

# Supporting Information

Lushi et al. 10.1073/pnas.1405698111

## Fluid Flows Created by Swimming Bacteria Drive Self-Organization in Confined Suspensions

Enkeleida Lushi, Hugo Wioland and Raymond E. Goldstein

### Supplemental video:

Simulations reveal the role of hydrodynamics in the organization of a dense bacterial suspension under circular confinement. Simulations and experiments start from a disordered state.

**Movie S1.** Simulation results with and without hydrodynamic interactions are compared with experimental observations under circular confinement.

[Movie S1](#)

## Fluid Flows Created by Swimming Bacteria Drive Self-Organization in Confined Suspensions

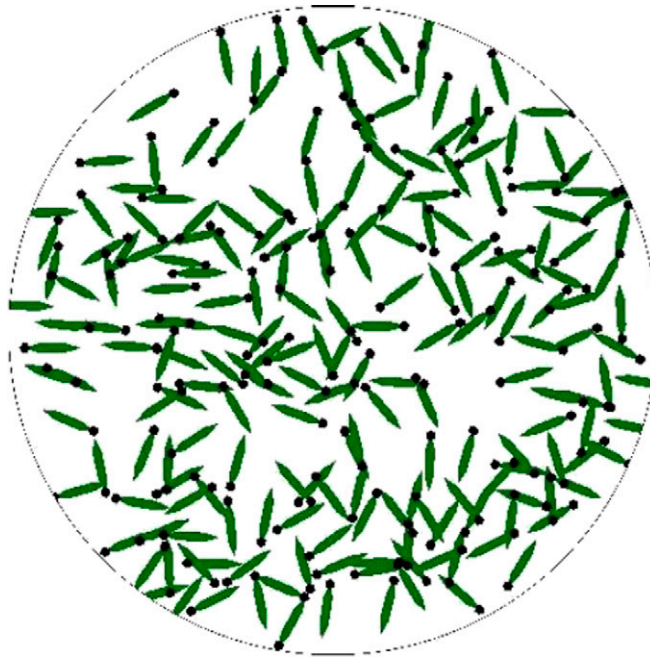
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### Supplemental video:

Hydrodynamic interactions alters the dynamics of an unconfined suspension.

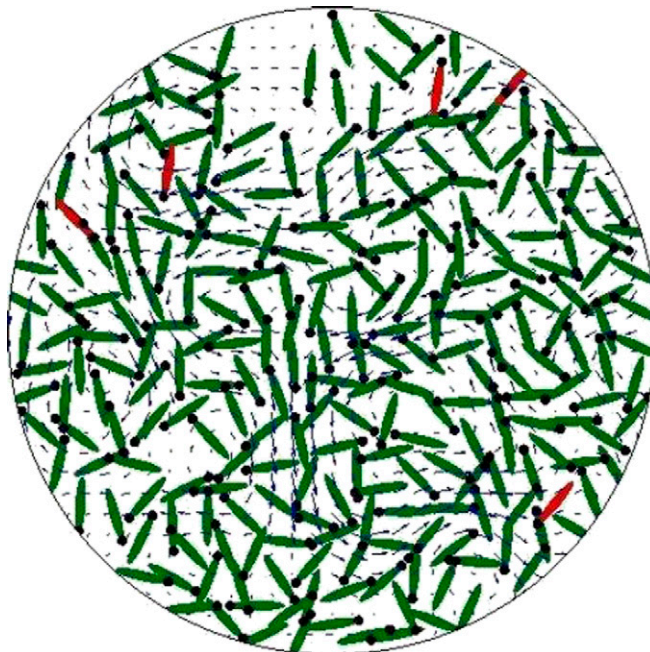
**Movie S2.** Simulation results with and without hydrodynamic interactions are compared with experimental observations in a 2D unconfined domain.

[Movie S2](#)



