

Special Issue

Metalloproteins: How Metals Shape Protein Structure and Function

Message from the Guest Editor

Metal ions play a critical role as structural, catalytic and signaling components of proteins in all living organisms. Metalloproteins can bind single or multiple metals in the form of simple ions, clusters or with cofactors of varying complexity. Transition metals such as Fe, Cu, Mn and the post-transition metal Zn are involved in a remarkably wide variety of cellular processes, ranging from respiration to photosynthesis, oxygen transport, DNA synthesis and gene regulation, among others. Other transition metals such as Co, Mo, Ni, V and W are much less frequent in proteins; however, they are also essential for key biochemical reactions in all kingdoms of life. Metal coordination and chemistry shape protein structure and function, so it is not surprising that defects in metal homeostasis (either due to excess or deficiency) often lead to pathological states. This Special Issue of IJMS welcomes contributions in all areas of metalloprotein biology and biophysics, including the relation between molecular structure, mechanism and function, metal-mediated regulation and signaling, roles in health and disease and techniques for the study of metalloproteins.

Guest Editor

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