Electronic supplementary information (ESI)

**Bacteriophage-based Nanoprobes for Rapid Bacteria Separation**

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**Fig. S1** The XPS spectra of FeCo MNPs (black line) and silica coated FeCo MNPs (red line).
**Fig. S2** Biotin binding capacity of streptavidin-coated microbeads.

**Fig. S3** Transmission electron microscope images of negative uranyl acetate staining of *E. coli* K21 cells.

**Fig. S4** The capture efficiency of streptavidin coated magnetic nanoparticles (square line) and streptavidin coated magnetic microbeads (round line).
Fig. S5 TEM images of microprobes bound to *E. coli* K12: a) antibody-conjugated microbeads and b) phage-conjugated microbeads, c) comparison the capture efficiency between the two magnetic microprobes: phage magnetic microprobes (solid square line) and antibody magnetic microprobes (hollow square line).