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Calpain Family in Health and Diseases: The Road Ahead

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

Calpains, Ca2+-dependent intracellular proteases, are comprised of 15 homologues in mammals, and are classified into conventional and unconventional isozymes. Conventional isozymes are composed of calpain-1 and -2, which are expressed in almost all eukaryotes. Growing evidence suggests that these conventional isozymes modify intracellular signalling molecules, thereby altering cellular processes including inflammatory cascades. Accordingly, defective calpain-mediated proteolysis may be involved in the pathogenesis of human diseases, such as cardiometabolic disease, neurodegenerative disorders, and cancer progression. In contrast to conventional isozymes, unconventional calpains are expressed in a tissue-specific manner. Investigations have identified pathogenic roles of unconventional calpains in a variety of diseases, including cancer and retinal degeneration, targeting calpain-3 can induce limb girdle muscular dystrophy type 2A. The current Special Issue highlights recent advances in molecular-based analyses of conventional and unconventional calpains to elucidate the pathophysiological aspects of these molecules and possible clinical applications.

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Message from the Editor-in-Chief

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