

Supplementary Information

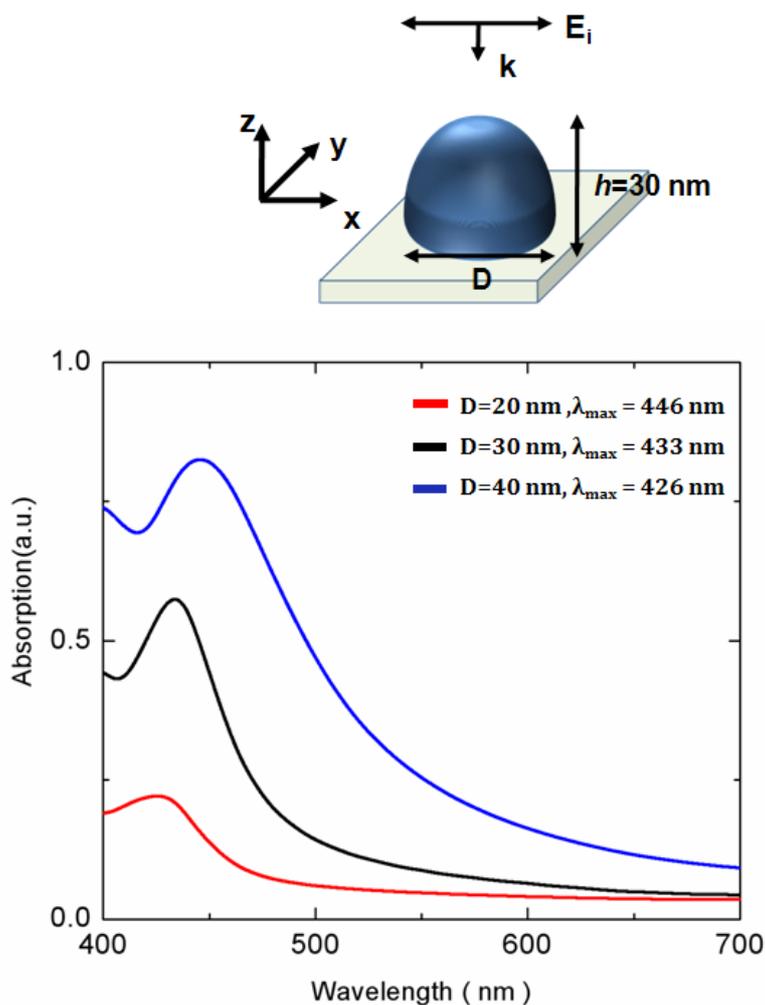


Fig. S1 Schematic diagram and simulated absorption spectra of the conical Ag nanoparticles with different diameters. The nanoparticle shape was assumed to be parabolic, defined by $z = -a(x^2+y^2)+b$. The simulation of LSPR was carried out with a three dimensional finite-difference time-domain (FDTD) calculation. The Ag nanoparticle is illuminated with a linearly polarized plane wave, which propagates in the $k = -z$ direction (normal incident). A grid size of 1 nm was used in this simulation.

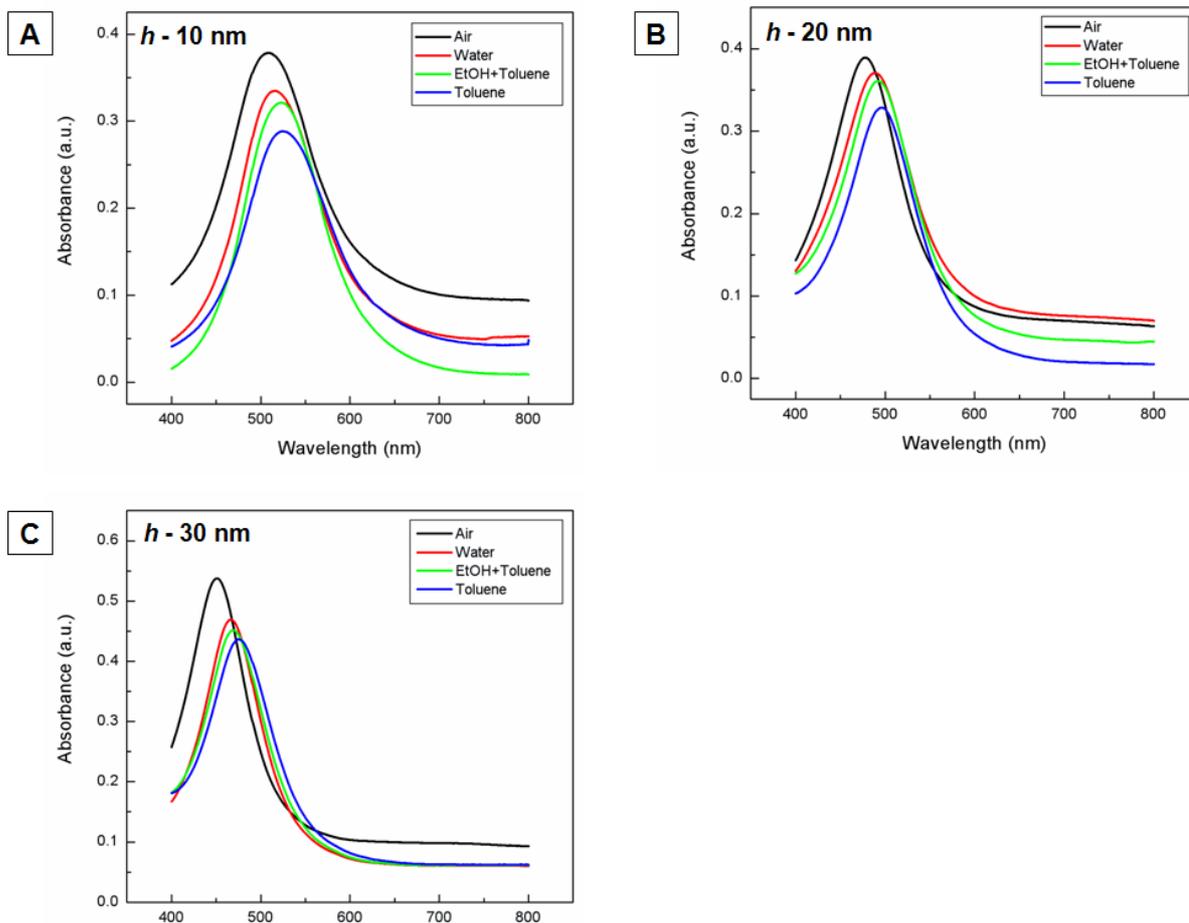


Fig. S2 The LSPR absorbance spectra of Ag nanoparticle arrays measured in air ($n=1$), in water ($n=1.33$), in 1:1(v/v) ethanol/toluene mixture ($n=1.429$), and in toluene ($n=1.495$) for various nanoparticle heights from (a) 10 nm, (b) 20 nm, to (c) 30 nm. A gradual red-shift occurred as the refractive index of the surrounding medium increased from 1 to 1.5.