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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Haim	Last Name of Supervisor: Abenhaim
McGill Department/School: Obstetrics & Gynecology; Epidemiology, Biostatistics, and Occupational Health	
Supervisor Location (McGill or affiliated institution): Jewish General Hospital	
Email: abenhaim.research@gmail.com	Phone # (optional):
Research Field: Perinatal Epidemiology	Proposal (**A or B**): A

Project Title (maximum 1 line): Induction of labor with prostaglandins and the risk of autism

Hypothesis/Question to be Addressed (maximum 4 lines):
Autism spectrum disorder encompasses several neurodevelopmental disorders that are characterized by varying degrees of impairment in social interaction and communication, and restricted interests and repetitive patterns of behavior. Its etiology is unknown but is believed to be multifactorial in nature with both genetic and environmental influences. Environmental factors that have been examined in the literature include, among others, prenatal and perinatal factors. We hypothesize that the use of prostaglandins to induce labor may be associated with an increased risk of autism spectrum disorder among offspring.

Specific Aims (maximum 10 lines):
The aim of this study is to determine the effect of induction of labor with prostaglandins on the risk of autism spectrum disorder in offspring.

Data from an existing case-control study will be used for this project.

Role of Student (maximum 15 lines):
The student will start by doing a thorough literature search on this topic. In conjunction with the project supervisor, the student will decide on the statistical analyses to be done in order to achieve the study aim. Then, the student will participate in the interpretation of the study results and he/she will write a manuscript to be submitted to a medical journal.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Waqqas	Last Name of Supervisor: Afif
McGill Department/School: Department of Gastroenterology	
Supervisor Location (McGill or affiliated institution): Montreal General Hospital	
Email: waqqas.afif@mcgill.ca	Phone # (optional):
Research Field: Inflammatory Bowel Disease	Proposal (**A**):

Project Title (maximum 1 line):
Evaluation of the MyGut Health Monitoring Platform on the Satisfaction and Quality of Care of Patients with Inflammatory Bowel Disease

Hypothesis/Question to be Addressed (maximum 4 lines):

1) To determine the acceptability and feasibility of implementing the MyGut application into IBD- specific clinical practice
2) To investigate whether use of the MyGut application improves the quality of care and quality of life of the patient as measured by various quality indicators after one year of use compared to the year prior to use.

Specific Aims (maximum 10 lines):

a) Determine acceptability of implementing MyGut into IBD clinical practice by evaluating patient's willingness to download and use the application after a brief tutorial.

b) Evaluate the feasibility of the application in terms of appeal, ease of use, comfortability, seeing potential benefits, easy access, and providing adequate information.

c) Analyze results from acceptability and feasibility questionnaires answered by patients that have learned about or used MyGut for 2 months, respectively.

d) Determine whether MyGut use decreases the number of IBD-related emergency room visits and hospitalizations during the one year of using MyGut compared to the year prior.

e) Determine whether the use of the MyGut application improves the quality of life of IBD patients as measured by the Short Inflammatory Bowel Disease Questionnaire (SIBDQ).

f) Evaluate overall patient satisfaction of care after one year of using MyGut compared to the year prior.

g) Statistically analyze results of patients with adequate MyGut use (more than 6 log-ins with data entry during the course of 52 weeks) in regard to the listed objectives.

Role of Student (maximum 15 lines):

The student will enroll patients into using the application over the summer. The results will be analyzed by the student and a statistician, and the student will report the results of the study. This study is a unique opportunity for the student to participate in all aspects of the study and is feasible for the given time period.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Waqqas	Last Name of Supervisor: Afif
McGill Department/School: Department of Gastroenterology	
Supervisor Location (McGill or affiliated institution): Montreal General Hospital	
Email: waqqas.afif@mcgill.ca	Phone # (optional):
Research Field: Inflammatory Bowel Disease	Proposal (**A**):

Project Title (maximum 1 line):
Evaluation and implementation of the OPAL patient portal at the MUHC Inflammatory Bowel Disease Clinic

Hypothesis/Question to be Addressed (maximum 4 lines):

1) To determine the acceptability and feasibility of implementing the OPAL application into IBD- specific clinical practice
2) To investigate whether use of the OPAL application improves the quality of care and quality of life of the patient as measured by various quality indicators after one year of use compared to the year prior to use.

Specific Aims (maximum 10 lines):

a) Determine acceptability of implementing OPAL into IBD clinical practice by evaluating patient's willingness to download and use the application after a brief tutorial.
b) Evaluate the feasibility of the application in terms of appeal, ease of use, comfortability, seeing potential benefits, easy access, and providing adequate information.
c) Analyze results from acceptability and feasibility questionnaires answered by patients that have learned about or used OPAL for 2 months, respectively.
d) Evaluate overall patient satisfaction of care after one year of using OPAL compared to the year prior.

Role of Student (maximum 15 lines):

The student will enroll complete the protocol and enroll patients into using the application over the summer. The results will be analyzed by the student and a statistician, and the student will report the results of the study. This study is a unique opportunity for the student to participate in all aspects of the study and is feasible for the given time period.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Gabriel	Last Name of Supervisor: Altit
McGill Department/School: Department of pediatrics, Neonatal Intensive Care Unit	
Supervisor Location (McGill or affiliated institution): McGill University Health Center, Montreal Children's Hospital	
Email: Gabriel.altit@Mcgill.ca	Phone # (optional): 514-412-4452
Research Field: Epidemiology	Proposal (**A**):

Project Title (maximum 1 line): Diazoxide use during neonatal life – risks and effects.

Hypothesis/Question to be Addressed (maximum 4 lines):
We hypothesize that its use is associated with increased risk of necrotizing enterocolitis (NEC) in premature newborns 32 to $36^{6/7}$ weeks gestational age at birth. However, diazoxide may be useful and safe in a select premature population to avoid prolonged hospitalization and persistent hypoglycemia. Our research questions consist of: A) Is diazoxide associated with NEC in premature infants? B) What is the profile of premature newborns in which Diazoxide allows resolution of hypoglycemia without adverse effects?

Specific Aims (maximum 10 lines): In clinical practice at the MUHC, diazoxide use has been reported in patients developing necrotizing enterocolitis (NEC), especially those with growth restriction and prematurity. Diazoxide is used in hyperinsulinemia, and may allow for earlier resolution of persistent hypoglycemia, as well as decreased length of hospitalization. However, it is a hyperosmolar medication and acts on potassium channel, possibly leading to adverse vascular effects (such as: vasoconstriction leading to NEC and pulmonary hypertension). We aim to: (a) Describe the occurrence of NEC (stage II and above as per Bell's grading) in premature newborns (32 to 37 weeks at birth) in those exposed to diazoxide; (b) Describe the length of hospitalization, duration of gavage/intravenous supplementation and the worst glucose levels in those exposed to diazoxide.

