DNA Repair and Mutagenesis in Mycobacteria

Mycobacterial DNA repair

The lab , is broadly interested in the pathways and regulation of DNA repair in mycobacteria. Our goals in the DNA repair arena are twofold: 1) to understand the pathways and regulation of DNA repair in mycobacteria as a new model system for prokaryotic repair and 2) to use the knowledge gathered to understand the role of DNA repair pathways in resisting host inflicted DNA damage and the mutagenesis and antimicrobial resistance that results.

These studies have revealed multiple novel aspects of mycobacterial DNA and repair and mutagenesis that differ from more commonly studied model organisms. The include the presence and features of three pathways of double strand break repair (NHEJ, SSA, and HR), the role of phosphorylation in regulating RecA function, the role of the MutT system in antibiotic action, and pathways of mutagenesis mediated by translesion polymerases.

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Project Members

M. Maria Elgrail

Allison Fay