On-Line Supporting Information

Study of Multidrug Membrane Transporters of Single Living *Pseudomonas Aeruginosa* Cells Using Size-Dependent Plasmonic Nanoparticle Optical Probes

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The on-line supporting material includes:

(A) Two figures:

Figure 1S: Histograms of color distribution of individual Ag nanoparticles (NPs) in nanopure water.

Figure 2S: Study of stability (non-aggregation) of Ag NPs in PBS buffer for 12 h.

(B) Four real-time videos (**Movies 1-4**):

Movies 1-3 show that single blue, yellow and green NPs are in and out of single living cells (nalB1). **Movies 4** show single green NPs in and out of single living cells (nalB1) in the presence of a proton ionophore (carbonyl cyanide-m-chlorophenylhydrazone, 100 μM CCCP). The videos are acquired using dark-field optical microscopy equipped with CCD camera with temporal resolution of 1 s.

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Figure 1S

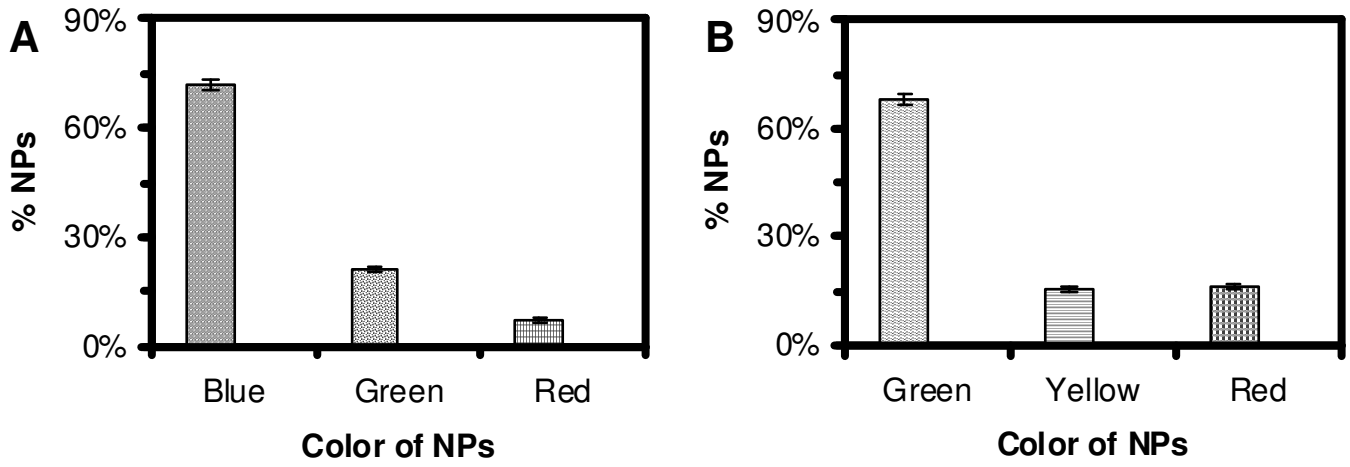

Figure 1S: Color distributions of single Ag NPs in nanopure water. Histograms of plasmonic colors of single NPs in (A) 13.1 ± 2.5 nm Ag NP solution show (73 ± 1.2)% of blue, (21 ± 0.8) % of green, and (6 ± 0.6)% of red NPs; and in (B) 91.0 ± 9.3 nm Ag NP solution illustrate (68 ± 1.8)% of green, (16 ± 0.8) % of yellow, and (16.0 ± 1.2)% of red NPs.

