Micro201
Rudner Class 4: DNA repair
March 14 2019

Overview:

In this class we will discuss DNA repair pathways. The first paper is a *classic* (from 1988) in which Jeff Miller employs a very creative strategy to identify mutations in genes required to repair transversions. Read it carefully and make sure you understand the primary screen and the secondary screen used to characterize the mutants. The second paper takes us all the way to 2017 and the characterization of R-Loops generated by conflicts between replication and transcription. These RNA-DNA hybrids stall DNA replication, increase mutagenesis, and can prevent replication re-start. The paper discusses and attempts to explain why cells have not evolved to have all their genes co-oriented with replication. Do you find these arguments compelling? Why? Why not?

I've also included a dense review on the SOS response for the interested reader.

Enjoy!
David

Primary Papers:

Nghiem, Cabrera, Cupples, Miller 1988
Lang, Hall, Merrikh, Ragheb, Tabakh, Pollock, Woodward, Dreifus, Merrikh 2017

Background Reading:

Simmons et al 2008