Special Issue

Hemolytic Anemia: From Molecular Mechanisms to Therapeutic Exploitation

Message from the Guest Editor

Hemolytic anemias encompass a diverse group of disorders characterized by the premature destruction of red blood cells (RBCs), leading to reduced RBC lifespan and anemia. Advances in molecular biology have significantly enhanced our understanding of underlying pathophysiological mechanisms, revealing mutations in membrane proteins, cytoskeletal components, enzymes of the glycolytic pathway, and hemoglobin structure or synthesis.

This molecular insight has opened new avenues for therapeutic exploitation. Targeted therapies now aim to modulate defective pathways, restore red cell homeostasis, or suppress aberrant immune responses. Complement inhibitors have transformed the management of paroxysmal nocturnal hemoglobinuria and atypical hemolytic uremic syndrome. Moreover, supportive treatments remain essential in specific contexts.

The translational journey from molecular understanding to clinical intervention exemplifies the progress in precision medicine. Continued research is vital to expand the number of therapeutic options, and to ensure reasonable access to advanced diagnostics and personalized treatments across healthcare systems.

Guest Editor

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Deadline for manuscript submissions

30 September 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/236271

International Journal of Molecular Sciences
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