

Special Issue

Molecular Research in Cerebral Ischemia: From Microglial States to Angiogenic Resilience

Message from the Guest Editor

This Special Issue, "Molecular Research in Cerebral Ischemia: From Microglial States to Angiogenic Resilience", explores the dynamic cellular and molecular shifts that dictate brain recovery following ischemic insult. Traditionally viewed through the lens of acute neuronal loss, modern stroke research now recognizes the neurovascular unit (NVU) as a highly plastic ecosystem where interplay between the cerebral vasculature and the immune environment determines long-term outcomes. This Special Issue focuses on the bidirectional signaling between the brain's innate immune system and the vascular architecture. Primary emphasis is placed on microglial plasticity, investigating how these resident immune cells transition between pro-inflammatory and pro-repair phenotypes to either exacerbate secondary injury or facilitate tissue remodeling. In parallel, this Special Issue examines the mechanisms of angiogenic resilience, highlighting how the restoration of tissue oxygenation and the formation of robust, functional microvessels can mitigate the "augmented damage" often seen in conditions such as subarachnoid hemorrhage and focal ischemia.

Guest Editor

Dr. Abdullah Ahmad
Henry Ford Health System, Detroit, MI, USA

Deadline for manuscript submissions

28 February 2027



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 5.6
CiteScore 10.0
Indexed in PubMed



mdpi.com/si/272759

*International Journal of
Molecular Sciences*
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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Prof. Dr. José L. Quiles
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Avda. Conocimiento s/n, 18100 Armilla, Granada, Spain

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