Supporting Information

Etched Glass Differential Resonance Microarrays for Enhanced Contrast and Sensitivity of SPR Imaging

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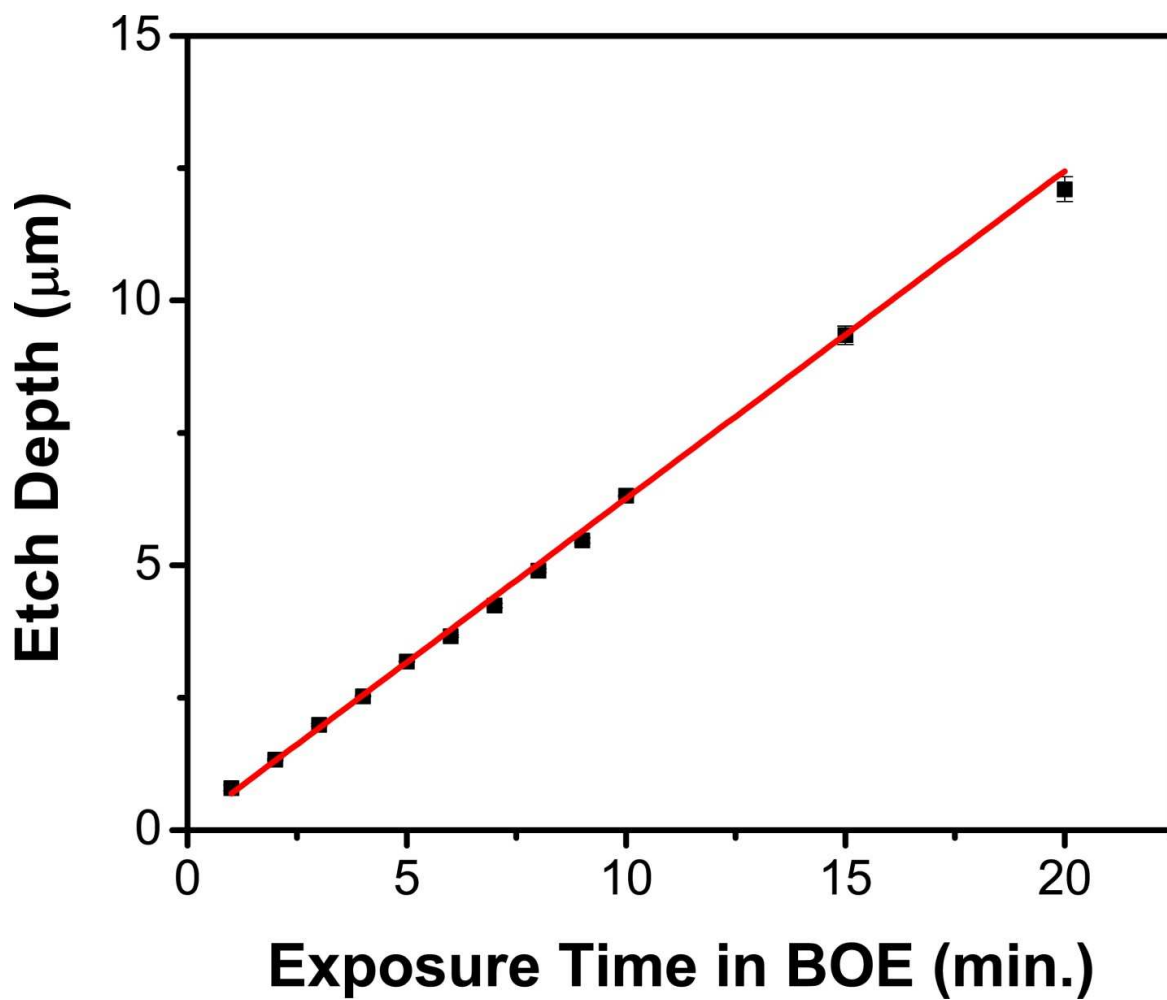Email: quan.cheng@ucr.edu

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Figure S1. Calibration curve of etch depth vs. exposure time in buffer oxide etchant (BOE) for the etched glass arrays. $R^2 = 1$ with an etchant rate of 0.62 μm/min.
