

Chirality in microbial biofilms is mediated by interactions between the cell surface and the substrate

Supplementary information

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Table S1: Primers used in this study

fliC_F	GGAAACCCAATACGTAATCAACGACTTGCAATATAGGATAACGAATC T GTA GGC TGG AGC TG
fliC_R	GAA TAC GGG ACT GCG CTT CAG ACA GGT TGG TAG TGG TGT TG ATA TCC TCC TTA GTT C
fliC_test_F	CAGACGATAACAGGGTTGAC
fliC_test_R	TTA CCG GCC TGC TGG ATG AT
csgA_F	CGT ATT CTC CGG TAG CGC TCT GGC AGG TGT TGT TCC TCA GTA ATG TGT AGG CTG GAG CTG
csgB_R	GTACTGATGAGCGGTCGCGTTGTTACCAAAGCCAACCTGAGTCACGTTGACATATGAATATCCTCCTTAG
csgAB_test_F	GATGAAACAGTATGGTCAG
csgAB_test_R	GAAGTGAAGTGTCCATCAG



Figure S1. Thresholded microscopy image of a competition experiment initiated by linear inoculation of strain MG1655 *fimflu*. The sector boundaries from a linear inoculation shows the same chirality as from a droplet inoculation.

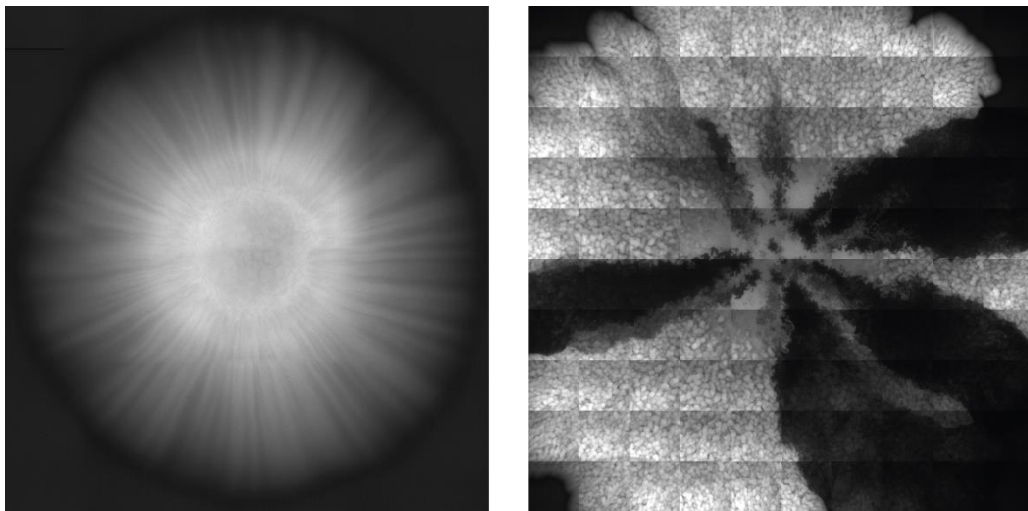


Figure S2. Competition experiments using *S. pombe* fission yeast and *B. subtilis* bacteria. **a:** Competition experiment between neutral fission yeast strains expressing two different colors. The sector borders are not chiral. **b:** Competition experiment between neutral *B. subtilis* strains expressing different colors. The sector borders are slightly chiral in the same direction as observed for the *E. coli* strains (values of θ are given in Table 2).

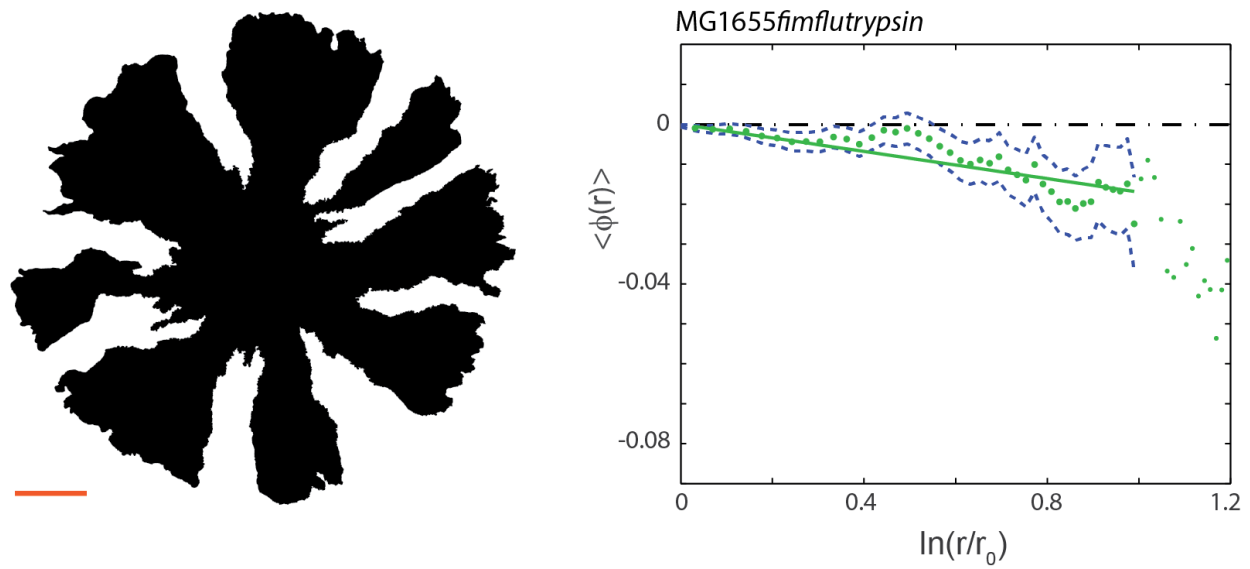


Figure S3. The effect of trypsin. The left panel shows an example of an intensity thresholded image (displayed from the agar side) of colony growth of the *E. coli* MG1655*fimflu* mutant grown on a LB plate with 0.025% trypsin; the scale bar is 1 mm. The right panel show the average boundary angle, $\langle\phi(r)\rangle$, (green dotted line), from N=1952 experimental measurements. Also shown is a linear fit (full green line) yielding $\theta = -1.0^\circ$ (S.E.M=0.005°), the standard error of the mean is shown by a blue punctuated line. Trypsinisation of the MG1655*fimflu* strain significantly reduces chirality to the parental level.