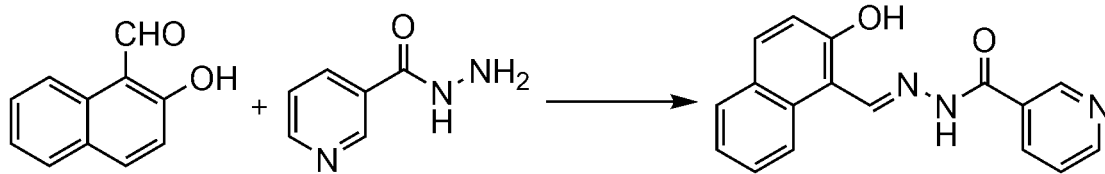# SUPPLEMENTARY MATERIAL

A Highly Selective and Sensitive Chemosensor for Colorimetric and Fluorescent Detection of Al^{3+} and Living Cell Imaging

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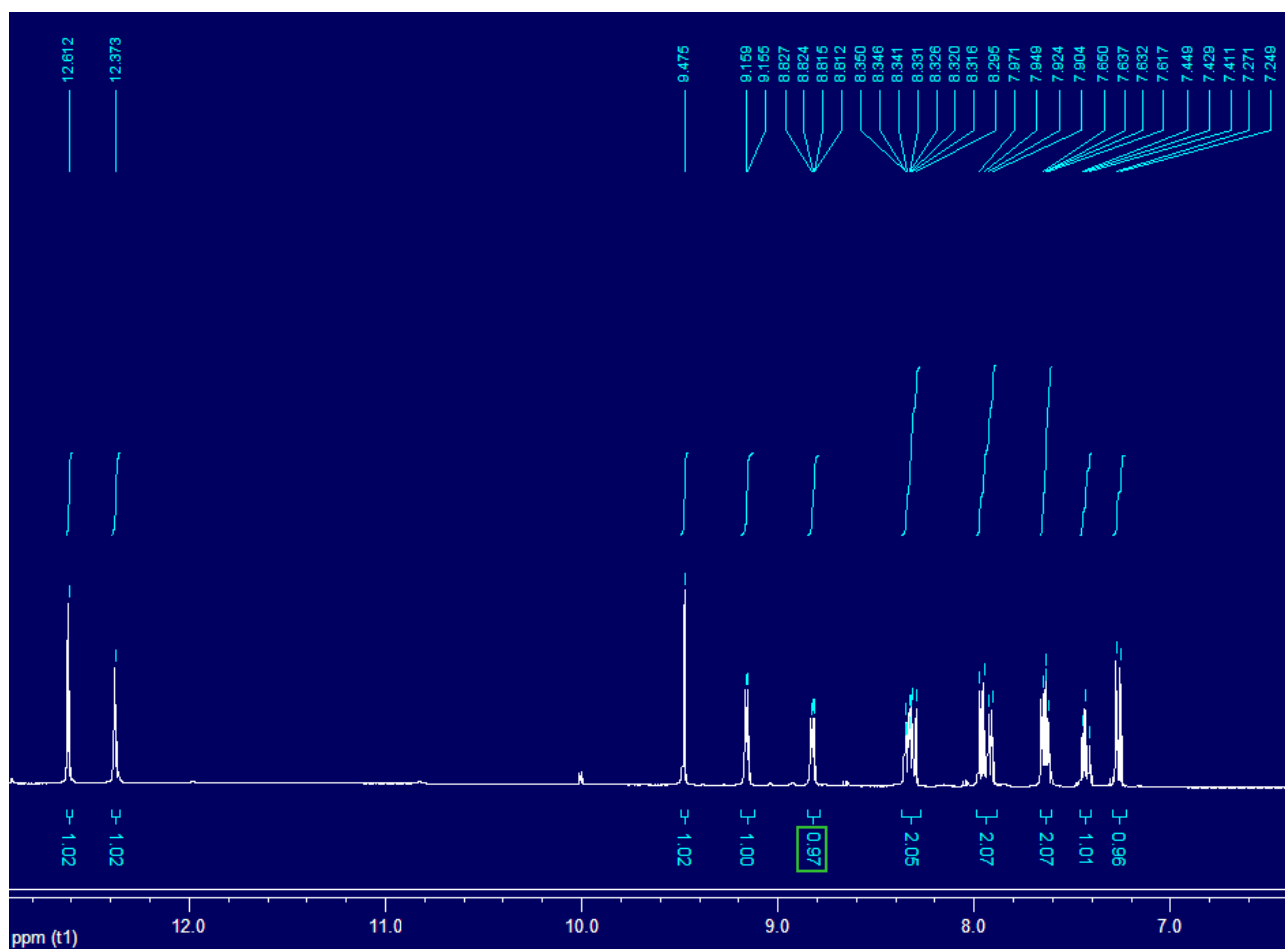[B]Corresponding author. Email: enjuwang@163.com

