Supporting information

Blocking probe as a potential tool for detection of single nucleotide DNA mutations: design and performance

M. Ali Aboudzadeh,[a] María Sanromán-Iglesias,[b] Charles H. Lawrie,[c,e] Marek Grzelczak,[b,d,e] Luis M. Liz-Marzán [b,d,e] and Thomas Schäfer [a,e,*]

[a] Polymat, University of the Basque Country, 20018 Donostia-San Sebastián, Spain

[b] CIC biomaGUNE, Paseo de Miramón 182, 20009 Donostia-San Sebastián, Spain

[c] Molecular Oncology Group, Biodonostia Research Institute, 20014 Donostia-San Sebastián, Spain

[d] CIBER de Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), 20009 Donostia-San Sebastián, Spain

[e] Ikerbasque, Basque Foundation for Science, 48013 Bilbao, Spain

[*] ***E-mail:*** ***thomas.schafer@ehu.es***

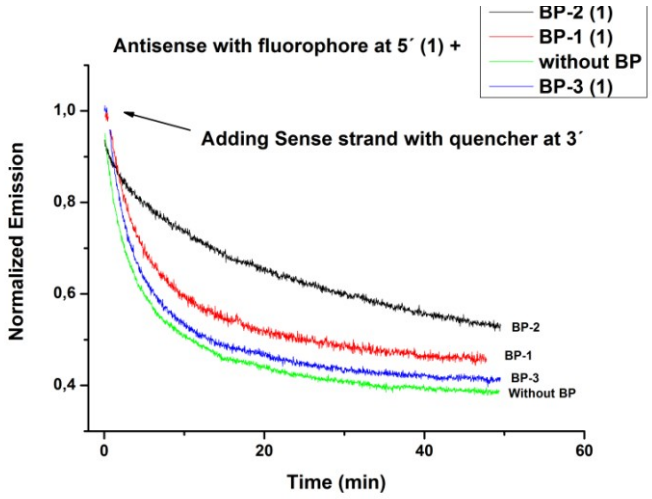

Fig. S1. Fluorescence emission versus time for three blocking probes (BP1, BP2 and BP3) when they are in equimolar amount with antisense in the cuvette.

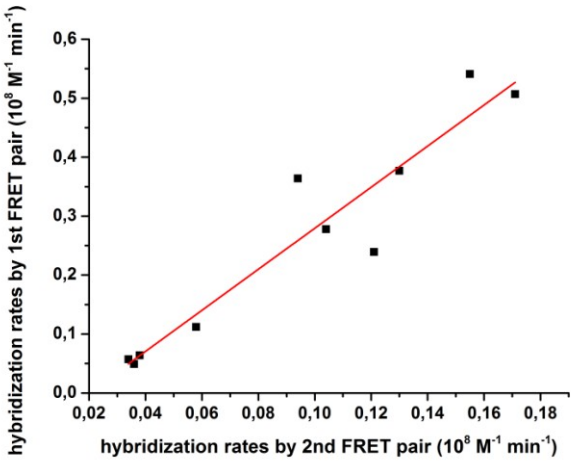

Fig. S2. Hybridization rate obtained through the second FRET pair against the rates obtained using the first FRET pair. Red A linear fit with a slope equal to 3.48 was obtained.

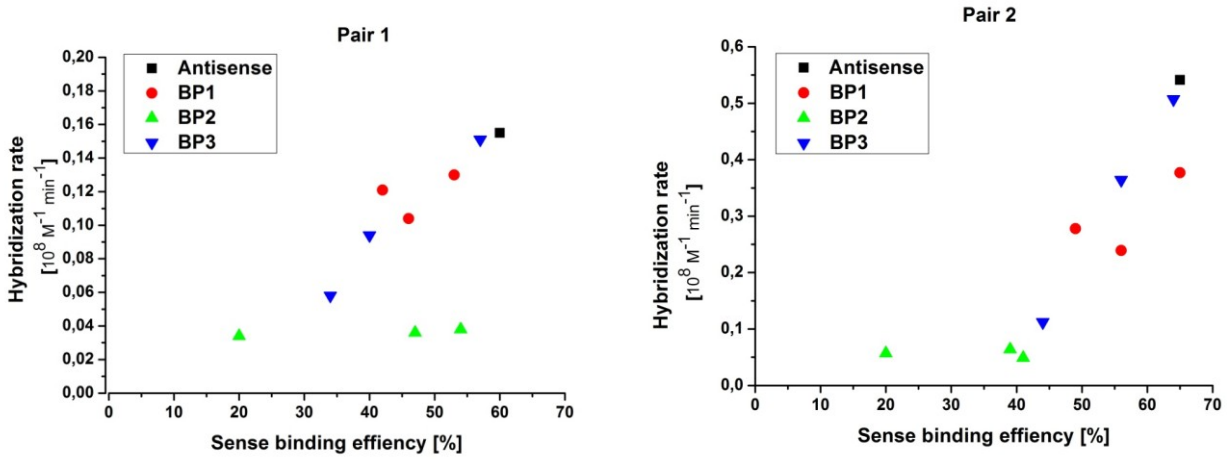

Fig. S3. Hybridization rate of antisense with sense strand (in absence and presence of blocking probe) as a function of sense binding efficiency. (data for this figure were collected from **Table 2**)