Role of Student (maximum 15 lines): I have already worked with Dr Altit and established the protocol. I also submitted the protocol to the REB and obtained approval. I have obtained accesses to OACIS and remote-access for data extraction from medical charts. My role during the summer program will be to focus on data extraction and analysis, preparation of the abstracts, posters and manuscripts and presentation of the results. First, regarding the data extraction, the data collection sheet has been made and we have standardized definitions regarding perinatal and clinical characteristics, as well as markers of the primary and secondary outcomes.
The data collected include: patient's general information (admission date, weight, APGAR, antenatal steroids), clinical information regarding hypoglycemia (glycemia, resolution of hypoglycemia, intravenous therapy), exposure to diazoxide (dose) and clinical information regarding echocardiography. We have already identified the patient population exposed to diazoxide based from the database of the MUHC pharmacy. Second, regarding the data analysis, results will be described as mean with standard deviation or median with interquartile range (IQR) for continuous variables and counts with proportions for categorical variables. The Fisher's exact and chi-square tests will be used to compare categorical characteristics. Student t-test and Wilcoxon-Mann-Whitney test will be used to compare continuous variables for parametric and non-parametric variables, respectively. Exploratory analysis using a multiple logistic regression analysis will be done to identify markers predictive of NEC. Statistical analyses will be carried out with R (Version 3.4.4) and RStudio (Version 1.0.143). The level of significance will be set at 0.05 for all comparisons.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Asangla	Last Name of Supervisor: Ao
McGill Department/School: Department of Obstetrics and Gynecology	
Supervisor Location (McGill or affiliated institution): MUHC-Reproductive Centre	
Email: asangla.ao@muhc.mcgill.ca	Phone # (optional): 514-934-1934-34741
Research Field: Medical Genetics	Proposal (**A or B**): A

Project Title (maximum 1 line):
Simultaneous development of a Test for Preimplantation Genetic Testing for monogenic disease (PGT-M) and Preimplantation Genetic Testing for Aneuploidy (PGT-A)

Hypothesis/Question to be Addressed (maximum 4 lines):
In vitro fertilization (IVF) and preimplantation genetic test (PGT), including monogenetic disease (PGT-M) and preimplantation genetic testing for aneuploidy (PGT-A) helps patients to select embryos free of monogenic diseases and aneuploidy (chromosome abnormality). The aim of the project is to develop one method which can simultaneously detect a single-gene disorder and aneuploidy in a cost-effective way for PGT patients, especially for women of advanced maternal age.

Specific Aims (maximum 10 lines):
Preimplantation genetic test for monogenetic disease (PGT-M) is an alternative to prenatal diagnosis for the detection of genetic disorders in couples at risk of transmitting a genetic condition to their offspring. Preimplantation genetic test for aneuploidy screening (PGT-A) is widely used to improve the effectiveness of in vitro fertilization.
The first aim of the project is to use different whole genome amplification (WGA) approach in few cells of known genotype samples (such as, cell line or spare donated embryos for reaserch). The second aim of the project is to test the amplification of different genes of different diseases in original samples and samples after WGA procedure, and to analyze the efficiency of the experiments by calculating the amplification rate and allele drop off (ADO) rate. The third aim is to analyze data and write the project report.

Role of Student (maximum 15 lines):
1. Perform literature survey
2. Learn how to design the experiments using computer programs
3. Learn how to extract genomic DNA from blood and buccal cell and run agarose gel
4. Learn how to collect lymphocytes and/or buccal cells
5. Learn how to do whole genome amplification
6. Learn how to design PCR (polymerase chain reaction) primers and perform PCR
7. Learn how to use ABI 3130 Genetic Analyzer and related software to analyze the result
8. Learn how to optimize the PCR reaction to obtain better results
9. Learn the theoretical aspects of NGS (next generation sequencing) procedure for preimplantation genetic testing for aneuploidy
10. Learn how to write, analyze, and present data

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Philippe	Last Name of Supervisor: Archambault
McGill Department/School: School of Physical and Occupational Therapy	
Supervisor Location (McGill or affiliated institution): Jewish Rehabilitation Hospital (Laval)	
Email: philippe.archambault@mcgill.ca	Phone # (optional): 514-398-7323
Research Field: Rehabilitation	Proposal (**A or B**): A

Project Title (maximum 1 line):
Low-cost approach for the measurement of propulsion style during manual wheelchair use

Hypothesis/Question to be Addressed (maximum 4 lines):
New wheelchair users adopt various propulsion styles when first learning to use a wheelchair. However, some propulsion styles are less efficient and increase the risk of developing serious shoulder or elbow pain, due to repeated motion. We have designed a low-cost wheelchair simulator, to improve the training of wheelchair skills. What low-cost approach will provide users with the best measure propulsion style?

Specific Aims (maximum 10 lines):
The wheelchair simulator consists of a base with motorized rollers, that provide force feedback on the wheels in order to simulate inertial and gravitational forces. A screen shows a virtual scene and provides visual feedback on various biomechanical parameters (push frequency, push length, etc.). In this project, we will consider various low-cost approaches for the measurement of wheelchair propulsion style, in the context of its potential use within our wheelchair simulator environment. These will include 1) 3D depth camera, positioned in front of the user and that records upper body movements; 2) wearable sensor (inertial measurement unit) placed on the user's wrist, recording acceleration and rotation data; 3) simple phone camera, placed on the side, which records position of a marker placed on the user's wrist. Algorithms have been designed for each instrument, to detect propulsion style. The aim of this project will be to determine, in a systematic fashion, which of the three instruments/methods is the most accurate.

