Electronic Supplementary Material (ESI) for Dalton Transactions

Supporting Information for

A Ruthenium(II) arene complex showing emission enhancement and photocleavage activity towards DNA from singlet and triplet excited states respectively

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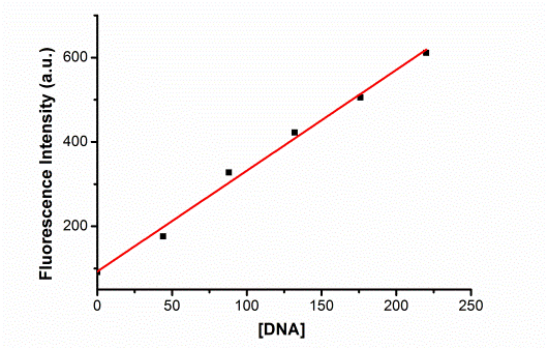

Figure S1. Plot of the fluorescence intensity of **1** (20 μM) as a function of the concentration of CT-DNA (0-220 μM).

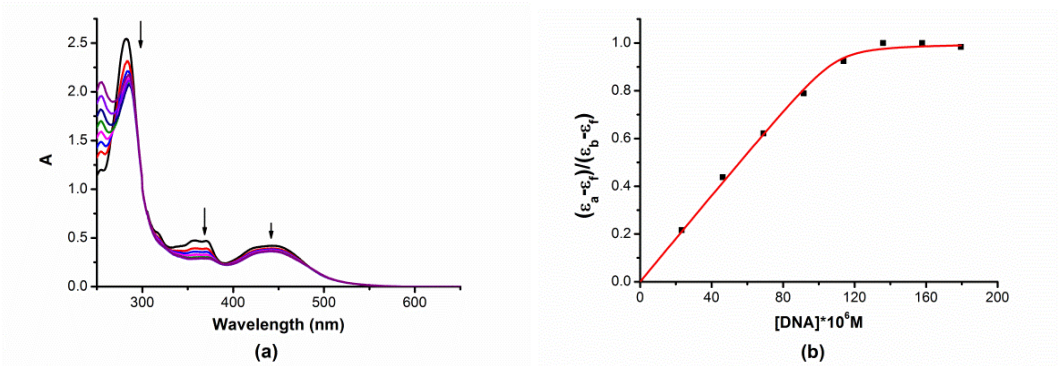

Figure S2. (a) Absorption spectra of **3** (25 μM) in PBS buffer (pH 7.4) in the presence of varied concentrations of CT-DNA. (b) Plot of $(\varepsilon_a - \varepsilon_f)/(\varepsilon_b - \varepsilon_f)$ as a function of CT-DNA concentration. (C_t = 25 μM, in PBS buffer, pH7.4)

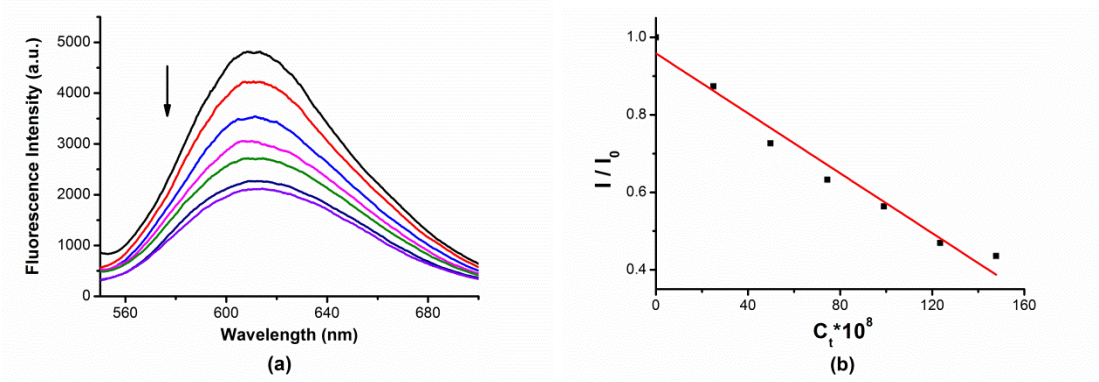

Figure S3. (a) Fluorescence quenching of EB (5 μM) bound to CT-DNA (10 μM) by **1.** (b) Plot of I/ I_0 of EB bound to CT-DNA as a function of the concentration of **1** ([EB] = 5 μM, [DNA] = 10 μM, in PBS buffer, pH7.4).