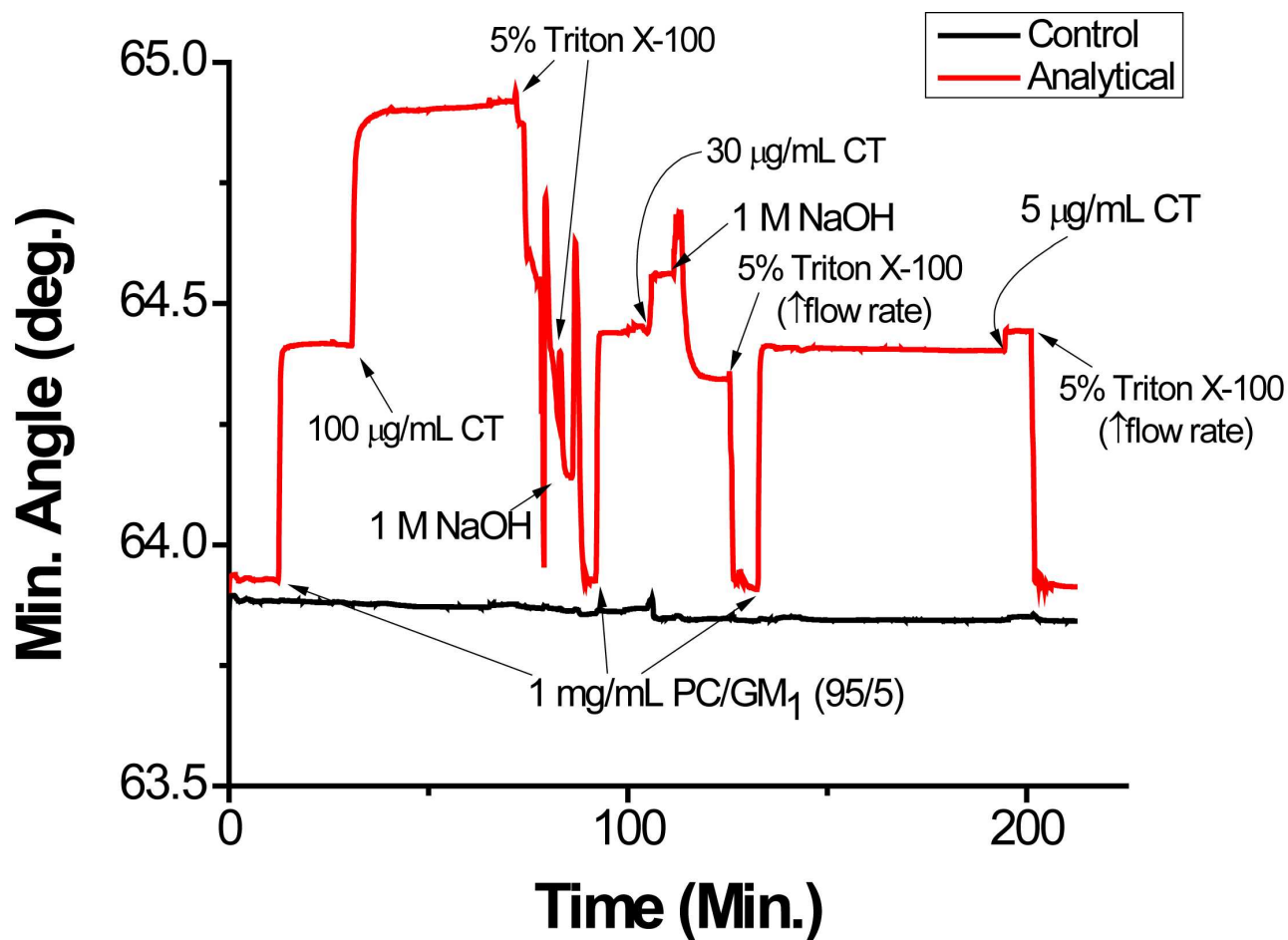
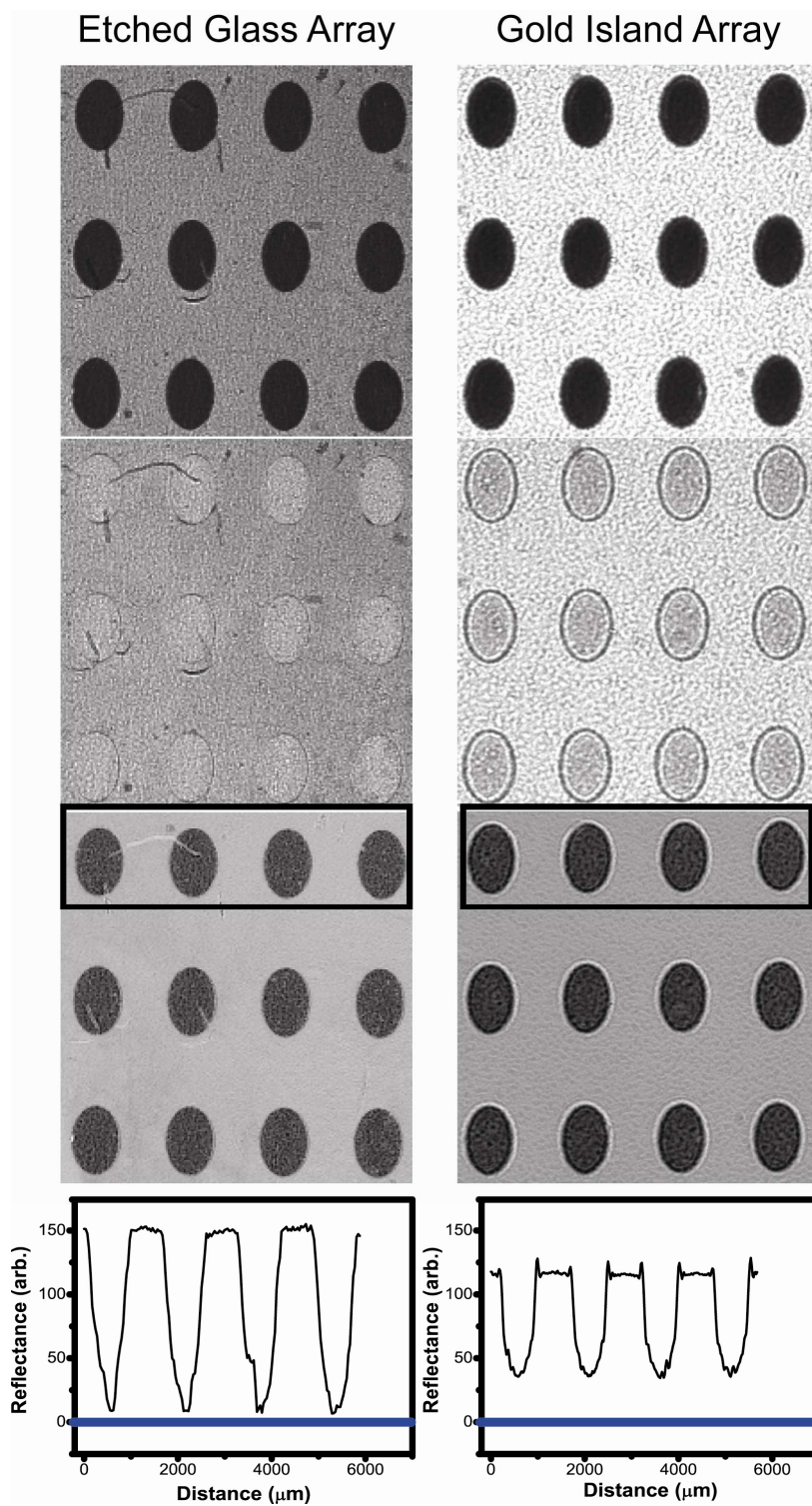Figure S2. SPR sensorgram of troubleshooting the stripping of protein/membrane from an SiO_2-coated gold chip.

Figure S3. SPR images of etched glass array (left) and gold island array (right) taken in air at ~ 38°. SPR images are taken in air with p-polarized (top image) and s-polarized (middle image) incident light, and the bottom images represent the difference images. The line profile (bottom) of the top row of each difference image (not background corrected) is depicted by a black rectangle for each array. The blue line indicates the zero background level.
