

Electronic Supplementary Information (ESI)

A simple and effective fluorescent probe based on rhodamine B for determining Pd²⁺ ions in aqueous solution

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1. Part of optical spectroscopic data

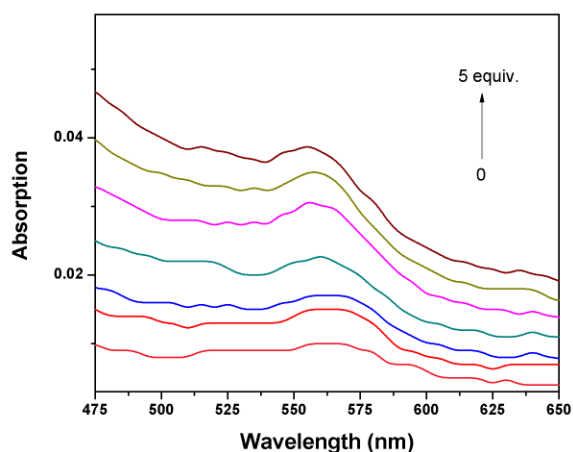


Fig. S1 Absorption responses of **RL** (10 μM) toward different concentrations of PdCl₂ in EtOH:H₂O (3:7 v/v) buffered with PBS (10 mM, pH = 7.2) solution.

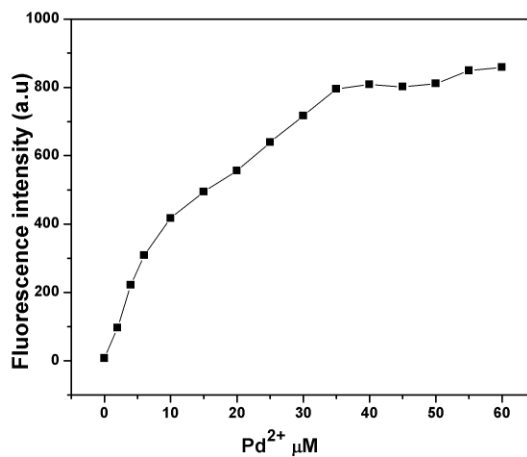


Fig. S2 Changes in fluorescent intensities at 585 nm of **RL** (10 μM) in the presence of different concentrations of PdCl₂ (0 μM to 50 μM).

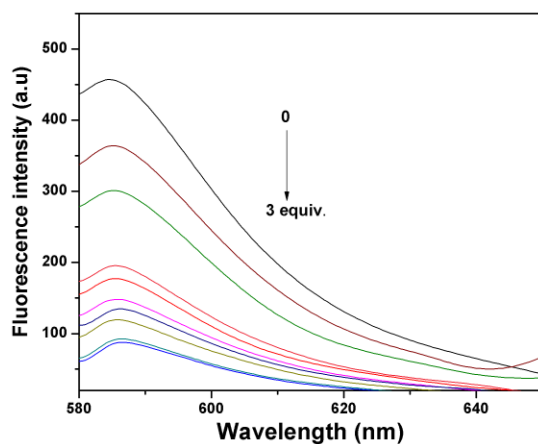


Fig. S3 Fluorescence spectral changes of **RL** (10 μM)/ Pd^{2+} (20 μM) upon addition of S^{2-} (0 μM to 30 μM) in EtOH/PBS (3:7, v/v, pH = 7.2).

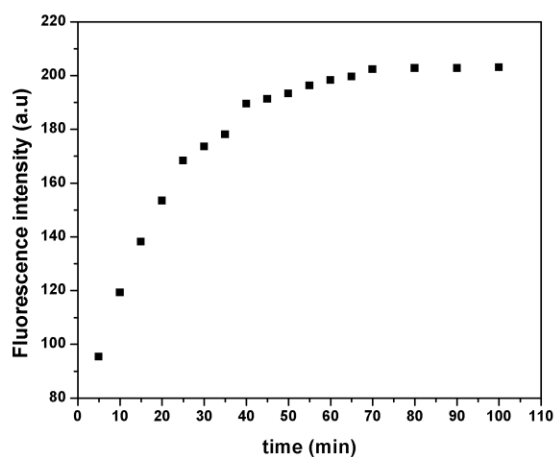
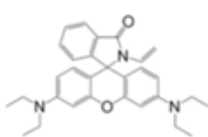
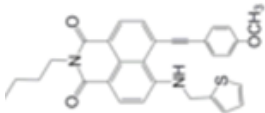

