




Congratulations to the 2023-2024 TBCRU Scholarship Awardees!

	<p>Harjot Athwal is an MSc student in the Department of Anatomy & Cell Biology at Western University, working under the co-supervision of Dr. Armen Parsyan and Dr. Alison Allan. Harjot’s research focuses on understanding the role of radiotherapy in combination with a new anti-breast cancer drug called CFI-400945. CFI-400945 targets a protein called Polo-like Kinase 4 (PLK4), which is involved in regulating cancer growth and may increase the effectiveness of radiation. Harjot’s research will help understand how the combination of radiotherapy and CFI-400945 is killing breast cancer cells. In the future, this knowledge can be translated into the clinical setting where this combination therapy could be used to treat breast cancer patients.</p>
	<p>Nitara Fernando is an MSc student in the Department of Medical Biophysics at Western University, working under the supervision of Dr. Paula Foster. She is researching a rare phenomenon triggered by radiation therapy called the abscopal effect, where treating a specific breast tumour can also benefit other areas in the body where breast cancer has spread. This effect occurs through the body’s immune system, which recruits immune cells to combat cancer throughout the body. Nitara is investigating the abscopal effect by using specialized cellular imaging and radiotherapy in a breast cancer model to explore immune cells' role in tumour growth. This research will shed light on how the abscopal effect can enhance breast cancer treatment in the future.</p>
	<p>Zachary Freeman is an MSc student in the Department of Epidemiology & Biostatistics at Western University, working under the supervision of Dr. Ana Lohmann. His research is focused on a prospective breast cancer clinical study that will assess body size (body composition, BMI) and blood-based factors associated with inflammation, obesity, circulating tumor cells and circulating tumor DNA in patients with recurrent breast cancer. These blood test results may be associated with breast cancer recurrence and could lead to the development of new strategies for intervention to improve breast cancer patient outcomes and reduce disparities.</p>



Natalie Grindrod is an MSc student in the Department of Pathology & Laboratory Medicine at Western University, working under the supervision of Dr. Muriel Brackstone. Her research aims to shed light on how the immune system – and specifically cells called tumour infiltrating lymphocytes (TILs) - play a role in breast cancer and response to treatment. She will assess TILs from breast cancer patients who have either undergone chemotherapy before surgery or been treated with radiation and chemotherapy at the same time using a through a semi-automated, efficient analytical approach. This will determine if TILs can be used as a potential biomarker of treatment outcomes with different therapies. The clinical objective of this research is to identify whether specific patients will directly benefit from radiation and to recognize this through TILs. *Natalie is also the recipient of an external Ontario Graduate Scholarship (OGS).*



Zi Huai (Matthew) Huang is an MSc student in the Collaborative Specialization in Machine Learning in Health and Biomedical Sciences program in the Department of Biochemistry at Western University, working under the supervision of Dr. Pingzhao Hu. Matthew's project focuses on leveraging artificial intelligence and tissue images to predict gene changes that occur in different parts of patient's breast tumour. This information, called spatial genomics, can currently only be obtained through the use of technology that is complicated and expensive. The insights generated from this research hold immense potential for broad translational applications, ranging from patient mutation status and outcome predictions, to facilitating the discovery of targeted drugs for breast cancer. By providing this invaluable information at a fraction of traditional costs, Matthew's research will empower clinicians to optimize treatment decisions tailored to each individual patient.



Urvi Patel is an MSc student in the Department of Anatomy & Cell Biology at Western University, working under the supervision of Dr. Alison Allan. Urvi's research is investigating mechanisms of metastasis to the lung, which is a common location for metastasis in triple negative breast cancer (TNBC) patients. The formation of new blood vessels is important to metastasis because they supply nutrients and oxygen to help tumour growth. Special cells in the lung called endothelial cells are involved in this process, and tiny particles released from breast cancer cells called extracellular vesicles (EVs) can alter the lung to promote breast cancer metastasis. Urvi is studying whether EVs released from TNBC cells can alter lung endothelial cells to promote metastasis. In the future, strategies to prevent production or release of EVs from the primary breast tumour could be developed to improve clinical outcomes. *Urvi is participating in the TBCRU Program as the recipient of an external Canadian Institutes of Health Research Canada Graduate Scholarship – Master's Award.*



Noor Rizvi is an MSc student in the Department of Biochemistry at Western University, working under the supervision of Dr. Vanessa Dumeaux. Her research focuses on a non-invasive form of breast cancer known as Ductal Carcinoma in Situ (DCIS). At present, it is impossible to predict which cases of DCIS will become invasive and life-threatening, leading to a treatment approach that may be too aggressive for some women, and not effective enough for others. Noor's research is aiming to identify markers within the genetics of the cancer and its surrounding tissue which could predict how aggressive the disease is, how it might respond to radiation therapy, and whether it's likely to recur. This comprehensive approach could lead to a more personalized treatment plan, minimizing overly aggressive therapy for low-risk patients and identifying alternative treatments for those patients who develop treatment resistance.



