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Supplementary Material

Lanthanide based Polymers with Charged Ligand Backbones: Triple-stranded Chain Structures and their DNA Cleavage Studies

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Figure Legends:

Fig. S1 Agarose GE patterns for the cleavage of pBR322 DNA by complex **3** and complex **4** in the presence of H_2O_2 (25 μM). Lane 1: 0.5 kb DNA Ladder; Lane 2: pBR322 DNA alone; Lanes 3-7: DNA with complex **3** at the concentrations of 0.01, 0.03, 0.05, 0.07 and 0.1 mM; Lane 8: pBR322 DNA alone; Lanes 9-13: DNA with complex **4** at the concentrations of 0.01, 0.03, 0.05, 0.07 and 0.1 mM, respectively.

Fig. S2. Agarose GE patterns for the cleavage of pBR322 DNA by complex **1** in the presence of H_2O_2 (25 μM). Lane 1: 0.5 kb DNA Ladder; Lane 2: pBR322 DNA alone; Lanes 3-7: pBR322 DNA with complex **1** at the concentrations of 0.1, 0.3, 0.5, 0.7 and 1 mM with reaction time 5 h; Lanes 8-12: the time of reactions were 0, 3, 5, 7 and 9 h with concentration of 0.1 mM.

Fig. S3. Time course of pBR322 DNA cleavage promoted by complex **1** (0.01 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction

products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

Fig. S4. Time course of pBR322 DNA cleavage promoted by complex **1** (0.02 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

Fig. S5. Time course of pBR322 DNA cleavage promoted by complex **1** (0.04 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

Fig. S6. Time course of pBR322 DNA cleavage promoted by complex **1** (0.05 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

Fig. S7. Time course of pBR322 DNA cleavage promoted by complex **1** (0.06 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S8. Time course of pBR322 DNA cleavage promoted by complex **1** (0.07 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S9. Time course of pBR322 DNA cleavage promoted by complex **1** (0.08 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S10. Time course of pBR322 DNA cleavage promoted by complex **1** (0.09 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S11. Time course of pBR322 DNA cleavage promoted by complex **1** (0.1 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively.

Fig. S12. Time course of pBR322 DNA cleavage promoted by complex **2** (0.01 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

Fig. S13. Time course of pBR322 DNA cleavage promoted by complex **2** (0.02 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

Fig. S14. Time course of pBR322 DNA cleavage promoted by complex **2** (0.04 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

Fig. S15. Time course of pBR322 DNA cleavage promoted by complex **2** (0.06 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

Fig. S16. Time course of pBR322 DNA cleavage promoted by complex **2** (0.07 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

Fig. S17. Time course of pBR322 DNA cleavage promoted by complex **2** (0.08 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively.

Fig. S18. Time course of pBR322 DNA cleavage promoted by complex **2** (0.1 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively.

Fig. S19. Time course of pBR322 DNA cleavage promoted by complex **3** (0.2 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction

products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

Fig. S20. Time course of pBR322 DNA cleavage promoted by complex **3** (0.3 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

Fig. S21. Time course of pBR322 DNA cleavage promoted by complex **3** (0.4 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0 and 2.5 h, respectively.

Fig. S22. Time course of pBR322 DNA cleavage promoted by complex **3** (0.6 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

Fig. S23. Time course of pBR322 DNA cleavage promoted by complex **3** (0.7 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S24. Time course of pBR322 DNA cleavage promoted by complex **3** (0.8 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S25. Time course of pBR322 DNA cleavage promoted by complex **3** (1.0 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S26. Time course of pBR322 DNA cleavage promoted by complex **4** (0.2 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 3.0 and 4.0 h, respectively.

Fig. S27. Time course of pBR322 DNA cleavage promoted by complex **4** (0.3 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

Fig. S28. Time course of pBR322 DNA cleavage promoted by complex **4** (0.4 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

Fig. S29. Time course of pBR322 DNA cleavage promoted by complex **4** (0.6 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

Fig. S30. Time course of pBR322 DNA cleavage promoted by complex **4** (0.7 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S31. Time course of pBR322 DNA cleavage promoted by complex **4** (0.8 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S32. Time course of pBR322 DNA cleavage promoted by complex **4** (1.0 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

Fig. S33. (a) Time course of pBR322 DNA cleavage promoted by complex **1** (0.04 mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes1–7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **1**.

Fig. S34. (a) Time course of pBR322 DNA cleavage promoted by complex **2** (0.1 mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1–7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **2**.

Fig. S35. (a) Time course of pBR322 DNA cleavage promoted by complex **3** (0.4 mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1–7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **3**.

Fig. S36. (a) Time course of pBR322 DNA cleavage promoted by complex **4** (0.04

mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1–7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **4**.

Fig. S37. Agarose GE patterns for the cleavage of pBR322 DNA by complex **2** (0.01 mM) at pH 7.0 and 37°C for 5 h with H_2O_2 (25 μM), in the presence of DMSO (1 M, Lane 3), MeOH (1 M, Lane 4), KI (0.1 M, Lane 5), NaN_3 (0.1 M, Lane 6), EDTA (0.1 M, Lane 7). Lane 1, DNA alone and Lane 2: DNA + complex **2**.

Fig. S38. Agarose GE patterns for the cleavage of pBR322 DNA by complex **3** (0.8 mM) at pH 7.0 and 37°C for 5 h with H_2O_2 (25 μM), in the presence of DMSO (1 M, Lane 3), MeOH (1 M, Lane 4), KI (0.1 M, Lane 5), NaN_3 (0.1 M, Lane 6), EDTA (0.1 M, Lane 7). Lane 1, DNA alone and Lane 2: DNA + complex **3**.

Fig. S39. Agarose GE patterns for the cleavage of pBR322 DNA by complex **4** (0.8 mM) at pH 7.0 and 37°C for 5 h with H_2O_2 (25 μM), in the presence of DMSO (1 M, Lane 3), MeOH (1 M, Lane 4), KI (0.1 M, Lane 5), NaN_3 (0.1 M, Lane 6), EDTA (0.1 M, Lane 7). Lane 1, DNA alone and Lane 2: DNA + complex **4**.

Fig. S40. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **1** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentrations of complex **1**. The total concentrations of complex **1** were 0, 1.33, 3.32, 6.62, 11.86, 18.32, 37.86, 40.31, 58.38, 87.04, 129.43, 177.18, 239.74, 309.71 μM.

Fig. S41. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **1** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.

Fig. S42. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **2** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentrations of complex **2**. The total concentrations of complex **2** were 0, 1.33, 3.32, 6.62, 11.86, 18.32, 26.61, 35.99,

48.22, 66.00, 110.32, 160.13, 225.21, 297.75, 357.88 μM.

Fig. S43. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **2** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.

Fig. S44. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **3** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentrations of complex **3**. The total concentrations of complex **3** were 0, 1.33, 3.32, 6.62, 11.86, 18.32, 27.88, 40.31, 58.38, 81.45, 114.00, 153.98, 199.15, 258.53, 325.24, 380.93, 428.14, 468.65 μM.

Fig. S45. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **3** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.

Fig. S46. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **4** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentration of complex **4**. The total concentrations of complex **4** were 0, 1.33, 4.64, 9.90, 16.39, 25.97, 38.46, 56.60, 85.37, 127.91, 175.82, 238.58, 308.76, 367.09, 416.34, 458.48 μM.

Fig. S47. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **4** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.

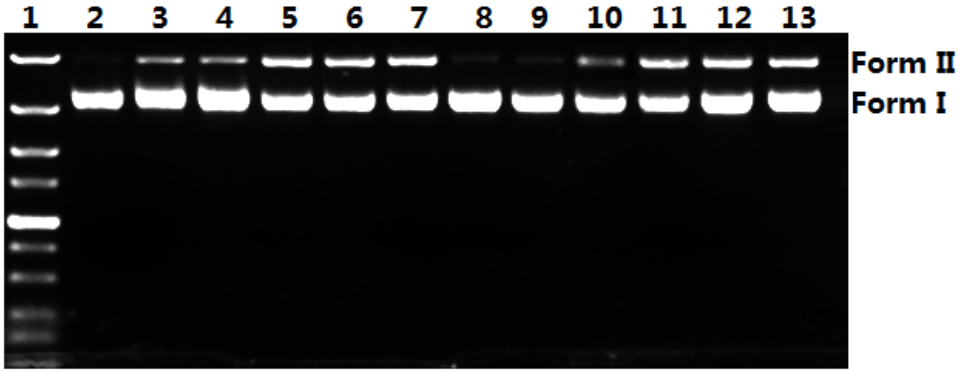

Fig. S1 Agarose GE patterns for the cleavage of pBR322 DNA by complex **3** and complex **4** in the presence of H_2O_2 (25 μM). Lane 1: 0.5 kb DNA Ladder; Lane 2: pBR322 DNA alone; Lanes 3-7: DNA with complex **3** at the concentrations of 0.01, 0.03, 0.05, 0.07 and 0.1 mM; Lane 8: pBR322 DNA alone; Lanes 9-13: DNA with complex **4** at the concentrations of 0.01, 0.03, 0.05, 0.07 and 0.1 mM, respectively.

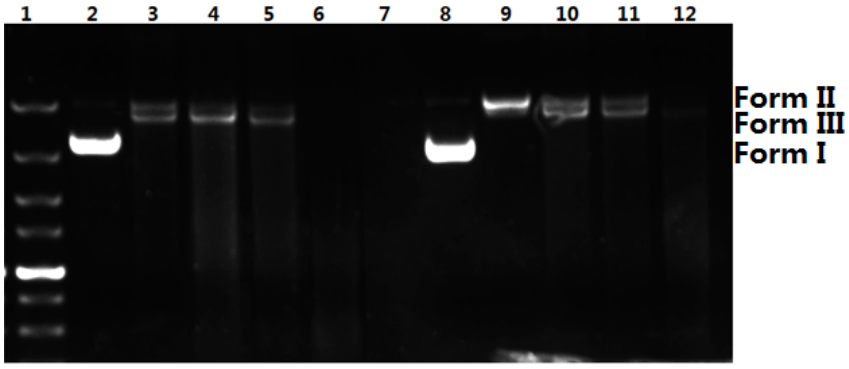

Fig. S2. Agarose GE patterns for the cleavage of pBR322 DNA by complex **1** in the presence of H_2O_2 (25 μM). Lane 1: 0.5 kb DNA Ladder; Lane 2: pBR322 DNA alone; Lanes 3-7: pBR322 DNA with complex **1** at the concentrations of 0.1, 0.3, 0.5, 0.7 and 1 mM with reaction time 5 h; Lanes 8-12: the time of reactions were 0, 3, 5, 7 and 9 h with concentration of 0.1 mM.