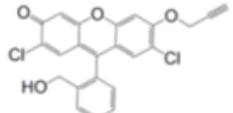
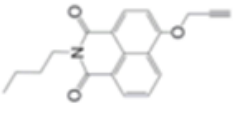
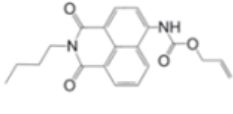
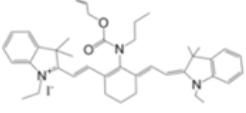
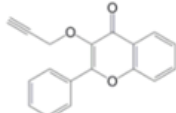
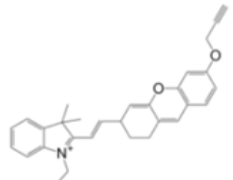
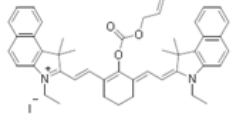
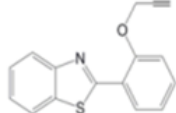


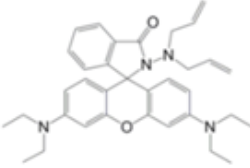
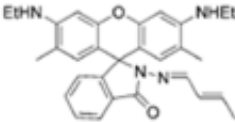
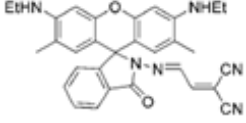
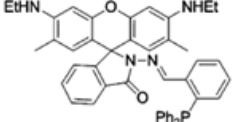
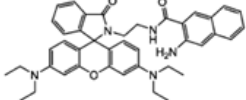
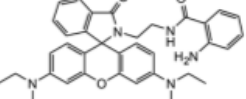
Fig. S4 Time-dependent fluorescent intensities change of **RL** (10 μM) with PdCl_2 (10 μM) in EtOH/PBS (3:7, v/v, pH = 7.2) at room temperature.

2. Summary of fluorescent probes for palladium

Table. S1 Summary of fluorescent probes for palladium.

Reference in the Main Manuscript	Structure of the Main Probe	Detection Limit	Selectivity	Response Time
This Work		21.3 nM	highly selective	60 min

13g		200 nM	highly selective	1 min
15a		—	better selective	not mentioned
16a		30 nM	better selective	3 h
16b		70 nM	highly selective	80 min
16c		6.1 nM	highly selective	not mentioned
16d		3.78 nM	excellent selectivity	1 h
16e		87 nM	highly selective	3 h
16f		340 nM	highly selective	not mentioned
16g		2.83 nM	excellent selectivity	900 s
16h		40 nM	highly selective	3 h

18a		185 nM	better selective	300 min
18b		180 nM	better selective	60 min
18b		1700 nM	better selective	60 min
18c		5 nM	highly selective	5 s
18d		45.9 nM	highly selective	10 min
18e		73.8 nM	highly selective	10 min