Role of Student (maximum 15 lines):
The student will collaborate with a PhD student and the supervisor. He/she will be responsible for data recording in healthy participants, who will practice propulsion in the wheelchair simulator in various experimental conditions

1) Arcing pattern, where, after a push, the hands recover by following the pushrim
2) Semi-circular pattern, where, after a push, the hands recover by dropping below the pushrim
3) Loop over pushrim pattern, where, after a push, the hands recover by rising above the pushrim

Each propulsion condition will be maintained for 30 push cycles and repeated at different push frequencies. Data from all three instruments (3D depth camera, wearable sensor, phone camera/marker) will be simultaneously recorded.
In addition, the student will participate in the analysis of the outcomes measured during the experiment. The analysis will consist of performing appropriate statistical tests and producing graphs to summarize and interpret the data. The research laboratory is located at the Jewish Rehabilitation Hospital (JRH), Laval, which is also part of the Centre de recherche interdisciplinaire en réadaptation (CRIR), an organization regrouping all the major rehabilitation research centers in the Montreal area. There will also be opportunities to gain more insight into rehabilitation research by attending seminars organized by the JRH or other CRIR centers, and to participate in other summer research projects being conducted at the JRH.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Roksana	Last Name of Supervisor: Behruzi
McGill Department/School: Family Medicine	
Supervisor Location (McGill or affiliated institution): McGill University, Campus Gatineau	
Email: roksana.behruzi@mcgill.ca	Phone # (optional): 819-271-7131
Research Field: Perinatal	Proposal (**A or B**): A

Project Title (maximum 1 line): Use of probiotics to prevent Group B Streptococcus rectovaginal colonization in pregnant women in third trimester of pregnancy: a retrospective study

Hypothesis/Question to be Addressed (maximum 4 lines): We hypothesize that oral probiotics consumption in third trimester can reduce the group B streptococcus rectovaginal colonization at birth.

Specific Aims (maximum 10 lines): Group B Streptococcus (GBS) rectovaginal colonization in pregnancy and birth is one of the most important risk factors for developing infection in newborns. Research shows 50 to 70% of infants born to GBS-positive mothers become colonized with bacteria and 1% to 2% of these infants develop early onset neonatal GBS infection (EOGBSD) with a case fatality rate of 12.1%. Efforts to prevent newborn GBS infection in newborns have led to the use of antibiotics in almost 30 % of women in labour. Probiotics are suggested as a safe strategy in pregnancy to prevent or reduce the prevalence of vaginosis bacterial infection, however, there is a lack of research-based evidence on the efficacy of probiotics on maternal GBS recto-vaginal colonization. The best probiotics species, the dosage and the best administration methods and the outcomes on pregnancy have not been examined yet in a large randomized controlled trial. The aim of this study is to assess the efficacy and safety of Lactobacillus & Bifidus oral probiotics in the third trimester of pregnancy to prevent maternal GBS rectovaginal colonization.

Role of Student (maximum 15 lines): The study setting is a birthing center in Gatineau, Quebec. The student should use the SharePoint software at birthing center to find the list of all eligible women who were followed by the health care providers during the past 12 months (2019-2020), complete the sociodemographic questionnaires, collect the specific data with regards to specific variables and use softLab for the results of strep B rectovaginal cultures. Student should respect the specific inclusion and exclusion criteria (see protocol) to collect the data. The eligible pregnant women will be assigned to the intervention and control group. Women who were taken one oral probiotics capsule per day, at the beginning of third trimester of pregnancy until to birth will be assigned into the intervention group namely. The probiotics that recommended to women as preventive approach towards strep B is namely Natural Factors Acidophilus & Bifidus,10 CUF (contains L.rhamnosus (80%), L-acidophillus (10%), & Bifidum. The women who did not take this probiotic capsule will be assigned to control group. The safety and efficacy (the primary outcome) will be evaluated by the presence or absence of side effects, and strep B in the culture of rectovaginal samples. The secondary outcome will be the outcome of pregnancy in mother and neonate. The student will enter the data into questionnaires. The student will enter the data into a quantitative software and will conduct the descriptive statistics, while other statistical analysis will be performed by help of a biostatistician. The student will present the results of study and abstract and may participate in writing a manuscript for publishing in a scientific Journal if he/she is interested. The permission of Ethic committee will be taken from the Ethic committee at CISSS de Gatineau.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Marc	Last Name of Supervisor: Beltempo
McGill Department/School: Faculty of Medicine, Department of Pediatrics	
Supervisor Location (McGill or affiliated institution): Montreal Children's Hospital - MUHC	
Email: marc.beltempo@mcgill.ca	Phone # (optional): (514) 412-4230 #23032
Research Field: Neonatology / Quality improvement	Proposal (**A or B**): A

Project Title (maximum 1 line): Neonatal intensive care unit occupancy rate and probability of discharge of very preterm infants in a regionalized healthcare system

Hypothesis/Question to be Addressed (maximum 4 lines):
Preterm infants born <33 weeks' gestational age are high resource users and have prolonged hospitalization (median 50 days). In a publicly funded resource-limited healthcare system, it is critical to reduce length of hospitalization. The timing of discharge of preterm infants born <33 weeks' gestational age should be based on objective clinical criteria, yet there are significant variations in length of stay among hospitals. In a regionalized healthcare system with limited resources, external factors such as neonatal intensive care unit bed occupancy may contribute to the timing of discharge of these infants. Clinicians may modulate their clinical decision-making on timing of discharge based on available resources.

We hypothesize that days with higher patient occupancy would be associated with higher probability of patient discharge among preterm infants born <33 weeks'.

Specific Aims (maximum 10 lines):

1. Describe the variations in length of stay of infants born <33 weeks' admitted in the 5 Level 3 neonatal intensive care units in Quebec
2. Evaluate the association of neonatal intensive care unit occupancy with probability of discharge.

Role of Student (maximum 15 lines):
In conjunction with the supervisor, the student will be responsible for this entire study including

- Literature review
- Design analytic plan
- Data collection: Patient data and outcomes in the neonatal intensive care unit are already collected as part of the Quebec Perinatal Administrative Collaborative Database
- Data analysis
- Write and present abstract in scientific meetings
- Write and prepare the manuscript for publication

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Geneviève	Last Name of Supervisor: Bernard
McGill Department/School: Neurology and Neurosurgery, Pediatrics, Human Genetics	
Supervisor Location (McGill or affiliated institution): McGill University, RI-MUHC Glen Site	
Email: genevieve.bernard@mcgill.ca	Phone # (optional):
Research Field: Rare inherited white matter disorders	Proposal (**A or B**): A

Project Title (maximum 1 line):
Clinical and genetic characterization of rare inherited white matter disorders

Hypothesis/Question to be Addressed (maximum 4 lines):
Using a combination of proper clinical characterization and analysis of next generation sequencing data, genetic diagnoses of patients with previously undetermined rare inherited white matter disorders can be uncovered.

Specific Aims (maximum 10 lines):
Several patients presenting with leukodystrophies and genetic leukoencephalopathies remain without a molecular diagnosis despite extensive clinical genetic investigations. As these disorders are likely caused by variants in novel genes not yet known to be associated with white matter defects, our research involves using next generation sequencing technologies to investigate new genetic causes. This project will involve (1) the clinical and radiological characterization of patients with molecularly unsolved white matter disorders and (2) the analysis and validation of next generation sequencing data to identify novel genetic causes.