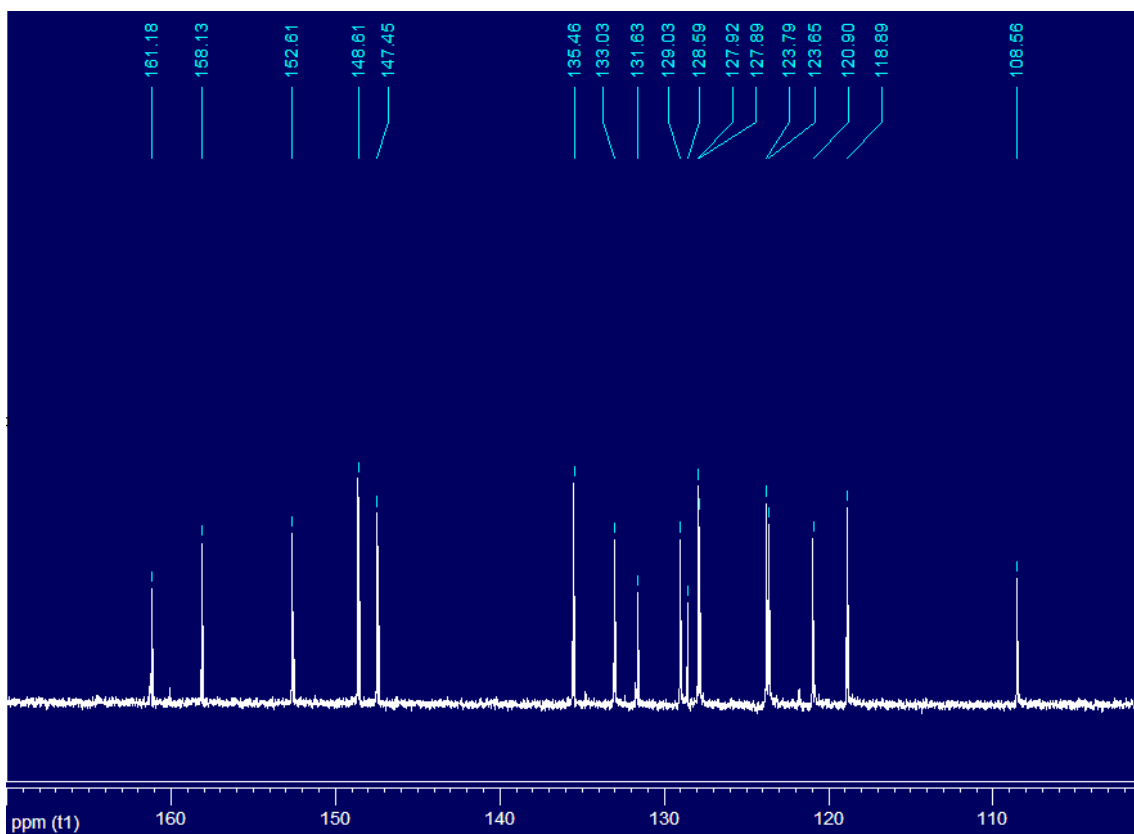**Scheme 1** Synthesis of **HNN**

Fig. S1. ^{1}H NMR spectrum of **HNN.**
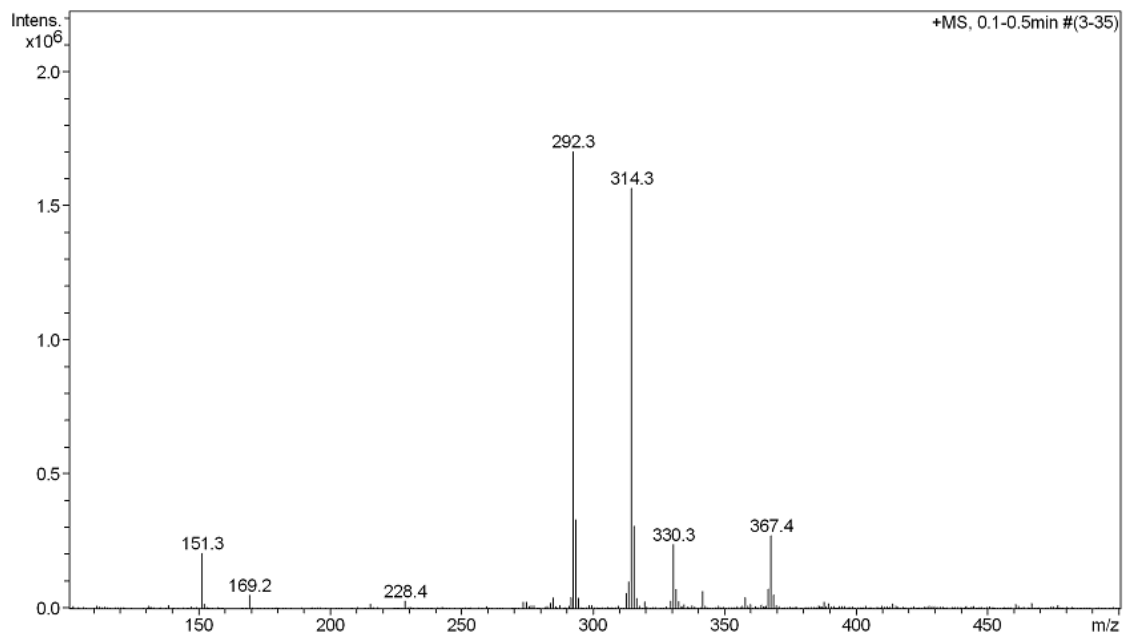
Fig. S2. ^{13}C NMR spectrum of compound **HNN**.

