

MCB Student Seminar

Dr. Yonatan Stelzer's lab

Monday, April 11th, 2022 at 11:30



The seminar will start with an introduction by the PI, followed by a student talk and will end with meet, greet & eat



Dr. Saifeng Cheng

Will lecture about:

The intrinsic and extrinsic effects of Tet proteins during gastrulation

Mice deficient for all Ten-eleven translocation (TET) genes exhibit early gastrulation lethality. Yet, separating cause and effect in such embryonic failure is challenging. To isolate cell-autonomous effects of TET loss, we used temporal single-cell atlases from embryos with partial or complete mutant contributions. Strikingly, when developing within a wild-type embryo, TET mutant cells retain near-complete differentiation potential, while embryos solely comprised of mutant cells are defective in epiblast to ectoderm transition with degenerated mesoderm potential. We map de-repressions of early epiblast factors and failure to activate signaling from nascent mesoderm as intrinsic drivers of TET phenotypes. We further suggest near-complete loss of enhancer demethylation as a possible mechanism for mis-regulation in TET deficient cells. Collectively, our work demonstrates an unbiased approach for defining intrinsic and extrinsic embryonic gene function based on temporal differentiation atlases, and disentangles the intracellular effects of the demethylation machinery from its broader tissue-level ramifications.

Wolfson Lecture Hall

Meet, greet & eat will follow the lectures