SUPPORTING INFORMATION

Inhibiting Bacterial Adhesion by Mechanically Modulated Microgel Coatings

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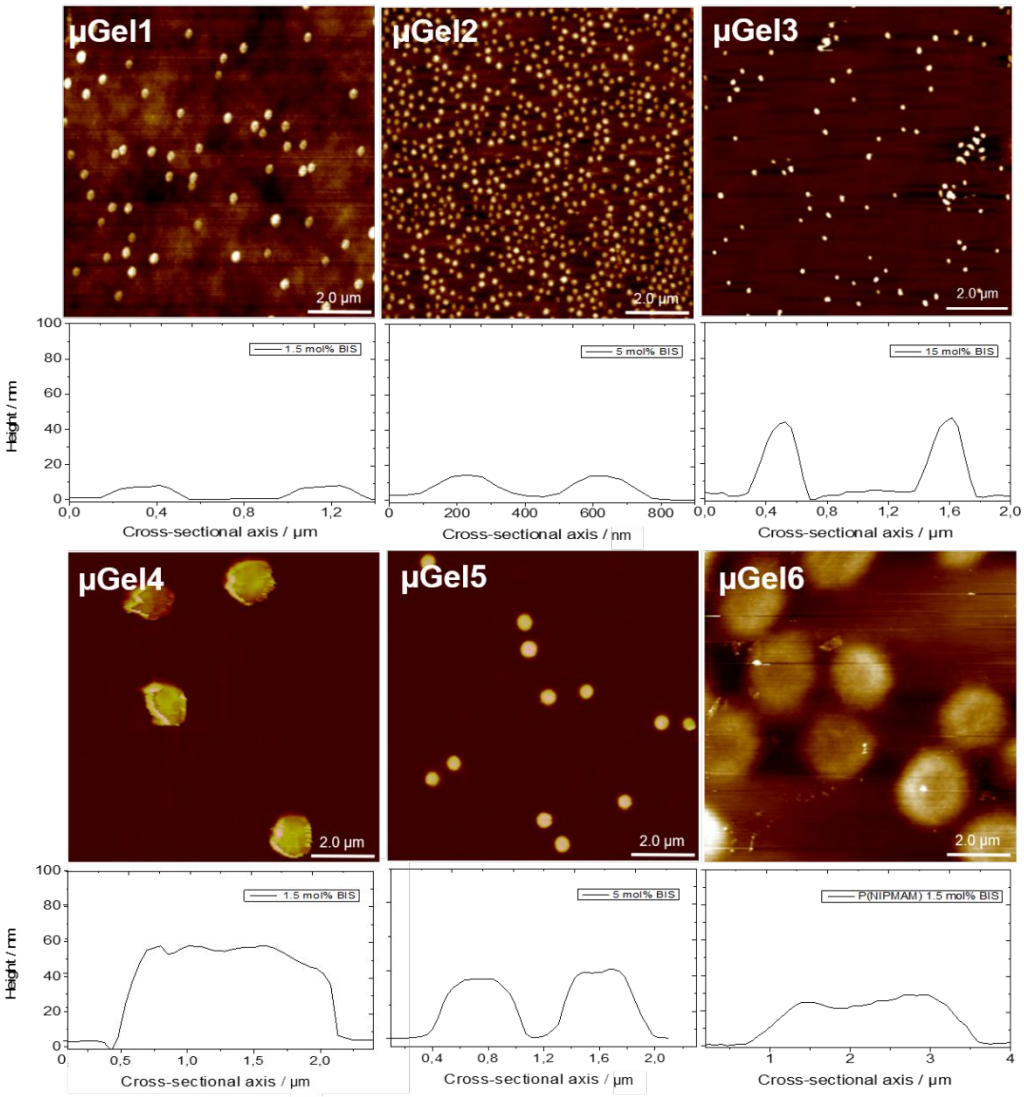


Figure S1: Atomic force microscopy images of single absorbed P(NIPMAM) microgels with different internal cross-linking density onto silica wafer in dry state at 23 °C and average height profiles across the apex of the absorbed µGels.

