Electronic Supplementary Information

An aggregation-induced emission (AIE) ratiometric fluorescent cysteine probe with an exceptionally large blue shift

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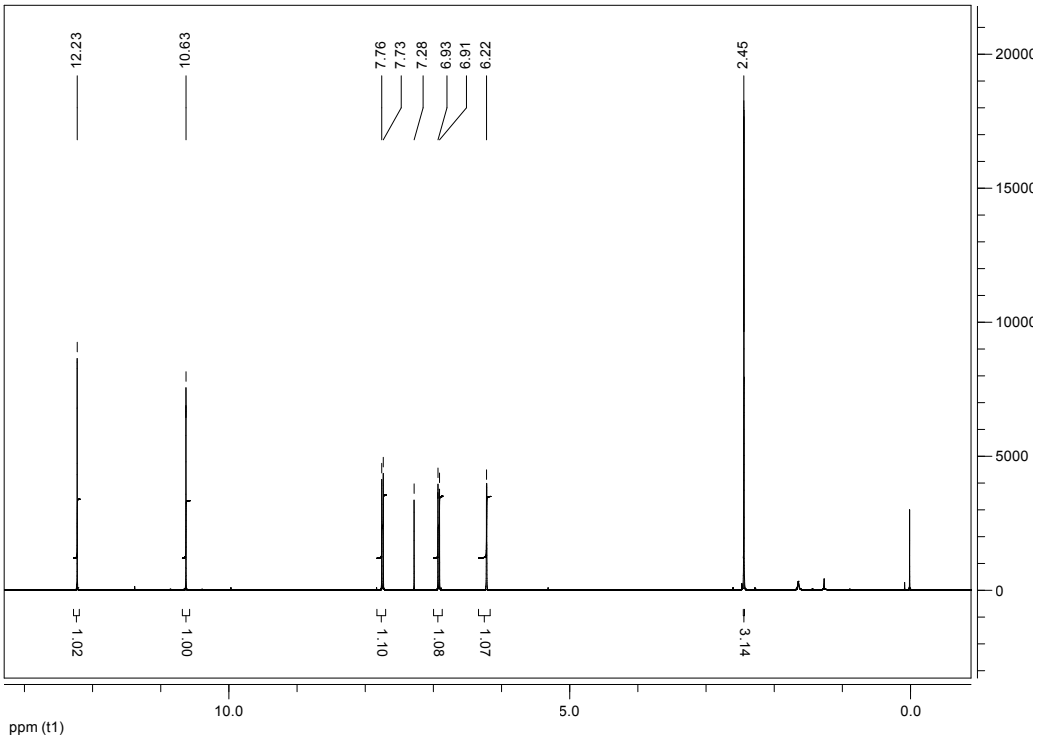
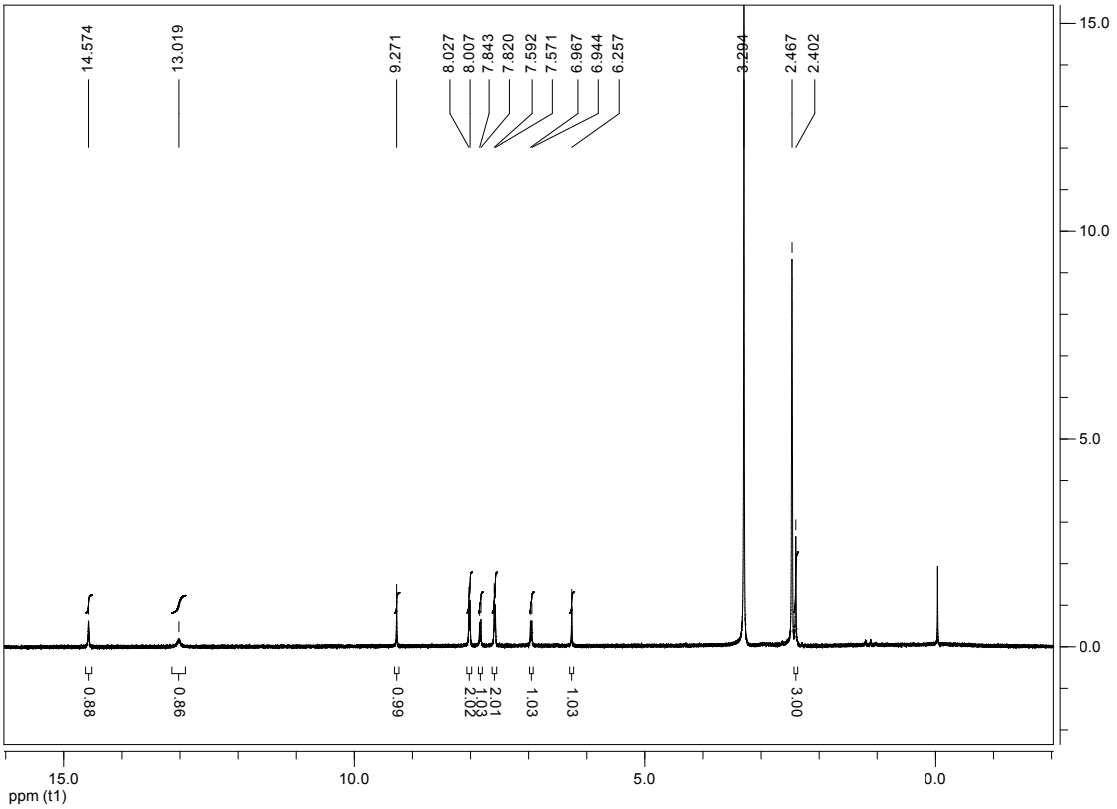
Synthesis of 8-formyl-7-hydroxy-4-methylcoumarin

