Dysfunction in Huntington's Disease	321
	Dika Kuljis, Analyne M. Schroeder, Takashi Kudo, Dawn H. Loh, and Christopher S. Colwell	
17	Is It Possible to Modify Clock Genes to Improve Health?	339
	Gabriela Domínguez-Monzón and José Segovia	
	Glossary	351
	Index.....	357

Mechanisms of Circadian Systems in Animals and Their
Clinical Relevance

Aguilar-Roblero, R.; Díaz-Muñoz, M.; Fanjul-Moles, M.L.
(Eds.)

2015, XXIV, 380 p. 83 illus., 47 illus. in color., Hardcover

ISBN: 978-3-319-08944-7