Supporting Information for:

"Switched-on" Flexible Chalcogenopyrylium Photosensitizers upon Binding to DNA. Purging of Viral Pathogens through Singlet-oxygen Induced DNA Cleavage

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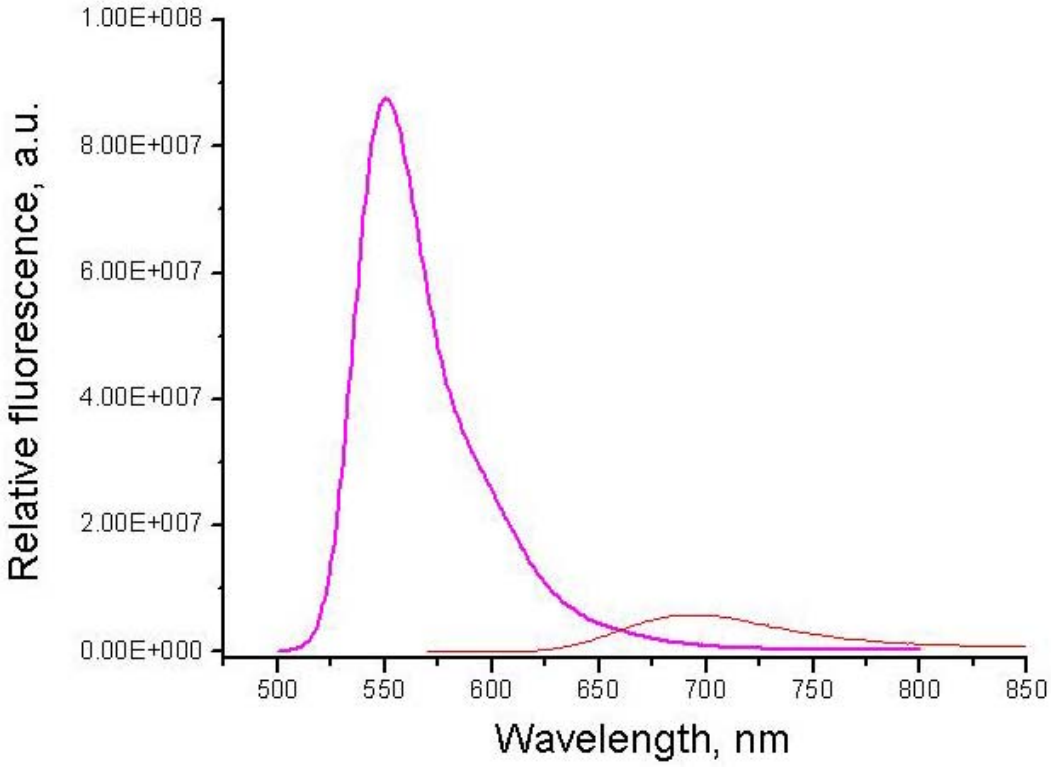

Figure S1. Emission of Rhodamine 6G (**R6G)** in MeOH (magenta) and **6-S**-DNA complex (red) in 0.05M Tris-HCl buffer at pH 7.5. The optical density of the **R6G** solution was matched to the **6-S** (8×10^{-6} M)/ctDNA (8×10^{-5} M in *bp*) solution at 522 nm for excitation.

