Electronic Supporting Information

A pyrylium salt-based fluorescent probe for the highly sensitive detection of methylamine vapour

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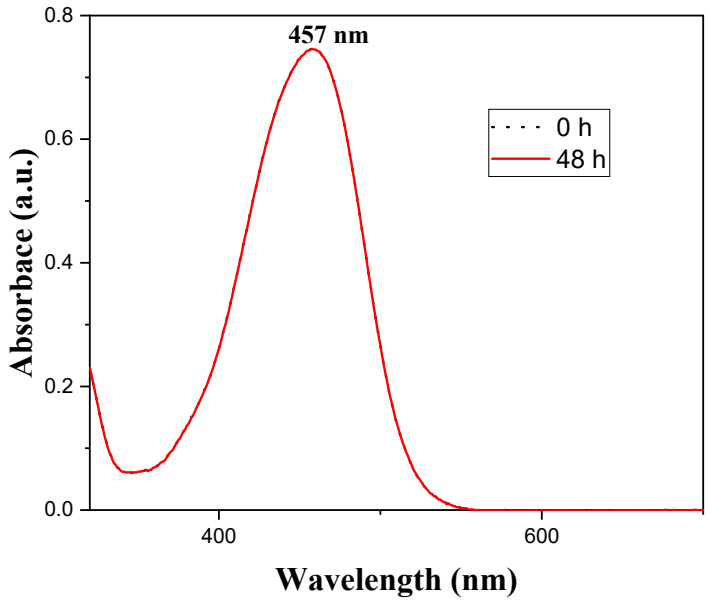

Fig. S1. The absorption spectra of MTPY (5 μM) in acetonitrile at 0 and 48 h

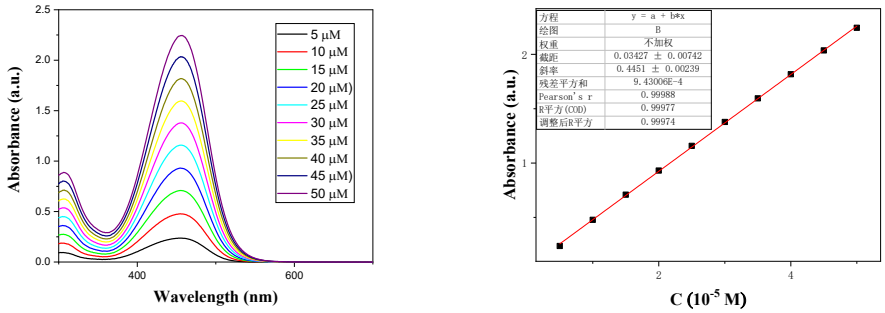

Figure S2. UV-Visable spectra for measure of molar extinction coefficient

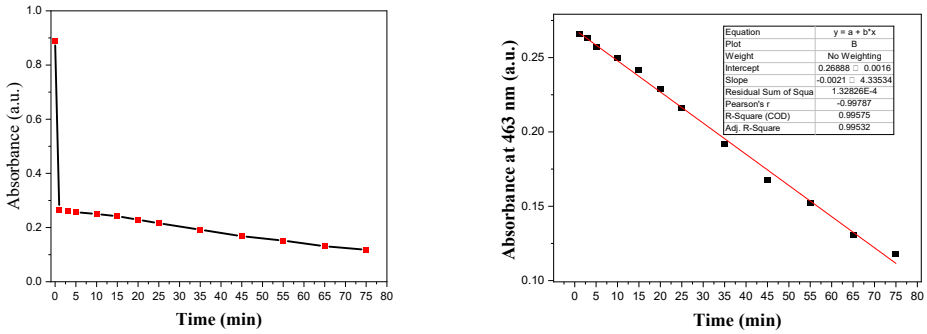

Figure S3. The time dependence absorption spectra of MTPY (5 μM) with MA in DMSO-PBS buffer solution (10 mM, pH=7.4, 5/95, v/v) from 0 and 75 minutes at 25 °C

