

Special Issue

Metals and Cancer

Message from the Guest Editors

Metals are fundamental cellular elements for a number of biological processes, including the fundamental metabolic pathways such as energy transduction and cell proliferation. Several metals, such as Ca^{2+} , K^{+} , Na^{+} , Mg^{2+} , Zn^{2+} , and $\text{Fe}^{2+}/\text{Fe}^{3+}$, are essential for mitochondrial function and cellular metabolism, including oxidative phosphorylation, mitochondrial integrity, proliferative signal transduction, and apoptosis. As a consequence, alterations in metal levels and/or changes in the expression of proteins involved in metal metabolism have been documented in different pathologies and several types of cancers. Moreover, considering the key role of metals for cell growth, the development of drugs capable of metal sequestration has become an attractive target for the development of novel anti-cancer agents. Furthermore, a large body of preclinical and clinical studies on dietary deficiencies indicates that metal dis-regulation triggers neoplastic cell transformation and/or reduces the anti-tumor functions of immune cells by controlling a plethora of chemical and biological reactions.

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