Supporting Information

Highly Selective and Sensitive Detection for Hg^{2+}, $Cr_2O_7^{2-}$, Nitrobenzene/2,4-dinitrophenol in Water via two Fluorescent Cd-CPs

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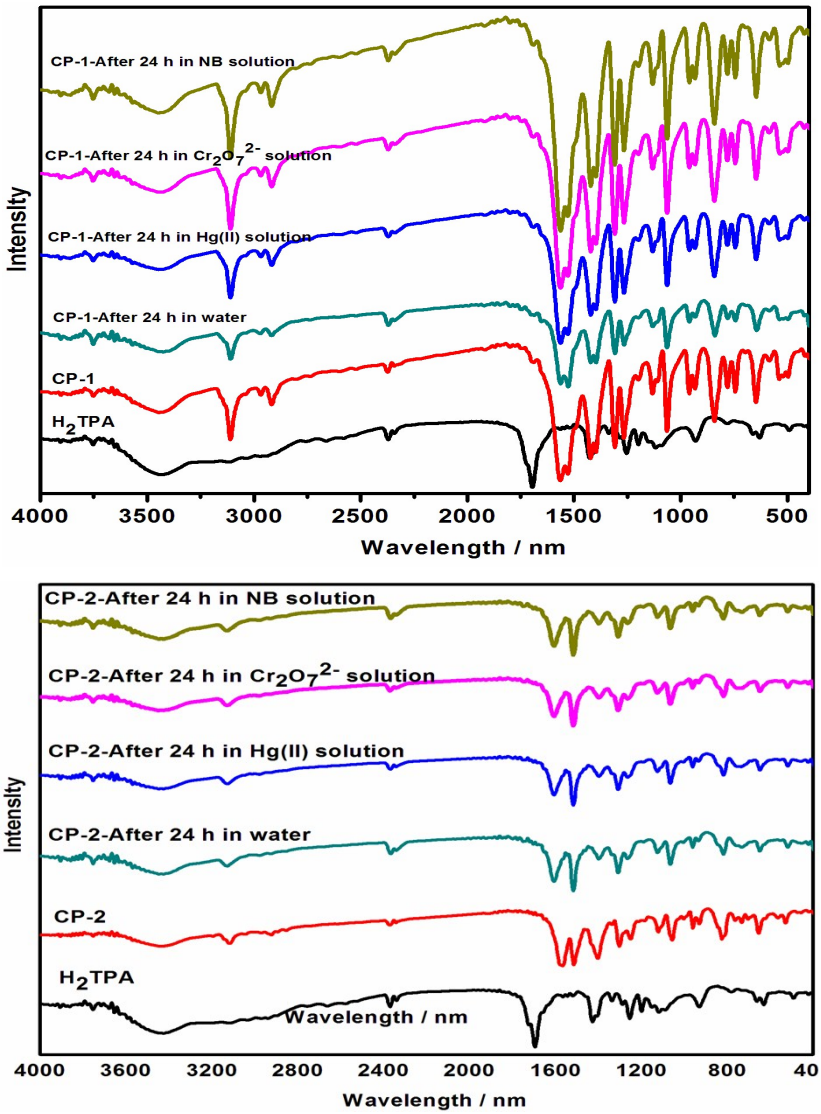
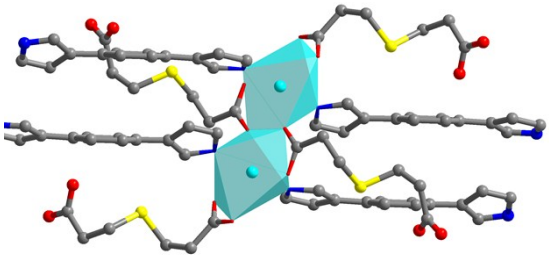
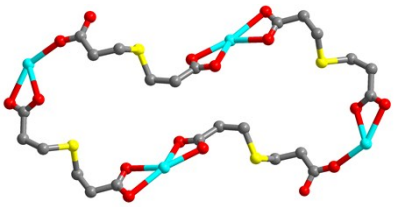


Figure S1 IR spectral for H_2TPA ligand and CPs 1-2 in different conditions.



