

Supporting information for

**Differential modulation of lactim-lactam tautomerism process of an isoindole fused
imidazole system in three different micellar assemblies of varying surface charge: A
Spectroscopic approach to various photophysical properties.**

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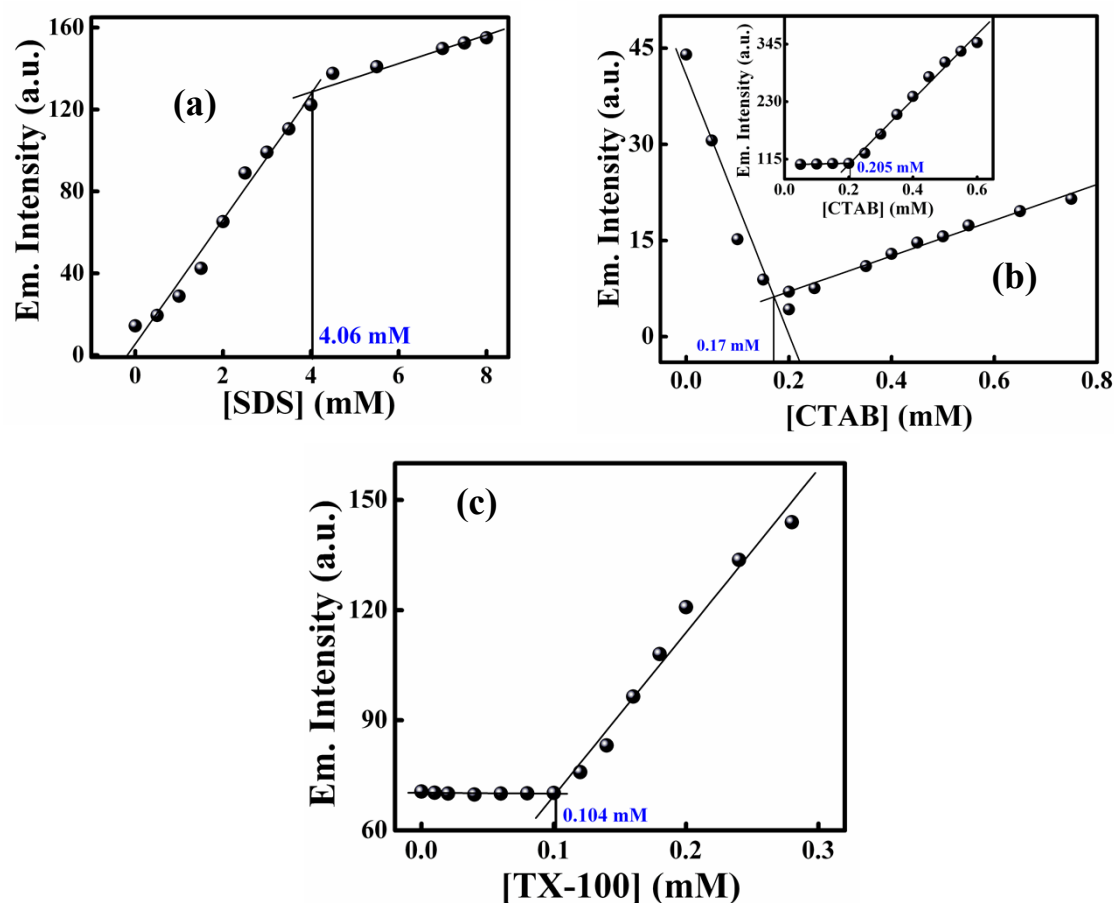


Figure S1. Variation of lactam emission intensity of ADII as a function of concentration of (a) SDS, (b) CTAB and (c) TX-100. Inset of Figure 3(b) shows the variation of lactim emission intensity of ADII as a function of concentration of CTAB. The breakpoints observed at the corresponding CMCs of the surfactants in Tris-HCl aqueous buffer solution are mentioned in each panel.