3. NMR Data

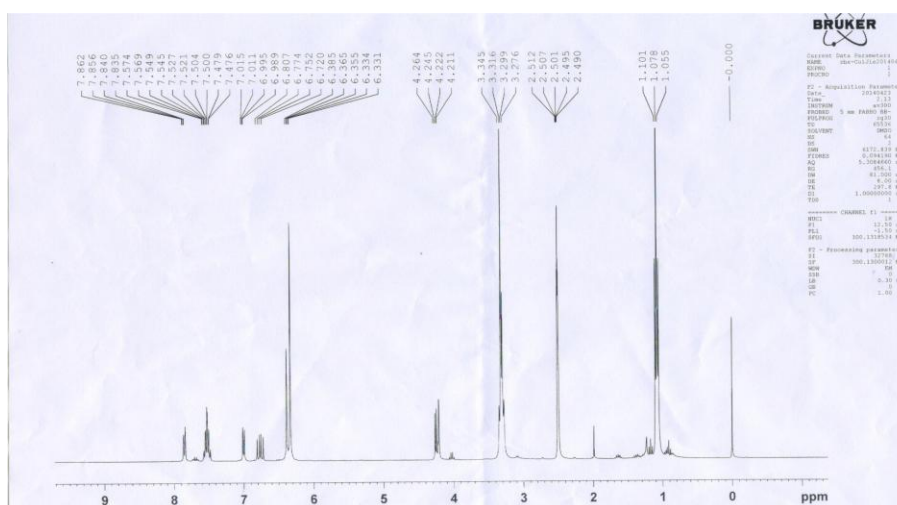


Fig. S5 ¹H NMR of 18L

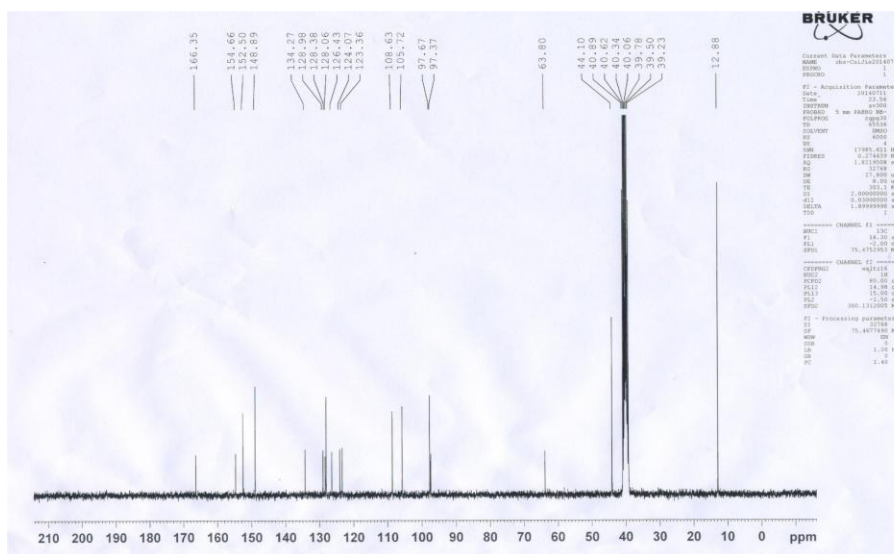


Fig. S6 ¹³CNMR of RL

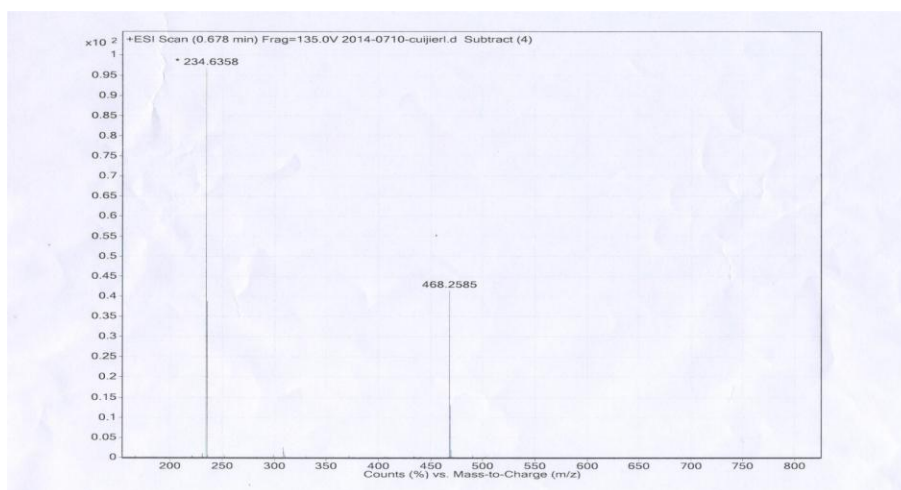


Fig. S7 TOF-HRMS of RL

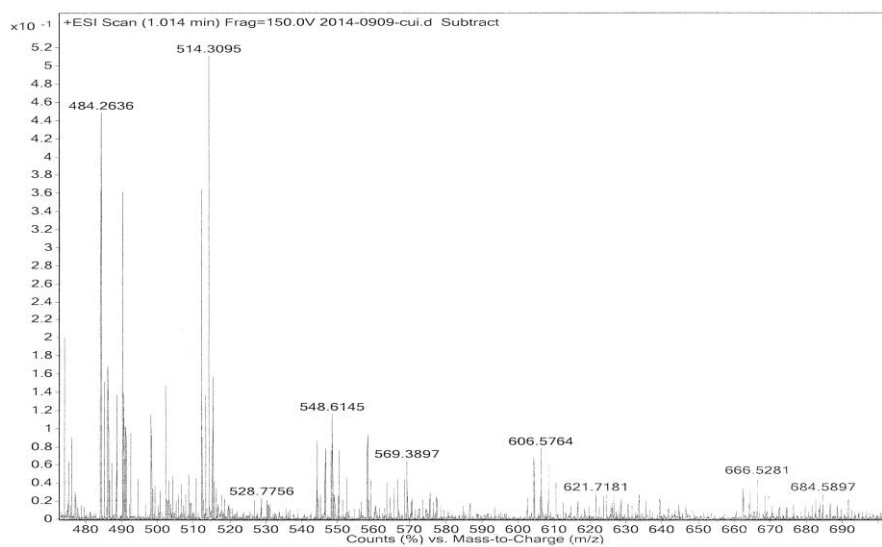


Fig. S8 TOF-HRMS of $\text{RL}+\text{Pd}^{2+}$