Supporting Information

A Step Closer to Membrane Protein Multiplexed Nano-Arrays Using Biotin-Doped Polypyrrole

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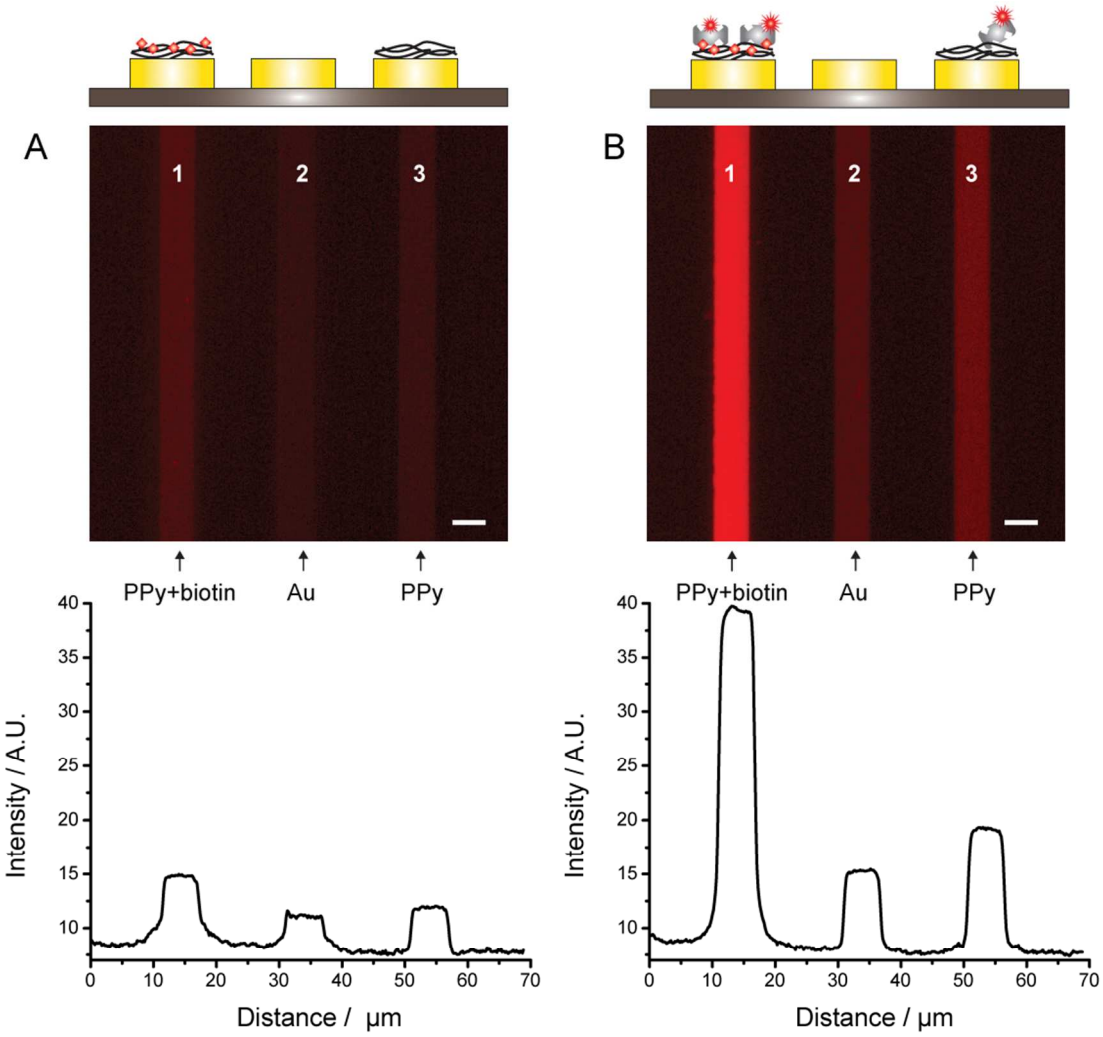
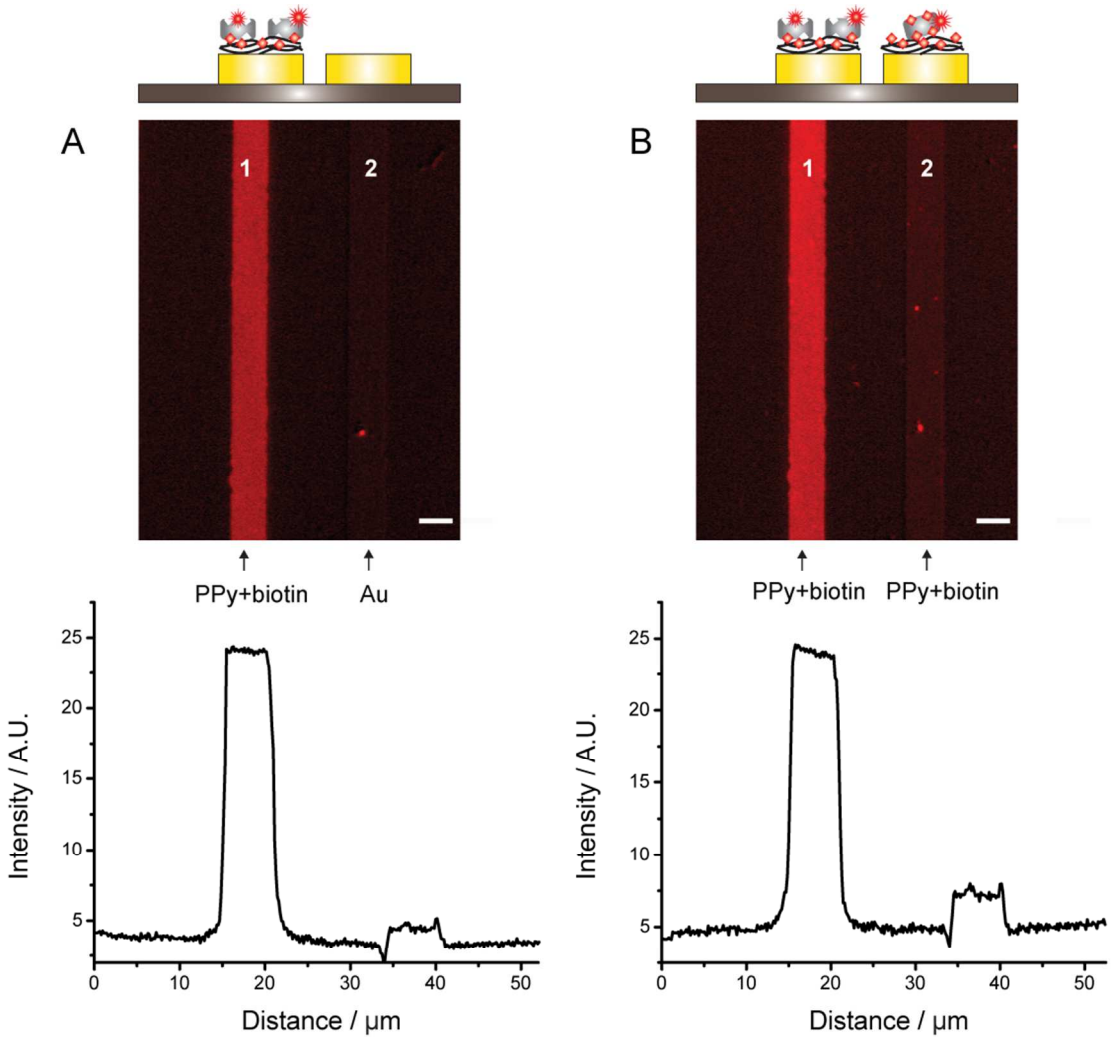
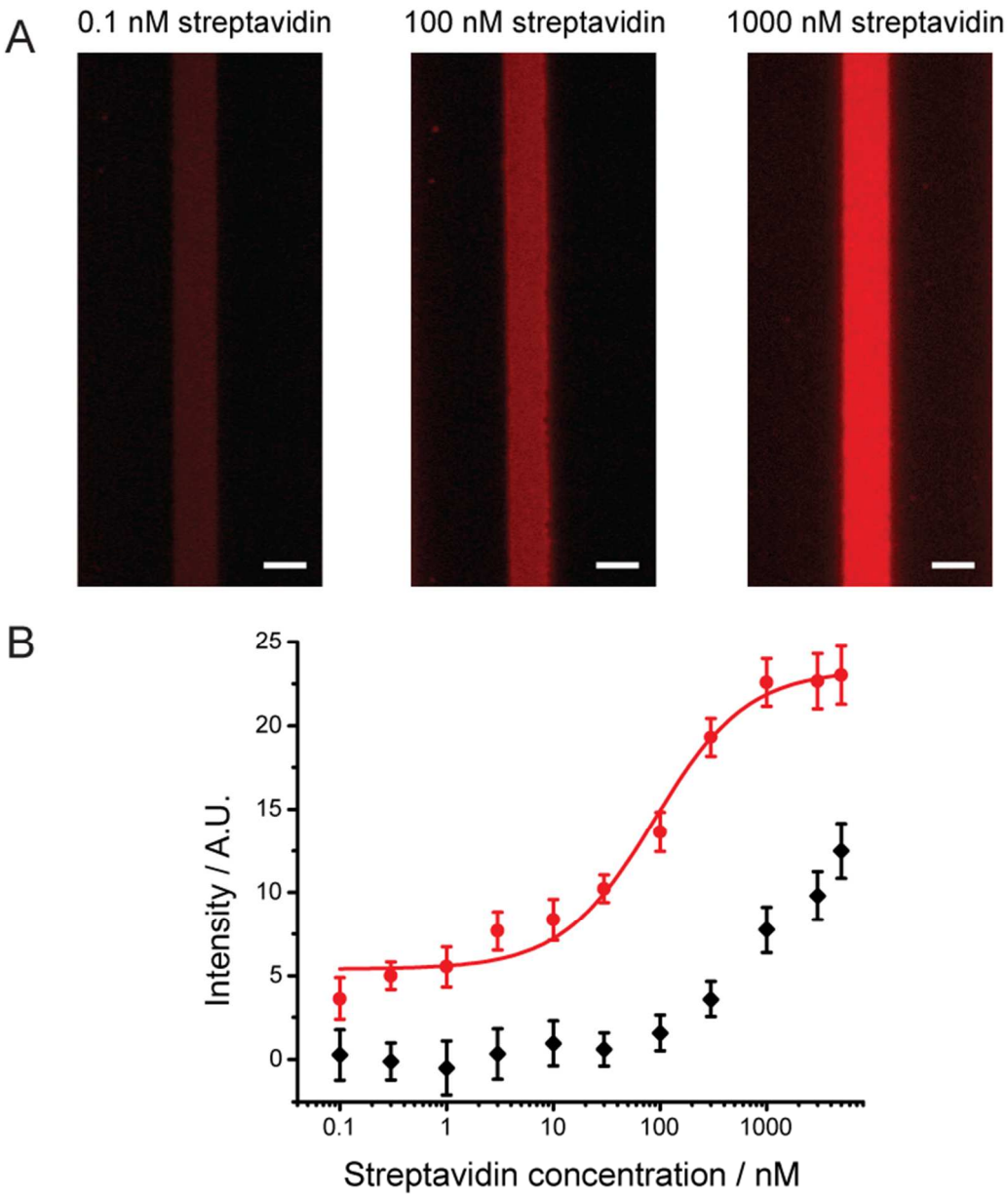


