

## Supporting Information

A fast-responding, highly sensitive detection system consisting of fluorescent probe and palladium ion for  $N_2H_4$  in environmental water and living cells

Jie Cui,<sup>a,b</sup> Lingzhi Cao,<sup>a</sup> Guangshun Wang,<sup>a</sup> Wenjia Ji,<sup>a</sup> Hailiang Nie,<sup>a</sup> Chunliu Yang,<sup>a</sup>  
Xiaoling Zhang<sup>b</sup>

<sup>a</sup> Key Laboratory of Medicinal Chemistry and Molecular Diagnosis, College of Public Health, and Key Laboratory of Analytical Science and Technology of Hebei Province & College of Chemistry and Environmental Science, Hebei University, Baoding 071002, P. R. China.

<sup>b</sup> Key Laboratory of Cluster Science of Ministry of Education, Beijing Key Laboratory of Photoelectronic/Electrophotonic Conversion Materials, Analytical and Testing Center, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing, 100081, PR China

E-mail: niehailiangts@163.com (Hailiang Nie);

zhangxl@bit.edu.cn (Xiaoling Zhang),

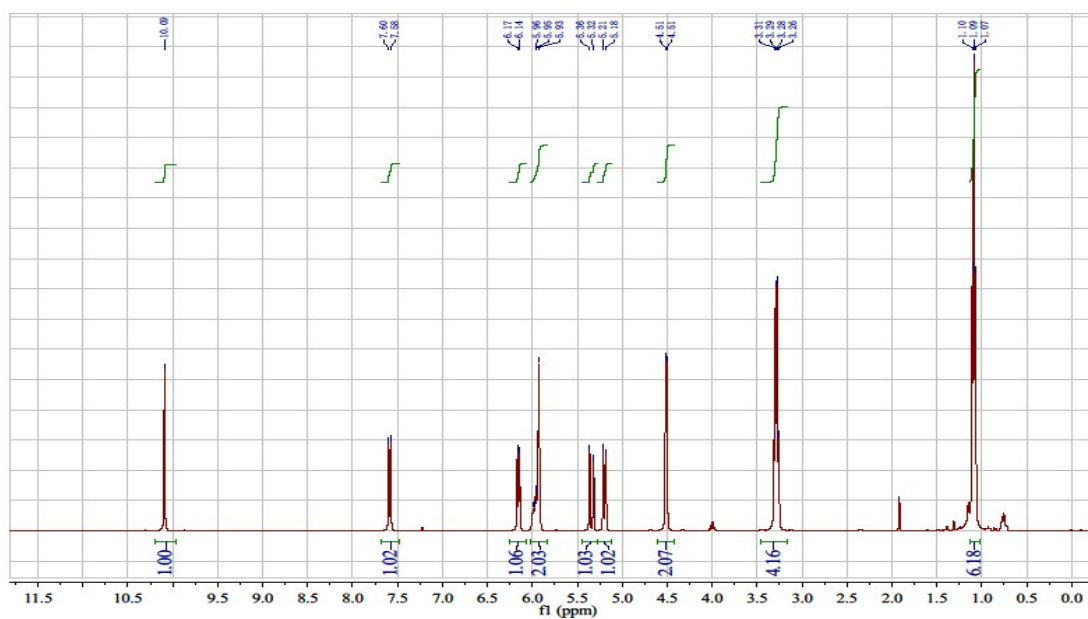


Figure S1.  $^1\text{H-NMR}$  of compound 1

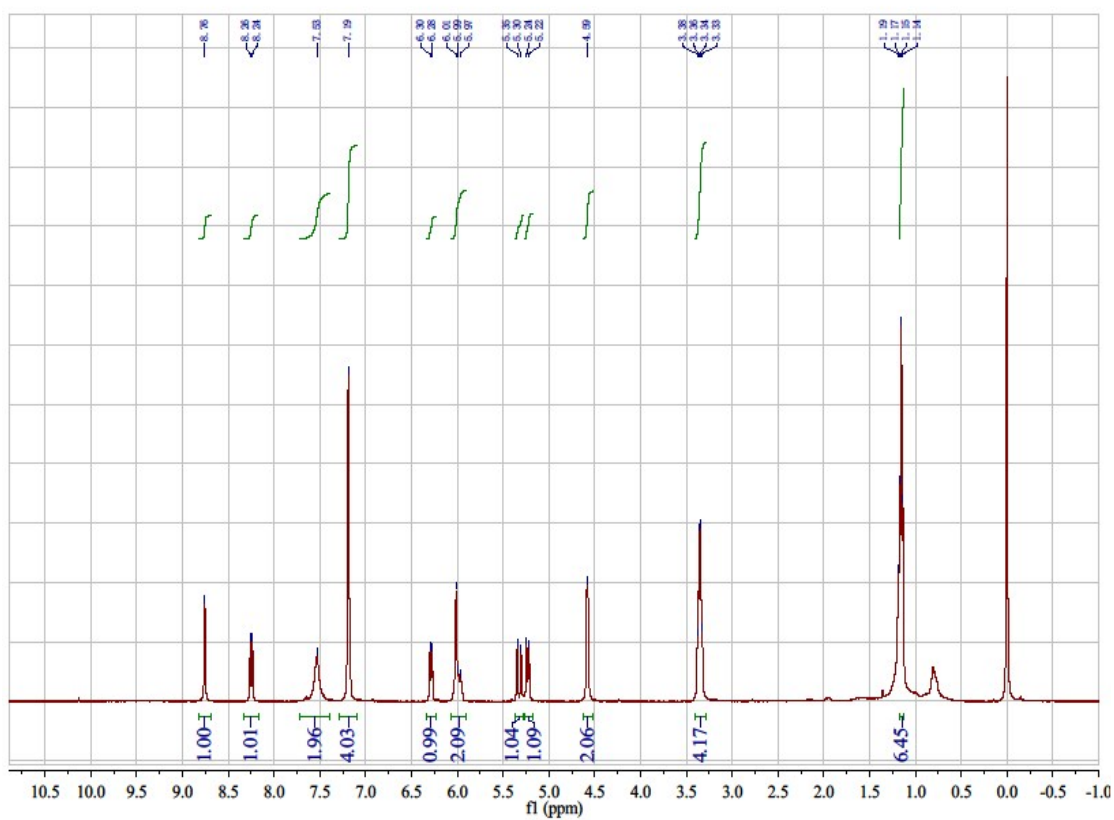


