Physical Chemistry Seminar

Tuesday, April 27, 2010 | **11:00 a.m.** | **Room 1315 Chemistry Building**

NMR Studies of Bacterial Nanoinjectors and Hantaviral Zinc Fingers

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Many pathogenic bacteria require a complex protein assembly – a bacterial nanoinjector – resembling a syringe with a needle to inject virulence proteins into their target cells to initiate infections. The structural and virulence proteins together form the type III secretion system that is essential in the pathogenesis of many Gram-negative bacteria, such as Salmonella typhimurium, which causes recurring food-borne outbreaks in the U.S. Bacterial nanoinjectors are assembled from more than 20 different proteins, and many show sequence and structural conservation across species. Our group uses NMR spectroscopy to study the protein-protein interactions involved in the assembly of the Salmonella nanoinjector. Hantaviruses are distributed worldwide and can cause a hemorrhagic fever or a cardiopulmonary syndrome in humans. Mature virions consist of RNA genome, nucleocapsid protein, RNA polymerase, and two transmembrane glycoproteins, G1 and G2. Our research identified a novel zinc finger located at the cytoplasmic tail of the hantaviral G1 glycoprotein, a region is important in viral assembly and host-pathogen interaction.

Refreshments will be available prior to the seminar at 10:45 a.m. outside room 1315

Graduate Students may meet with the speaker at 1:15 p.m. in Room 8305f