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Supporting Information

Pyrazoline based fluorescent chemosensor for Al^{3+} ion detection and live cell imaging

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Table S1. Optical properties of **PY-I** and **PY-II** on selected low to high polar solvents.

	Material PY-I				Material PY-II			
Solvent	**Abs (nm)**	**Ems (nm)**	**Δ (nm)**	**QY (ϕ)**	**Abs (nm)**	**Ems (nm)**	**Δ (nm)**	**QY (ϕ)**
Hexane	343	396	53	0.51	344	416	72	0.53
THF	346	399	53	0.52	346	426	80	0.54
$CHCl_3$	348	402	54	0.54	348	439	91	0.55
EtOAc	344	398	54	0.52	344	430	86	0.56
Dioxane	346	400	54	0.53	347	431	84	0.53
Acetone	344	399	55	0.54	345	428	83	0.54
CH_3CN	344	399	55	0.51	344	435	91	0.52
DMF	347	401	54	0.53	347	430	83	0.55
DMSO	349	403	54	0.53	349	433	84	0.54

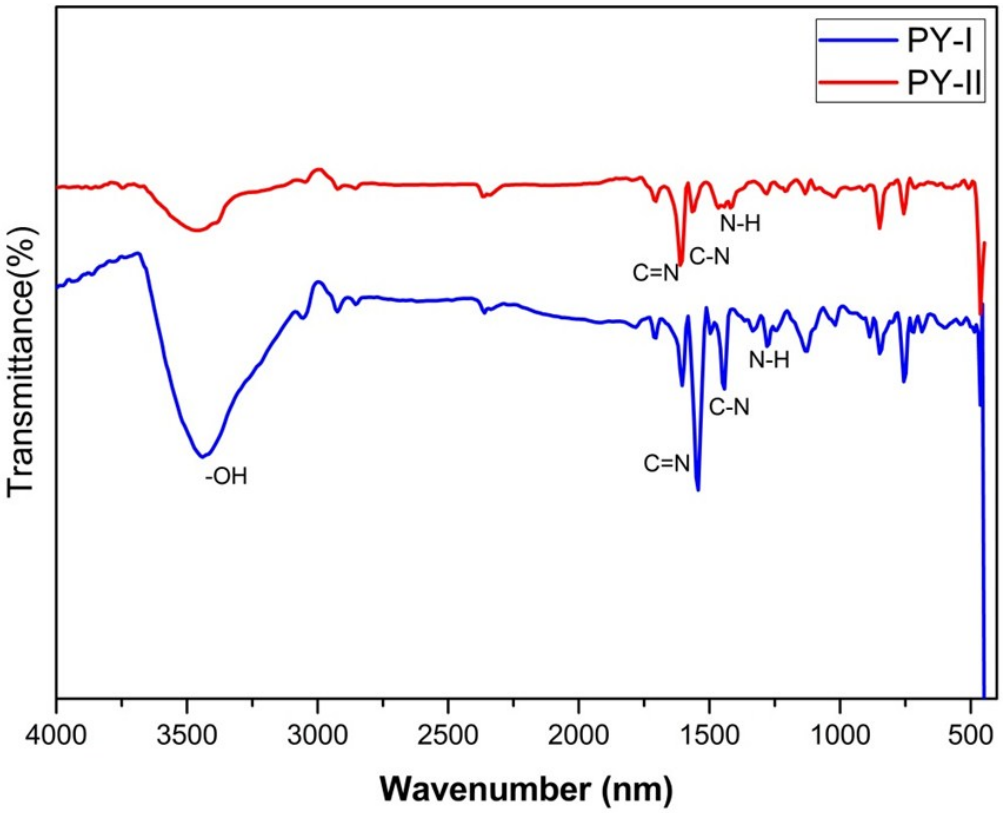

Fig. S1. FT- IR spectra of **PY-I** and **PY-II**

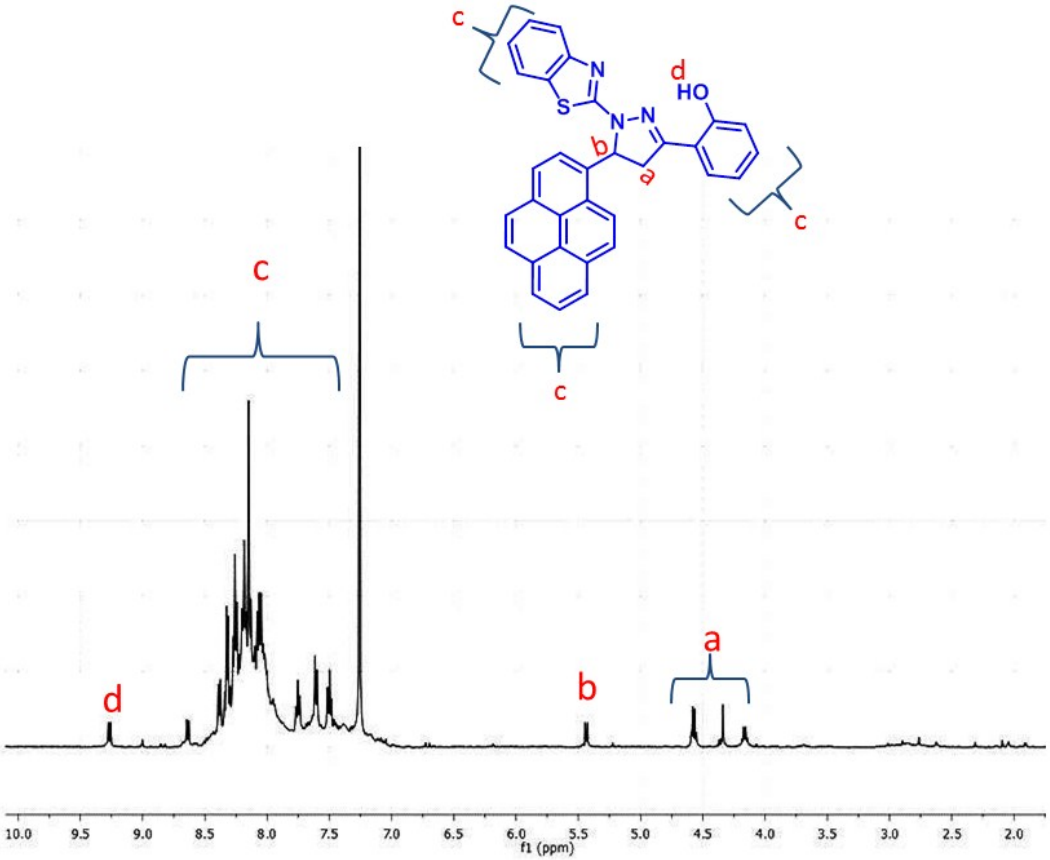

Fig. S2. ^{1}H-NMR spectrum of **PY-I**

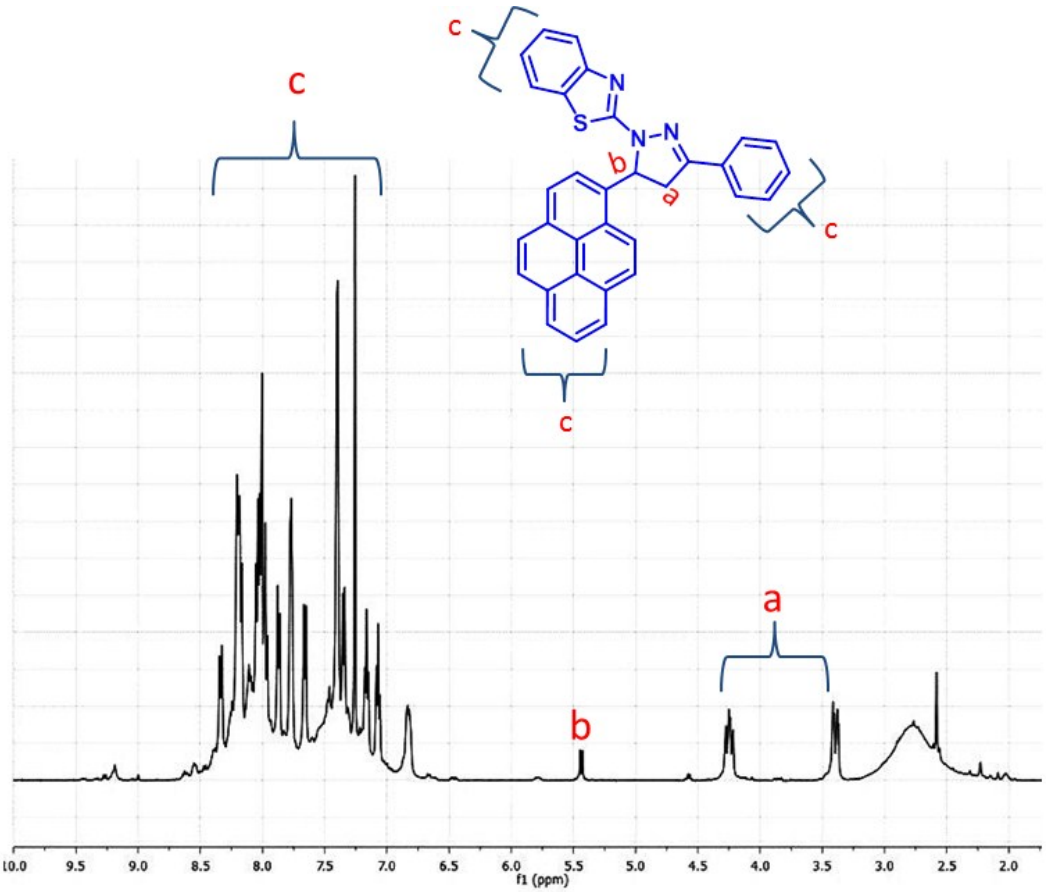

Fig. S3. ^{1}H-NMR spectrum of **PY-II**

2-(1-(benzo[d]thiazol-2-yl)-5-(pyren-1-yl)-4,5-dihydro-1H-pyrazol-3-yl)phenol[PY-I]

Yield: 78 %:FT-IR (KBr, cm^{-1}):1560 (vC=N), 1440 (vC-N), 1274 (vN-H), ^{1}H-NMR (400 MHz, CDCl3) (δ / ppm): 4.14 (dd, 1H); 4.3 (dd, 1H); 5.4 (dd, 1H); 7.2 – 8.3 (m, 17 H, Ar–CH). 9.3 (s, 1H, OH).

2-(3-phenyl-5-(pyren-1-yl)-4,5-dihydro-1H-pyrazol-1-yl)benzo[d]thiazole [PY-II]

Yield: 82 %:FT-IR (KBr, cm^{-1}):1614 (vC=N), 1545 (vC-N), 1380 (vN-H), ^{1}H NMR (CDCl3), d (ppm): 3.40 (dd, 1H), 4.2 (dd, 1H), 5.4 (dd, 1H,), 6.8 – 8.3 (m, 17 H, Ar–CH).