Figure 2S

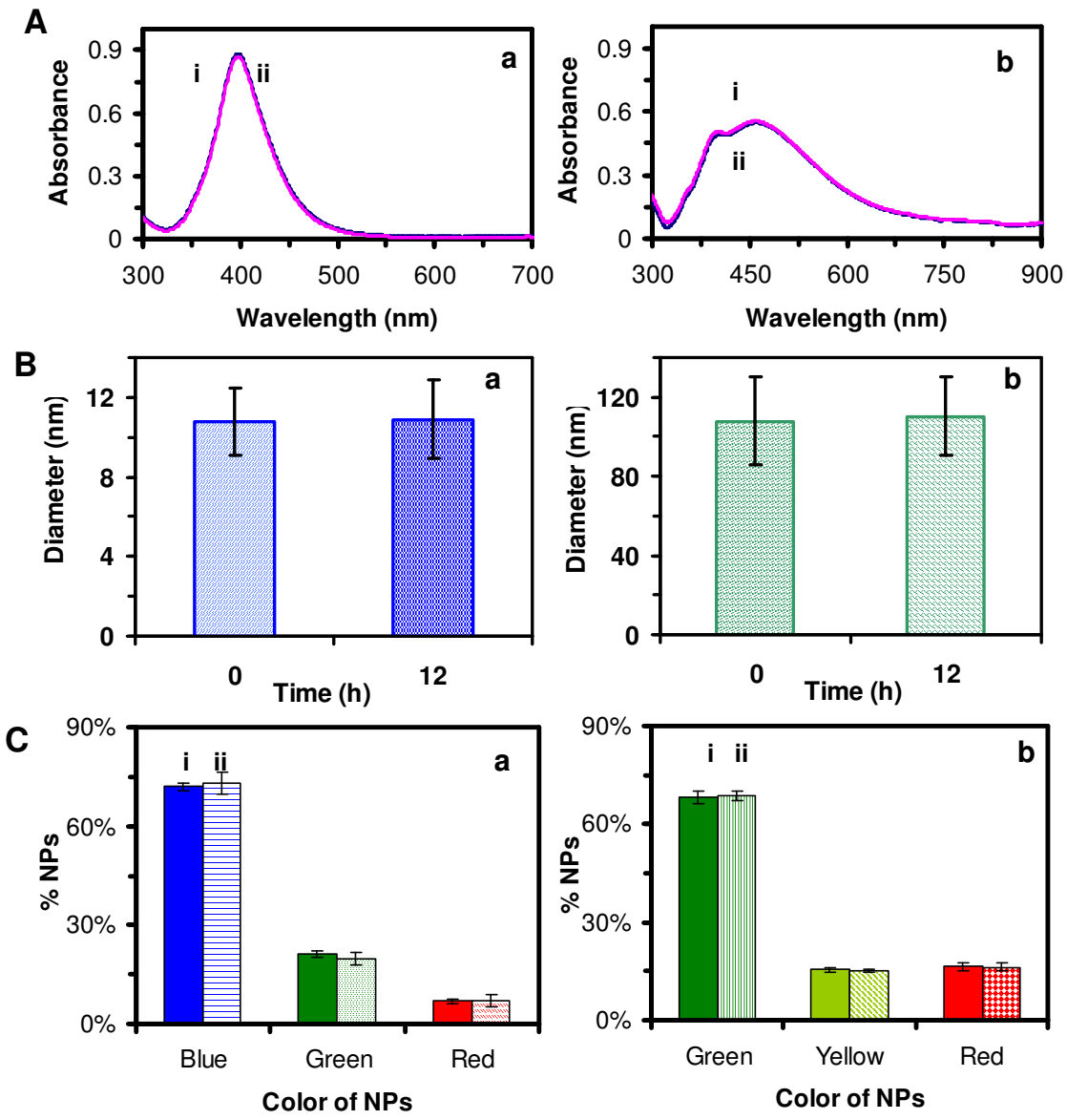

Figure 2S: Study of the stability (non-aggregation) of Ag NPs in PBS buffer for 12 h:
(A) UV-Vis absorption spectra of (a) 770 pM of 13.1 ± 2.5 nm and (b) 25 pM of 91.0 ± 9.3 nm Ag NPs in the PBS buffer show (a) peak absorbance of 0.83 at 394 nm (FWHM = 63 nm) and (b) primary peak absorbance of 0.498 at 460 nm (FWHM = 196 nm) and secondary absorbance of 0.429 at 394 nm, for incubation time at (i) 0 and 12 h, respectively.
(B) Histograms of diameters of NPs in the buffer show that their sizes remain essentially unchanged for 12 h. Their average diameters of (a):10.8 ± 1.7 nm and 10.9 ± 1.3 nm; and (b) 108.0 ± 22.0 nm and 110.2 ± 18.7 nm at 0 and 12 h, respectively.
(C) Histograms of color distribution of single Ag NPs in the buffer remain essentially unchanged over 12 h. The color distribution of single NPs of (a): (i) (73 ± 1.2)% of blue, (21 ± 0.8) % of green and (6 ± 0.6)% of red NPs and (ii) (72 ± 3.3)% of blue, (20 ± 1.7)% of green and (8 ± 1.7)% of red; and (b): (i) (68± 1.8)% of green, (16 ± 0.8) % of yellow and (16.0 ± 1.2)% of red and (ii) (69 ± 1.5) % of green, (15 ± 0.6) % of yellow and (16 ± 1.0) % of red, at (i) 0 and (ii) 12 h, respectively.