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2023 SEA Symposium Abstract

Western Carolina University

Cullowhee NC

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The Discovery and Genome Annotation of Gordonia Phages Conley and Jamzy, and the Rediscovery of Gordonia Prophage Emperor

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In the Fall of 2022, Western Carolina University utilized the host Gordonia rubripertincta for bacteriophage isolation. Students sampled various soil types around campus, with many samples being collected from Cullowhee creek. While some bacteriophages were successfully isolated using this host, half of the class remained phageless. To increase our chances of bacteriophage isolation we began using two additional hosts Gordonia terrae and Gordonia westfalica. These additional hosts increased our rate of phage discovery and all students were able to successfully isolate a bacteriophage. However, it was noted that many of these newly isolated phages exhibited a similar restriction enzyme digest pattern. Of the bacteriophages discovered three were selected for whole genome sequencing at the University of Pittsburgh. Genomic sequencing revealed that bacteriophage Conley and Jamzy are members of cluster DJ and CT respectively. Surprisingly, the sequencing of bacteriophage TinyTimmons revealed that it was identical to previously discovered prophage Emperor. These results, and additional genomic features of interest will be discussed.