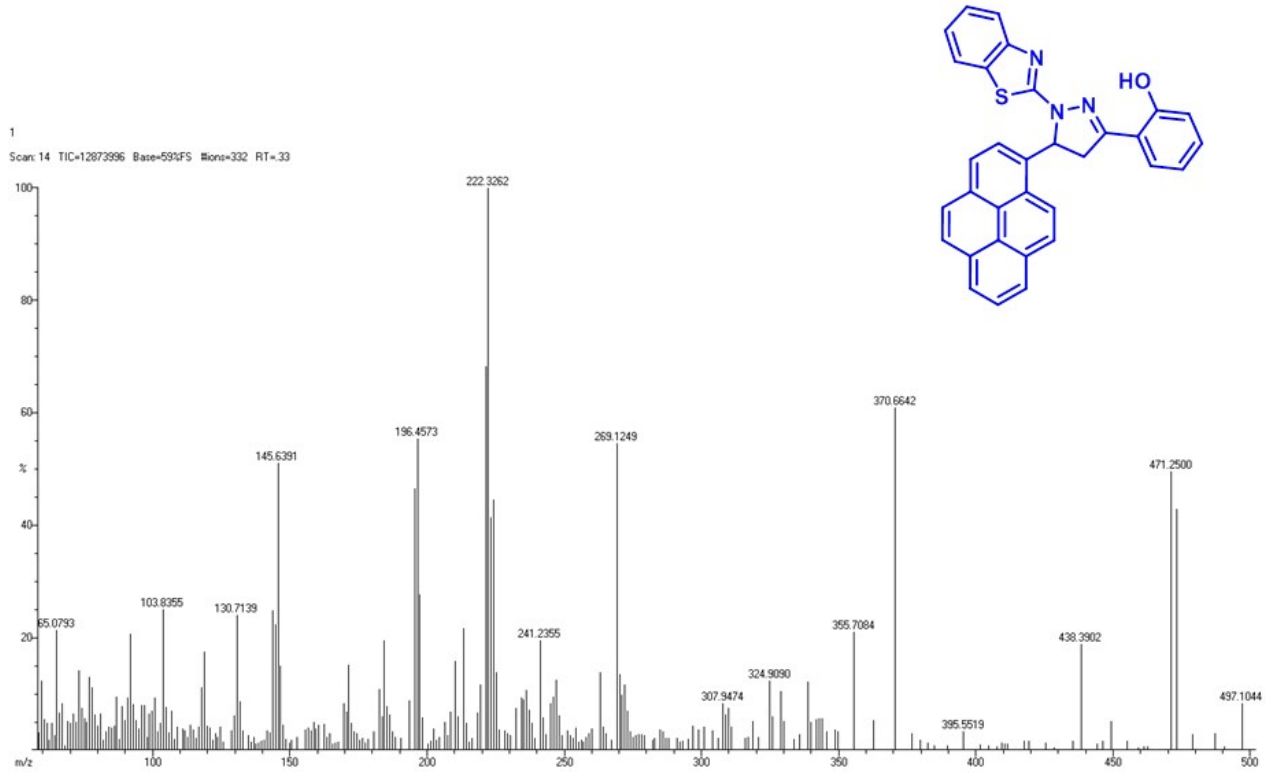

Fig. S4. Mass spectrum of **PY-I.**

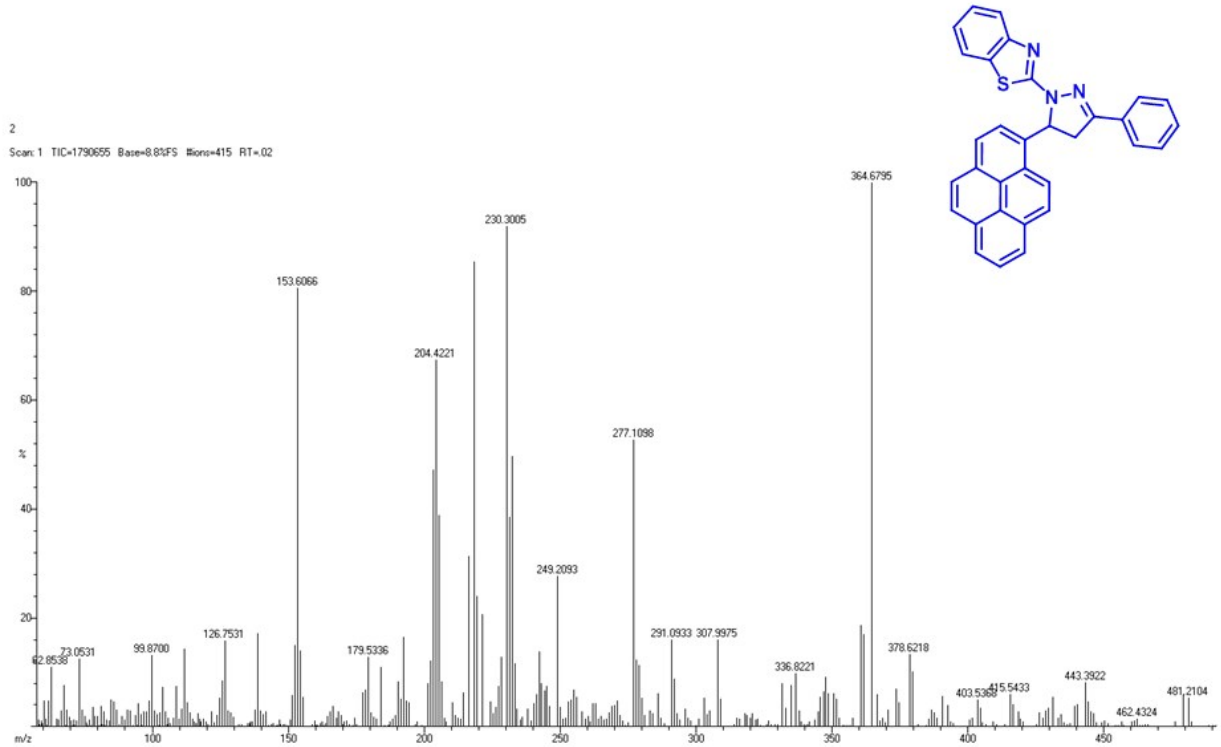

Fig. S5. Mass spectrum of **PY-II**

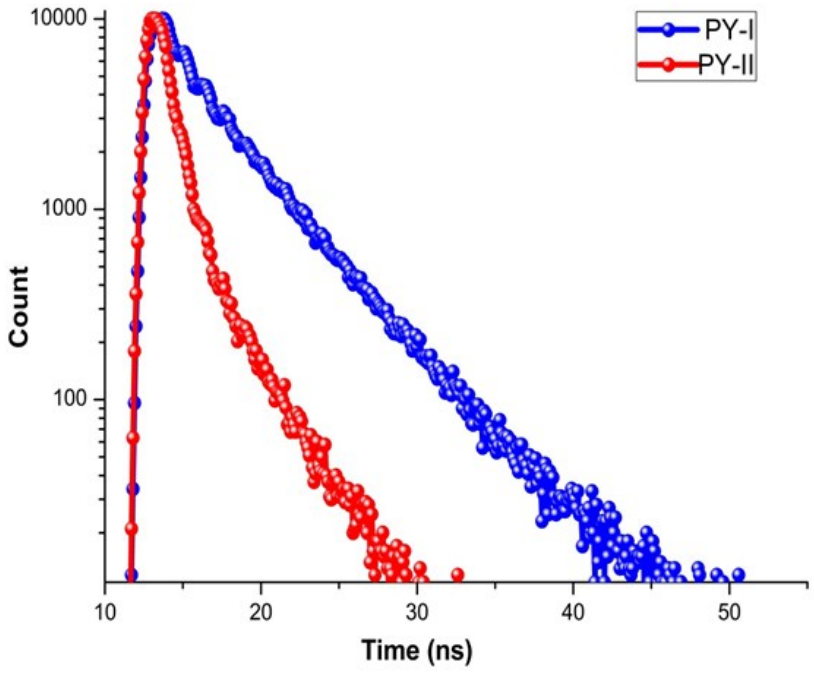

