

Exploring the causes of the inter-strain variability of haematopoietic stem cell mobilisation

Research Project Overview

Project title:	Exploring the causes of the inter-strain variability of haematopoietic stem cell mobilisation
Project duration:	7-8 weeks
Description:	<p>The aim of this project is to explore why different inbred strains of mice mobilise their haematopoietic stem cells at very different levels from one strain to another.</p> <p>In the clinic, haematopoietic stem cells are mobilised from the bone marrow onto the blood to be collected for transplantation by injecting a cytokine called G-CSF. The number of stem cells mobilised into the blood is very variable from one person to the next, pending on the genetic make-up of the person. Like humans, each different inbred mouse strain mobilises their stem cells at very different levels from one strain to the next, reflecting the variability between humans.</p> <p>This project is to evaluate whether the differences between different mouse strains in regard to stem cell mobilisation, is correlated with the capacity of granulocytes to inactivate cell adhesion proteins that anchor stems in the bone marrow.</p>
Expected outcomes and deliverables:	<p>The student will learn to perform fluorescent antibody on mouse tissues and blood, quantify the number of stems cells and leukocytes by flow cytometry. The student will also learn to perform enzymatic assays to detect and quantify neutrophil proteases and follow their proteolytic activity on various bone marrow proteins.</p> <p>Finally, the student will learn to analyse their results and present them in graphs for an oral presentation and report.</p>
Suitable for:	Masters students in biological sciences with interest in haematopoietic cells or blood diseases. Previous experience in laboratory work, biochemistry and immunology techniques will be favourably considered.
Primary Supervisor:	Jean-Pierre Levesque
Further info:	Supervisor may be contacted via email jp.levesque@mater.uq.edu.au after submitting application.