Determination of ADII - Micelle Binding Constant:

The following equation has been used to estimate binding constant (K).

$$\frac{(I_{\infty} - I_0)}{(I_t - I_0)} = 1 + \frac{1}{K[M]}$$

where, I_0 , I_t , and I_{∞} are the emission intensities of the probe molecule (ADII) in the absence of surfactant (that is in pure water), at different concentrations of surfactant, and at a condition of saturation, respectively. $[M]$ denotes the micellar concentration in the solution and it is related to the aggregation number of the micellar system (N_{agg}) at the surfactant concentration $[S]$ and the CMC of the surfactant by the following expression:

$$[M] = \frac{[S] - CMC}{N_{agg}} .$$

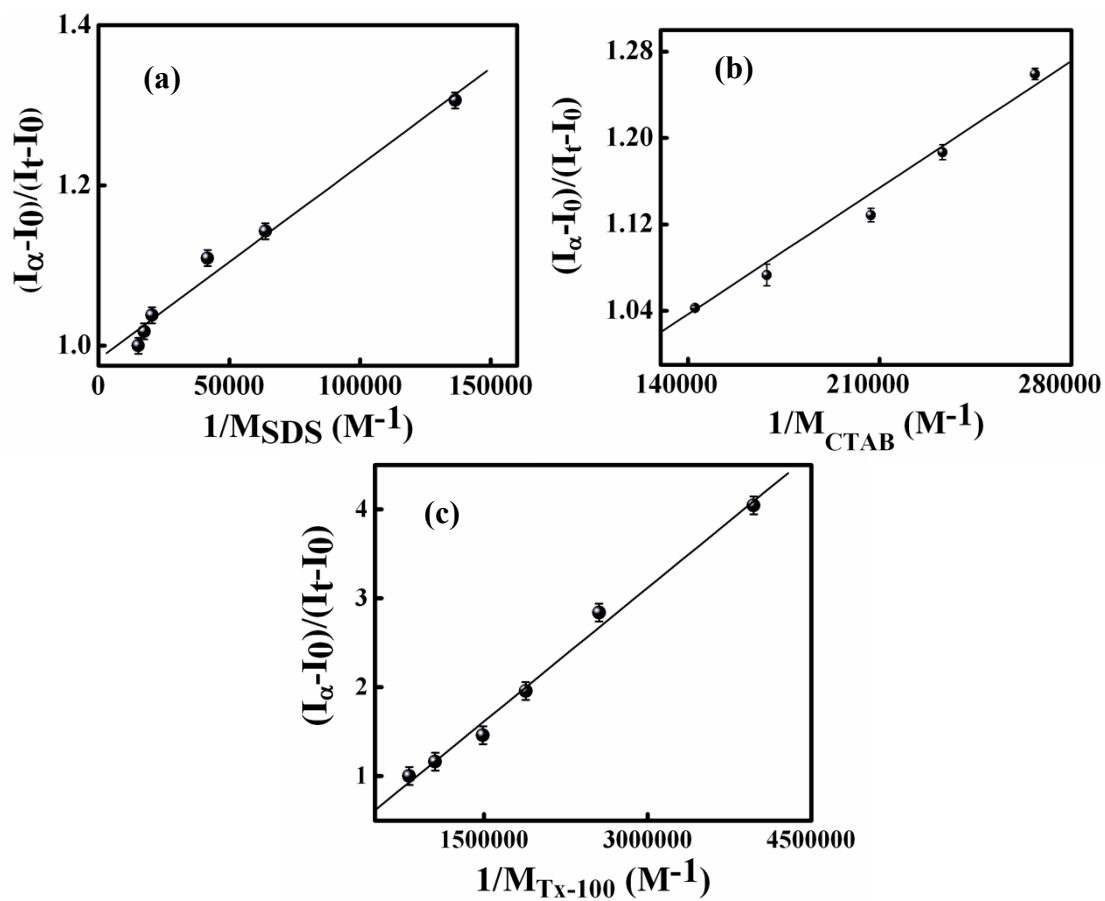


Figure S2. Plot of $(I_\alpha - I_0)/(I_t - I_0)$ against $[M]^{-1}$ in (a) SDS, (b) CTAB and (c) TX-100 medium.