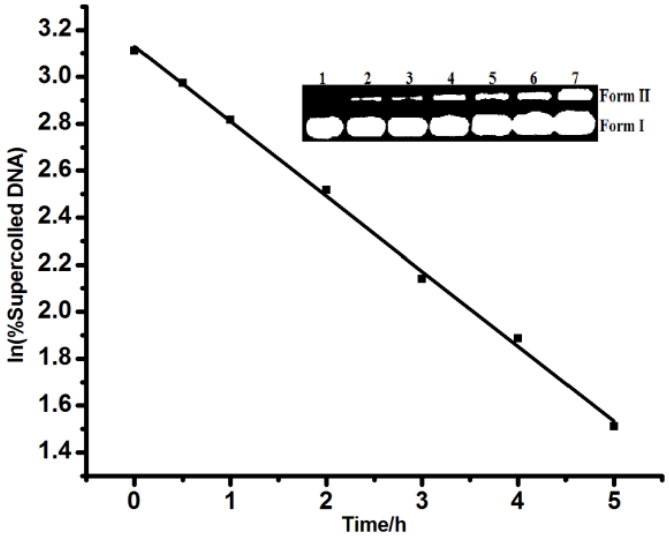

Fig. S3. Time course of pBR322 DNA cleavage promoted by complex **1** (0.01 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

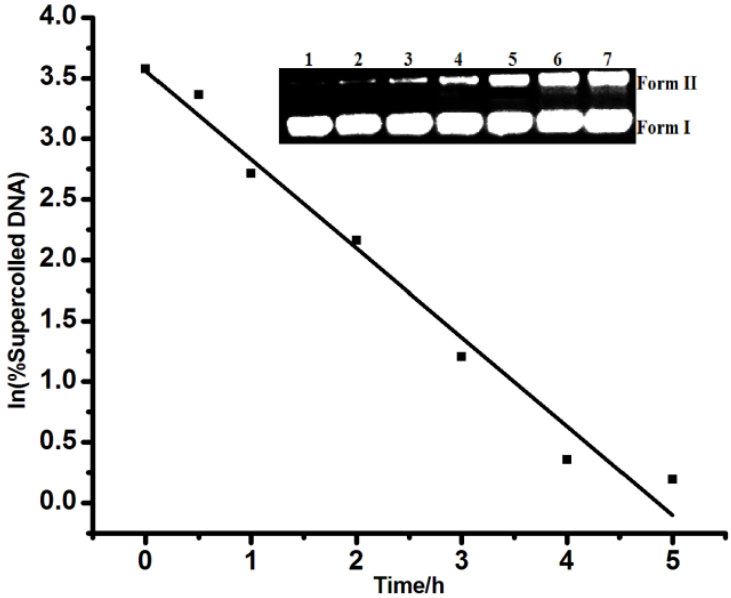

Fig. S4. Time course of pBR322 DNA cleavage promoted by complex **1** (0.02 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

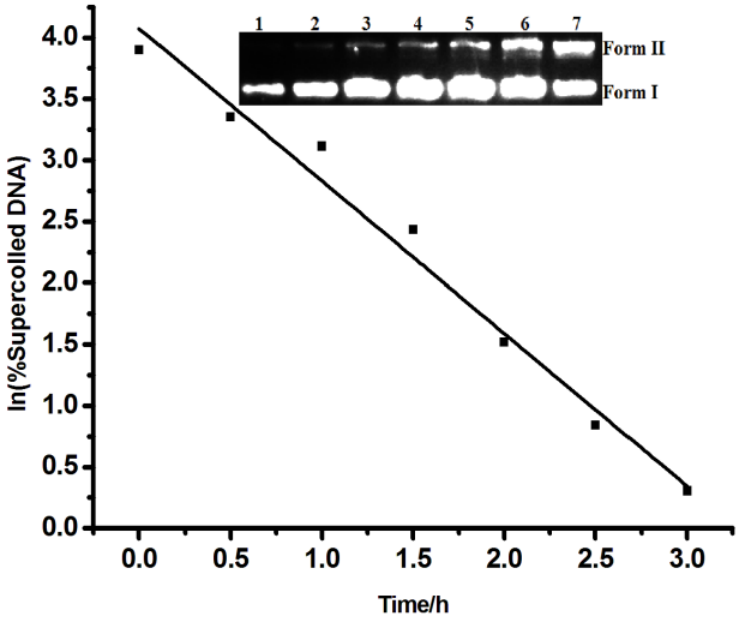

Fig. S5. Time course of pBR322 DNA cleavage promoted by complex **1** (0.04 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

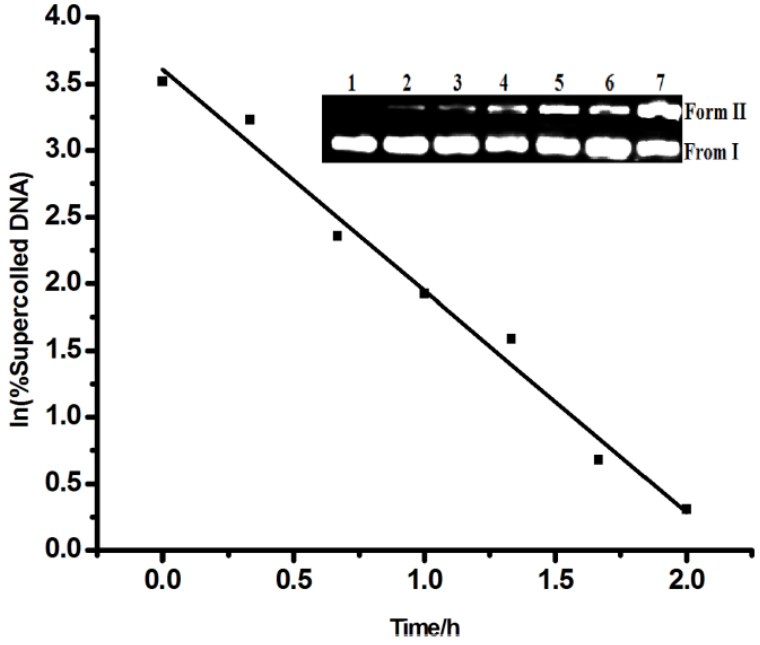

Fig. S6. Time course of pBR322 DNA cleavage promoted by complex **1** (0.05 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

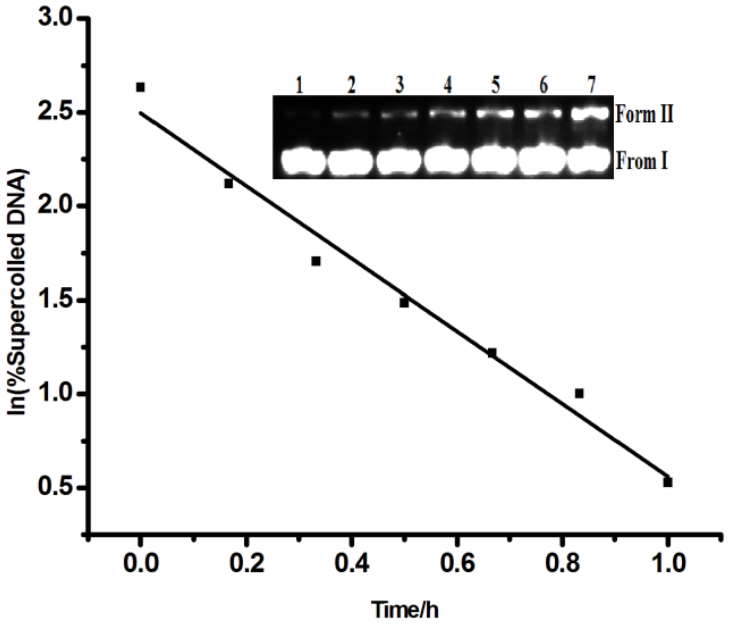

Fig. S7. Time course of pBR322 DNA cleavage promoted by complex **1** (0.06 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

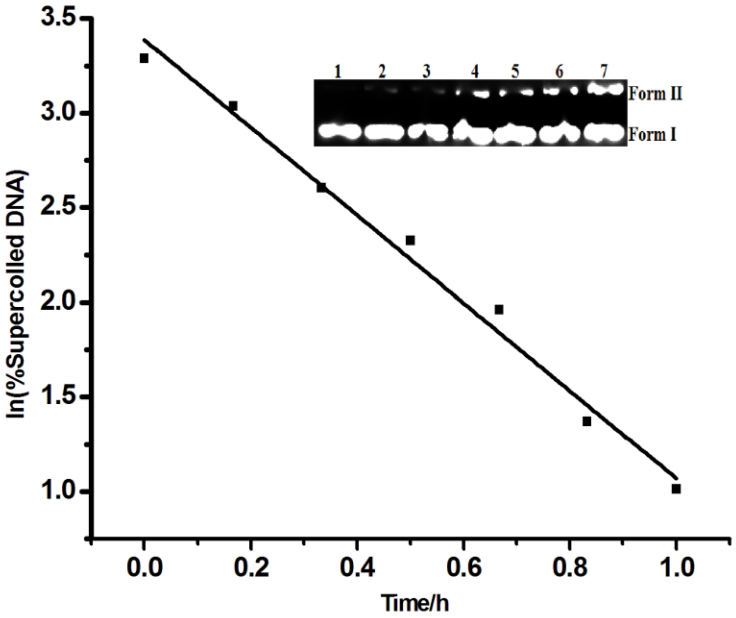

Fig. S8. Time course of pBR322 DNA cleavage promoted by complex **1** (0.07 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

