

Supporting Information

Novel Pyrimidine-Based Amphiphilic Molecules: Synthesis, Spectroscopic Properties and Applications in Two-Photon Fluorescence Microscopic Imaging

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1. Experimental

Materials and Instruments: All the solvent and chemicals were purchased from Shanghai Chemical Reagent Co. Ltd. (China) and were used as received unless stated otherwise. The synthesis procedures, chemical and spectroscopic characterization and microscopic imaging of HepG2 cells were described in the corresponding main text. For single-photon spectroscopic experiments in toluene and CHCl_3 , the concentrations are $1 \times 10^{-5} \text{ mol l}^{-1}$ and $1 \times 10^{-6} \text{ mol l}^{-1}$ for absorption and fluorescent emission spectra, respectively. For the single-photon absorption and single-photon fluorescence emission experiments in PBS buffer, the concentrations are both $1 \times 10^{-5} \text{ mol l}^{-1}$. The two-photon fluorescence spectra and two-photon absorption cross-sections of all molecules studied were obtained by comparison the 2PF emission with fluorescein calibration standard (both at the concentration of $5 \times 10^{-4} \text{ mol.l}^{-1}$).

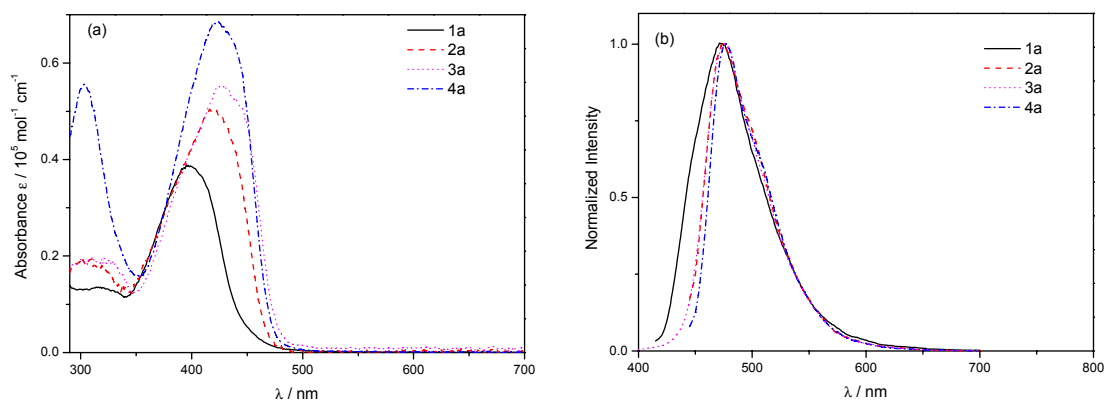


Fig. S1 (a) The single-photon absorption and (b) normalized single-photon emission spectra of **1a-4a** in toluene

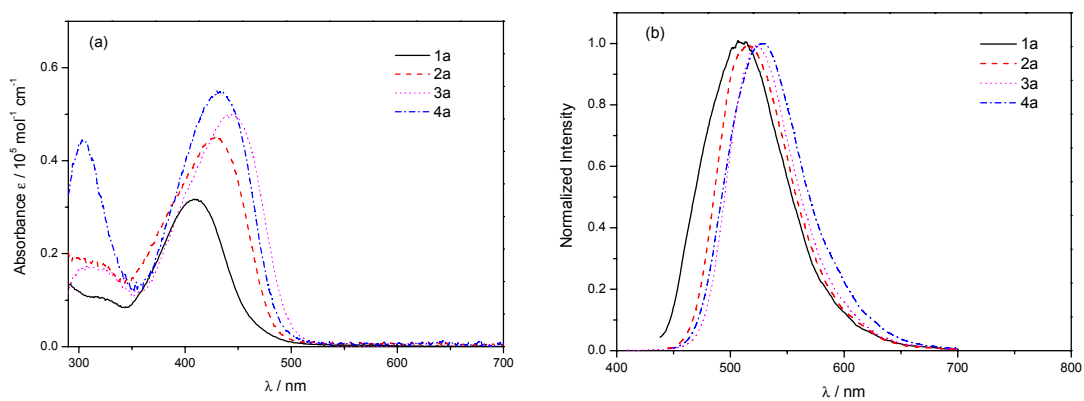


Fig. S2 (a) The single-photon absorption and (b) normalized single-photon emission spectra of **1a-4a** in CHCl_3