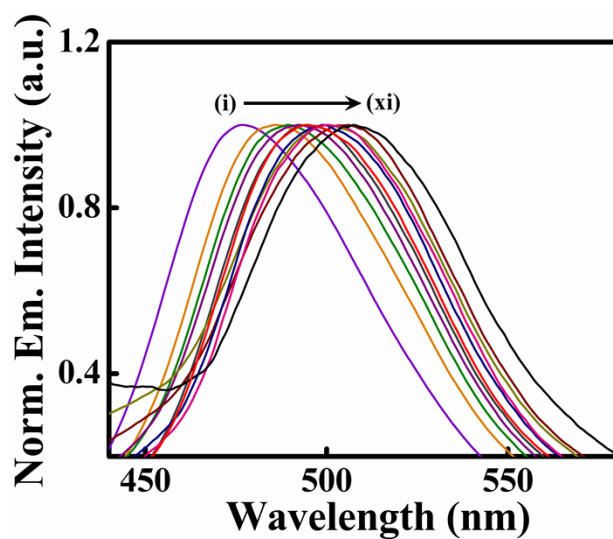


Figure S3. Normalised emission profile of ADII in varying composition of water-dioxane binary mixture ($\lambda_{\text{ex}} = 400 \text{ nm}$). Curves (i) $\rightarrow$ (xi) correspond to % of water (by volume) = 0, 5, 10, 15, 20, 25, 40, 50, 60, 70, and 100. (b

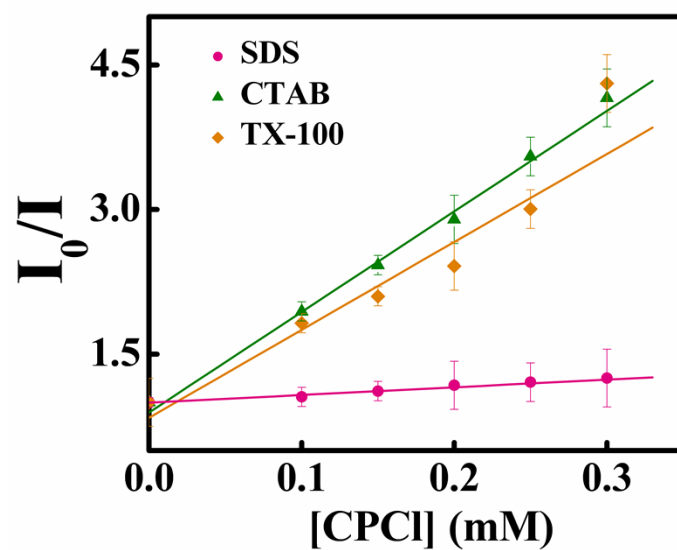


Figure S4. Stern-Volmer plots for the fluorescence quenching of ADII by CpCl in various micellar (SDS, CTAB and TX-100) medium.

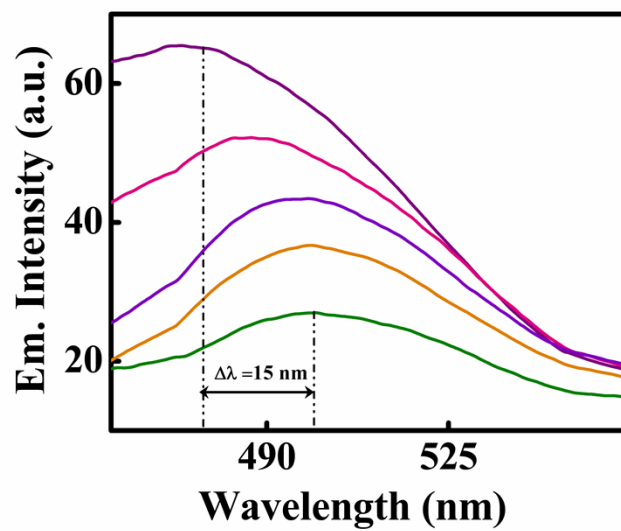


Figure S5. A representative case for the occurrence of REES in CTAB micelle-bound probe (ADII) (where, [CTAB] = 0.80 mM).

