

Special Issue

Brain Function and Structure: Mapping Complexity in Neuronal Cells

Message from the Guest Editor

The emergence of high-resolution imaging, single-cell transcriptomics, and computational modeling has unveiled new layers of complexity in neural networks and their cellular components. Among these, glial cells—once thought to play merely supportive roles—are now recognized as active participants in the regulation of neuronal signaling, plasticity, and brain homeostasis. In this issue, we aim to showcase how these technological innovations are reshaping the study of glial and neural function and the broader understanding of neural systems. We also highlight how biophysical factors, such as mechanical forces, ionic microenvironments, and metabolic coupling, can modulate both neuronal and glial activity, influencing communication and synchronization within neural circuits. Through state-of-the-art approaches, including advanced microscopy, optogenetics, and molecular profiling, researchers are uncovering how glia and neurons contribute to circuit dynamics in both physiological and pathological contexts. From astrocyte-neuron signaling to microglial modulation of synaptic networks, these discoveries underscore the intricate interplay between biological and physical mechanisms.

Guest Editor

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Cells has become a solid international scientific journal that is now indexed on SCIE and in other databases. We have successfully introduced a special issues format so that these issues serve as mini-forums in specific areas of cell science. *Cells* encourages researchers to suggest new special issues, serve as special issues editors, and volunteer to be reviewers. Our main focus will remain on cell anatomy and physiology, the structure and function of organelles, cell adhesion and motility, and the regulation of intracellular signaling, growth, differentiation, and aging. We are open to both original research papers and reviews.

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