CONSIDER FOR TALK

2025 SEA Faculty Meeting Abstract

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The Suspiciously Deadly Genes of the Bacteriophages Fred313

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Bacteriophages are viruses that specifically target bacterial species. While initially a promising therapeutic, it was ignored in favor of antibiotics. With multidrug-resistant bacteria emerging phage therapy is again being studied. SEA-GENES is a CURE-laboratory course that aims to identify phage gene function with the hope of identifying new therapeutics for treating bacterial infections. The number of isolated phages with annotated genomes has increased by the thousands in recent years to 4902. Even with so many genomes annotated only 25% of genes have any known function. FRED313 is a phage of increased interest due to it being successfully used in a number of phage cocktails. Here we report the finding that gene FRED313-19, FRED313-24, FRED313-51, FRED313-53, FRED313-54, and FRED313-60 in the bacteriophage FRED313 is toxic to Mycobacteria smegmatis.