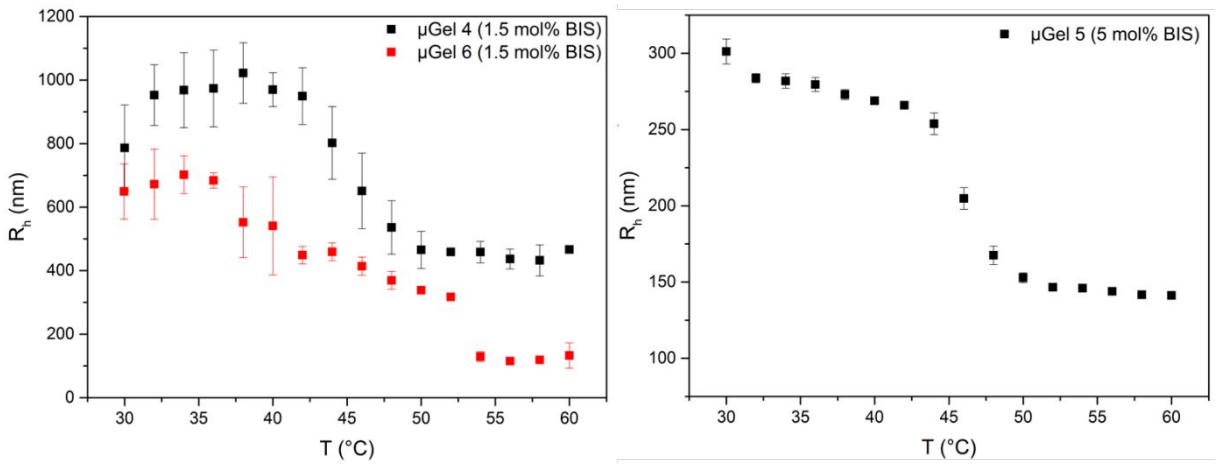


Figure S2: Hydrodynamic Radius R_h as a function of temperature of larger P(NIPMAM) microgels (µGel4, µGel5 and µGel6) with different internal cross-linking densities.

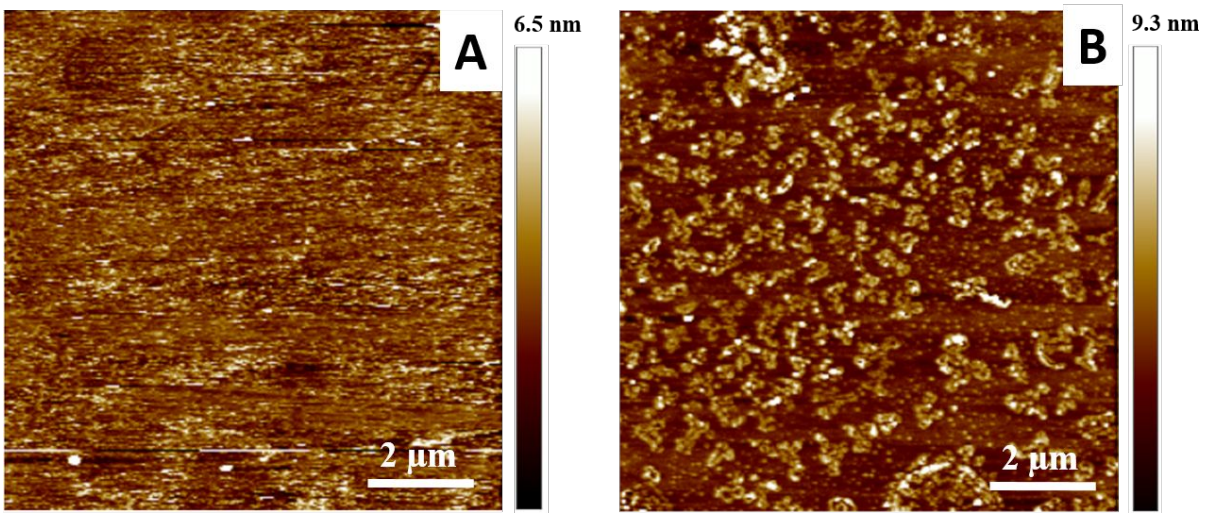


Figure S3. Surface morphology images captured by AFM of A) bare glass surface and B) PEI coated glass surface.

