Ubiquitin and Ubiquitin-Like Proteins: From Basic Mechanisms to Human Disorders

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Ubiquitin and Ubiquitin-Like Proteins: From Basic Mechanisms to Human Disorders

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Message from the Guest Editors

Dear Colleagues,

Ubiquitination is a widespread PTM and corresponds to the transient attachment of ubiquitin (UB), a small protein (8.6 kDa) conserved among the Eukaryota. Since three decades, other protein modifiers, called ubiquitin-like proteins (UBL), have been identified, presenting significant sequence similarity to ubiquitin (e.g., SUMO, NEDD8, ISG15, FAT10, etc.). UB and UBL are attached to proteins by similar enzymatic cascades and form multiple types of monomeric or polymeric-chain PTM. These different types of PTM determine the fate of a protein (protein degradation, localization, interactions, and activity). UB and some UBL marks can be further modified by additional post-translational modifications, such as phosphorylation, or reversed (e.g., by deubiquitinases, DUBs). UB and UBL regulate many cellular processes, and, not surprisingly, dysregulation of this system (e.g., mutations in the enzymatic cascade or DUBs) is associated with many pathologies. This Special Issue aims to identify and review the latest advances in the field and illustrate the therapeutic prospects of targeting the ubiquitinating and deubiquitinating enzymes in human diseases.

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Editor-in-Chief

Message from the Editor-in-Chief

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