Dr. Moshmi Bhattacharya is an Associate Professor in the Departments of Physiology and Pharmacology, and Oncology at the Schulich School of Medicine and Dentistry, University of Western Ontario. Her research is directed on understanding the molecular mechanisms through which receptors expressed in breast cancer cells regulate cell migration, invasion, processes that lead to metastatic spread of breast cancer.

She currently teaches a 4th year Pharmacology Course "Mechanisms of Cancer Chemotherapy". She also participated heavily in undergraduate training, and also trains high school students. WURJ member, Jason Yung, had the pleasant opportunity to interview her to learn more about her as a person, researcher, and professor.

Tell us about yourself. What is your area of study and what specifically do you research in your lab?

I started my faculty position here at Western in 2005. I grew up in the sunny island of Trinidad in the Caribbean, and obtained BSc degree from the University of West Indies (Biochemistry, Faculty of Natural Sciences). I was awarded my PhD degree from McGill University (Pharmacology and Therapeutics).

My research is directed towards gaining a better understanding of the differences in the signalling system between breast cancer cells and non-malignant breast cells. In particular, I am interested in signalling regulating the cancer cytoskeleton that controls cancer cell migration and invasion required for the metastatic spread of cancer.

What sparked your interest in breast cancer?

Breast cancer is the most common cancer in women worldwide. Metastasis is the leading cause of cancer related deaths, and currently there are no effective therapies against metastasis. I have always been fascinated by how cell signals, and by studying how signaling has gone awry in breast cancer cells can help discover novel targets for therapy.

What made you choose Western University as opposed to other academic institutions?

The Department of Physiology and Pharmacology at Western is strong academically, with excellent research being conducted. I conducted my post-doctoral fellowship at the Robarts Research Institute. I grew a liking for the city of London during this time.
In your opinion, what qualities would make one an excellent researcher/lecturer?

An excellent researcher needs to have a great sense of curiosity, discovery and creativity. In our lab, we use a multidisciplinary approach in combining various aspects of science (biology, biochemistry, pharmacology and oncology and molecular imaging) in order to answer biological questions about cancer.

An excellent lecturer is someone who has the capacity to connect with his/her students, and is able to effectively communicate knowledge. I enjoy engaging the students when I am teaching, and I try to think of ways to encourage active learning.

What would you say is the best and hardest parts about being a researcher/lecturer?

The best part about being a researcher for me is the thrill of making a novel discoveries. Additionally, one of my greatest academic joys is to observe students acquire the ability to think independently, and become independent researchers.

One of the hardest things about being a researcher that I find is challenging is the time commitment required, especially with a young family. However, when you enjoy what you are doing, you don't mind the work, and you figure out how to balance things.

In terms of being a lecturer, I enjoy translating my knowledge in cancer research to students, despite the amount of time and preparation it requires.

What advice would you give to an undergraduate student interested in getting involved in research?

I would advise students to contact investigators and initially seek volunteer positions. This allows the student to see how the lab environment works. Also, students should not be shy or afraid to ask questions and even to propose ideas.

What qualities do you look for in a potential summer student?

I always takes on summer students and positions fill up quickly. For undergraduate students who are interested in acquiring research experience, I am interested to see how motivated and dedicated the student is. I take training students seriously and it is important to me that all my students acquire hands-on research experience.

What undergraduate courses do you believe will prepare students for further studies and possibly a career in breast cancer research?

Any undergraduate cancer course can prepare a student for a possible career in breast cancer research. In particular, fourth year pharmacology (i.e. Pharmacology 4360A/B), pathology (i.e. Pathology 3240A, 3245B), cell biology (i.e. Biology 2382B) and physiology (Physiology 3140) courses will provide students with a basic understanding and knowledge into cancer research.

What do you believe will be the future of breast cancer research?

One word: bright. We have made significant advancements in understanding breast cancer and with the help of scientific research. There have been major improvements for diagnosis, prognosis and treatment for breast cancer patients. With respect to my research, by better understanding the process that regulates breast cancer metastasis, this will open doors towards breast cancer treatment.

To read more on Dr. Bhattacharya lab and research, please visit her website at http://www.uwo.ca/physpharm/bhattacharya/