

1. Record Nr.	UNINA9910508447003321
Titolo	Circadian Clock in Brain Health and Disease / / edited by Olivia Engmann, Marco Brancaccio
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	3-030-81147-6
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (193 pages)
Collana	Advances in Experimental Medicine and Biology, , 2214-8019 ; ; 1344
Disciplina	612.022
Soggetti	Neurosciences Neuropsychology Neural circuitry Nervous system - Diseases Neuroscience Neural Circuits Neurological Disorders Ritmes circadiaris Salut mental Malalties cerebrals Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	PART I. Molecular Gears of the Circadian Clock -- Introduction to the Clock System -- Circadian Clocks, Sleep, and Metabolism -- Linking Depression to Epigenetics: Role of the Circadian Clock -- PART II. Brain Regions Implicated in Circadian Rhythms -- The Brain's Reward System in Health and Disease -- Brain Clocks, Sleep and Mood -- Astrocyte Circadian Timekeeping in Brain Health and Neurodegeneration -- PART III. Clock and Mental Illness -- The Role of the Circadian System in Attention Deficit Hyperactivity Disorder -- How Psychoactive Drugs and the Circadian Clock Are Enlightening One Another -- Circadian Rhythms in Mood Disorders -- The Reciprocal Interaction Between Sleep and Alzheimer's Disease.

Sommario/riassunto

In this book, leading experts in the field review how circadian rhythms impact the brain. An essential function of mammalian life is the exploitation of the regularities provided by the 24-hour cycle of day and night. The development and evolution of circadian clock mechanisms have allowed us to optimally adapt our behavior and physiology to the external world. Not surprisingly, a growing body of evidence links the disruption of circadian rhythms by genetic, lifestyle and environmental factors to illnesses of the brain. In the first section of the book, readers will learn about the molecular and anatomic architecture of circadian function in mammals. The ways in which environmental disruptions and misalignments can influence such mechanisms and therefore impair brain function and health status are also addressed. In the second part, the focus shifts to those brain regions responsible for brain function and the body-wide regulation of circadian function. Amongst others, special attention is paid to the role of astrocytes and the brain's reward and hypocretin / orexin systems. The book concludes with an extensive discussion on the consequences of circadian rhythm dysfunction. Several chapters present the latest findings on Attention Deficit Hyperactivity Disorder, schizophrenia, autism spectrum disorder, drug abuse and mood disorders. Written by authorities in the field, the book provides a state-of-the-art review of the latest findings on circadian clocks in the brain and highlights their potentially far-reaching impacts on our health and well-being. As such, it is essential reading for all neuroscientists and clinicians seeking to understand the intricate connections between circadian rhythms and brain health and illness.
