

# **EASTERN MICHIGAN UNIVERSITY**

## **Chemistry Department Seminar**

Friday November 21, 2014

2:00 p.m.

158 Science Complex

Second Biochemistry Faculty Candidate

### **Targeting Epigenetic Proteins in Cancer**

Within the nucleus of eukaryotic cells, DNA wraps around histone proteins to form nucleosomes, the most basic level of organization and compaction in chromatin. The flexible N-terminal “tails” of histones are enriched for sites of posttranslational modification, which include acetylation, methylation phosphorylation of amino acid residues. Posttranslational modification of histones both influence chromatin structure and serve as a docking site for histone binding proteins that “read,” or recognize a specific histone modification state. Together, histone modifications ultimately regulate a host of nuclear processes such as gene transcription, DNA replication, and DNA repair.

Both genetic and epigenetic alternations underlie the transformation of a normal cell into a cancer cell. Such alternations include the overexpression of histone binding proteins, hyper-activation of chromatin modifying enzymes, and loss of functional epigenetic regulators. Thus, epigenetic proteins are attractive targets for therapeutic intervention in cancer.

My research interest is to target epigenetic proteins implicated in cancer development. I will present the high throughput screening strategies we performed to identify and validate a drug discovered to inhibit an epigenetic oncogene called UHRF1. I will also discuss our efforts to determine the molecular mechanism by which loss of the epigenetic regulator called REST heightens breast cancer aggression. Together, these studies will serve as the platform for long-term investigations in my laboratory.