(a)



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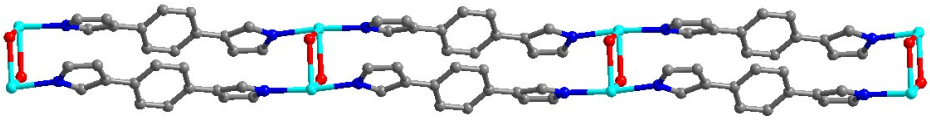
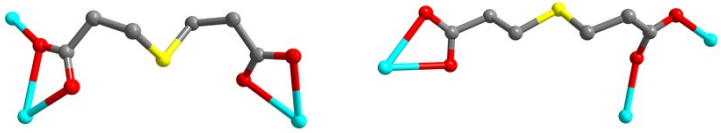
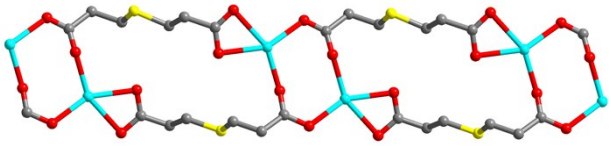


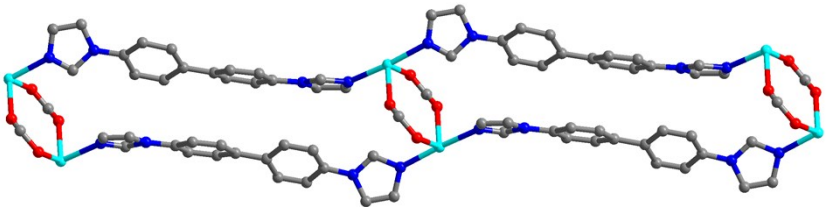
(c)



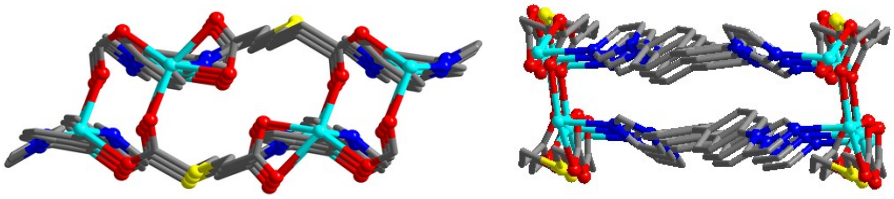
(d)



(e)



(f)



(h)

Figure S2. (a) the $[Cd_2O_{14}N_4]$ binuclear cluster structure unit in CP 1; (b)the basic structural unit $[Cd_4(TPA)_4]$ in the 2D planar structure of CP 1; (c) the 1D chain along the c axis in CP 1; (d)two coordination modes of TPA ligand in CP 1 and CP 2; (e) and (f) two types of 1D chains in CP 2;(h) Two types of 1D tunnel holes in CP 2.

