CONSIDER FOR TALK

2022 SEA Symposium Abstract

College of William & Mary

Williamsburg VA

Corresponding Faculty Member: Margaret Saha (mssaha@wm.edu)



Kay D Carter



Bilalay V Tchadi

Comparative Analysis of Jarcob (F1) and Phantasmagoria (B2) Phages

Abena S Akrong, Kay D Carter, Elisa K Clark, Victoria A Figgins, Yelena A Fleming, Matthew P Luchs, Mia E Perry, Elias H Nafziger, Brian Phan, Zoe A Riddick, Marcus O Royster, Emily Sotelo, Amiyah R Stukes, Bilalay V Tchadi, Tea R Umana, Margaret S Saha

In the fall semester of 2021, the William and Mary SEAPHAGES program conducted an in-person phage discovery class with 15 freshmen eager to conduct authentic research. Using Mycobacteria smegmatis as the host, each and every student got their own phage and was able to carry it through to purification, DNA isolation, gel electrophoresis analysis and electron microscopy! At the end of fall semester, we held our masked, socially-distanced Phall PhagePhest, with take-away goodie bags instead of the usual feast, to discuss each and every phage and decide on which phages should be selected for sequencing. Based on some intriguing characteristics observed in plaque morphology and in the electron micrographs and gel electrophoresis, the DNA samples of several phages were sent for sequencing. Two phages were fully sequenced and are being annotated during the bioinformatics section of the course. Jarcob is a temperate F1 phage with 58,937 base pairs and 106 genes; Phantasmagoria is a lytic B2 phage with 67,046 base pairs and 92 genes. Both phages belong to subclusters with many (190 for Jarcob and 33 for Phantasmagoria) members. In addition to annotation, we are also conducting comparative genomics and analyzing the diversity within these two subclusters.