

Supplement Materials

Highly Sensitive Detection of Protein Toxins by Surface Plasmon Resonance with Biotinylation-Based Inline ATRP Amplification

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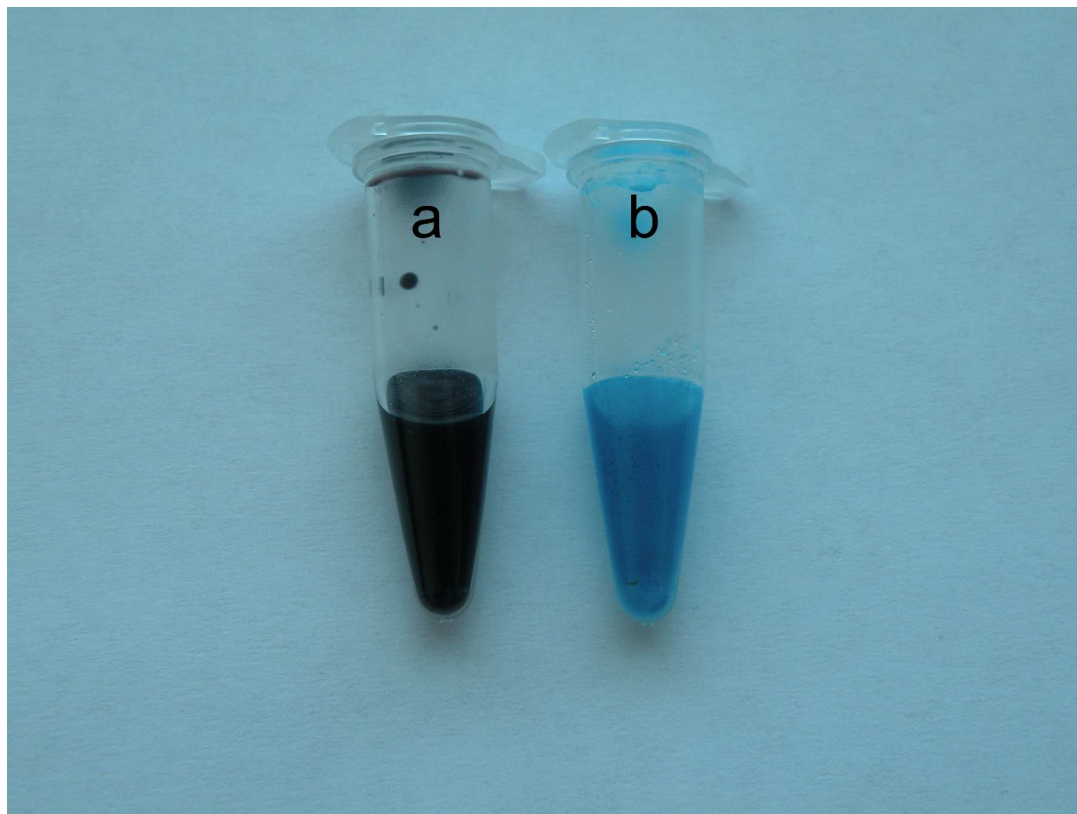


Figure 1S. Photos of (a) an ATRP catalyst solution in presence of AA (CuBr:2,2'-bipyridine:AA, 1:2:1.5 molar ratio) that remains the original dark brown color for a long period of time in air (b) a deactivated ATRP catalyst solution in absence of AA (CuBr:2,2'-bipyridine, 1:2 molar ratio) that generates precipitate in air.

