



*International Conference on*  
**"Recent Trends in Structural Bioinformatics and Computer Aided Drug Design"**  
**[ICSBCADD'2019]**  
**11<sup>th</sup> - 13<sup>th</sup> December, 2019**



**Structural insights on small Ras-like GTPases and their interactors**

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Structural and functional characterization of a prokaryotic Ras-like GTPase, MglA and its GTPase Activating Protein (GAP) MglB, from the soil bacterium *Myxococcus xanthus*, provided us with unprecedented insights on allosteric action of interacting partners of small Ras-like GTPases. We discovered that the allosteric interaction of the C-terminal helix of the cognate GTPase Activating Protein (GAP) MglB with MglA, provided it with a Guanosine Exchange Factor (GEF) activity too. This is the first demonstration of both activities of GAP and GEF activities performed by the same interacting partner of a small Ras-like GTPase. With this background, we initiated a comprehensive structural analysis of all available crystal structures of GTPases in the Protein Data Bank. We classified the known interactions of GTPases into 5 different faces of approach and correlated these with functional aspects of the interacting partners. Our analysis highlights novel insights into the mechanism of regulation of small Ras-like GTPases. The analysis also led to the discovery of a novel Walker B motif in prokaryotic Ras-like GTPases, and insights into regulation of small Ras-like GTPase families based on conformational changes involving the Walker B aspartate.

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