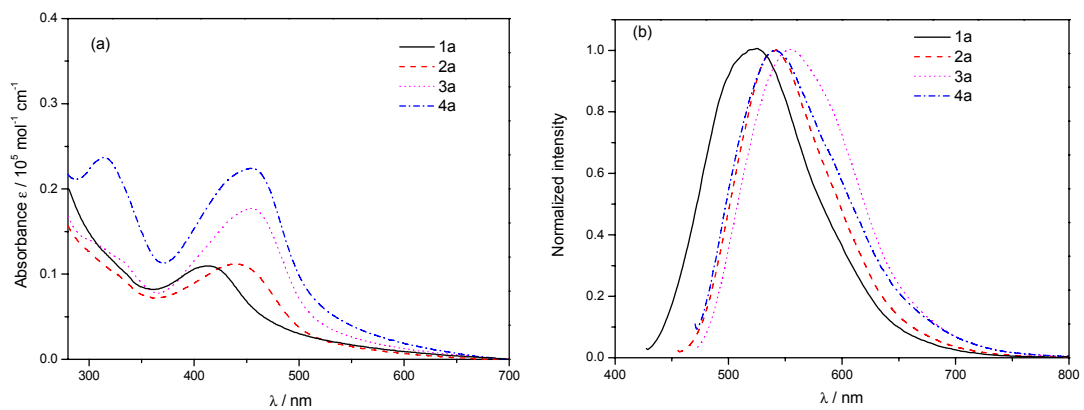


Fig. S3 (a) The single-photon absorption and (b) normalized single-photon emission spectra of **1a-4a** in PBS:DMSO = 20:1

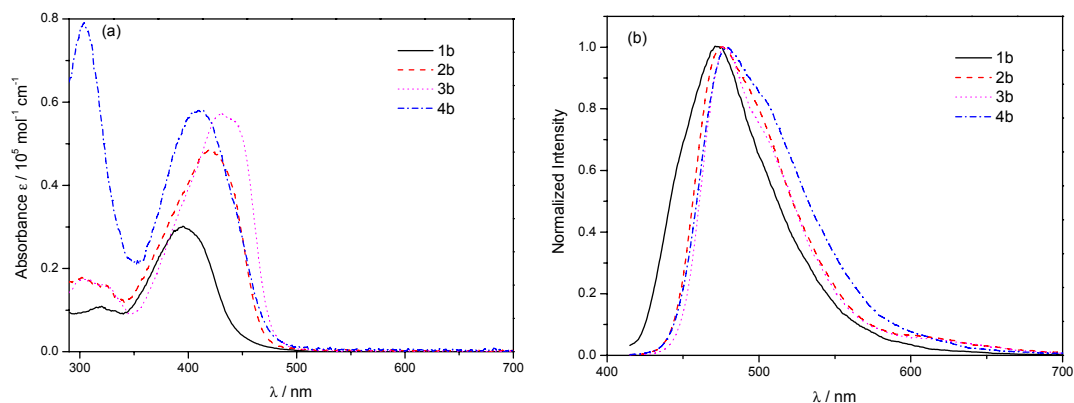


Fig. S4 (a) The single-photon absorption and (b) normalized single-photon emission spectra of **1b-4b** in toluene

