Electronic Supporting Information

Does surface coating of metallic nanoparticles modulate their interferences with *in vitro* assays?

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Experimental: Synthesis of silver nanoparticles.

Silver nanoparticles coated with sodium bis(2-ethylhexyl)-sulfosuccinate (AOTAgNP), cetyl trimethylammonium bromide (CTAAgNP), poly(vinylpyrrolidone) (PVPAgNP), poly-*L*-lysine (PLLAgNP), and Tween 20 (TweenAgNP) were synthesized by reducing $AgNO_3$ with $NaBH_4$. Briefly, the solutions of capping agent were prepared by dissolving appropriate amounts of capping agent in ultra-pure water. Then, 9.2 mL of 50 mM $AgNO_3$ was added dropwise and dissolved by constant stirring on IKA RCT basic magnetic stirrer plate (IKA Werke, Germany). To this solution, a volume of 2 mL of 0.4 M $NaBH_4$ solution was added dropwise (about 1 drop/sec.). Final concentrations of bis(2-ethylhexyl)-sulfosuccinate (AOT), cetyl trimethylammonium bromide (CTAB), poly(vinylpyrrolidone) (PVP), poly-*L*-lysine (PLL), and Tween 20 were 500, 500, 75, 20 and 6 mM, respectively. The reaction mixture was mixed vigorously at room temperature for 45 min. After the synthesis, silver colloids were centrifuged at 13 000 rpm for 20 min. After decanting the supernatant, the residue was suspended in ultrapure water and kept at 4 °C in the dark.

Silver nanoparticles coated with Brij 35 (BrijAgNP) were synthesized by mixing an aqueous solution of $AgNO_3$ (0,09 mL, 50 mM), Brij 35 (5 mL, 0.45 mM) and hydrogen peroxide (0.105 mL, 30 wt%) with 44.5 mL ultrapure water. The mixture was vigorously stirred at room temperature in the presence of air. The final volume was kept at 50 mL. To this mixture, $NaBH_4$ (0.4 mL, 200 mM) was rapidly injected, generating a colloid that was pale yellow in color. After 30 min, the colloid darkened to a deep-yellow color indicating the formation of AgNPs.

Silver nanoparticles coated with citrate (CITAgNP) were synthesized via the following protocol: 200 μL of the aqueous solution of ascorbic acid (AsA) with the concentration of 0.1 mM was added into 190 mL of boiling water, followed by boiling for an additional 1 min. Then, 3.8 mL of the aqueous solution of sodium citrate (35.4 mM) and 1.2 mL of the aqueous solution of $AgNO_3$ (50 mM) were consecutively added to 5 mL of water under stirring at room temperature. After 5 min incubation at room temperature, the citrate-AgNP mixture solution was injected into the boiling aqueous solutions of AA (just after 1 min boiling after AA addition to boiling water). The final concentrations of reactants were 0.673 mM for sodium citrate, 0.3 mM for $AgNO_3$ and 0.1 μM for AsA. The color of the reaction solution quickly changed from colorless to yellow. The transparent and yellow reaction solution was further boiled for 1 h under stirring to warrant formation of uniform quasi-spherical AgNPs. Purification of AgNPs was performed by centrifugation of colloidal solution 2 times at 11,500 rpm for 30 min. Supernatant was decanted and precipitate was redispersed ultrapure water by sonification.