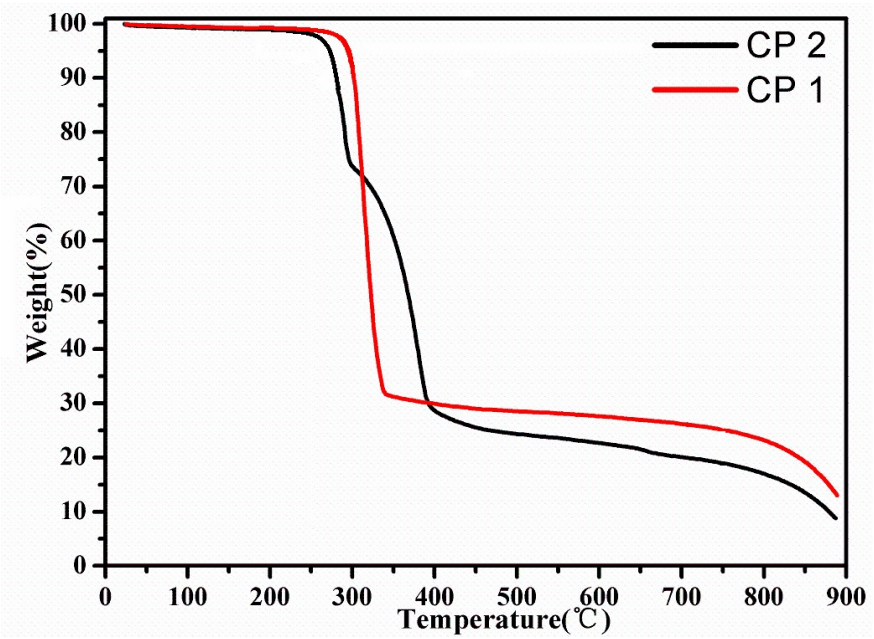


Figure S3. The thermal stabilities of CPs 1-2

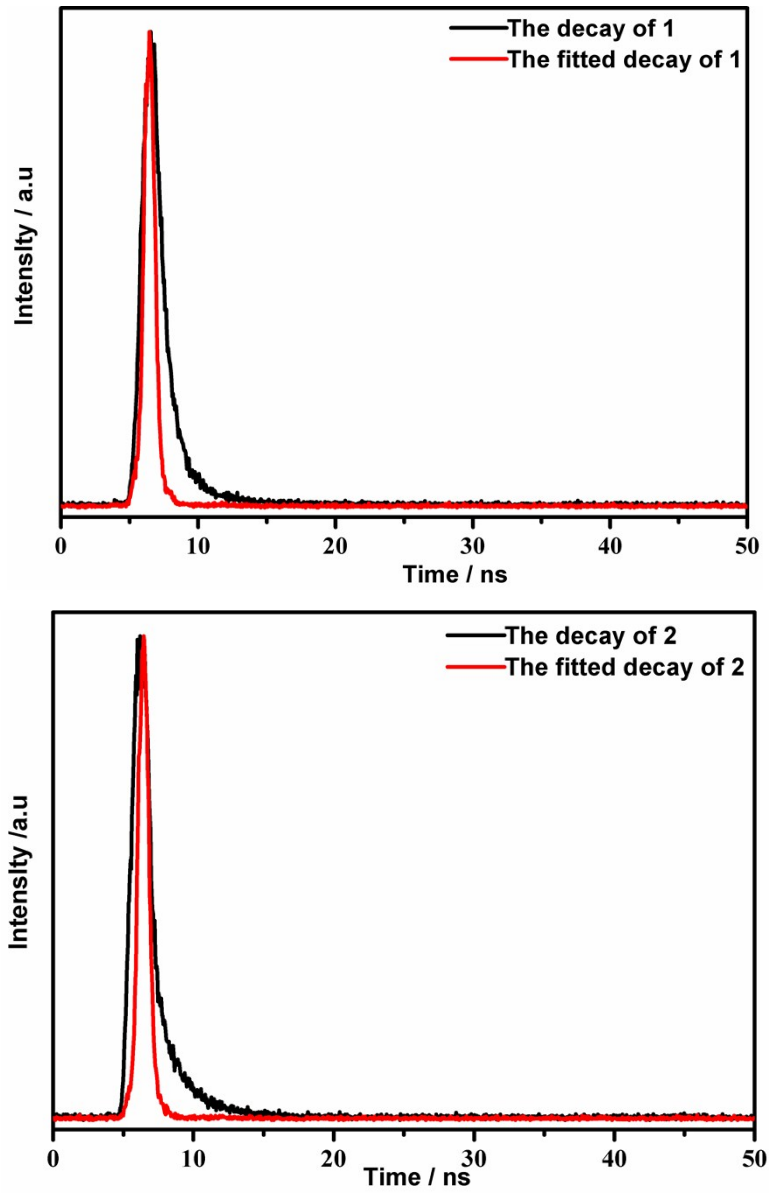


Figure S4. The fitted decay curve of CPs 1-2 at room temperature.

