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Exploring Cell-Assisted Cell Growth ELIJAH BOGART, SHARON LAU, AMRISH DESHMUKH, CARL FRANCK, Cornell University — The population dynamics of microbial life in sheared liquid suspension affords opportunities to explore the ways in which cells encourage each other to proliferate. Such elegant systems continue to inspire us to develop and test simple theories for cooperative behavior (e.g. Phys. Rev. E v. 77, p. 041905 (2008)) in living matter. We report on new insight afforded by the observation of the amoebae Dictyostelium discoideum of the effect on population growth of the introduction of adhesive contacts of cells with each other as well as solid substrates. Through a hydrodynamic scaling argument we find that that mechanical triggers provided by intercellular collisions are more important than collisions with container walls in encouraging growth. Finally, we confirm the discovery of a strain that lacks growth regulation due to density sensing.
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