

Electronic supplementary information for

Robust clicked assembly based on iron oxide nanoparticles for a new type of SPR biosensor

Mathias DOLCI,¹ Jean-François BRYCHE,^{2,3} Cedric LEUVREY,¹ Spyridon ZAFEIRATOS,⁴ Simon GREE,⁵
Sylvie BEGIN-COLIN,¹ Gregory BARBILLON,^{2,6} Benoit P. PICHON ^{*,1,7}

¹ Université de Strasbourg, CNRS, Institut de Physique et Chimie des Matériaux de Strasbourg, UMR 7504, F-67000 Strasbourg, France

² Centre de Nanosciences et de Nanotechnologies, CNRS, Univ. Paris Sud, Université Paris Saclay, C2N-Orsay, 91405 Orsay, France

³ Laboratoire Charles Fabry, Institut d'Optique Graduate School, Univ. Paris Sud, Université Paris Saclay, 91127 Palaiseau, France

⁴ Université de Strasbourg, CNRS, Institut de Chimie et Procédés pour l'Energie, l'Environnement et la Santé, UMR 7515, F-67000 Strasbourg, France

⁵ Institut de Science des Matériaux de Mulhouse, UMR 7361, CNRS-Université de Haute-Alsace, Mulhouse 68057, France

⁶ EPF-Ecole d'Ingénieurs, 3 bis rue Lakanal, 92330 Sceaux, France

⁷ Institut Universitaire de France

*Corresponding Author

E-mail : benoit.pichon@unistra.fr

Tel: 0033 (0)3 88 10 71 33, Fax: 0033 (0)3 88 10 72 47

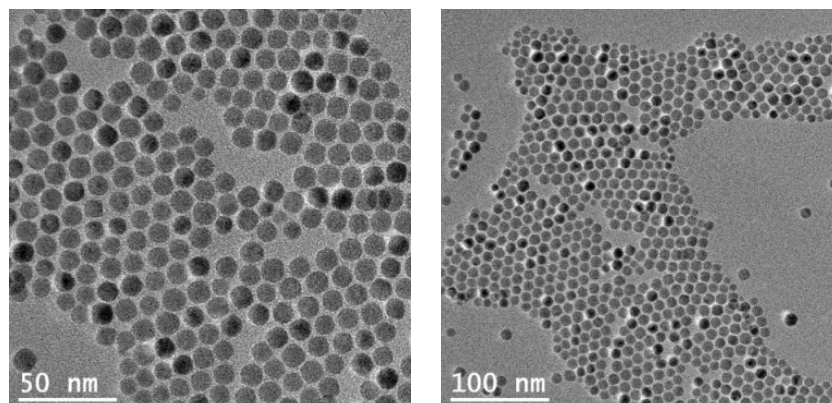


Figure S1. TEM micrographs of iron oxide nanoparticles.

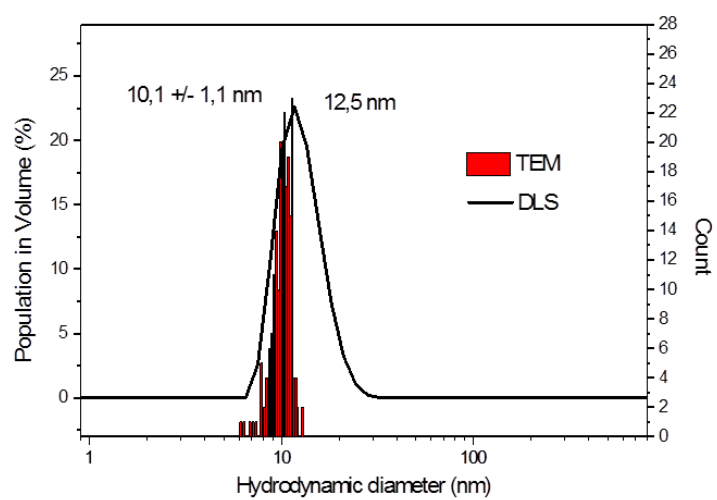


Figure S2. Nanoparticle size distribution measured from TEM micrographs and hydrodynamic diameter distribution measured by granulometry.

