Rapid and Ultrasensitive E. coli O157:H7 Quantitation by Combination of Ligandmagnetic Nanoparticles Enrichment with Fluorescent Nanoparticles Based Two-Color Flow Cytometry

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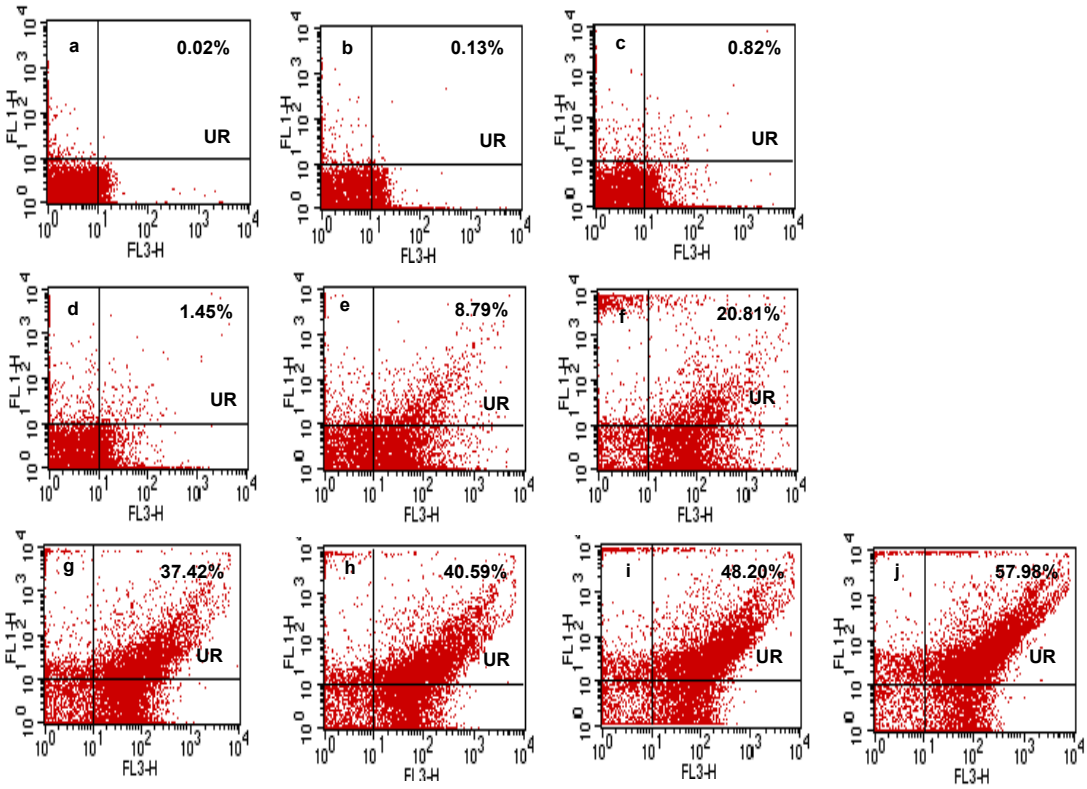
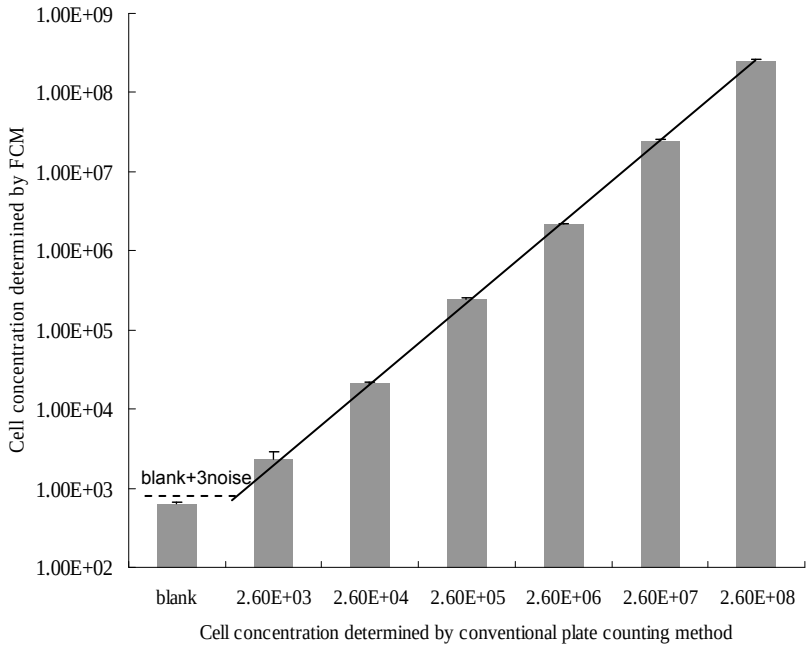
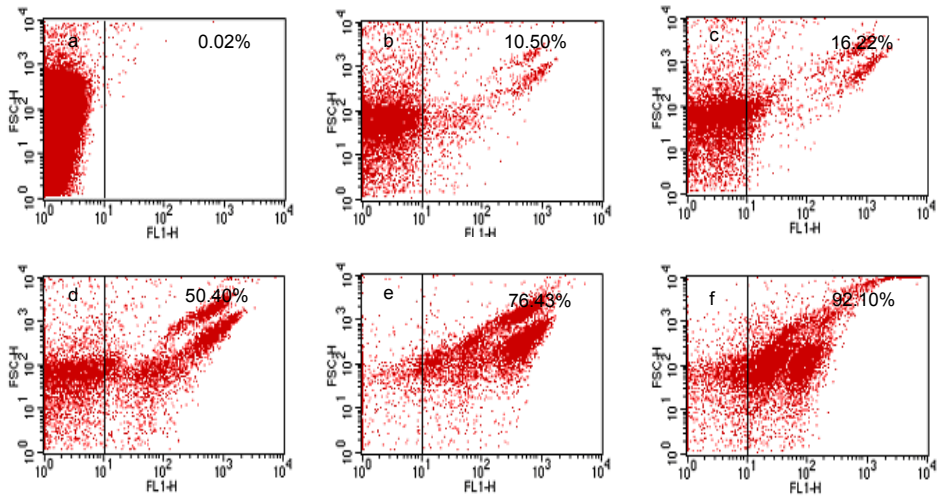


