Electronic Supplemental Information

Localized Surface Plasmon Resonance (LSPR) biosensing using gold nanotriangles: Detection of DNA hybridization events at room-temperature

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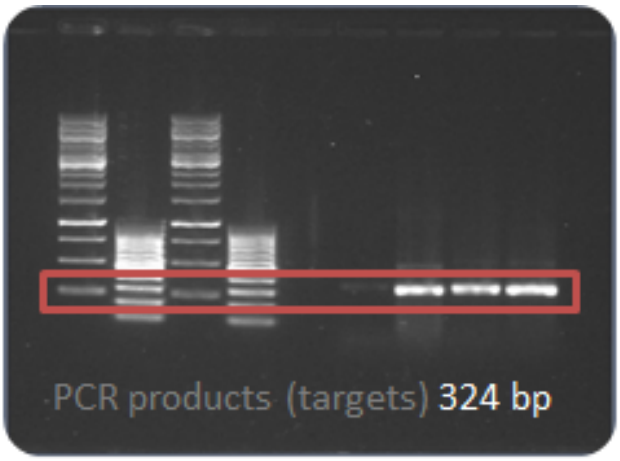
A



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B

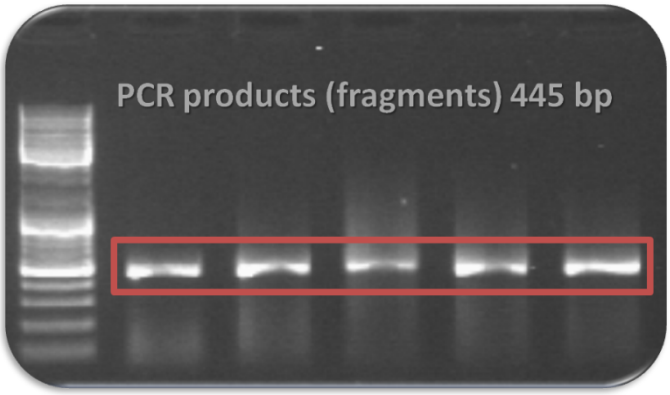

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Figure S1: 1.5% agarose purification gels and oligonucleotide sequences (represented 5' to 3'): forward sequence of 345 bp fragment of the MCM6 gene (A); and forward sequence of 455 bp fragment of the FTO gene (B). Agarose gels used GeneRuler 1kb DNA Ladder.

