

## Special Issue

# Biochemical and Biophysical Properties of Red Blood Cells in Disease

### Message from the Guest Editor

Red blood cells (RBCs, erythrocytes) are highly specialized cells devoted to the transport of respiratory gases. In blood circulation, RBCs are subjected to blood flow-induced shear stress and oxidative stress. To withstand these conditions, RBCs have unique biochemical and biophysical properties, which define their functionality. In a mature state in a healthy person, these cells live in the circulation for 100 to 120 days. In numerous pathological conditions (e.g., diabetes and cardiovascular) and under aging (in vivo and during storage), the biochemical and biophysical features of RBCs can be drastically altered. The nature of the membrane of erythrocytes, as well as proteins of the cytoskeleton, their molecular interactions and the lipid composition of this membrane, the content of ions and water, membrane permeability, and the regulation of signaling pathways through specific receptors are different aspects that determine the unique properties of RBCs. RBC research is very dynamic, experiencing interdisciplinary, multifaceted approaches. This issue will gather articles addressing biochemical, biophysical and physiological aspects of RBCs in different pathological states.

---

### Guest Editor

Dr. Gregory Barshtein

The Faculty of Medicine, The Hebrew University of Jerusalem, Jerusalem, Israel

---

### Deadline for manuscript submissions

closed (20 March 2022)



## Biomolecules

---

an Open Access Journal  
by MDPI

---

Impact Factor 4.8  
CiteScore 9.2  
Indexed in PubMed



[mdpi.com/si/58201](https://mdpi.com/si/58201)

*Biomolecules*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[biomolecules@mdpi.com](mailto:biomolecules@mdpi.com)

[mdpi.com/journal/  
biomolecules](https://mdpi.com/journal/biomolecules)





# Biomolecules

---

an Open Access Journal  
by MDPI

---

Impact Factor 4.8  
CiteScore 9.2  
Indexed in PubMed



[mdpi.com/journal/  
biomolecules](https://mdpi.com/journal/biomolecules)



## About the Journal

### 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.

---

### Editors-in-Chief

Prof. Dr. Peter E. Nielsen

Department of Cellular and Molecular Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Blegdamsvej 3C, DK-2200 Copenhagen, Denmark

Prof. Dr. Lukasz Kurgan

Department of Computer Science, Virginia Commonwealth University, Richmond, VA 23284, USA

---

### 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, MEDLINE, PMC, Embase, CAPIus / SciFinder, and other databases.

#### Journal Rank:

JCR - Q1 (Biochemistry and Molecular Biology) / CiteScore - Q1 (Biochemistry)