Fig. 6. Fluorescence decay curves of **PY-I** and **PY-II**

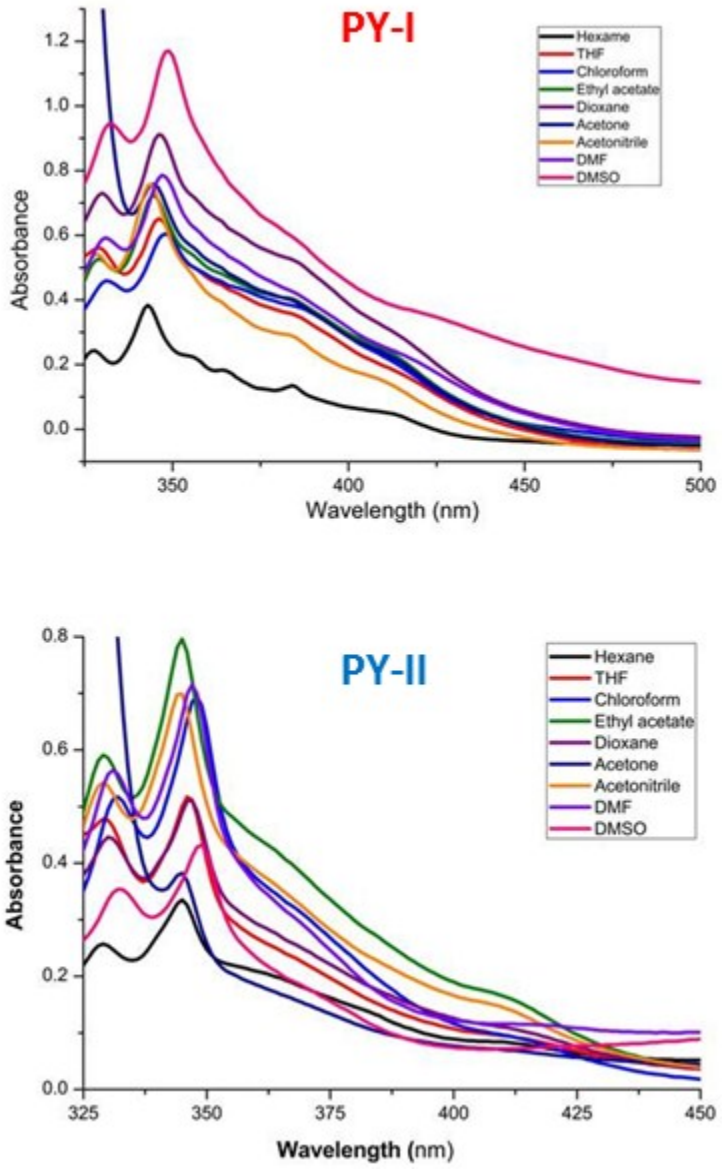

Fig. S7. Absorption spectral shifts of **PY-I** and **PY-II** in various solvents.

