

Special Issue

Exploring Glia: New Insights into Neurobiology and Therapeutic Potential

Message from the Guest Editor

Glial cells are increasingly recognized as central regulators of metabolic homeostasis in the brain. Far from being passive support elements, astrocytes, tanycytes, oligodendrocytes, and microglia sense and integrate peripheral and central metabolic cues, adjusting neuronal excitability and shaping systemic energy balance. When glial metabolism is disturbed, the consequences can be profound: obesity, diabetes, and other metabolic diseases not only arise but are often worsened by impaired glial function. At the same time, chronic metabolic stress feeds back on glia, reducing their ability to sustain neurogenesis and to preserve the proliferative and differentiation potential of neuronal precursors. This crosstalk creates a direct link between metabolic dysregulation, cognitive decline, and neurodegeneration. This Special Issue invites contributions that shed light on these bidirectional processes—from molecular mechanisms to systemic consequences—highlighting glial plasticity under metabolic stress and its impact on brain health and disease progression.

Guest Editor

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