

Special Issue

Advances in Design, Synthesis and Applications of Peptide Nucleic Acid

Message from the Guest Editors

PNA represents a unique class of synthetic nucleic acid analogs that have gained significant attention due to their promising applications in various biotechnology and therapeutics fields. The application of PNA extends across a diverse range of fields, including molecular diagnostics, gene editing, and nanotechnology. In diagnostics, PNA-based probes offer superior sensitivity and specificity for target detection, enabling the accurate diagnosis of various diseases. Using PNA as a gene editing tool holds great promise for genome manipulation with minimal off-target effects. Improvements in delivery systems, such as nanoparticle-based carriers and cell-penetrating peptides, have facilitated the efficient delivery of PNA therapeutics, overcoming the challenges associated with cellular uptake and bioavailability. This Special Issue encapsulates the recent progress in the design, synthesis, and development of PNA molecules, highlighting their structural features, synthesis methodologies and emerging applications.

Guest Editors

Dr. Maria Moccia

Dr. Concetta Avitabile

Dr. Annalisa Masi

Deadline for manuscript submissions

closed (30 July 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/200488

*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)