Supplementary information

**Fig. S1** SEM image of AgNO$_3$/CeO$_2$ capsules. Formed silver nanoparticles appear as white spots on the surface of capsules on the SEM image.

**Fig. S2** FTIR spectra of polystyrene nanospheres (red), AgNP/PS coated with CeO$_2$ (yellow), AgNP/CeO$_2$ capsules obtained by calcination (green), and AgNP/CeO$_2$ capsules obtained by dissolution (blue).