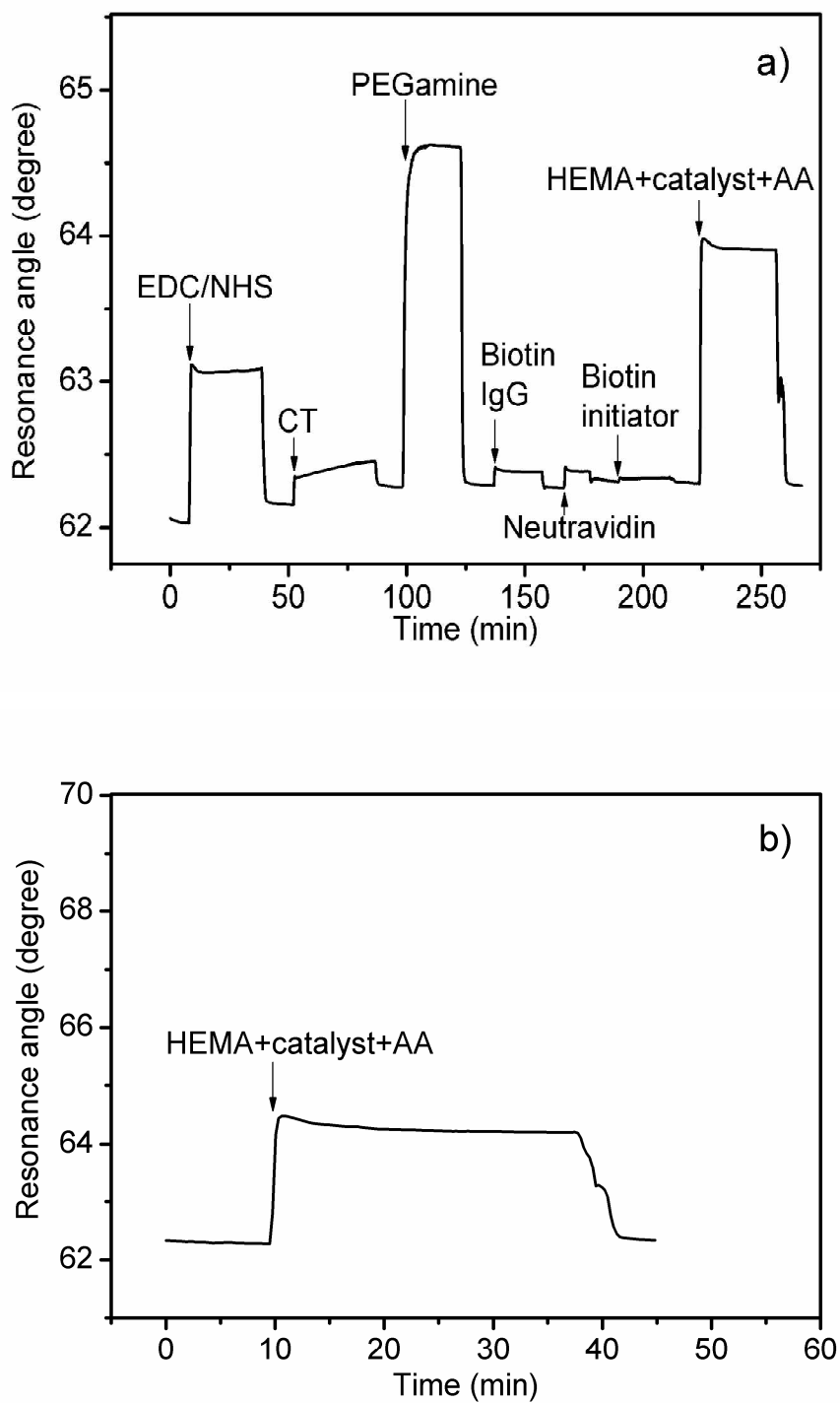


Figure 2S. SPR sensorgrams for a control experiment with biotin IgG incubating with 2.92×10^{-12} mol/cm² of CT immobilized on the surface after (a) first step ATRP and (b) second step ATRP amplification.

