Supporting Information for:

## Photoinduced Charge Separation in Pyrenedicarboxamide-Linked DNA Hairpins

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**Figure S4.** Single wavelength transient intensities for conjugate Pyd-2G in aqueous buffer.

Table 1. MALDI-TOF-MS data for Pyd conjugates.

Pyd-1G: d(TTTTTG-Pyd-CAAAAA) MALDI-TOF MS m/z for C<sub>63</sub>H<sub>84</sub>N<sub>35</sub>O<sub>36</sub>P<sub>5</sub> [M–H]<sup>-</sup> : calcd 4107.9, found 4112.7 Pyd-2G d(TTTTGT-Pyd-ACAAAA) MALDI-TOF MS m/z for C<sub>63</sub>H<sub>84</sub>N<sub>35</sub>O<sub>36</sub>P<sub>5</sub> [M–H]<sup>-</sup>: calcd 4108.9, found 4114.0 Pyd-3G d(TTTGTT-Pyd-AACAAA) MALDI-TOF MS m/z for C<sub>63</sub>H<sub>84</sub>N<sub>35</sub>O<sub>36</sub>P<sub>5</sub> [M–H]<sup>-</sup>: calcd 4108.9, found 4114.2 Pyd-4G d(TTGTTT-Pyd-AAACAA) MALDI-TOF MS m/z for C<sub>63</sub>H<sub>84</sub>N<sub>35</sub>O<sub>36</sub>P<sub>5</sub> [M–H]<sup>-</sup>: calcd 4108.9, found 4114.1 Pyd-AT d(TTTTTT-Pyd-AAAAAA) MALDI-TOF MS m/z for C<sub>63</sub>H<sub>84</sub>N<sub>35</sub>O<sub>36</sub>P<sub>5</sub> [M–H]<sup>-</sup>: calcd 4108.9, found 4114.1 **Figure S1**: 1D 1H spectrum of Pyd-4G in D<sub>2</sub>O, 10mM NaCl, 100mM sodiumphosphate buffer.



## Pyd-4G TTGTTT-Py-AAACAA

S1a: Meyhyl region of the spectrum in S1

Pyd-4G TTGTTT-Py-AAACAA



**Figure S2.** Transient absorption spectra of conjugate Pyd-2G in aqueous buffer, (a) 0-10 ps and (b) 0.2-1.9 ns. Early spectra are shown in blue/green and late spectra in orange/red.





Figure S3. Transient absorption spectra of conjugate Pyd-3G in aqueous buffer, 0-5.1 ns.

**Figure S4.** Single wavelength transient intensities for conjugate Pyd-2G in aqueous buffer.