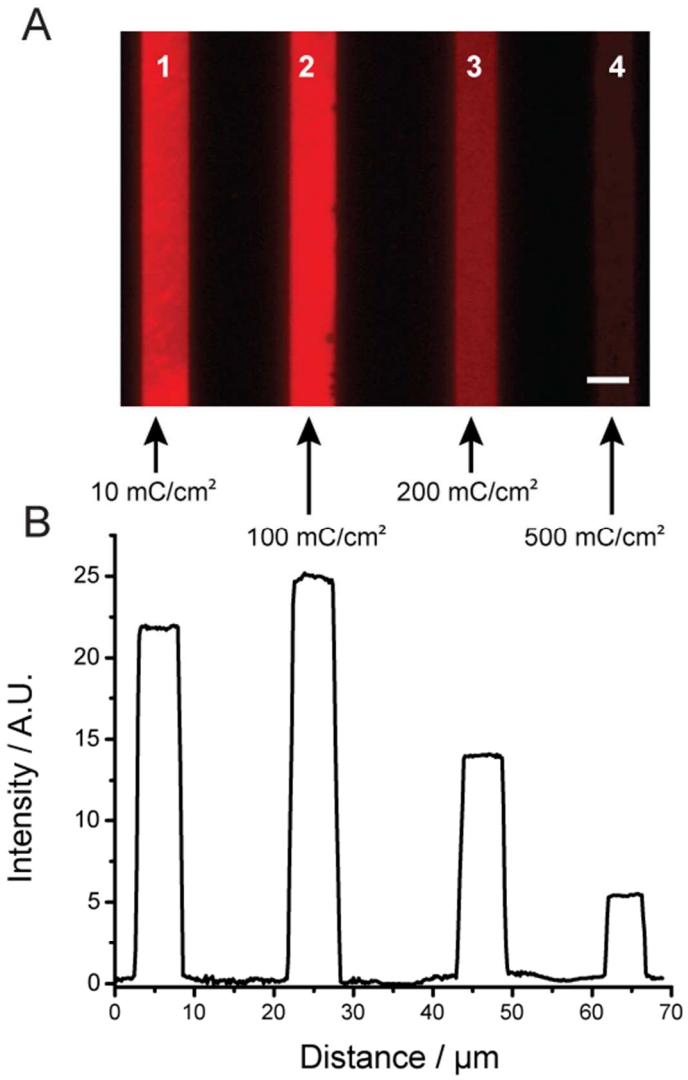
Supporting Figure 1. Immobilization of SA on PPy-biotin surfaces. Fluorescence images and line profiles of electrodes modified with either a PPy-biotin (1) or a PPy film (3) before (A) and after (B) incubation with 1 µM SA-647. Electrode 2 is bare gold. Scale bar is 5 µm.



