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Iowa State University

Ames IA

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Gretchen Swift

Identification and Characterization of mycobacteriophage Olga

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Olga was isolated by Inna Couri, and is a cluster G1 phage. It was discovered in a flower pot on campus at Iowa State University by direct isolation using *Mycobacterium smegmatis* as a host. This phage has a genome that is 41902 bases in length and a CG content of 66.6%, and transmission electron microscopy revealed the morphotype as Siphoviridae. Initial Blast analysis of the genome showed that phages Annihilator and Avrafan were most similar. Annotation of Olga’s genome indicated that there were 62 genes and no transfer RNAs. While working with the phage it explicitly expressed the lytic life cycle, but as the genome was annotated we found that under certain conditions this phage could possibly express a lysogenic cycle due to genes particular to the lysogenic process. There were also additional genes that made Olga unique from its closest relatives, which revealed some potentially interesting evolutionary events in progress for this phage. Upon completion of annotation we were not able to assign a function to every gene that we identified, which is typical for phage genomes. Though this phage has many close relatives found in the database, here we describe some interesting elements that set Olga apart from its relatives.