Seminar Series of the
CIHR Training Grant in

Protein Folding and Interaction Dynamics

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Stanford, Department of Chemistry

Structure, Function, and Inhibition of Bacterial Cell Walls and Biofilms: Lessons from Small Molecules and a Big Magnet

The bacterial cell wall is essential to cell viability and is a major target of antibiotics. Beyond the cell wall and the cell surface, bacteria secrete proteins and polysaccharides to enmesh themselves in a protective biofilm matrix that enhances bacterial resistance to antibiotics. As heterogeneous, insoluble polymeric matrices, cell walls and biofilms pose a challenge to analysis by conventional methods. We are developing new approaches to dissect composition in cell walls and whole cells and to transform vague biofilm descriptors into quantitative parameters of chemical and molecular composition. In our drug discovery efforts, we have identified small-molecule biofilm inhibitors and are examining their influence on biofilm formation and on pathogenesis in vivo. I will discuss these and our emerging discoveries inspired by the urgent need for new strategies to treat infectious diseases, integrating bacteriology, biochemistry, and whole-cell NMR, specifically targeting *E. coli, Staphylococcus aureus, and Vibrio cholerae.*

Host: Dr. Scott Prosser

Thursday, May 14 - 12:00pm
Medical Sciences Building, Rm. 4171
University of Toronto