Figure S2.  $^1\text{H-NMR}$  of probe BINC

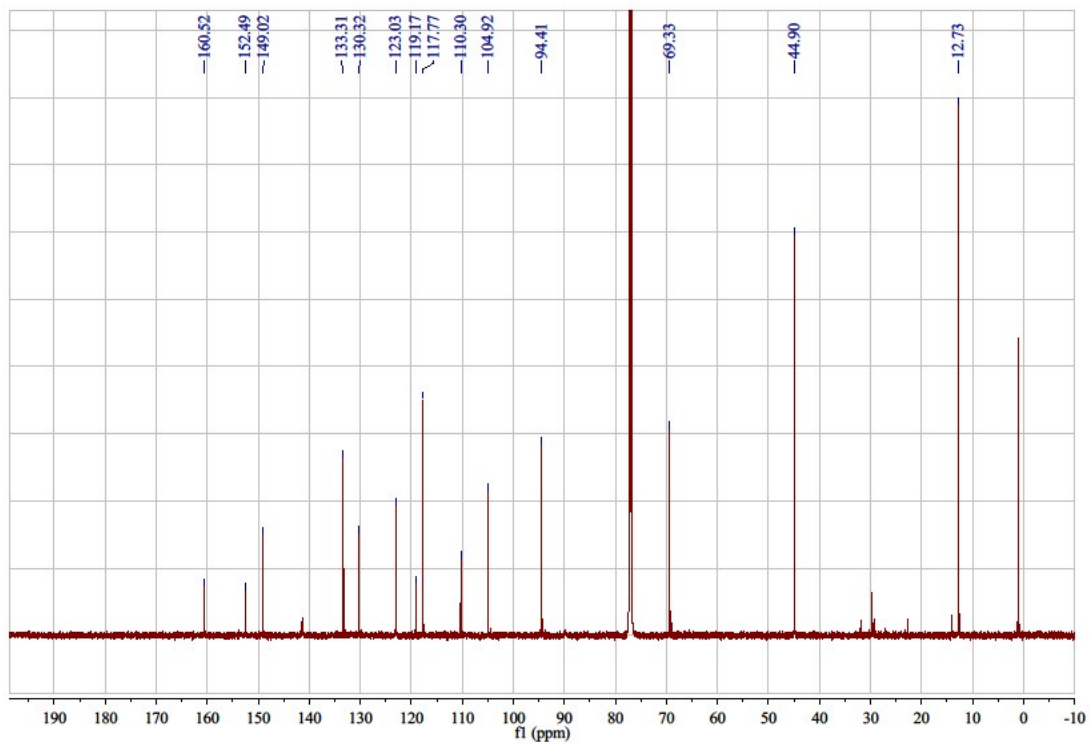


Figure S3.  $^{13}\text{C}$ -NMR of probe BINC

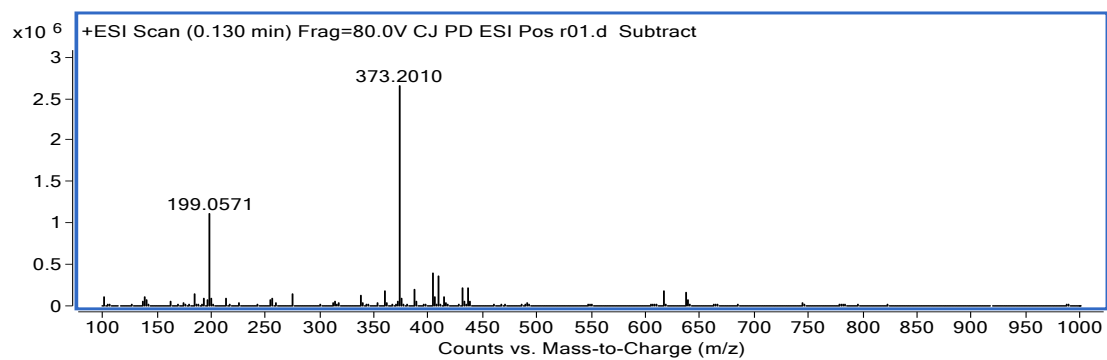


Figure S4. HRMS of probe BINC

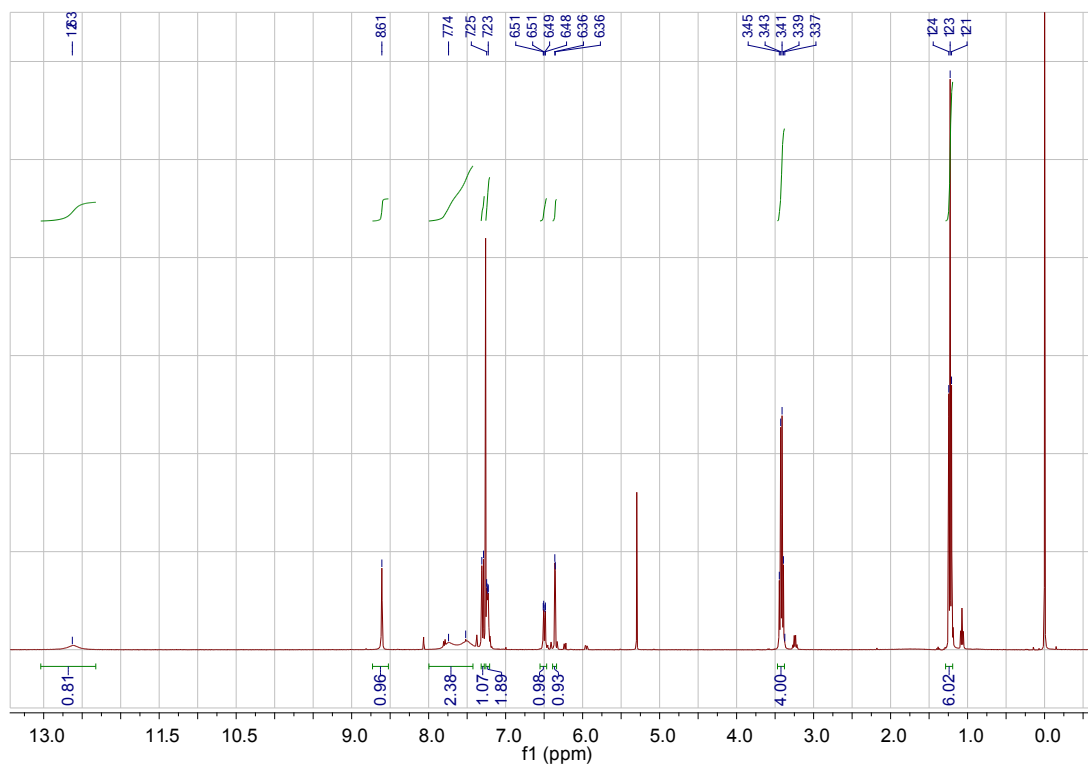


Figure S5.  $^1\text{H-NMR}$  of product ACMN

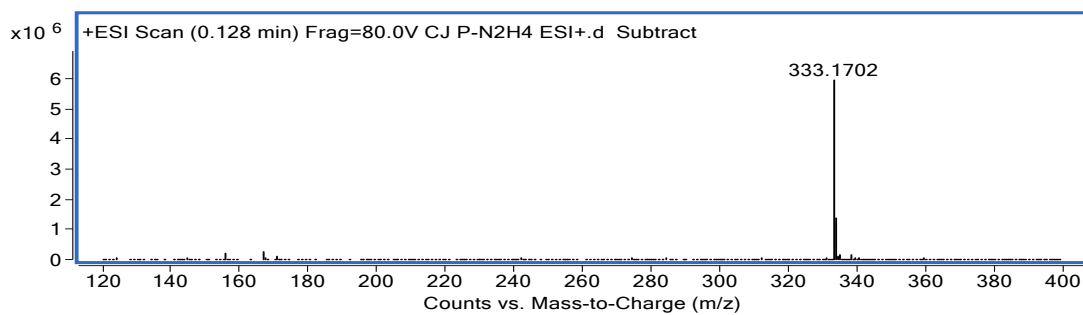


Figure S6. HRMS of product ACMN

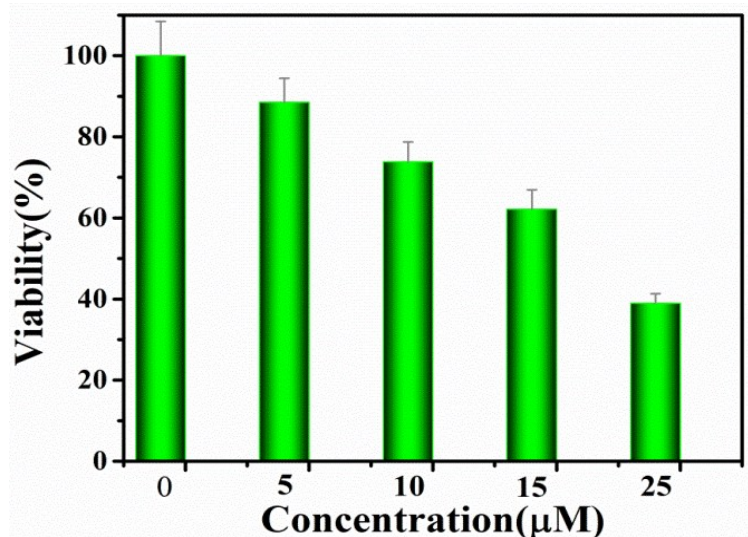


Figure S7. Survival rate of HeLa cells after incubation with different concentrations

(0 μM, 5 μM, 10 μM, 15 μM and 25 μM) of probe BINC for 24h.

