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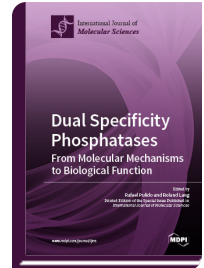
Dual Specificity Phosphatases

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Dual specificity phosphatases (DUSPs) constitute a heterogeneous group of protein tyrosine phosphatases with the ability to dephosphorylate Ser/Thr and Tyr residues from proteins, as well as from other non-proteinaceous substrates including signaling lipids. DUSPs include, among others, MAP kinase (MAPK) phosphatases (MKPs) and small-size atypical DUSPs. MKPs are enzymes specialized in regulating the activity and subcellular location of MAPKs, whereas the function of small-size atypical DUSPs seems to be more diverse. DUSPs have emerged as key players in the regulation of cell growth, differentiation, stress response, and apoptosis. DUSPs regulate essential physiological processes, including immunity, neurobiology and metabolic homeostasis, and have been implicated in tumorigenesis, pathological inflammation and metabolic disorders. Accordingly, alterations in the expression or function of MKPs and small-size atypical DUSPs have consequences essential to human disease, making these enzymes potential biological markers and therapeutic targets. This Special Issue covers recent advances in the molecular mechanisms and biological functions of MKPs and small-size atypical DUSPs, and their relevance in human disease.



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