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2021 SEA Symposium Abstract

Queensborough Community College

Bayside NY

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Observations and Annotations on the Phage Neptune

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During the 2021 Spring semester, students at Queensborough Community College analyzed a Microbacterium Phage named Neptune. We were given this wonderful opportunity by the SEA-Phages adopt a phage exchange. Neptune was discovered by Megan Ulbrich of the University of Pittsburgh in a moist soil sample located in Cincinnati, OH. Neptune belongs to the EF cluster. It was isolated from Microbacterium foliorum (NRRL B-24224), a gram-positive rod-shaped bacterium. All members of the EF cluster appear to be lytic. Neptune has a Siphoviridae morphotype, nonenveloped with a comparatively long noncontractile tail and icosahedral head. Siphoviridae are also double-stranded DNA viruses. Neptune is 56708 base pairs long and has a GC content of 63.8%. In both metrics it is on the larger side compared to others in its cluster. All of the Neptune genes are forward. There are 81 total predicted open reading frames. 27 of those ORFs have predicted functions commonly found in the cluster. Its closest relative is the phage Krampus, another EF cluster phage.