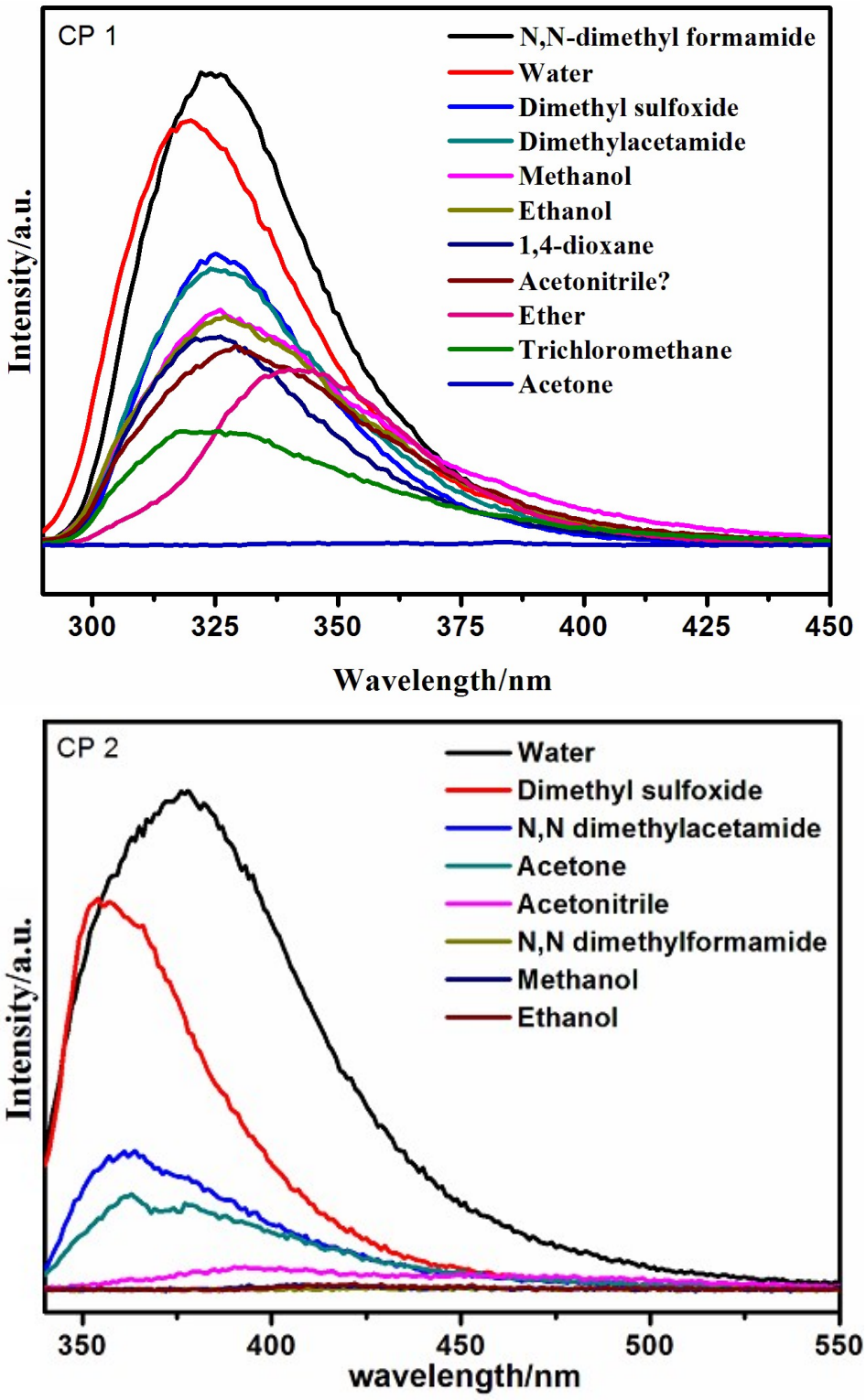


Figure S5. The fluorescence intensity of CPs 1-2 in different solvents.

