Supplementary Information

Zwitterionic Surface Chemistry Enhances Detachment of Bacteria Under Shear

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Surface Zeta Potential: Streaming potential measurements are performed on SurPass3, an electrokinetic analyzer for solid surface analysis from Anton-Paar (VA, USA). Measurements are taken in 10mM KOH at varying pH adjusted by 0.05M NaOH or 0.05M HCl. Glass surfaces are cleaned using the same protocol as used in microfluidic device fabrication including plasma cleaning and allowing surface to return to hydrophobic state. SBS-functionalized zwitterionic surfaces are prepared by soaking cleaned coverslips in 1 mg/mL SBS solution in DI water for 2 hours followed by rinsing 3 times in DI water. Measurements are taken with a 100-110 μm gap between a 10 mm x 20 mm coverslip and larger slide.

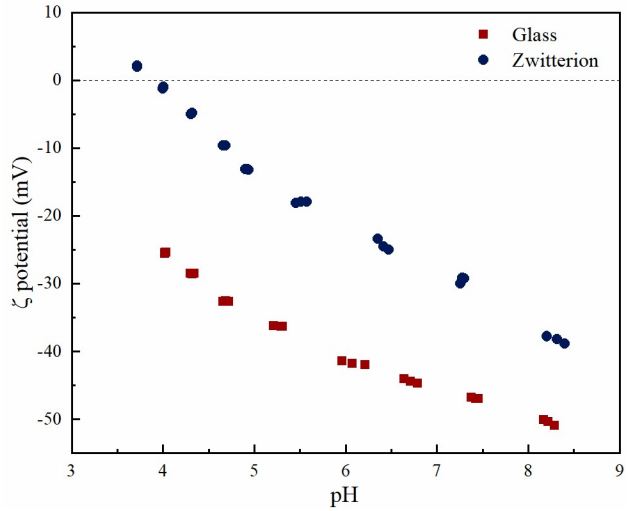

Figure S1. Streaming potential of glass and SBS-functionalized glass.

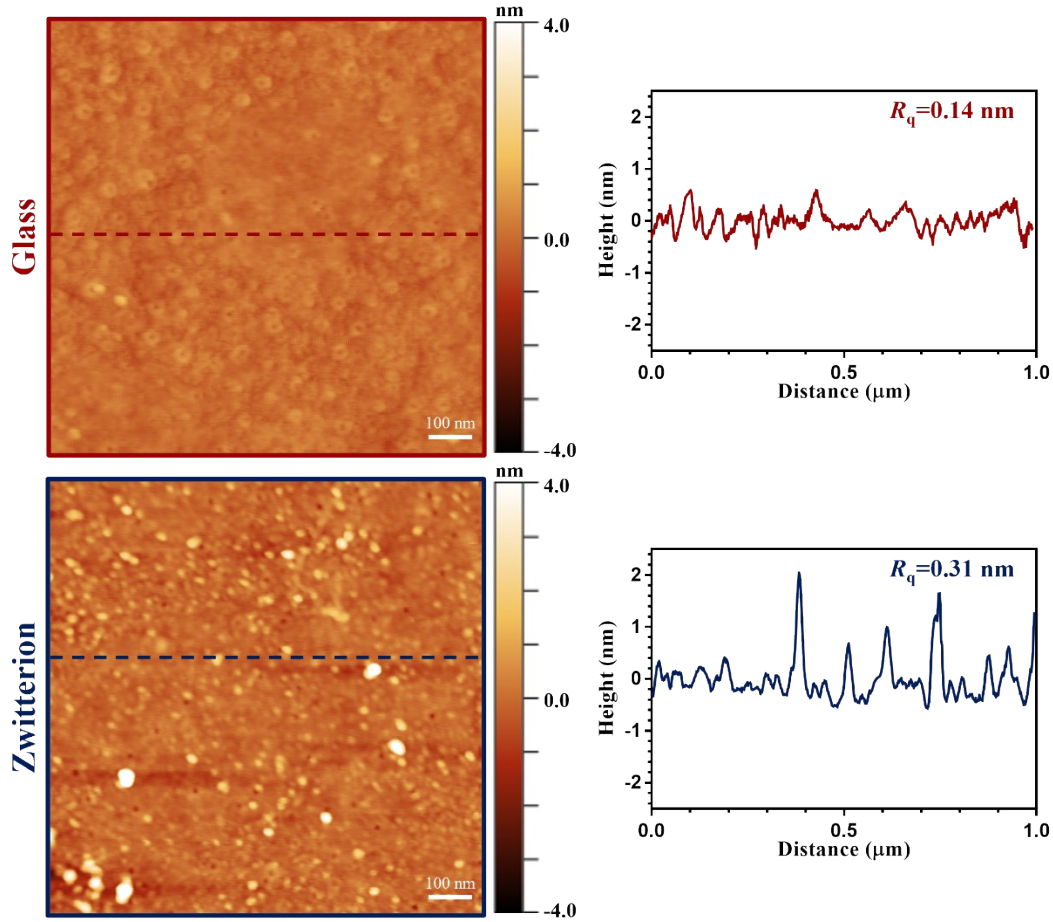

Figure S2. Comparison of control and SBS-functionalized surfaces on the glass measured by atomic force microscopy(AFM).

