Supplementary Information

The Dual-functional Nanoplatform for the Tracking of Formaldehyde and Neuroprotection in Parkinson's Disease

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Fig. **S1**-Fig. **S8** and **Table S1**

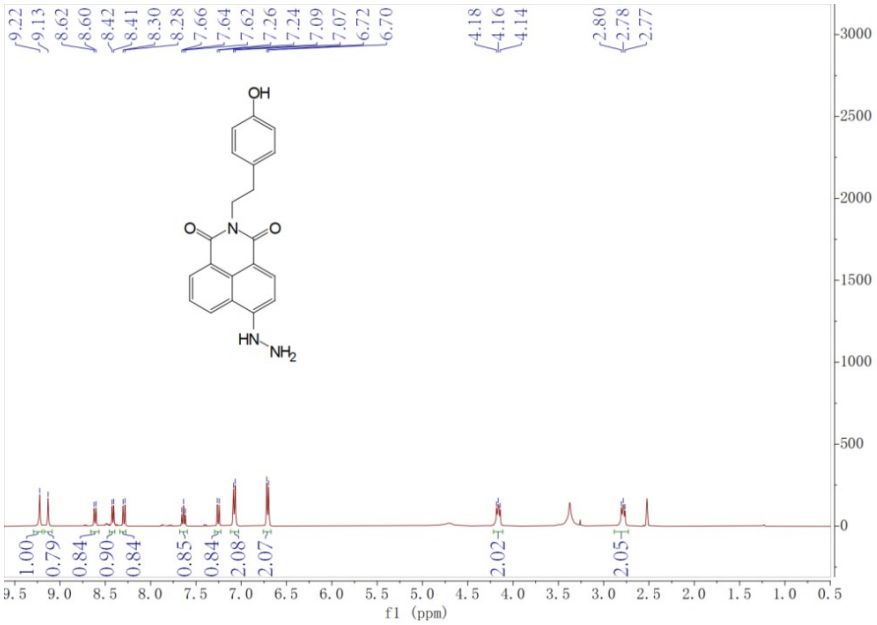

Fig. **S1** ^{1}H NMR of **W-2**: (400 MHz, DMSO-d_6) δ 9.22 (s, 1H), 9.13 (s, 1H), 8.62 (d, J = 8.0 Hz, 1H), 8.42 (d, J = 4.0 Hz, 1H), 8.30 (d, J = 8.0 Hz, 1H), 7.66 (d, J = 8.0 Hz, 1H), 7.26 (d, J = 8.0 Hz, 1H), 7.09 (d, J = 8.0 Hz, 2H), 6.72 (d, J = 8.0 Hz, 2H), 4.18 (t, J = 8.0 Hz, 2H), 2.05 (t, J = 8.0 Hz, 2H).