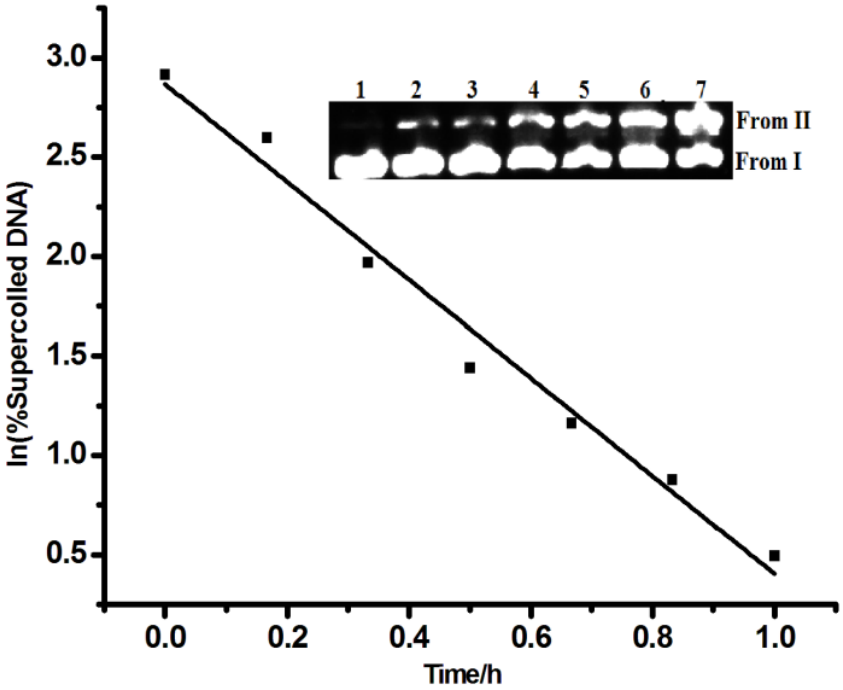

Fig. S9. Time course of pBR322 DNA cleavage promoted by complex **1** (0.08 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

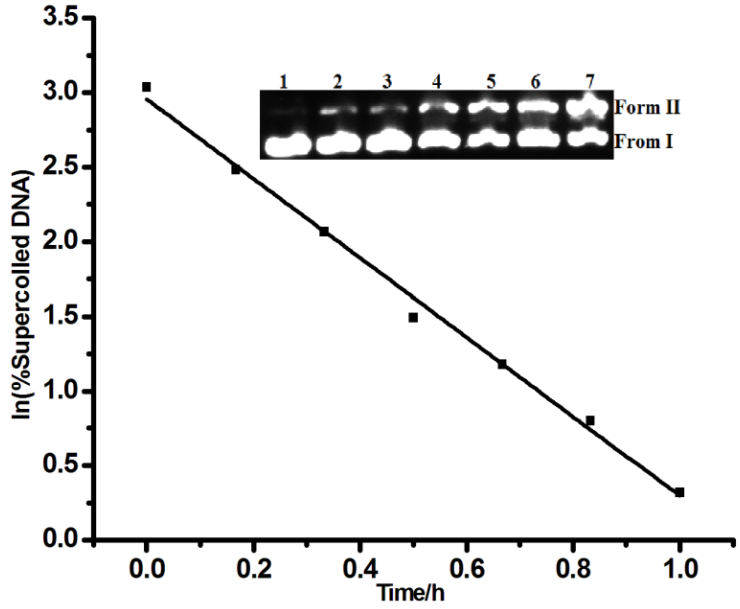

Fig. S10. Time course of pBR322 DNA cleavage promoted by complex **1** (0.09 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

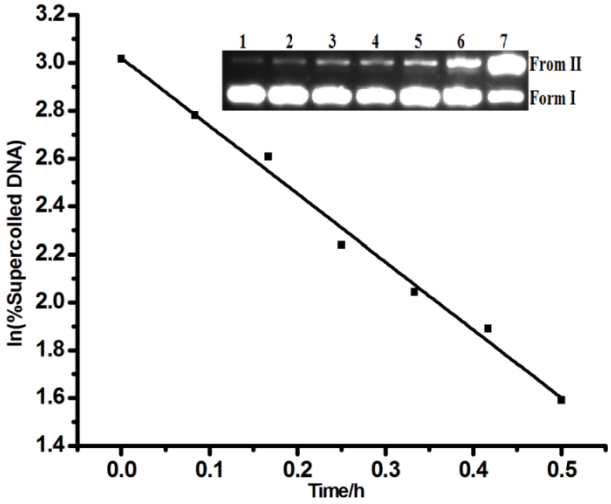

Fig. S11. Time course of pBR322 DNA cleavage promoted by complex **1** (0.1 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively.

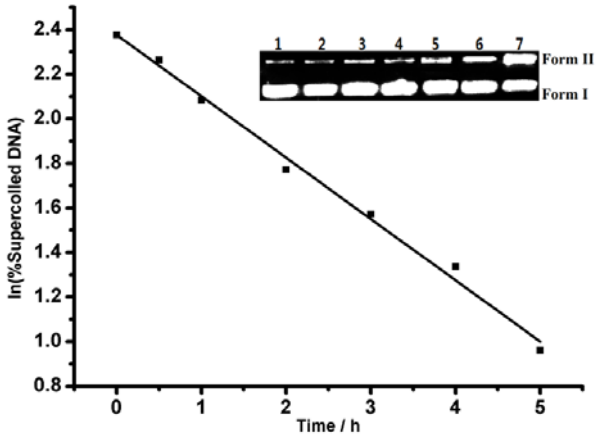

Fig. S12. Time course of pBR322 DNA cleavage promoted by complex **2** (0.01 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

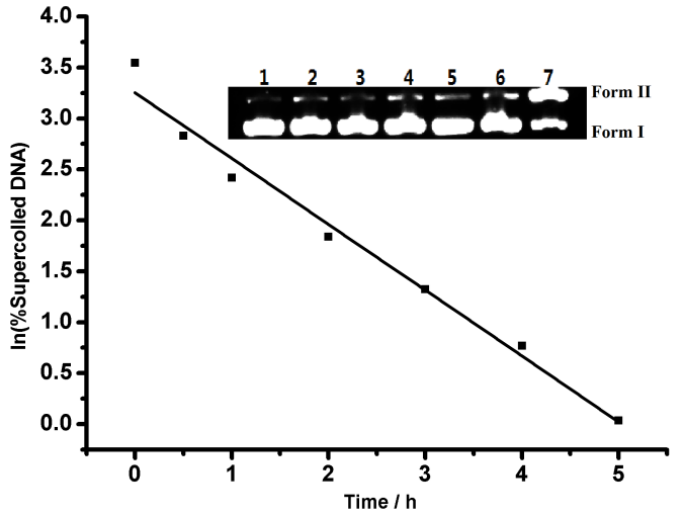

Fig. S13. Time course of pBR322 DNA cleavage promoted by complex **2** (0.02 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

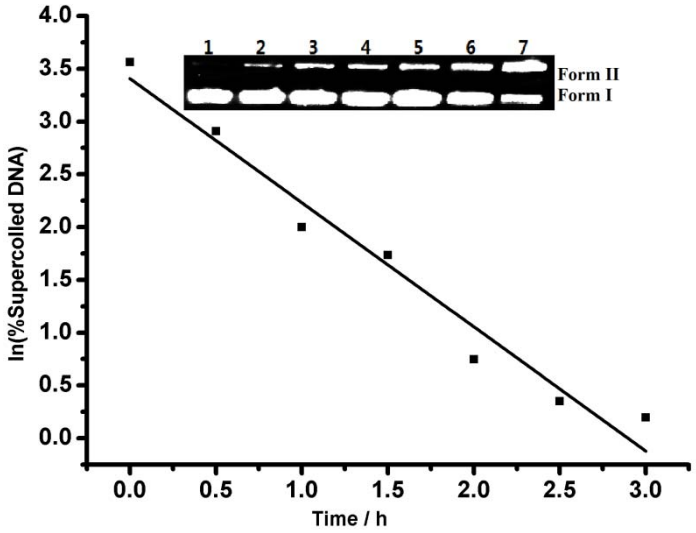

Fig. S14. Time course of pBR322 DNA cleavage promoted by complex **2** (0.04 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

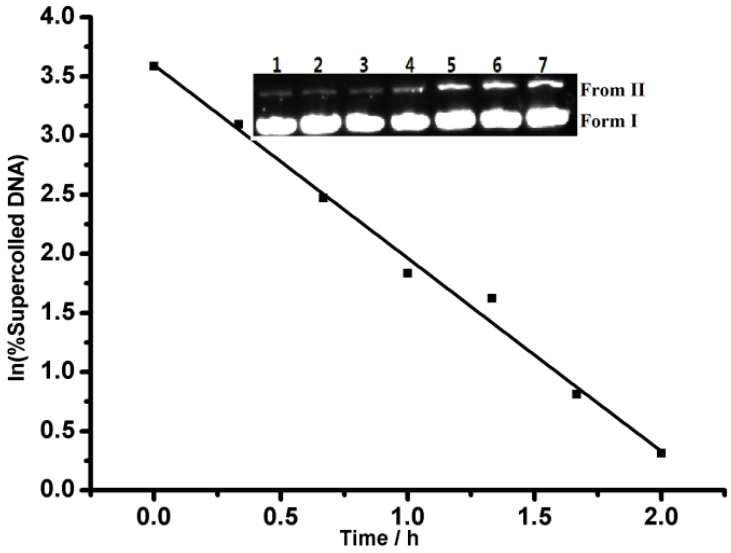

Fig. S15. Time course of pBR322 DNA cleavage promoted by complex **2** (0.06 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

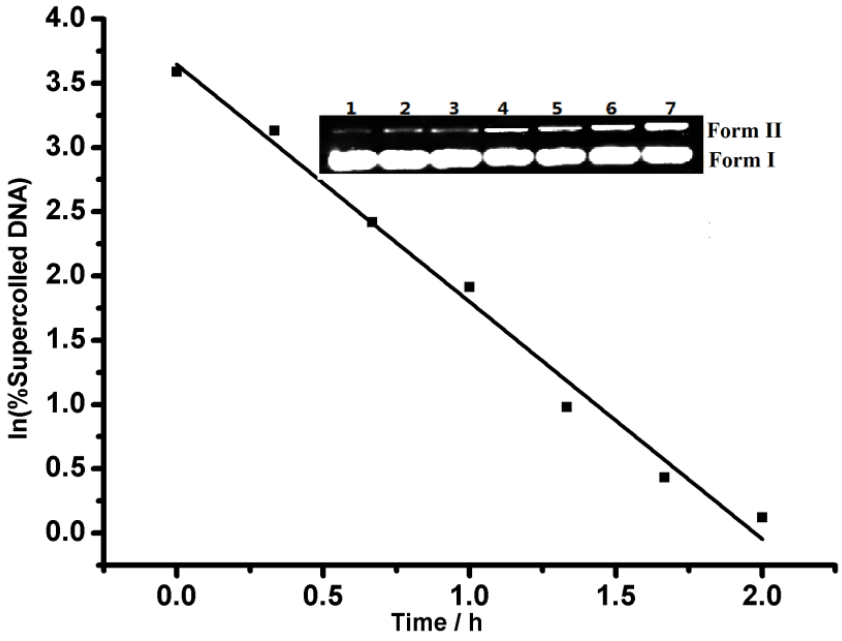

Fig. S16. Time course of pBR322 DNA cleavage promoted by complex **2** (0.07 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

