1. Record Nr. UNINA9910156411503321

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Titolo	The blood-brain barrier in health and disease / / William G. Mayhan, Denise M. Arrick
Pubbl/distr/stampa	[San Rafael, California] : , : Morgan & Claypool Life Sciences, , 2017 ©2017
ISBN	1-61504-740-9
Descrizione fisica	1 online resource (77 pages) : illustrations (some color)
Collana	Colloquium Series on Integrated Systems Physiology: From Molecule to Function, , 2154-5626 ; ; Lecture Number 72
Disciplina	612.824
Soggetti	Blood-brain barrier Blood-brain barrier disorders Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Part of: Colloquium digital library of life sciences.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1. Introduction -- 2. Characteristics of the blood-brain barrier -- 2.1 Development of the blood-brain barrier -- 2.2 Endothelial transport systems -- 3. Ultrastructural components of the blood-brain barrier -- 3.1 Tight junctional proteins -- 3.1.1 Occludin -- 3.1.2 Claudin -- 3.1.3 Junctional adhesion molecule -- 3.1.4 Accessory proteins -- 3.2 Adherens junctions -- 4. Cellular components of the blood-brain barrier -- 4.1 Astrocytes -- 4.2 Pericytes -- 4.3 Neurons -- 4.4 Microglia -- 5. Compromising the blood-brain barrier -- 5.1 Site of disruption of the blood-brain-barrier -- 5.2 Seizures/acute hypertension -- 5.3 Neuroinflammatory diseases -- 5.4 Diabetes -- 5.5 Traumatic brain injury -- 5.6 Cerebral ischemia/stroke -- 6. Summary -- References -- About the authors.
Sommario/riassunto	The blood-brain barrier (BBB) is a complex and dynamic structure that protects the brain from cells within the vasculature, from the immune system and from pathogens. This barrier is present in arterioles, capillaries and venules and is formed at the level of adjacent endothelial cells, which are coupled to astrocytes, microglia, neurons

and pericytes. The structure of this endothelial barrier is unique among endothelia of other organ systems and is composed of complexes made up of tight, gap and adherens junctions. In addition, it is the responsibility of the surrounding cellular elements to maintain the integrity of the junctional complexes and restrict the entry of substances from the blood into the brain. Changes in permeability of the BBB during physiologic and pathophysiologic conditions involve alterations in specific transporters at the level of the endothelium, activation of specific cellular second messenger pathways and/or the dissolution of the junctional complexes composing the BBB. This book focuses on various aspects that account for the formation and maintenance of the BBB, and on disease states that compromise this barrier.