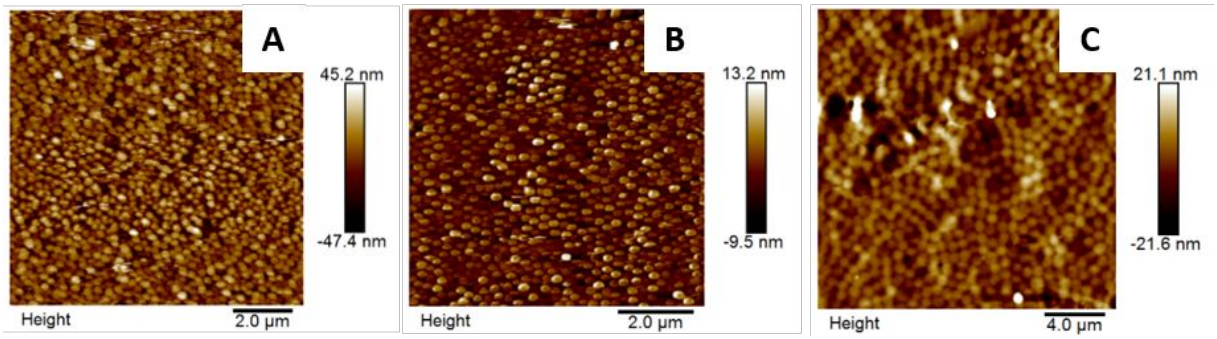


Figure S4. Representative atomic force microscopy images of the P(NIPMAM) microgel coated glass surfaces after flow chamber experiments at 23°C in dry state, A: µGel3, 15 mol% BIS; B µGel2, 5 % BIS; and C: µGel4, 1.5 % BIS. Substrata were analyzed directly after the flow experiments without cleaning.

