Analytical and Bioanalytical chemistry

Electronic Supplementary Material

Silver and Gold nanoparticles as multi-chromatic lateral flow assay probes for the detection of food allergens

Laura Anfossi, Fabio Di Nardo, Alida Russo, Simone Cavalera, Cristina Giovannoli, Giulia Spano, Sabine Baumgartner, Kathrin Lauter, Claudio Baggiani

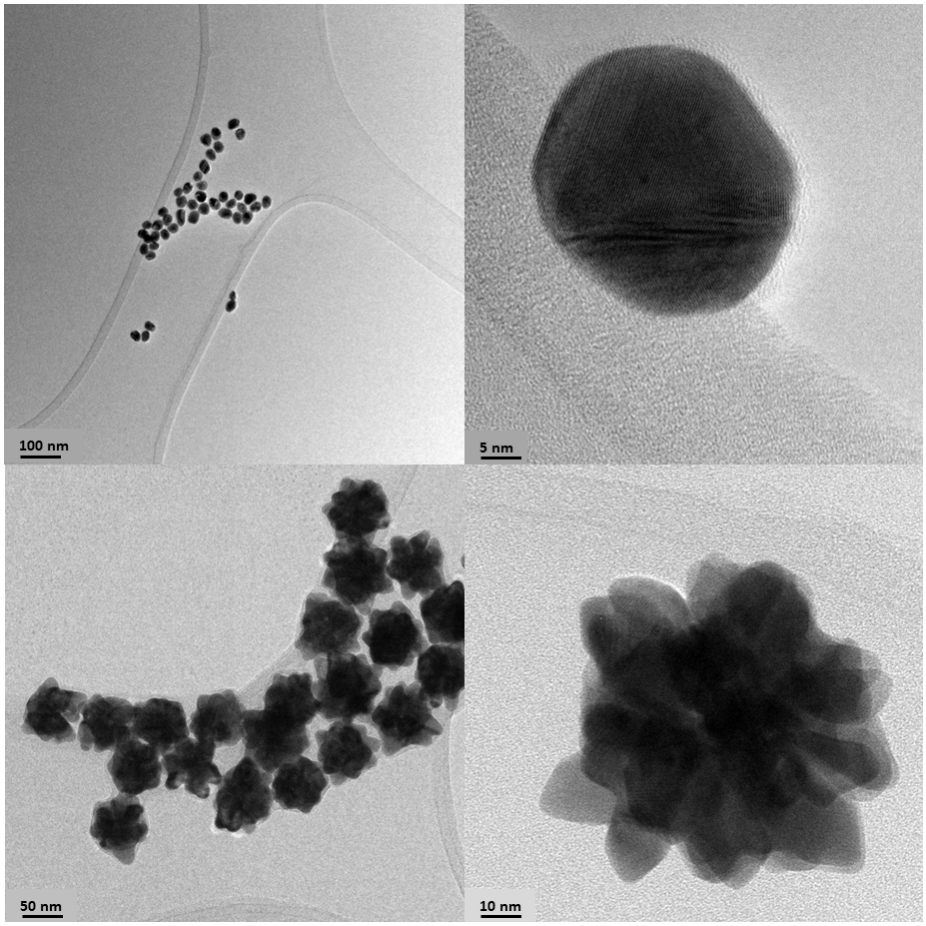

Fig. S1 TEM images of spherical gold nanoparticles obtained through the citrate reduction method (up) and non-spherical gold nanoparticles (bottom) prepared according to the gold-seeds mediated approach described in [12]. On the right, HR-TEM images of the NPs

