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Isolation, Characterization, and Genome Annotation of Gordonia rubripertincta Phage Patos

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Bacteriophages are a type of virus that infects bacteria. They have high genetic variability and compose a large amount of biological matter in the world. The isolation and analysis of bacteriophages allow scientists to better understand the evolutionary history and biological diversity of these viruses, as well as make new discoveries in the field. The aim of our project was to isolate a phage that infects *Gordonia rubripertincta*. Phage Patos was isolated, purified, and amplified using various lab techniques. The lysate was sent for TEM, and the phage was identified to be Siphoviridae. Then, the genomic DNA was extracted and then analyzed using restriction enzymes. Using bioinformatics tools such as Glimmer and GeneMark, the genome was auto annotated. By using comparative tools such as Phamerator, Starterator, and BLASTp, the annotation was manually curated and Patos genome was found to have a total of 101 genes. Interestingly, all 101 genes are in the forward direction with no reverse gene present. The full annotated genome can be used to understand the genome organization of the phage, as well as the function of each individual protein in the phage’s life cycle. The significance of better understanding bacteriophages and their biology cannot be understated, as bacteriophage therapy becomes an increasingly popular method of treating bacterial infections and a field of great innovation.