DO NOT CONSIDER FOR TALK

2023 SEA Symposium Abstract

College of St. Scholastica

Duluth MN

Corresponding Faculty Member: Daniel Westholm (dwesthol@css.edu)

Genomic Characterization of Cluster E Mycobacteriophages Highbury and Saints25

Christopher R Baszuro, Henry C Baxter, Lily L Holtz, Emily A Johnson, Savanah K Johnson, Emily J Okonek, Haley J Rosenthal, Caden Wakefield

Mycobacteriophages Highbury and Saints25 were isolated using Mycobacterium smegmatis mc2155 as host as part of the SEA-PHAGES program at The College of St. Scholastica. Both phages were isolated from separate samples collected from the same pond near Duluth, MN. Illumina sequencing revealed both phages to be part of cluster E with highly similar genomes, differing only by 2 bases. We are currently determining how/if these sequence changes impact amino acid identity and protein structure and if there are any predicted evolutionary costs to these changes. In addition, comparative genomics analysis revealed a possible gene duplication event involving genes 66, 71 and 78. All three genes are in close proximity and are part of pham 70112, but have no known function. We are investigating whether this is a conserved genomic feature in other Cluster E phages. In addition, a tyrosine integrase was identified, so we are currently working on identification of stoperator sequences in these phages and their relatives. Once all putative stoperator sequences are identified, they will be mapped and a consensus sequence will be generated.