Supplementary Information

**Fig. S 1** Difference spectrum (Ru\text{bound} – (Ru\text{free} + DNA)) of Ru-tpy (black) and ΔRu-bpy (red) in 150 mM NaCl solution at 25°C.

**Fig. S 2** Reverse absorption spectral titration carried out for Ru-tpy (5 µM) by addition of AT-DNA in a 150 mM NaCl solution at 25°C. The spectra follows the addition of 0-8 [base pairs] / [Ru]. The arrows indicate the course of reaction as increasing amounts of AT-DNA is added to the solution. To avoid dilution equal amounts of 5 µM Ru-tpy was added simultaneously. The increasing hypochroism at 372 nm upon addition of AT-DNA is depicted in the inset of Fig. S 2.
**Fig. S 3** Reverse circular dichroism titration of Ru-tpy (5 μM) with AT-DNA in a 150 mM NaCl aqueous solution. The spectra follows the addition of 0-7 base pairs per complex.

**Fig. S 4** Reduced Linear dichroism spectra of Ru-tpy in the presence of ctDNA in a 150 mM NaCl aqueous solution at [base pairs] / [Ru] ratios of 8 (blue), 4 (red) and 2 (green) in 10 mM NaCl solution. The concentration of ctDNA is 270 µM nucleotides.
**Fig. S 5** Absorption spectral titration carried out for AT-DNA (12 µM nucleotides) by addition of Ru-tpy in a 150 mM NaCl solution at 25°C. The spectra follows the addition of 0-2 [Ru] / [complex]. The arrow indicate the course of reaction as increasing amounts of Ru-tpy is added to the solution. To avoid dilution equal amounts of 12 µM AT-DNA was added simultaneously.

**Fig. S 6** The first 4 columns of V plotted against row number. Blue: v1 (s1=100); green: v2 (s2=2.45); red: v3 (s3=0.23); light blue: v4 (s4=0.18).
Fig. S 7  The first 4 columns of U plotted against wavelength. Blue: u1 (s1=100); green: u2 (s2=2.45); red: u3 (s3=0.23); light blue: u4 (s4=0.18)

Fig. S 8  $^1$H NMR spectrum of [Ru(tpy)(py)dppz](PF$_6$)$_2$ dissolved in acetone-$d_6$. 