Supporting Information

A highly sensitive naked-eye fluorescent probe for trace hydrazine based on 'C-CN' bond cleavage

Hai Xu,a Zhen Huang,a Yaqian Li,a Biao Gu,b Zile Zhou,a Ruihua Xie,a Xiao Pang,a Haitao Li,a,* and Youyu Zhang a

aKey Laboratory of Chemical Biology and Traditional Chinese Medicine Research (Ministry of Education), College of Chemistry and Chemical Engineering, Hunan Normal University, Changsha 410081, PR China

bKey Laboratory of Functional Organometallic Materials of College of Hunan Province, College of Chemistry and Materials Science, Hengyang Normal University, Hengyang 421008, PR China

*Corresponding author. Tel: +86-751-88865515; Fax: +86-731-88872531.
Fig. S1. $^1$H NMR spectrum of probe DHM (500 MHz, CDCl$_3$).
Fig. S2. $^{13}$C NMR spectrum of probe DHM (126 MHz, CDCl$_3$).
Fig. S3. HRMS spectrum (ESI positive ion mode) of DHM.
**Fig. S4.** $^1$H NMR spectrum of probe DHM-$\text{N}_2\text{H}_4$ (500 MHz, CDCl$_3$).
Fig. S5. $^{13}$C NMR spectrum of probe DHM-N$_2$H$_4$ (126 MHz, CDCl$_3$).
Fig. S6. $^{13}$C NMR (500 MHz) spectra of DHM (A) and the isolated product of DHM + N$_2$H$_4$ (B) in CDCl$_3$. 
Fig. S7. HRMS spectrum (ESI positive ion mode) of DHM-N$_2$H$_4$. 

*Exact Mass: 466.2805*
**Fig. S8.** The effect of pH on the fluorescence intensity at \((I_{516\text{ nm}}/I_{640\text{ nm}})\) of probe DHM (10 μM) in the absence (black) or presence (red) of \(\text{N}_2\text{H}_4\) (300 μM).
**Fig. S9.** Time-dependent fluorescence intensity at 516 nm (black) and 640 nm (red) of probe DHM in the presence of N$_2$H$_4$ (300 µM).
Fig. S10. UV-vis spectra of DHM (10 μM) in the presence of different concentrations of N$_2$H$_4$ (0-400 μM) in 10 mM PBS buffer (DMSO/H$_2$O = 9:1, v/v, pH = 7.4).
Fig. S11. The color changes of probe DHM (10 µM) upon addition of different concentrations of N$_2$H$_4$ in DMSO/PBS buffer (9:1, v/v, 10 mM, pH = 7.4).
Fig. S12. UV-vis spectra of DHM (10 μM) in the presence of various species (300 μM some other amines, metal ions, anions and N₂H₄).
Fig. S14. Fluorescence emission spectra of DHM (10 µM) in presence of N$_2$H$_4$ (300 µM) and other species in 10 mM PBS buffer (DMSO/H$_2$O = 9:1, v/v, pH = 7.4). Black line: DHM; red line: DHM + N$_2$H$_4$; blue line: DHM + N$_2$H$_4$ + Cu$^{2+}$ (300 µM); green line: DHM + N$_2$H$_4$ + Cu$^{2+}$ (300 µM) + EDTA (400 µM).