Supplementary Material (ESI) for Analyst

Identification of *Pseudomonas aeruginosa* Using Functional Magnetic Nanoparticle-Based Affinity Capture Combined with MALDI MS Analysis

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Supporting Information

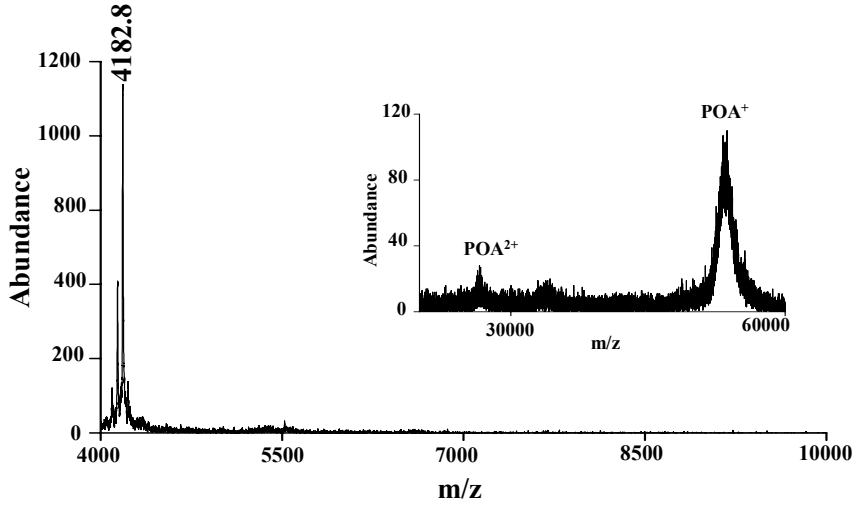

Figure S1. MALDI mass spectrum of the POA-Fe_3O_4@Al_2O_3. CHCA (25 mg/mL, 1 μL) containing 1% TFA was used as the MALDI matrix. The peak at m/z 4182.8 dominates the mass spectrum. Presumably, it was derived from the acid-hydrolysis product of POA since the matrix contained 1% TFA. Additionally, the singly-charged (POA^+) and doubly charged ions of POA (POA^{2+}) at m/z ~53 kDa and ~26.5 kDa, respectively, appear in the mass spectrum indicated as inset.

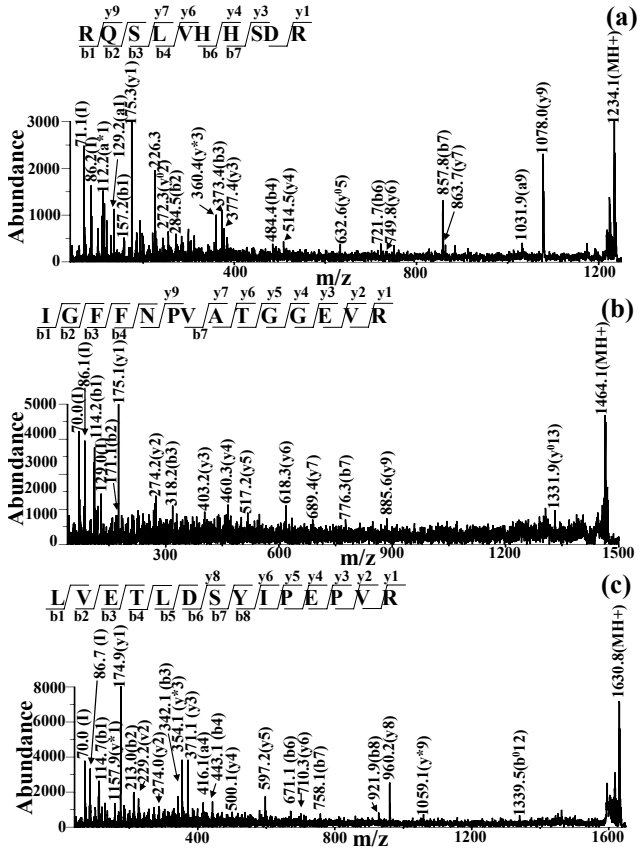

Figure S2. The tryptic digest of the bacteria targeted by the POA-Fe_3O_4@Al_2O_3 NPs from the same sample (1.5 mL) as that used to obtain Figure 8b. Gb3 (6 mg/mL, 10 μL) was used to elute the bacteria from the NPs prior to tryptic digestion. Bacterial tryptic digestion was performed in the presence of the Fe_3O_4@Al_2O_3 NPs under microwave heating (power: 900 W) for 1 min. The peaks at *m/z* (a) 1234.1 (b) 1464.1 and (c) 1630.8 were selected as the precursor ions. CHCA (25 mg/mL, 1 μL) containing 1% TFA was used as the MALDI matrix.