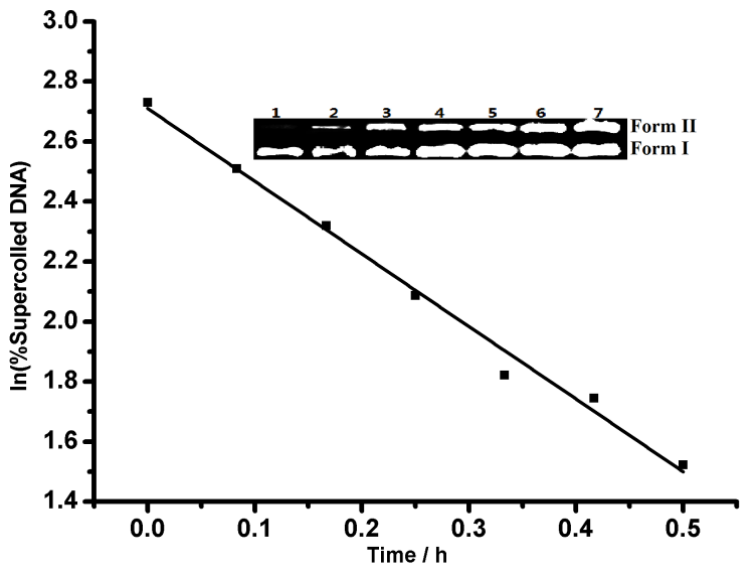

Fig. S17. Time course of pBR322 DNA cleavage promoted by complex **2** (0.08 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively.

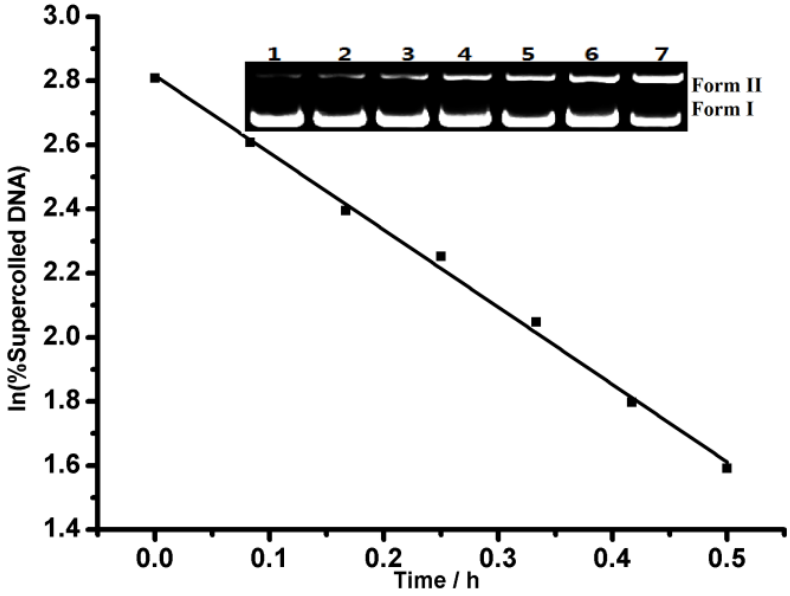

Fig. S18. Time course of pBR322 DNA cleavage promoted by complex **2** (0.1 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively.

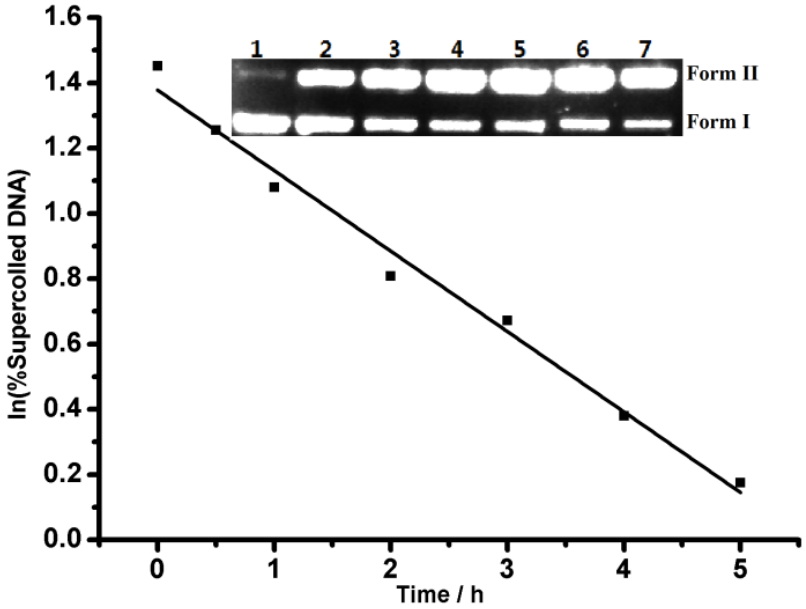

Fig. S19. Time course of pBR322 DNA cleavage promoted by complex **3** (0.2 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 2.0, 3.0, 4.0 and 5.0 h, respectively.

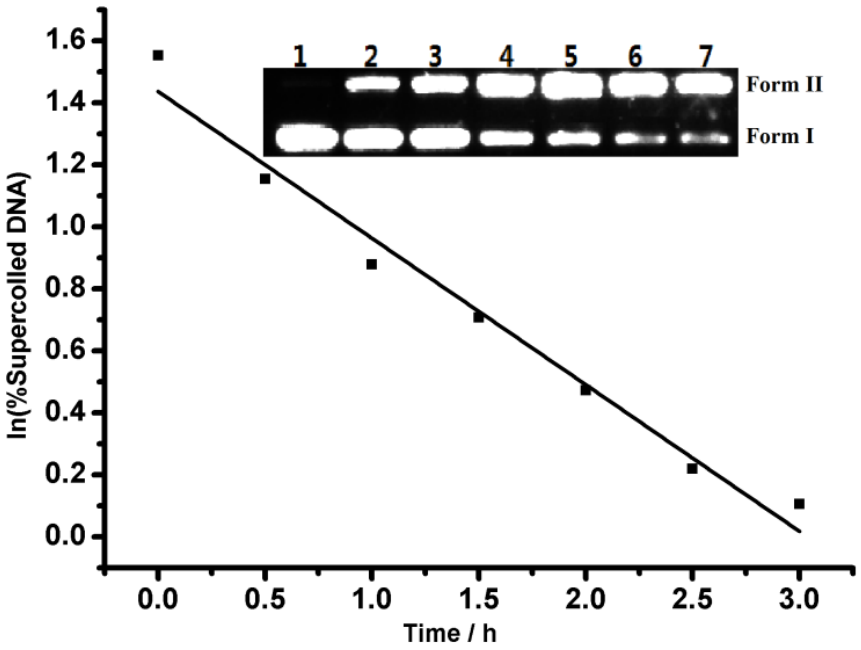

Fig. S20. Time course of pBR322 DNA cleavage promoted by complex **3** (0.3 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

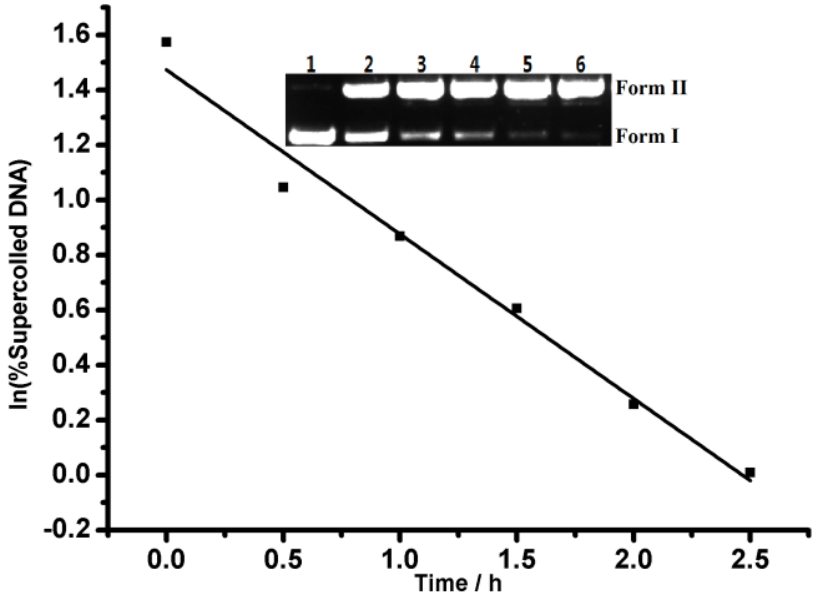

Fig. S21. Time course of pBR322 DNA cleavage promoted by complex **3** (0.4 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0 and 2.5 h, respectively.

