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Nervous System -- Chapter 22: Neuropathic Pain -- Chapter 23: Role of Microglia in Stroke -- Chapter 24: Infectious Diseases including COVID-19 and HAND -- Chapter 25: Microglia and Multiple Sclerosis -- Chapter 26: Neurodevelopmental and Neuropsychiatric Disorders -- Chapter 27: Neurodegenerative Diseases -- Chapter 28: Microglia in Glioma -- PART V: Clinical Potential -- Chapter 29: Microglial Risk Alleles for Neurodegenerative Diseases (GWAS studies) -- Chapter 30: Emerging Models for the Study of Human Microglia in vitro (e.g. IPSCs, minibrains) -- Chapter 31: Emerging Models for the Study of Human Microglia ex vivo (comparison between human and rodent microglia) -- Chapter 32: Radiotracers for Microglial PET Imaging in vivo (focus on TSPO and its limitations) -- Chapter 33: Role of Microglial Modulation in Therapies for Perinatal Brain Injuries Leading to Neurodevelopmental Disorders -- Chapter 34: Metabolic Control of Microglial Function -- Chapter 35: Microglial Emerging Therapies and Targets under Clinical Trial -- Chapter 36: Epilogue.

Sommario/riassunto

The past decade has witnessed a revolution in our understanding of microglia, especially since their roles in the healthy CNS have started to unravel. These cells were shown to actively maintain health, in concert with neurons and other types of CNS cells, providing further insight into their crucial involvement with diseases. Edited by Drs. Marie-Ève Tremblay and Alexei Verkhratsky, Microglia: Physiology, Pathophysiology and Therapeutic Potential shares with the scientific and medical community the latest discoveries in the microglial research field, with a truly comprehensive collection of chapters written by the top specialists across five continents. The book begins by explaining briefly what they are, from both historical and evolutionary points of view, and how they can be studied. The first section explains their physiological roles in the maturation, function, and plasticity of the CNS. The second section focuses on their general involvement in neuropathophysiology, and the third section on their critical implication in specific CNS diseases, including neurotrauma, neuropathic pain, ischemia and stroke, infectious diseases, autoimmune diseases, neurodevelopmental and neuropsychiatric disorders, substance use and addiction, sleep disorders, ageing, and neurodegenerative diseases. The fourth section presents their clinical potential as a targeted therapeutic tool for these CNS diseases.