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Large scale surface migration of *P. aeruginosa* at early stages of biofilm formation MAXSIM GIBIANSKY, ANDY UTADA, KUN ZHAO, WU-JING XIAN, GERARD WONG, University of California, Los Angeles — *Pseudomonas aeruginosa* is a commonly-studied bacterium which can form biofilms, surface-bound aggregates which display increased resistance to various forms of stress, including a greatly enhanced antibiotic resistance. In the early stages of biofilm formation, free-swimming planktonic cells attach to the surface and form microcolonies, expressing a variety of adhesins and transitioning from reversible to irreversible attachment. By using particle tracking algorithms, we can in principle examine the full motility and division history of all cells in a microcolony. Here, we study the effects of the *pel* polysaccharides in microcolony formation by investigating how *pel* impacts the initial stages of biofilm formation by the *P. aeruginosa* PA14 strain. Specifically, we quantify the phenotypic effects of *pel* on initial attachment, microcolony formation, and biofilm morphology.

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