Tata Institute of Fundamental Research
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Webinar

Investigation of Role of Cosolutes on Conformational Landscape of Macromolecules

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In response to the extreme environmental condition, many organisms accumulate small organic molecules (cosolutes) inside the cell, which can alter the conformational equilibria of bio-macromolecules. The molecular mechanism of stabilization of macromolecules (such as protein) by cosolutes is still controversial irrespective of extensive studies of several decades. We try to explain the mechanism of cosolutes induced stabilization of macromolecules and macromolecular assembly in terms of preferential interaction theory in the context of osmolyte-induced stabilization, bio preservation and maintenance of cellular homeostasis. Our studies unify the mechanism of the overall stability of the macromolecules irrespective of binding/exclusion of cosolutes to/from the macromolecular surface depending on different cosolutes and macromolecular surfaces in a complex topology of hydrophobic and electrostatic interactions.

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2:00 PM