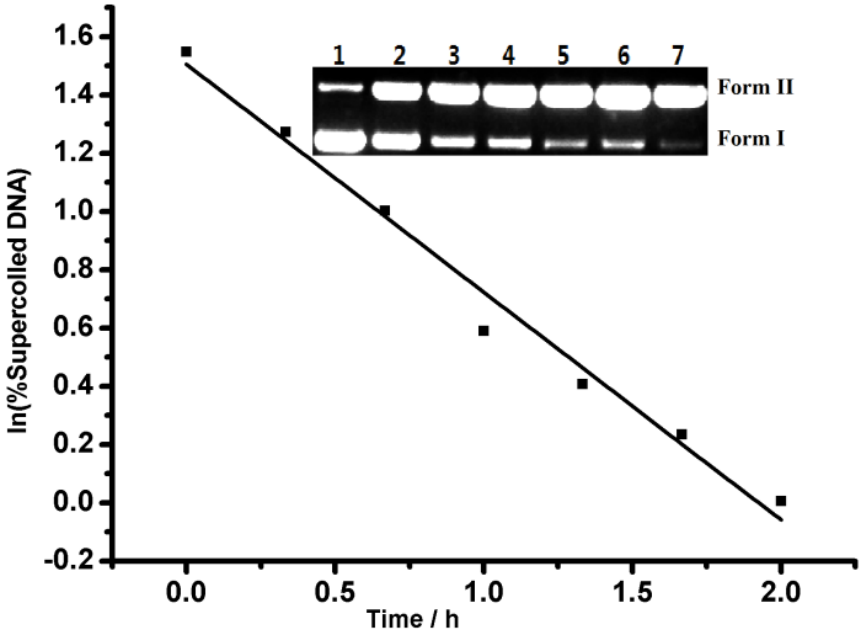

Fig. S22. Time course of pBR322 DNA cleavage promoted by complex **3** (0.6 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

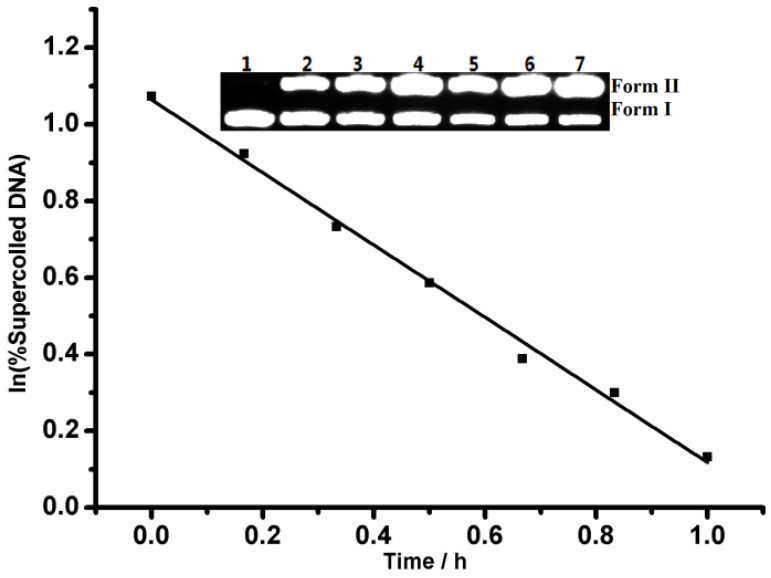

Fig. S23. Time course of pBR322 DNA cleavage promoted by complex **3** (0.7 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

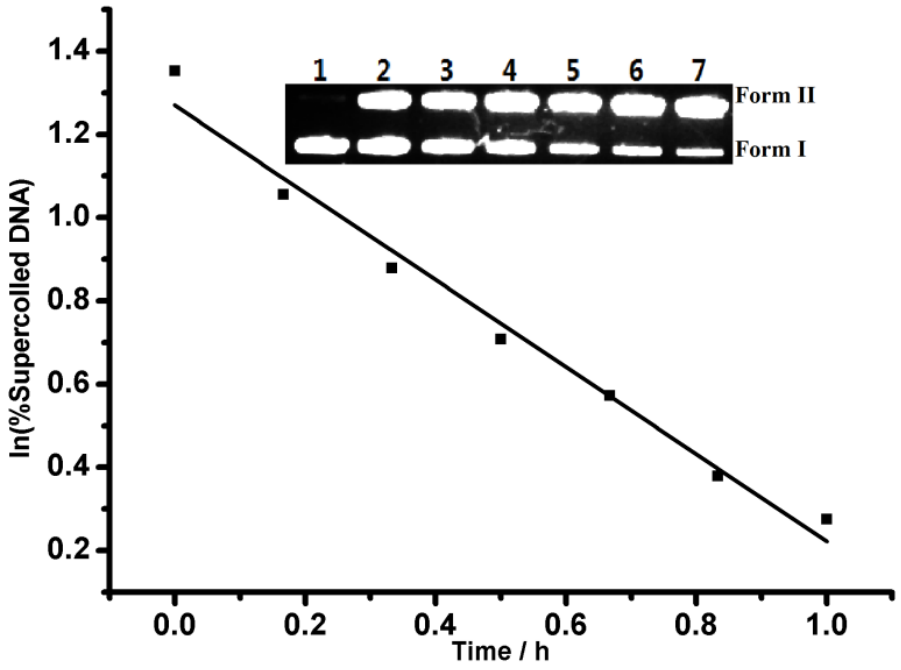

Fig. S24. Time course of pBR322 DNA cleavage promoted by complex **3** (0.8 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

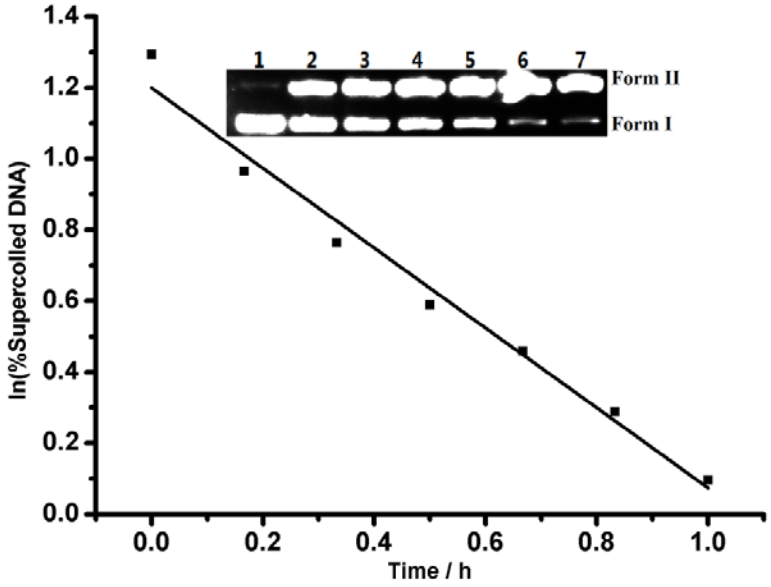

Fig. S25. Time course of pBR322 DNA cleavage promoted by complex **3** (1.0 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

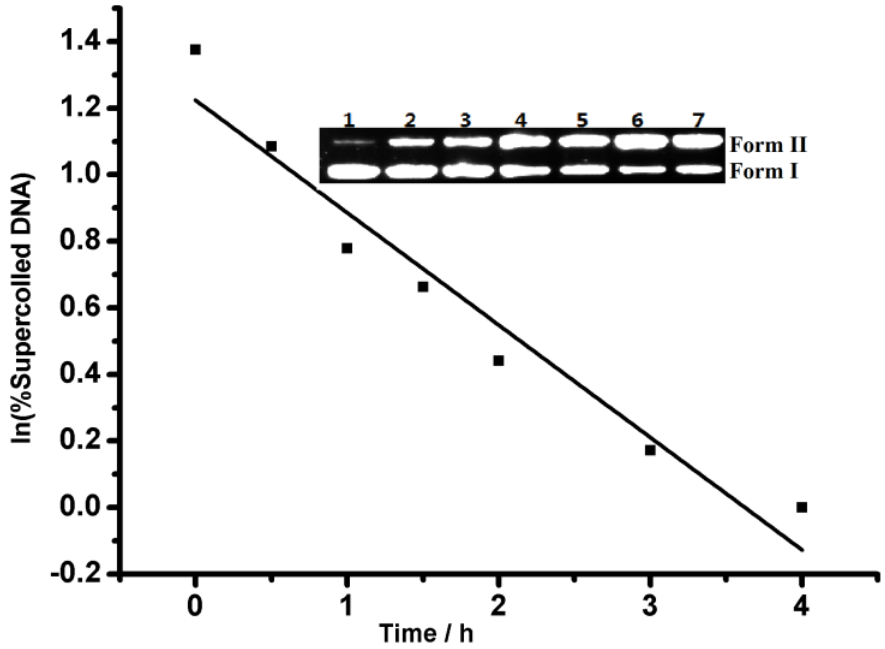

Fig. S26. Time course of pBR322 DNA cleavage promoted by complex **4** (0.2 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 3.0 and 4.0 h, respectively.

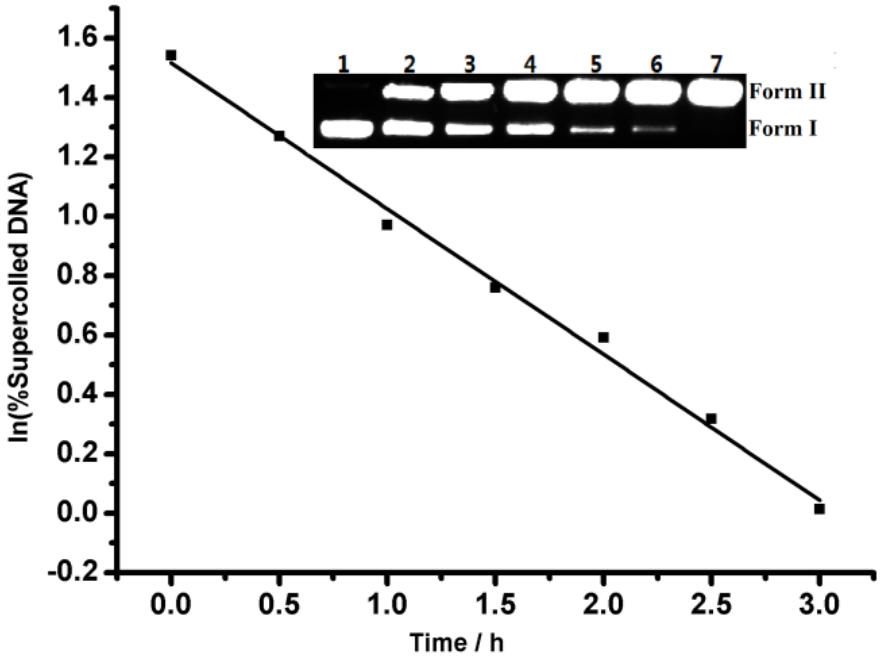

Fig. S27. Time course of pBR322 DNA cleavage promoted by complex **4** (0.3 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively.

