

OCTOBER 30, 2024

APEX LECTURE SERIES



AGNEL SFEIR

Memorial Sloan Kettering
Cancer Center

“Two Genomes, One Balance: Mitochondrial and Nuclear DNA Stability”

2:00 p.m. 202 Light Hall

A reception will follow the lecture at 3:00 p.m. in 618 Light Hall.

Co-sponsored by the Department of Biochemistry

Eukaryotic cells contain two distinct genomes - nuclear and mitochondrial - with separate evolutionary origins and environments. The interplay and coevolution of these genomes are crucial for maintaining cellular homeostasis. Perturbations to either genome can disrupt their crosstalk and affect cellular responses. My research program investigates two fundamental questions related to genome stability. We explore the evolutionary benefits of the microhomology-mediated end-joining (MMEJ) repair pathway in the nuclear genome, hypothesizing that MMEJ balances genome integrity and evolution by promoting extrachromosomal DNA circularization. In another line of inquiry, we will explore how the nucleus manages perturbations to the mitochondrial genome. We are also developing tools to investigate the outcome of three toxic mtDNA aberrations and determine how they alter mito-nuclear crosstalk.

Add to Calendar!



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