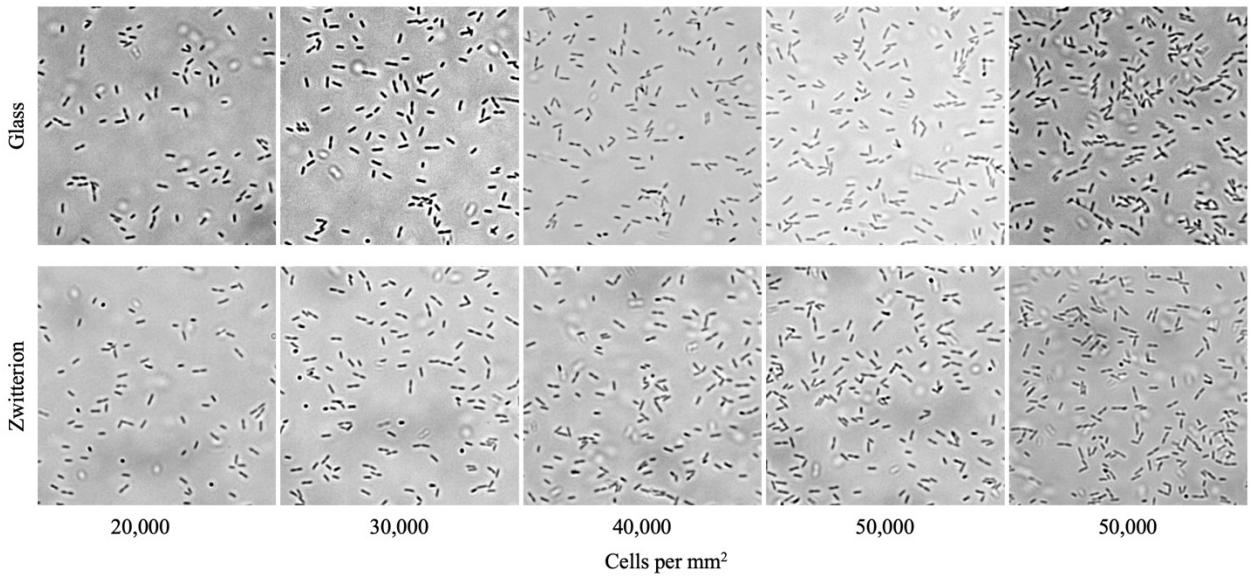

Figure S3. Bacteria on glass and zwitterion surfaces at similar cell densities

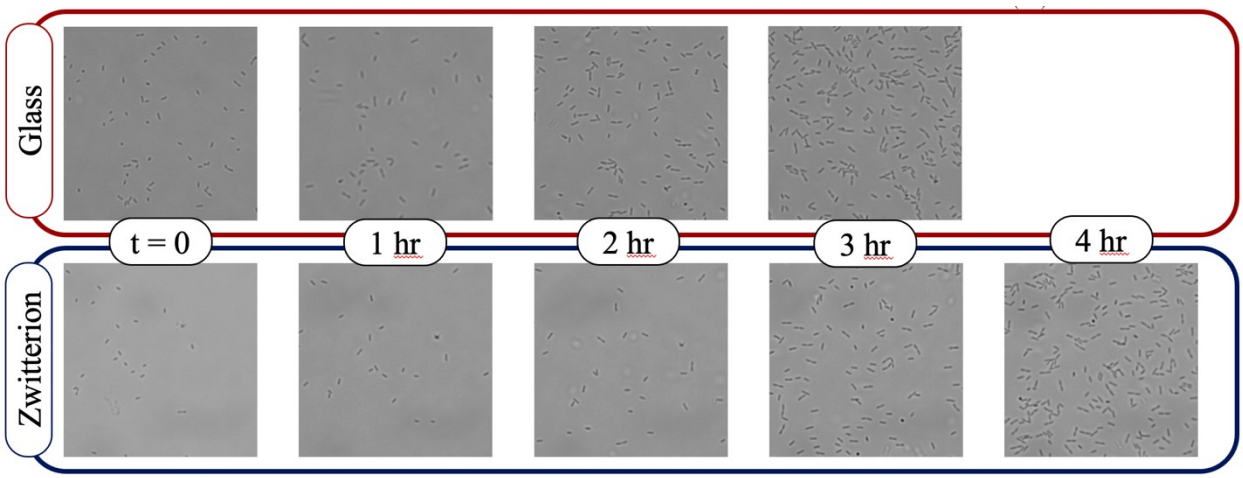

Figure S4. Representative images of bacteria at different time points during the biofilm formation