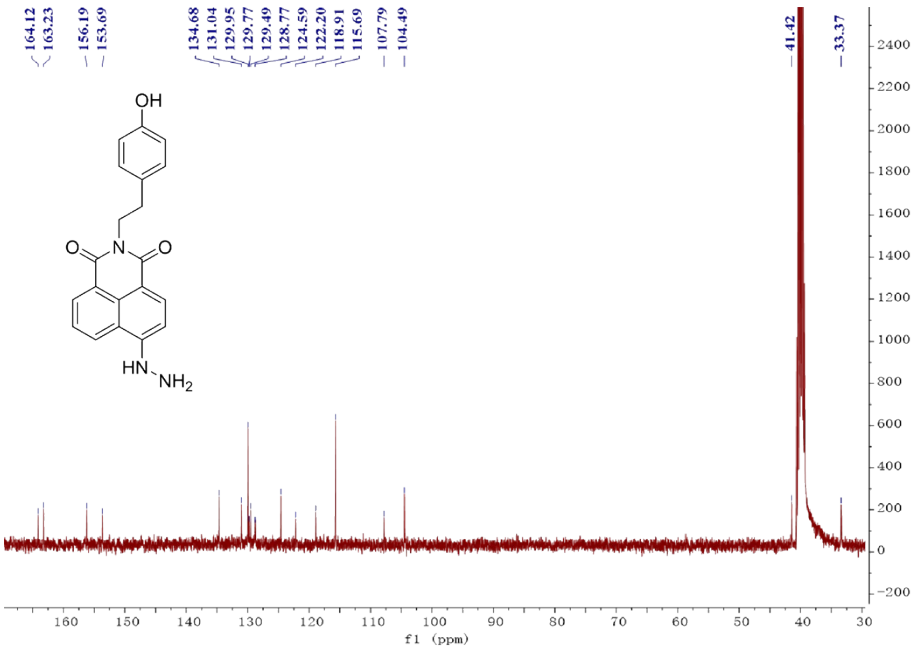

Fig. S2 ^{13}C NMR of **W-2**: (101 MHz, DMSO-d_6) δ. 164.12, 163.23, 156.19, 153.69, 134.68, 131.04, 129.95, 129.77, 128.77, 124.59, 122.20, 118.91, 115.69, 107.79, 104.49, 41.42, 33.37.

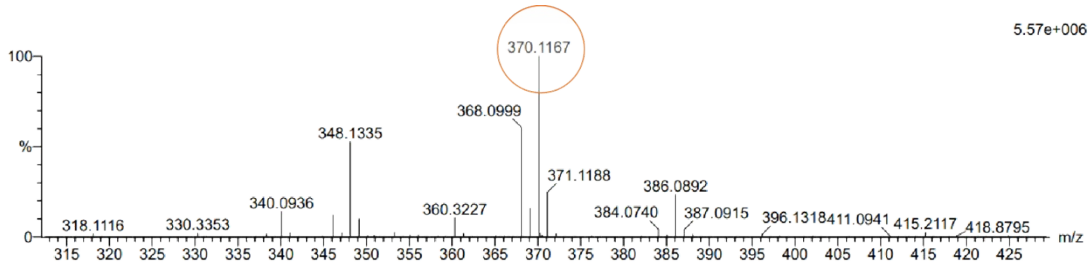

Fig. S3 HR-MS m/z: calcd. for $[C_{20}H_{17}N_3O_3Na]^+$: 370.1168, found: 370.1167 $[M+Na]^+$.

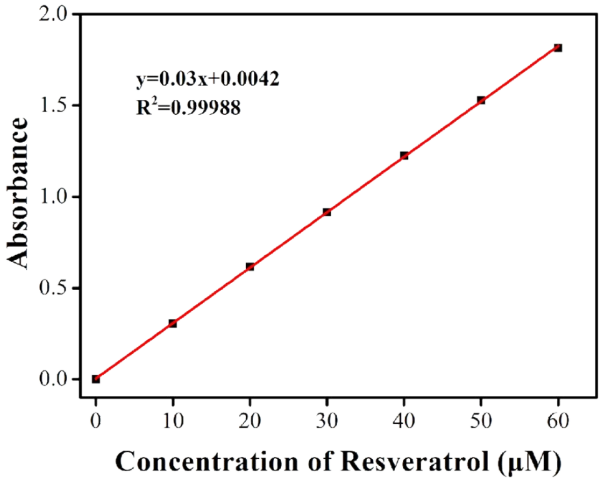

Fig. S4 Standard optical absorbance curve of Res.

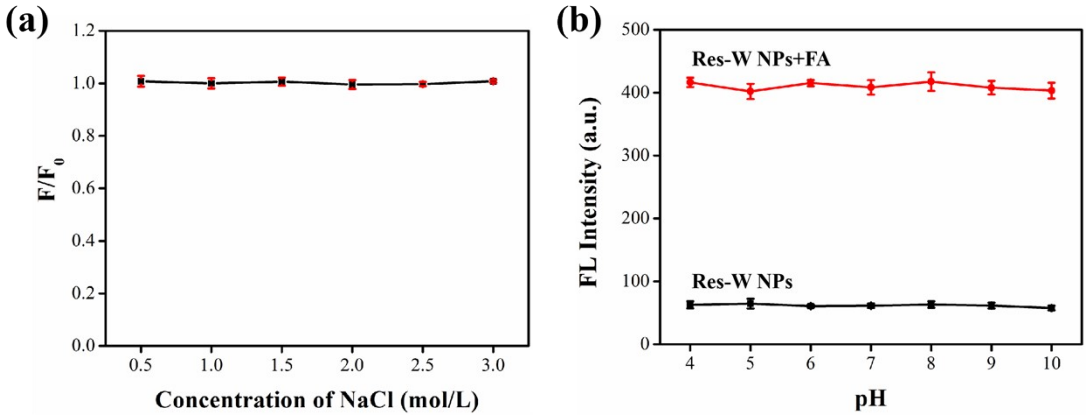

Fig. S5 Optical stability of **Res-W NPs**. (a) Effect of ionic strength on the optical stability of **Res-W NPs**. (b) Effect of pH on the optical stability of **Res-W NPs**.

