

## Focus on Faculty #100

### Shafaat Rabbani



**Dr. Shafaat Rabbani** is a Professor of Medicine as well as an Associate Member of the Departments of Physiology, Oncology and Human Genetics at McGill University. He received his medical education at King Edward Medical College in Lahore, Pakistan.

Dr. Rabbani's research led to the characterization of Parathyroid Hormone Related Peptide as the main pathogenetic factor responsible for hypercalcemia of malignancy. He developed several models of breast and prostate cancer which mimicked the ability of these malignancies to metastasize to the skeleton.

Pioneering work carried out in Dr. Rabbani's laboratory led to identification of the Urokinase-type Plasminogen Activator (uPA) as a mitogen for cells of the osteoblast phenotype and a key protease involved in tumor invasion, growth, and metastasis. His group is developing novel diagnostic and therapeutic strategies to block uPA production and its interaction with cell surface uPAR to block tumor growth and metastasis. Using his group's well-established models of breast and prostate cancer, the efficacy of various therapeutic strategies to block tumor progression is being evaluated. Additionally, determination of the methylation of uPA and PAI-1 is being developed as a reliable diagnostic and prognostic marker in cancer.

Dr. Rabbani's group was the first to demonstrate the role of DNA methylation as a key molecular mechanism regulating urokinase gene transcription. Using peripheral T cells from patients with breast or prostate cancer they are determining the DNA methylation landscape of non-invasive exquisite biomarkers that will be introduced into clinical practice and change the way we predict, diagnose, stratify patients for therapy and follow up on the progression of disease. He has been evaluating a novel therapeutic and preventive approach to breast cancer metastasis based on blocking DNA demethylation processes using well established models of breast cancer, prostate cancer, and melanoma. Collectively the results from these studies led to the elucidation

of the molecular mechanistic basis for both prevention and treatment of breast cancer which will be translated into human clinical trials.

Dr Rabbani was the recipient of a Fellowship from Canadian Institutes of Health Research (CIHR) and Scientist Awards from CIHR and the Cancer Research Society (CRS).