



## The Physiology and Pathophysiology of the Erythrocyte

Guest Editors:

**Dr. Ryon M. Bateman**

Department of Medical  
Biophysics, Schulich School of  
Medicine & Dentistry, The  
University of Western Ontario,  
London, ON N6A 5B7, Canada

**Prof. Dr. Christopher Ellis**

1. Department of Medical  
Biophysics, Schulich School of  
Medicine & Dentistry, The  
University of Western Ontario,  
London, ON N6A 5B7, Canada  
2. Robarts Research Institute, The  
University of Western Ontario,  
London, ON N6A 5B7, Canada

Deadline for manuscript  
submissions:

**closed (14 July 2023)**

### Message from the Guest Editors

In this conceptual Journal Series, we are interested in the following questions regarding erythrocyte physiology and pathophysiology at the molecular level:

- 1) How does the erythrocyte “sense” and respond to hypoxic environments?
- 2) How does the erythrocyte “sense” and respond to mechanical forces that impinge on it as it flows through the vasculature?
- 3) How does the erythrocyte protect itself from oxidative stresses and how are damaged RBCs processed and removed from the circulation?
- 4) How does the erythrocyte signal the vascular endothelium and what is its relationship with the microcirculation in terms of O<sub>2</sub> autoregulation?
- 5) What roles do erythrocytes play in the immune and inflammatory responses?
- 6) What effects do blood storage or a range of diseases such as sickle-cell disease, xerocytosis, sepsis, diabetes and COVID-19 have on erythrocyte physiology and function.

Keywords:

- erythrocyte
- hypoxia
- deoxyhemoglobin
- molecular switch
- metabolic shift
- mechanotransduction





an Open Access Journal by MDPI

## Editor-in-Chief

### **Prof. Dr. Maurizio Battino**

Department of  
Odontostomatologic and  
Specialized Clinical Sciences,  
Sez-Biochimica, Faculty of  
Medicine, Università Politecnica  
delle Marche, Via Ranieri 65,  
60100 Ancona, Italy

## Message from the Editor-in-Chief

The International Journal of Molecular Sciences (*IJMS*, ISSN 1422-0067) is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

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

**Journal Rank:** JCR - Q1 (*Biochemistry & Molecular Biology*) / CiteScore - Q1 (*Inorganic Chemistry*)

## Contact Us

*International Journal of Molecular  
Sciences* Editorial Office  
MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
www.mdpi.com

mdpi.com/journal/ijms  
ijms@mdpi.com  
X@IJMS\_MDPI