



How Do Astrocytes Shape Synaptic Transmission and Plasticity?

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Message from the Guest Editors

Over the last two decades, neuroscience has witnessed a major shift in the way we approach the operation of various brain circuits. It has become clear that the simplistic idea to envisage the brain as a network of interconnected neurons has failed. Neurons never operate in isolation, and they are actively modulated by astrocytes. Moreover, in some cases, we see evidence of the active participation of astrocytes in the most basic physiological functions of the brain, for example, in the context of cardiorespiratory homeostasis.

There are numerous ways via which astrocytes modify and control neuronal networks. This includes control of the extracellular glutamate concentration, control of ions, such as the local potassium concentration, control of the local pH and metabolic and signalling interactions via lactate and ATP. All of these pathways are powerful enough to change the output of neuronal networks with implications for all brain functions, from control of breathing to plasticity, memory and sleep cycle control, among others.

We are looking at contributions from all laboratories.





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Message from the Editor-in-Chief

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