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Supporting Information

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Hierarchical Self-Assembly of a Biomimetic Light-Harvesting Antenna Based on DNA G-Quadruplexes

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Calculation of the Förster radius.

The Förster radius was calculated in Å using the formula:

$$R_0^6 = 0.211 \cdot \left(QY_f \cdot J(\lambda) \cdot \frac{\kappa^2}{n^4} \right)$$

Where QY_f is the quantum yield of fluorescence of the donor in the absence of the acceptor, n is the refractive index of the solvent and κ^2 is the orientation between the dipoles of the chromophores. When the orientation is not known a value of 2/3 is used, which means that the relative orientation averaged over all donor-acceptor pairs is assumed to be random. $J(\lambda)$ is the overlap integral which is calculated using the emission spectrum of the donor chromophore, normalized to unit area, and the absorption spectrum of the accepting chromophore:

$$J(\lambda) = \int_0^\infty f_D(\lambda) \cdot \epsilon_A(\lambda) \cdot \lambda^4 d\lambda$$

Where $f_D(\lambda)$ is the overlap of the donor fluorescence spectrum expressed in units of $M^{-1}cm^{-1}(nm)^4$, $\epsilon_A(\lambda)$ is the acceptor absorption spectrum expressed in units of $M^{-1}cm^{-1}$ and λ in nm.

Characterization of oligonucleotide conjugates.

Rp-HPLC:

ESI (m/z) = 1873.4 (calcd 1873.28)

Rp-HPLC:

ESI (m/z) = 1831.60 (calcd 1832.26)

Titration G-quadruplex – H₂TMPyP4

1 mL of a solution 0.8 μ M of H₂TMPyP4 in 10 mM Tris-HCl, 80 mM KCl, pH 7.3 buffer was titrated with increasing amounts of quadruplex from a 6.14 μ M stock solution in the same buffer.

Figure S1. Job plot for the binding of **H₂TMPyP4** to $*d(G_3T_2)_4$

Figure S2. Overlap between the emission spectrum of the coumarin and the absorption spectrum of the porphyrin.

Figure S3. Excitation spectra (at $\lambda_{em} = 671$ nm) of **H₂TMPyP4** in a KCl buffer in the presence of increasing amounts (0-2.3 eq.) of amino-modified quadruplex $d(G_3T_2)_4$.