CONSIDER FOR TALK

10th Annual SEA Symposium Abstract

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Isolation and Characterization of Mycobacteriophages Podrick and Pivoine

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Here we describe two novel bacteriophages that were isolated in Fairfax, VA using Mycobacterium smegmatis mc2155 as the host bacterium. Both genomes were sequenced using Illumina sequencing at the Pittsburgh Bacteriophage Institute.

One of the phages isolated, Podrick (GoT character), is a novel Siphoviridae mycobacteriophage that was isolated from a mulch sample using the enrichment method. Podrick, a subcluster B1 phage, has a 68,406 bp genome with a GC content of 66.4%. Podrick contains a putative RuvC-like Resolvase, which potentially functions in the resolution of both Holliday and branched DNA junctions during DNA recombination. We also found a 2 putative Helicase subunits and a Primase, which function during DNA replication. We will also present a comparison the Podrick and Phareon genomes. Phareon is a B1 cluster mycobacteriophage isolated last year from the same flower bed.

Our second phage, Pivoine (French for Peony), is a novel Myoviridae mycobacteriophage that was isolated from a residential flower bed using the enrichment method. Pivoine, a subcluster C1 phage, has 155,256 bp genome with a GC content of 64.7%. The genome of Pivoine contains many genes with assumed functions including: DNA primase, Helicase, Resolvases, ssDNA Binding Proteins, Kinases, DnaJ-like Chaperonin, DNA-directed RNA Polymerase and many more! We will also describe a -1 frameshift present in the tail assembly chaperone gene preceding the tapemeasure gene.