

## Supplementary Information

### Functionalization of Optical Nanotip Arrays with an Electrochemical Microcantilever for Multiplexed DNA Detection

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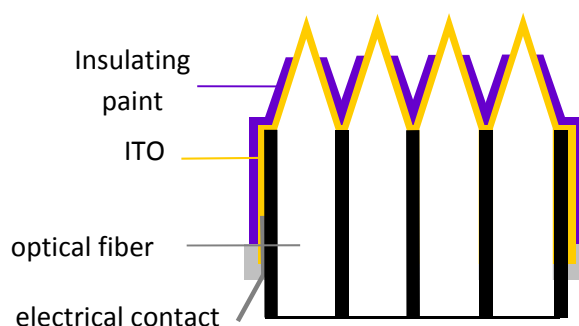


Fig. S1. Scheme of the nanoelectrode array based on an etched optical fiber bundle.

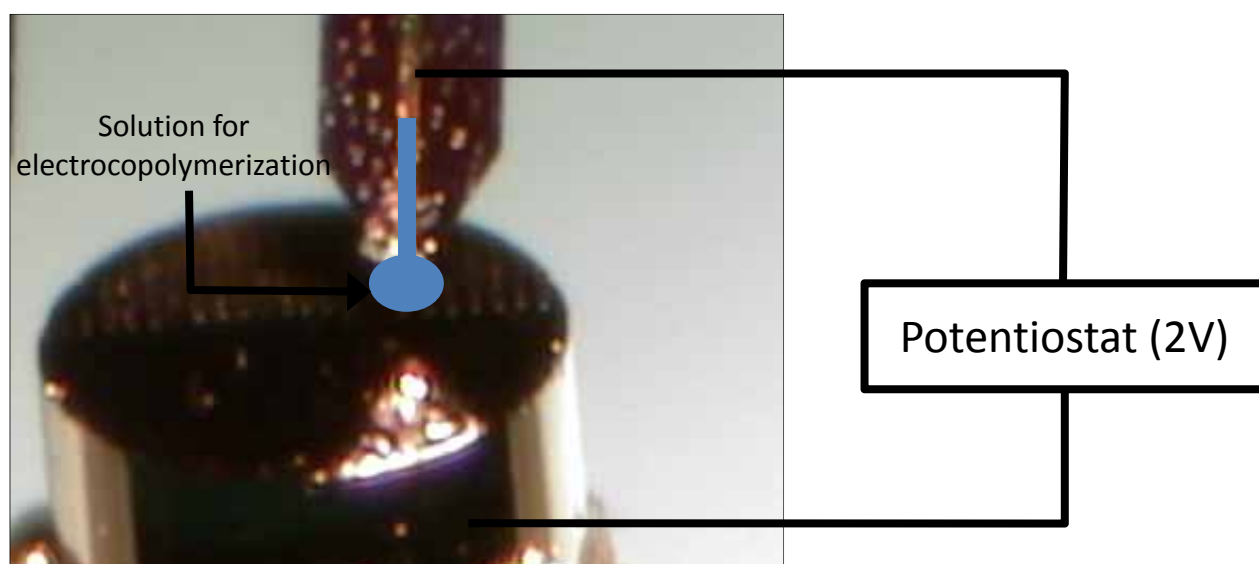


Fig. S2. Experimental setup for electrocopolymerisation of ODN. The microfluidic channel coated with gold is filled by capillarity with a solution containing the pyrrole and the ODN-modified pyrrole. A droplet is formed at the tip of the microcantilever and it is in contact with the etched gold-coated optical fiber bundle. It forms the electrochemical cell where a potential of 2 V is applied for 100 ms between both electrodes.

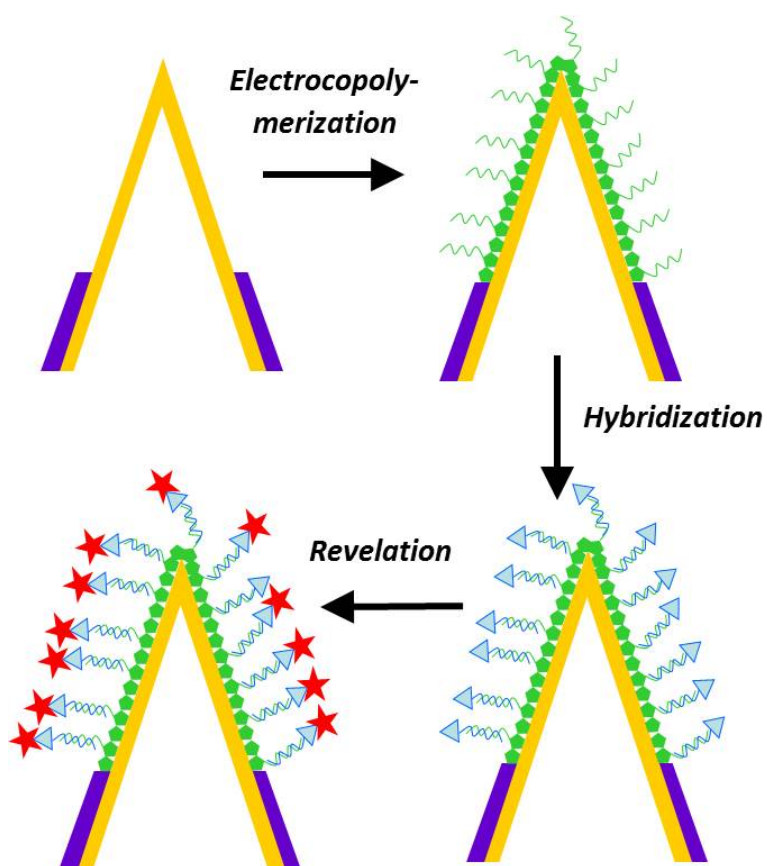


Fig. S3. Schematic illustration of the detection principle on a single nanotip electrode. 1) Electrocopolymerization. 2) Hybridization with the biotinylated complementary ODN-target. 3) Labelling with a fluorophore (streptavidin-R-phycoerythrin) and detection by fluorescence.

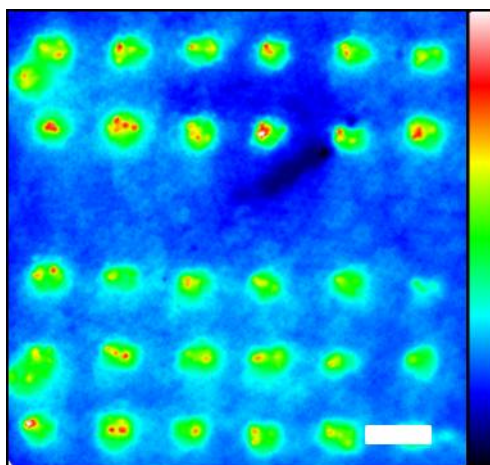


Fig. S4. Epifluorescent image showing the ODN spots immobilized on the gold-coated optical nanotip array. White bar: 25 μm.