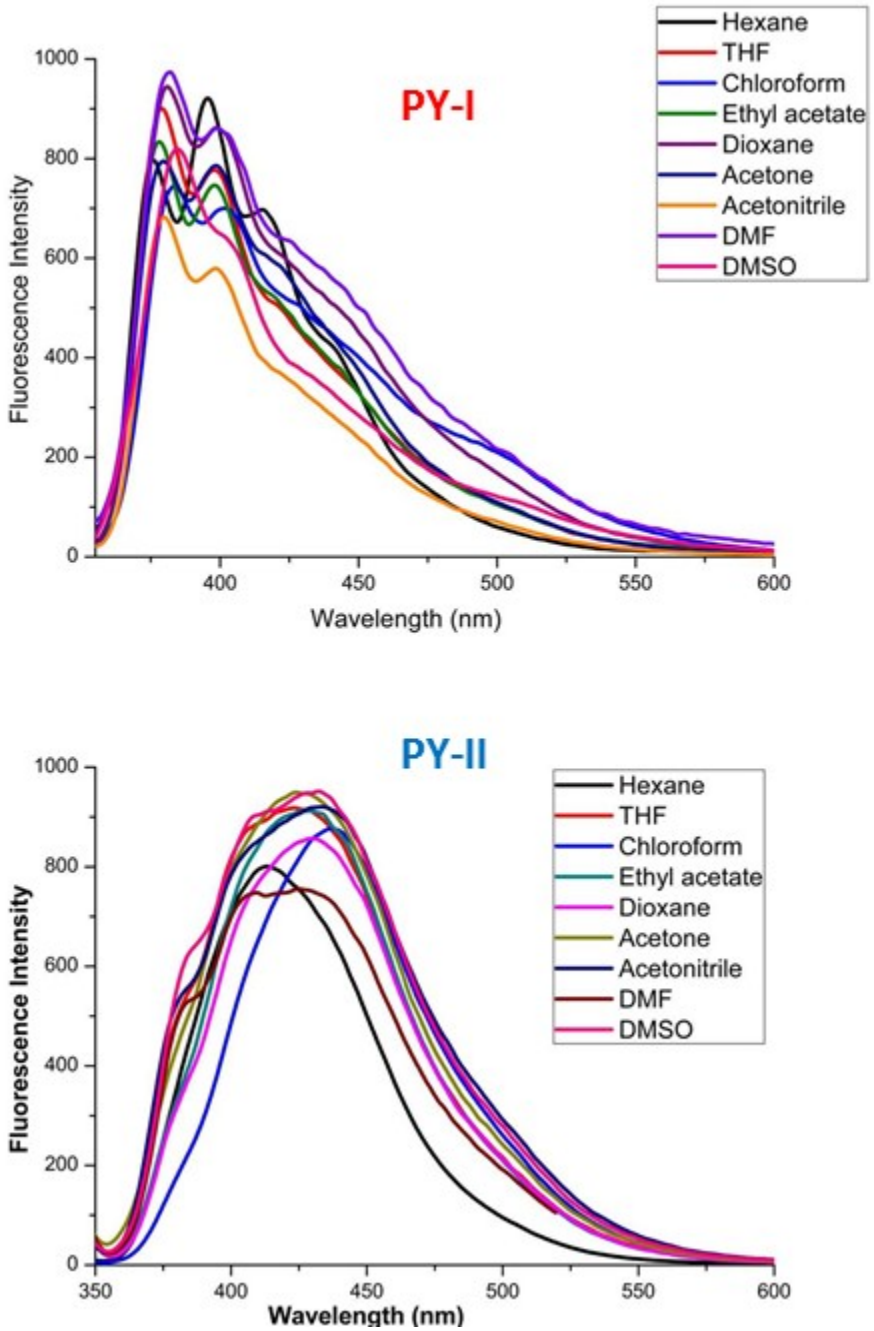

Fig. S8. Emission spectral shifts of **PY-I** and **PY-II** in various solvents.

