

## Special Issue

# Hematopoietic Stem Cells: Molecular Insights into Homeostasis, Disease, and Aging

### Message from the Guest Editor

Hematopoietic stem cells (HSCs) maintain lifelong blood cell production through self-renewal and multilineage differentiation. Dysregulation of molecular mechanisms that regulate HSC homeostasis can lead to disorders like bone marrow failure, clonal hematopoiesis, and leukemia. Aging alters HSCs, impairing immune function and increasing disease susceptibility. This Special Issue focuses on molecular mechanisms of HSC senescence and its role in age-related disorders. We invite research and reviews on cellular and molecular drivers of HSC decline, including DNA damage, epigenetic changes, and metabolic reprogramming. Studies on the relationship between clonal hematopoiesis, inflammation, and age-related diseases, as well as single-cell or spatial transcriptomics exploring HSC heterogeneity, are encouraged. Additionally, we will examine the impact of HSC senescence on bone marrow failure and leukemia risk, aiming to inform new therapeutic strategies for age-related diseases.

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### Guest Editor

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### Deadline for manuscript submissions

20 August 2026



## International Journal of Molecular Sciences

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Impact Factor 4.9  
CiteScore 9.0  
Indexed in PubMed



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*International Journal of  
Molecular Sciences*  
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