

Abstract Submitted
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Bacteria turn on surfaces by oversteering with Type IV pili FAN JIN, University of California, Los Angeles, JACINTA C. CONRAD, University of Houston, MAXSIM L. GIBIANSKY, GERARD C.L. WONG, University of California, Los Angeles — Type-IV pili (TFP) are linear nano-actuators that enable bacteria to crawl on surfaces. Analysis of TFP-mediated crawling in *P. aeruginosa* reveals that it always alternates between two types of distinct movements: a linear translation of constant velocity is followed by a combined translation-rotation that is $\sim 10x$ faster in instantaneous velocity. The latter process can turn the cell body by over-steering so that the rear of the cell loses traction with the surface. Orientational distributions of these movements suggest that the former is due to pulling by multiple TFP, whereas the latter is mostly due to release by single TFP.

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