

Crosstalk of intracellular post-translational modifications in cancer

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Abstract

Multiple post-translational modifications (PTMs) can influence the actions of each other positively or negatively, termed as PTM crosstalk or PTM code. Increasing evidence demonstrates that deregulation of PTMs crosstalk is involved in the genesis and development of various diseases, among which cancer appears to be the most widely studied. In the review, we focused on the crucial roles of PTMs crosstalk in neoplastic diseases and demonstrate their functions by different types of modifications pairs, including the combinations of phosphorylation, acetylation, ubiquitination, SUMOylation and O-GlcNAcylation. For each type of combination, PTMs crosstalk was discussed by positive or negative relationships, as well as within one protein (intra-protein) or across different proteins (inter-protein). No matter in intra-protein or inter-protein crosstalk, the modifications may influence cancer progress through activation or degradation of the substrates, thereby regulating the pathological development, metastasis, and resistance to chemotherapy of cancer diseases. PTMs crosstalk has been reported in various proteins associated with cancer diseases, such as oncoproteins, tumor suppressors, enzymes and transcription factors. Depending on the modified targets and associated residues in signaling pathways, crosstalk between different proteins could provide abundant promising targets for drug therapy and rehabilitation, as well as biomarkers for clinical diagnosis and prognosis and to implementing consistent follow-up in clinical practice.



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Biography:

Zheng Wu has completed her MD at the age of 27 years from Peking University Health Science Center. She has been serving as a lecturer in School of Kinesiology and Health in Capital University of Physical Education and Sports since 2017. She has published 3 papers in SCI journals as the first author

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