

## Special Issue

# Molecular Mechanisms of Skeletal Muscle Growth and Loss in Health, Aging, and Disease

### Message from the Guest Editor

Skeletal muscle is central to locomotion, metabolism, and systemic homeostasis. This Special Issue of *Biomolecules* focuses on the molecular mechanisms that underlie skeletal muscle growth, adaptation, and loss in health, aging, and disease. We welcome original research and reviews addressing topics such as the following:

Metabolic signaling pathways (anabolic and catabolic) driving muscle growth or wasting;

Mechanotransduction and load-dependent molecular responses in muscle plasticity;

Redox stress, oxidative damage, and mitochondrial regulation of muscle adaptation;

Inflammation and immune regulation in muscle growth and degeneration;

Extracellular vesicles/exosomes as mediators of inter-tissue communication;

Obesity, metabolic dysfunction, and chronic disease effects on muscle homeostasis;

Multi-omics approaches, biomarkers, and therapeutic strategies to mitigate muscle loss.

Through mechanistic insights and translational perspectives, this Special Issue aims to provide a comprehensive platform for advancing the science of skeletal muscle biology and therapeutic innovation.

### Guest Editor

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### Deadline for manuscript submissions

31 July 2026



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### Message from the Editorial Board

*Biomolecules* is a multidisciplinary open-access journal that reports on all aspects of research related to biogenic substances, from small molecules to complex polymers. We invite manuscripts of high scientific quality that pertain to the diverse aspects relevant to organic molecules, irrespective of the biological question or methodology. We aim for a competent, fair peer review and rapid publication. Please look at some of the exciting work that has been published in *Biomolecules* so far. We would be delighted to welcome you as one of our authors.

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