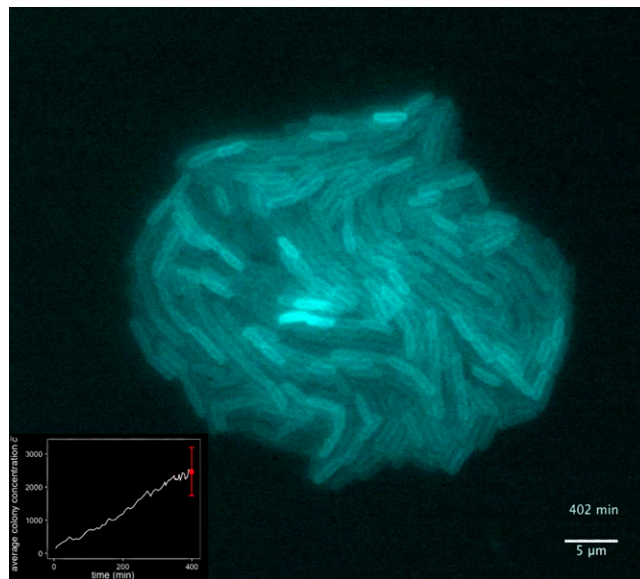


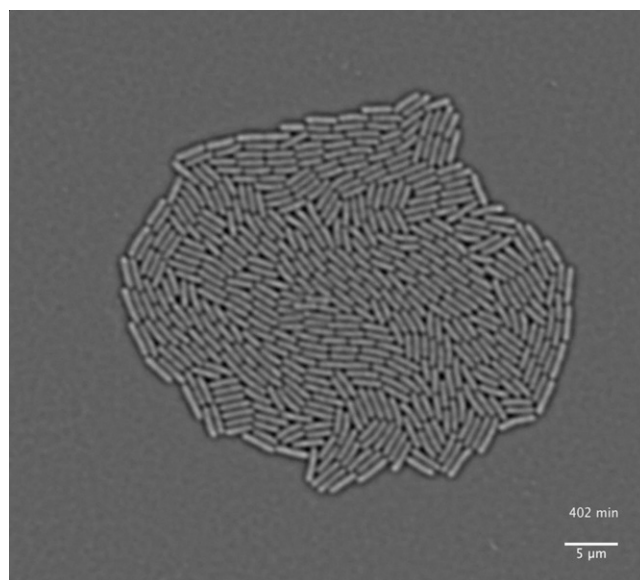
Supporting Information

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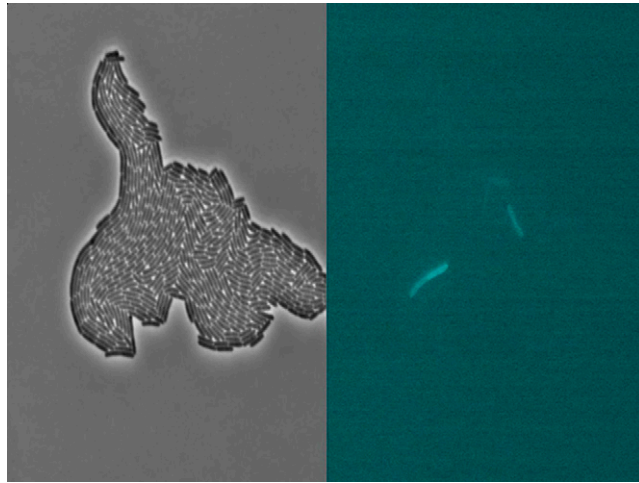
Movie S1. Time-lapse recording of Pvd fluorescence in a WT microcolony (PAO1). Each frame is normalized by the mean intensity of the image. (*Inset*) Increase of the mean fluorescence during the experiment is displayed. The correlation images used to track individual cells are shown in *SI Appendix, Movie S2*.

[Movie S1](#)



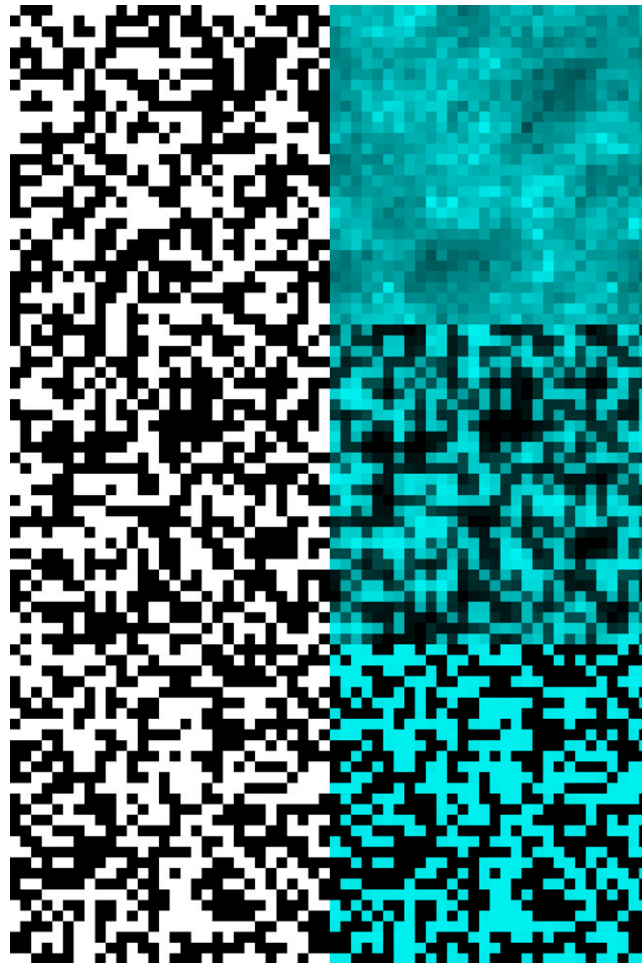
Movie S2. Time-lapse recording using the correlation imaging (*SI Appendix, Fig. S2*) performed on a growing WT microcolony (PAO1).

[Movie S2](#)



Movie S3. (Left) Time-lapse recording of a import-deficient microcolony ($\Delta fpvA$) in phase contrast. (Right) Fluorescence of Pvd of the same microcolony.

[Movie S3](#)



Movie S4. Simulations of the maintenance of cooperation. (*Left*) Maps of producers (white) and nonproducers (black). (*Right*) For each map, Pvd is simulated according to our model. The three rows correspond to three different regions in the phase diagram shown in Fig. 4. The parameters of the first row are picked up at the upper right corner of this phase diagram, corresponding to a fast diffusion of Pvd and a high cost of synthesis. The parameters of the last row are picked up at the lower left corner of this phase diagram, corresponding to a slow diffusion of Pvd and a low cost of synthesis. The parameters of the middle row are picked up at the middle of this phase diagram and correspond to the intermediate case.

[Movie S4](#)

Other Supporting Information Files

[SI Appendix \(PDF\)](#)