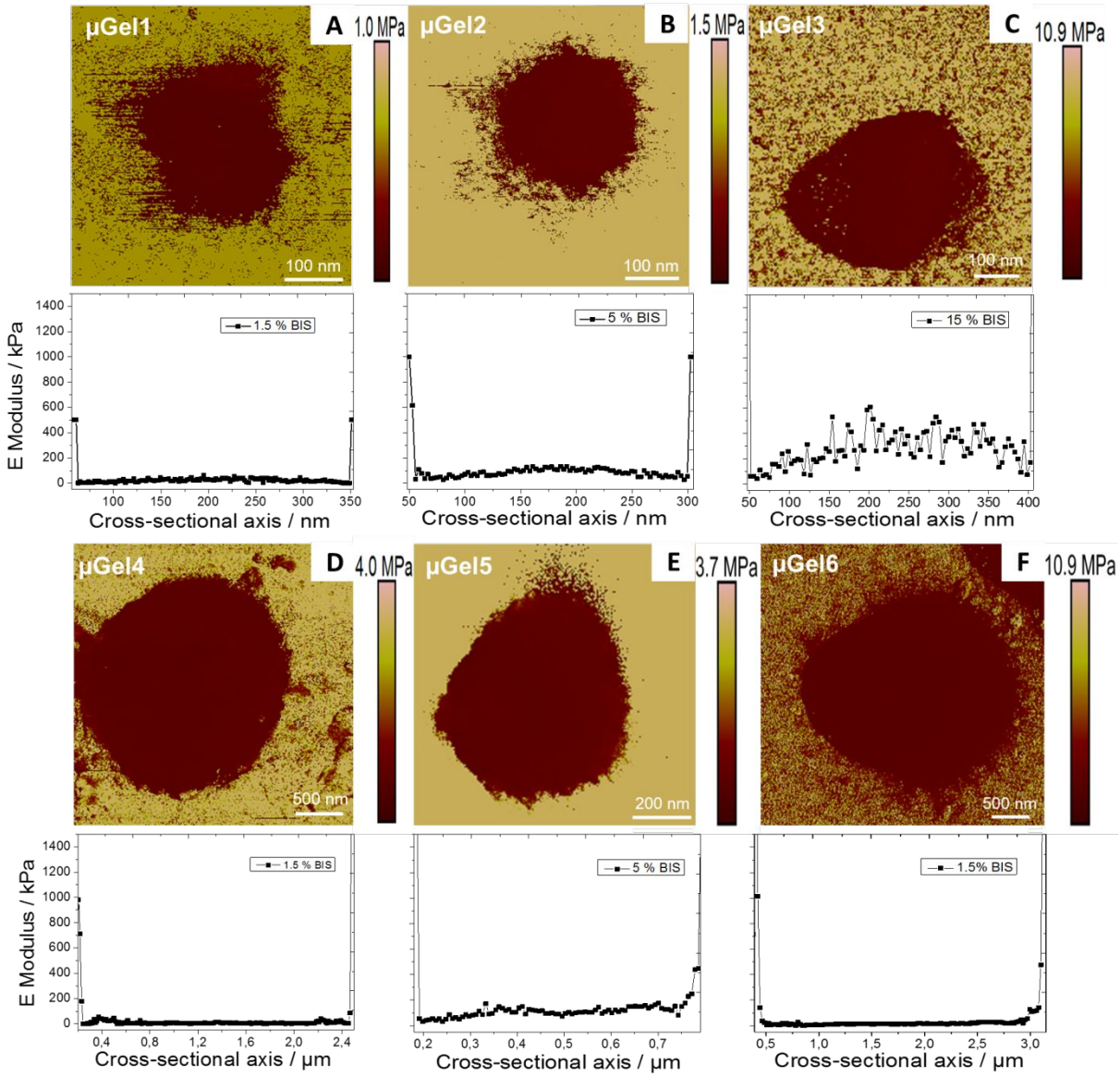


Figure S5. Representative atomic force microscopy images of single absorbed P(NIPMAM) microgels with different internal cross-linking density onto silica wafer at 23°C in wet state, A: µGel1, 1.5 mol% BIS; B µGel2, 5 % BIS; and C: µGel3, 15 % BIS, D: µGel4, 1.5 mol% BIS; E µGel5, 5 % BIS; and F: µGel6, 1.5 % BIS. and average *E*-modulus profiles across the apex of the absorbed µGels.

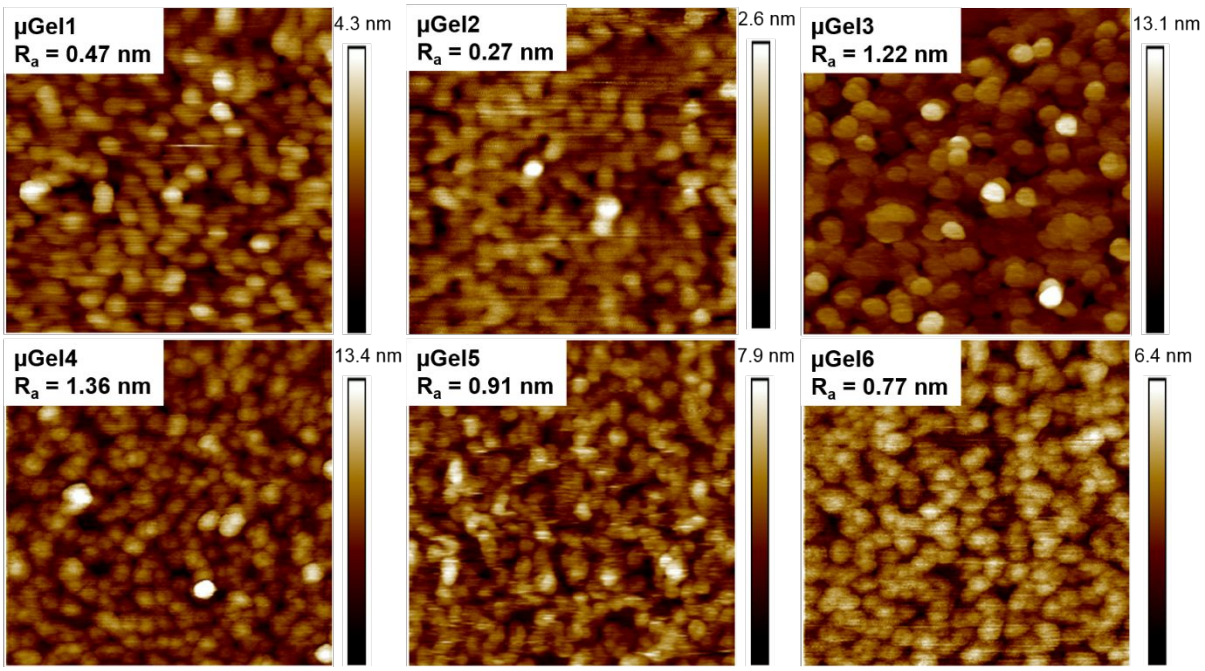


Figure S6. Representative AFM images and analysis of coated glass surfaces with different microgels in wet state. Ra indicates the mean surface roughness, calculated on 2 × 2 μm^2 regions.

