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Poster #87: Transcriptional Reprogramming by Cyanophage Syn9: Investigating Host–Phage Interactions in Synechococcus WH8109

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The marine cyanobacterium *Synechococcus* WH8109 is a globally widespread and ecologically important model organism that contributes significantly to primary production in ocean environments, making it a valuable system for studying cyanobacterial ecology and virus–host interactions. Its cyanophage, Syn9, is a T4-like virus that infects *Synechococcus* and is used to study the molecular mechanisms underlying phage-driven reprogramming of the host.
One key aspect involved in manipulation of the host's transcriptional machinery during phage infection is the regulation and hijacking of host transcriptional regulators, such as RNA-binding proteins (RBPs). Using the complex capture approach, we identified several putative phage RBPs, which were subsequently cloned into *Synechococcus* for functional characterization. Following expression verification and growth assays across different clones, we aim to identify their RNA targets by CLIP-seq. In parallel, we are isolating Syn9 virion particles to determine whether RNA is packaged into the capsid, and if so, what type of RNA it is.

Reference #1

Reference #2

Reference #3

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