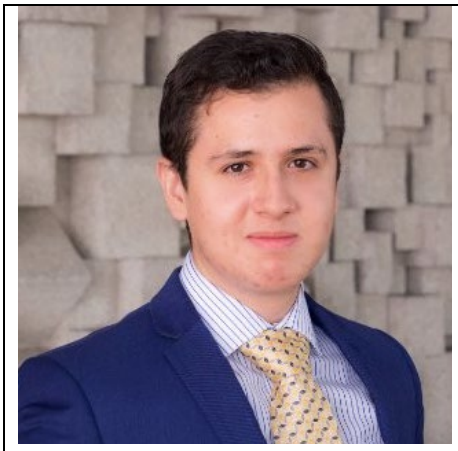

JOAN MIGUEL ROMERO, Class of 2027
Education: HonBSc (Pathobiology and Immunology), University of Toronto, MSc (Pathobiology), University of Toronto
Supervisor(s): George Zogopoulos
Dpt: Experimental Medicine
Work location: Rosalind and Morris Goodman Cancer Institute, Research Institute of the McGill University Health Centre
Project: Understanding the role of homologous recombination deficiency in pancreatic cancer and its effect on the cancer-immunity cycle and response to immunotherapy.
Selected Award(s): Vanier Scholarship, Fond de Recherche du Québec – Santé (FRQS), Novartis Oncology Young Canadian Investigator Award

Research Description:
Pancreatic cancer is the 3rd leading cause of cancer deaths, with less than 10% of patients surviving this cancer longer than 5 years. An important reason for this lethality is pancreatic cancer does not respond well to chemotherapies and immunotherapies. For treatments like immune checkpoint inhibitors (ICIs) to work, cancers need many immune cells called CD8+ T cells within the tumour, a phenomenon called T cell-inflammation. Chemokines may be responsible for this infiltration. However, the drivers initiating chemokine expression remain unclear. We hypothesize pancreatic cancers with T cell-inflammation have specific genetic mutations and phenotypes making them more likely to respond to ICIs. My PhD focuses on identifying these subtypes that may respond to immunotherapies, particularly a specific group called homologous recombination repair deficient tumours. To investigate this, I will use bioinformatic approaches using next-generation sequencing data from patients, and preclinical trials using mouse models developed in the laboratory. Understanding how T cell-inflammation occurs in pancreatic cancer will help physicians identify which patients should be treated with immunotherapies to improve outcomes.

Why did you decide to pursue both MDCM and PhD degrees? What are your career aspirations?
My experiences, principally those with my father's passing of pancreatic cancer, convinced me of the importance of amalgamating basic science with direct medical patient care. A rigorous and exceptional training program in both areas would give me the competencies necessary to become a physician-scientist, and is the reason I chose to pursue MD-PhD training. Upon completion of my doctoral thesis and medical school, I plan on pursuing training in general surgery, followed by a fellowship in hepatopancreaticobiliary (HPB) surgery. My ultimate goal is to bridge the gap between basic science and medicine to better understand the underlying immunobiology of pancreatic cancer and how it can be used to treat patients not amenable to surgical interventions.

Why did you choose to study at McGill University?
McGill University is a renowned medical and research university both in Canada and internationally. Though collaborations during my MSc, I became familiar with HPB surgeon Dr. George Zogopoulos' clinical expertise in pancreatic cancer, and his research focus on the genetics and oncogenomics of this malignancy. His research infrastructure at McGill University, with parallel clinical exposures would provide me with the learning environment that I hoped for as a medical and doctoral student aspiring to pursue a career as physician-scientist who will lead a translational pancreatic cancer research lab. His laboratory, uniquely organized with physical space at the Research Institute of the McGill University Health Centre (RI-MUHC) and the Goodman Cancer Institute (GCI), would allow me to benefit from his

patient-oriented research activities at the RI-MUHC that are subsequently embedded in the advanced research environment of the GCI, both leading institutes at the forefront of cancer research.

What aspect of the MD-PhD program do you enjoy the most or are looking forward to?
The camaraderie across students in the program is paramount. Through moments of disappointment and excitement, the support of colleagues across different backgrounds and stages of training makes this training path all the more enjoyable.

What advice do you have for incoming MDCM-PhD students?
Patient exposure during research is important. Whether through clinical encounters, surgical observerships, or community work, It serves as a reminder of why we undergo this long training path, and the impacts that incremental advances in science and medicine can have on patients and their families.

What do you like to do in your spare time?
Weight-training, playing metal-guitar, spend time with loved ones