Canada Research Chairs Program supports BU professor's study of breast cancer

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Dr. Mousumi Majumder is the latest Brandon University (BU) professor to join the prestigious Canada Research Chairs (CRC) Program.

Dr. Majumder was named a Tier 2 Canada Research Chair in Genotoxicology on Wednesday as part of a federal announcement by the Honourable Navdeep Bains, the Minister of Innovation, Science and Industry. The University will receive $600,000 over five years to support her efforts to identify and study early indicators of breast cancer. Dr. Majumder's project has also qualified for infrastructure support from the Canadian Foundation for Innovation (CFI) through the John R. Evans Leaders Fund.

Dr. Mousumi Majumder

Dr. Majumder has identified two small RNAs, miR526b and miR655, that are present in large amounts in breast cancer tumors. Known as microRNAs (miRNAs), these tiny molecules help tumors secrete proteins that change the character of the tumor microenvironment and enhance the process of metastasis. Through her continued research, Dr. Majumder will investigate whether the miRNAs can act as biomarkers, indicating the presence of breast cancer, even in its early stages.

"At BU, with a team of brilliant trainees at my laboratory and immense support from colleagues in the Biology and Chemistry departments, we discovered new roles of these microRNAs in breast cancer," Dr. Majumder said. "MicroRNAs are small in size, but they are master regulators of cancer. They are also detectable in blood, and now the question is can we use them as a biomarker? Finding biomarkers for cancer detection is one of the top priorities of breast cancer research in Canada."

Dr. Majumder's research in this area began in 2009 during her post-doctoral training at Western University in London, Ont., following the completion of her PhD in Cancer Genetics and Epidemiology in India. Her role in the breast cancer research lab of Dr. Peeyush Lala was her first work in cell biology, and she contributed to the development of a drug that has now been approved as an arthritis treatment and is awaiting approval as a breast cancer treatment. This work stirred Dr. Majumder's curiosity about the role of miRNAs in the regulation of cancer and has grown into the focus of her research career.

"Our researchers dedicate many years to becoming among the most knowledgeable experts, in the country and in the world, in their fields of study," said Dr. Heather Duncan, Associate Vice-President (Research) at BU. "Dr. Majumder has made exceptional progress in helping us to understand a disease that touches many lives, and with the support of the CRC Program and CFI, I know that she is going to lead many new breakthroughs in the future."

Since joining BU in 2016 Dr. Majumder has collaborated with scientists at CancerCare Manitoba and the London Tumor Bank at Lawson Health Research Institute in Ontario to collect hundreds of plasma samples and breast biopsy tissues. Her pilot study of the tissues has shown promising results in the use of the miRNAs as a biomarker, and her lab is now expanding its sample set as they work to further decipher the function of miRNAs in breast cancer.

"Science is becoming increasingly collaborative, multidisciplinary and interdisciplinary as we see the value of tackling problems from every possible angle," said Dr. Bernadette Ardelli, BU's Dean of Science. "Dr. Majumder's research is an excellent example of the type of collaboration that we do very well at Brandon University, where it is common for our faculty members across disciplines to work together as well as with experts in the community and at other institutions.

> "The quality of the work and the importance of the project draws in scientists who want to share their knowledge and contribute to impactful discoveries."

Dr. Majumder becomes the fourth active Canada Research Chair at BU. She joins Drs. Jonathan Allan (Men and Masculinities), Rachel Herron (Rural and Remote Mental Health) and Sarah Plosker (Quantum Information Theory).

"We are delighted to have Dr. Majumder join our outstanding group of Canada Research Chairs," said Dr. Steve Robinson, BU's Vice-President (Academic and Provost). "They are at the leading edge of innovation in critically important topics. Their projects also create remarkable research opportunities for our students, allowing them to contribute to meaningful discoveries, while building a foundation for their own research in the future. The investments really do benefit us all, now and in the future."