



Wednesday, July 23rd, 2014

LSC 3 - Life Sciences Centre

2350 Health Sciences Mall

**12:30-1:00pm**

## Dr. Julien Bergeron

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### **“How do bacteria measure the length of their needle? - Molecular basis for needle length control in the type III secretion system”**

The Type 3 Secretion System (T3SS), and the related bacterial Flagellum, are pathogenicity-associated appendages found at the surface of many pathogenic gram-negative bacteria. These appendages are large macromolecular assemblies consisting in long tubular structures that protrude away from the bacteria to interact with the host cell. A so-called “ruler” protein tightly regulates the length of those structures, but the molecular basis for this length control has remained controversial. Using the T3SS from the pathogenic bacterium *Pseudomonas aeruginosa* as a model system, we have characterized the structural and biochemical properties of the ruler protein, and investigated its interaction with T3SS components. The obtained results have prompted us to propose a novel mechanism for needle length measurement in the T3SS.