

Special Issue on
Nutrition and Mitochondrial Metabolism

CALL FOR PAPERS

Mitochondria are ancient endomembrane systems of eukaryotic cells with a well-recognized role in the production of ATP, which has given them the title of being “powerhouses” of the cells. However, research in the last decade has revolutionized the way in which we view mitochondria. Mitochondria are an interconnected network of organelles that are constantly involved in processes of fusion and fission to cope with cellular energy demand. Mitochondria also provide metabolic intermediates for the synthesis of macromolecules such as lipids, proteins, and nucleotides. Moreover, mitochondria regulate numerous biological responses through reactive oxygen species generation and subsequent thiol oxidation and citrate export, which will be converted into acetyl-CoA used for protein lysine acetylation. Furthermore, mitochondria interact intimately with other cellular compartments, regulating their function. Ultimately, mitochondria emerge as signaling organelles essential to maintain cellular homeostasis beyond ATP generation.

Diet provides carbohydrates and fats that are broken down by glycolysis and β -oxidation to ultimately sustain mitochondrial ATP production. Ketone bodies, byproducts of fatty acid β -oxidation, can also be processed and enter mitochondria. Thus, mitochondria must be sufficiently flexible to coordinate nutrient oxidation to nutrient availability. It appears that impaired mitochondrial capacity to handle nutrient overload contributes to lipid-related metabolic disorders. Current understanding regarding the role of diet and individual’s metabolic phenotype determining mitochondrial function is quite limited. Thus, comprehensive knowledge of the impact of diet and nutrients on mitochondria may be relevant to develop diets that can enhance or suppress mitochondrial function.

Given the pivotal role of nutrients and mitochondria on cellular metabolism in health and disease, we invite scientists to contribute original research as well as review articles ranging from basic science to clinical studies.

Potential topics include but are not limited to the following:

- ▶ Diets and nutrients and its effect on mitochondrial function
- ▶ Regulation of mitochondrial dynamics by nutrients and diets
- ▶ Metabolic plasticity under nutrient deprivation and excess: role of mitochondria
- ▶ Role of nutrients in mitochondrial fitness during aging
- ▶ Diets, mitochondrial function and their impact on diseases such as diabetes, obesity, Alzheimer’s disease, and cancer
- ▶ Impact of probiotics on mitochondrial function

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jnme/nmm/>.

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