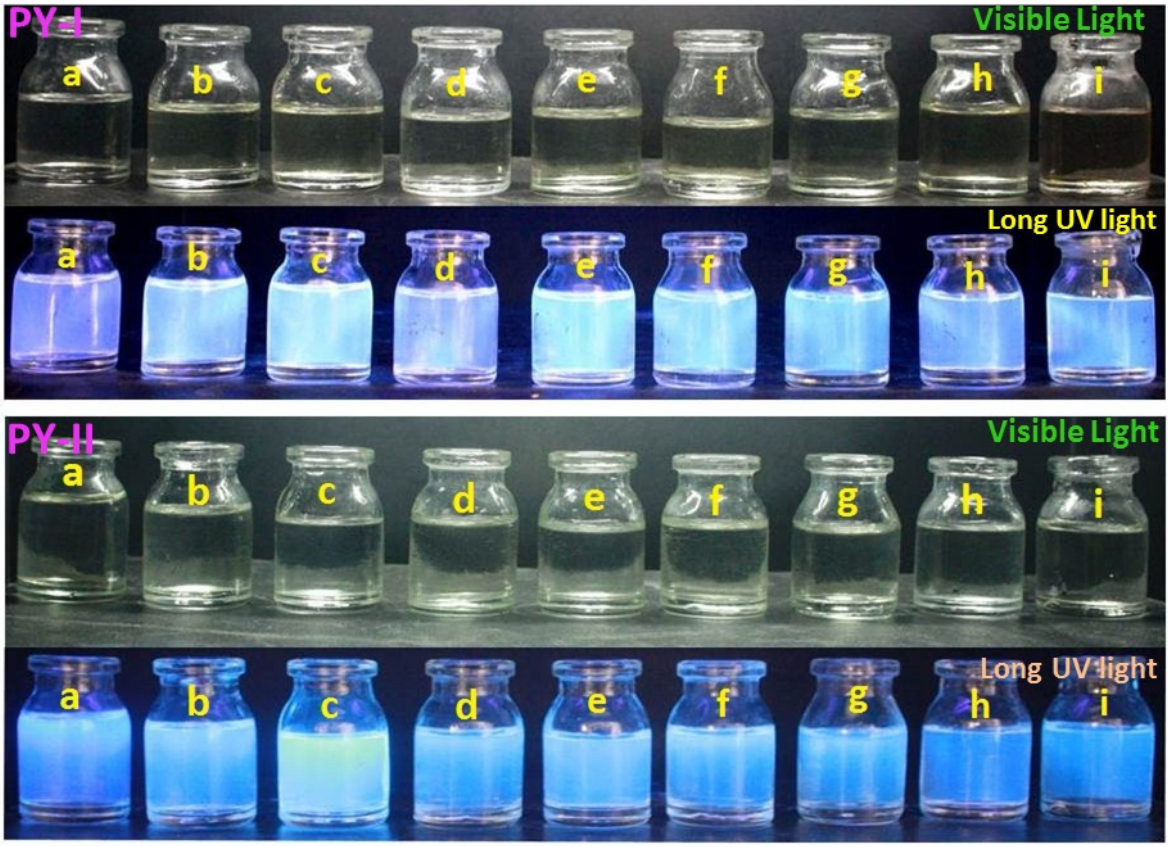

Fig. S9. Solvent effect of **PY-I** and **PY-II** on various solvent under long UV (365 nm) and visible (420 nm) light illumination. (a) Hexane (b) THF (c) Chloroform (d) Ethyl acetate (e) Dioxane (f) Acetone (g) Acetonitrile (h) DMF (i) DMSO.

