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Authors: Kathryn M. Kauffman, Martin F. Polz

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Streamlining standard bacteriophage methods for higher throughput

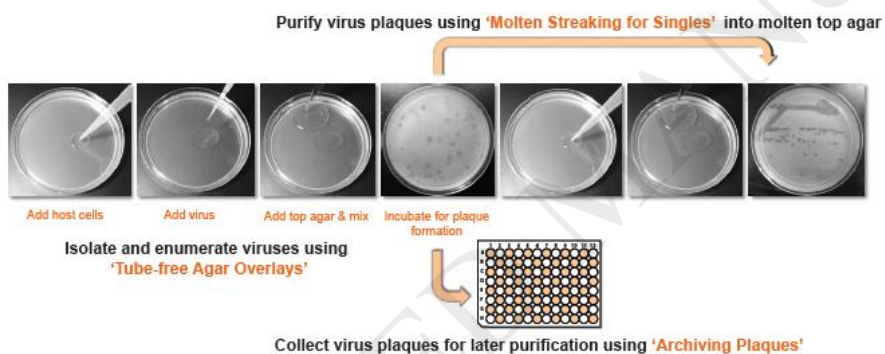
Kathryn M. Kauffman¹, Martin F. Polz^{1,2}

¹Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02141 USA

²The Center for Microbiome Informatics and Therapeutics, Massachusetts Institute of Technology, Cambridge, MA, 02141 USA

Correspondence: k6LogC@mit.edu

Graphical abstract



A universal tool in the culture-based study of bacterial viruses (bacteriophages, or phages) is the agar overlay, which is used in the isolation of new viruses, and in their quantification and purification. Here, simple optimizations that increase efficiency and throughput in agar overlay based isolation and cultivation of virus-host systems are presented. The agar overlay is streamlined to minimize steps and materials. Serial purification of viruses from viral colonies (plaques) is optimized to eliminate steps by combining purification by serial re-streaking with the optimized agar overlay approach. Finally, recommendations are made for efficient archival and storage of virus plaques. In sum, this work presents:

- Tube-free Agar Overlays: rapid plaque assays with fewer steps and materials
- Molten Streaking for Singles: rapid tube-free serial purification of viruses
- Archiving Plaques: saving virus purification for later

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