Comprehensive Research Experience for Medical Students (CREMS)
2022 Supervisor and Project Information Form

Please complete and return via email ONLY to crems.programs@utoronto.ca by February 18, 2022.

Supervisor Information
NOTE: CREMS will not support pre-determined pairings of students and supervisors. Supervisors must agree to open their projects to all students and interview all that are interested.

Name: Claire Jones
Email: Claire.jones@sinalihealth.ca

Department: OBGYN
Hospital/Research Institution: Mount Sinai Hospital

SGS Department(s) (if applicable):
LMP

ORCID ID (see https://orcid.org/ – If you do not have an ORCID ID we encourage you to sign up for one):
0000-0002-5108-0114

Location of Work:
Mount Sinai Fertility

Field of Research (up to 4 keywords):
IVF, Fertility, patient experience

Student contact time (number of hours per week YOU are available to the student for any concerns or to review progress):
At the start of the project, I spend 2-3 hours orienting the student to the project and providing resources to get started. After that, I have pre-arranged 30-60 minute meetings every Friday with CREMS students over the study period and make myself available by phone, text and email every day during working hours.
Project Information

NOTE: If this project is selected, this information will be posted on CREMS website for interested student applicants to view research opportunities.

PROJECT TITLE:
Fertilization failure and outcomes of IVF cycles using conventional IVF vs. ICSI with frozen donor sperm

PROJECT DESCRIPTION:
Including background, aim(s), method(s) and significance of the project. Maximum 300 words.

Cryopreservation of donor sperm is required for appropriate screening prior to use in Canada. Freezing and thawing of spermatozoa has been linked to a significant decrease in sperm viability and motility, but long-term cryopreservation of sperm has been shown to have no effect on clinical outcomes and perinatal outcomes (Huang et al. 2019). An increasing number of clinics in Canada are using intracytoplasmic sperm injection (ICSI) over conventional in vitro fertilization (IVF) in frozen donor sperm cycles despite there being no published studies comparing clinical outcomes between these two fertilization methods in frozen donor sperm IVF cycles.

The aim of this project is to assess fertilization rates and outcomes of in vitro fertilization (IVF) cycles using frozen donor sperm fertilized with conventional IVF compared to fertilization with ICSI. This will be a retrospective cohort study of IVF cycles using frozen donor sperm at Mount Sinai Fertility from Feb 2019 to April 2022. Data regarding cycle outcomes and patient characteristics will be retrieved by doing a search of fresh IVF cycles using donor sperm from the Data Analytics Queries section of the electronic medical record. IVF cycles with total fertilization failure will be analyzed specifically for patient factor, IVF cycle factors and sperm parameters. The primary outcome will be the rate of total fertilization failure between the ICSI and IVF groups. Total fertilization failure will be defined as a lack of transformed oocytes with two pronuclei after undergoing ICSI or IVF. Secondary outcomes include fertilization rates, blastulation rates and clinical pregnancy rates. Descriptive statistics will be used to describe patient, cycle and semen characteristics of cycles presenting with total fertilization failure. This study will help provide guidance on the best approach to fertilization for patients using frozen donor sperm, and potentially increase the efficacy of the treatment for patients.

Is this project remote-capable (in case of new restrictions) or have an alternative remote option?
☒ Yes, remote capable ☐ No
☐ Yes, alternate remote option. Please specify (100 words max): Click or tap here to enter text.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?
☒ Yes ☐ No ☐ Not Applicable

If yes, please list the application submission date:

Do you expect this work will be published?
☒ Yes ☐ No ☐ Uncertain / Other
Research Environment and Student Roles and Responsibilities

Please be specific as possible. Please describe the research environment, including availability of required facilities/equipment/expertise, supervisor’s experience and mentorship plans. Please clearly outline the student role(s) and responsibilities related to the project, potential educational value, and indicate who will serve as the student’s direct report for daily oversight (PI, PHD student, technician, etc.). **Maximum 300 words.**

The successful CREMS student working on this project will have the opportunity to work remotely from home using Citrix to access eIVF, the electronic medical record at Mount Sinai Fertility and the hospital network drive. The student will be responsible for identifying IVF cycles using frozen donor sperm in eIVF through the Data Analytics Query function in eIVF and extracting that data into Microsoft Excel where it will be de-identified and saved on the password-protected hospital network drive at Mount Sinai Hospital. The student will need to identify and record characteristics of those IVF cycles with total fertilization failure in the Data Collection spreadsheet which will require a chart review of those affected charts. The student will be provided with access to eIVF, hospital email, the Research folder on the Mount Sinai Hospital network x-drive and citrix access.

As the Principle Investigator, I will provide direct oversight and mentorship for the student. As a GREI specialist, I have extensive experience with managing IVF cycles using frozen donor sperm as does my co-investigator, Dr. Heather Shapiro and we can provide clinical context to the questions that may arise during the project. I also have extensive experience using eIVF for Data Analytics Queries as a Superuser and from previous research projects using eIVF and I will be available to assist with any issues in data identification and extraction in addition to Dr. Scot Hamilton who uses these features frequently as the Laboratory Director at Mount Sinai Fertility. Dr. Scot Hamilton also has extensive experience in embryology and management of IVF cycles using cryopreserved donor sperm and is available on site at Mount Sinai Fertility most days of the week for assistance. Other co-investigators include a GREI Fellow and Masters of Embryology student who can provide assistance with day to day questions.