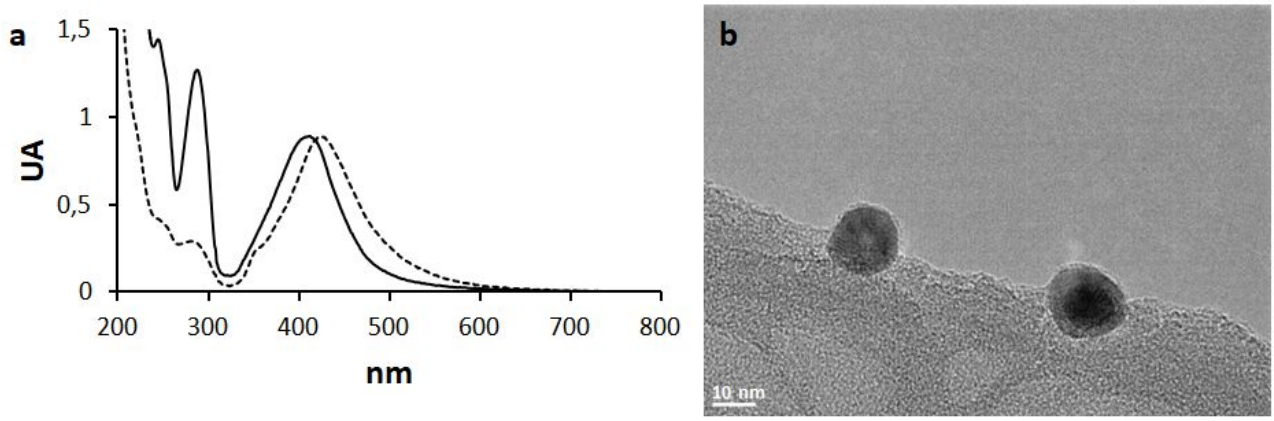

Fig. S2 UV-vis (solid line, a) and TEM at 195000x magnification (b) of AgNPs prepared by the one-step seed-mediated approach. The UV-vis spectrum of the Y-AgNPs-Ab probe is also shown (dotted line, a) and the red shift of the SPR maximum was considered as a confirmation of successful AgNP conjugation to antibodies

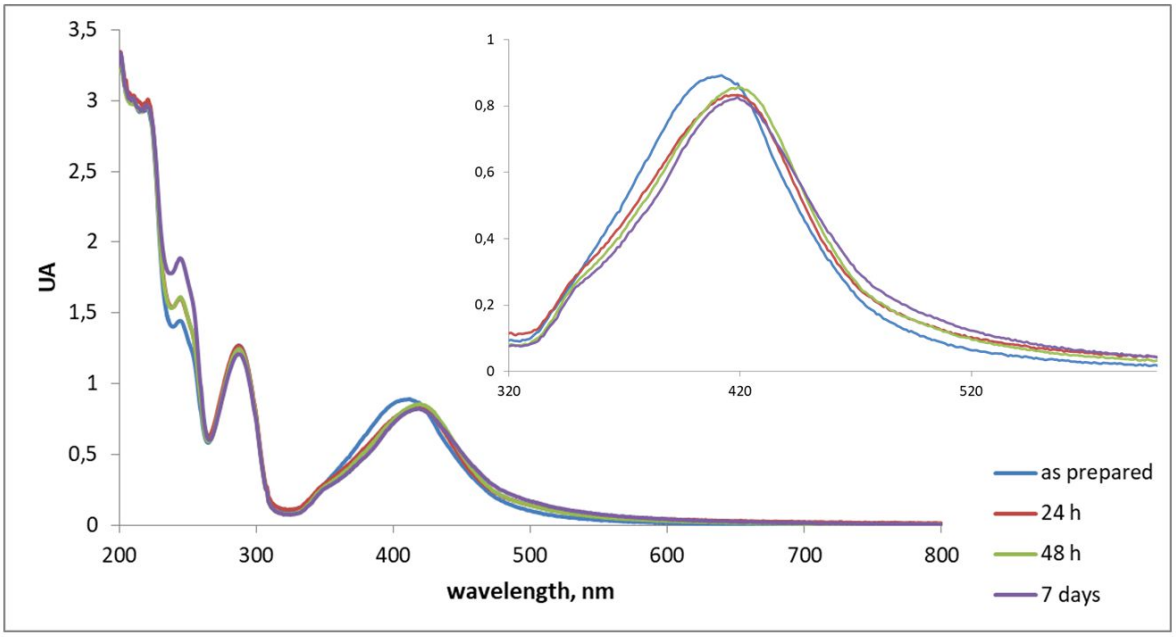

Fig. S3 Stability of the SPR band of Y-AgNPs over time. UV-vis spectra of Y-AgNPs were recorded on the synthesis day and after 1, 2, and 7 days of storage at 4°C. The inset shows the SPR band of the Y-AgNPs centered at 420 nm