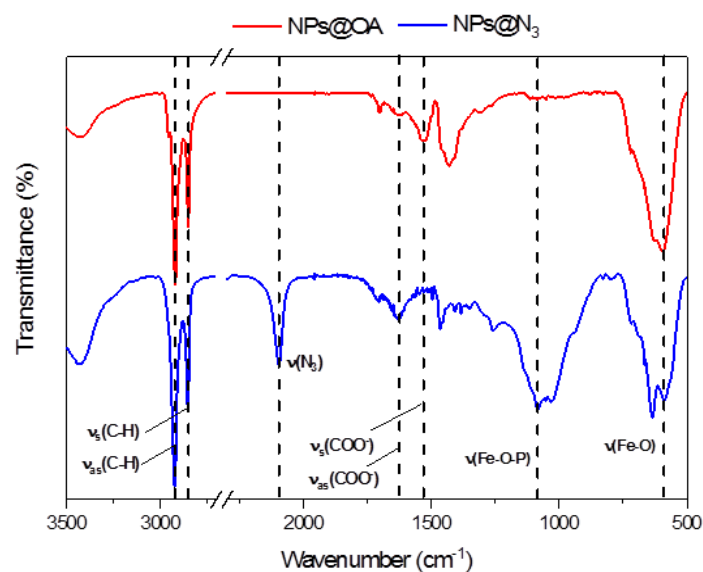


Figure S3. Fourier Transform Infrared (FT-IR) spectra of nanoparticles with oleic acid (red curve) and after functionalization with 12-azidodecyl phosphonic acid (blue curve).

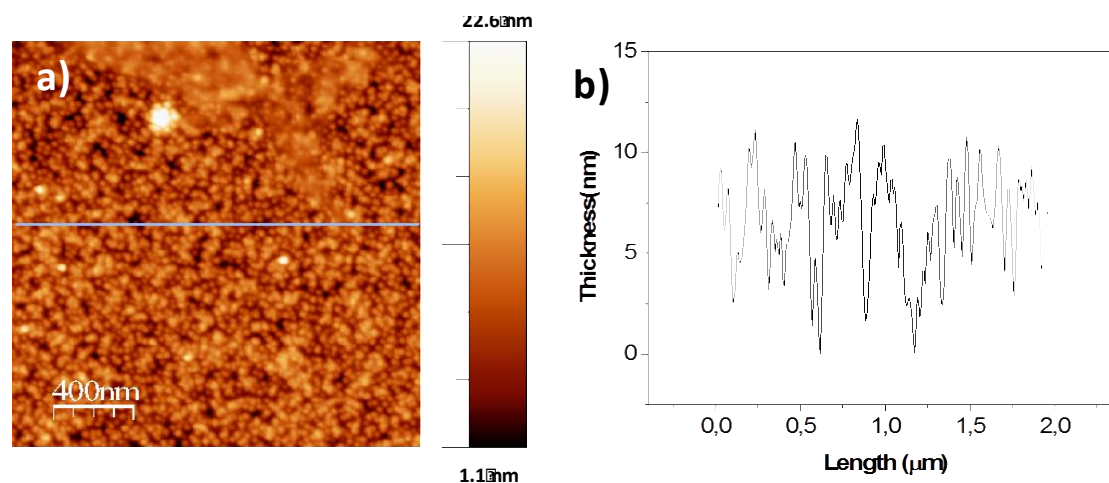


Figure S4. a) AFM height image of a gold substrate covered with azide-terminated nanoparticles corresponding to 15 % of a full monolayer. b) the profile cross section corresponding to the grey line in a).