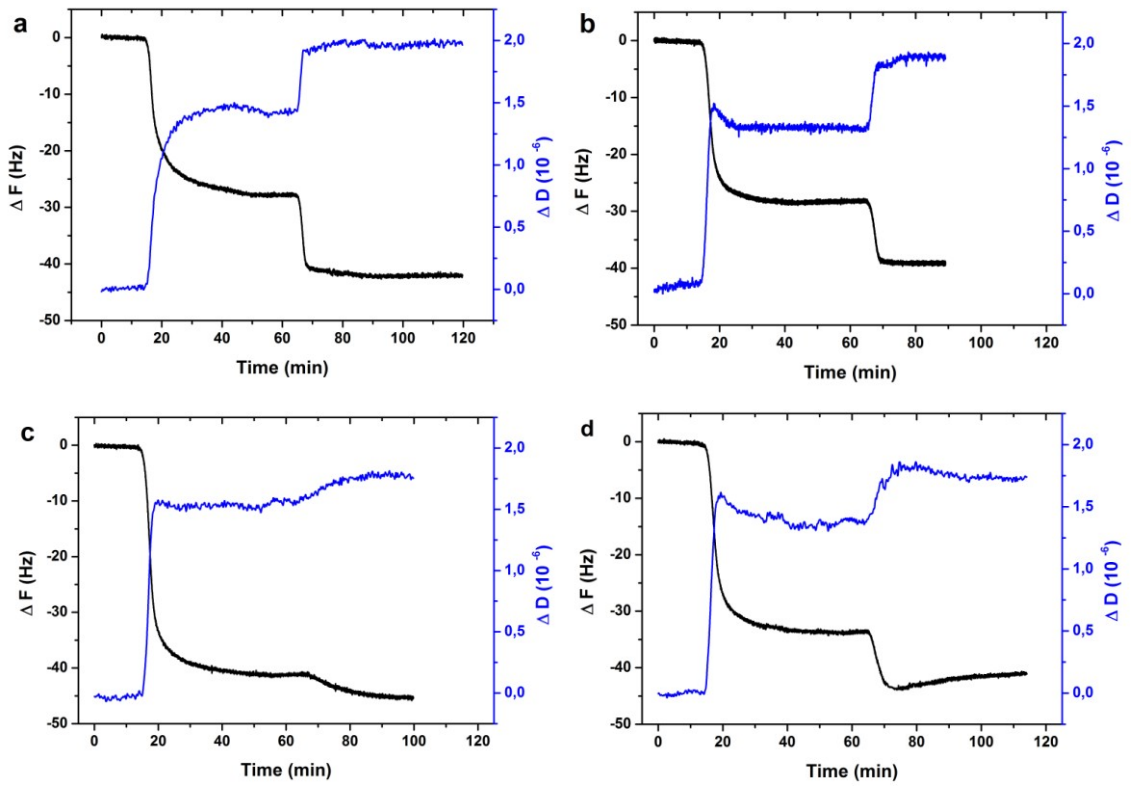

Fig. S4. Frequency (black) and dissipation factor (blue) shifts (overtones 5) as function of time observed in situ by QCM-D for each combination of antisense and blocking probes listed in Scheme 1 (**a**, **b**, **c** and **d**) and the subsequent hybridization of sense strand to the immobilized monolayer.

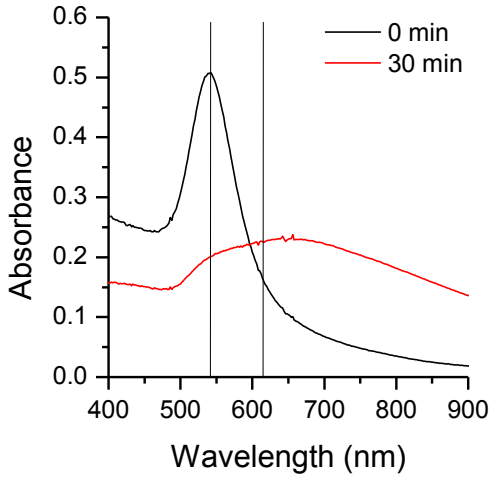

Fig. S5. UV-Vis spectra of the mixture containing gold nanoparticles and sense sequence (case e in **Figure 4**). Vertical lines indicate the wavelengths from which the aggregation rate was estimated.