

Special Issue

Molecular Mechanisms of Voltage-Gating and Modulation in Ion Channels

Message from the Guest Editor

Voltage-gated ion channels are membrane proteins whose activity directly modifies the membrane potential of cells by allowing for a selective ion flow across the cell membrane. These ion channels have their activity (open/close probability) modulated by the cell membrane's potential. In this fashion, voltage-gated ion channels participate in a very short loop of mechanistic feedback, in that the ion current that they generate instantly changes the membrane potential, which, in turn, directly modulates the channels' activity through their own built-in voltage sensors. Many aspects of these channels' voltage sensitivities, coupling, and modulation are still only partially understood or are yet to be discovered. Intramolecular and intermolecular mechanisms involving these channels are yet to be unveiled and framed as drug targets for research and development, as well as for potential therapeutics. This Special Issue is led by Dr. Joao Luis Carvalho de Souza as and assisted by Dr. Carlos Bassetto from UTSA.

Guest Editor

Dr. Joao Carvalho de Souza

Department of Physiology, Midwestern University, Glendale, AZ 85308, USA

Deadline for manuscript submissions

31 January 2026



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



mdpi.com/si/247016

*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)