



REGIONAL CENTRE FOR BIOTECHNOLOGY
RCB Seminar Series

**Virally encoded complement regulators as tools
to understand human complement regulation**

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Abstract

The complement system discriminates 'self' from 'non-self' targets solely owing to the presence of complement regulators on the host cells and therefore deficiencies, mutations and polymorphism in the complement regulatory proteins are linked to various diseases. The regulators that control complement activation on the host cell surface belong primarily to a family of proteins termed 'regulators of complement activation (RCA)'. Studies on the functioning of these proteins have led to the understanding of the molecular mechanisms that are responsible for host cell protection, but the detailed insight into these mechanisms is far from clear. Because viruses are known to encode homologs of the human RCA proteins our laboratory is utilizing these molecules as research tools to decipher the process of complement regulation. Our efforts to systematically scan these molecules by sequential mutagenesis employing domain swapping and site-directed mutagenesis approach have revealed that there exists a functional modularity in these proteins. Extension of these studies in the human regulators has shown that similar functional modularity also exists in the human RCA proteins.
