

CHARACTERIZATION OF A NOVEL BACTERIAL ANTI-PHAGE DEFENSE SYSTEM

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Bacteriophages (phages) pose a constant threat to bacteria, driving the evolution of diverse anti-phage defense mechanisms. Among these strategies, recently identified anti-phage systems involve protein components related to eukaryotic ubiquitination pathways. Characterization of these proteins is essential for elucidating their roles in bacterial immunity and phage evasion.

In this study, we focus on the functional characterization of a bacterial anti-phage defense system using bacteriophage spot titer assays to evaluate protection against phage infection. By introducing and analyzing mutations in system proteins, we assess how specific protein components and their variants contribute to effective defense and directly link protein-level changes to antiviral function. Greater knowledge of this bacterial anti-phage system could help enable the use of its mechanisms as modulable tools in biotechnology.