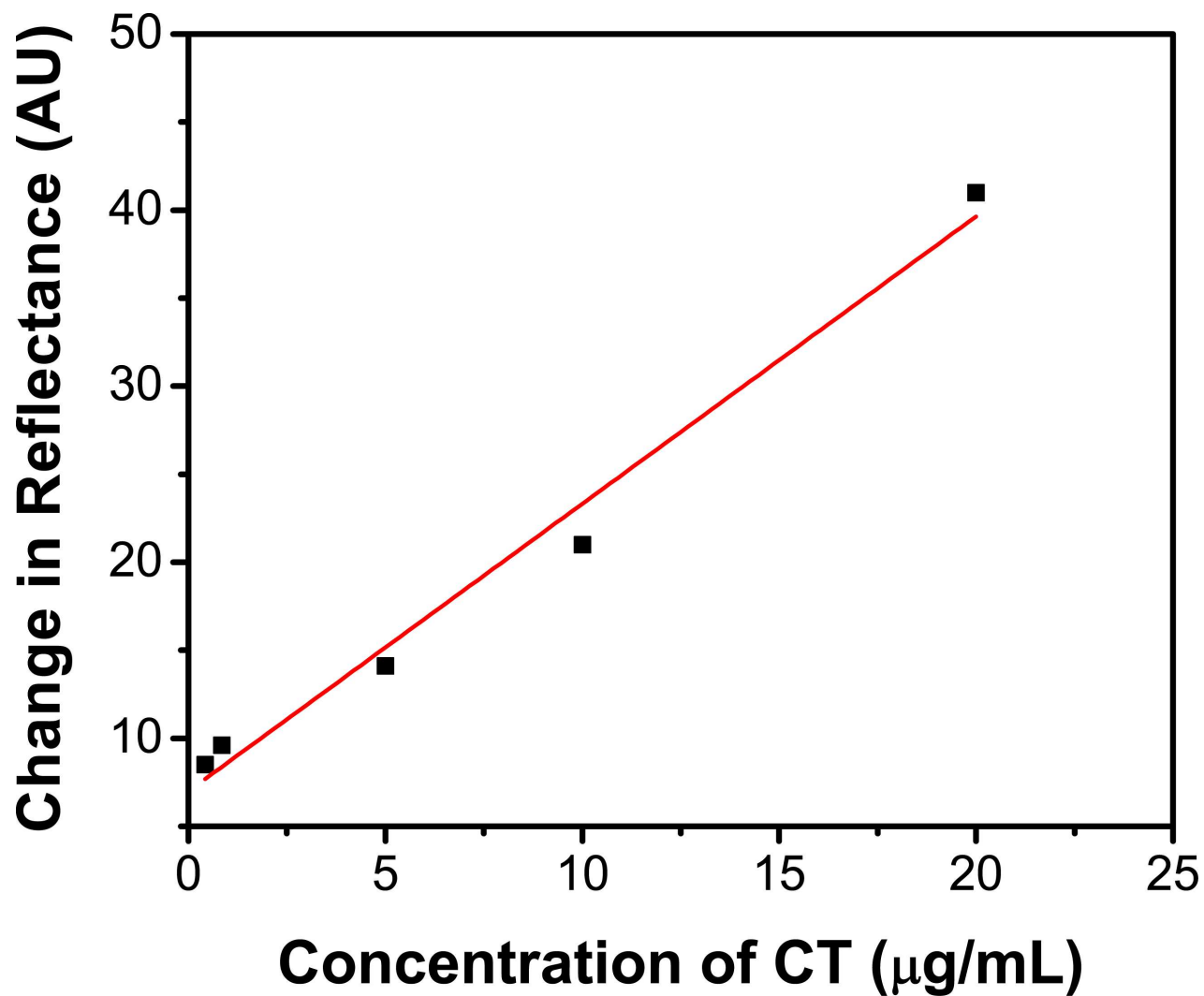
Figure S4. Calibration curve of CT binding to GM1 moiety in PC membrane on etched SiO_2-coated gold etched glass array under the SPR imaging mode.
