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A new Arthrobacteriophage Isolated from soil collected from a Wildlife Refuge in Oklahoma

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A bacteriophage is a virus that infects and kills bacteria. The host bacteria that was used is Arthrobacter sp. KY3901. Arthrobacter sp. is a Gram-positive rod that can grow in various environments such as soil, underground caves, sewage, and on aerial surfaces. While it is considered non-pathogenic, it serves as an important model for studying the bactericidal effects of phage infection and the emergence of phage resistance. The Arthrobacteriophage, GipsyDanger, was isolated from soil collected near Lost Lake in the Wildlife Refuge in Lawton, Oklahoma. The phage was purified and amplified following the SEA-PHAGES Phage Discovery Guide protocols. The genomic DNA was extracted, and the quality of the extracted DNA was checked using agarose gel electrophoresis. With characterization, GipsyDanger’s lytic and temperate properties were tested, a restriction enzyme digest was performed, the lysate was imaged by transmission electron microscopy, and the host range infectivity was tested against the potential human pathogen, *Arthrobacter albus*. My results show that I successfully isolated a bacteriophage and extracted its genomic DNA. The DNA had restrictions sites cut by HaeIII. GipsyDanger has a temperate lifestyle indicated by the formation of mesa on the spot test. The host range infectivity test showed that GipsyDanger was incapable of infecting *Arthrobacter albus*. Our future work will involve further characterization of lysogens and preparing the phage genomic DNA for sequencing.