

Abstract Submitted  
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**Effect of added surfactant on bacterial swarming** JORDAN BELL, JAY TANG, Brown University — In a matter of hours, a microliter droplet of bacteria can grow into a swarming colony that spreads over several square centimeters of an agar gel surface. A bacterial swarm is an active fluid whose advance is aided by a rapid increase in total cell number and flagellated motion, but limited by water availability and surface tension. Here we report two experiments designed to observe the influence of added surfactant on the swarming dynamics of *Pseudomonas aeruginosa* on the gel surface. 1. When the agar was infused with surfactant, we found notable enhancement in swarming. 2. When a microliter drop of surfactant was deposited at a distance away from a growing swarm front, we noted accelerated advance of the swarm front towards the surfactant spot. Both observations contradict a recent model (Fauvart et al., *Soft Matter*, 2012), relying on Marangoni flow to explain the swarm motility. We propose that a significant decrease in surface tension caused by the added surfactants suffices to facilitate swarming, rather than the surface tension gradients responsible for Marangoni flow.

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