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*Special Issue Reprint*

## **The Role of Metal Ions in Biology, Biochemistry and Medicine**

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Metal ions are fundamental elements for the maintenance of the lifespan of plants, animals and humans. Their substantial role in biological systems was recognized a long time ago. They are essential for the maintenance of life and their absence can cause growth disorders, severe malfunction, carcinogenesis or death. They are protagonists as macro- or microelements in several structural and functional roles, participating in many bio-chemical reactions, and arise in several forms. They participate in intra- and intercellular communications, in maintaining electrical charges and osmotic pressure, in photosynthesis and electron transfer processes, in the maintenance of pairing, stacking and the stability of nucleotide bases and also in the regulation of DNA transcription. They contribute to the proper functioning of nerve cells, muscle cells, the brain and the heart, the transport of oxygen and to many other biological processes up to the point that we cannot even imagine a life without metals. In this book, the papers published in the Special Issue “The Role of Metal Ions in Biology, Biochemistry and Medicine” are summarized, providing a picture of metal ion uses in biology, biochemistry and medicine, but also pointing out the toxicity impacts on plants, animals, humans and the environment.



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