Role of Student (maximum 15 lines):
Our lab has recruited a cohort of patients with white matter disorders who have undergone extensive clinical and radiological investigations but remain without a molecular diagnosis. We aim to identify the underlying genetic cause using next generation sequencing data analysis in this cohort of patients. The student will be tasked with analyzing the clinical and MRI data of patients to form a complete phenotypic picture of the disease, and subsequently analyzing next generation sequencing data to uncover candidate genes. This will be completed using our previously established analysis pipeline to determine whether pathogenic variants in specific genes align with the clinical and radiological findings in our patients. Following the identification of these candidate genes, the student will be responsible for validating the variants using laboratory techniques such as PCR to amplify the regions of interest in patient DNA samples followed by Sanger sequencing validation and co-segregation analysis of familial inheritance. The student will have the opportunity to discuss their findings during weekly lab meetings, and to become familiar with research in medical genetics.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Geneviève	Last Name of Supervisor: Bernard
McGill Department/School: Neurology and Neurosurgery, Pediatrics, Human Genetics	
Supervisor Location (McGill or affiliated institution): McGill, RI-MUHC Glen Site	
Email: genevieve.bernard@mcgill.ca	Phone # (optional):
Research Field: white matter disorders, natural history study, clinical trials	Proposal (**A or B**): B

Project Title (maximum 1 line):
A natural history study of white matter disorders in preparation for imminent clinical trials

Hypothesis/Question to be Addressed (maximum 4 lines):
To establish the natural history and disease evolution of POLR3-related leukodystrophy and other white matter disorders in order to determine validated outcomes, measures and biomarkers to be used to assess treatment efficacy in future clinical trials.

Specific Aims (maximum 10 lines):
Therapies are currently being developed for rare white matter disorders. The availability of robust, longitudinal, prospective data (i.e. natural history data) and validated outcome measures is a critical factor in designing and operating adequate and well-controlled clinical trials for a variety of white matter disorders. Our specific aims include: 1) to describe the clinical and MRI characteristics of patients with white matter disorders to delineate the natural history and record clinical trial outcomes, 2) to identify surrogate markers of POLR3-related leukodystrophy by analyzing the association of clinical data/MRI characteristics with disease progression, and 3) to continue developing our rare disease database, to improve function and provide information to collaborators regarding their patients.

Role of Student (maximum 15 lines):
Currently, our lab is involved in several projects that require routine database entry to accurately determine patient outcomes, these include POLR3-related leukodystrophy, Metachromatic Leukodystrophy, Pelizaeus-Merzbacher Disease, Aicardi-Goutières Syndrome and Alexander's disease. Our lab, in collaboration with Dr. Alan Evans' laboratory, has developed a customized LORIS (Longitudinal Online Research and Imaging System) database to conduct prospective natural history studies. LORIS is a web-based data and project management software for multi-site research studies. The student would aid in entering data into LORIS and other secure databases to store and analyze data. Tasks may include de-identification of source documents, database management and data entry and analysis. Specifically, the student will be responsible for entering data from patients followed locally at the Montreal Children's Hospital and international patients. Analysis of major clinical and MRI outcomes will aid in characterizing the patient population and the disease progression as well as in the development of a patient- and caregiver-friendly prediction tool to aid families with expected disease outcomes. Additionally, the student will be responsible for using the LORIS rare disease database to establish an automatically generated consult letter so that physicians working with these patients can simultaneously participate in research and fulfill their clinical duties.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Diane B.	Last Name of Supervisor: Boivin
McGill Department/School: Psychiatry	
Supervisor Location (McGill or affiliated institution): Douglas Mental Health University Institute	
Email: diane.boivin@douglas.mcgill.ca	Phone # (optional): 514-761-6131 ext 2397
Research Field: Human Chronobiology	Proposal (**A or B**): A

Project Title (maximum 1 line):
The effect of insomnia on the circadian variation of sleep in postmenopausal women

Hypothesis/Question to be Addressed (maximum 4 lines):
Women report experiencing more sleep complaints than men throughout their life. The prevalence of these sleep complaints steeply increases during the menopausal transition. The contribution of the circadian system to the sleep difficulties at menopause is not completely understood. The goal of this study is to characterize the circadian variation of objective sleep of postmenopausal women with insomnia.

Specific Aims (maximum 10 lines):
For our CIHR-funded study, 14 healthy postmenopausal women and 14 postmenopausal women with insomnia will be recruited. The study will comprise an ambulatory phase, to maintain a regular sleep schedule for 2 weeks, and a laboratory visit. In the laboratory, participants will start with an 8-h baseline sleep immediately followed by an ultradian sleep-wake cycle procedure. This special procedure consists of alternating short wake episodes and short nap opportunities for 48 hours, which will allow us to record sleep throughout the day and night. Participants will finish this procedure with a recovery sleep period. Light exposure, food intake, ambient temperature and activity will be controlled during the time in the laboratory. Throughout this study, sleep will be recorded using polysomnography (electroencephalogram, electromyogram, electrooculogram, and electrocardiogram). Spectral analysis of the electroencephalogram (EEG) will be used to perform a quantitative analysis of sleep waves. The aim of this study is to better understand the circadian variation of sleep on postmenopausal women with insomnia compared to healthy-sleeping women using a quantitative analysis of EEG.

Role of Student (maximum 15 lines):
The role of the student will be to focus on the analysis of the spectral composition of sleep of postmenopausal women with insomnia. We have already collected data in 3 postmenopausal women with insomnia that will be compared to 8 postmenopausal women without insomnia. These data set will serve for the student's analysis, interpretation of data, and producing their report. Following the review of the relevant literature and in collaboration with the supervisor, the student will additionally participate in different activities related to this research project. Learning and improving their skills on how to use statistic packages will be required and part of the training. To gain hands-on experience, the student will actively participate in screening/interviewing potential research participants and data collection of the on-going laboratory studies. The student will receive complete training on laboratory techniques related to human chronobiology. This project provides the exceptional opportunity for a responsible student to contribute to the current knowledge of the human circadian physiology.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Diane B.	Last Name of Supervisor: Boivin
McGill Department/School: Psychiatry	
Supervisor Location (McGill or affiliated institution): Douglas Mental Health University Institute	
Email: diane.boivin@douglas.mcgill.ca	Phone # (optional): 514-761-6131 ext 2397
Research Field: Human Chronobiology	Proposal (**A or B**): B

Project Title (maximum 1 line):
The effect of simulated night shift work on metabolic function.

Hypothesis/Question to be Addressed (maximum 4 lines):
Strong evidence suggests that shift work represents a risk to metabolic health. Circadian disruption modifies levels of glucose, insulin and lipids, and affects the regulation of metabolic markers. The timing of food intake is a main synchronizer of peripheral circadian clocks. The aim of this study is to evaluate the extent to which shift-work modulates metabolism by analyzing historical data collected during a simulated night shift experiment.