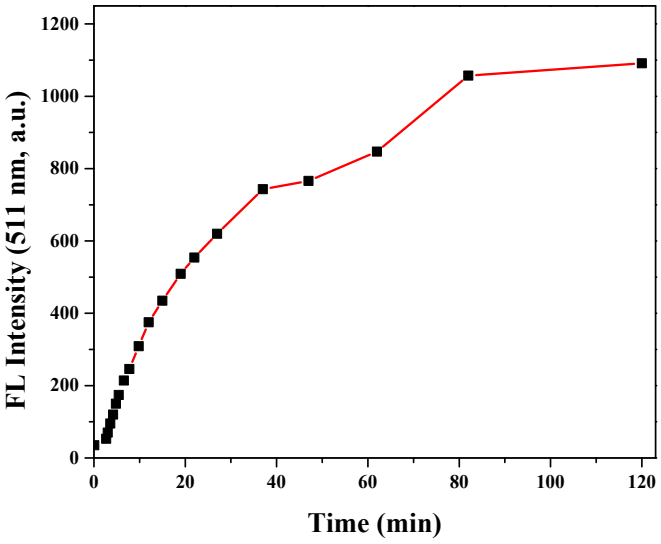

Figure S4. The time-dependent fluorescence intensity of MTPY (5 μM) toward MA (10 ppm) in PBS. (10 mM, pH 7.4, containing 5% DMSO, 0-120 min, 25 ℃)

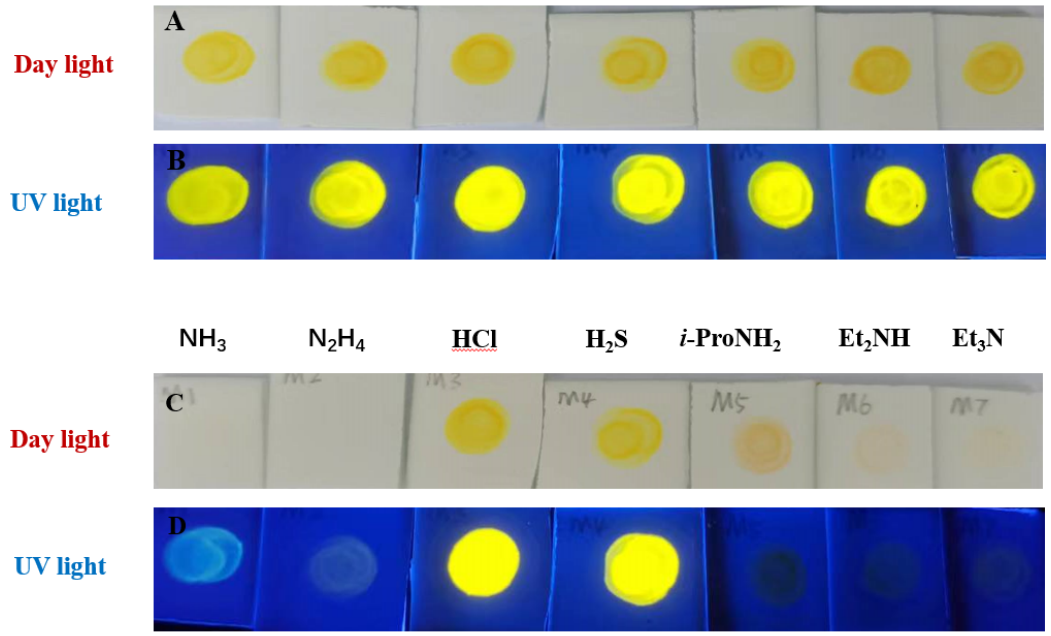

Figure S5. Photographs of TLC strip loaded with MTPY under daylight and UV light (365 nm) with or without different amine vapors

