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:**
Keith Jarvi, Brendan Mullen, Kirk Lo

**Email:**
Keith.jarvi@sinaihealth.ca

**Department:**
Urology/Surgery + Laboratory Medicine

**Hospital/Research Institution:**
Mount Sinai/Lunenfeld-Tanenbaum Research Institute

**SGS Department(s) (if applicable):**
IMS

**ORCID ID** *(see https://orcid.org/ - If you do not have an ORCID ID we encourage you to sign up for one):*
0000-0001-6966-9114

**Location of Work:**
Mount Sinai Hospital

**Field of Research (up to 4 keywords):**
Urology, Male Fertility, Covid-19

**Student contact time** *(number of hours per week YOU are available to the student for any concerns or to review progress):*
4 hours/week
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:
Effects of Covid-19 infection and Covid-19 vaccination on male fertility

PROJECT DESCRIPTION:
Including background, aim(s), methodS and significance of the project. Maximum 300 words.
The short and longer term effects of infections with and vaccinations against Covid-19 on male fertility is poorly studied. Some reports have shown that following infections with Covid-19, sperm counts decline, but recover to normal levels within months. Of note, viable SARS-COV2 virus has been detected in semen. Others have reported that vaccinations against Covid-19 do not impact male fertility as measured by routine sperm parameters. All of these studies are on small populations of men and only study limited sperm parameters. Sperm parameters such as count and motility are limited in their ability to predict male fertility. More advanced tests of sperm function such as assays for sperm DNA damage or computer assisted sperm morphology assays provide more information about fertility potential for the men.
In this study, we aim to determine if Covid-19 infection or vaccination effects sperm parameters (both the routine and advanced sperm tests). In collaboration with FlowLabs (the largest semen analysis laboratory in Ontario providing ~ 60% of all OHIP covered tests), we plan to study routine and advanced sperm parameters on men before and after Covid-19 infections and/or vaccinations. The student will analyze existing prospectively collected databases. We predict that Covid-19 infection will negatively effect sperm counts, motility, morphology and DNA quality and that Covid-19 vaccinations have no impact on these parameters. This is very important information about the effects on male reproduction of Covid-19 infections and vaccinations.

Is this project remote-capable (in case of new restrictions) or have an alternative remote option?
☐ Yes, remote capable
☒ Yes, alternate remote option. Please specify (100 words max): This study on existing databases is remote capable or could be done on site at the hospital.

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.

This study will be an analysis of existing databases with clinical information linked to semen parameters. We have a large clinical and clinical research facility. The male infertility clinic at the Mount Sinai Hospital is the largest clinic of its kind in Canada with approximately 1000 new referrals yearly. Our prospective database now has detailed information on over 15,000 men with infertility and includes clinical information, diagnostic imaging and laboratory test results. The research and database is overseen by a clinical trials coordinator. The student would attend weekly research rounds and would be directly supported in the research efforts by the clinical trials coordinator and the supervisors (Drs Jarvi, Mullen and Lo). Our supervisors have extensive experience training and supporting urology fellows and residents, as well as medical students and have experience in database analysis and systematic reviews. We also have access to expert statistical assistance from the statistical services in the UofT Division of Urology. The student would also be expected to attend male infertility clinics to improve their clinical knowledge. The student would perform the analysis of the database with the goal to have at least one publishable report by the end of the summer.