Specific Aims (maximum 10 lines):
A total of 9 healthy young adults (1 woman, 8 men) aged 18 to 35 were recruited to live in a time-free laboratory environment for 6 days. After the first night, participants underwent a constant posture (CP) procedure for 24 h, involving minimal activity levels in a semi-recumbent position, dim light exposure, hourly isocaloric snacks, and regular blood samples. The CP procedure minimizes the masking effects of behaviour and the environment on endogenous circadian rhythms. The first CP sampling period, aligned to a daytime-oriented schedule, served as the baseline for rhythms of glucose and lipid metabolism. The CP procedure was followed by an experimental phase which involved a 4-day simulated night shift schedule that was delayed by 10 hours relative to habitual sleep times. For the final 24-hours, including the period of the 4th simulated night shift, participants underwent a second CP procedure. This second CP sampling period served to evaluate metabolic rhythms during circadian misalignment.

Role of Student (maximum 15 lines):
This project represents an excellent opportunity for an independent and responsible student to enroll in a research project and to study at the forefront of our current knowledge of the human circadian physiology. Following the review of the relevant literature and in collaboration with the supervisor, the student will participate in almost every aspect of the activities related to this research project. We have already collected data with 9 participants that will serve for the student's analysis and interpretation of data. There will potentially be the opportunity to recruit additional participants, which will involve screening/interviewing potential research participants. The student will receive comprehensive training in the laboratory techniques associated with the study of human sleep and circadian rhythms and will gain practical experience by being active in on-going laboratory and ambulatory studies. This includes administration of tests, care of samples, data collection, follow-up of subjects, and data analysis.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Nancy	Last Name of Supervisor: Braverman
McGill Department/School: Human Genetics, Medical genetics and Pediatrics	
Supervisor Location (McGill or affiliated institution): Research Institute of the MUHC	
Email: nancy.braverman@mcgill.ca	Phone # (optional): 514 934 1934 x 23404
Research Field: Medical Genetics	Proposal (**A**):

Project Title (maximum 1 line): Genotype-phenotype correlations in peroxisome disorders

Hypothesis/Question to be Addressed (maximum 4 lines): What is the natural history of disease in the peroxisome disorder subtype, D-bifunctional protein deficiency

Specific Aims (maximum 10 lines):
Aim 1. To review the medical records collected through our natural history study on pateints with D-bifunctional protein deficiency (current #12 pateints, children and adults)
Aim 2. To correlate genotype and phenotype severity
Aim 3. To generate conclusions based on this review about management protocols for these pateints.

Role of Student (maximum 15 lines):
The student will review the medical records on our computer database and generate a case report form for data extraction. Missing data can be collected by contacting the pateints or caregivers. Patients will be divided into severity groups and genotype- phenotype associations can be made. At the end, the data will be reviewed together and conclusions will be generated to improve management of these individuals. A manuscript can be generated at the completion of this project.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Nancy	Last Name of Supervisor: Braverman
McGill Department/School: Human Genetics, Medical genetics and Pediatrics	
Supervisor Location (McGill or affiliated institution): Research Institute of the MUHC	
Email: nancy.braverman@mcgill.ca	Phone # (optional): 514 934 1934 x 23404
Research Field: Medical Genetics – rare disease	Proposal (**B**):

Project Title (maximum 1 line): Searching for genetic modifiers of clinical phenotypes in peroxisome disorders

Hypothesis/Question to be Addressed (maximum 4 lines): Is the amount of protein produced from the PEX1 directly associated with phenotype severity?

Specific Aims (maximum 10 lines):
-To evaluate the amounts of PEX1 protein produced in cell lines from patients with defects in PEX1 and correlate the findings to the severity of the patients' phenotype.
-To evaluate the data from whole genome sequencing to determine if there are changes in genes that control PEX1 protein levels and are associated with phenotype severity.

Role of Student (maximum 15 lines):
To learn and perform protein immunoblotting experiments (western blots) to determine PEX1 protein amounts in patient cell lines.
To learn how to evaluate whole genome sequencing data, and to search for change sin genes that control protein levels.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Sam	Last Name of Supervisor: Daniel
McGill Department/School: Otolaryngology	
Supervisor Location (McGill or affiliated institution): MUHC-RI, Glen site	
Email: sam.j.daniel@mcgill.ca	Phone # (optional):
Research Field: Otolaryngology / Pediatric Surgery	Proposal (**A or B**): A

Project Title (maximum 1 line): Surgical innovation of bone anchored hearing implant in children

Hypothesis/Question to be Addressed (maximum 4 lines): Compare the pros and cons of different surgical approaches to bone anchored hearing implant placement.

Specific Aims (maximum 10 lines): Determine how the linear incision with tissue preservation compares to the novel Minimally Invasive Ponto Surgery to the star shaped approach for placement of auditory osseointegrated implants in children.
Outcomes will include: patient demographic, skull assessment, skin thickness, surgical duration post-operative tolerability assessment, implant stability, implant survival, patient satisfaction.

Role of Student (maximum 15 lines):
To perform a non-randomized retrospective analysis of cohort series to compare outcomes between surgical implant techniques: (a) linear incision with tissue preservation and (b) star-shape incisions and (c) in BAHI placement for children. Medical files will be reviewed of pediatric bone anchored hearing implant recipients. Extracted outcomes will include: patient characteristics, implant survival, operative time, anesthesia use, intra and postoperative complications, soft tissue tolerability assessed by the Holger's classification, and implant stability assessed by the Resonance Frequency Analysis (RFA).

The student will review medical charts to extract outcomes to compare. The student will summarize and tabulate the findings. The student will contribute to drafting a manuscript that will be aimed for submission in a top Otolaryngology peer-reviewed journal.

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Supervisor Project Proposal: Summer 2021

First Name of Supervisor: Mark	**Last Name** of Supervisor: Eisenberg
McGill Dept/School: Medicine	
Faculty Professor (Full, Associate or Assistant): Full	
Email: mark.eisenberg@mcgill.ca	Phone # (optional):
Research Field: Cardiology, Epidemiology	Proposal # (1 or 2): 1
Research Location (McGill or affiliated institution): Jewish General Hospital	
Ethics approval will be required for proposed project (Yes or No): No	
Proposed project will involve chart reviews (Yes or No): No	

Project Title (maximum 1 line):

Vaping and Respiratory Health: A Systematic Review

Hypothesis/Question to be Addressed (maximum 4 lines):

The objective of this systematic review is to examine short- and long-term changes in respiratory health (e.g., lung function) among individuals who vape compared to those who do not and to compare these changes among vaping subgroups (e.g., dual users of conventional cigarettes and nicotine e-cigarettes, exclusive users of nicotine pod devices, dual users of smoked cannabis and cannabis-containing vaping products).

