Electronic Supplementary Material (ESI) for Analyst.

Supplementary Information for

Modification of Microfluidic Paper-Based Devices with Silica Nanoparticles

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Calculation of the Adsorption Rates. The adsorption rates described in the article correspond to three different zones identified in the dynamic adsorption experiment, which slopes were calculated using the least-square method. The first value ($d\Gamma/dt_0$), corresponds to an initial fast adsorption rate of GOx onto the bare surface of the silica wafer and was calculated with the first representative data points (<5) after the protein was introduced in the cell. The second value ($d\Gamma/dt_1$), corresponds to the change in the adsorption rate of GOx immediately after the fast process observed subsequently the injection of the enzyme. Finally, the third value ($d\Gamma/dt_2$) shows another slow adsorption process during the impinging of GOx on the silica substrate.

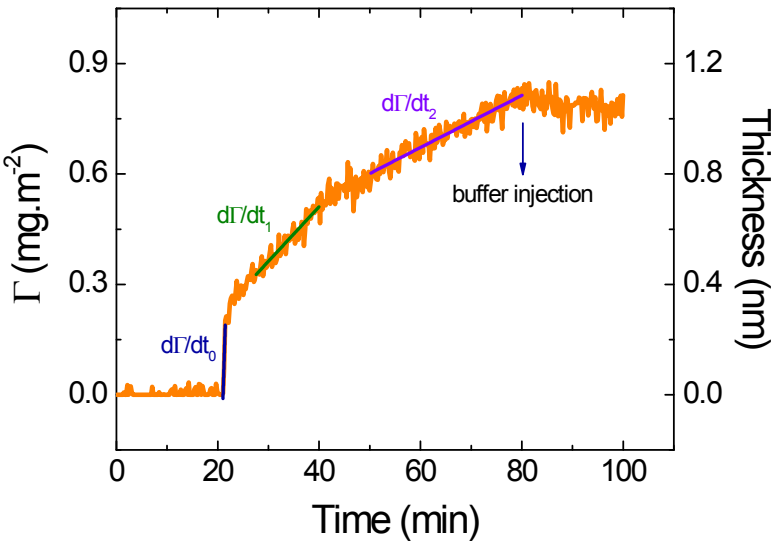

Figure SI 1: Calculation of the adsorption rates from the dynamic adsorption experiment on bare silica

wafer (information about the selected experimental conditions are included in Fig. 2 of the manuscript).

Color Intensity and Uniformity

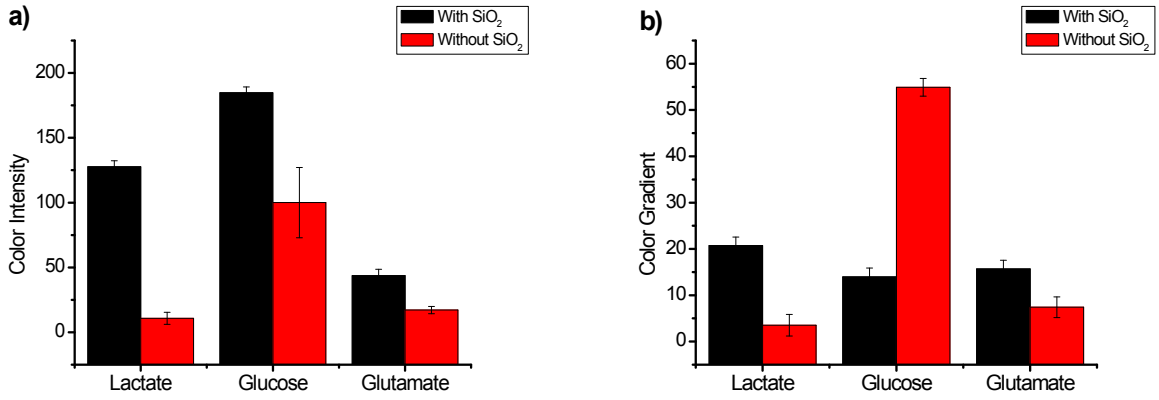

Figure SI 2: The analysis of a) color intensity and b) color gradient from µPAD images in Fig. 3 on native and silica-modified paper.