

A Single-Molecule Hershey-Chase Experiment

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Using single-molecule techniques, it has become possible to examine viruses both while they package and eject their DNA. This talk will begin with simple physical arguments about the forces that attend viral DNA packaging and ejection as well as the resulting time scales for such ejection. Using these predictions as motivation, I will describe single-molecule experiments designed to watch the ejection process one virus at a time both in vitro and in vivo. In both settings, the results provide challenges to current theoretical interpretations of the ejection process.