Specific Aims (maximum 10 lines):

A systematic review involves searching the literature using a pre-defined search strategy and applying inclusion and exclusion criteria to ensure that all relevant publications are identified and that selection for inclusion in the review is free from bias. This strategy will be used to:

1) Identify studies that report quantitative primary data on short- or long-term changes in respiratory health associated with vaping compared to vaping (and smoking) abstinence.
2) Eligible outcomes will include, but not be limited to signs and symptoms (e,g., wheeze, shortness of breath); physiologic measures (e.g., pulmonary function tests, forced expiratory volume in 1 second [FEV1]); activity (e.g. 6-minute walk test, other exercise tolerance tests); radiographical outcomes (e.g., findings of emphysema on CT scan); health care resource utilization outcomes (e.g., respiratory-related emergency department visits); respiratory-related quality of life; and incidence and/or prevalence

Role of Student (maximum 15 lines):

This project is an excellent opportunity for a student to gain research experience working with an established clinician-scientist. With assistance and direction from the supervisor, the student will:

- Conduct the literature search in a number of databases (e.g., Medline, Cochrane Libraries);
- Create and apply inclusion/exclusion criteria to screen the titles/abstracts of identified articles;
- Screen the full text of articles potentially eligible for inclusion in the review;
- Abstract data from eligible articles to be pooled via meta-analysis; and
- Provide a synthesis of the data in the form of a manuscript suitable for publication.

In addition to conducting the review and writing the manuscript, the student will be expected to participate in other research activities. These include summer seminars (typically featuring the work of the research team and summer students, as well as instructional sessions on research techniques). Optional activities include research team social events and clinical shadowing.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: James	Last Name of Supervisor: Engert
McGill Department/School: Experimental Medicine	
Supervisor Location (McGill or affiliated institution): RIMUHC	
Email: jamie.engert@mcgill.ca	Phone # (optional): 514-934-1934 ext:35325
Research Field: Cardiovascular Medicine	Proposal (**A or B**): A

Project Title: Fatty Acids and Aortic Stenosis: Genetics and Metabolic Biomarkers

Hypothesis/Question to be Addressed: Our group recently identified variation at the genetic locus, *FADS1/2*, as a causative risk factor for Aortic Stenosis (AS), the most common form of valve disease. We hypothesize that certain plasma biomarkers affected by this locus can be used to predict AS.

Specific Aims: Our specific aims are to: 1) identify plasma biomarkers from fatty acid and lipidomic profiling assay data for AS that are affected by the FADS1/2 locus and 2) to develop predictive models for AS susceptibility and disease progression using these same biomarkers in conjunction with other well known risk factors (e.g. sex, age). Both of these aims will be conducted through analyses of data from locally recruited patients as well as large-scale available data sets. Thus, we aim to identify the precise biologically relevant targets that mediate the FADS association with AS. Our ultimate objective is to identify high-risk patients early in order to institute preventive approaches prior to advanced disease.

Role of Student: As all of the data already exists, no data acquisition will be required. The student will perform statistical analysis as appropriate for the determination of genetic effects stemming from the FADS1/2 locus. In addition, the student will construct predictive models for AS, based on genetic data combined with biomarker data. Additional bioinformatic approaches will be used to provide context to the results. The student will have access to the expertise of Line Dufresne (M.Sc.), who has over ten years of experience in statistical genetics research. Progress will be followed, and constructive feedback will be given in the context of weekly group meetings.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: James	Last Name of Supervisor: Engert
McGill Department/School: Experimental Medicine	
Supervisor Location (McGill or affiliated institution): RIMUHC	
Email: jamie.engert@mcgill.ca	Phone # (optional): 514-934-1934 ext:35323
Research Field: Cardiovascular Medicine	Proposal (**A or B**): B

Project Title: Discovering Novel Risk Factors for Aortic Stenosis

Hypothesis/Question to be Addressed: While certain biomarkers are well known for their relationship with Aortic Stenosis (AS), additional biomarkers remain to be discovered. We hypothesize that the identification of additional biomarkers will allow for improved disease prediction, but perhaps more importantly, will allow for the identification of novel pathways that contribute to the etiology of AS.

Specific Aims: The specific aims of this project are to identify candidate biomarkers and: 1) investigate their added value to a standard clinical model for prediction of AS susceptibility and disease in conjunction with other well known risk factors (e.g. sex, age) and 2) perform additional analyses and research to understand their possible etiological contribution to AS. These aims will be accomplished through analyses of available large-scale data sets, providing substantially increased power over previous similar analyses. Thus, we aim to identify novel biologically relevant clinical variables (e.g. plasma immunological parameters) that are associated with AS and may be causally related to the disease.

Role of Student: Since all of the data already exists, no data acquisition or quality control steps will be required. The student will familiarize themselves with the current state of our knowledge of AS risk factors. The student will then perform linear and logistic regression as appropriate to identify novel associations in the well-established cohort, the UK Biobank. Additional bioinformatic approaches will be used to provide context to the results and contribute to our understanding of biochemical and physiological processes. The student will have access to the expertise of Line Dufresne (M.Sc.) who has over ten years of experience in statistical genetics research. Progress will be followed, and constructive feedback will be given in the context of weekly group meetings.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Robert	Last Name of Supervisor: Funnell
McGill Department/School: BioMedical Engineering and Otolaryngology – Head & Neck Surgery	
Supervisor Location (McGill or affiliated institution): McGill	
Email: robert.funnell@mcgill.ca	Phone # (optional):
Research Field: Otology	Proposal (**A or B**): A

Project Title (maximum 1 line):
Age-related anatomical changes in the ears of newborns and infants

Hypothesis/Question to be Addressed (maximum 4 lines):
Hypothesis: That anatomical differences between newborn ears and adult ears contribute to differences between hearing screening and diagnostic results obtained in newborns and those obtained in adults.

Specific Aims (maximum 10 lines):
Early detection, diagnosis and treatment of hearing loss in newborns is important in order to avoid problems with language acquisition and psychosocial development, but the available screening tests result in too many false positives and in delayed diagnoses. Our overall objective is to develop an inexpensive, fast and accurate test for hearing loss in newborns. Tympanometry (which combines probe tones and large static pressures) is a promising tool but is not well understood in newborns. The infant ear is quite different from the adult one but few data are available to quantify the differences. Specific aims: (1) To create computer-based 3-D models of outer, middle and inner ear for ages from birth to about four years; and (2) to produce quantitative descriptions of significant changes with age.

