Special Issue

How Can Astrocytes Specifically Modulate Information Processing in the Brain?

Message from the Guest Editor

In recent years, several studies using highly sophisticated tools demonstrated that by altering functions of astrocytes we can modify animals' behaviour in a surprisingly precise way and affect such extraordinary complex processes as memory formation and/or recall. This represents a formidable challenge to the current theories of memory, because all of them relate the formation of memory traces to modifications of numerous synapses widely distributed within some parts of the brain. At the same time, at present we do not know of any mechanism that could allow one astrocytic soma to differentially interact with all the thousands of end feet that it may possess and that may contact different synapses on several adjacent neurones. Neither is it clear how an astrocyte could work as an integrator of information of any kind. Indeed, the astrocytic membrane is electrically leaky, and charges/currents do not propagate far enough. Ca2+ elevations in different parts of the same cell seem to happen without coordination (unless the whole cell is exposed to a stimulant such as ATP).

Guest Editor

Prof. Dr. Sergey Kasparov
School of Physiology, Pharmacology and Neuroscience, University of Bristol, University Walk, Bristol BS8 1TD, UK

Deadline for manuscript submissions

closed (30 September 2019)

Brain Sciences

an Open Access Journal by MDPI

Impact Factor 2.8
CiteScore 5.6
Indexed in PubMed

mdpi.com/si/24426

Brain Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
brainsci@mdpi.com

mdpi.com/journal/brainsci

Brain Sciences

an Open Access Journal by MDPI

Impact Factor 2.8
CiteScore 5.6
Indexed in PubMed

mdpi.com/journal/brainsci

MDPI

About the Journal

Message from the Editor-in-Chief

You are invited to contribute a research article or a comprehensive review for consideration and publication in *Brain Sciences* (ISSN 2076-3425). *Brain Sciences* is an open access, peer-reviewed scientific journal that publishes original articles, critical reviews, research notes, and short communications on neuroscience. The scientific community and the general public can access the content free of charge as soon as it is published.

Editor-in-Chief

Prof. Dr. Stephen D. Meriney
Department of Neuroscience, University of Pittsburgh, Pittsburgh, PA 15260, USA

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, PMC, Embase, PSYNDEX, PsycInfo, CAPlus / SciFinder, and other databases.

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.2 days after submission; acceptance to publication is undertaken in 1.9 days (median values for papers published in this journal in the first half of 2025).

Recognition of Reviewers:

reviewers who provide timely, thorough peer-review reports receive vouchers entitling them to a discount on the APC of their next publication in any MDPI journal, in appreciation of the work done.