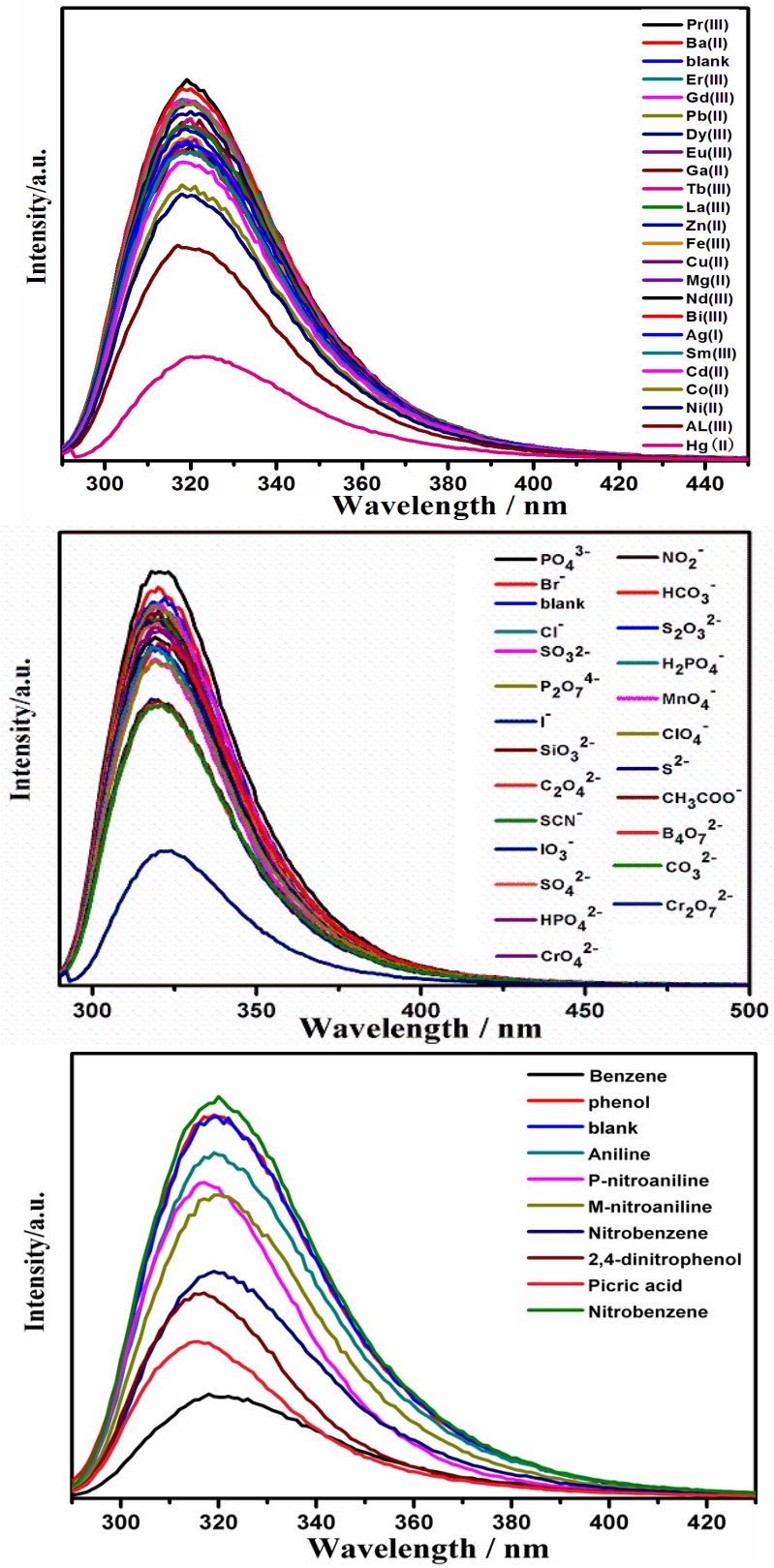


Figure S6 The luminescence curves of CP 1 with addition various metal ions and organic small molecules.