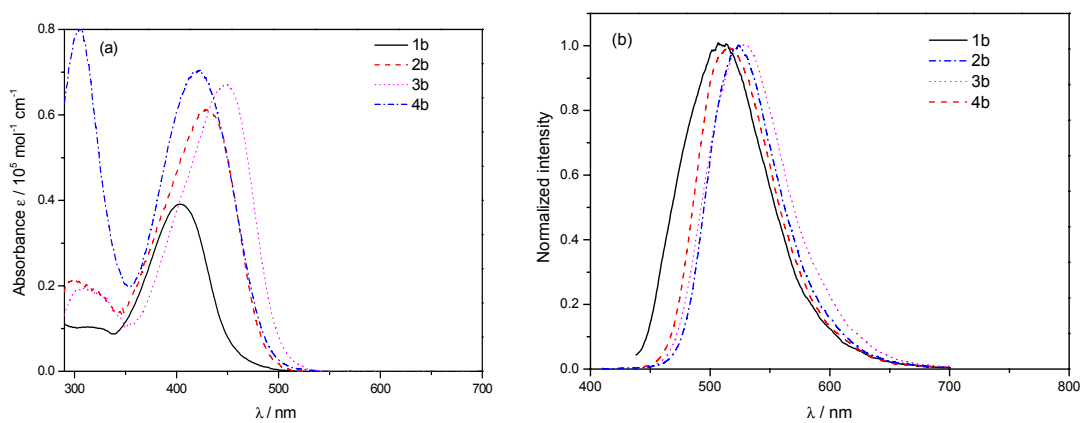


Fig. S5 (a) The single-photon absorption and (b) normalized single-photon emission spectra of **1b-4b** in CHCl_3
(Notes: For better comparison, Fig. s5 were reproduced from Fig. 1&2 in the corresponding main text.)

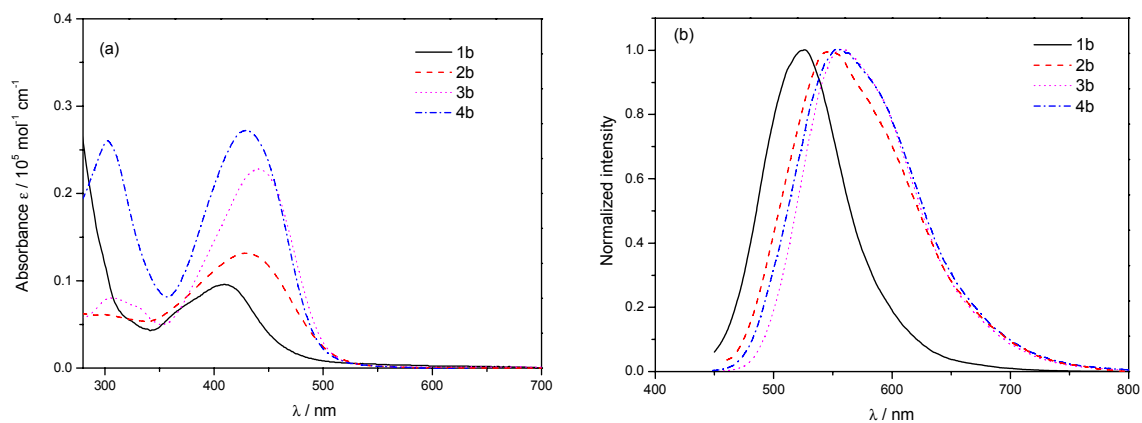


Fig. S6 (a) The single-photon absorption and (b) normalized single-photon emission spectra of **1b-4b** in PBS:DMSO = 20:1