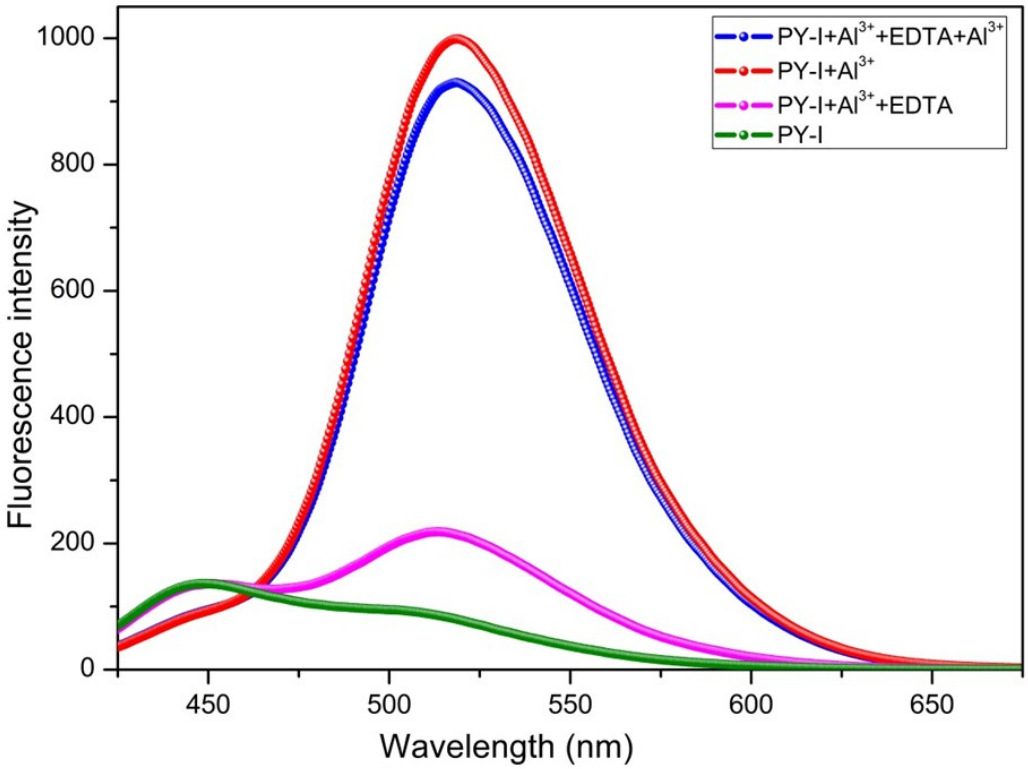

Fig. S10. Reversibility of PY-I with $Al3^{+}$ binding at 518 nm

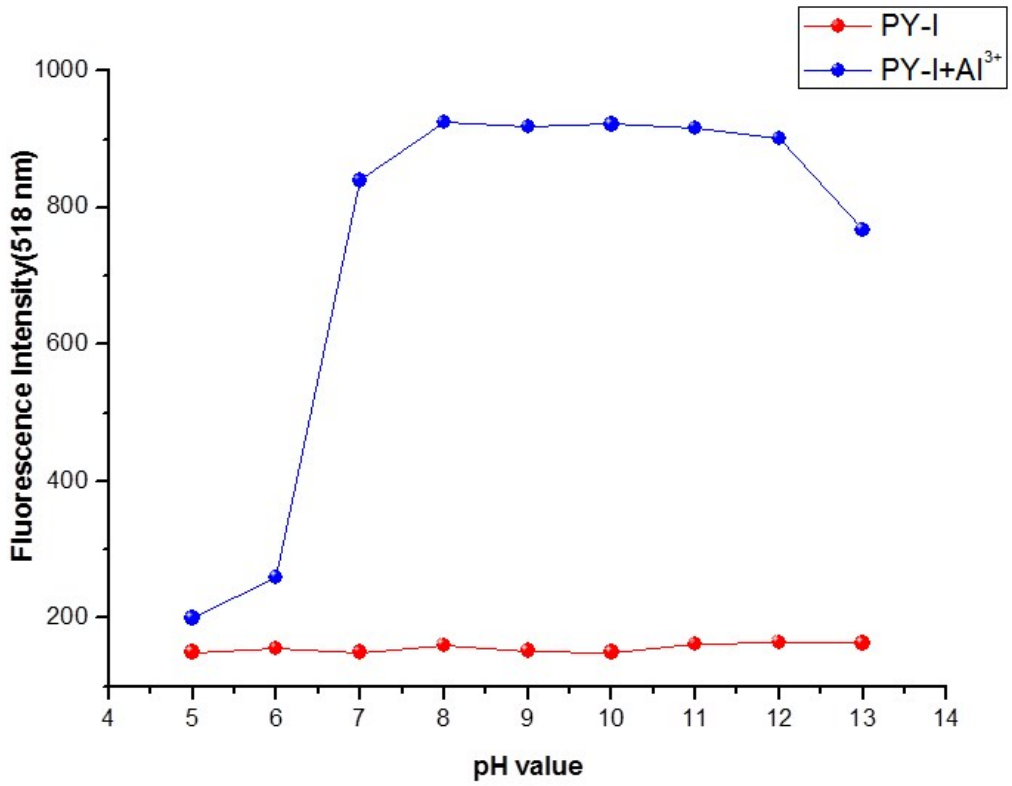

Fig. S11. Fluorescence intensity (518 nm) of **PY-I** in the absence