Sensitivity Enhancement of Surface Plasmon Resonance Imaging by Nanoarrayed Organothiols

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Supporting Information:

Figure 1. Nanoarray fabrication steps and correspondent cyclic Voltammetry study comparing bare gold (dashed line) with the modified surfaces (solid line). (a) COOH functionalisation (b) Plasma etching through colloidal mask (c) COOH/PEO nanopattern.
Figure 2. AFM characterization of the Nanoarray: A- topography image (vertical scale 0-5 nm), inset 2D-FFT; B- phase image (colour scale: -2o to 1o), inset 2D-FFT; C- topography image after gold nanoparticles immobilisation (vertical scale 2-20nm). D- Height profile along the dashed line in Figure 2C.
Figure 3. Kinetics of the SPRi immunoreaction experiments for the uniform, nanoarrayed and non-crystalline patterned COOH surface. The SPR contrast images show the reflectance difference between the COOH region and the nanoarrayed region for the IgG absorption and the anti-IgG recognition.
Figure 4. (a) Plasmon resonance curves for the COOH surface before (solid line) and after (dashed line) IgG absorption. (b) Plasmon resonance curves for the nanoarrayed surface before (solid line) and after (dashed line) IgG absorption. The SPRi system measures the change in reflectivity at a fixed angle where the derivative of the curve is maximum. The higher the change in the resonance peak position, the higher the change of the reflectivity. The effect in the nanoarrayed surface is due to the coupling of the SPP with the PC, during the IgG absorption.
Figure 5. Reflectivity change for the Anti-IgG recognition (10µg/ml) and AFM topography image and corresponding FFT after the recognition for: Nanoarray (A); COOH (B); Non Crystalline pattern (C).