Fig. S3. ESI-MS spectrum of **HNN** in positive ion mode.
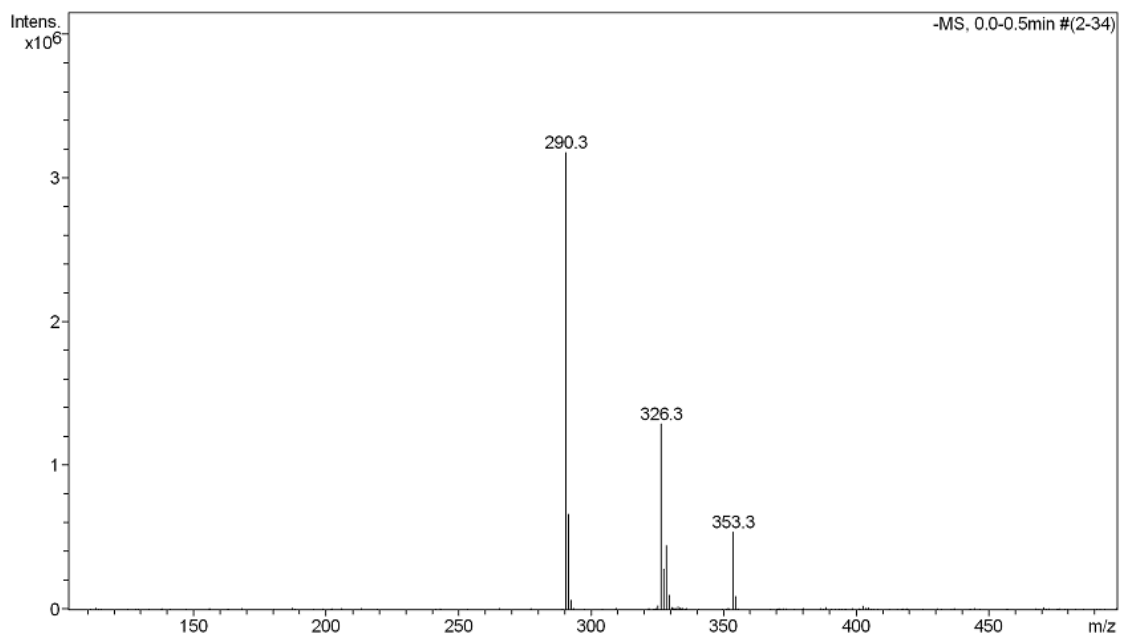[M+H]$^{+}$, *m/z* =292.3; [M+Na]$^{+}$, *m/z* =314.3; [M+K]$^{+}$, *m/z* =330.3.

