Identify inhibitors of histone demethylases from natural products

The major focus of my current research is on the chromatin associated proteins as targets for cancer prevention and treatment.  Through collaboration with Dr. Patrick Still in my department, we are interested in identifying natural products for inhibitors of histone demethylases. Our goal is to target histone demethylase protein for the development of novel strategies to the rational combination regimens to modulate cancer chemoresistance.  It can offer a new therapeutic avenue for exploration.

Proteomicsfor post-translational modification studies of histone and its implication in cancer therapeutic development

Proteomics is an interdisciplinary domain driven by a specific biological question. It includes protein expression proteomics, structural proteomics and functional proteomics. The technology involves protein biochemistry, molecular biology, bioanalytical methods and Mass Spectrometry. It is not only a direct analysis of proteins in a mixture to identify and characterize them as a meaningful outcome, but also an exploration of proteins in a cell, tissue or organism that undergo changes in response to a specific biological environmental condition. We are interested in using a functional proteomics approach for the studies of the histone methylation and its association with the development of chemoresistance in tumor cells following the chemotherapy. Identification and understanding of histone posttranslational modification is critical in the study of cancer treatment and prevention.