CONSIDER FOR TALK

11th Annual SEA Symposium Abstract

University of the Sciences (now St. Joseph's Univ)

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Colin Bokan

West Philadelphia Born and Phaged

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Bacteriophages are the most abundant organism in the biosphere. Approximately eighty percent of phage genomes lack known functions making phages prime candidates for experimental research. Furthermore, little information is available on bacteriophages that infect *Microbacterium foliorum*, thus this host was selected for bacteriophage isolation. Phage PhillyPhilly was recovered and isolated from a soil sample just outside the University of the Sciences in the heart of West Philadelphia. PhillyPhilly was sent to be sequenced within a DOGEMS pooled sample. Using PCR it was then verified to belong to the ED cluster, and shares a majority of its characteristics with nine other ED1 subcluster phages. Its genome is 62,869 base pairs long with 119 putative genes. PhillyPhilly has a genome end characterized as a direct terminal repeat consisting of 3,380 base pairs, where genes 1-8 align with 112-119, respectively. PhillyPhilly has the ability to lyse the bacterial host and lacks an integrase gene, which led to the conclusion that it follows the lytic life cycle. Expanding upon gene functions it was also discovered that PhillyPhilly contains a RuvC-like resolvase, which is key in genetic recombination. This could gene could be essential in understanding how these phages change and evolve. Interestingly, PhillyPhilly acquired a set of three genes that are common among all ED2 cluster phages, but are only found in half of the ED1 cluster phages. These findings have helped us better understand what our phage is and how it interacts within its environment.