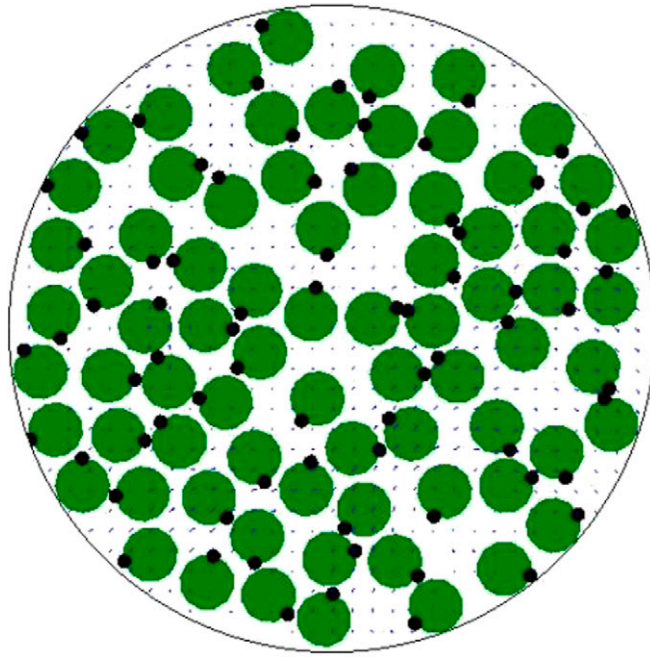
**Movie S3.** Elongated swimmers self-organize under confinement with direct cell–cell interactions only.

[Movie S3](#)



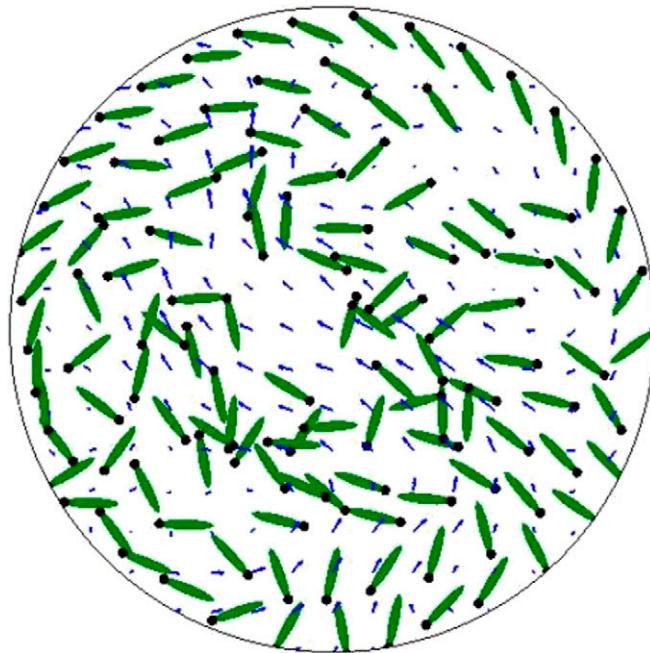
**Movie S4.** Elongated pusher swimmers self-organize under confinement with direct cell–cell and cell–fluid interactions. Blue arrows, fluid flow.

[Movie S4](#)



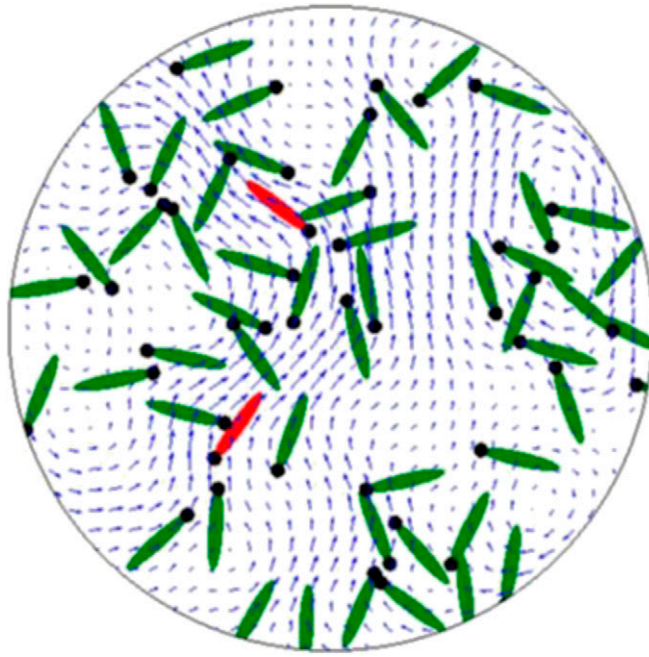
**Movie S5.** Circular pusher swimmers self-organize under confinement with direct cell–cell and cell–fluid interactions. Blue arrows, fluid flow.

[Movie S5](#)



**Movie S6.** Semicircular pusher swimmers self-organize under confinement with direct cell–cell and cell–fluid interactions. Cells are reoriented by hydrodynamics but not by steric interactions. Blue arrows, fluid flow.

[Movie S6](#)



**Movie S7.** A dilute suspension of pusher swimmers self-organizes under confinement with direct cell–cell and cell–fluid interactions. Blue arrows, fluid flow.

[Movie S7](#)