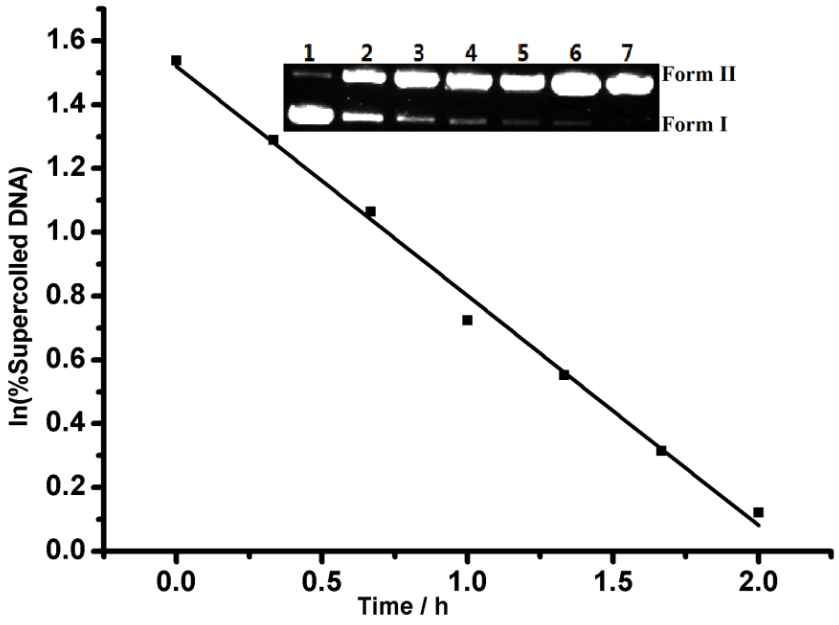

Fig. S28. Time course of pBR322 DNA cleavage promoted by complex **4** (0.4 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

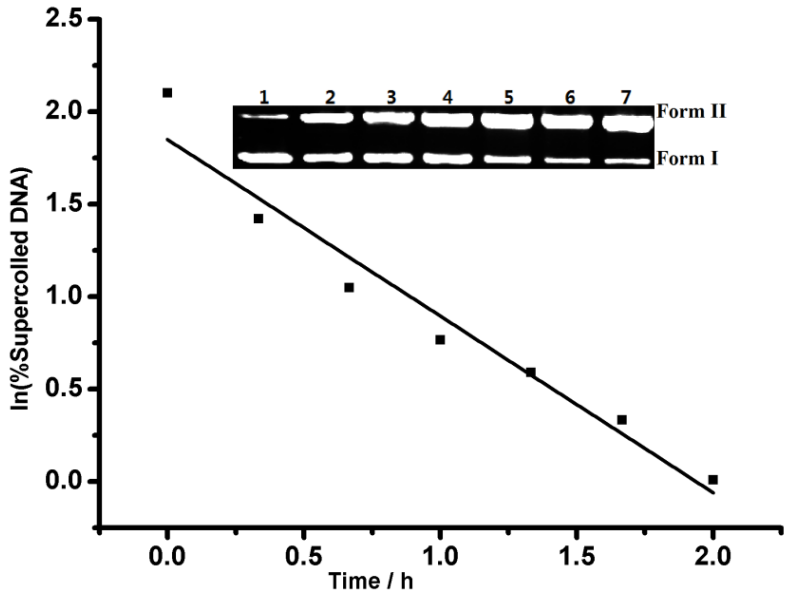

Fig. S29. Time course of pBR322 DNA cleavage promoted by complex **4** (0.6 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 20, 40, 60, 80, 100 and 120 min, respectively.

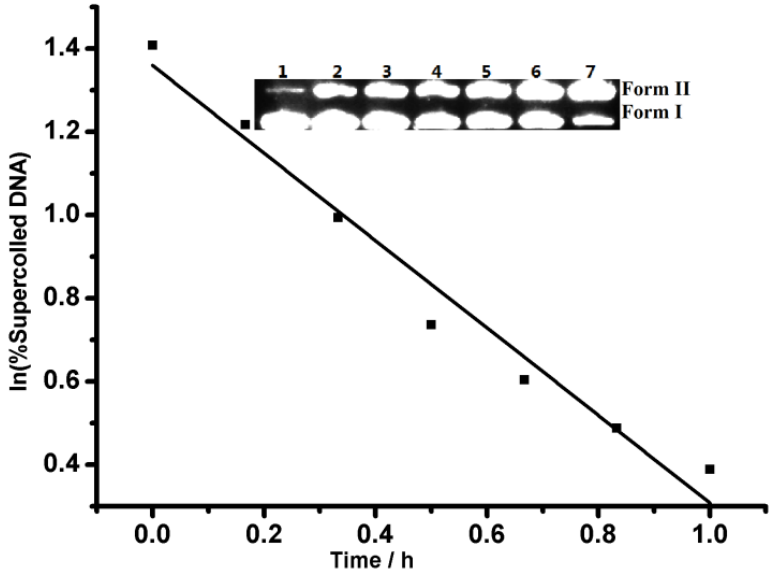

Fig. S30. Time course of pBR322 DNA cleavage promoted by complex **4** (0.7 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

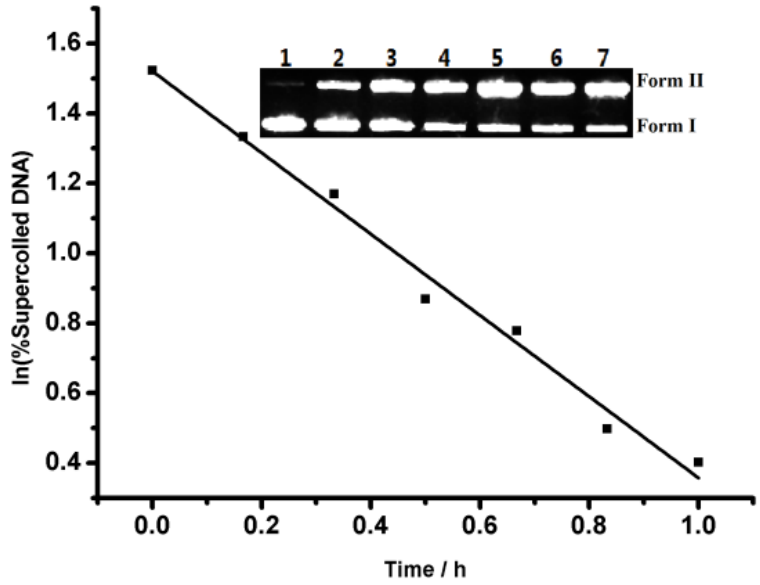

Fig. S31. Time course of pBR322 DNA cleavage promoted by complex **4** (0.8 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

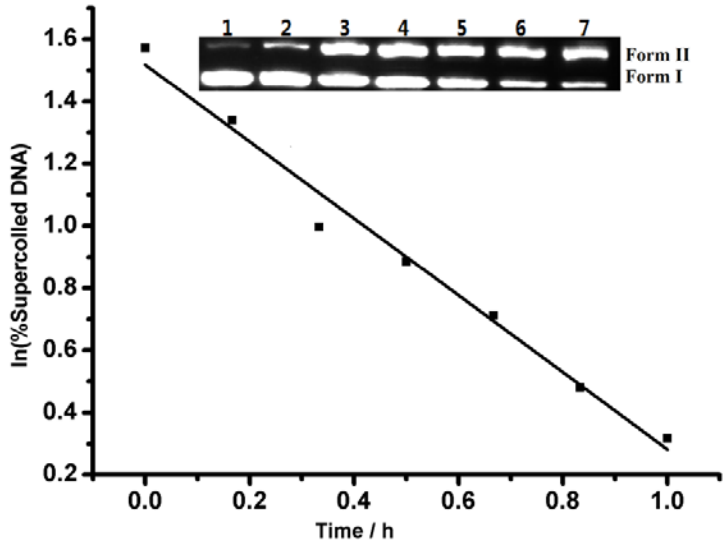

Fig. S32. Time course of pBR322 DNA cleavage promoted by complex **4** (1.0 mM) at 37 °C and pH 7.00 with H_2O_2. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1-7, reaction time were 0, 10, 20, 30, 40, 50 and 60 min, respectively.

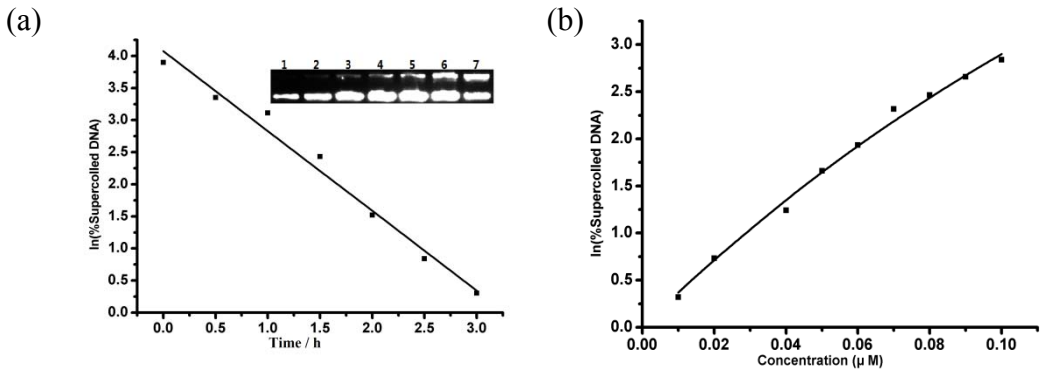

Fig. S33. (a) Time course of pBR322 DNA cleavage promoted by complex **1** (0.04 mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1–7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **1**.

