MBG FOCUS TALK

hosted by Gregers Rom Andersen, Section for Structural Biology

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Meeting room 4, 3140-110

Brian V. Geisbrecht

Dept of Biochemistry & Molecular Biophysics, Kansas State University

Structure/Function Studies of Staphylococcal Immune Evasion Molecules and Discovery of Small Molecule Complement Inhibitors

The complement system is an elegantly regulated biochemical cascade formed by the collective molecular recognition properties and proteolytic activities of over two dozen membrane-bound or serum proteins. Complement plays diverse roles in human physiology which include acting as a sentry against invading microorganisms, priming of the adaptive immune response, and removal of immune complexes. However, it is now understood that dysregulation of complement can trigger a wide range of human diseases which include autoimmune, inflammatory, and degenerative conditions.

Given the enormous potential value of complement-targeted therapeutics, the last decade has seen a tremendous growth in the area of complement –directed drug discovery. In an effort to understand which types of complement inhibitors might be most effective in humans, my laboratory has been studying the structure/function and mechanism of a series of naturally-occurring complement evasion proteins from bacterial pathogen Staphylococcus aureus.

I will present a brief synopsis of recurring biochemical themes that have emerged from studies on the complement evasion arsenal of S. aureus, and describe how this basic information might be leveraged for future design of complement-targeted drugs.