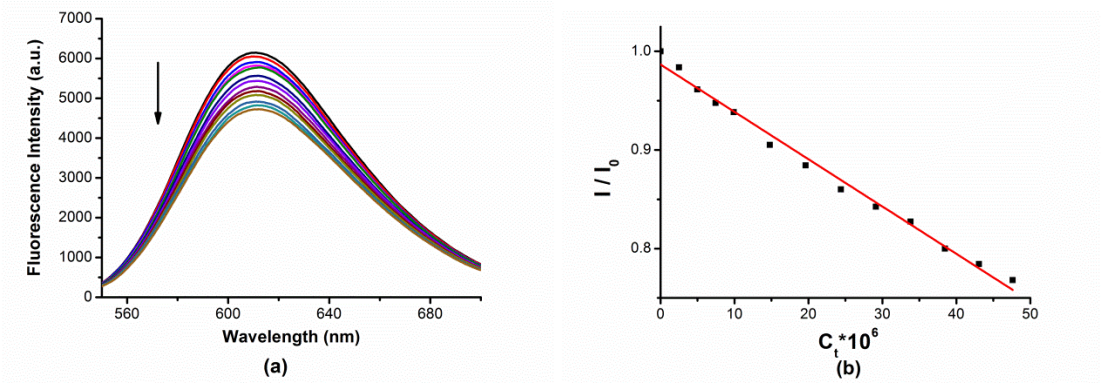

Figure S4. (a) Fluorescence quenching of EB (5 μM) bound to CT-DNA (10 μM) by **2.** (b) Plot of I/ I_0 of EB bound to CT-DNA as a function of the concentration of **2** ([EB] = 5 μM, [DNA] = 10 μM, in PBS buffer, pH7.4).

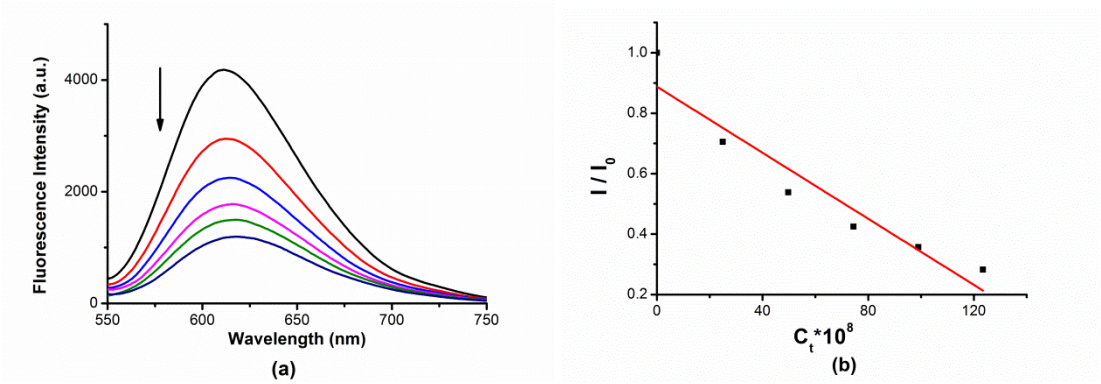

Figure S5. (a) Fluorescence quenching of EB (5 μM) bound to CT-DNA (10 μM) by **3.** (b) Plot of I/ I_0 of EB bound to CT-DNA as a function of the concentration of **3** ([EB] = 5 μM, [DNA] = 10 μM, in PBS buffer, pH7.4).

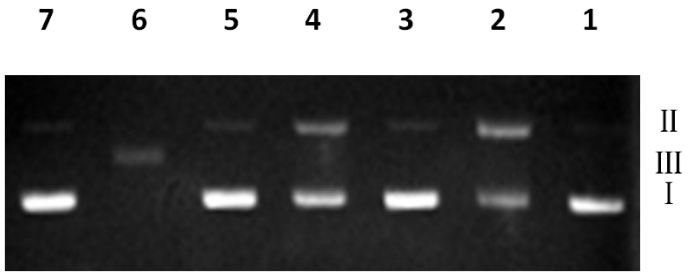

Figure S6. Agarose gel electrophoresis pattern of the photocleaved supercoiled pBR322 DNA (31 μM in base pair) by **1, 3** or **4** (30 μM) upon irradiation (> 420 nm) for 20 min in Tris-CH_3COOH/EDTA buffer (pH = 7.4). Lane 1, DNA alone; lane 2, DNA + **1** (light); lane 3, DNA + **1** (dark); lane 4, DNA + **3** (light); lane 5, DNA + **3** (dark); lane 6, DNA + **4** (light); lane 7, DNA + **4** (dark). Form Ⅰ, Ⅱ and Ⅲ denote supercoiled circular, nicked circular and linear form, respectively.

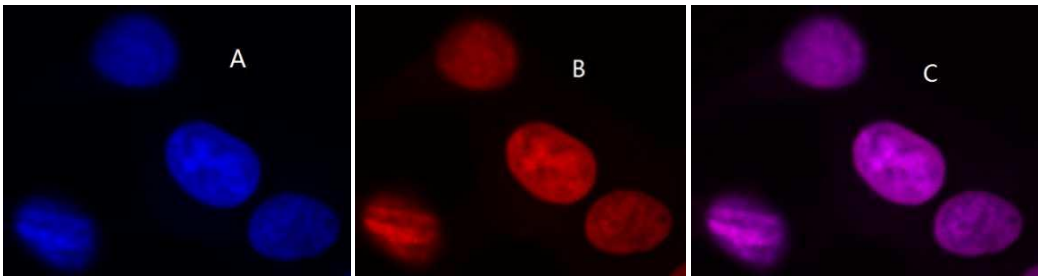

Figure S7. Confocal micrographs of the double-stained A549 cells with Hoechst 34580 and **1** (each 5 μM incubated for 3 h). (a) Hoechst 34580 fluorescence image upon excitation at 408 nm. (b) **1** fluorescence image upon excitation at 408 nm. (c) Overlay of the former two fluorescence images.