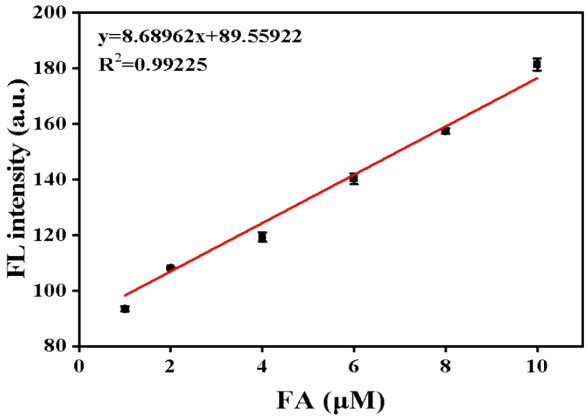

Fig. S6 Linear plot of concentration-fluorescence intensity of **Res-W NPs** and FA (1.00 -10.00 μmol/L) system.

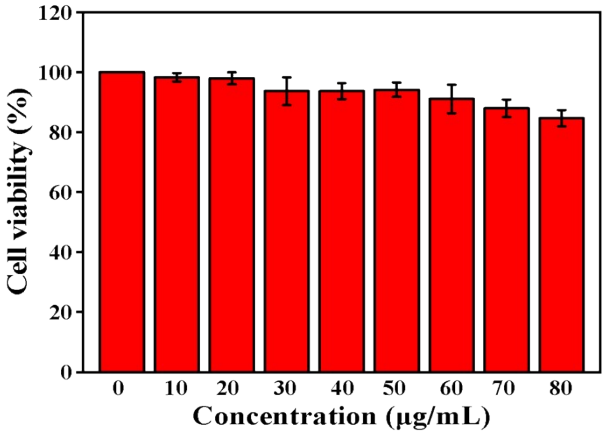

Fig. S7 Toxicity of different concentrations of **Res-W NPs** to SH-SY5Y cells.

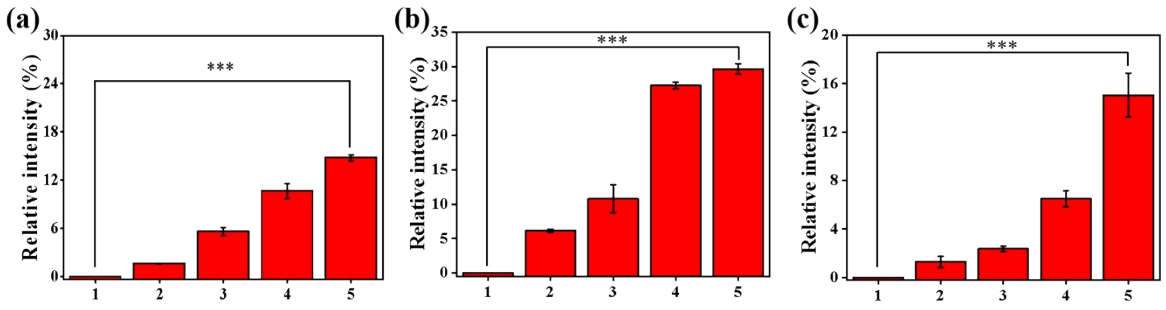

Fig. S8 (a) Quantitative analysis of fluorescence intensity from Fig. 4. (b) Quantitative analysis of fluorescence intensity from Fig. 5a. (c) Quantitative analysis of fluorescence intensity from Fig. 5b. *** $p < 0.001$.

Table S1 Comparison of the sensing performance of various probes towards FA

Probe Names	Imaging Application	Detection Limits	References
W1a	Cells and real food samples	0.91 μmol/L	1
SWJT-6	Cells and zebrafish	5.65 μmol/L	2
SWJT-10	Cells and zebrafish	4.50 μmol/L	3
U6N-NADH	Real samples from environment and food	4.50 μmol/L	4
Probe -NH_2	Real food samples and mice	1.87 μmol/L	5
CH	Real food, water samples and zebrafish	2.01 μmol/L	6
Probe -$NHNH_2$	Cells, zebrafish and mice	0.68 μmol/L	7
Res-W NPs	Cells, tissues, zebrafish and *C. elegans*	0.64 μmol/L	This work

References

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