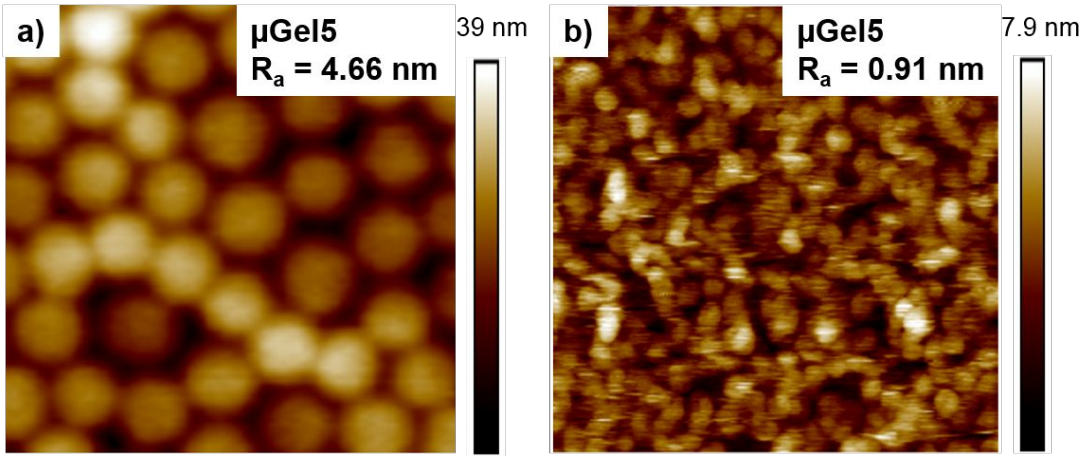


Figure S7. Representative AFM images and analysis of coated glass surfaces with μGel5 a) dry b) in wet state. Ra indicates the mean surface roughness, calculated on 2 × 2 μm^2 regions.

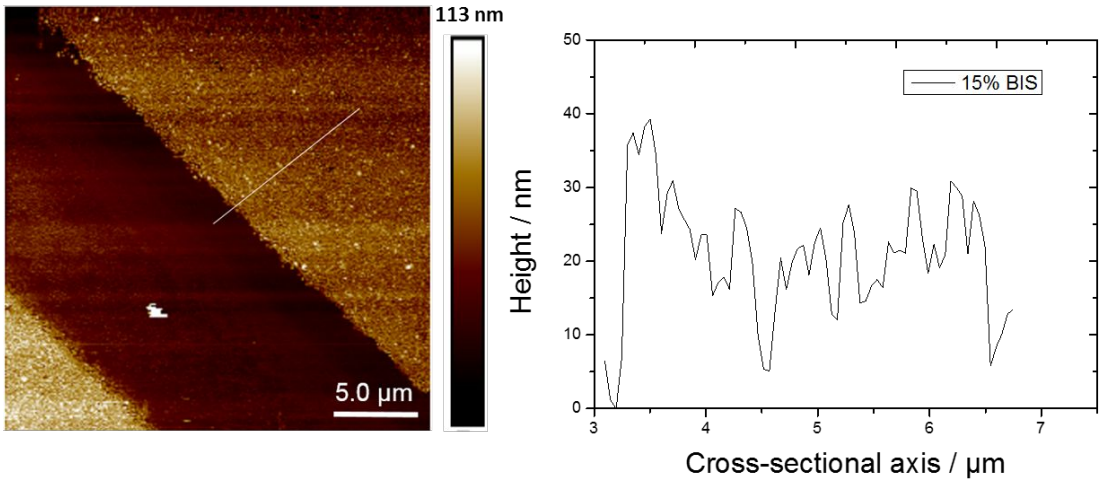


Figure S8. Representative AFM image of a scratched coated glass surface with µGel3 (15 mol% BIS) in dry state and corresponding height profile, $h = 26 \pm 3$ nm.