David Susman is an MSc student in the Department of Anatomy & Cell Biology at Western University, working under the supervision of Dr. Alison Allan. David is investigating how triple negative breast cancers can alter the characteristics of the lung to facilitate metastasis by releasing tiny particles known as extracellular vesicles (EVs). Using a technology called mass spectrometry, David is studying how these EVs are changing the global protein profile within special lung cells called fibroblasts in order to alter lung characteristics in preparation for metastasis. In the future, this research could aid in the development of new clinical drugs and biomarkers to detect, treat and/or prevent breast cancer metastasis to the lung. *David is participating in the TBCRU Program as the recipient of an external Canadian Institutes of Health Research Canada Graduate Scholarship – Master's Award (CIHR CGS-M).*



Alyssa Wu is an MSc student in the Department of Biochemistry at Western University, working under the supervision of Dr. Shawn Li. Alyssa's research focuses on understanding and disrupting the processes that drive metastatic breast cancer – the spread of breast cancer cells to other parts of the body. She uses a technology called mass spectrometry-based proteomics to analyze protein expression in cancer cells. By exploring how these proteins react to specialized therapeutic drugs, the goal is to develop precise and targeted therapies to improve treatment outcomes that will enhance outcomes and quality of life for breast cancer patients.



Sawyer Badiuk is a PhD Candidate in the Department of Medical Biophysics at Western University, working under the supervision of Dr. Eugene Wong and Dr. Jeff Chen. Sawyer studies the effectiveness of radiation therapy treatments for breast cancer that has spread to the brain (called brain metastases) using novel imaging techniques. Her research involves monitoring the response of the brain and cancer cells after treatment, in order to find an optimal radiation treatment that controls the cancer with reduced side effects. The overall goal of her research is to prevent new and recurring brain metastases. *Sawyer is also the recipient of an external Ontario Graduate Scholarship (OGS).*



Sean McRae is a PhD student in the Department of Medical Biophysics at Western University, working under the supervision of Dr. Timothy Scholl. Sean's research is focused on developing novel imaging tools that will allow breast cancer-targeting immune cells to be tracked using magnetic resonance imaging (MRI). These tools are currently being tested at the pre-clinical stage, and preliminary results indicate that this system could potentially revolutionize the delivery of therapeutic cells for breast cancer patients, giving previously unavailable information on cell distribution and therapeutic specificity and effectiveness. *Sean is also the recipient of an external Ontario Graduate Scholarship (OGS).*



Aybars Nazlica is a Ph.D. student in the Department of Anatomy & Cell Biology at Western University, working under the supervision of Dr. Vanessa Dumeaux. His research uses advanced immune profiling techniques to understand the intricate immunological landscape of high-risk breast cancer patients undergoing treatment. He aims to develop predictive markers for treatment response and to deepen our knowledge of cancer immunity in high-risk breast cancer by integrating multiple immune parameters and understanding their impact on patient outcomes. This could offer potential immunological drug targets, thereby guiding the development of novel synergistic therapies to improve breast cancer treatment outcomes.



Liam Ratushny is a PhD student in the Department of Pathology & Laboratory Medicine at Western University, working under the co-supervision of Dr. Fred Dick and Dr. Chris Howlett. Liam's project is focused on how breast cancer cells can enter a state of dormancy to evade treatment, enhance their survival, and contribute to formation of secondary tumors (called metastases). A group of proteins called the mammalian DREAM protein complex has been shown to be important for dormancy and survival of tumour cells during metastasis of other cancer types. Liam is investigating the contributions of the DREAM complex to breast cancer metastasis and identifying therapeutic targets that could re-sensitize dormant tumour cells to treatment and reduce disease recurrence. *Liam is also the recipient of an external Ontario Graduate Scholarship (OGS).*



Jared Wootten is a PhD candidate in the Department of Epidemiology & Biostatistics at Western University, working under the co-supervision of Dr. Kelly Anderson and Dr. Phil Blanchette. Previous studies have found an association between antipsychotics and an increased risk of developing breast cancer; however, they did not consider switching and stopping medications, which may underestimate their effect. Jared's research will use methods which will account for this variation to accurately estimate the effect of these medications on breast cancer risk. This will inform physicians regarding treatment of breast cancer patients with antipsychotic medications and may justify implementing intensive breast cancer screening programs for people taking these medications.