

Tentative Outline (Preliminary Proposal)

Special/Thematic Issue for the Journal Current Molecular Medicine

Bioenergetics in Tumor Biology

Guest Editor: Dr. Chen Li

Scope of the Thematic Issue:

The ability of cancer cells to adjust their metabolism in response to environmental changes is a well-recognized hallmark of cancer. Cancer cells have been shown to be able to use not only glucose, but also glutamine for generating cellular energy, reducing power, and metabolic building blocks for biosynthesis. Additionally, cancer cells generate most of their cellular energy via mitochondrial respiration and oxidative phosphorylation. Multiple metabolic pathways are known to play a role in cancer metastasis, including glycolysis, the pentose phosphate pathway, tricarboxylic acid cycle, oxidative phosphorylation, amino acid metabolism, and fatty acid metabolism. More importantly, cancer cells exhibit remarkable versatility in using bioenergetics substrates. Notably, tumor cells can use metabolic substrates donated by stromal cells for cellular energy generation via oxidative phosphorylation. A better understanding of tumor bioenergetics will provide a more holistic approach to investigating cancer biology and therapeutics.

This special issue seeks to gather cutting-edge research articles and review papers that elucidate the intricate relationship between mitochondrial bioenergetics and tumor biology. By examining the impact of mitochondrial metabolism on cancer cell function, elucidating signaling pathways regulated by energy metabolism, and exploring novel therapeutic strategies based on mitochondrial bioenergetics, this special issue aims to enhance our understanding of how mitochondrial bioenergetics can be exploited for effective cancer treatment.

Keywords: Mitochondrial bioenergetics; Tumor Biology; Energy metabolism.

Sub-topics:

The sub-topics to be covered within the issue should be provided:

- Metabolic rewiring in cancer cells: Understanding alterations in mitochondrial bioenergetics.
- Role of mitochondrial oxidative phosphorylation (OXPHOS) and glycolysis in cancer cell metabolism.
- Modulation of mitochondrial function as a strategy to sensitize cancer cells to conventional therapies.
- Exploiting mitochondrial bioenergetics for the development of novel therapeutic interventions.
- Biomarkers of mitochondrial dysfunction and therapeutic response in cancer patients.
- Translational and clinical applications of targeting mitochondrial bioenergetics in cancer treatment.
- Metabolic reprogramming in cancer cells and its impact on bioenergetics.
- Mitochondrial dysfunction and bioenergetic adaptations in cancer cells.
- Lipid metabolism and its contribution to bioenergetics in cancer cells.
- Signaling pathways and transcriptional regulators involved in regulating cancer cell bioenergetics.
- Imaging techniques for studying bioenergetics in cancer cells.
- Translational implications and therapeutic strategies targeting cancer cell bioenergetics.

Schedule:

- Thematic issue submission deadline: **31st October, 2024**

Contacts:

Guest Editor Name: Dr. Chen Li

Affiliation: Department of Biology, Chemistry, Pharmacy, Free University of Berlin, Berlin, Germany

Email: chen.li@fu-berlin.de

Any queries should be addressed to support@benthamexecutiveeditors.com