**Supplementary Figure 1** Steady-state fluorescence changes accompanying the titration of anthracene (1.12 \times 10^{-5} \text{ M}), with \textit{N,N}-dimethylaniline (DMA). These measurements were taken in CH$_2$Cl$_2$ and excitation was effected at 365 nm.

**Supplementary Figure 2** Steady-state fluorescence changes accompanying the titration of acceptor 2 (1.12 \times 10^{-5} \text{ M}), with "masked donor" 5. These measurements were taken in CH$_2$Cl$_2$ and excitation was effected at 408 nm.
**Supplementary Figure 3** Steady-state fluorescence changes accompanying the titration of “masked acceptor” 10 (1.26 x 10^-5 M), with donor 9. These measurements were taken in CH2Cl2 and excitation was effected at 388 nm.

**Supplementary Figure 4** Plot of $k_{ET}\sqrt{T}$ vs. $1/T$ for ensemble I.