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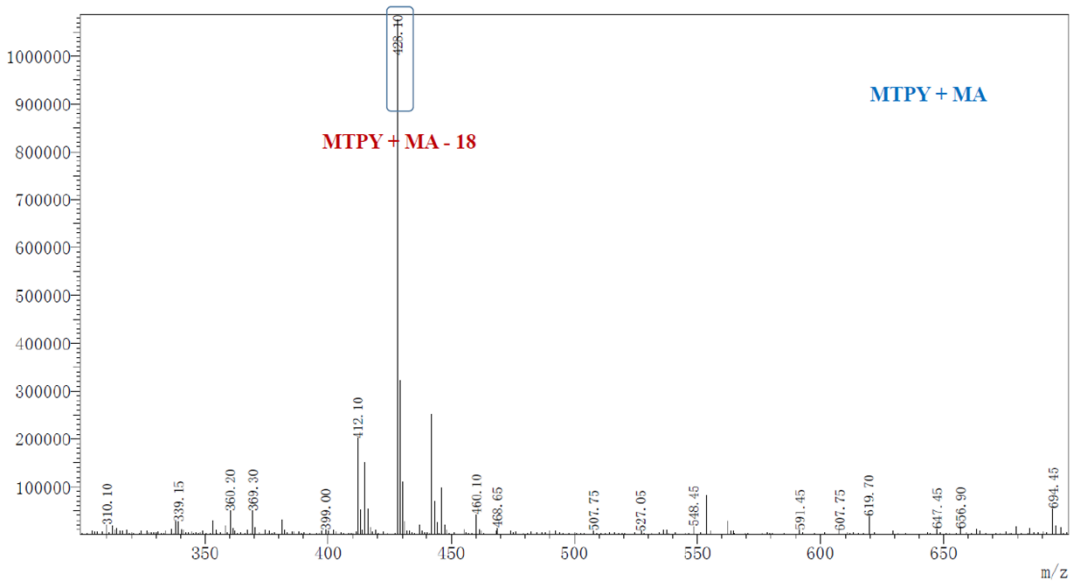

