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Measuring the Rate of Conjugal Plasmid Transfer and Phage Infection in a Bacterial Population Using Quantitative PCR ZHENMAO WAN, The Graduate Center, CUNY, NOEL GODDARD, Hunter College, CUNY — Horizontal gene transfer between species is an important mechanism for bacterial genome evolution. In *Escherichia coli*, conjugation is the transfer from a donor(F^+) to a recipient(F^-) cell through cell-to-cell contact. We demonstrate a novel qPCR method for quantifying the transfer kinetics of the F plasmid in a population by enumerating the relative abundance of genetic loci unique to the plasmid and the chromosome. This approach allows us to query the plasmid transfer rate without the need for selective culturing with unprecedented single locus resolution. It also allows us to investigate the inhibition of conjugation in the presence of filamentous bacteriophages M13. Experimental data is then compared with numerical simulation using a mass action, resource limited model.

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