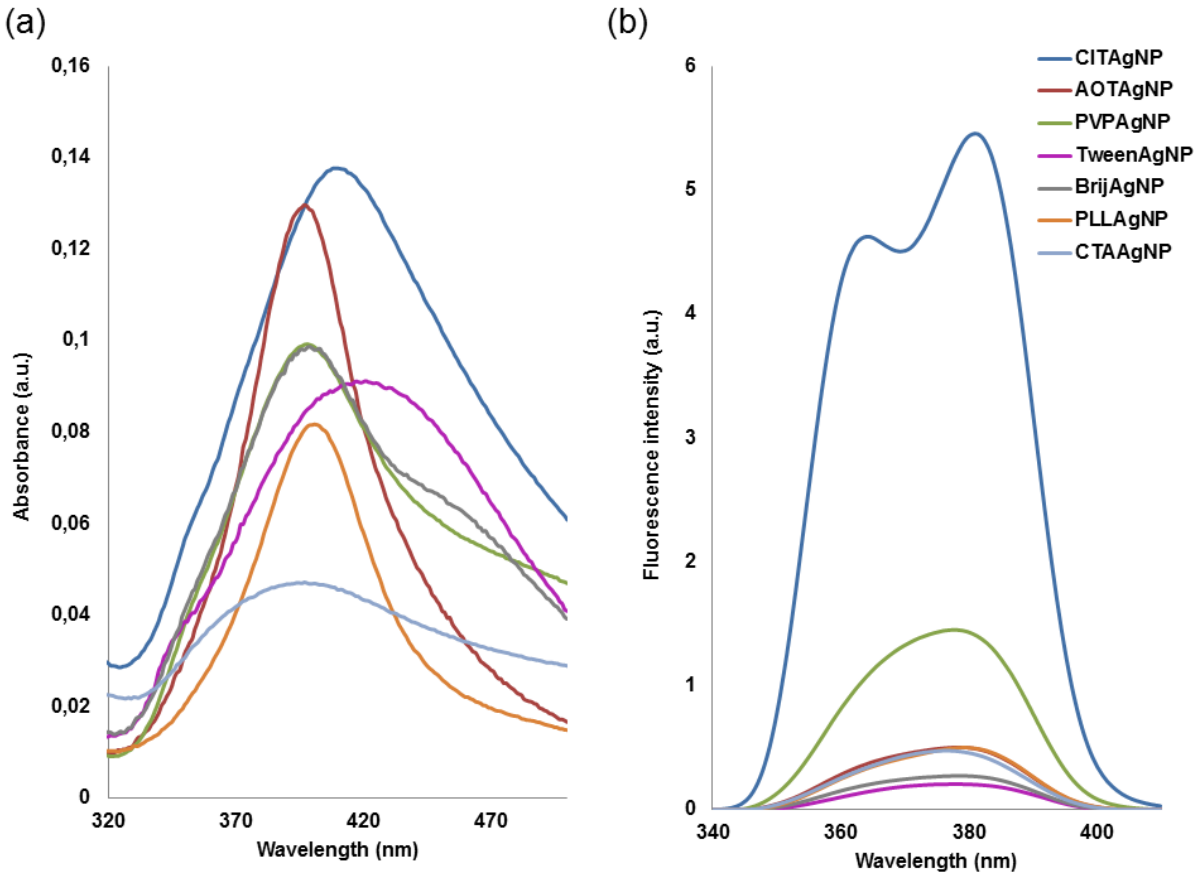

Figure S1. UV-Vis (a) and fluorescence spectra (b) of silver nanoparticles with different surface coating.

