Oxidative Medicine and Cellular Longevity

Special Issue on
Skeletal Muscle Metabolism in Aging and Diseases

CALL FOR PAPERS

Mammalian skeletal muscles are composed of myofibers with heterogeneous structural and functional properties, allowing the muscle to achieve a high flexibility and efficacy. Moreover, myofiber phenotype might rapidly vary in order to adapt to environmental stimuli, which makes the skeletal muscle a highly plastic tissue.

Myofibers are mainly classified as slow- and fast-twitching, based on the maximal speed of shortening. A strong correlation between myofiber phenotype, contractile properties, and their metabolism does exist, with slow type I fibers relying predominantly upon mitochondrial oxidative phosphorylation, fast type IIx/d fibers being mainly glycolytic and intermediate twitching type IIa fibers displaying a mixed (oxidative/glycolytic) metabolism.

Such a tight association highlights the relevance of metabolism on skeletal muscle functionality and homeostasis. As a matter of fact, metabolic alterations have been associated with pathophysiological conditions affecting skeletal muscle (including aging, cachexia, and atrophy of various origin), while the capability to reprogram metabolism has been documented as being fundamental for the quick adaptation of the skeletal muscle to physical exercise.

Characterizing the molecular players and sensor networks associated with the skeletal muscle adaptive response to environmental changes and disclosing the mechanisms linking these factors with metabolic modulations might pave the way for identifying new potential therapeutic targets for the treatment of diseases affecting skeletal muscle.

We invite investigators to contribute with original research articles, as well as review articles that will stimulate the comprehension of the molecular mechanisms underlying the relevance of metabolic alterations in the aging process and in the pathogenesis of skeletal muscle diseases. This has a strong relation to the journal's scope which deals with articles exploring the cellular and molecular mechanisms of oxidative stress in relation to cellular survival and longevity. Oxidative stress is strongly linked to metabolism and we are particularly interested in articles exploring or discussing the concept of metabolism reprogramming and its relevance in skeletal muscle physiopathology.

Original, high quality contributions addressing recent advances in this field that are not yet published or that are not currently under review by other journals or peer-reviewed conferences are sought.

Potential topics include but are not limited to the following:

- Myofiber phenotype shift
- Skeletal muscle metabolism and exercise
- Mitochondrial skeletal muscle diseases
- Mitophagy and mitochondrial dynamics in skeletal muscle
- Skeletal muscle regeneration and metabolic reprogramming
- Skeletal muscle respiratory chain alterations in aging and diseases
- Calorie restriction effects on skeletal muscle and its regenerative potential
- Oxidative stress in skeletal muscle
- MyomiR and metabolism
- Skeletal muscle-adipose tissue metabolism cross-talk
- Skeletal muscle metabolism and cachexia

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/omcl/smmm/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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