The facile and sensitive detection of pathogenic bacteria using magnetic nanoparticles and optical nanocrystal probes

Jinmyoung Joo, Changyong Yim, Donghoon Kwon, Jaejin Lee, Hwahui Shin, Hyung Joon Cha and Sangmin Jeon*

Department of Chemical Engineering, Pohang University of Science and Technology (POSTECH), Pohang, Korea

Email: jeons@postech.ac.kr
Fig. S1 Absorption spectra of TNs at (a) different temperatures (red: 15°C, violet: 25°C, blue: 35°C, green: 45°C) and (b) different concentrations of phosphate buffers (green: 1 M, red: 10 mM, blue: 0.1 mM). Negligible changes with temperature and salt concentrations were observed for the absorption spectra of TNs.
Fig. S2. The absorption spectra of unbound TNs after magnetic separation from *E.coli*-spiked milk matrix. The selectivity of the assay was examined by incubating the *salmonella* antibody-conjugated MNPs and TNs in a milk matrix containing $10^8$ cfu/ml of *E.coli*. Negligible changes in the absorption spectra were observed in this control experiment, because the detection method relies on the specific binding reaction of target antigen-antibody.