Role of Student (maximum 15 lines):
(1) Search for and summarize previous research on post-natal development of the ear, and on anatomical quantification; (2) help decide which anatomical features can and should be quantified; (3) learn to use our software to create 3-D models; (4) work on improving our existing 3-D models based on clinical CT scans and on histology; (5) help identify suitable new X-ray CT scans from the Montréal Children's Hospital and create new models for additional ears; (6) extract anatomical features and help analyze and interpret them; and (7) prepare the findings for presentation, and present as appropriate.

No particular prior computer experience is required.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Robert	Last Name of Supervisor: Funnell
McGill Department/School: BioMedical Engineering and Otolaryngology – Head & Neck Surgery	
Supervisor Location (McGill or affiliated institution): McGill	
Email: robert.funnell@mcgill.ca	Phone # (optional):
Research Field: Health-sciences education	Proposal (**A or B**): B

Project Title (maximum 1 line):
Use of computer-based 3-D models for learning anatomy

Hypothesis/Question to be Addressed (maximum 4 lines):
Hypothesis: That computer-based 3-D models are effective for learning anatomy.

Specific Aims (maximum 10 lines):
Teaching and learning anatomy have traditionally been done with 2-D illustrations, videos and cadavers. Cadavers are better than 2-D media for conveying 3-D relationships but they are expensive; small nerves and vessels are difficult to see; some structures cannot be accessed easily; and anatomical variations are limited and uncontrolled. Computer-based 3-D models can complement cadavers by addressing some of these problems. Our overall aim is to develop high-quality, open-source 3-D models that can be viewed interactively using downloadable software, and accessed over the Web for interactive viewing and/or 3-D printing. Specific aims: (1) To create a 3-D model of a selected anatomical region; (2) to prepare the model for delivery; and (3) to evaluate how accessible and useful students find the model and delivery method to be.

Role of Student (maximum 15 lines):
1) Search for and summarize previously developed 3-D anatomical models and the methods used to access them; (2) search for and summarize previous literature on the effectiveness of such models for learning anatomy; (3) in discussion with other students and with anatomy instructors, help decide which anatomical region or structure(s) should be addressed; (4) learn to use our software to create 3-D models; (5) work on developing a model or on improving an existing model, as appropriate; (6) design and carry out a preliminary evaluation of the model; (7) prepare the findings for presentation, and present as appropriate.

No particular prior computer experience is required.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Carolyn	Last Name of Supervisor: Jack
McGill Department/School: Department of Medicine, Dermatology	
Supervisor Location (McGill or affiliated institution): McGill University Health Center Glen Site	
Email: carolyn.jack@mail.mcgill.ca	Phone # (optional):
Research Field: Atopic dermatitis	Proposal (**A or B**): A

Project Title (maximum 1 line): Elucidate the natural history of adult atopic dermatitis

Hypothesis/Question to be Addressed (maximum 4 lines): I hypothesize that our co-developed mobile health application, EczemaQ, an award-winning pilot, will be an effective tool for improving disease outcomes via remote self-management, as determined by POEM measure of severity. Co-developed iterations with end-users (patients, clinicians, MUHC) will build capacity for future implementation of secure data collection.

Specific Aims (maximum 10 lines): Patient-oriented Adult Atopic Dermatitis clinical research unit: tool co-development. Phase 1. EczemaQ App Validation: Single-site, iterative explanatory sequential mixed methods study. Participants: healthcare providers (expert dermatologists, family physicians, nurses, and pharmacists) and patients (18-64 yrs chronic adult atopic dermatitis patients meeting Hanifin and Rajka criteria). Participants will be asked to submit a questionnaire based on the Technology Acceptance Model (TAM) framework22-24 for quantitative analysis via descriptive statistics, with qualitative focus groups, transcripts analyzed by thematic analysis, inductive and deductive coding (N. Merati, M.Sc, MDCM candidate). Outcome recommendations for changes to the tool will be incorporated into the first of several iterations, reviewed by participants in the next round of iteration (Cohorts 2, 3). MUHC REB 2021-7117 is conditionally approved.

Role of Student (maximum 15 lines): Monitoring and measuring intervention. Exposure to EczemaQ App, downloaded to patient smartphone, monitored once per week. Primary Endpoint. Change in POEM from baseline at 4 weeks following exposure, compared to standard-of-care. Patients will be introduced to the tool by trained un-blinded study team members, with encouraged daily use from home. Patients will be recruited from the McGill COE AD clinician network and randomized using available online tools. 60 subjects will be enrolled in the study (1:1, EczemaQ, vs standard of care). All patients will receive medical treatments according to standard of care. Adverse events will be collected.

Data Analysis. Intent-to-treat analysis, as complete as possible outcome data for all randomized subjects. Data collection at the MUHC using source documentation, inputting to clinical report forms with database storage on REDcap. EczemaQ's data architecture is under co-development for compliance, with regulatory support from the McGill University Research Institute and Hospital. An estimated median POEM 12 +/-4, alpha 0.05, sample size (n=26 in each arm) needed to detect a >3 point minimally important difference between intervention arm vs control active comparator; we will recruit 30 per arm in order to account for a 15% drop-out.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Carolyn	Last Name of Supervisor: Jack
McGill Department/School: Department of Medicine, Dermatology	
Supervisor Location (McGill or affiliated institution): McGill University Health Center Glen Site	
Email: carolyn.jack@mail.mcgill.ca	Phone # (optional):
Research Field: Atopic dermatitis	Proposal (**A or B**): B

Project Title (maximum 1 line): Canadian Atopic Dermatitis Cohort for Translational Immunology and Imaging

Hypothesis/Question to be Addressed (maximum 4 lines): I hypothesize that a new pragmatic observational clinical study of adult patients under standard-of-care, the Canadian Atopic Dermatitis Cohort for Translational Immunology and Imaging (CACTI), will enable rigorous analysis of disease activity over time, including clinical phenotypic and environmental factors.

Specific Aims (maximum 10 lines): Phase 1. Harmonization of REB, SOP (underway). CACTI inter-institutional contracting is pre-finalized, and the study protocol is under first review REB at U Toronto. At MUHC, REB-5565 and will be amended to incorporate additional study features from the CACTI design and study protocol. Harmonization of recruitment tools, source documentation, shared Redcap database and data model design, as well as data security review currently active, with regular meetings and protected share-files between all sites. Phase 2. Clinical study and prospective biospecimen collection.