Fig. S4. ESI-MS spectrum of **HNN** in negative ion mode.
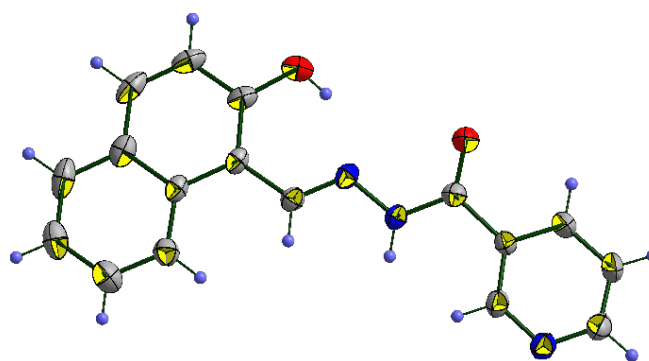$[M-H]^-$, $m/z = 290.3$; $[M+H_2O+OH]^-$, $m/z = 326.3$; $[M+NO_3]^-$, $m/z = 353.3$.

Fig. S5. The molecular structure of **HNN**. Thermal ellipsoids are shown at 30% probability levels.
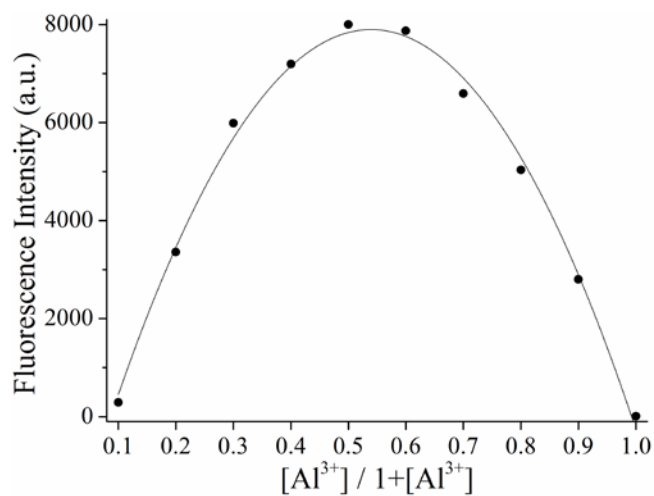

Fig. S6. Job's plot for **HNN**/Al^{3+} in EtOH-H_2O (90/10, v/v) at 25℃. The total [**HNN**] + [Al^{3+}] = 40 μM. λ_{ex}= 410 nm, λ_{em}= 480 nm.
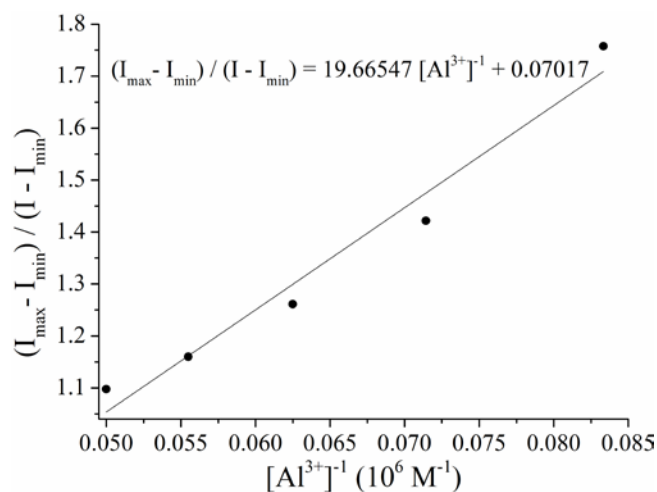
Fig. S7. Bensei-Hildebrand plot of $(I_{max}-I_{min}) / (I-I_{min})$ as a function of $[Al^{3+}]^{-1}$ at $\lambda_{ex}= 410$ nm, $\lambda_{em}= 480$ nm.