Figure S6. ESI-MS of MTPY+MA

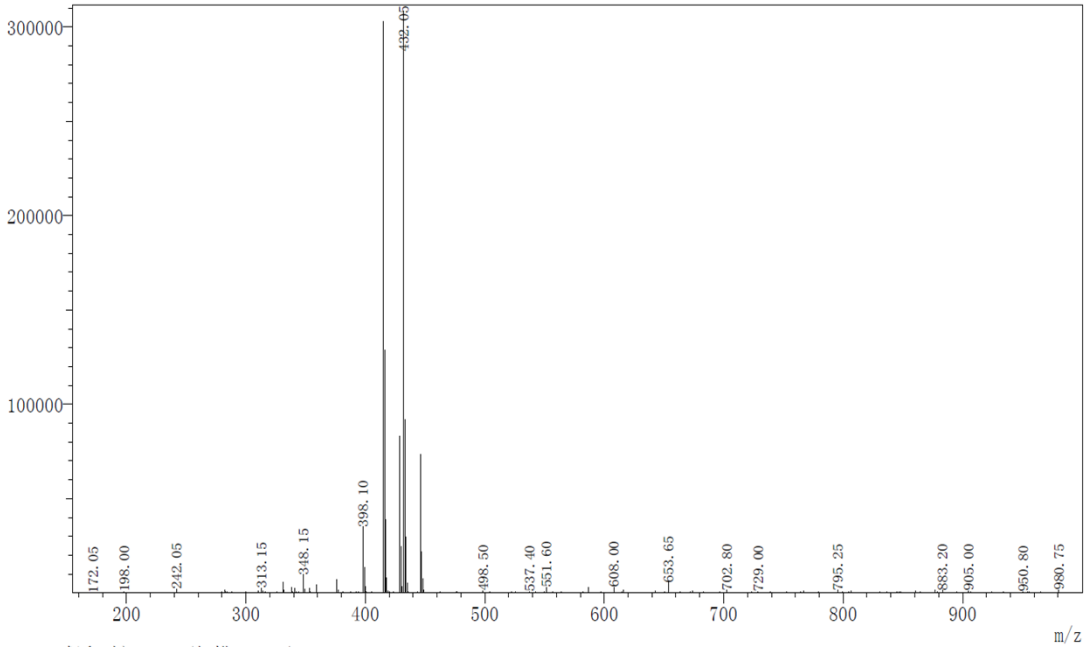

Figure S7. ESI-MS of MTPY+NH_3

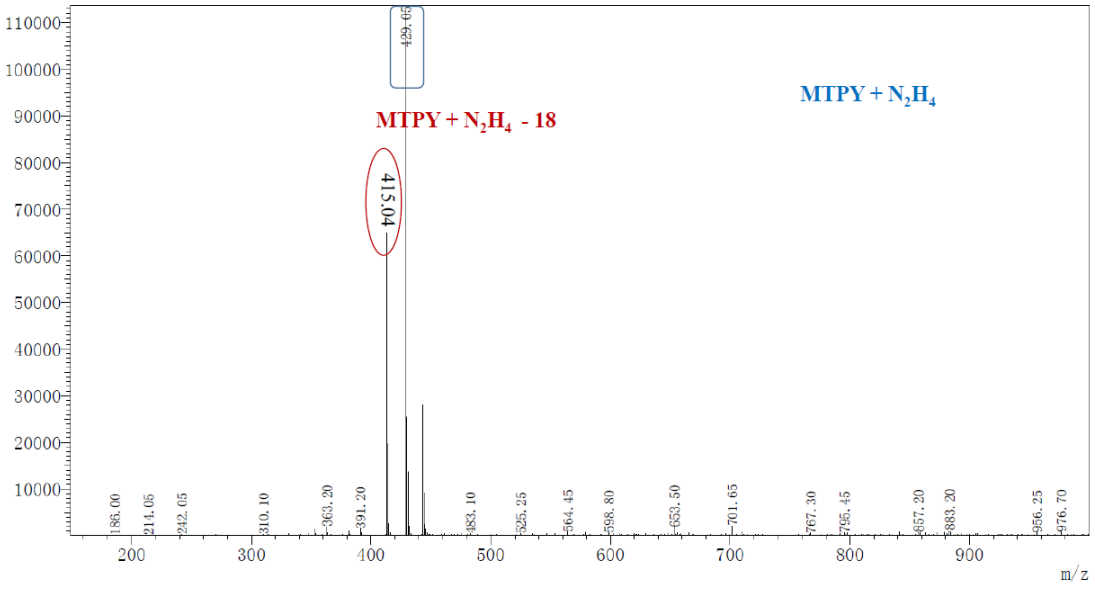

Figure S8. ESI-MS of MTPY+N_2H_4

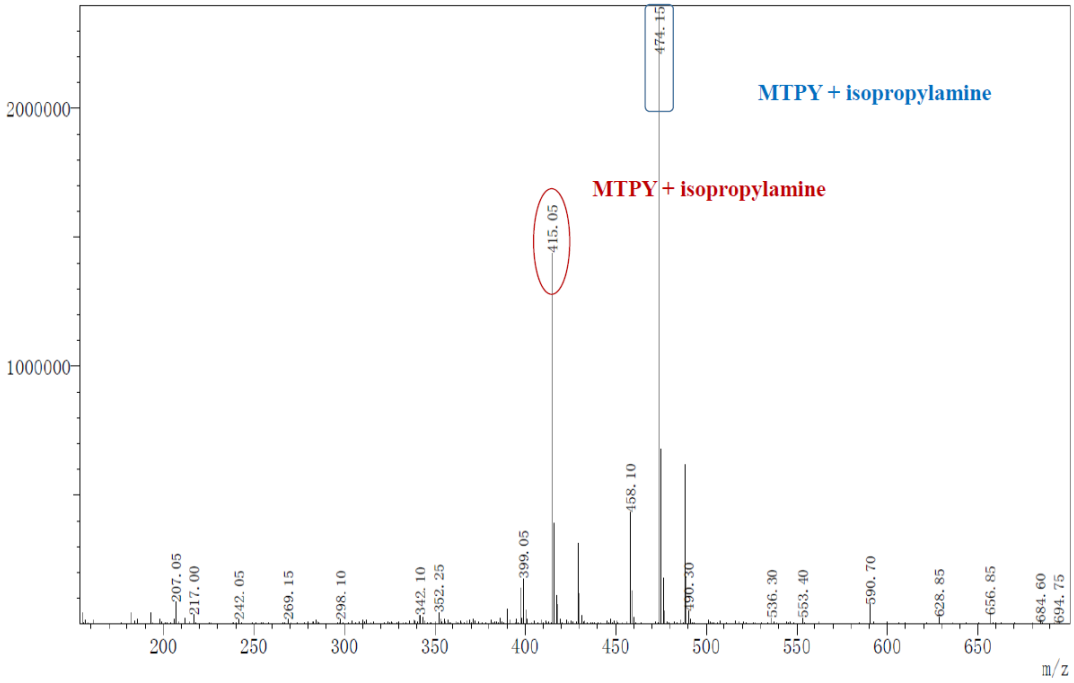

