



Post-doctoral Research Fellowship

Influence of the Host Microbiome on Factor VIII Immunogenicity

A post-doctoral research fellow position is available as part of a 5-year NIH NHLBI-funded project aimed at furthering our understanding of the role of the gut microbiome as a determinant of factor VIII (FVIII) immunogenicity. Funds to initiate these studies have just become available.

The applicant will join a small team of trainees engaged in studies of the immune response to FVIII, a subject of long-term interest to this research group. The project will involve a range of molecular biology experiments incorporating outcomes from mouse models of hemophilia that have been subjected to alterations of their microbiome. Preliminary experiments confirming a role of the gut microbiome on FVIII immunity have been completed in the past 18 months and have formed the basis of the successful NIH grant application.

The research group has access to a wide range of research infrastructure including state-of-the-art flow cytometry and imaging equipment, and a new \$32 million rodent research facility.

Applicants with a background in immunology/microbiology will be particularly well suited to join this project.

Influence of the host microbiome on the mechanisms of factor VIII immunogenicity

Project Leader: David Lillicrap

Dr. Lillicrap is a Professor in the Department of Pathology & Molecular Medicine at Queen's University in Kingston, Canada. He is the recipient of a Senior Canada Research Chair in Molecular Hemostasis. Dr. Lillicrap's research program focuses on the life cycles, interactions and clinical implications of factor VIII and von Willebrand factor molecular pathobiology. An issue of longstanding interest to the group, that is of direct relevance to this project, is the characterization of factors influencing FVIII immunogenicity and tolerance.

In this project, three specific objectives will be pursued: a) To gain novel insights and evaluate mechanisms of the immune response to FVIII by manipulating the gut microbiome and its metabolites; b) To evaluate the influence of germ-free status on murine anti-FVIII antibody development and to evaluate potential mechanisms by implementing specific gut microbial reconstitution and c) To determine the mechanisms of FVIII immunogenicity of orally administered FVIII.

Training Opportunities: The Queen's University Clinical and Molecular Hemostasis Research Group is a longstanding collection of clinicians and biomedical scientists with a common interest in the pathogenesis and management of inherited bleeding disorders. The research conducted by the group spans methodologies from basic molecular and cell biology to human population studies. Of particular relevance to the current initiative, the Queen's group has significant expertise in the utility of animal model-based studies with on-site access to large dog and mouse colonies of hemophilia. These models are now being used for the current investigations with the incorporation of gnotobiotic facilities to manipulate and maintain microbial environments. State-of-the art molecular and cell biology, microscopy and imaging, and flow cytometry infrastructures are available to facilitate these studies.

Interested applicants should contact Prof. David Lillicrap in the Department of Pathology and Molecular Medicine at Queen's University (email – david.lillicrap@queensu.ca). Please include curriculum vitae and cover letter.

Applications will be taken until position filled.

Date: October 4, 2018