

1. Record Nr.	UNINA9910954778503321
Autore	Verkhratskii A. N (Aleksei Nestorovich)
Titolo	Glial Physiology and Pathophysiology
Pubbl/distr/stampa	Hoboken, : Wiley, 2013
ISBN	9781299159464 129915946X 9781118402030 1118402030 9781118402054 1118402057
Edizione	[1st ed.]
Descrizione fisica	1 online resource (561 p.)
Altri autori (Persone)	ButtArthur Morgan
Disciplina	612.8
Soggetti	Nervous System Diseases - physiopathology Nervous system diseases -- Physiopathology Neuroglia - pathology Neuroglia -- Pathology Neuroglia - physiology Neuroglia -- Physiology Neuroglia - Pathophysiology Nervous System Disease Medicine Biological Science Disciplines Cells Health Occupations Anatomy Natural Science Disciplines Neuroglia Nervous System Diseases Pathology Physiology Human Anatomy & Physiology Health & Biological Sciences Neuroscience
Lingua di pubblicazione	Inglese

Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	<p>Glial Physiology and Pathophysiology; Contents; Preface; About the Authors; Abbreviations; About the Companion Website; 1 History of Neuroscience and the Dawn of Research in Neuroglia; 1.1 The miraculous human brain: localising the brain functions; 1.2 Cellular organisation of the brain; 1.3 Mechanisms of communications in neural networks; 1.3.1 Electrical/ionic nature of excitability; 1.3.2 Chemical signalling between neural cells; 1.4 The concept of neuroglia; 1.5 Beginning of the modern era; 1.6 Concluding remarks; References; 2 General Overview of Signalling in the Nervous System</p> <p>2.1 Intercellular signalling: wiring and volume modes of transmission2.2 Cellular signalling: receptors; 2.3 Intracellular signalling: second messengers; 2.4 Calcium signalling; 2.4.1 Cellular <math>Ca^{2+}</math> regulation; 2.5 Concluding remarks; 3 Neuroglia: Definition, Classification, Evolution, Numbers, Development; 3.1 Definition of neuroglia as homeostatic cells of the nervous system; 3.2 Classification; 3.3 Evolution of neuroglia; 3.3.1 Evolution of astrocytes; (i) Nematoda: neuroglia in <i>Caenorhabditis elegans</i>; (ii) Annelida: astroglia in leech (iii) Arthropoda: astrocytes in <i>Drosophila</i> and other insects(iv) Neuroglia in early Deuterostomia (Hemichordata and Echinodermata); (v) Neuroglia in low vertebrates; (vi) Glial advance in higher vertebrates; 3.3.2 Evolution of myelination; 3.3.3 Evolution of microglia; 3.4 Numbers: how many glial cells are in the brain?; 3.5 Embryogenesis and development of neuroglia in mammals; 3.5.1 Macroglial cells; 3.5.2 Astroglial cells are brain stem cells; 3.5.3 Peripheral glia and schwann cell lineage; 3.5.4 Microglial cell lineage; 3.6 Concluding remarks; References; 4 Astroglia</p> <p>4.1 Definition and heterogeneity4.2 Morphology of the main types of astroglia; 4.3 How to identify astrocytes in the nervous tissue; 4.4 Astroglial syncytial networks; 4.4.1 Gap junctions, connexons and connexins; 4.4.2 Astroglial networks; 4.5 Physiology of astroglia; 4.5.1 Membrane potential and ion distribution; 4.5.2 Ion channels; (i) Potassium channels; (ii) Voltage-operated sodium channels (Nav); (iii) Calcium channels; (iv) Transient receptor potential or TRP channels; (v) Anion/chloride channels; (vi) Aquaporins; 4.5.3 Receptors to neurotransmitters and neuromodulators</p> <p>(i) Glutamate receptors(ii) Purinoceptors; (iii) -aminobutyric acid receptors (GABA) receptors; (iv) Glycine receptors; (v) Acetylcholine receptors; (vi) Adrenergic receptors; (vii) Serotonin receptors; (viii) Histamine receptors; (ix) Cannabinoid receptors; (x) Neuropeptide receptors; (xi) Cytokine and chemokine receptors; (xii) Complement receptors; (xiii) Platelet-activating factor receptors; (xiv) Thrombin receptors; (xv) Ephrin receptors; (xvi) Succinate receptors; 4.5.4 Astroglial membrane transporters; (i) ATP-dependent transporters; (ii) Secondary transporters</p> <p>4.5.5 Calcium signalling in astroglia</p>
Sommario/riassunto	Glial Physiology and Pathophysiology provides a comprehensive, advanced text on the biology and pathology of glial cells. Coverae includes:the morphology and interrelationships between glial cells and neurones in different parts of the nervous systemsthe cellular physiology of the different kinds of glial cellsthe mechanisms of intra- and inter-cellular signalling in glial networksthe mechanisms of glial-neuronal communicationsthe role of glial cells in synaptic plasticity,