Figure S9. Digital image of microgel coating which forms a flat surface

Detailed explanation of parallel plate flow chamber system

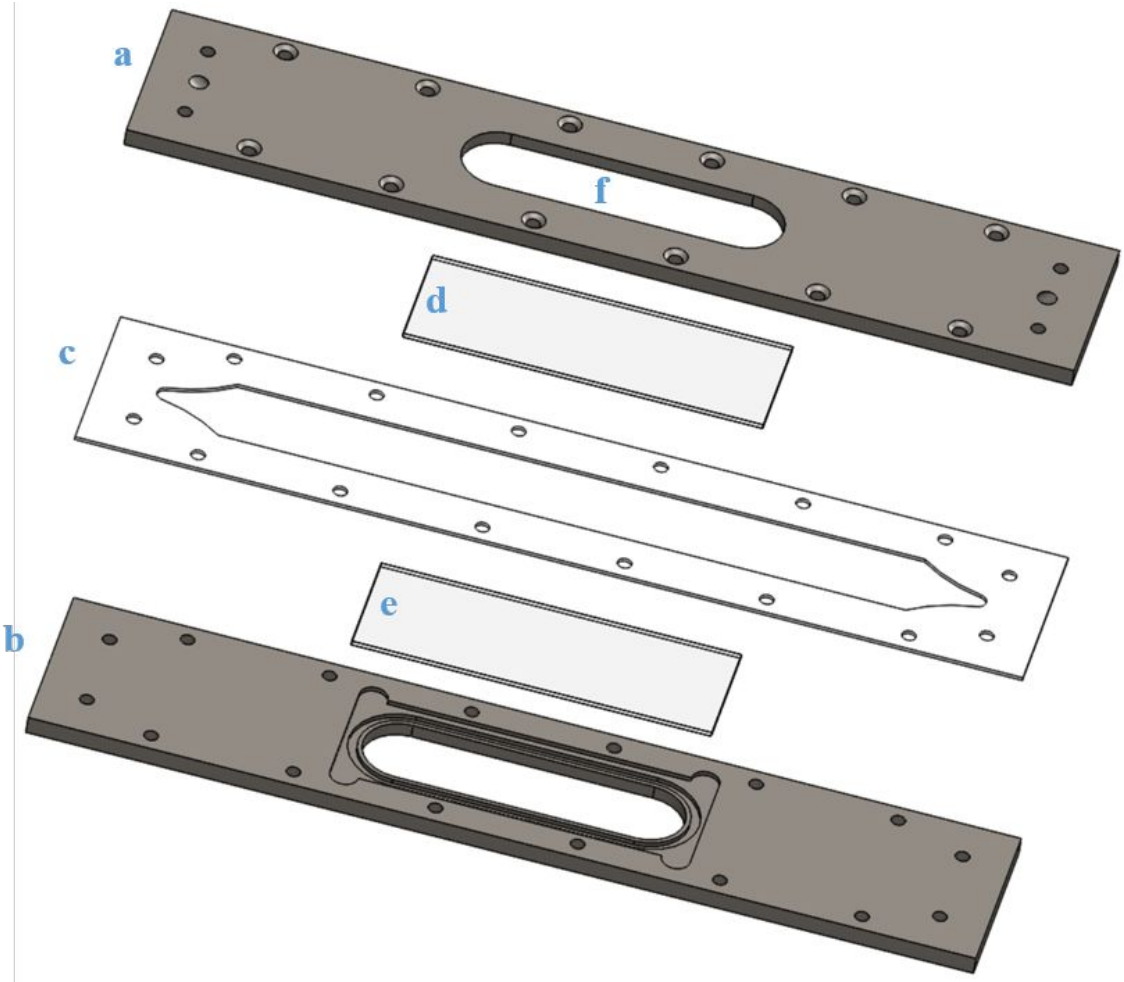
Bacterial adhesion on microgel coated glass surfaces was performed in a parallel plate flow chamber. The top glass and bottom microgel coated glass slides were fit in the middle of the stainless steel frames. Following, the flow chamber was assembled by placing a Teflon spacer (thickness 0.75 mm) between these stainless steel frames, with a defined cut-out that formed the chamber (width: 17 mm, length: 67 mm). Next, the chamber was connected to inlet and outlet tubings from the sides (Scheme S1). Before each experiment, the flow chamber and tubes were filled with PBS and all air bubbles were purged from the system.

The tube on the entrance side of the chamber was connected to the flasks containing bacterial suspension and PBS buffer, while the tube attached to the exit side of the flow chamber was connected to collecting flasks. A pulse-free flow was created by hydrostatic pressure and the suspension was recirculated by using a Multiperpex (Model 2115) peristaltic pump.

Prior to use, top glasses were washed with 2% Extran (Merck, Darmstadt, Germany) and sonicated for 5 min in 2% RBS35 (Omni Labo International BV, Breda, The Netherlands) afterwards rinsing with tap water, demineralized water, methanol, tap water and demineralized water. In addition, flow chamber was cleaned with 2% Extran and rinsed with tap water and demineralized water.

Scheme S1 Diagram of the parallel-plate flow chamber system

Exploded View



a and b: Stainless steel frames

c: Teflon spacer

d: Top glass slide

e: Bottom coated glass slide

f: Cut-out: Width: 17 mm, length: 67 mm, height: 0.75mm

Assembled Top View