Isolation and Characterization of the Mycobacteriophage Acquire49

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Bacteriophages are viruses that infect bacteria and are found in many different environments. A growing body of data are being acquired to understand these viruses. As part of the Kentucky Biomedical Infrastructure Network Small Genomes Discovery Program at Somerset Community College, the mycobacteriophage Aquire49 was isolated and purified from soil samples collected in London, KY. The general plaque morphology showed clear plaques that were 6.54 mm2 in diameter indicating that the phage was likely a lytic phage. Based on Transmission Electron Micrographs the phage had an average capsid length of 56.53 nm and an average tail length of 249.06 nm. The genome was sequenced using DNA extracted from the purified phage lysate of Acquire49. Annotation of the 73,639 bp Aquire49 genome was performed using PECAAN (Phage Evidence Collection and Annotation Network, which resulted in 121 putatively annotated genes. Blastn analysis matched Acquire49 with members of the L1 subcluster in the Actinobacteriophage database.