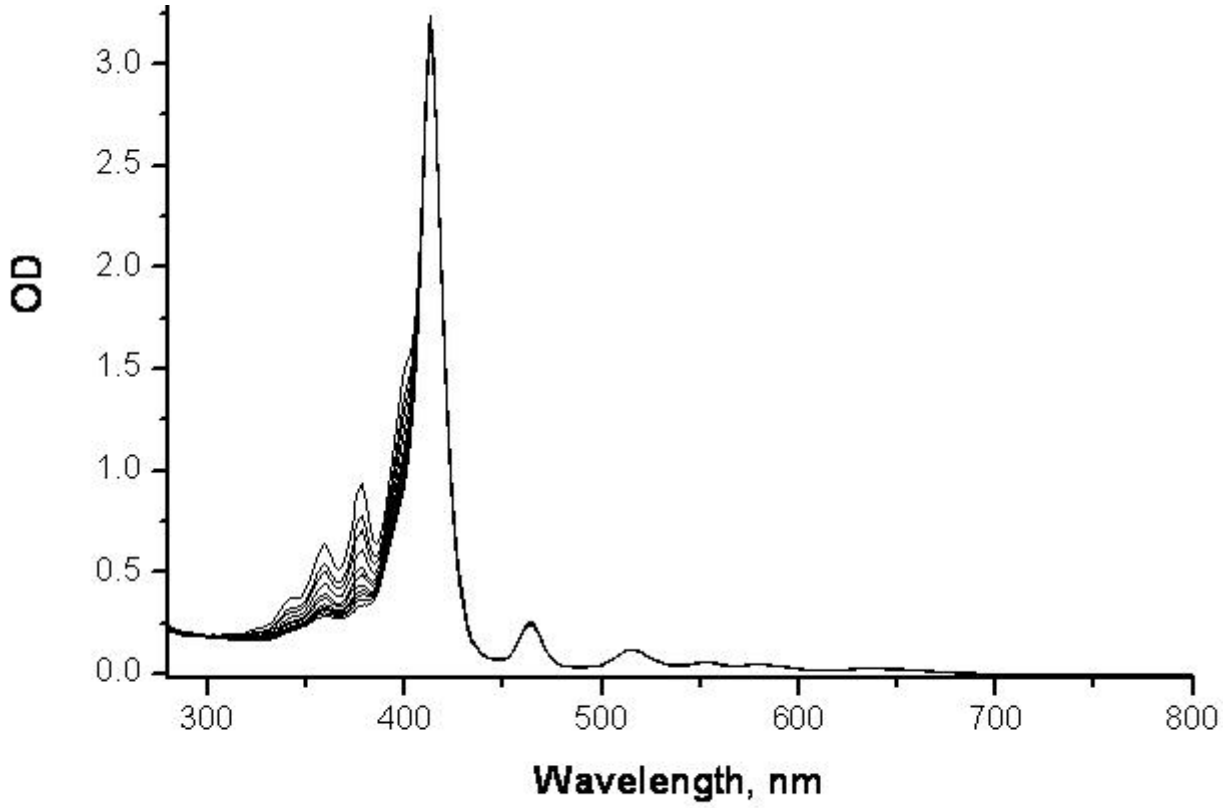

Figure S2. Bleaching of ADPA via irradiation of **$TPPS_4$** with the 514 nm laser line from an Argon ion laser in 0.05M Tris-HCl buffer at pH 8.0. The optical density at 514 nm was matched in all samples. Each line represents a 1-minute interval between spectral acquisition.

