

PhD positions (2) studying the role of peroxisomes in the Innate Immune System (cellular, systemic and barrier immune responses) – Dalhousie University

The research group of Dr. Francesca Di Cara is looking to recruit two highly motivated PhD students to join her group to study the previously unexplored role of peroxisomes in innate immunity. Peroxisomes are ubiquitous metabolic organelles recently discovered to participate in host-pathogen interactions and complex autoimmune disorders such as arthritis and inflammatory bowel disease. We perform both bulk and single-cell genomic, transcriptomic, lipidomic and proteomic assays to study the role of peroxisomes in innate immune cells and intestinal epithelial cells in shaping the immune system. Complementarily, we also develop and apply cutting-edge imaging to observe the interactions between microbes (pathogens and commensals) and the immune system, by direct visualization of molecular and cellular interactions at the single-cell, and tissue level. Our scope ranges from fundamental molecular mechanisms to clinical applications. We use mainly the *Drosophila melanogaster* model but also mouse models as well as human samples for research with goals for advancing fundamental sciences as well as clinical applications. Our research is highly interdisciplinary and involves close collaborations between the Issekutz, Marshall and the McCormick labs at Dalhousie University. Furthermore, we have collaborations with the University of Amsterdam to develop specific lipidomic profiles of immune cells. We are part of the Izaak Walton Killam Health Centre, which offers a great scientific environment for young researchers.

Requirements:

- Previous experience in cell biology/immunology/molecular biology/animal models/tissue culture
- The willingness to work with *Drosophila* and mice is a prerequisite
- Basic immunological and histological techniques such as flow cytometry and immunofluorescent staining are beneficial
- Programming skills (R/Python) for transcriptome analysis are advantageous

Your application should include:

- CV
- brief summary of your previous work experience (max. 1/2 page)
- contact information of referees and dates when you wish to start the position
- optional: 1 page research proposal for your PhD project, which builds on the study Di Cara et al. *Immunity 2017*

Enquiries and applications to: Dr. Francesca Di Cara, dicara@dal.ca