Supporting Information

A “naked-eye” colorimetric and ratiometric fluorescence probe for trace hydrazine

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Fig. S1 $^1$H NMR spectrum of Probe DH (500 MHz, CDCl$_3$)
Fig. S2 $^{13}$C NMR spectrum of Probe DH (500 MHz, CDCl$_3$)
Fig. S3 MS spectrum of DH
Fig. S4 ¹H NMR spectrum of DDP (500 MHz, CDCl₃)
Fig. S5 $^{13}$C NMR spectrum of DDP (500 MHz, CDCl$_3$)
**Fig. S6** MS spectrum of probe DH⁺ N₂H₄
**Fig. S7** Photographs of probe DH (10 μM) solution in the presence of various concentrations of N₂H₄ (1. 0 μM, 2. 10 μM, 3. 20 μM, 4. 30 μM, 5. 50 μM, 6. 70 μM, 7. 80 μM, 8. 100 μM, 9. 500 μM) in PBS buffer (50% DMSO, pH = 7.4).

**Fig. S8** Photographs of probe DH (10 μM) solution under 365 nm hand-held UV lamp in the presence of various concentrations of N₂H₄ (1. 0 μM, 2. 10 μM, 3. 20 μM, 4. 30 μM, 5. 50 μM, 6. 70 μM, 7. 80 μM, 8. 100 μM, 9. 500 μM) in PBS buffer (50% DMSO, pH = 7.4).
Table S1 Comparison of the present probe with the reported N$_2$H$_4$ fluorescent probe.

<table>
<thead>
<tr>
<th>Structure</th>
<th>Detection limit</th>
<th>Practical application</th>
<th>Type of probe</th>
<th>Rf</th>
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<tr>
<td><img src="image1.png" alt="Structure 1" /></td>
<td>0.70 × 10^{-9} M</td>
<td>Water samples and cellular imaging</td>
<td>Ratiometric</td>
<td>[1]</td>
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<td><img src="image2.png" alt="Structure 2" /></td>
<td>2.46 × 10^{-6} M</td>
<td>No</td>
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<td>[2]</td>
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<td>Ratiometric</td>
<td>[4]</td>
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<td>[8]</td>
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<td><img src="image9.png" alt="Structure 9" /></td>
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<td>Water samples</td>
<td>Colorimetric and ratiometric</td>
<td>This work</td>
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