

Special Issue

Hypoxia and Its Role in Cellular Metabolism: Mechanisms and Implications

Message from the Guest Editors

Oxygen is an essential nutrient that plays a key role in cellular metabolism and bioenergetic homeostasis. Under certain physiological or pathological conditions, organisms may experience low oxygen levels—hypoxia. Hypoxia is crucial in normal processes, regulating oxygen levels and influencing functions such as oxygen consumption, red blood cell production, angiogenesis, and metabolism. It also contributes to many diseases by triggering pathways involved in development and progression. The main regulator is the hypoxia-inducible factor (HIF), a transcription factor complex including HIF-1 α or HIF-2 α and HIF-1 β /ARNT. HIF- α subunits are regulated by prolyl hydroxylase domain enzymes (PHDs), factor-inhibiting HIF1 α (FIH1), and metabolic pathways, including metabolites. Understanding the relationship between hypoxia and metabolism is crucial for developing therapies targeting HIF pathways. This Special Issue invites research on hypoxia's interplay with glycolysis, carbohydrate and fatty acid metabolism, mitochondrial and peroxisomal function, and metabolites regulating hypoxia at the molecular and cellular levels.

Guest Editors

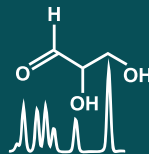
Dr. Raja Gopal Reddy Mooli

Dr. Hang Cheng

Dr. Nathan Lanning

Deadline for manuscript submissions

closed (31 August 2026)



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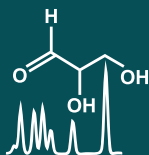


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Metabolites
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metabolites@mdpi.com

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About the Journal

Message from the Editor-in-Chief

The metabolome is the result of the combined effects of genetic and environmental influences on metabolic processes. Metabolomic studies can provide a global view of metabolism and thereby improve our understanding of the underlying biology. Advances in metabolomic technologies have shown utility for elucidating mechanisms which underlie fundamental biological processes including disease pathology. *Metabolites* is proud to be part of the development of metabolomics and we look forward to working with many of you to publish high quality metabolomic studies.

Editor-in-Chief

Dr. Amedeo Lonardo

Internal Medicine, Ospedale Civile di Baggiovara, Azienda Ospedaliero-Universitaria, 41126 Modena, Italy

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