and presence of Al^{3+} ion at different pH values.

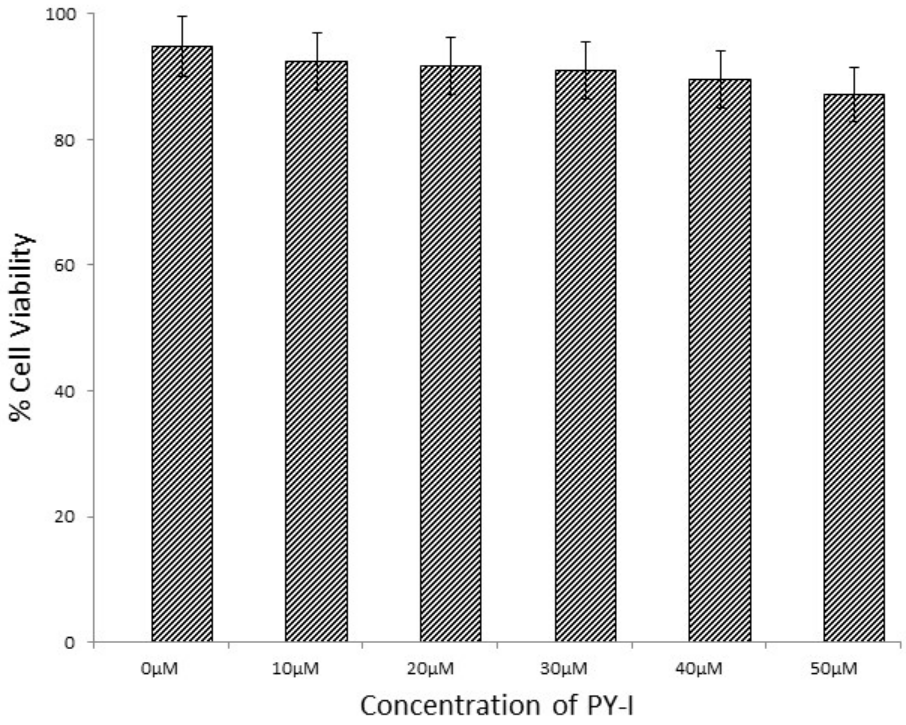

Fig. S12. Viability of Mouse embryonic fibroblast (3T3-L1) cells incubated with probe 4 (0, 10, 20, 30, 40, 50 μM) for 24 h.