PhD student positions in structural biology

Positions available: Two fully funded PhD student positions are available immediately in the Vahidi Lab at the Department of Molecular and Cellular Biology, University of Guelph [vahidilab.ca].

Research projects: The Vahidi Lab uses state-of-the-art methods to investigate the structure, function, and dynamics of large biomolecular machines in order to solve problems of biological and clinical importance. A key focus of the group is on the protein degradation machinery that helps to maintain proper level of proteins (protein homeostasis) in *Mycobacterium tuberculosis*, the causative agent of TB, the world's single largest infectious killer. *M. tuberculosis* relies heavily on robust proteasome function to survive the immune system of the host, rendering this mega-Dalton sized system an attractive drug target in the pharmaceutical industry. The projects address the following questions:

- What is the assembly mechanism of the *M. tuberculosis* proteasome core and regulatory particles?
- What is the role of allostery in the machinery that tags substrates for proteasomal degradation?
- What is the molecular basis of antibiotics that operate on the proteasome?

Most of the research will be based on the use of modern biomolecular electro spray mass spectrometry (ESI-MS) (e.g. H/D exchange, covalent labeling, native MS, BioID, etc.) and high-field NMR spectroscopy (e.g. methyl-TROSY). These powerful methods are highly complementary and allow us to tackle challenging problems within our own group.

Relevant publications:

Qualifications:
- Must hold a MSc focused on protein structure:function, biochemistry, biophysics, or related field.
- A strong background in protein NMR and/or protein mass spectrometry is preferred.
- Passion for science and discovery, curiosity, and commitment.

How to apply:
Please send a brief cover letter, your CV, and a recent transcript to (svahidi@uoguelph.ca).

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