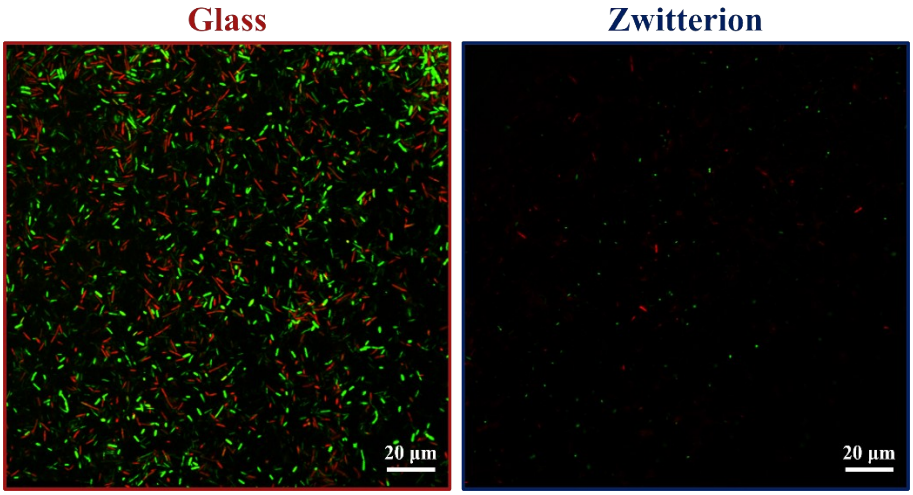

Figure S5. Representative images of Live/Dead bacteria after a rinse challenge.

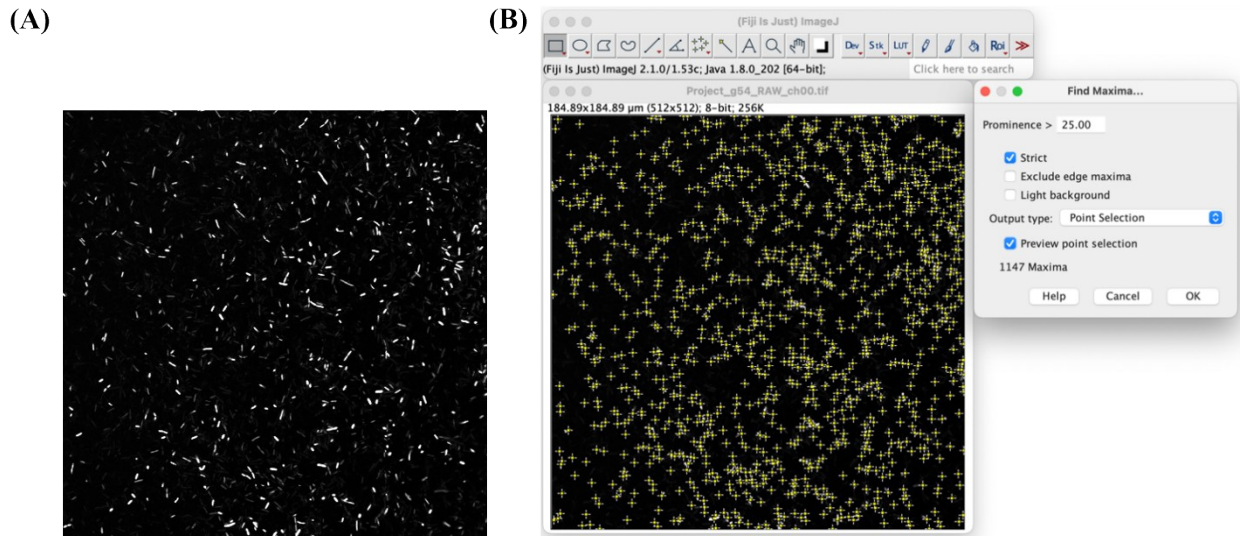

Figure S6. The processed images of Live/dead-staining experiments showing the counting efficiency.