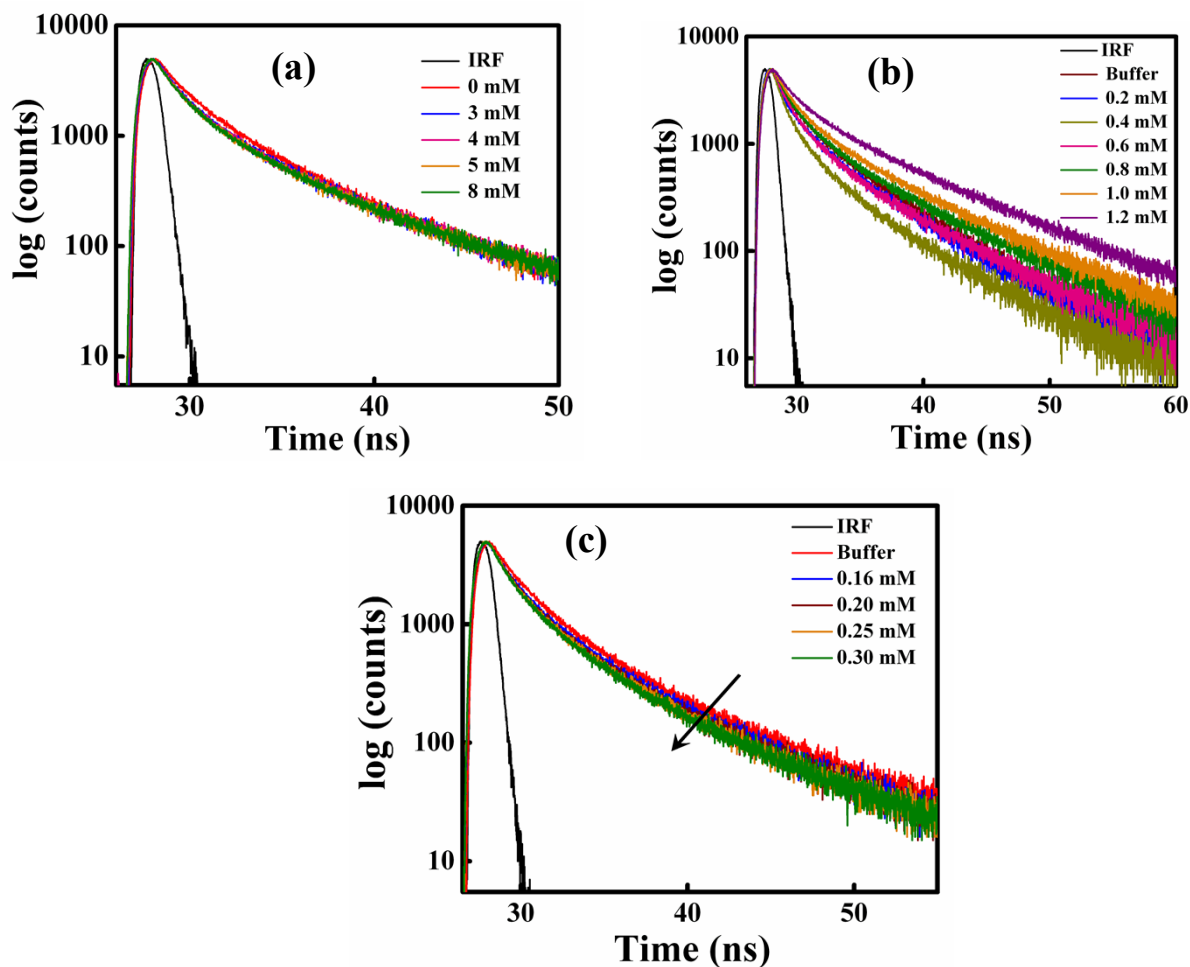


Figure S6. Representative time-resolved fluorescence decay profiles of ADII in presence of increasing concentrations of (a) SDS, (b) CTAB, and (c) TX-100 at $\lambda_{\text{ex}} = 336 \text{ nm}$, $\lambda_{\text{monitored}} = 430 \text{ nm}$. The respective concentrations of the surfactants under investigation are specified in the figure legends.