The plot shows the equation: $(I_{max} - I_{min}) / (I - I_{min}) = 19.66547 [Al^{3+}]^{-1} + 0.07017$

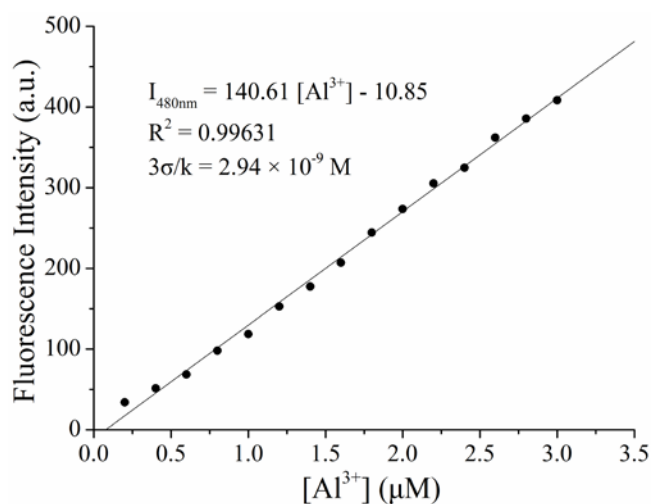**Fig. S8.** Linear calibration curve of $I_{480\ nm}$ as a function of Al^{3+} concentration. $\lambda_{ex}= 410$ nm, $\lambda_{em}= 480$ nm.

The plot shows: $I_{480nm} = 140.61 [Al^{3+}] - 10.85$, $R^2 = 0.99631$, $3\sigma/k = 2.94 \times 10^{-9}$ M
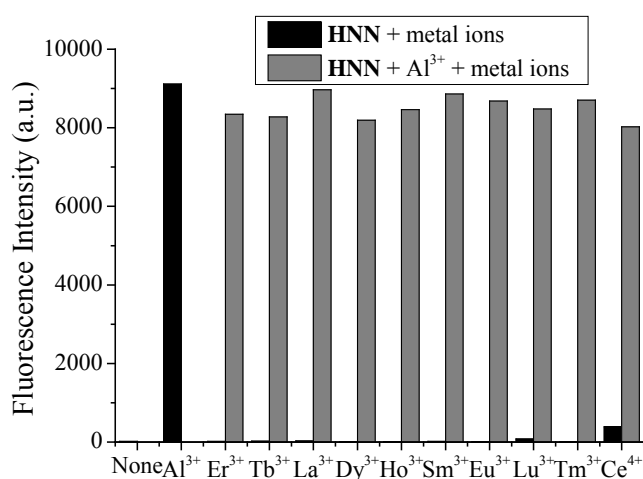

Fig. S9. The selective responses of **HNN** to Al^{3+} (2.0 equiv) in the presence of some rare-earth metal ions (2.0 equiv) at 480 nm.

Table 1. Crystal data and structure refinement

Empirical formula	$C_{17}H_{13}N_3O_2$
Formula weight	291.30
Temperature/K	293(2)
Crystal system	orthorhombic
Space group	$P2_12_12_1$
a/Å	6.2664(5)
b/Å	12.3269(11)
c/Å	18.4866(12)
α/°	90.00
β/°	90.00
γ/°	90.00
Volume/Å^3	1428.0(2)
Z	4
ρ_{calc} /mg·mm^{-3}	1.355
μ/mm^{-1}	0.092
$F(000)$	608.0
2θ range/°	4.4 to 59.24
Index ranges	$-8 \leqslant h \leqslant 6$,
	$-9 \leqslant k \leqslant 15$,
	$-17 \leqslant l \leqslant 25$
Reflections collected	4675
Independent reflections	3083[R(int)=0.0521]
Data/restraints/parameters	3083/0/200
Goodness-of-fit on F^2	1.017
R_1, wR_2 [$I>2\sigma(I)$]	0.0726, 0.1237
R_1, wR_2 [all data]	0.1670, 0.1641
Largest diff. peak / hole/ e·Å^{-3}	0.20/-0.22