



Methods of Phage Gene Manipulation and Profiling

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Inventors: Srivatsan Raman, Jackie Chen

The Invention

UW-Madison researchers have developed Phage Gene Manipulation and Profiling, PhageMap, a method for generating barcoded knockout libraries for every gene within a phage genome through homologous recombination (HR)-guided gene disruption. They build these libraries using Cas9 to induce double strand breaks in the phage DNA at sites targeted by the single guide RNA in the DNA donor plasmid. This plasmid contains donor DNA that includes a barcode and results in disruption of the gene targeted and subsequent insertion of the barcode into the viral DNA. Progeny have a disrupted gene, and a genome that can be sequenced to determine the barcode which correlates to the site of the gene in the phage genome. The library of phage can be tested for gain of activity or loss of activity and a fitness score can be assigned which can be compiled into a heat map that clearly shows effect on phage fitness (positive or negative) of every gene in response to the environmental condition of interest.

Additional Information

For More Information About the Inventors

- [Srivatsan Raman](#)

Tech Fields

- [Research Tools : Microbial technologies](#)

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