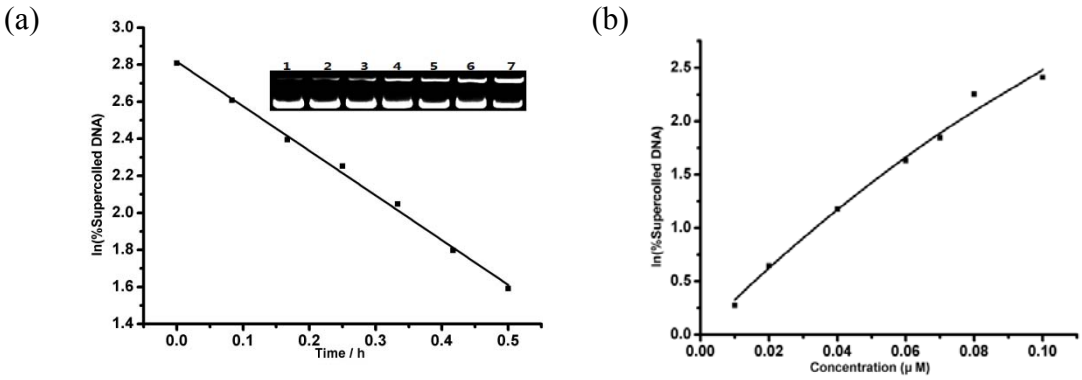

Fig. S34. (a) Time course of pBR322 DNA cleavage promoted by complex **2** (0.1 mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1–7, reaction time were 0, 5, 10, 15, 20, 25 and 30 min, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **2**.

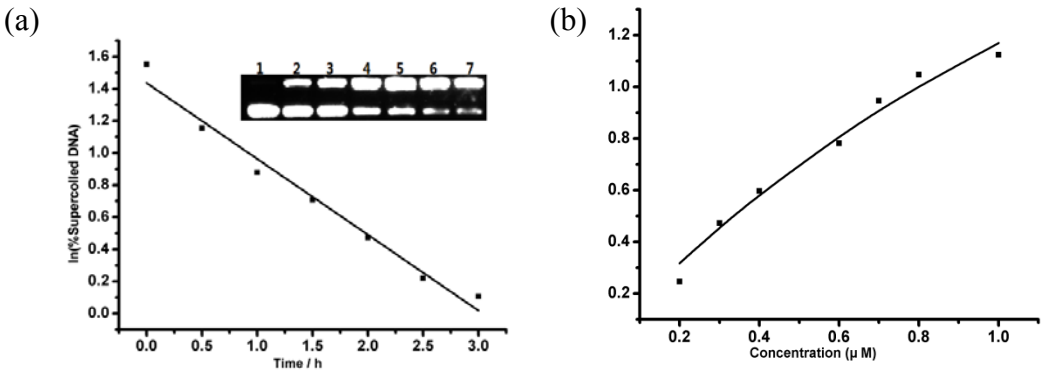

Fig. S35. (a) Time course of pBR322 DNA cleavage promoted by complex **3** (0. 4 mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1–7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **3**.

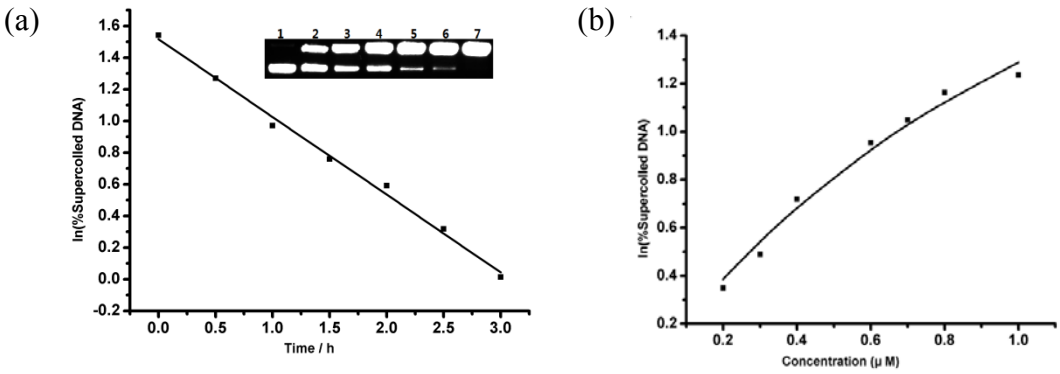

Fig. S36. (a) Time course of pBR322 DNA cleavage promoted by complex **4** (0.04 mM) at pH 7.0 and 37 °C. Inset: agarose GE patterns of the time-variable reaction products. Lanes 1–7, reaction time were 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 h, respectively. (b) Saturation kinetics plot of k_{obs} versus the concentrations of complex **4**.

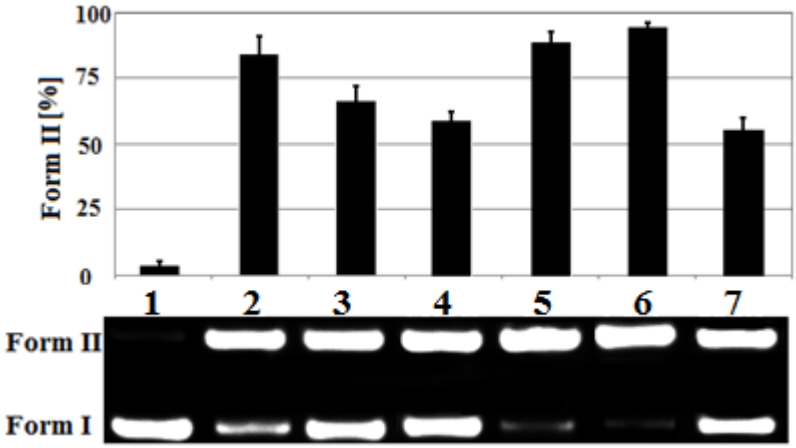

Fig. S37. Agarose GE patterns for the cleavage of pBR322 DNA by complex **2** (0.01 mM) at pH 7.0 and 37°C for 5 h with H_2O_2 (25 μM), in the presence of DMSO (1 M, Lane 3), MeOH (1 M, Lane 4), KI (0.1 M, Lane 5), NaN_3 (0.1 M, Lane 6), EDTA (0.1 M, Lane 7). Lane 1, DNA alone and Lane 2: DNA + complex **2**.

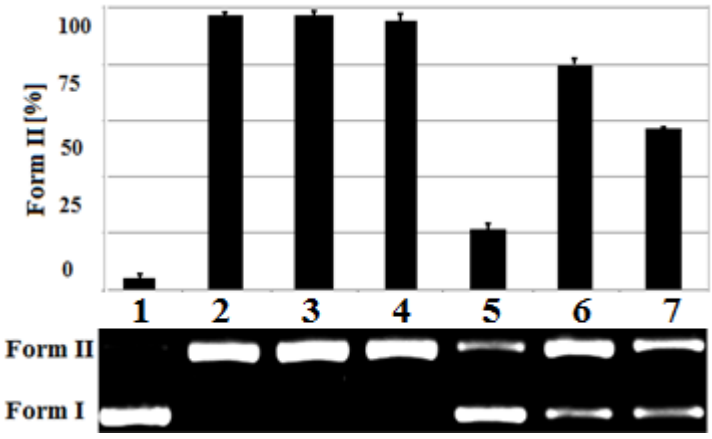

Fig. S38. Agarose GE patterns for the cleavage of pBR322 DNA by complex **3** (0.8 mM) at pH 7.0 and 37°C for 5 h with H_2O_2 (25 μM), in the presence of DMSO (1 M, Lane 3), MeOH (1 M, Lane 4), KI (0.1 M, Lane 5), NaN_3 (0.1 M, Lane 6), EDTA (0.1 M, Lane 7). Lane 1, DNA alone and Lane 2: DNA + complex **3**.

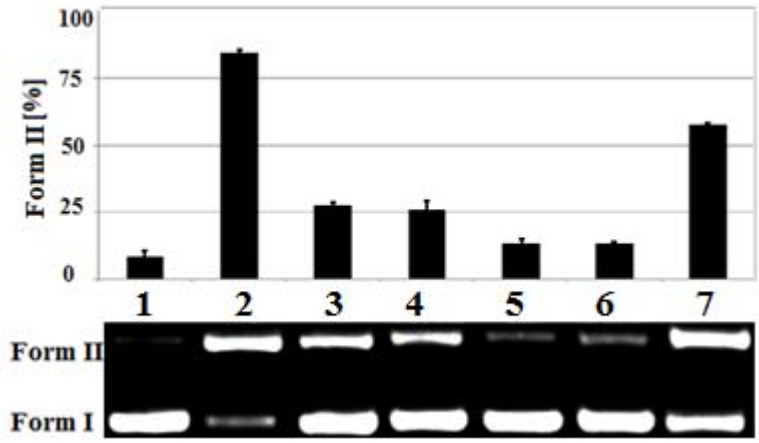

Fig. S39. Agarose GE patterns for the cleavage of pBR322 DNA by Complex **4** (0.8 mM) at pH 7.0 and 37°C for 5 h with H_2O_2 (25 μM), in the presence of DMSO (1 M, Lane 3), MeOH (1 M, Lane 4), KI (0.1 M, Lane 5), NaN_3 (0.1 M, Lane 6), EDTA (0.1 M, Lane 7). Lane 1, DNA alone and Lane 2: DNA + complex **4**.

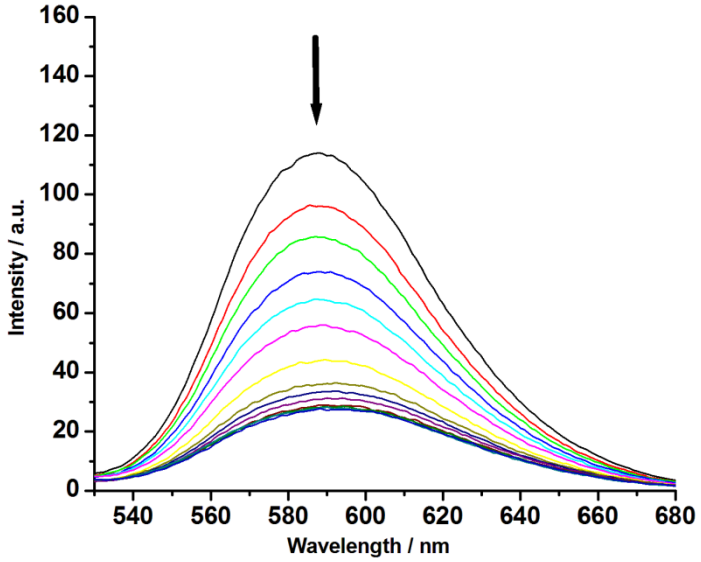

Fig. S40. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **1** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentrations of complex **1**. The total concentrations of complex **1** were 0, 1.33, 3.32, 6.62, 11.86, 18.32, 37.86, 40.31, 58.38, 87.04, 129.43, 177.18, 239.74, 309.71 μM.

