

# GENETICS, BIOINFORMATICS & SYSTEMS BIOLOGY COLLOQUIUM

THURSDAY, October 29  
12:00-1:00 PM  
Held on Zoom

Zoom Link:

<https://ucsd.zoom.us/j/99278273899?pwd=MIREc1pzQmJuQ3JNK2NBUG4wL1ExZz09>

Meeting Password: genome



*guest speaker*

Prof. Pallav Kosuri, PhD

Assistant Professor  
Salk Institute  
UCSD

**Talk Title: Using DNA origami to illuminate genetic mechanisms**

Protein-DNA reactions such as transcription, chromatin remodeling, DNA editing and repair consist of a series of mechanical movements, yet the vast majority of these minute movements have remained challenging or impossible to measure. In this talk, I will describe a new technology named origami-rotor-based imaging and tracking (ORBIT), that uses fluorescently labeled nano-rotors to amplify and track the rotational movements of DNA. We used ORBIT to study the homologous repair protein RecBCD and transcription by RNA polymerase (RNAP). I will share some of our first results showing that during transcription, RNAP rotates DNA in single base pair steps with a distribution of step sizes corresponding to the sequence-dependent geometry of DNA. More generally, I will discuss the potential for using DNA origami to amplify and visualize genomic processes, and our ongoing efforts to apply this technology to understand how the mechanics of protein-DNA interactions give rise to function

Faculty Host: Amit Majithia, MD

Assistant Professor of Medicine and Pediatrics

Student Host: Bojing Jia, Graduate Student,

Medical Scientist Training Program

For ongoing updates on upcoming lectures:

Visit [genomic.weebly.com](http://genomic.weebly.com)

Organization Committee: J. Gleeson, F. Furnari, A. Majithia, T. Gaasterland

GBSBC Seminar Coordinators: S. Hadimulia, S. Orosco

Presented by:

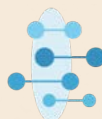


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