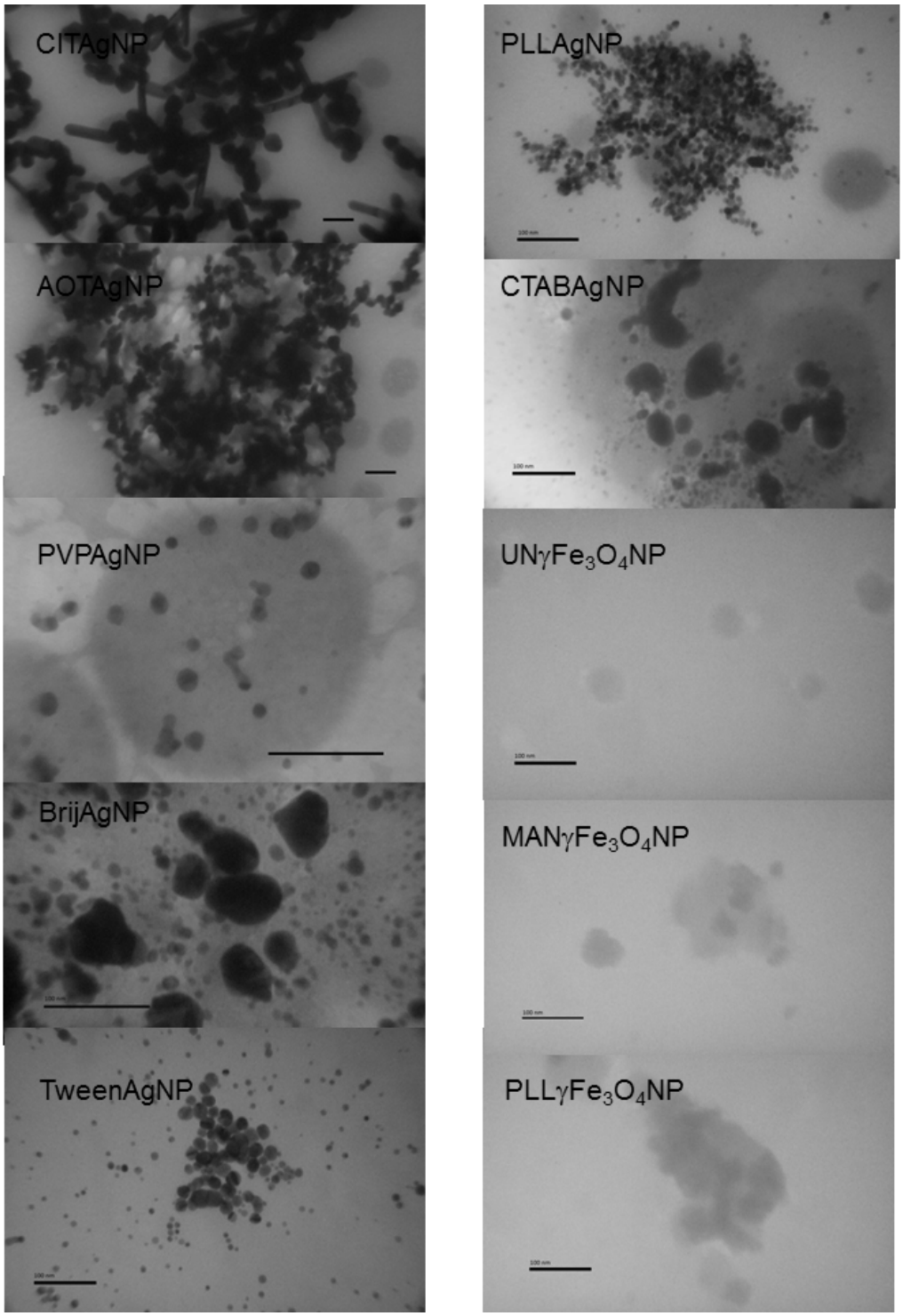

Figure S2. TEM micrographs of aggregated silver and maghemite NPs in cell-culture media. Silver nanoparticles were coated with trisodium citrate (CITAgNP), sodium bis(2-ethylhexyl)-sulfosuccinate (AOTAgNP), cetyl trimethylammonium bromide (CTAAgNP), poly(vinylpyrrolidone) (PVPAgNP), poly-*L*-lysine (PLLAgNP), Brij 35 (BrijAgNP) and Tween 20 (TweenAgNP), and maghemite NPs were uncoated γ-Fe_2O_3-NPs (UNγ-Fe_2O_3NPs), and coated with *D*-mannose (MANγ-Fe_2O_3NPs) and poly-*L*-lysine (PLLγ-Fe_2O_3NPs). Scale bars are in 100 nm.

