

Special Issue

Calmodulin Function in Health and Disease

Message from the Guest Editors

Calmodulin (CaM) transduces the Ca²⁺ signal in all eukaryotic cells, regulating hundreds of proteins, including enzymes, ion channels, transcription factors, receptors, adaptors and structural proteins. The multifunctional role of CaM is facilitated by differential occupancy of its four Ca²⁺-binding sites and its enormous structural flexibility, allowing linkage between distinct or identical proteins and/or two segments of the same protein forming dimeric complexes or operational motifs with specific functional roles. Post-translational modifications of CaM, particularly its phosphorylation, allows further modulation of its multiple regulatory roles. The discovery of CaM mutations in humans has uncovered its critical role in cardiac physiology and enabled new insights into the cause of different types of cardiac arrhythmias. Similar genetic alterations could be the cause of yet uncovered pathologies. The study of CaM functionality in health and its dysfunction in disorders, including cancer, could help to identify new potential pharmacological targets to combat diseases.

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