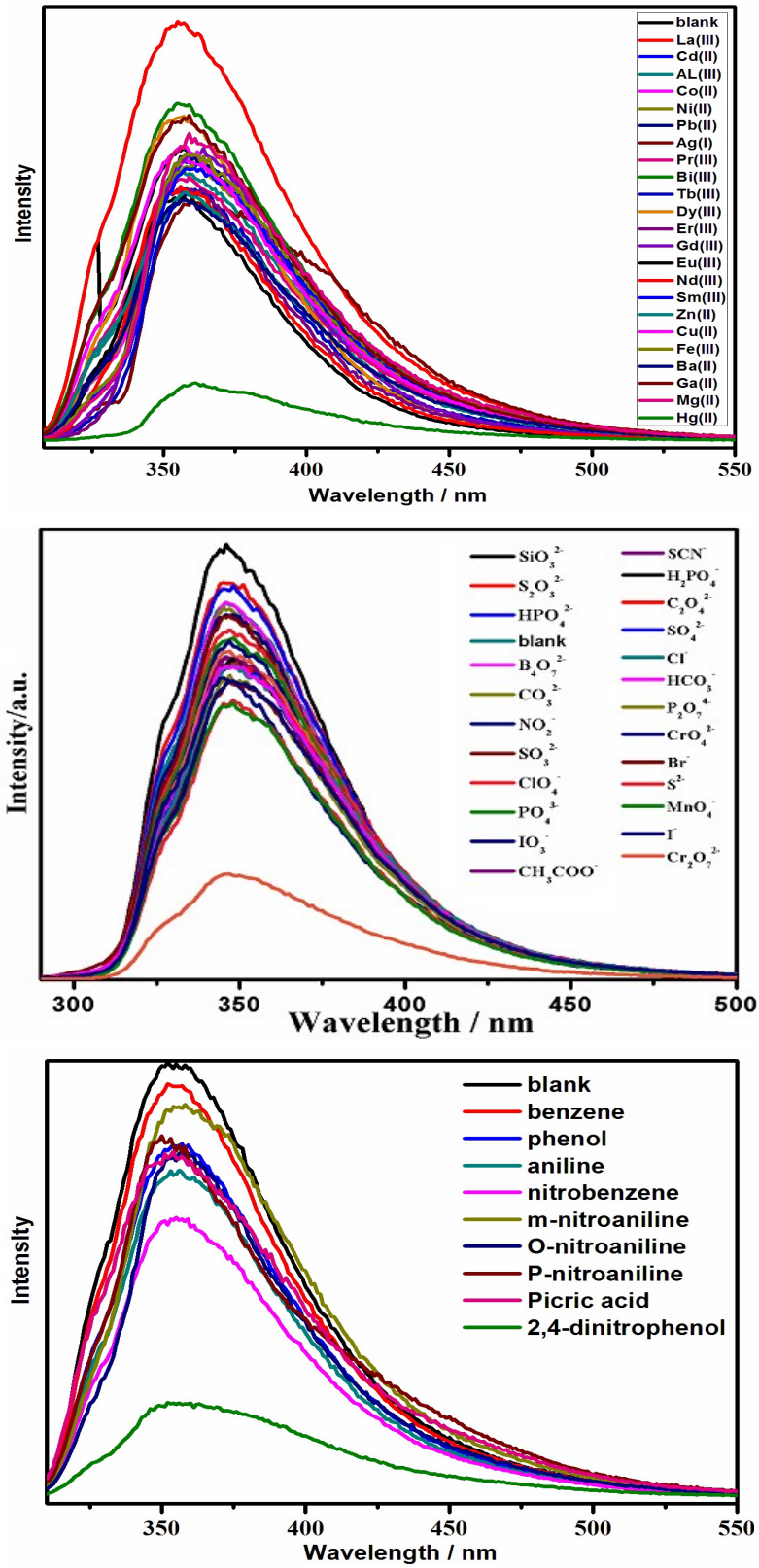


Figure S7 The luminescence curves of CP 2 with addition various metal ions and organic small molecules.

Detection Limit Calculation:

	FL Intensity / nm			Standard Deviation (σ)
CP 1	710.539917,	712.2828369,	713.2871704	2.4
	714.0880127,	715.6470947,	718.7345581	
CP 2	786.2508545,	785.6870117,	785.4523926	1.38
	789.2806396,	786.8482666,	788.2412109	

