Special Issue

Debris Clearance by Microglia in Health and Disease

Message from the Guest Editors

Microglia are the brain's primary phagocytes. As such, a core function of microglia in maintaining tissue homeostasis, regulating inflammation and promoting regeneration involves the phagocytic clearance of apoptotic cells, cellular debris, myelin and protein aggregates. This clearance function is amplified in development, brain injury, aging and neurodegenerative diseases, including Alzheimer's, Parkinson's, Huntington's disease, amyotrophic lateral sclerosis, multiple sclerosis, frontotemporal dementia and Pick's disease. Furthermore, it can protect the brain from debris accumulation. The clearance potential of microglia declines with aging, and an insufficient clearance of microglia is thought to contribute to the pathology of several neurodegenerative diseases, most notably Alzheimer's disease. Microglial phagocytic clearance can also go awry during disease and aberrantly remove healthy neurons and synapses, exacerbating neurodegeneration. Therefore, elucidating the molecular mechanisms underlying microglial phagocytosis is critical in furthering our understanding of brain development, aging and diseases.

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Neuroglia covers the critically important functions of the diverse range of cells within the nervous system that are collectively called glia. Our journal focuses on the development, function, and pathology of glia in the central and peripheral nervous systems, as well as how these cells can be used therapeutically to repair injuries and diseases of the nervous system. The journal welcomes research using the latest in vitro and in vivo animal and human research, with a view to its translation into potential human therapies.

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