Cyclodextrin induced controlled delivery of a biological photosensitizer from a nanocarrier to DNA

Pronab Kundu, Saptarshi Ghosh*, Sinjan Das, and Nitin Chattopadhyay*

Department of Chemistry, Jadavpur University, Kolkata - 700 032, India

*Corresponding authors: Fax: 91-33-2414-6584
E-mail: ghosh.saptarshi89@gmail.com (S.G.)
nitin.chattopadhyay@yahoo.com (N.C.)

Supporting Information

Fig. S1. (A) Absorption spectra of PSF in aqueous buffer and 2 mM STS medium. (B) Absorption spectra of PSF in the presence of different ctDNA concentrations. Curves (i) → (xi) correspond to 0, 5, 15, 20, 40, 50, 80, 100, 120, 130, 150 μM of ctDNA. [PSF] = 5 μM.
**Fig. S2.** Almgren plot for the determination of the binding constant of PSF with STS. \(I_0, I_c\) and \(I_\alpha\) are the fluorescence intensities of PSF in the absence of STS, at an intermediate STS concentration and at a condition of complete interaction respectively. \([M]\) is the micellar concentration.

**Fig. S3.** Plot of \(\ln (I_0/I)\) against \([\text{CPC}]\) for the determination of the aggregation number of STS. \(I_0\) and \(I\) are the fluorescence intensities of pyrene in the absence and presence of the quencher CPC respectively. \([\text{CPC}]\) is the quencher concentration.
Fig. S4. Benesi-Hildebrand plot for the determination of the binding constant of PSF with ctDNA. $F_0$ and $F_x$ and are the fluorescence intensities of PSF in the absence and at an intermediate ctDNA concentration respectively. [DNA] is the ctDNA concentration.

Fig. S5. Fluorescence spectra of STS micelle bound PSF in different BSA concentrations as mentioned in the legends. $\lambda_{ex} = 520$ nm. [STS] = 2 mM.
**Fig. S6.** Fluorescence spectra of PSF in different environments as mentioned in the legends. $\lambda_{ex} = 520$ nm.

**Fig. S7.** Normalized fluorescence spectra of PSF in different environments as mentioned in the legends.
Fig. S8. Variation in the average fluorescence lifetime of PSF in STS-DNA mixture as a function of β-CD concentration.