

Special Issue

Molecular Mechanisms and Therapeutic Potential of Extracellular Vesicles in Neurovascular Diseases

Message from the Guest Editor

- Neurovascular diseases are driven by complex cellular interactions across the brain–vascular interface. Extracellular vesicles (EVs) have emerged as critical mediators of this crosstalk, carrying bioactive cargo such as microRNAs, proteins, lipids, and mitochondrial components. Once considered cellular debris, EVs are now recognized as potent regulators of endothelial function, blood–brain barrier stability, neuroinflammation, and neuronal survival. Increasing evidence shows that dysregulated EV signaling contributes to neurovascular injury, while therapeutic EVs from stem cells, immune cells, and metabolic tissues offer promising avenues for neuroprotection and vascular repair.
- This Special Issue highlights cutting-edge research into the molecular mechanisms by which EVs influence neurovascular biology. It also explores EVs' translational potential as biomarkers, drug delivery vehicles, and mitochondrial or genetic therapeutics. By integrating insights from vascular biology, neuroscience, and regenerative medicine, this issue aims to advance the development of EV-based strategies for diagnosing, preventing, and treating neurovascular diseases.

Guest Editor

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Message from the Editor-in-Chief

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