Supporting information for

4-Mercaptobenzoic Acid as a MALDI matrix for Highly Sensitive Analysis of Metals

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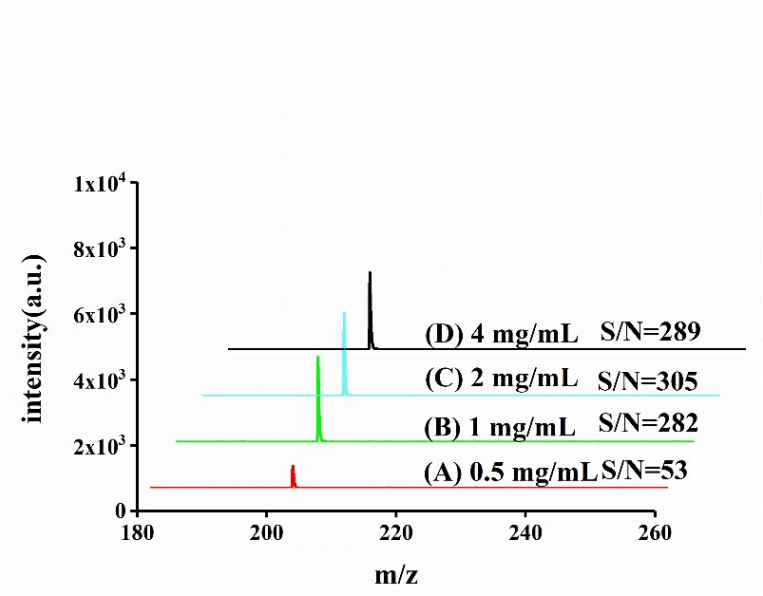

Figure S1. Effect of MBA concentration on the MS signal intensities of Hg^{2+}. (A) 0.5 mg/mL; (B) 1 mg/mL; (C) 2 mg/mL; (D) 4 mg/mL.

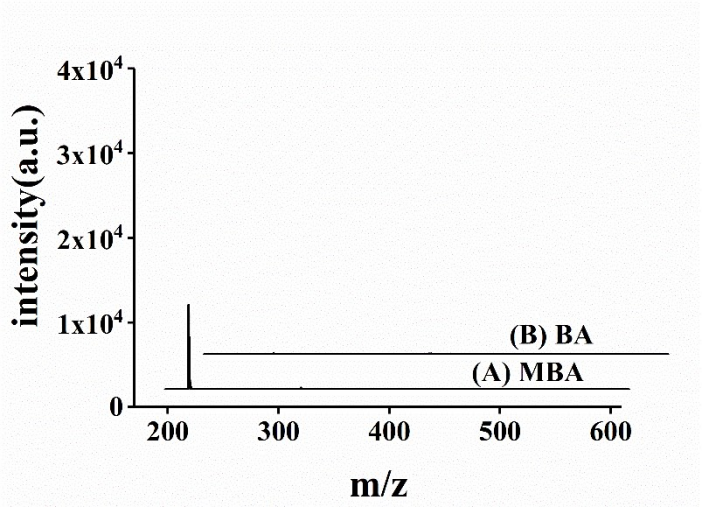

Figure S2. Comparison of different matrices for the analysis of Hg^{2+} based on MALDI-TOF-MS. (A) MBA; (B) BA.

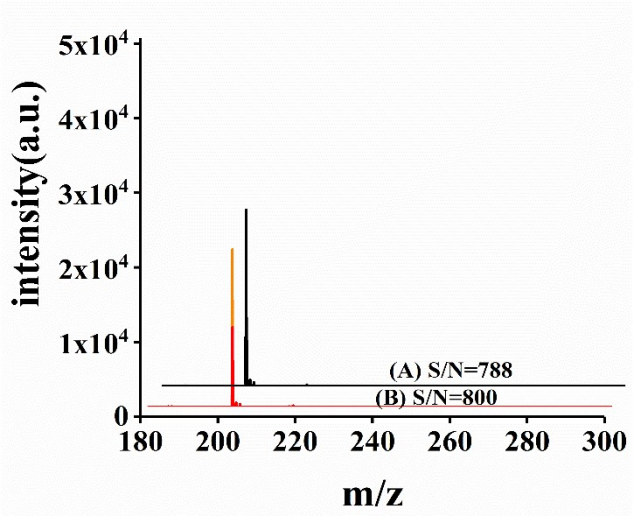

Figure S3. The MS spectra of Hg^{2+} based on MALDI-TOF-MS. (A) MBA solution newly prepared; (B) MBA solution after storage for 60 days.

Table S1. LODs with MBA-assisted LDI-TOF-MS for the detection of Hg^{2+} and Cd^{2+}.

Analytes	LODs (ng/mL)
Hg	0.15
Cd	0.05

Table S2. The reproducibility of the analysis of Hg^{2+} and Cd^{2+} with MBA-assisted LDI-TOF-MS.

Analytes	shot-to-shot RSD (n=6)[a]	sample-to-sample RSD (n=3)[b]
Hg	6%	2%
Cd	7%	5%

[a] The shot-to-shot RSDs were measured based on 6 shots at different locations on the matrix.

[b] The sample-to-sample RSDs were measured based on 3 samples in different batches.

Table S3. Peak intensities of metals in MBA-assisted LDI-TOF-MS and concentrations determined by ICP-MS in $PM_{2.5}$ samples.

Months	Cd		Hg	
	Peak intensity	C (ng/mL)	Peak intensity	C (ng/mL)
January	2575±222	6.89	530±14	5.89
February	1600±189	3.07	279±29	3.24
March	1476±91	2.40	360±35	3.79

April	1040±32	1.60	157±32	1.16
May	982±109	1.44	138±12	0.93
June	992±113	1.16	115±6	0.51
July	1273±134	1.94	139±16	0.60
August	1027±145	1.31	144±18	1.01
September	1265±165	1.80	124±8	0.77
October	1100±87	1.49	146±19	1.00
November	1385±133	2.44	241±11	2.82
December	1623±139	3.02	406±31	4.20