Special Issue

Emerging Insights into the Role of Polyamines in Cellular Metabolism and Function

Message from the Guest Editors

Polyamines are small, polycationic molecules essential for cell proliferation, development, and stress responses. Polyamine homeostasis is maintained through coordinated biosynthesis, catabolism, transport, and uptake from diet and microbiota. Recent studies have highlighted the roles of polyamines in metabolism and signaling across diverse species. Spermidine has gained attention for its role in autophagy, lifespan elongation, and anti-inflammatory properties. Polyamine dysregulation is common in cancer and polyamines contribute to immune suppression and resistance to immunotherapy. These insights have revitalized interest in polyamine-targeting cancer therapies that address both tumor growth and immune suppression. Beyond cancer, dysregulated polyamine metabolism is implicated in neurodegenerative diseases, wound healing, and infectious diseases. In plant biology, polyamines contribute to growth, stress tolerance, and defense, with potential for crop improvement under climate stress. This Special Issue of Biomolecules aims at presenting new findings in polyamine biology across model systems, emphasizing their broad relevance in health, disease, and environmental adaptation.

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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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