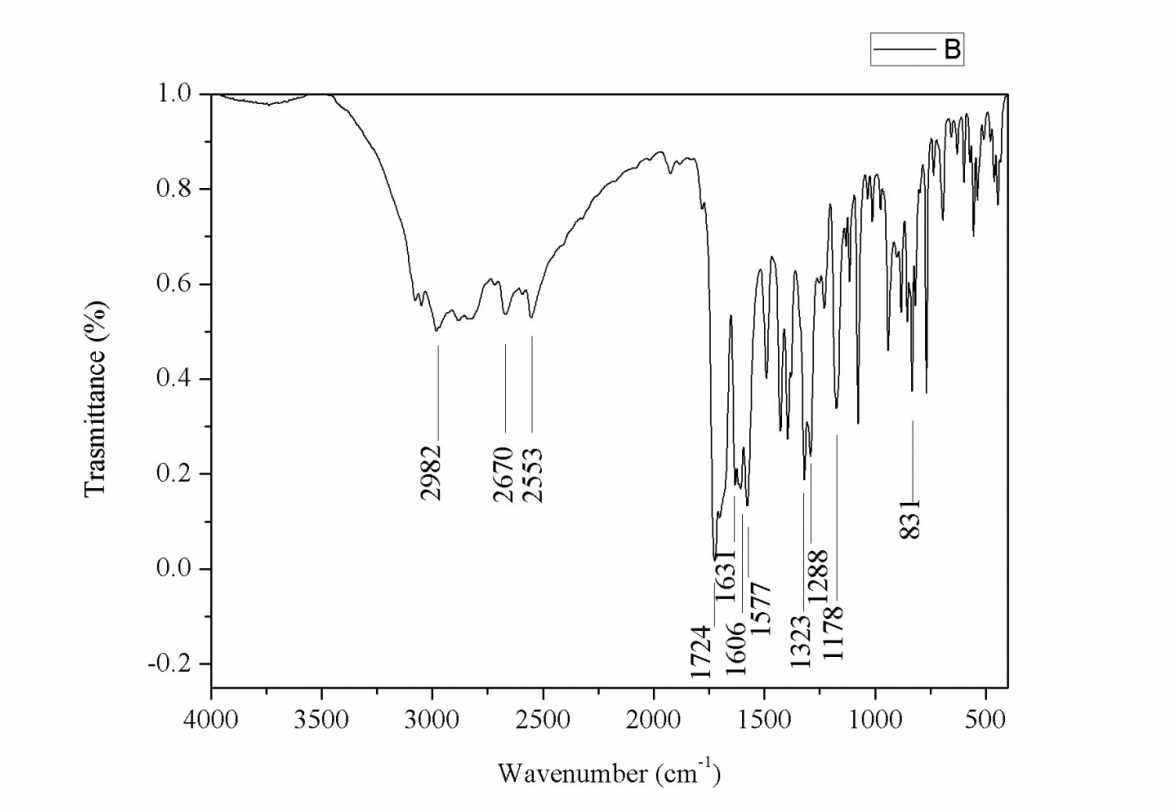
7-hydroxy-4-methylcoumarin (5.00 g, 28.4 mmol) and hexamine (10.00 g, 71 mmol) in acetic acid (37 mL) were stirred and refluxed for 5.5 h. Then, hydrochloric acid (75 mL, HCl : H2O = 84 : 100, v/v) was added and further reacted for 45 min. After cooling, the action mixture was poured into ice-water (375 mL) and extracted with ethyl acetate (150 mL × 3). The organic layer was dried over anhydrous Na_2SO_4 and the solvent was removed. The residue was purified by column chromatography on silica gel using CH_2Cl_2 as an eluent to obtain light yellow solid. Yield 0.9 g (15.5%).



8-Formyl-7-hydroxy-4-methylcoumarin 1H-NMR (CDCl3, 400MHz)



1H NMR of CPA in DMSO-d_6, 400MHz



IR spectra of sensor CPA