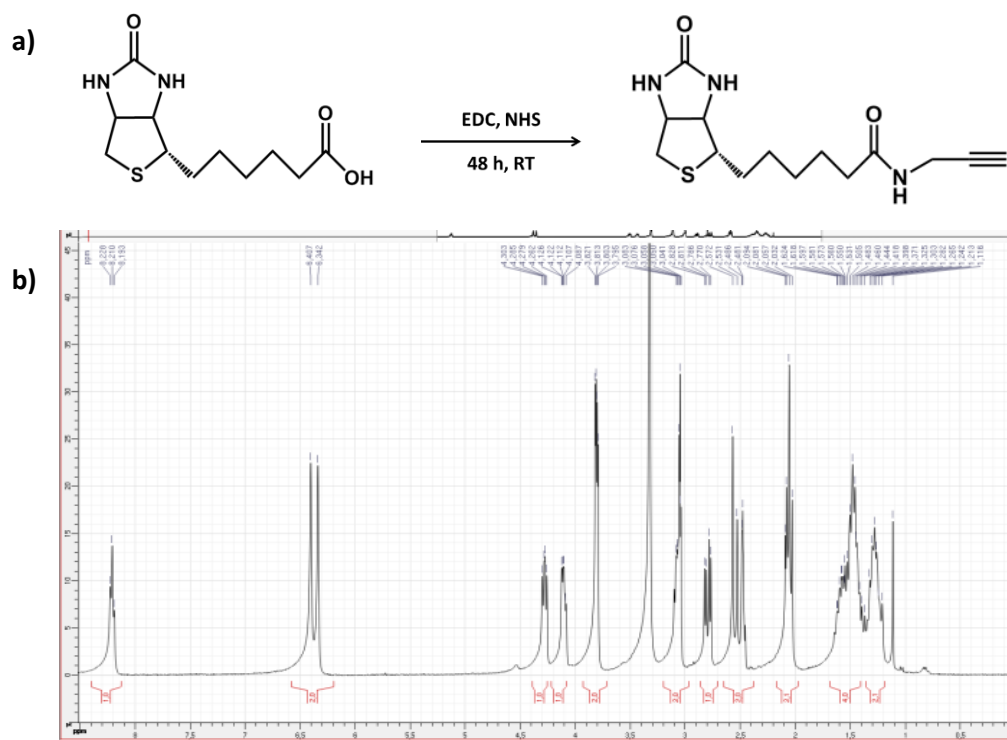


Figure S5. a) The alkynated biotin synthesis and b) ^1H RMN of alkynated biotin in $\text{DMSO } d_6$.

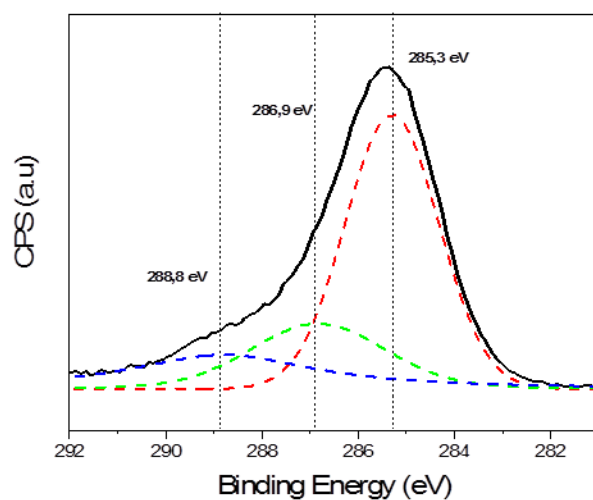


Figure S6. XPS spectrum of the C 1S region of the nanoparticle assembly covering entirely the gold substrate after functionalization with biotin derivative.

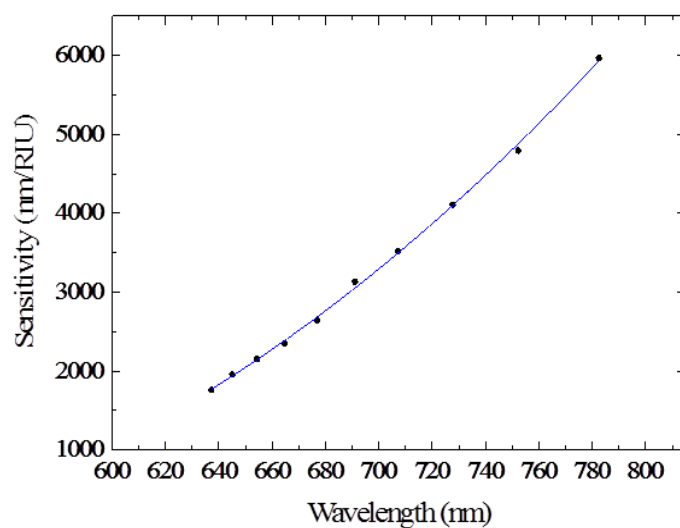


Figure S7. Sensitivity curves measured as function of the incident wavelength.