

## Crystal Structure of Dual Specific Protein Phosphatases and Insight into Function of Protein Tyrosine Phosphatase

**Dae Gwin JEONG**

KOSEF - 10403

Senior scientist,  
Korea Research Institute of Bioscience and Biotechnology,  
Systemic Proteomics Research Center

Japanese Advisor : Kunio MIKI  
Professor, Kyoto University

Protein tyrosine phosphatase(PTPase) mediate various cellular processes by dephosphorylation of phosphorylated proteins in cellular system. The human genome contains about 110 PTPase members that are grouped into several subfamilies such as transmembrane classical, dual specific and low-molecular PTPase. Consistent with their central roles in cellular functions, many PTPases are implicated in human diseases including cancer, diabetes and neuronal diseases. Although there is an increasing efforts to develop therapeutic drugs targeting PTPases, drug discovery has been hampered by the lack of detailed knowledge on the specificity and regulation of each enzyme. I have presented the first 4 DUSP structures at high resolution. From the structures, I found that the active site of each DUSP has significant diversity, suggesting the potential of specific inhibitor design targeting each enzyme. The elucidation of these structures also provided new insight into the mechanism of biological regulation for each DUSP.

