UC RIVERSIDE

BCH 252 Seminar Series

Dr. Dong Wang, Professor, Skaggs School of Pharmacy & Pharmaceutical Science, UC San Diego

Seminar Title: "Molecular Basis of Transcription Blockage and Transcription Coupled Repair "

Abstract: Dong Wang1, 2, 3 1Division of Pharmaceutical Sciences, Skaggs School of Pharmacy & Pharmaceutical Sciences; University of California, San Diego, La Jolla, California 92093, United States 2Department of Cellular and Molecular Medicine, University of California, San Diego, La Jolla, California 92093, United States 3Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, California 92093, United States During transcription elongation, RNA polymerase II (Pol II) moves along DNA template, recognizes the template base, and synthesizes RNA with a high fidelity. Transcription elongation process is subject to pausing and arrest by various obstacles such as pauseinducing DNA sequences or secondary structures, DNA modifications, DNA lesions, DNA-binding proteins and small molecules. Here we will present our recent progress in understanding the structural basis of transcriptional pausing, arrest, and transcriptioncoupled repair.

Biography: Dr. Dong Wang obtained his B.S. at Peking University and Ph.D. with Dr. Stephen Lippard at MIT. His role in Lippard group was to investigate the effect of nucleosome structure and epigenetic status change on DNA repair of platinum DNA damage. Dr. Wang then joined Dr. Roger Kornberg's group at Stanford University as a postdoc fellow. His postdoc research focused on understanding the molecular mechanism of Pol II transcription elongation and fidelity. Dr. Wang joined UCSD as faculty in 2010 and he was promoted to associate professor with tenure in 2015 and full professor in 2019. Dr. Wang received awards including OKeanos-CAPA Young Investigator Award at the Chemical and Biology Interface (2015); Kimmel Scholar Award (2012); and NIH Pathway to Independence Award (K99/R00, 2008-2012).

Dr. Wang's research focuses on understanding the mechanisms of transcription regulation and cellular responses to DNA damage, particularly the functional interplay between transcription and epigenetic DNA modifications and lesions. A major direction of his laboratory has been to elucidate the mechanisms by which DNA damage is recognized and repaired during transcription. Specifically, his group is focused on the mechanism of the initiation of transcription-coupled DNA repair (TC-NER), which is an important DNA repair pathway that specifically removes DNA lesions in the transcribed genome. His group takes a multidisciplinary approach, combining structural biology, chemical biology, computational biology, biochemical, and genetic methods, to study key protein complexes involved in these processing pathways. The results will have implications for DNA damage recognition and DNA repair. Moreover, understanding how cell process these DNA lesions will help us to decipher the mechanisms of drug action and resistance and pave the way for rational improvement of novel anticancer drugs.

ZOOM Link: https://ucr.zoom.us/j/97309613985?pwd=cEhnR0RGendMNy85ZU95VWpDMnJCdz09

Meeting ID: 973 0961 3985

Passcode: 912260

Tuesday, March 29th, 2022

12:00 p.m. - 12:50 p.m.

Host: Dr. Li Fan