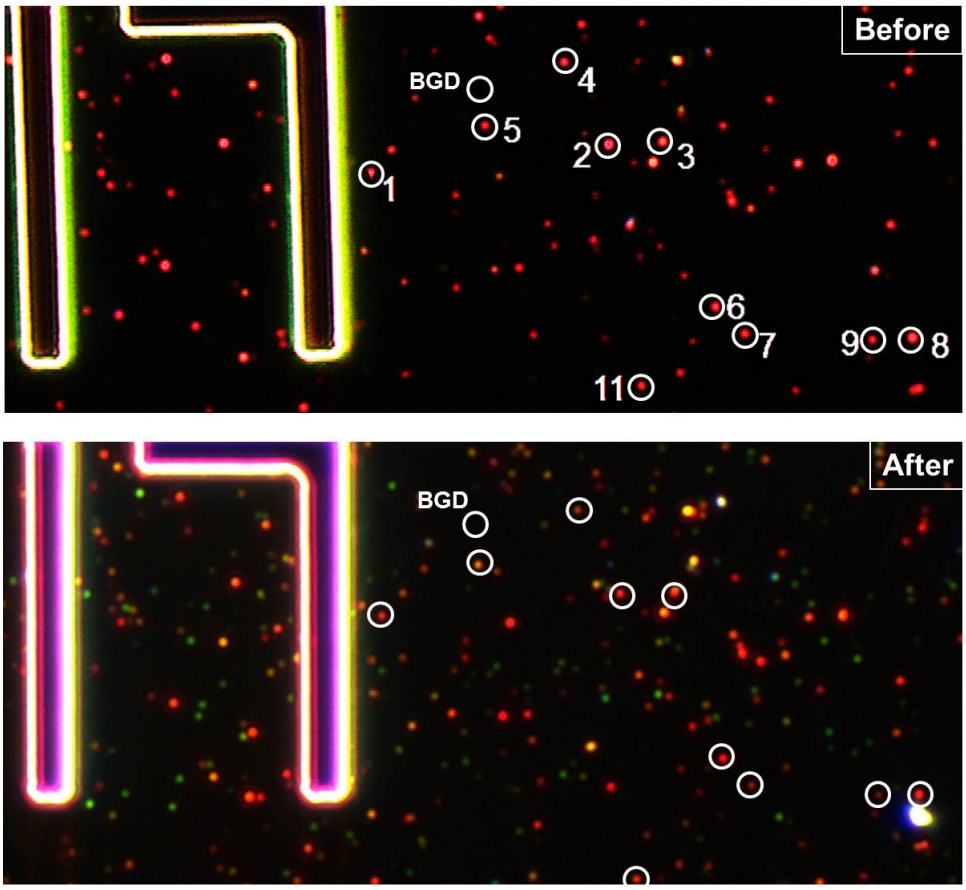

Figure S2: Captured microscope images of a chosen area of the grafted glass chip showing the process of AuNT selection before and after each treatment step. The grating was fabricated with a letter and a number in each grid, allowing tracing back of individual AuNTs. Circles around the bright red-dots refer to AuNTs (confirmed by AFM) with a well-defined location, and BDG is the site of measurement of background.

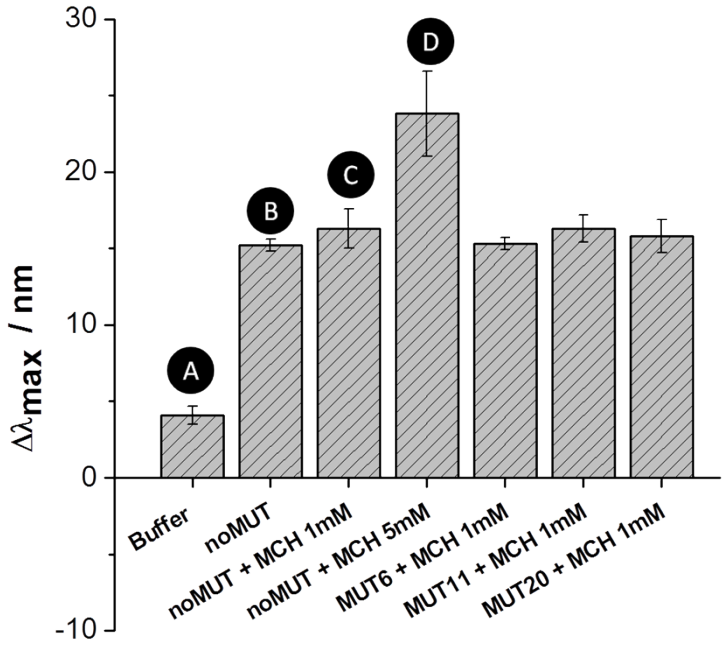

Figure S3: AuNTs plasmonic resonance shifts ($\Delta\lambda_{max}$) for the several steps of AuNT-probe preparation. Experimental conditions are, after an overnight incubation, in 1 M phosphate buffer (**A);** with 1 μM oligonucleotide noMUT (**B)**; with 1 μM oligonucleotide noMUT, post-1 hour incubation with 1 mM MCH (**C)**, or 5 mM MCH (**D)**. The last three bars on the right are for functionalization with oligonucleotides having a single base mutation (MUT6, MUT11, and MUT20), post-1 hour incubation with 1 mM MCH. Each bar represents the average signal for 12 AuNTs. All shifts are relative to CTAB-capped AuNTs.