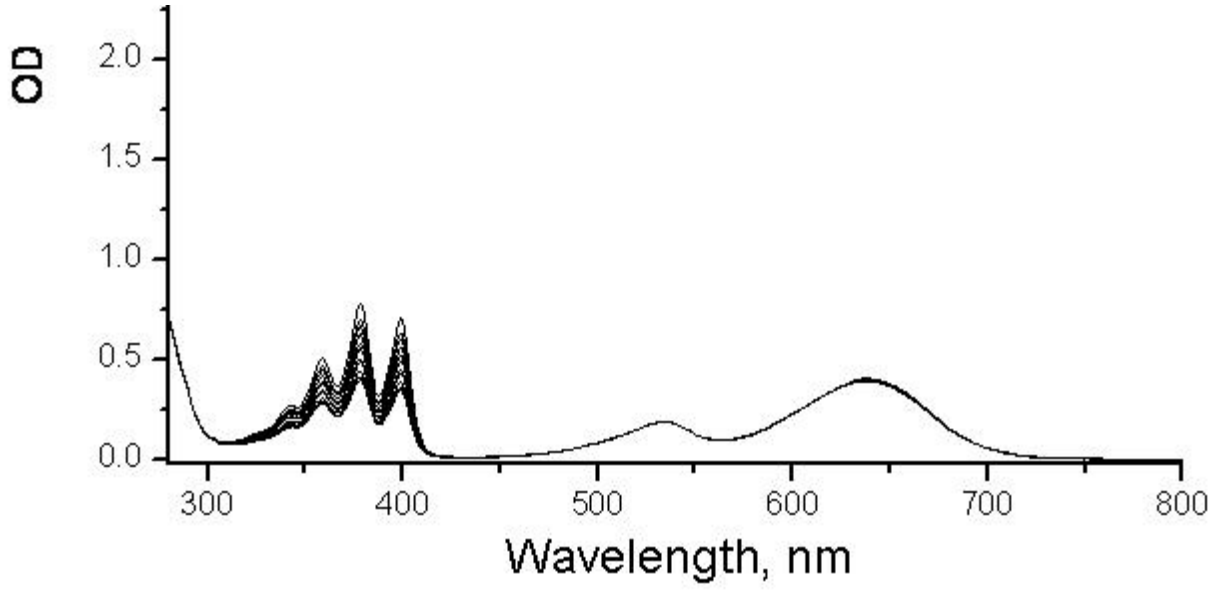

Figure S3. Bleaching of ADPA via irradiation of **6-Se**/ctDNA complex with the 514 nm laser line from an Argon ion laser in 0.05M Tris-HCl buffer at pH 8.0. The optical density at 514 nm was matched in all samples. Each line represents a 1-minute interval between spectral acquisition.

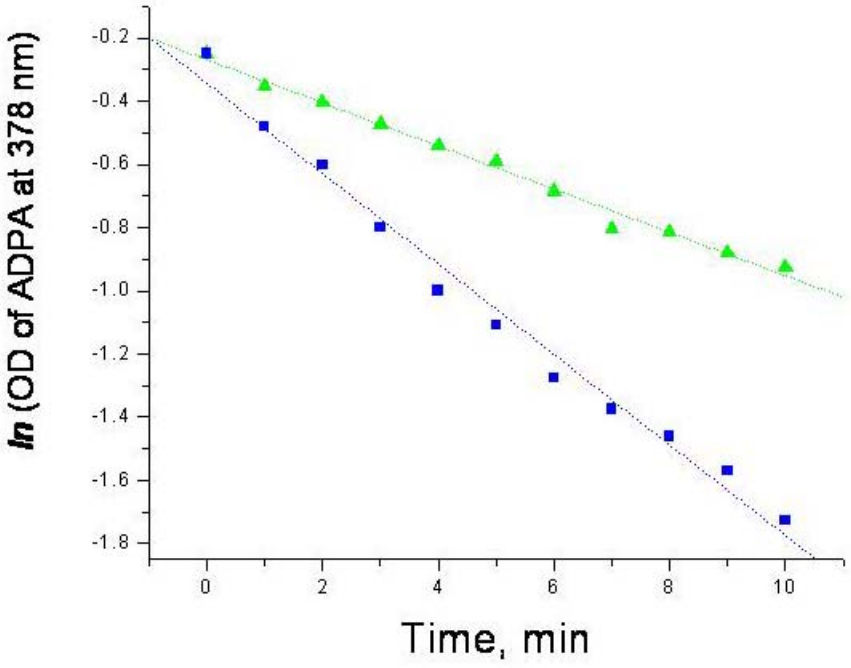

Figure S4. Comparison of ADPA bleaching as a measure of $^1O_2$ generation efficiency: **6-Se** (green triangles), **$TPPS_4$** (blue diamonds).

