

Electronic Supplementary Information

Revival of nearly extinct fluorescence of coumarin 6 in water and complete transfer of energy to rhodamine 123

Rajashree Banerjee, and Pradipta Purkayastha*

Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER) Kolkata, Mohanpur 741246, WB, India.

Experimental section

Coumarin 6 (C6), sodium dodecyl sulphate, Rhodamin 123 (Rh123) and ethanol were purchased from Sigma- Aldrich and used as received. Double distilled water was used throughout the experiment. 50 μl of 50 μM stock solution of C6 in ethanol was added to water to get the final concentration as 1 μM . 310 μl of 93 mM aqueous stock solution of SDS was added in calculated amount so that the experimental solution contains SDS micelles. The stock solution of Rh123 (100 μM) was prepared in ethanol and added to the experimental solution in steps.

The absorption spectra were recorded in a Cary 300 Bio UV-Vis spectrophotometer from Agilent. The fluorescence measurements were done on a QM-40 spectrofluorimeter from PTI. The fluorescence lifetimes were measured by the method of time correlated single photon counting (TCSPC) using a picoseconds spectrofluorimeter from Horiba Jobin Yvon IBH equipped with a FluoroHub single photon counting controller, Fluoro3PS precision photomultiplier power supply and FC-MCP-50SC MCP-PMT detection unit. 405 nm (resolution <200 ps) laser was used as the excitation pulse. The FRET efficiency was calculated by using the following equation:

$$\text{FRET efficiency} = 1 - \frac{F_{DA}}{F_D}$$

where, F_{DA} and F_D are the fluorescence intensities of donor in presence and absence of acceptor, respectively.

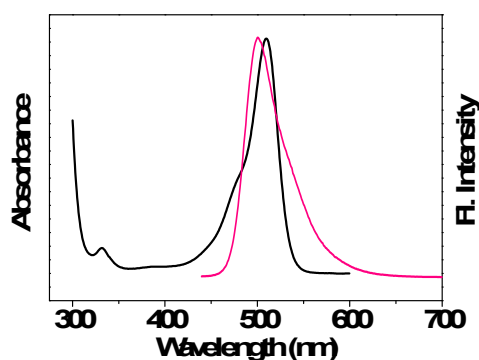


Figure S1. Normalized absorption and emission spectra of Rh123 (black) and C6 (pink).