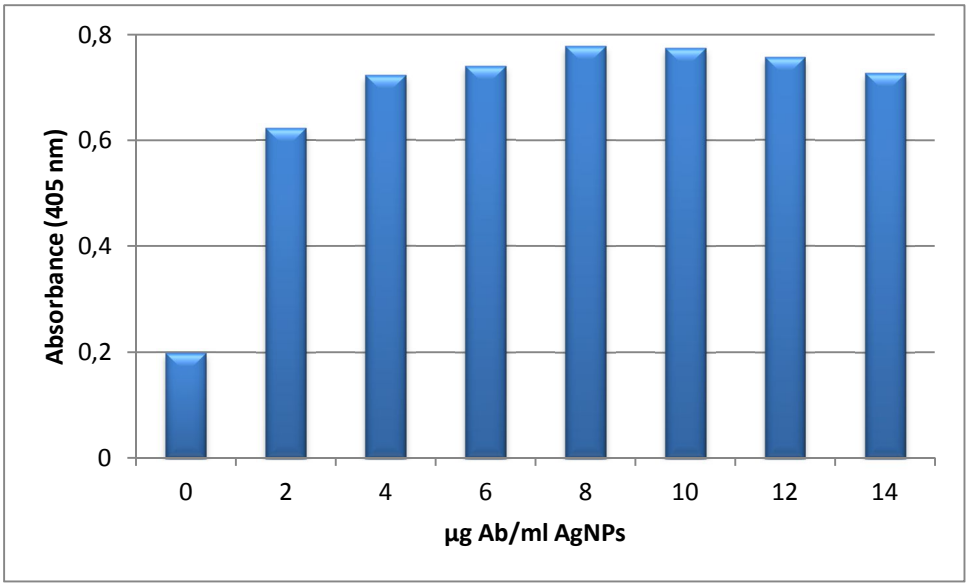

Fig. S4 The optimal antibody amount of antibodies (Ab) for stabilizing Y-AgNP suspension. Uncapped Y-AgNPs aggregated and the SPR band at around 420 nm decreased , while those covered by a layer of antibodies showed a persistent yellow color. The optimal amount of antibody was established as the one providing the highest optical density, as measured by a microtitre plate reader equipped with a 405 nm filter

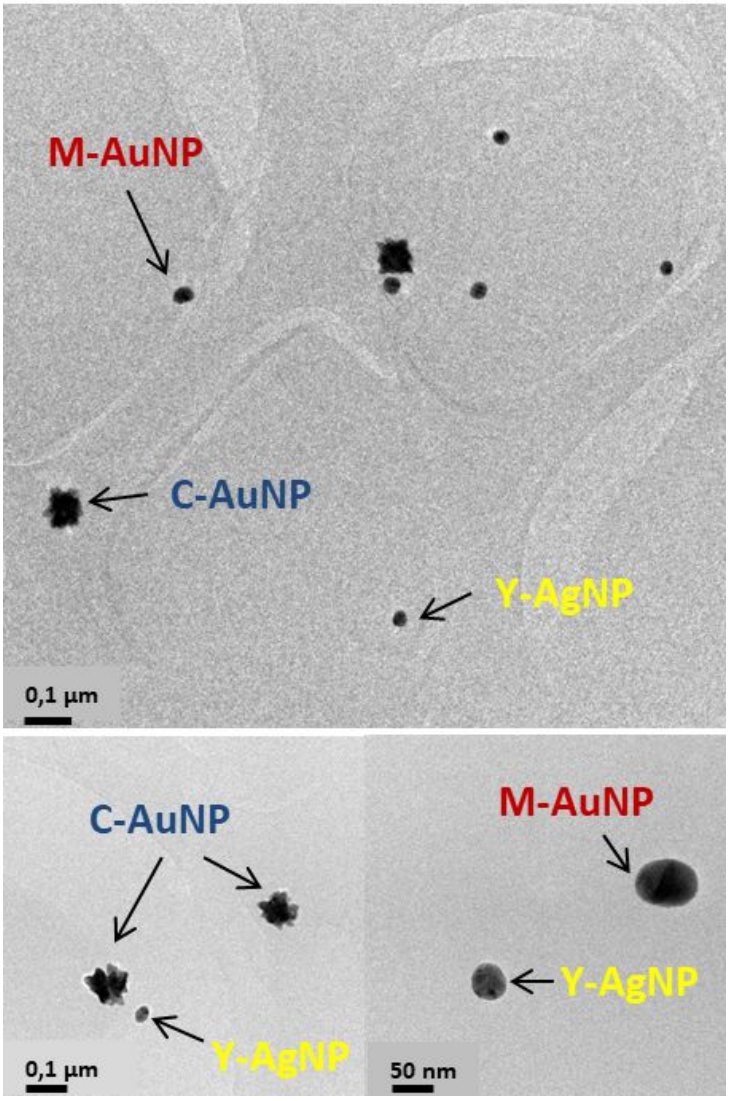

Fig. S5 TEM images of the mix containing the three nanoparticles conjugated to antibodies: a) no interaction occurred among metal NPs (15000x), b) no-spherical (blue) and spherical (red) gold nanoparticles (30000x), and c) spherical (red) gold nanoparticles and silver (yellow) nanoparticles (100000x)