Table S1. Proteins Identified in panels a-c of Figure S2.

species	AC	protein	peptide sequence	MH_{obs}^+	size(a.a)	score
P. aeruginosa	gi|152989588	hypothetical protein	RQSLVHHSDR	1234.2	263	56
	gi|152987689	hypothetical protein			116	
	gi|14195196	30S ribosomal protein S16	IGFFNPVATGGEVR	1464.1	83	90
	gi|15599461	Elongation factor Tu	LVETLDSYIPEPVR	1630.8	397	98

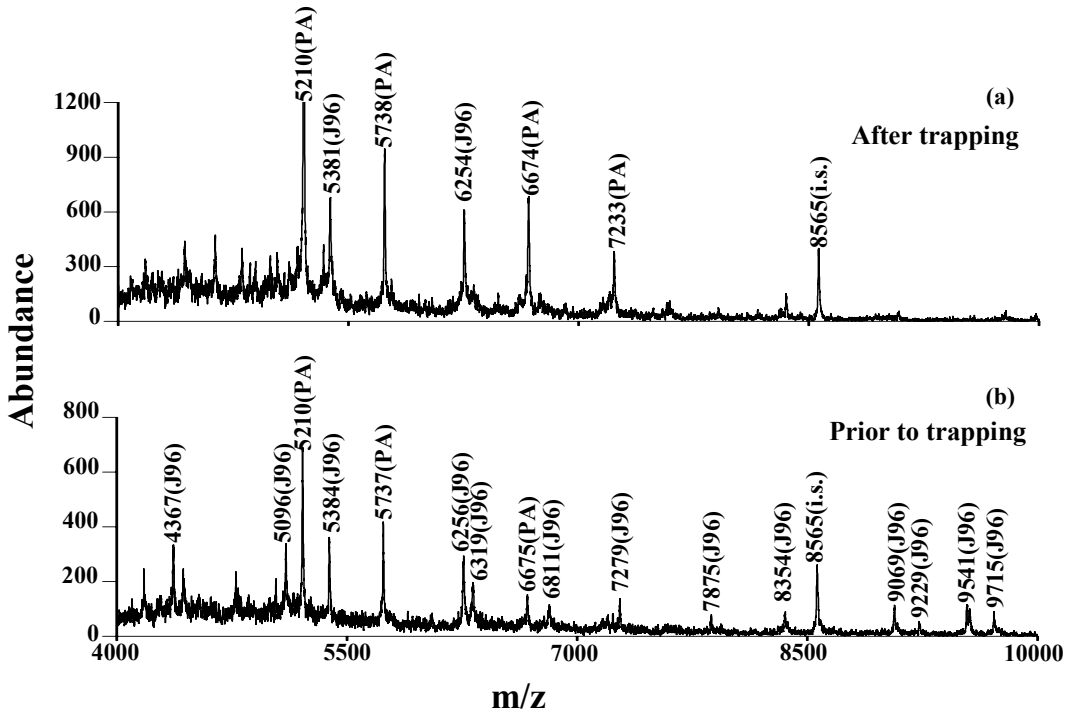

Figure S3. (a) MALDI mass spectrum obtained after using the POA-Fe_3O_4@Al_2O_3 NPs (40 μg) as affinity probes to selectively enrich target bacterial cells from a sample (0.8 mL) containing *E. coli* J96 (J96) (6.43×10^7 cells/mL) and *P. aeruginosa* (PA)(8.25×10^7 cells/mL). (b) MALDI mass spectrum of the same sample as used for obtaining Panel a prior to enrichment. CHCA (25 mg/mL, 1 μL) containing 1% TFA was used as the MALDI matrix.