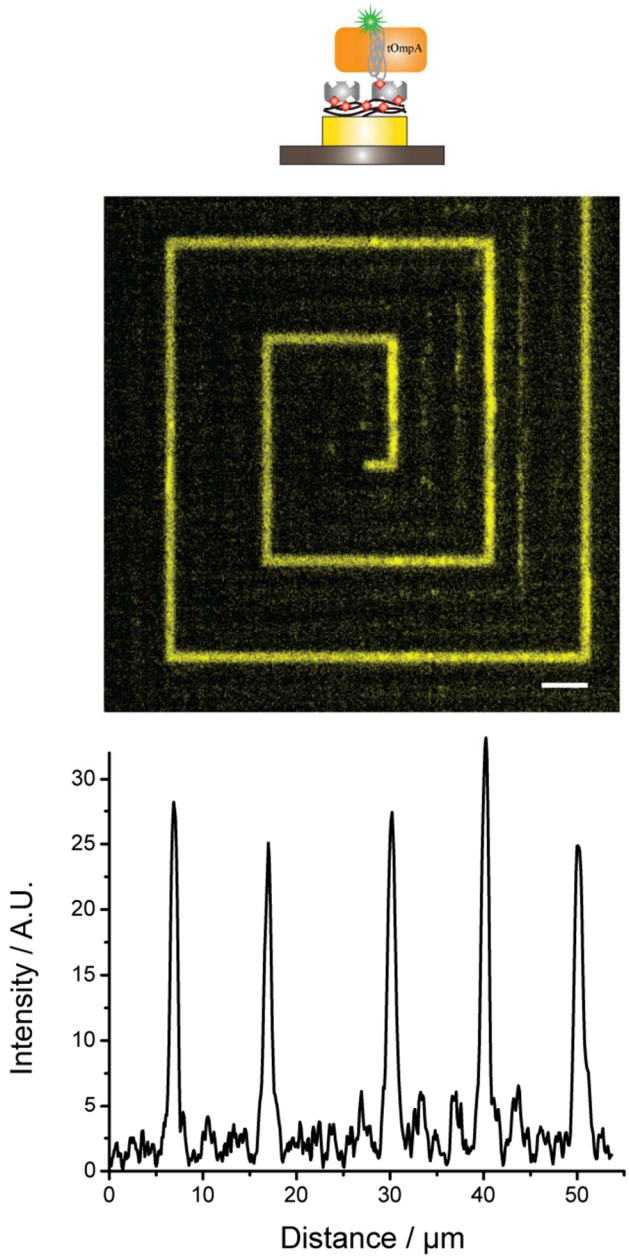
Supporting Figure 2. Non-specific binding of SA to PPy-biotin surfaces. (A) Fluorescence image and line profile of an electrode modified with PPy-biotin (1) and a bare gold electrode (2) after 30 min of incubation with 1 µM SA-647. (B) Electrode 2 was modified with a PPy-biotin film and the chip incubated for 30 min with 1 µM SA-647 pre-incubated with an excess of biotin for 1 h. Scale bar is 5 µm.



Supporting Figure 3. Binding curve of SA to PPy-biotin film. (A) Fluorescence images of an electrode modified with PPy-biotin after incubation with 0.1 nM, 100 nM and 1000 nM SA-647. Scale bar is 5 μm. (B) Binding curve of SA-647 to electrodes modified with either a PPy-biotin film (red dots) or a PPy film (black diamonds). Fitting the experimental data to Hill's equation (red line) yields K_D = 88±12 nM.



Supporting Figure 4. Control of the binding of SA to PPy-biotin surfaces. Fluorescence image of four electrodes modified with PPy-biotin films after incubation with 1 µM SA-647. The total charge deposited on the different electrodes is: 10 mC/cm^2 (electrode 1), 100 mC/cm^2 (electrode 2), 200 mC/cm^2 (electrode 3) and 500 mC/cm^2 (electrode 4). Scale bar is 5 µm.



Supporting Figure 5. Functionalization of nano-surfaces with MPs. Fluorescence image of a 200 nm-thick electrode after functionalization with a PPy-biotin film, incubation for 30 min with 1 µM SA and for 30 min with 1 µM tOmpA trapped in BAPol/FAPol$_{NBD}$. Scale bar is 5 µm. The line scale was evaluated across the center of the figure.