Figure S9. ESI-MS of MTPY+isopropylamine

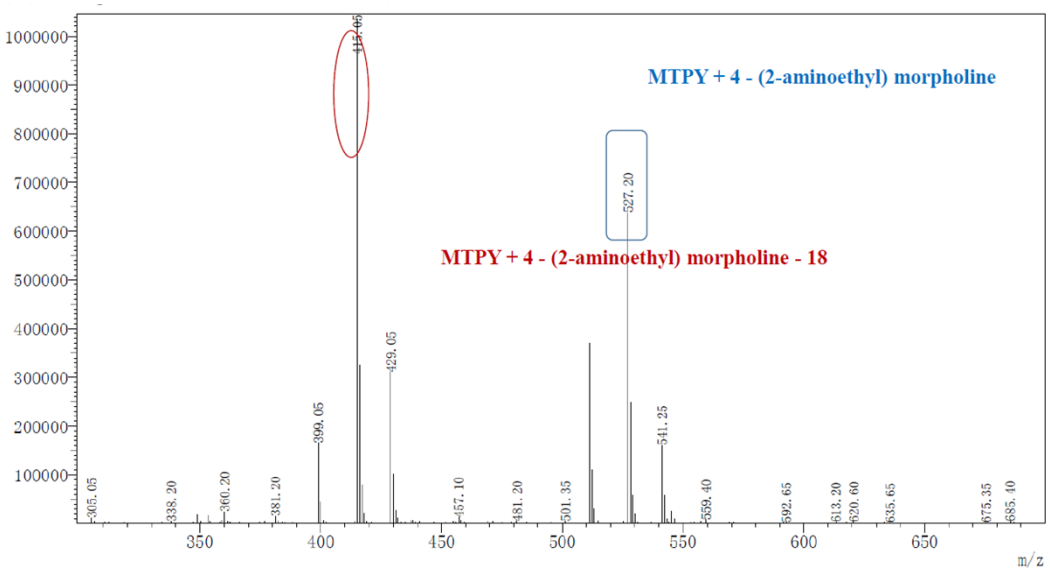

Figure S10. ESI-MS of MTPY+4-(2-aminoethyl)morpholine

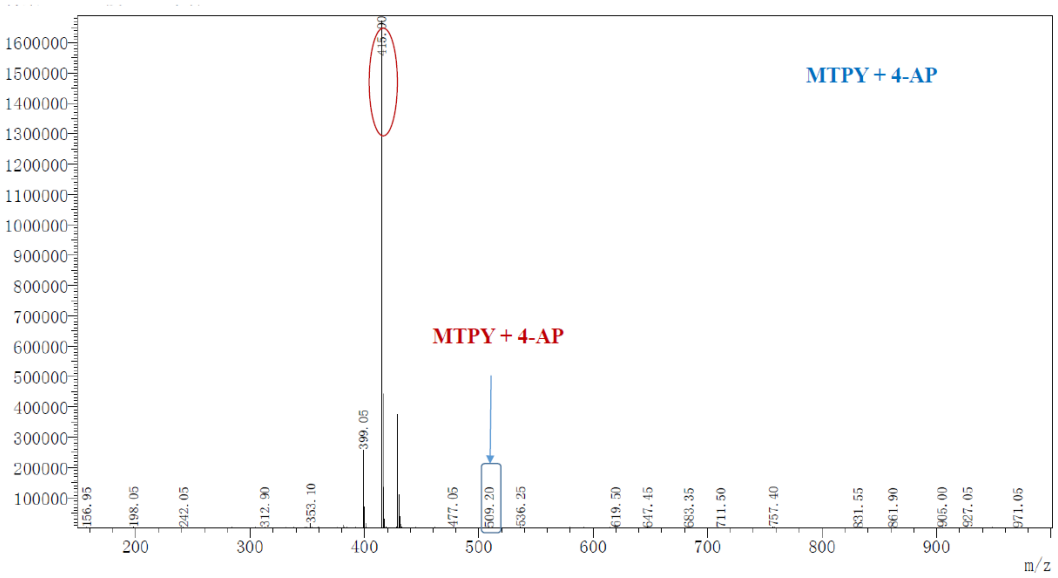

Figure S11. ESI-MS of MTPY+AP

