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 \((ε_a - ε_i)/(ε_b - ε_i)\) 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, pH 7.4).

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, pH 7.4).

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-CH₃COOH/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.