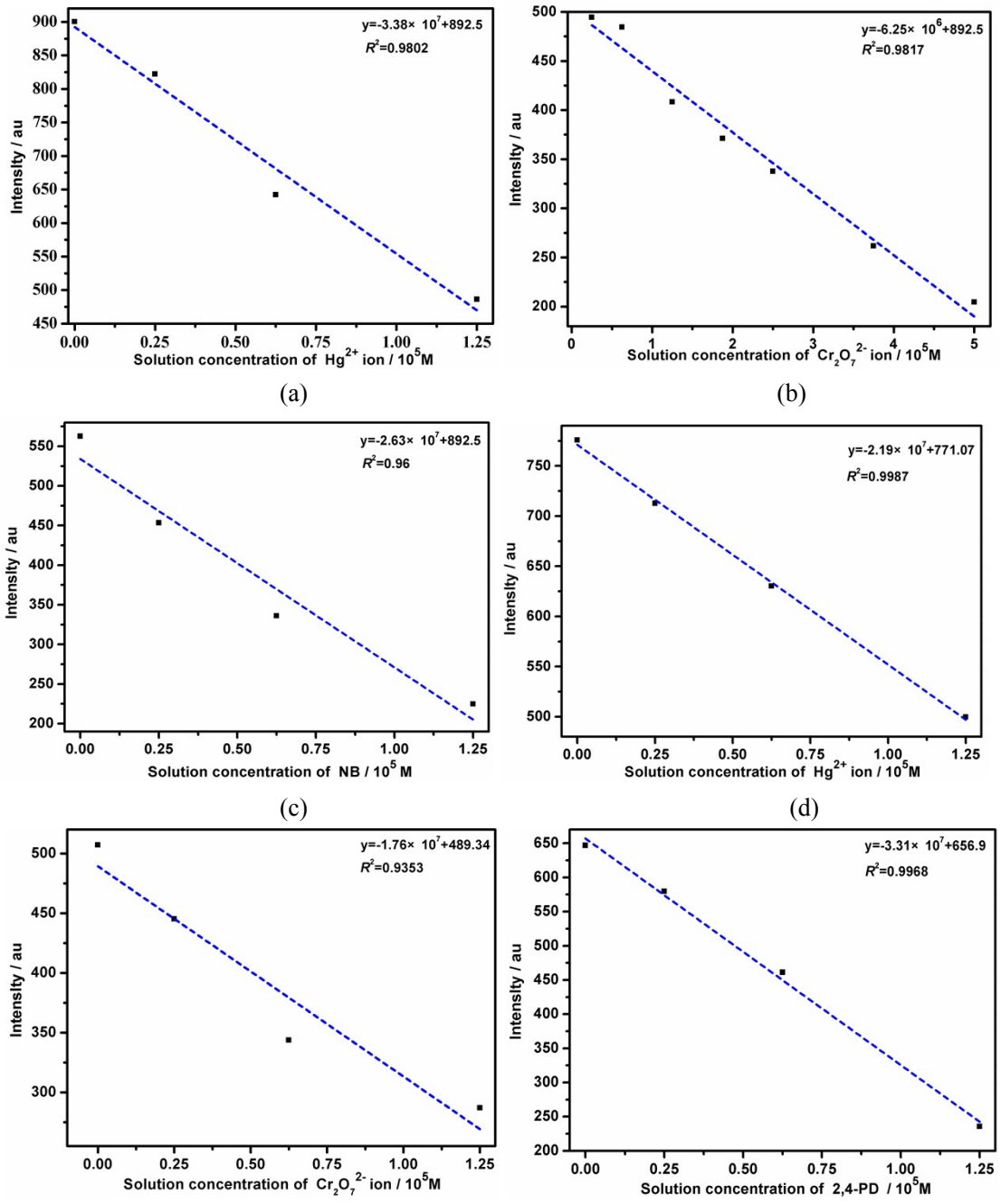


Figure S8. Linear region of fluorescence intensity of CP 1(a, b, c) and CP 2 (d, e, f) upon addition of Hg^{2+}, $Cr_2O_7^{2-}$, NB, or 2,4-DP.

Table S1 Selected bond lengths (Å) and angles (°) for the CPs 1-2

1			
Cd(1)-N(1)	2.2835(1)	Cd(1)-O(4)#3	2.3608(1)
Cd(1)-O(3)#3	2.3836(1)	Cd(1)-N(3)#1	2.2870(1)
Cd(1)-O(1)	2.2835(1)	Cd(1)-O(2)	2.3608(1)
Cd(1)-O(4)#2	88.390(1)	N(1) -Cd(1)-O(1)	98.963(1)
N(1) -Cd(1)- O(4) #2	94.071(1)	N(1) -Cd(1)- O(4) #3	87.220(1)
N(1) -Cd(1)- N(3)#1	174.148(3)	O(3) #1-Cd(1)- O(4) #2	122.693(1)
O(3) #3-Cd(1)- O(4) #2	51.434(1)	O(3) #3-Cd(1)- O(2)	142.188(1)
Symmetry codes: #1:x, y, 1+z; #2:1/2-x,-1/2+y,5/2-z; #3: 1/2+x,-1/2-y,1/2+z.			
2			
Cd(1)-O1	2.252(14)	Cd(1)-O(2) #1	2.245(13)
Cd(1)-N4#3	2.289(17)	Cd(1)-N(1)	2.314(17)
Cd(1)-O3#2	2.398(15)	Cd(1)-O4#2	2.449(14)
O7#3-Cd(1)-O(1)	105.5(3)	O7#3-Cd(1)-N4	89.8(3)
O(1)-Cd(1)-N4	84.9(3)	O7#3-Cd(1)-N(1)#1	96.3(3)
O(1)-Cd(1)-N(1)#1	92.7(3)	N4-Cd(1)-O3#3	85.4(3)
N4-Cd(1)-O4#3	87.4(3)	O3#3-Cd(1)-O4#3	53.8(2)
Symmetry codes:#1: #1: 2**-x ,** 1-y , -z ; #2: -**1**+x , 1+y , -z ; #3: **2**+x , -1+y , -**1**+z.			