Abstract Submitted
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Experimental Population Dynamics in Fluid Flows SEVERINE ATIS, BRYAN T. WEINSTEIN, Harvard University - Department of Physics, PATRICK SODDARD, ANDREW W. MURRAY, Harvard University - Department of Molecular and Cellular Biology, DAVID R. NELSON, Harvard University - Department of Physics — Transport dramatically alters the evolutionary dynamics of populations. The diffusive transport of microbial populations has been well explored on agar plates; striking genetic segregation patterns in the populations are observed as a result of the small population size near the expanding front. We show that these patterns are modified when the microbial populations grow on the top of an extremely viscous fluid. Both *E. coli* and *S. Cerevisea* colonies appear to induce radial flows by emitting surfactants allowing them to rapidly colonize new territory. We discuss how changing the fluid's properties alters the morphology and evolutionary dynamics of the populations, and demonstrate that imposed fluid flows can be used to study the interplay between evolution and advection.

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