CONSIDER FOR TALK

2023 SEA Symposium Abstract

Kansas State University

Manhattan KS

Corresponding Faculty Member: Christopher Herren (cdherren@ksu.edu)

Flint Hills Phages - Phylogenetic Characterization of Lysogeny-Related Genes of Crater and Other Bacteriophages

McKenzie J Bietz, Bre L Elliott, Kylie C Howell, Brendan C Newcomer, Craig J Ollendick, Grace M Schieferecke, Sidney A Wilson, Martha Smith-Caldas, Christopher D Herren

Actinobacteriophage Crater was isolated in the Fall of 2022 with host strain *Gordonia terrae*. It is the second member of the DN3 subcluster within the small DN cluster (27 phages) and are generally considered lysogenic. We have desmonstarted Crater lysogeny in the laboratory by phage release assay. Phylogenetic analyses of the DN cluster integrase, excise, and immunity repressor lysogeny genes indicate a very close grouping of the intergrase and immunity repressor proteins, and a very divergent grouping of excise proteins. Integrase amino acid sequences show four large groupings related to the Crater integrase protein and immunity repressor amino acid sequences also show four large groupings related to the Crater repressor. Surprisingly, excise, a conserved protein required for transition from lysogenic to lytic cycle, shows only one, small phylogenetic grouping.