

Special Issue

Gut–Brain Axis: Pathophysiological Mechanisms in Neurological Disorders and Metabolic Diseases

Message from the Guest Editor

Bidirectional communication between the gut and the brain can be influenced by a wide variety of environmental and dietary stimuli, altering the gut microbiota and influencing the immune system. The gut microbiota plays a role in the development of brain regions and is thought to influence human behavior and brain function. Studies have indicated a causal link between altered gut microbiota and the onset and progression of neurodegenerative/neuroinflammatory diseases, psychiatric disorders, and neurological disorders. The gut–brain axis can have significant effects on anxiety, stress, depression, pain, cognitive function, and memory. On the other hand, stress can lead to changes in the microbiota and consequently mood via the hypothalamic–pituitary–adrenal axis. Dysregulation in the gut–brain communication can occur through a complex bidirectional communication system. A series of events that include changes in intestinal permeability, production of microbial metabolites, and activation of the enteric nervous system, immune system, microglia, and astrocytes can lead to mood and behavioral disturbances, and metabolic and neurological alterations.

Guest Editor

Prof. Dr. Giovanna Traina

Department of Pharmaceutical Sciences, University of Perugia, Via Romana, 06126 Perugia, Italy

Deadline for manuscript submissions

25 October 2025



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



mdpi.com/si/238418

*International Journal of
Molecular Sciences*
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
ijms@mdpi.com

[mdpi.com/journal/
ijms](https://mdpi.com/journal/ijms)





International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



[mdpi.com/journal/
ijms](https://mdpi.com/journal/ijms)



About the Journal

Message from the Editor-in-Chief

The International Journal of Molecular Sciences (*IJMS*, ISSN 1422-0067) is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

Editor-in-Chief

Prof. Dr. Maurizio Battino

Department of Odontostomatologic and Specialized Clinical Sciences,
Sez-Biochimica, Faculty of Medicine, Università Politecnica delle
Marche, Via Ranieri 65, 60100 Ancona, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

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

Journal Rank:

JCR - Q1 (Biochemistry and Molecular Biology) / CiteScore
- Q1 (Organic Chemistry)