Role of Student (maximum 15 lines): Outcome monitoring and data collection. Clinical objective, subjective, and imaging data will be collected on paper or electronically according to the setup at each site, and entered into a REDCap database. Variables, based on the TREatment of ATopic eczema (TREAT) Registry Taskforce39 (summarized in Table 2), will include; 1. Patient reported outcome measures (PROs): Patient Global Assessment40, Patient Oriented Eczema Measure (POEM)41, Peak Pruritus Numeric Rating Scale (PP-NRS)42, Dermatology Life Quality Index (DLQI),43 body map areas affected by disease; 2. Objective/Investigator-reported outcome measures (a. Global: EASI,44 global vIGA34, body surface area; b. Target lesional: IGA and TSSS). Patients will consent separately to the collection of biospecimens and imaging data. Biologic specimens collected, and include peripheral venous blood draw, lesional, peri-lesional and non-lesional skin biopsies, skin swabs for S. aureus, and gross photographic skin imaging (see Table 2 for time points and study visits). Primary outcome: Change in EASI disease score, from baseline to week 12, systemic treatment versus none. While the aims of this study focus on clinical outcome and biomarkers up to 12 weeks, we will continue to follow patients in the cohort at their routine clinical visits.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Frederick	Last Name of Supervisor: Kingdom
McGill Department/School: Ophthalomology	
Supervisor Location (McGill or affiliated institution): MGH	
Email: fred.kingdom@mcgill.ca	Phone # (optional): 514-934-1934 x35308
Research Field: Visual Neuroscience	Proposal (**A or B**): A

Project Title (maximum 1 line): Psychophysical investigation into the cause of interocular suppression in healthy human subjects.

Hypothesis/Question to be Addressed (maximum 4 lines): That between-eye (interocular) suppression is caused by neurons that detect differences in the strengths of the two eye's signals.

Specific Aims (maximum 10 lines): A feature of human binocular vision is that when one eye receives a strong signal and the other a weak one the weaker eye's signal gets suppressed, a process called interocular suppression, or IS. There are two theories about the cause of IS. One is that "opponency" neurons that detect differences in the strength of the two eyes' signals cause IS. The other is that IS always occurs irrespective of whether or not there is a difference in the strengths of the two eyes' signals. The aim of the project is to conduct psychophysical (behavioural) experiments to test between the two theories in healthy human test subjects, using computer generated test patterns displayed through a stereoscope that are designed to target the relevant visual neurons. The approach taken will be to desensitize the opponency neurons by a process termed adaptation and then test whether or not the adaptation reduces the amount of IS in relevant visual tasks: if it does the opponency theory is supported, if not the alternative theory is supported. The results of the project should have important implications for our understanding of eye pathologies that are caused by interocular suppression.

Role of Student (maximum 15 lines): The student will be involved in every aspect of the project, including background reading, the design of the test patterns and the design of the test subjects' visual task, the collection of data, the analysis of the data and assistance in the writing of any publication that emerges from the project with the student as co-author. The student will not require any background in computer programming but will hopefully take the opportunity to learn Matlab as part of running the software to analyze and graph the data.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Roberta	Last Name of Supervisor: La Piana
McGill Department/School: Department of Neurology & Neurosurgery; Department of Diagnostic Radiology	
Supervisor Location (McGill or affiliated institution): Montreal Neurological Institute	
Email: roberta.lapiana@mcgill.ca	Phone # (optional):
Research Field: Rare Genetic Diseases	Proposal (**A or B**): A

Project Title (maximum 1 line):
Cerebral small vessel diseases of genetic origin: clinical and radiological characterization.

Hypothesis/Question to be Addressed (maximum 4 lines):
We hypothesize that, among the patients followed for cerebral small vessel diseases at the Department of Neurology, we will identify subjects with disorders of suspected or confirmed genetic origin.
We also hypothesize that the clinical and radiological characterization of these subjects will allow the identification of specific features that can help the differential diagnosis with the acquired forms.

Specific Aims (maximum 10 lines):
-To identify subjects with cerebral small vessel diseases of suspected or confirmed genetic origin through the review of clinical charts.
-To characterize the clinical and radiological features of the subjects with genetic cerebral small vessel diseases.
-To identify specific clinical and/or MRI features in subjects with genetic versus acquired disorders that can be used to facilitate the differential diagnosis between these forms.

Role of Student (maximum 15 lines):
The student will review the literature on the topic of genetic cerebral small vessel diseases that present typically with multifocal white matter abnormalities.
The student will review the clinical charts of subjects with cerebral small vessel diseases to identify those with suspected or confirmed genetic origin.
The student will collect and organize the data obtained from the review of the clinical charts and neuroradiological studies and will be responsible for the creation of an ad-hoc database that includes demographic, clinical and imaging data.
The student will participate to the review of the neuroradiological studies and therefore will have the opportunity to learn about MRI pattern-recognition in vascular white matter diseases.
The student will analyze the data with the supervision of the clinical and research team and will help in drafting the paper for the submission to a peer-reviewed journal.

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Supervisor Project Proposal: **Summer 2021 Research Bursary Program**

First Name of Supervisor: Sylvie	Last Name of Supervisor: Lambert
McGill Department/School: Ingram School of Nursing	
Supervisor Location (McGill or affiliated institution): Can be completed remotely/home	
Email: sylvie.lambert@mcgill.ca	Phone # (optional): 514-967-3762
Research Field: Patient education	Proposal (**A or B**): A

Project Title (maximum 1 line**): An evaluation of publicly available online information resources for cancer survivors**

Hypothesis/Question to be Addressed (maximum 4 lines):

- Which online information resources for cancer survivors are of the highest quality?
- Which online information resources for cancer survivors the most useful?
- What factors (e.g., geographic search location, format) are associated with the apps' quality?

Specific Aims (maximum 10 lines):

The goal of this study is to assess the quality of publicly available online information resources for cancer survivors.

The specific objectives are to:

- Identify the online information resources for cancer survivors that are publicly available.
- Evaluate the online information resources for cancer survivors found using the Suitability Assessment Measure (SAM) and the DISCERN, validated measures
- Determine whether the resources address the most pressing information and support needs (usefulness).
- Determine whether geographic search location and other factors (e.g., resource affiliation) are related to resource quality

Role of Student (maximum 15 lines):

- Complete a search of online information resources for cancer survivors.
- Evaluate the quality of the information resources located, using the validated measures SAM and DISCERN
- Examine the type of information provided by the resources located and determine whether these address survivors' most pressing needs (usefulness).
- Using SPSS, analyze factors that might have impacted on the quality of the resources
- Interpret result and make recommendations regarding the most high-quality apps
- Prepare a manuscript for publication