

2011 B.H.Sc Summer Research Scholarship Recipients

<u>STUDENT</u>	<u>RESEARCH TOPIC & DESCRIPTION</u>	<u>SUPERVISOR/DEPARTMENT</u>
Tina Behdinan	Investigating the effects of Glucosamine Supplementation on leukocyte stress protein levels.	Geoff Werstuck: Medicine
Jordan Campbell	Encapsulated Myoblasts Secreting PNP as a potential treatment for spinal cord injury: Encapsulation of engineered cells in biocompatible alginate microcapsules with G8-myoblast secreting PNP. The microcapsules are small (400 um in diameter), suitable for injection via a standard syringe, and are designed with a pore size such that the therapeutic product, nutrients and waste products can diffuse through, but are impermeable to immune cells, thus avoiding rejection. The theory is that such a “universal” cell line may be used in multiple patients suffering from the PNP deficiency. The project will be focused on exploring the role of encapsulated cells as a source of PNP deficient Mice.	Gonzalo Hortelano: Pathology and Molecular Medicine
Paul Cheon	Effects of the serotonin 5-HT2C receptor agonist mCPP on compulsive checking behavior in the quinpirole sensitization rat model of obsessive-compulsive disorder (OCD). The research will be conducted in order to assess how 5-HT2C receptor	Henry Szechtman: Psychiatry and Behavioral Neurosciences

	agonism modulates compulsive checking behavior.	
Emily Cheung	Cytokine and Lipopolysaccharide (LPS) Release and Transfer in the Human Placenta: Aim is to conduct placenta perfusions and observe cytokine and LPS transference and cytokine production by placenta	Christoph Fusch: Neonatology
Shelly Chopra	Do Microparticles Aggregate or Fuse To Their Parent Cell? – Microparticles are fragments of membrane shed under stress conditions. Prior studies conducted by the Gross laboratory have demonstrated the reassociation of microparticles with parent monocyte cells. Using electron microscopy, this study will investigate whether this reassociation is aggregation or fusion.	Peter Gross: Medicine
Peter Cmorej	Characterization of Monoclonal Antibodies that bind to antigens on the surface of mouse breast cancer stem cells.	John Hassell: Pathology and Molecular Medicine
Matthew D’Mello	Telomere Length in Health & Disease: The aim of the project will be to optimize a protocol for measurement of telomere length using quantitative PCR. The method will be tested by the student for accuracy against the gold standard Southern Blot. Once optimized, the protocol will be implemented in studying the length of telomeres in individuals with various	Guillaume Paré: Pathology and Molecular Medicine

	disease states such as cardiovascular disease, stroke, and cancer. Large scale studies will be conducted in which the student will not only be responsible for data acquisition, but also analysis.	
Safoora Fatima	Factors Contributing to Contractile Activation of TGFβ in Lung Fibrosis – Investigate whether TGF β is activated in lung tissue as result of cell contraction mediated by 1) Mechanical Stretch 2) ET-1 Contractile Agonist or 3) Presence of excess latent TGF β	Martin Kolb: Medicine, Pathology and Molecular Medicine
Kimberly Fernandes	The Relevance of CXCL5 in Bacteria-Exacerbated Inflammation of a model of Cigarette Smoke Exposure: The goal of the proposed research is to determine the relevance of CXCL5 in exacerbation of COPD. An anti-CXCL5 polyclonal antibody will be utilized to stain lung tissue to discover the epithelial source of CXCL5.	Martin R. Stampfli: Molecular Medicine and Pathology
Sangsu Han (John)	Epigenetic Regulation by Probiotic Bacteria: It is hypothesized that certain commensal bacteria in the intestine can alter the activity of HDAC and/or HAT enzymatic activity in the host tissue, thus modulation gene expression through epigenetic modification. This may provide an explanation to potentially beneficial immunomodulatory effects described for probiotic bacteria.	Paul Forsythe: Medicine

Ashkan Javidan	<p>Role of β-catenin in Renal Dysplasia: In order to further understand the role of β-catenin and to generate plausible theories for the prevention and development of new treatments for renal dysplasia, focus will be to characterize the embryological mechanisms that give rise to this severe dysplastic renal phenotype. This will be determined by microdissecting embryonic kidneys, organ culturing them for 4 hours, and analyzing the branching pattern using whole mount immunofluorescence microscopy to determine disorganized or ectopic branching morphogenesis.</p>	Darren Bridgewater: Pathology and Molecular Medicine
Alexander Leung	<p>Novel combinations of previously approved drugs against antibiotic resistant bacteria; identify mechanisms of action of potential hits against <i>Staphylococcus Aureus</i>.</p>	Eric Brown: Biochemistry and Biomedical Sciences
Katherine Liu	<p>Effect of TDAG51 gene expression on Renal Epithelial Cell Growth and Potential for Tubular Regeneration: The expression levels of the gene TDAG51 are being manipulated by genetic mean in proximal tubular epithelial cells to determine if the levels of expression of this gene has effect on cell growth or sensitivity to cell death.</p>	Jeffrey G. Dickhout and Richard C. Austin: Medicine
Hiten Naik	<p>Isolation of Notch Pathway Reporter Breast Cancer Cell Populations</p>	John Hassell: Biochemistry and Biomedical Science

Abidur Rahman	Changes in the RGC cell density in the retina to formulate a model of Glaucoma.	Alexander Ball: Pathology and Molecular Biology
Sidharth Saini	<p>Functional Characterization of <i>Plasmodium Falciparum</i> ARAP-1 for Rhoptry Biogenesis via Conditional Protein Destabilization:</p> <p>Malaria is a vector born disease that is caused by eukaryotic pathogen belonging to the genus <i>Plasmodium</i>. A decisive point in the parasite's life cycle is the invasion and subsequent multiplication within human erythrocytes. His complex and marginally understood process is mediated by proteins released from 3 types of organelles, which define the apical pole of the invasive stages of the parasite: micronemes, rhoptries, and dense granules. Recently in Dr. Gilberger's laboratory, a highly intriguing protein ARAP-1 (PFD072w) that is associated with the apical organelles was discovered in a genome wide screening for invasion-related proteins. I will develop further insights into the functional characterization of ARAP-1 (for protein trafficking and possible rhoptry biogenesis) by applying a destabilizing domain (DD) based system. This system relies on the fusion of a 12 kDa destabilizing domain (DD) to the targeted protein.</p>	Tim Gilberger: Pathology and Molecular Medicine

Christina Valiaveettil	<p>Comparing the Toxicities of IbsC Mutants: Compare the relative toxicities of IbsC mutant residues using competitions assays and dye uptake assays.</p>	Yingfu Li: Biochemistry and Biomedical Sciences
Christopher Wang	Effect of bacterial colonization with human microbiota on gut immune activation using germ-free mice."	Premysl Bercik: Medicine
Sunny Xia	<p>Individual Fortification of Breast Milk for Preterm Infants: Measuring the macronutrients of breast milk and individualized fortification of breast milk according to the need of preterm infants.</p>	Christoph Fusch: Pediatrics
Yelin Yang	<p>Pilot study of the fetal and perinatal enteric innervation of germ-free vs. specific pathogen free mice: The overall goal is to determine how extrinsic nerves find their targets in the bowel. One of the most important processes during the perinatal period is the colonization of the bowel with microflora. Accordingly, we aim to determine whether the absence of the gut microflora in either the mother or in newborn mice modulates the normal pattern of enteric innervation. The project will focus on comparing the pattern of enteric innervation in germ-free vs. specific pathogen free (SPF) mice at 3 time points.</p>	Rajka Borojevic: Pediatrics