

Fall Semester, 2018: 9:00- 10:30 Mondays & Fridays

WEEK	LECTURE TOPIC	INSTRUCTOR
<i>Two classes/week</i>	<i>One paper for each class</i>	
August 27 & 31	1. DNA Methylation	Taiping Chen
September 7 (9-12)	2. Histone Modifications	Mark Bedford
September 10 & 14	3. ATP-Dependent Chromatin Remodeling	Snow Shen
September 17 & 21	4. Epigenetic Drugs	Mark Bedford
September 24 & 28	5. Transgenerational Epigenetic Inheritance	Taiping Chen

1. DNA Methylation (Deposition, maintenance and disease implications)

Example paper:

Spencer et al. CpG Island Hypermethylation Mediated by DNMT3A Is a Consequence of AML Progression. *Cell* 2017, 168:801-816.

Cimmino et al. Restoration of TET2 Function Blocks Aberrant Self-Renewal and Leukemia Progression. *Cell* 2017, 170:1079-1095.

2. Histone Modifications (Epigenetic marks and their effector proteins)

Example paper:

Murphy et al. Placeholder Nucleosomes Underlie Germline-to-Embryo DNA Methylation Reprogramming. *Cell* 2018, 172:993-1006.

Dai et al. Modulation of Protein-Interaction States through the Cell Cycle. *Cell* 2018, 173:1481-1494.

Weinert et al. Time-Resolved Analysis Reveals Rapid Dynamics and Broad Scope of the CBP/p300 Acetylome. *Cell* 2018, online.

3. ATP-Dependent Chromatin Remodeling (Different complexes that move nucleosomes)

Example paper:

Dann et al. ISWI chromatin remodellers sense nucleosome modifications to determine substrate preference. *Nature* 2017, 548:607-611.

Wei et al. Vitamin D Switches BAF Complexes to Protect β Cells. *Cell* 173:1135-1149

4. Epigenetic Drugs (Novel therapeutic approaches that target epigenetic regulators)

Example paper:

Pawar et al. Resistance to BET Inhibitor Leads to Alternative Therapeutic Vulnerabilities in Castration-Resistant Prostate Cancer. *Cancer Cell*, 22:2236-2245.

5. Transgenerational Epigenetic Inheritance (Controversies and facts surrounding this issue)

Example paper:

Inoue et al. Maternal H3K27me3 controls DNA methylation-independent imprinting. *Nature* 2017, 547:419-424.