CONSIDER FOR TALK

2025 SEA Faculty Meeting Abstract

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ParB-like nuclease from FH phage Prairie

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We have identified a gene in Actinophage Prairie (FH cluster) that codes for a ParB-like nuclease. We have used AlphaFold3 to show that the structure of this protein is similar to the ParB-like nuclease found in the bacterium Myxococcus xanthus, which has been shown to be a CTP-dependent regulator. We hypothesize that the ParB-like nuclease in Prairie has a similar mechanism and regulatory function to the M. xanthus protein. Here we present a bioinformatic and initial cloning of the ParB-like nuclease in phage Prairie to further elucidate its overall function. This research can be translated to other phages by determining the function of more unknown proteins and how phages interact with their various microbiomes.