

# Special Issue

## Molecular and Cellular Mechanisms of Intervertebral Disc Disease

### Message from the Guest Editor

This Special Issue aims to explore recent advancements and comprehensive reviews in intervertebral disc biology, particularly focusing on disc degeneration and aging. Research topics of interest include, but are not limited to, the following:

- Molecular mechanisms underlying disc degeneration, including cellular senescence, apoptosis, ferroptosis, necrosis, inflammation, and oxidative stress.
- Cellular processes such as ECM remodeling mediated by matrix metalloproteinases (MMPs) and their inhibitors.
- The role of cytokines and growth factors in disc health and disease.
- Mechanisms influencing disc aging, nutrition, and mechanical integrity.
- Biomarkers for assessing disc degeneration progression and therapeutic response.
- Advances in understanding disc herniation and potential strategies for disc regeneration.

Contributions exploring new therapeutic avenues, including molecular targets, regenerative approaches, and innovative diagnostic techniques, are encouraged. Additionally, studies utilizing animal models and clinical trials aimed at validating therapeutic strategies for disc degeneration are welcome. We look forward to your valuable contributions to this Special Issue.

---

### Guest Editor

Dr. Hosni Cherif

1. The Orthopaedic Research Laboratory, Research Institute of the McGill University Health Centre, Montreal, QC, Canada
2. Department of Surgery, Division of Orthopaedics, McGill University, Montreal, QC, Canada
3. The McGill Scoliosis and Spine Group, McGill University Health Centre, Montreal, QC, Canada

---

### Deadline for manuscript submissions

30 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/212346](https://mdpi.com/si/212346)

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