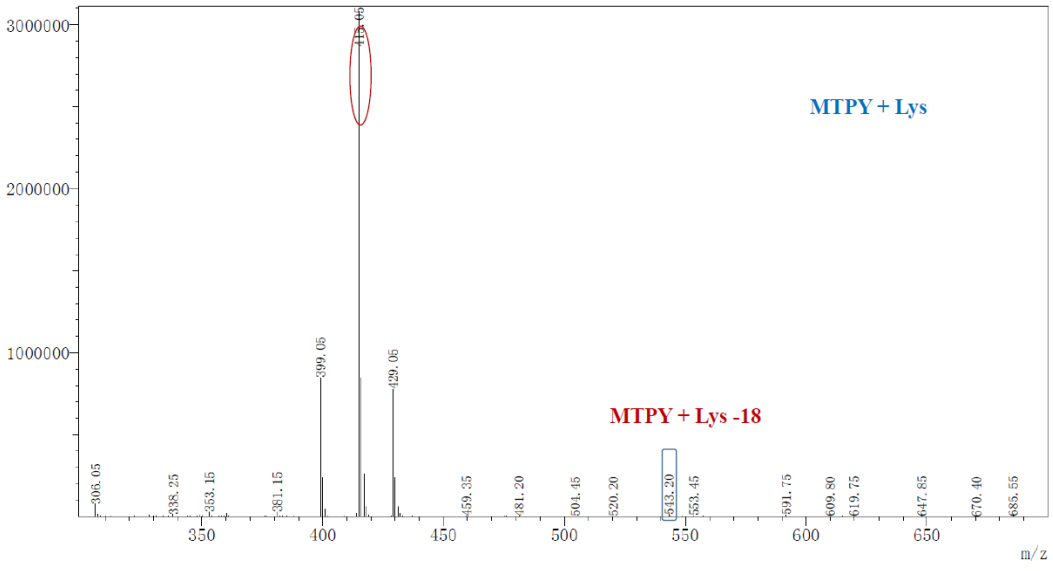

Figure S12. ESI-MS of MTPY+Lys

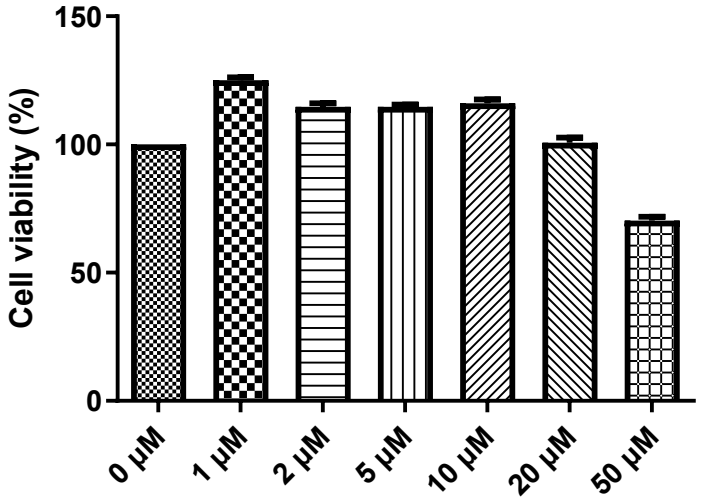

Figure S13. Cell viability experiments by standard CCK-8 assay using RAW264.7 cells for MTPY