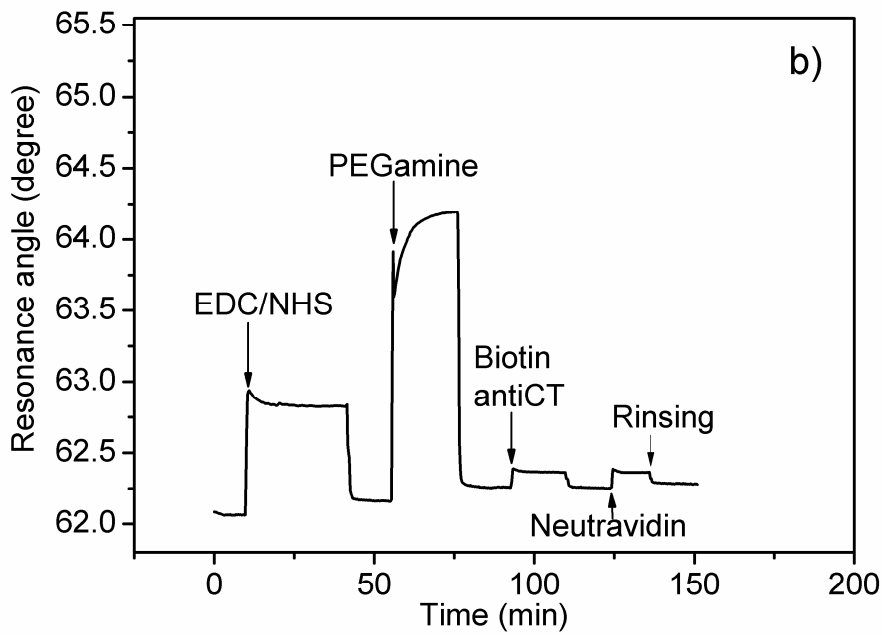
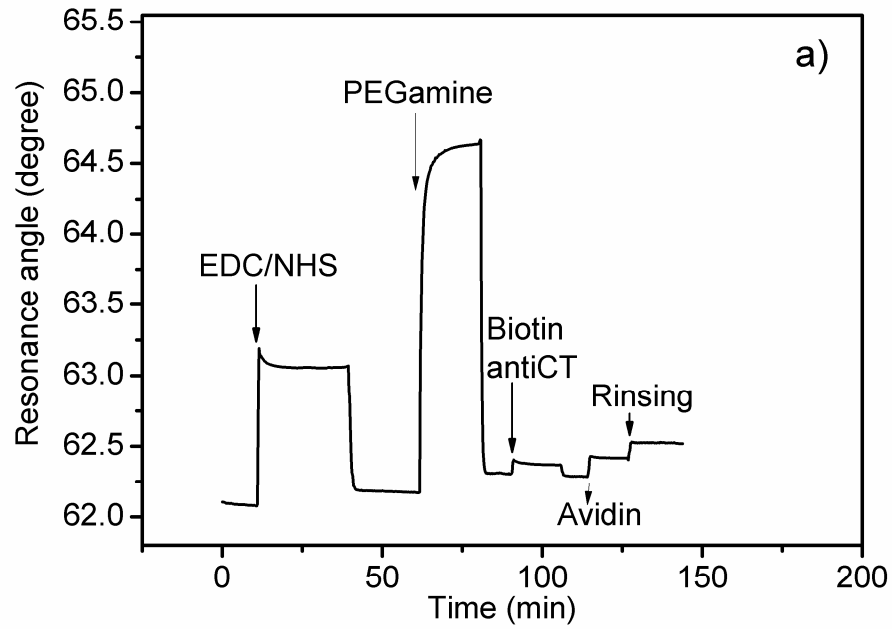


Figure 3S. SPR sensorgrams showing the nonspecific adsorption of (a) avidin and (b) neutravidin on PEGamine passivated surfaces.

Determination of low CT surface coverage:

The surface coverage of CT was determined by SPR angular shift with Jung's formula (Jung, L. S.; Campbell, C. T.; Chinowsky, T. M.; Mar, M. N.; Yee, S. S. *Langmuir* **1998**, *14*, 5636-5648). When the CT surface coverage was smaller than 2.78×10^{-13} mol/cm², the SPR signal was too small to allow direct measurement. Therefore the SPR readings after neutravidin binding for known surface coverage were used to build another calibration curve. Extrapolation of this linear relationship to the lower range was used for obtaining the surface coverage for three data points at 9.48×10^{-14} mol/cm², 4.17×10^{-14} mol/cm², and 8.23×10^{-15} mol/cm².