

Supporting information

Figure S1. The characterization of antibody. (a) The standard curve of antibody. (b) The isotype of antibody.

Figure S2. The standard curve for detection of Cd²⁺ in oilfield chemicals by ICP-MS.

Table S1. Cross-reactivity of mAb with Cd²⁺ and other heavy metal ions.

Table S2. The absorbance value of the gold-labeled antibody solution at the maximum ultraviolet absorption peak.

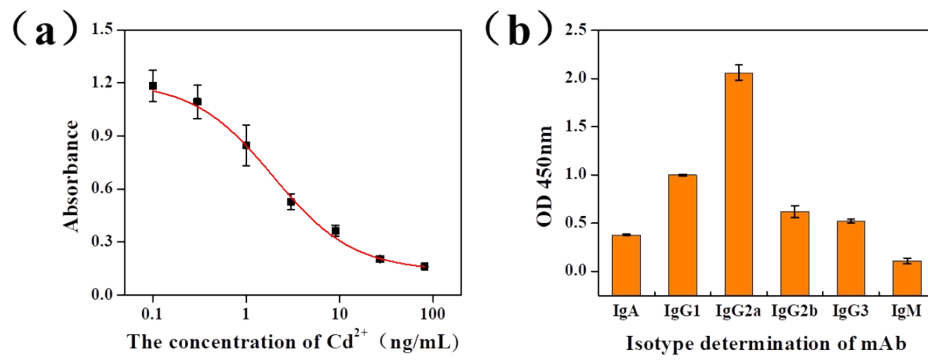


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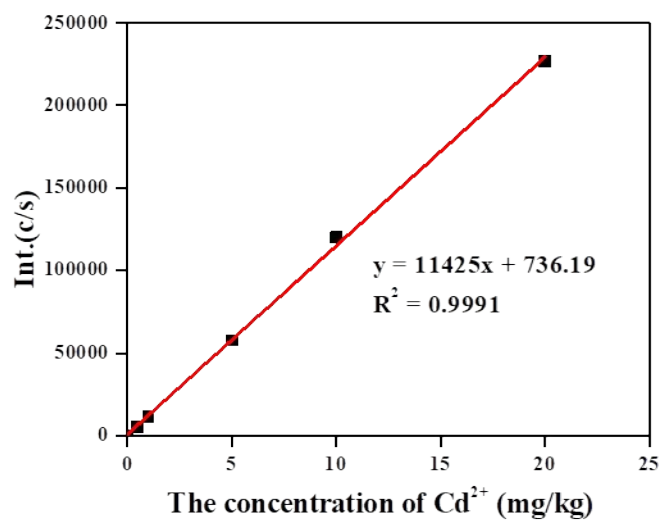


Figure S2. The standard curve for detection of Cd²⁺ in oilfield chemicals by ICP-MS.

Table S1. Cross-reactivity of mAb with Cd²⁺ and other heavy metal ions.

Metal ion	IC50 (ng/mL)	CR (%)
Cd ²⁺	1.97	100
Pb ²⁺	>1000	<0.2
Hg ²⁺	>1000	<0.2
Cu ²⁺	>1000	<0.2
Co ²⁺	>1000	<0.2
Zn ²⁺	>1000	<0.2
Mg ²⁺	>1000	<0.2
Fe ²⁺	>1000	<0.2
Cr ³⁺	>1000	<0.2
Al ³⁺	>1000	<0.2
Ca ²⁺	>1000	<0.2
Mn ²⁺	>1000	<0.2

Table S2. The absorbance value of the gold-labeled antibody solution at the maximum ultraviolet absorption peak.

Amount of K ₂ CO ₃ (μL)	Absorbance			
	15 nm - BB	15 nm - HEPES	35 nm - BB	35 nm - HEPES
4	0.5	0.59	0.48	0.03
8	0.57	0.64	0.52	0.04
12	0.58	0.59	0.59	0.17
16	0.59	0.62	0.61	0.27
20	0.59	0.59	0.53	0.40
24	0.58	0.63	0.63	0.42