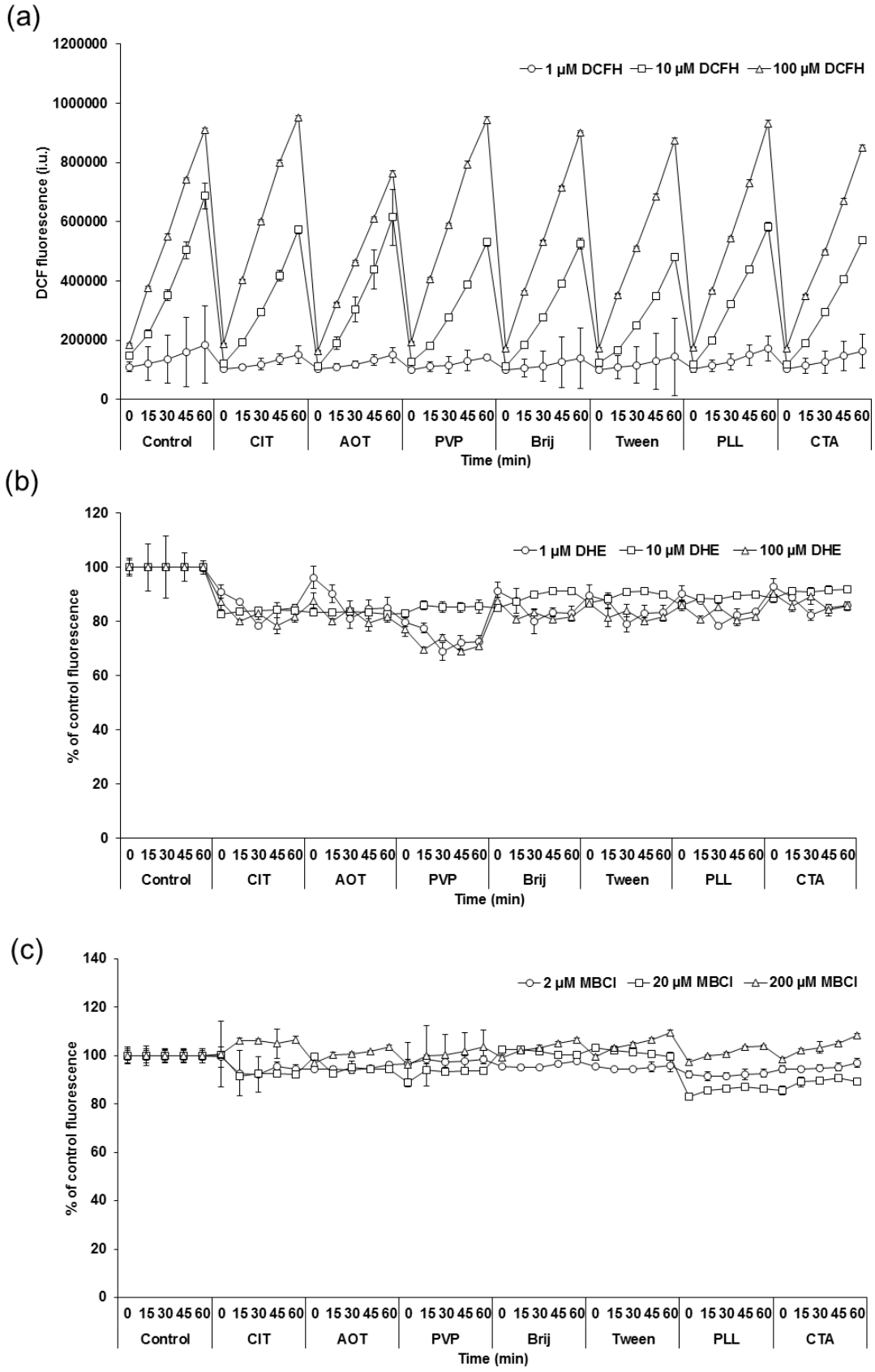

Figure S3. Interferences of differently coated AgNPs and γ-Fe_2O_3NPs with DCFH-DA (a), DHE (b) and MBCl (c) assays at three different concentrations of fluorescent probes.