The information provided here concerns the reactions of 1-Me and AK-ET with various diones in micelles. The amount of reactant per micelle in an SDS-aqueous solution can be estimated as follows. The concentration of micelles is given by equation 3:

$$[\text{micelles}] = ([\text{surfactant}] - \text{cmc})/N_{agg}$$  \hspace{1cm} (3)

The concentration of SDS (100 mM) is 12.5 times the typical critical micelle concentration (cmc) of 8 mM, and the number of molecules of surfactant in the micelle ($N_{agg}$) ranges from ~55–120 depending on salt concentration. As a result, the [micelles] ranges from 0.76 – 1.7 mM. Given a reactant concentration of 30 mM, the mean occupancy number, $m$, ranges from a maximum of 17 – 39; in other words, on average a given micelle contains up to 17 – 39 reactant molecules. The mean occupancy of course is less if the reactant is partitioned between the aqueous and micellar phases rather than accumulating exclusively in the micelle. These concentrations are substantially higher than in our recent study of formaldehyde scavenging by pyrroles, which chiefly entailed $m \sim 0.1$ pyrrole/micelle.

In all of the above reactions, the decrease in porphyrin yield as χ_def increased was accompanied by a decrease in intensity of the porphyrin Soret band (403 nm) and an increase in absorption in the ~480 – 500 nm region. The latter is characteristic of oligopyrromethenes. An example is provided in Fig. S1.

![Absorption spectra of etioporphyrins from reactions with various mole fractions of dione 2-Me (χ_def = 0–1 as shown in the inset). Spectra were obtained in 0.1 M HCl after oxidation with I₂.](image)

**Fig. S1** Absorption spectra of etioporphyrins from reactions with various mole fractions of dione 2-Me (χ_def = 0–1 as shown in the inset). Spectra were obtained in 0.1 M HCl after oxidation with I₂.

**Reference**