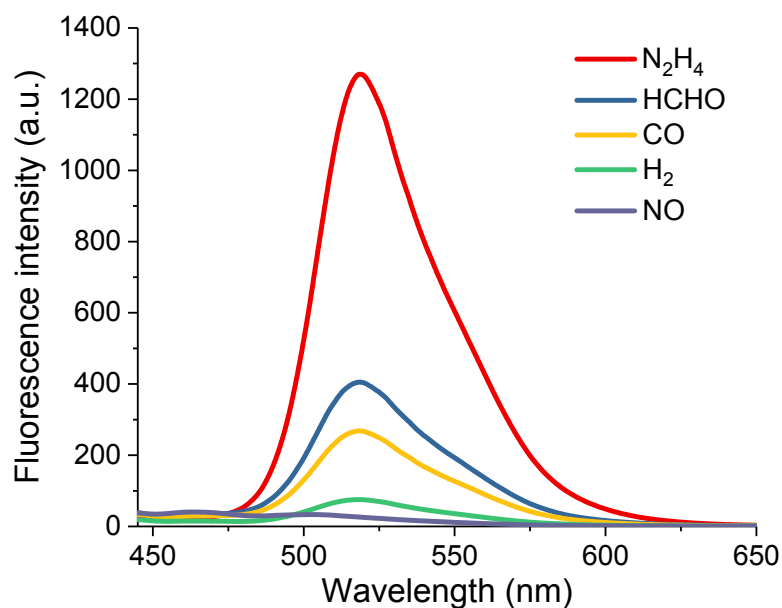


Figure S8. The fluorescence respond of the BINC (5 μM) - Pd<sup>2+</sup> (10 μM) system to N<sub>2</sub>H<sub>4</sub>, HCHO, CO, H<sub>2</sub> and NO in PBS (pH=7, PO<sub>4</sub><sup>3-</sup> =10 mM, containing 30% ethanol). The final concentration was 10 μM for N<sub>2</sub>H<sub>4</sub> and HCHO. Fluorescence detection for CO, H<sub>2</sub> and NO was carried out by bubbling (10 mL/min) an air stream of CO, H<sub>2</sub> and NO into BINC-Pd<sup>2+</sup> for 10 min and then further reacting at room temperature for 30 min.