



REGIONAL CENTRE FOR BIOTECHNOLOGY

Seminar series

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**Unraveling the mechanisms of folding and function of  
Serpins: In vitro and in vivo**

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11:00 AM

Seminar Room

I will begin with a brief introduction to protein folding, mainly in the context of conformational diseases followed by an overview of a fascinating family of proteins called serpins. Details of several important aspects of serpin biology such as their metastable native state, function and degradation remain poorly understood. Additionally, specific point mutations are known to interfere with the folding of serpins causing aberrant conformational changes in these proteins. Misfolding in serpins results in clinical conditions referred to as serpinopathies and include emphysema, liver cirrhosis, thrombosis and dementia. In the first part of my presentation I will describe how region specific stability measurements in a model serpin, alpha-1 antitrypsin, suggests that the evolution of serpin function required them to sample conformations on a dynamic energy landscape that increased risk of aggregation. Although information obtained from in vitro protein folding studies provides crucial information, the difference between the solution-conditions in a test tube and in a cell necessitates a need to investigate proteins in cells. The second part of my talk will focus on tools developed by us towards investigating protein behavior in live cells. Finally, I would describe my future research directions.