

“Mechanisms of Catastrophic Genome Rearrangements in Cancer”

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Dallas, TX



**Friday,
October 1, 2021**

12.10-1.00 PM (MST)

Zoom Link

<https://zoom.us/j/93622297036>

Meeting ID: 936 2229 7036

Note: Presentation will be projected on Lopez 106 screen, interested faculty members and students are welcome to convene in Lopez 106.

Abstract: Cancer cells frequently harbor complex genomes that are characterized by extensive DNA copy number changes and structural variation. The Ly Laboratory studies the mechanisms that give rise to genomic instability and chromosomal alterations in the context of human health and disease. Our team is currently interrogating the factors that shape the chaotic mutational landscape of cancer genomes, including the contributions from cell cycle regulation defects, chromosome segregation errors during cell division, and inaccurate DNA double-strand break repair pathways. We are particularly interested in the cellular and genetic basis of a diverse spectrum of genomic rearrangement types, including a class of complex and localized alterations known as chromothripsis. These rearrangements arise from the catastrophic fragmentation of individual chromosomes encapsulated into aberrant nuclear structures called micronuclei followed by the reassembly of broken DNA fragments in random order. Chromothripsis exemplifies a rapid mutational process in which tens to hundreds of genetic lesions can be generated within a few cell cycles. Our research program employs a number of cutting-edge approaches bridging cell biology and genetics, including CRISPR-mediated genome editing, high-resolution live-cell microscopy, molecular cytogenetics, and whole-genome DNA sequencing. We also strive to create a supportive, diverse, and inclusive laboratory environment aimed at offering exceptional training and career development opportunities for fellows and students.

Bio: Peter Ly received his B.A. in Biology from Baylor University and earned his Ph.D. in Cancer Biology from UT Southwestern Medical Center. During graduate training with Jerry Shay and Woodring Wright, he studied how numerical chromosomal alterations known as aneuploidy can trigger malignant transformation. He pursued postdoctoral training at the Ludwig Institute for Cancer Research and University of California San Diego with Don Cleveland. His postdoctoral research focused on reconstructing the mechanisms of complex structural genomic rearrangements using centromere inactivation and chromosome-specific mis-segregation approaches in human somatic cells. In 2019, Dr. Ly joined the faculty of UT Southwestern Medical Center as a CPRIT Scholar in Cancer Research and Assistant Professor in the Department of Pathology. He also holds a secondary appointment in the Department of Cell Biology and is a member of the Harold C. Simmons Comprehensive Cancer Center. He has been an active member of the American Society for Cell Biology since 2013.



Department of Chemistry

Graduate Seminar

Host: Praveen Patidar