Epigenetics and Metabolism in Stem Cells and Cancer

Postdoctoral positions are available in the laboratory of Dr. Jian Xu at Children’s Research Institute, UT Southwestern Medical Center to study the epigenetic and metabolic regulation of stem cells and cancer. Our laboratory focuses on the intersection of gene regulation with stem cell biology, hematopoiesis and cancer. We employ epigenetics, genomics, genome editing, metabolomics, and mouse genetics to define the genetic, epigenetic and metabolic programs that control normal stem cell development, and how these processes go awry in cancer progression.

The laboratory is equipped with cutting-edge genomics and bioinformatics platforms, and has access to many shared facilities including an in-house illumina sequencer, 10xGenomics single cell technologies, metabolomics, transgenic mouse core, imaging, and flow cytometry. Our laboratory brings together enthusiastic scientists with diverse backgrounds, and provides a wide range of perspectives in a multidisciplinary and collaborative team setting. Since we established the laboratory in 2014, our team has published a series of impactful papers, which include:

- Discovery that different Polycomb proteins are developmentally regulated in hematopoietic cells to regulate blood stem cell differentiation (Mol Cell 57:304, 2015)
- Hierarchical and dynamic control of enhancer repertoires that drive lineage and developmental stage-specific gene transcription during hematopoiesis (Dev Cell 36:9, 2016)
- Mitochondrial biogenesis and metabolism are regulated by post-transcriptional through mTOR-mediated effects on protein synthesis during erythropoiesis (Nature Cell Biology 19:626, 2017)
- Development of a dCas9-based affinity purification approach (‘CAPTURE’) for in situ analysis of chromatin interactions that regulate genomic enhancers (Cell 170:1028, 2017)
- Reported that loss of EZH2, the enzyme catalyzing histone H3K27 methylation, reprograms branched-chain amino acid (BCAA) metabolism to drive leukemic transformation (Cancer Discovery, 2019, in press).

Candidates must hold a Ph.D. and/or M.D. degree with a strong background in molecular biology, cancer biology, mouse genetics, metabolism, or a related field. The ideal candidate will exhibit independence, flexibility and creativity with a record of scientific productivity. Previous experience in epigenetics, metabolism, and/or hematology-oncology is strongly preferred.

Information on our postdoctoral training program and benefits can be found in our [Postdoc Handbook](#) or at [UT Southwestern’s Postdoctoral Scholars page](#). Interested individuals should send a CV, a short summary of research interest and experience, and a list of three references to:

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