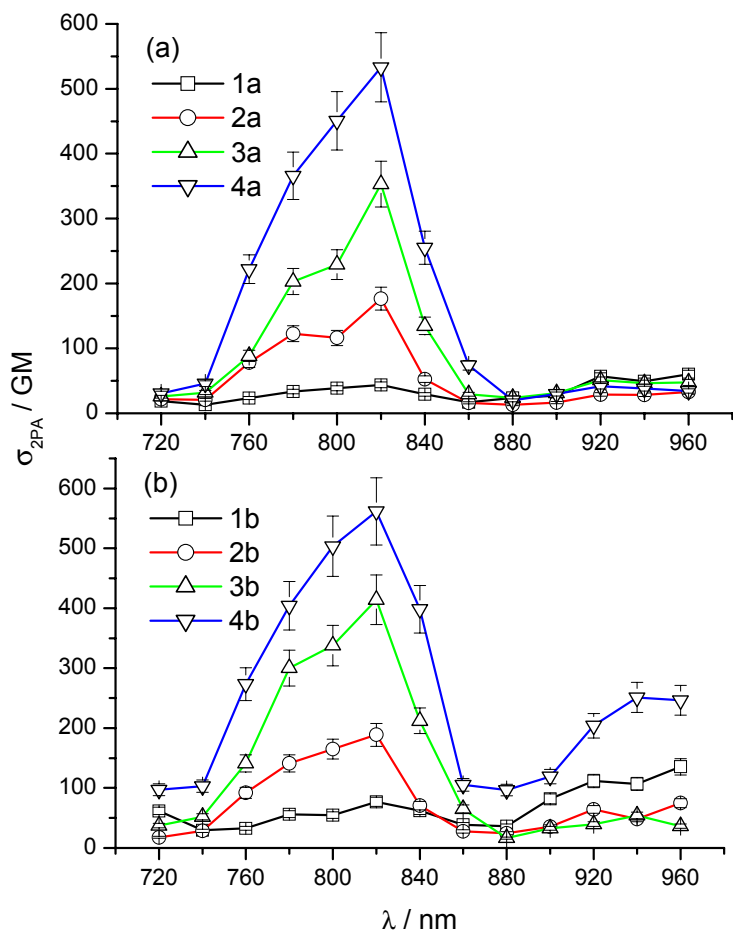


Fig. S7 Two-photon excitation spectra for (a)1a-4a and (b)1b-4b in toluene

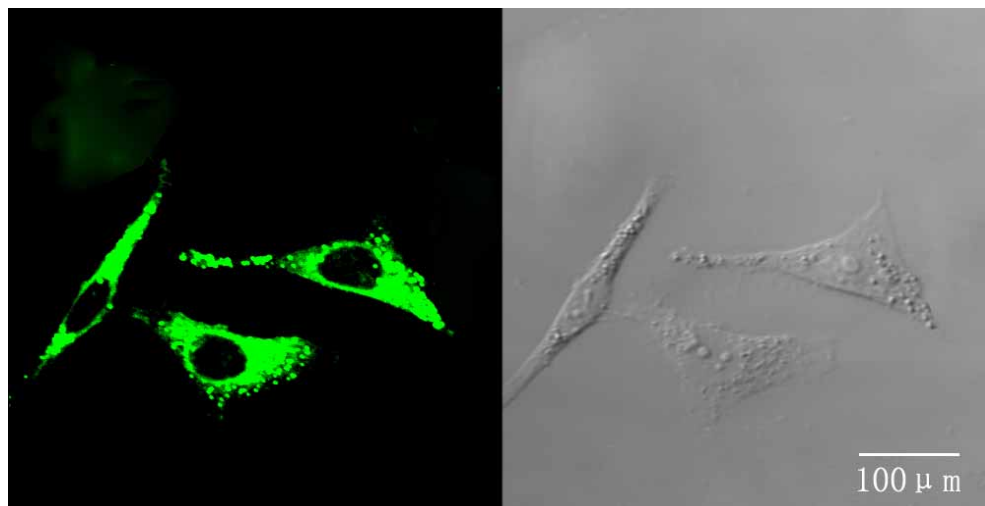


Fig. S8 Differential interference contrast (right) and two-photon fluorescence microscopic (left) images of HepG2 cells stained with 4b upon 800 nm fs excitation.