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Mitochondrial Superoxide Dismutase in Cancer Biology and Therapy

Guest Editors:

Prof. Dr. David R Gius
Department of Radiation Oncology, Robert H. Lurie Comprehensive Cancer Center, Feinberg School of Medicine, Northwestern University, Evanston, IL, USA

Prof. Dr. Douglas R. Spitz
Carver College of Medicine, University of Iowa Healthcare, Iowa City, IA, USA

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Message from the Guest Editors

Since the original proposal that disruptions in superoxide metabolism were fundamental to malignant transformation and cancer progression (PMID: 217531; PMID: 6254638; PMID: 6253771; PMID: 6259499), many studies have shown that the mitochondrial superoxide dismutase enzyme can act both as a suppressor of the malignant phenotype as well as a promoter of progression to a more malignant state depending on the stage of carcinogenesis. Furthermore, manipulations of mitochondrial superoxide/hydrogen peroxide metabolism, including post-translational acetylation modifications by sirtuins, can be targeted to improve cancer therapy, and several are currently in clinical trials. In this special issue of *Antioxidants*, specific mechanistic aspects of the role that mitochondrial superoxide dismutase plays, as well as the detoxification enzymes that regulate its cellular levels, in malignant transformation and cancer progression will be explored with a focus on exploiting fundamental differences in superoxide metabolism in cancer versus normal cells for the purpose of improving cancer therapy outcomes.

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Editor-in-Chief

Prof. Dr. Alessandra Napolitano
Department of Chemical Sciences, University of Naples "Federico II", Via Cintia 4, I-80126 Naples, Italy

Message from the Editor-in-Chief

It has been recognized in medical sciences that in order to prevent adverse effects of "oxidative stress" a balance exists between prooxidants and antioxidants in living systems. Imbalances are found in a variety of diseases and chronic health situations. Our journal *Antioxidants* serves as an authoritative source of information on current topics of research in the area of oxidative stress and antioxidant defense systems. The future is bright for antioxidant research and since 2012, *Antioxidants* has become a key forum for researchers to bring their findings to the forefront.

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Contact Us

Antioxidants Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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

mdpi.com/journal/antioxidants
antioxidants@mdpi.com
𝕏@antioxidants_OA