

Abstract Submitted
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Bacterial Chemotaxis with a Moving Target COREY DOMINICK,

Univ of Pittsburgh — Most chemotaxis studies so far have been conducted in a quiescent fluid with a well-defined chemical gradient. Such experiments may be appropriate for studying enteric bacteria, such as *Escherichia coli*, but the environment it provides is very different from that typically encountered by marine bacteria. Herein we describe an experiment in which marine bacterium *Vibrio alginolyticus* is subject to stimulation by a small moving target. A micropipette of the tip size $<1 \mu\text{m}$ is used to slowly release a chemoattractant, serine, at different concentrations. The pipette is made to move with different patterns and speeds, ranging from 0 to $100 \mu\text{m/s}$; the latter is about twice the bacterial swimming speed. We found that if the pipette is moved slowly, with $1/4$ of bacterial swimming speed, cells accumulate near the tip region but when it is moved with speed greater than $1/2$ the bacterial swimming speed, cells trail behind the pipette over a large distance. The behaviors observed in *V. alginolyticus* are significantly different from *E. coli*, suggesting that the former is a better chemotaxer in a changing environment.

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