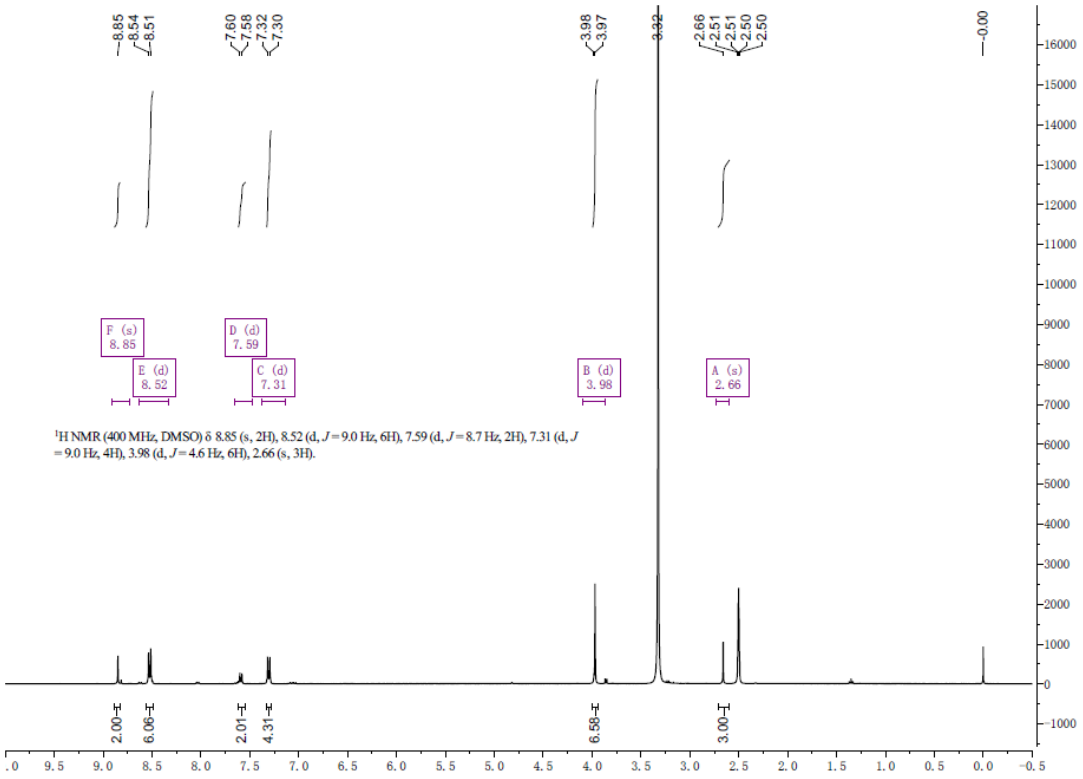

Figure S14. ^{1}H NMR of MTPY

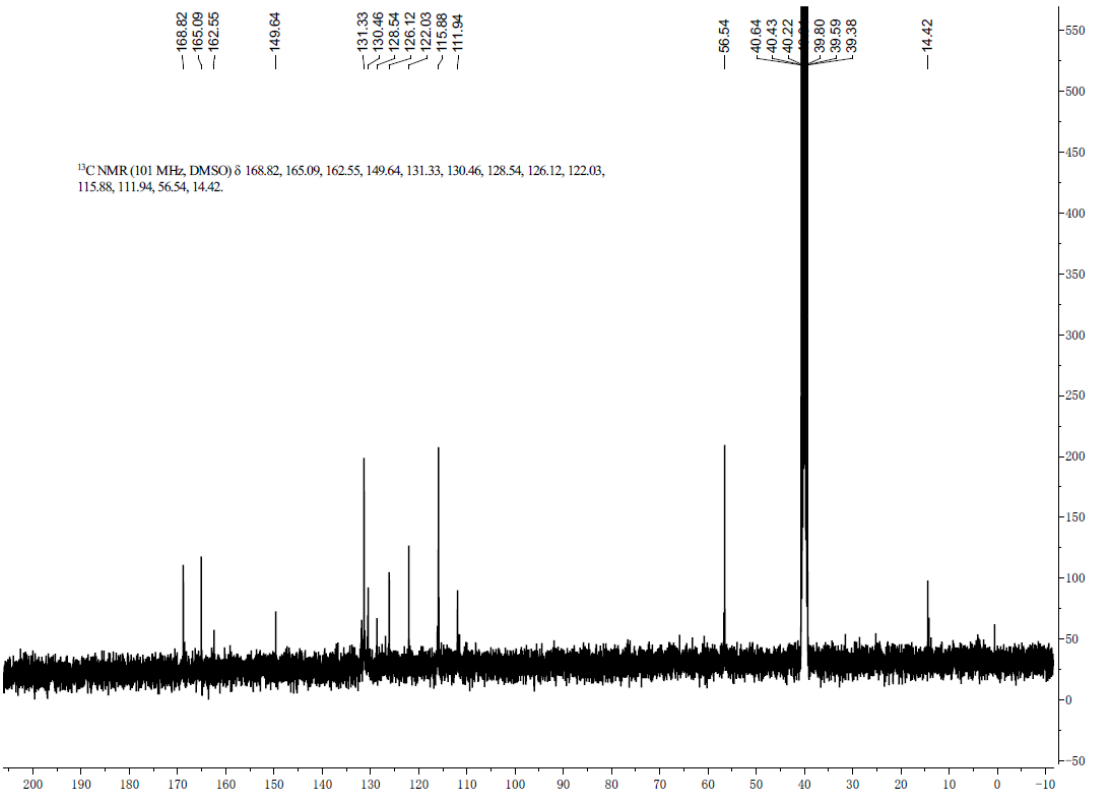

Figure S15. ^{13}C NMR of MTPY

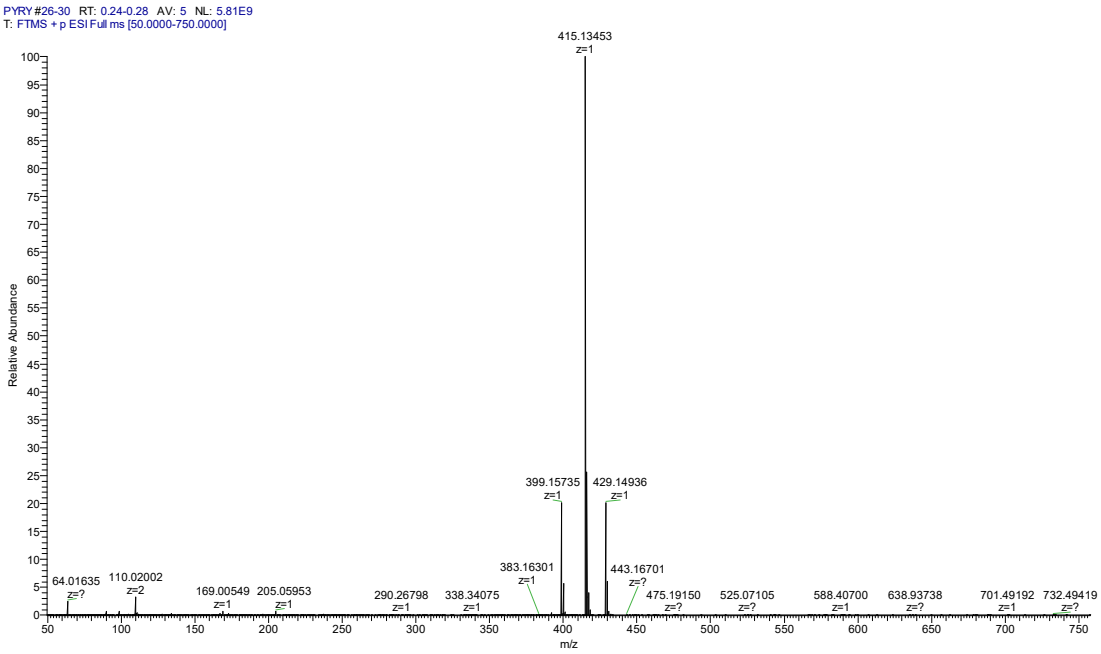

Figure S16. ESI-HRMS of MTPY

Table S1. Comparison of the limit of detection for MA

Reference	linear range (ppm)	LOD (ppm)
1[1]	5-200	0.8
2[2]	-	0.1
3[3]	1.0-95	0.07
4[4]	1-100	1
5[5]	-	0.87
6[6]	-	0.1
This work	0.1-2	0.0026

Cell culture and in vitro cytotoxicity by CCK-8 assay

The Raw264.7 cells were cultured in Dulbecco's Modified Eagle's medium (DMEM) containing 10% fetal bovine serum, 1% penicillin, and 1% amphotericin, under the conditions of 5% CO_2, and 37 ℃. The cells were seeded into 96-well plates and allowed to adhere for 24 h. Then, a series of diluted MTPY with different concentrations were added to the wells. After incubation for 24 h, the medium with diluted MTPY was discarded and the cells were washed thrice with PBS. Then, 10 μL CCK-8 agent was added into each well. Further incubating for 4 h, the medium was again removed and 150 μL of dimethyl sulfoxide was added. Before the final measurement, the mixture was subjected to 10 min vibration to ensure the complete dissolution of the purple crystals. Finally, a microplate reader (Epoch, BioTek, USA) was used to measure the absorption of the solution at 450 nm.

Reference

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