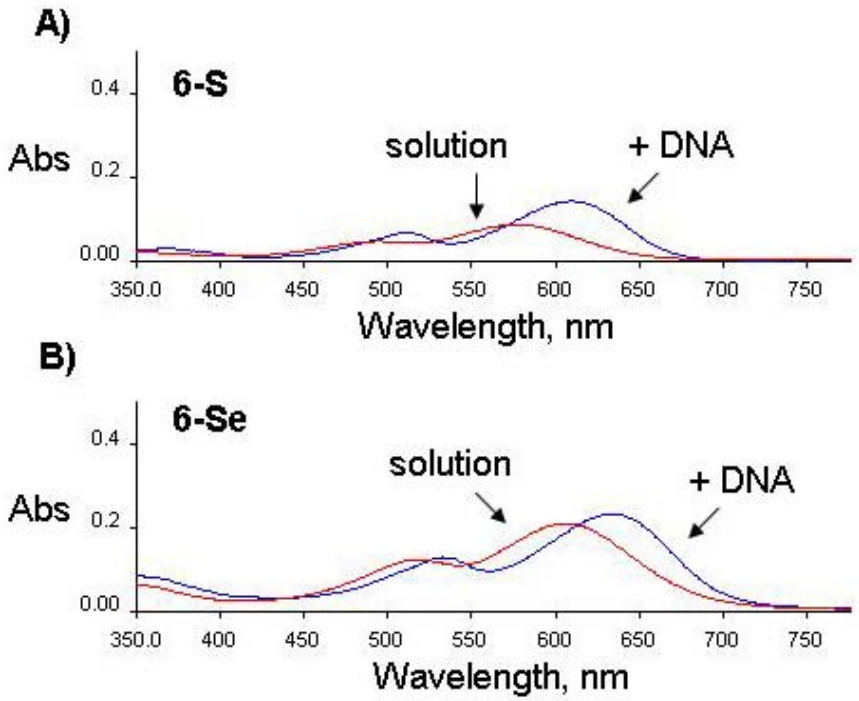

Figure S5. Spectral shifts associated with chalcogenopyrylium dyes **A) 6-S** and **B) 6-Se** upon binding to pUC19 DNA. Red lines are dye only (8×10^{-6} M) in 0.05M Tris-HCl, pH 7.5. Blue lines are dye (8×10^{-6} M) plus DNA (8×10^{-5} M *bp*) in 0.05M Tris-HCl, pH 7.5.

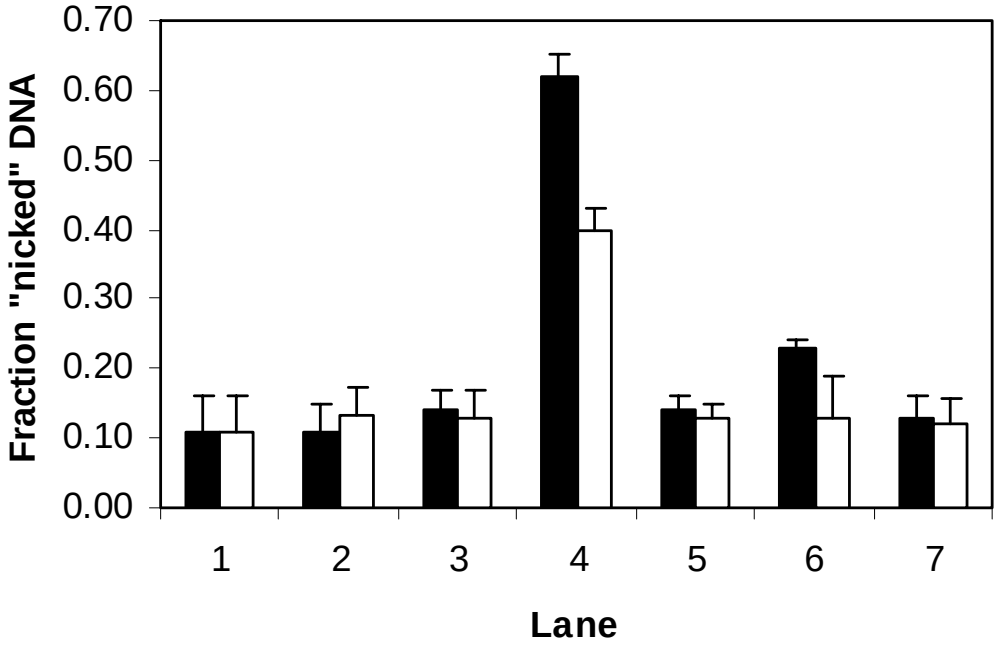

Figure S6. Sensitivity of pUC19 DNA (8×10^{-5} M *bp*) to various combinations of 8×10^{-6} M **6-S** (white bars) or **6-Se** (black bars) 500-800-nm light (25 mW cm^{-2} for 60 min), air, and imidazole. Lane 1: DNA (no dye, no light, 60 min); Lane 2, DNA + 60 min light; Lane 3, DNA + **dye** (no light); Lane 4, DNA + **dye** + light; Lane 5, DNA + **dye** + light (degassed and under Ar); Lane 6, DNA + **dye**+ light + 0.008 M imidazole; Lane 7, DNA + **dye** + light + 0.08 M imidazole. The fraction of supercoiled DNA and "nicked" (strand-broken) DNA was determined via densities using a phosphoimager following gel electrophoresis. Experiments were run 3-5 times and bars are 1 standard deviation from the mean.