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Supporting Material

Shear stress increases the residence time of adhesion of <I>Pseudomonas aeruginosa</I>

Sigolene lecuyer, Roberto rusconi, Yi Shen, alison forsyth, Hera Vlamakis, Roberto Kolter, and Howard Stone

Supporting Material

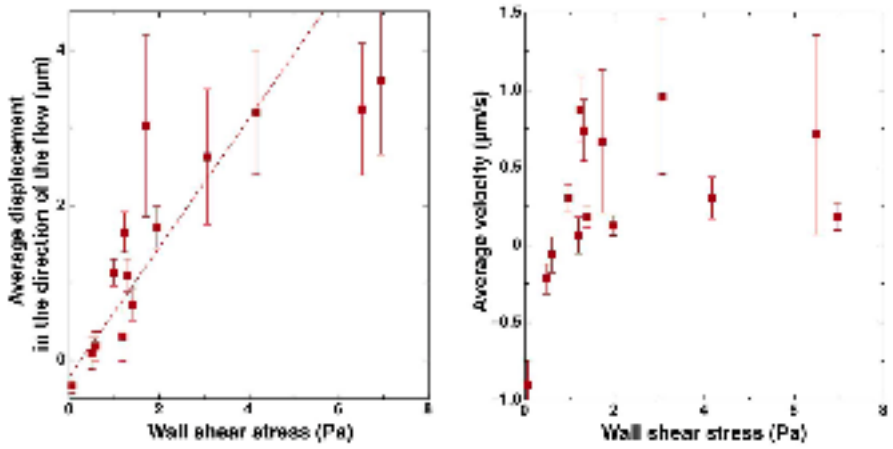

Figure S1: Mobility of wild type PA14 bacteria on glass as a function of wall shear stress (A) Average displacement in the direction of the flow and (B) Average velocity in the direction of the flow. Each point corresponds to one individual experiment, for which the displacement of more than 50 bacteria was measured (up to 2044). Error bars are standard errors.

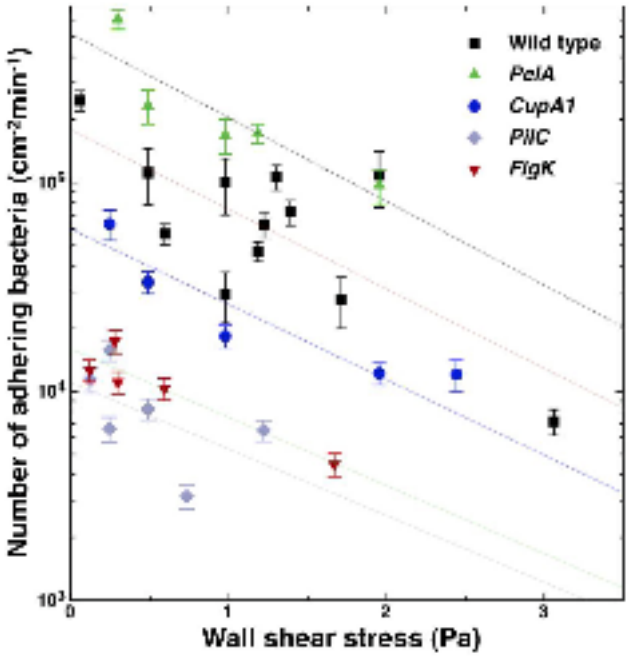

Figure S2: Influence of the shear stress on the frequency of adhesion events. The number of bacteria adhering on glass as a function of wall shear stress is plotted for wild type PA14 and four mutant strains. Lines are linear fits to the log of the data. Bacteria concentrations varied between OD~0.1 and 0.3; all data were normalized to OD=0.2, assuming that the number of adhering bacteria varies linearly with concentration in this range. Error bars were calculated assuming that OD_{600} was known ± 0.03.