(A)

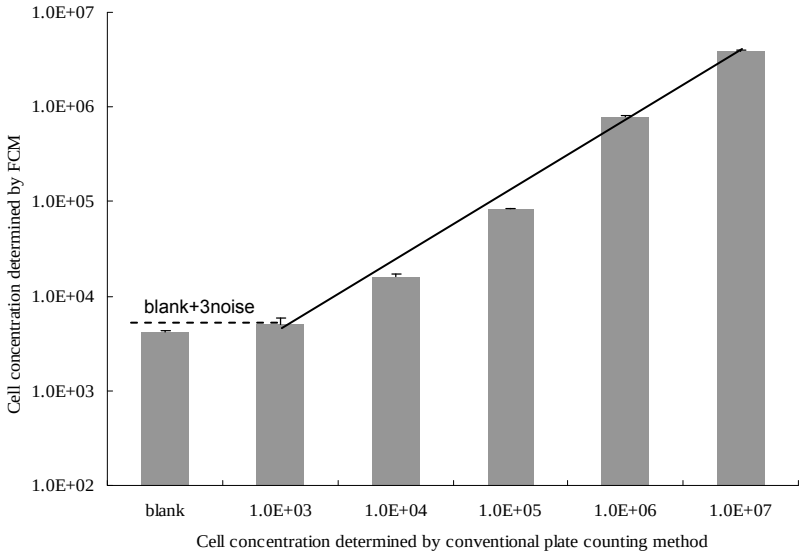


(B)

Figure S1. (A) The non-enrichment FSiNPs-FCM method for *E. coli* O157:H7 detection. (a. blank; b. 1.3×10^{1} cells mL^{-1}; c. 2.6×10^{1} cells mL^{-1}; d. 2.6×10^{2} cells mL^{-1}; e. 2.6×10^{3} cells mL^{-1}; f. 2.6×10^{4} cells mL^{-1}; g. 2.6×10^{5} cells mL^{-1}; h. 2.6×10^{6} cells mL^{-1}. i. 2.6×10^{7} cells mL^{-1}; j. 2.6×10^{8} cells mL^{-1}). (B) Graph comparing cell counts for *E. coli* O157:H7 determined by the conventional plate counting method with those obtained by non-enrichment FSiNPs-FCM method.



(A)



(B)

Figure S2. (A) Conventional flow cytometry used commercial FITC-conjugated goat anti-*E. coli* O157:H7 antibody for detection of *E. coli* O157:H7 in pure culture (a. blank; b. 1.0×10^3 cells mL^{-1}; c. 1.0×10^4 cells mL^{-1}; d. 1.0×10^5 cells mL^{-1}; e. 1.0×10^6 cells mL^{-1}; f. 1.0×10^7 cells mL^{-1}.). (B) Graph comparing cell counts for *E. coli* O157:H7 determined by the conventional plate counting method with those obtained by FITC-based conventional FCM method.

Table S1. Feasibility test of LMNPs@FSiNPs-FCM method for *E. coli* O157:H7 detection

No.	Target	LMNPs	Unmodified magnetic nanoparticles	Ab-FSiNPs	COOH-FSiNPs	SYBR-I	FCM assay
a	5.0×10^3 cells mL^{-1} *E. coli* O157:H7	+	- +		-	+	2-color
b	5.0×10^3 cells mL^{-1} *E. coli* O157:H7	+ -		-	+	+	2-color
c	5.0×10^3 cells mL^{-1} *E. coli* O157:H7	- +		+	-	+	2-color
d	sterile PB buffer	+ -		+ -		+	2-color
e	5.0×10^3 cells mL^{-1} *E. coli* O157:H7	+ -		+ -		-	1-color
f	5.0×10^3 cells mL^{-1} *E. coli* O157:H7	+ -		-	+	-	1-color
g	5.0×10^3 cells mL^{-1} *E. coli* O157:H7	- +		+	-	-	1-color
h	sterile PB buffer	+ -		+ -		-	1-color