

Special Issue

Integrative Mechanisms and Translational Outcomes of Excitatory–Inhibitory Neurotransmission Switching in Neuropathic Pain

Message from the Guest Editor

Unified understanding of neuropathic pain remains incomplete. Notwithstanding, converging evidence suggests a transition from acute to chronic neuropathic pain takes place through the maladaptive disruption of excitatory–inhibitory (E/I) neurotransmission balance (defined as the ratio of excitatory versus inhibitory signaling) across molecular, cellular, and circuit levels. Basic studies show that peripheral nerve injury triggers the microglial release of BDNF, which in turn downregulates KCC2 and reduces GABAergic inhibition. The outcome of this process is the conversion of inhibitory inputs from GABAergic interneurons into excitatory output from dorsal horn projection neurons, thereby enhancing nociceptive signaling and the experience of pain. This Special Issue explores the integrative mechanisms and translational outcomes of excitatory–inhibitory (E/I) neurotransmission switching in neuropathic pain. Contributions are invited across molecular, cellular, circuit, and systems levels, including preclinical studies elucidating mechanistic pathways, clinical research on biomarkers and treatment effects, and computational or AI-based modeling of neurotransmission dynamics.

Guest Editor

Dr. Poppy Schoenberg
Vanderbilt University Medical Center, Nashville, TN 37203, USA

Deadline for manuscript submissions

30 November 2026



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 10.0
Indexed in PubMed



mdpi.com/si/263454

*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 10.0
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)* 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, and molecular biophysics. *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. José L. Quiles

Department of Physiology, Institute of Nutrition and Food Technology
"Jose Mataix", Biomedical Research Center, University of Granada,
Avda. Conocimiento s/n, 18100 Armilla, Granada, Spain

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, CAPus / SciFinder, and other databases.

Journal Rank:

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