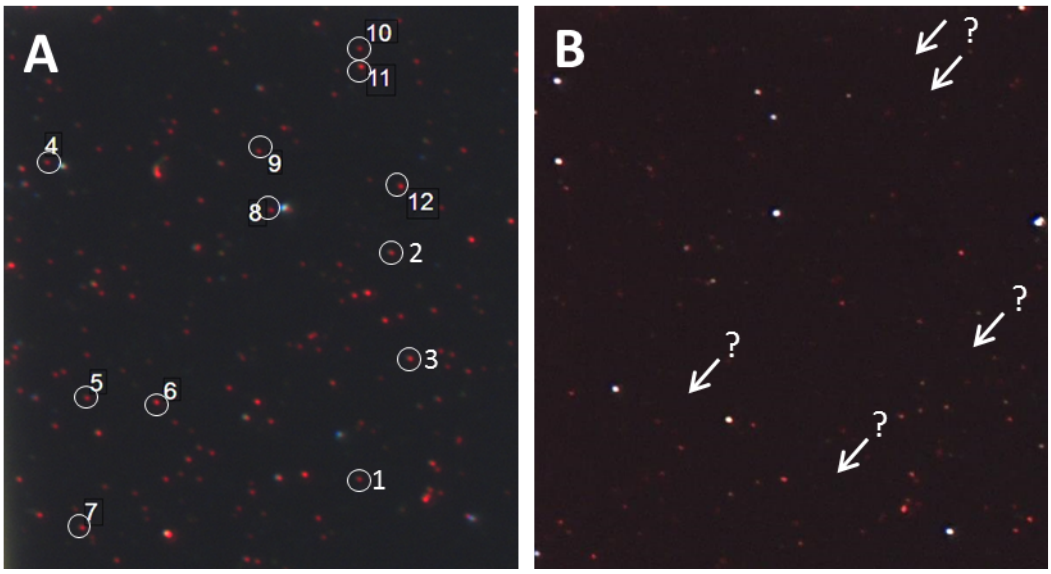

Figure S4: Captured microscope images of a chosen area of the grafted glass chip showing the process of AuNT selection, before and after being submitted to high temperature (59 ºC) conditions. **(A)** Image obtained at room temperature. Circles around the bright red-dots refer to AuNTs with well-defined locations. **(B)** Image obtained at 59 ºC. Most of the selected AuNTs disappear or are displaced.

Table S1: AuNTs plasmon resonance shifts (wavelength shift - $\Delta\lambda_{max}$ - of the normalized scattering intensity) after hybridization with synthetic targets; for 1 mM and 5 mM MCH concentration during probe preparation; 2 or 3 hours hybridization incubation times and SSC concentration stringency conditions. Each result represents the average signal for 12 AuNTs.

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[SSC] *(2h at 25°C; 5 mM MCH)*	**Synthetic DNA Target**	**Resonance Shifts (nm)**
5X	Complementary	2.1 ± 0.8
	Non-Complementary	-5.4 ± 1.2
2X	Complementary	N.D.*
	Non-Complementary	N.D.*
(2h at 37°C; 5 mM MCH)		
5X	Complementary	20.3 ± 2.3
	Non-Complementary	-2.5 ± 1.2
2X	Complementary	24.3 ± 5.0
	Non-Complementary	-1.7 ± 0.8
(3h at 25°C; 5 mM MCH)		
5X	Complementary	17.3 ± 4
	Non-Complementary	-2.6 ± 0.9
2X	Complementary	25.1± 4.4
	Non-Complementary	-1.7 ± 0.8
(3h at 25°C; 1 mM MCH)		
5X	Complementary	33.5 ± 2.9
	Non-Complementary	-1.2 ± 1.7
2X	Complementary	34.7 ± 2.6
	Non-Complementary	0.98 ± 0.5

* N.D. – not determined