



Spring 2025

**Biochemistry and Molecular Biology
Brown Bag Series**

**Angitha Nair
Graduate Student**

*“The role of Rad51 and its paralogs in DNA damage
responses in quiescent cells exposed to solar
simulating UV radiation”*

Tuesday, March 18, 2025

11:00 AM

Location 125 Oelman Hall

Lab: Mike Kemp, Ph.D.



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Abstract

Rad51, one of the important proteins in homologous recombination (HR) along with its five paralogs Rad51B, Rad51C, Rad51D, XRCC2 and XRCC3 repairs the DNA double strand breaks. Studies show role of Rad51 in S/G2 phase but its role in G0/G1 phase is still unclear. Our lab focuses on this, and thus we are studying the role of Rad51 and paralogs in quiescent cells. RT-qPCR and western blots helped us understand expression of Rad51 in proliferating and quiescent keratinocytes cells both at mRNA and protein levels. Using Pharmacological inhibitor of Rad51, our lab found that Rad51 promotes quiescent cell survival after exposure to UV radiation. Like Rad51, the paralogs have primarily been studied in S/G2 phase. The role of paralogs in UV exposed quiescent cells is unknown. To study the role of the Rad51 paralogs, we knockdown the paralogs with siRNAs and then check viability of cells in UV exposed quiescent cells. We conclude that Rad51 and/or one of its paralogs are important for cell viability and double strand break repairs in solar simulated light quiescent keratinocytes.