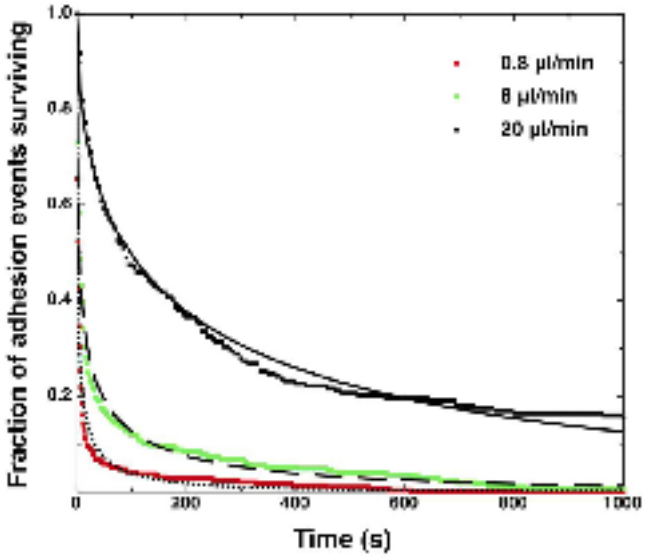

Figure S3: Effect of shear stress on the adhesion of wild type PA14 to glass in TB medium. An increased wall shear stress increases the fraction of long-term adhesion events. Lines are best fits with a stretched exponential function (equation 4).

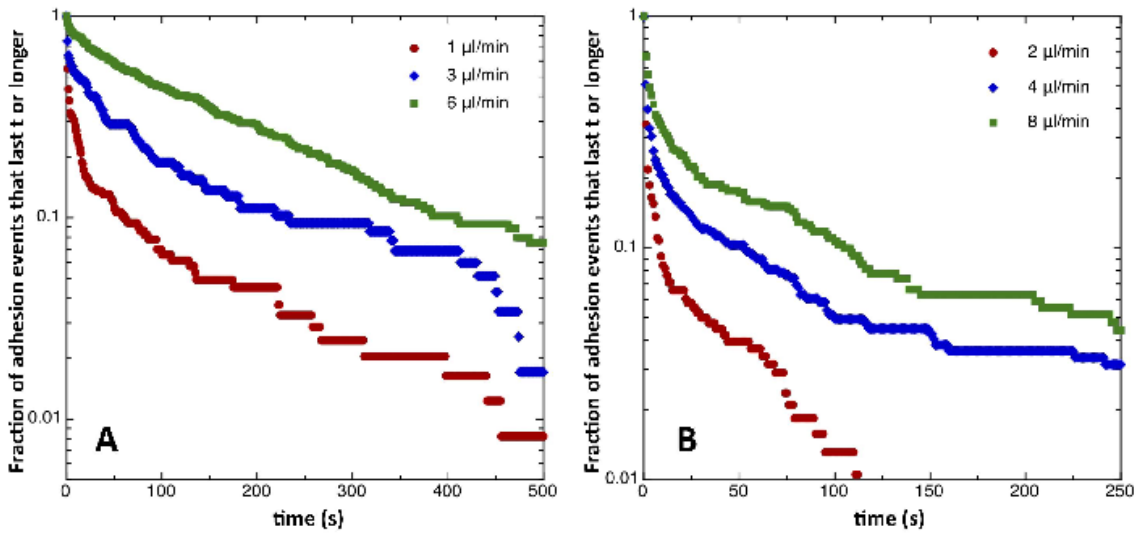

Figure S4: Fraction of adhesion events surviving as a function of time for three values of the shear stress, under different experimental conditions. Shear-strengthened adhesion is observed in both cases. (A): Bacteria were grown in a shaking culture of MSgg medium, before being redispersed in PBS. Microfluidic device was obtained by sealing PDMS on glass. Channel size was 400 x 32 µm. (B): Bacteria were grown in a shaking culture of TB medium, before being redispersed in PBS. The microfluidic device was made out of a 500 x 50 µm glass capillary.