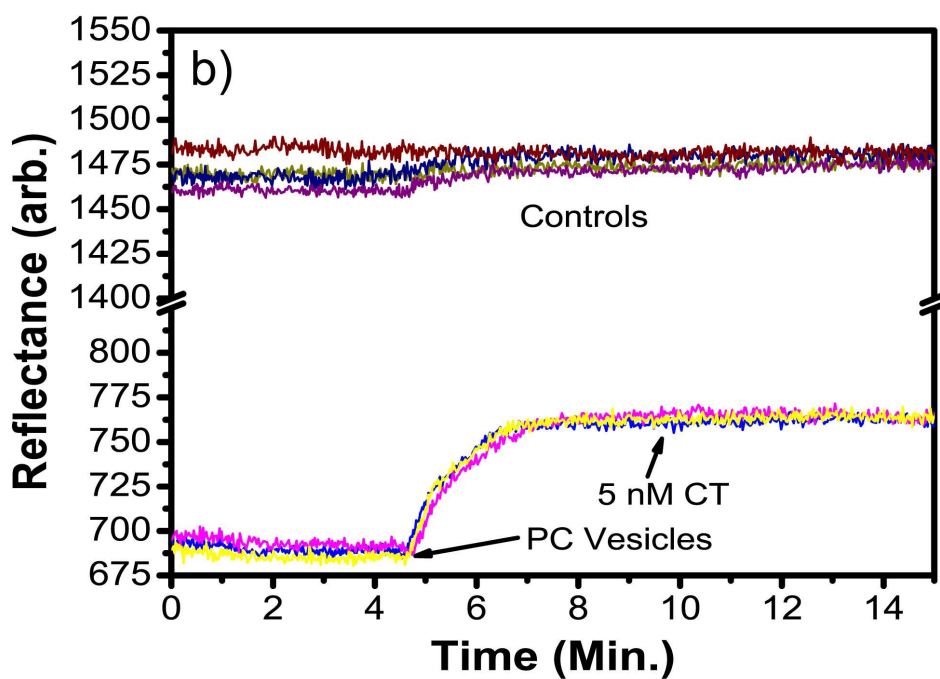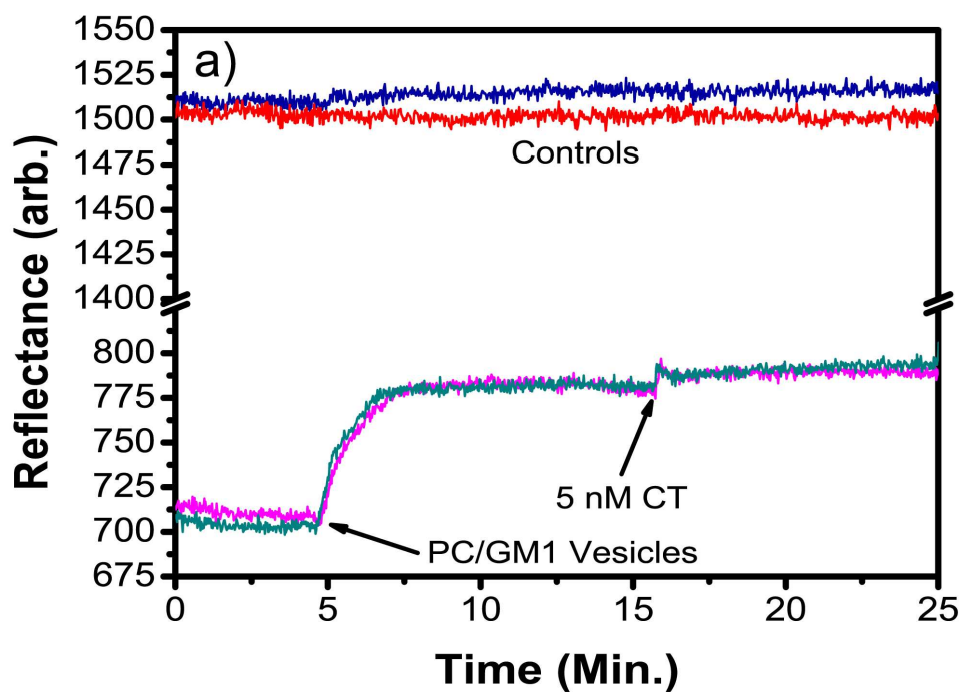
Figure S5. SPR sensorgrams from SPR imaging experiment on SiO$_2$-coated gold etched glass array. a) Binding signal for 5 nM CT on PC/GM1 membrane and b) signal for 5 nM CT on PC membrane without GM1.

Table S1. Electric field enhancement comparing planar chips (etch depth of zero) to etched glass chips coated with gold.

Etch Depth (μm)	Electric Field (arb.)	Field Enhancement
0	36.0	1
1	110.3	3.06
2	119.4	3.32
3	114.2	3.17
4	119.0	3.30
5	112.8	3.13

Table S2. Electric field values and measures of precision for a simulated 2 μm etched glass array.

Etch Width (μm)	Electric Field (arb.)	FWHM (deg.)
10	44.2	9.2
30	98.6	5.4
90	119.4	3.8