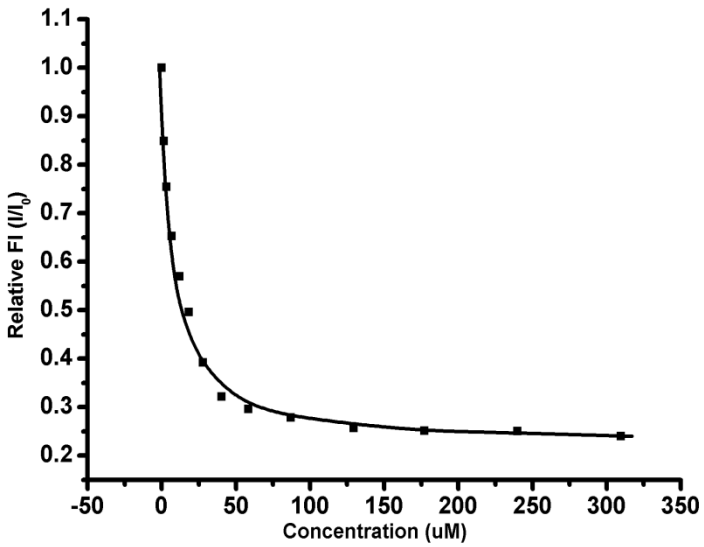

Fig. S41. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **1** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.

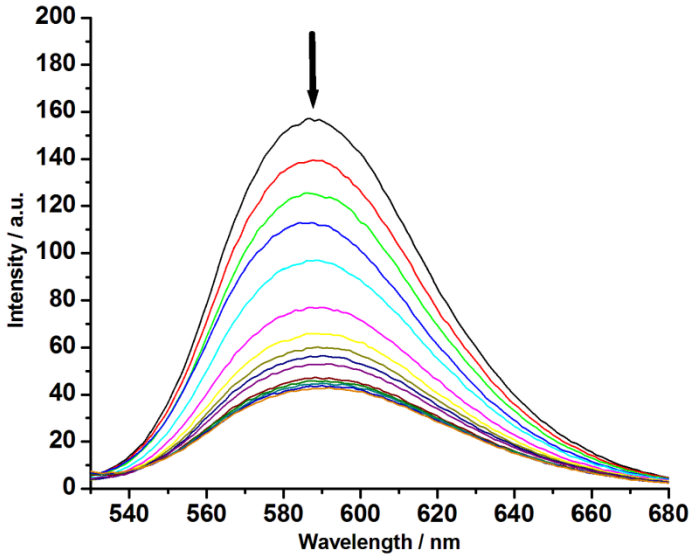

Fig. S42. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **2** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentrations of complex **2**. The total concentrations of complex **2** were 0, 1.33, 3.32, 6.62, 11.86, 18.32, 26.61, 35.99, 48.22, 66.00, 110.32, 160.13, 225.21, 297.75, 357.88 μM.

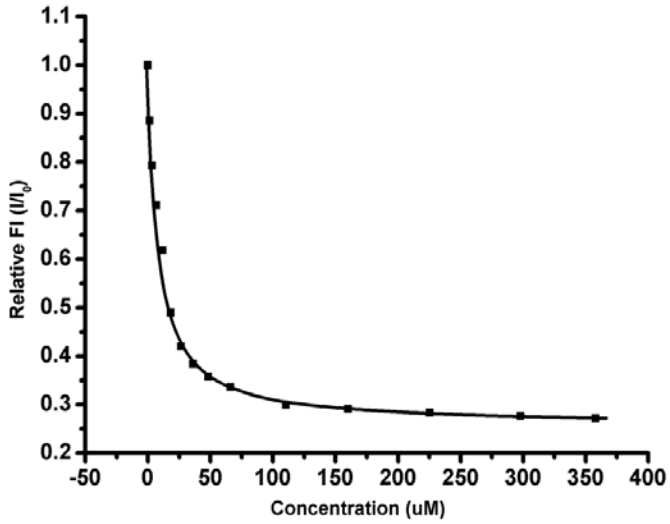

Fig. S43. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **2** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.

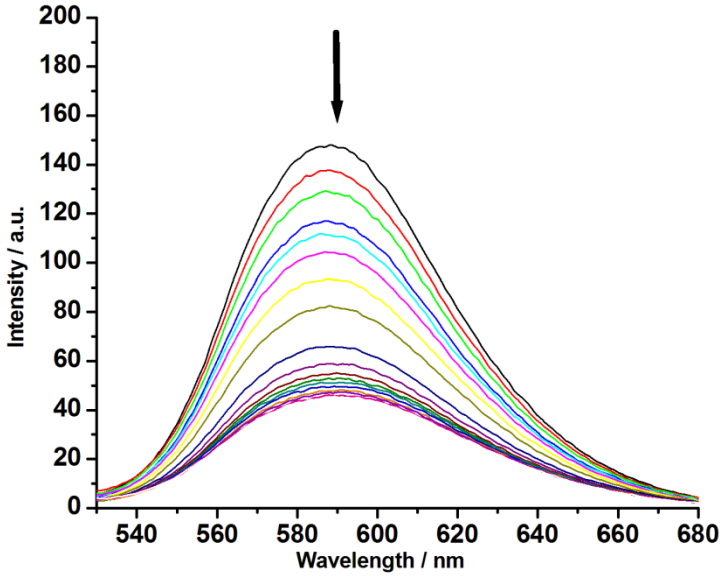

Fig. S44. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **3** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentrations of complex **3**. The total concentrations of complex **3** were 0, 1.33, 3.32, 6.62, 11.86, 18.32, 27.88, 40.31, 58.38, 81.45, 114.00, 153.98, 199.15, 258.53, 325.24, 380.93, 428.14, 468.65 μM.

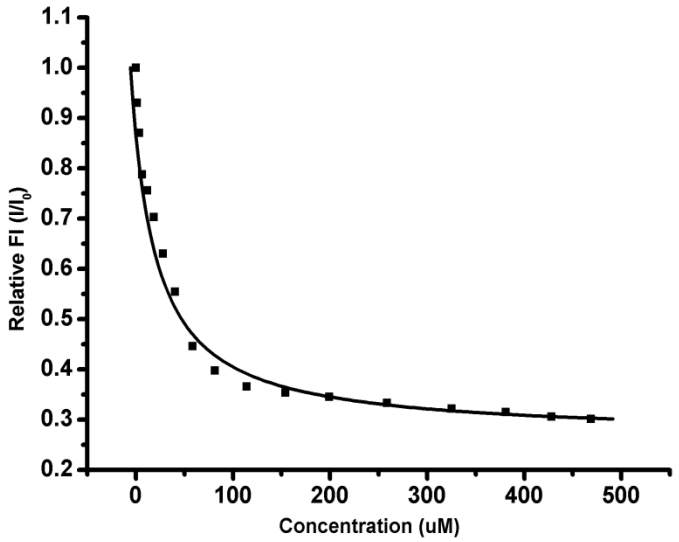

Fig. S45. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **3** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.

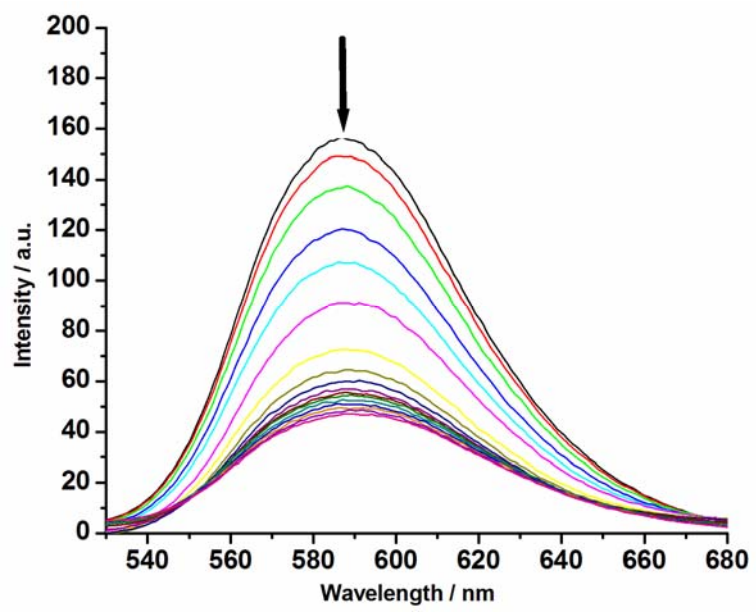

Fig. S46. Fluorescence decrease of EB (3.03 μM) induced by the competitive binding of complex **4** to CT DNA (2.4 μM) in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm. Arrow shows the intensity changes upon the increase in the concentration of complex **4**. The total concentrations of complex **4** were 0, 1.33, 4.64, 9.90, 16.39, 25.97, 38.46, 56.60, 85.37, 127.91, 175.82, 238.58, 308.76, 367.09, 416.34, 458.48 μM.

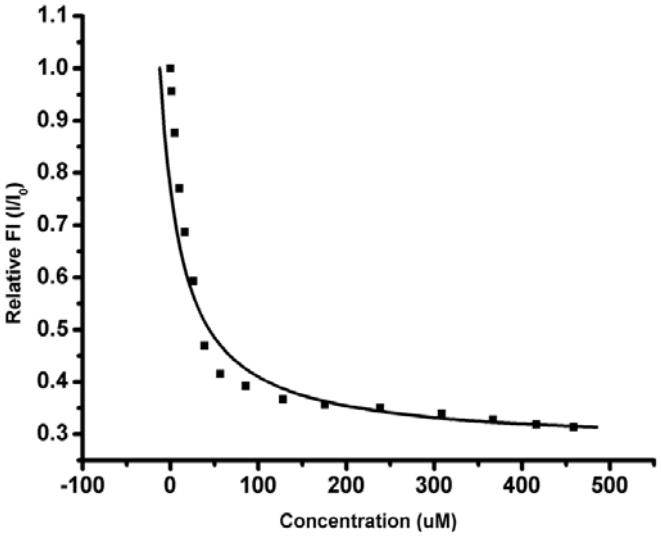

Fig. S47. Plots of the relative fluorescence intensity (FI, I/I_0) of EB against the concentrations of complex **4** in 5 mM Tris-HCl buffer (5 mM NaCl, pH 7.0) at room temperature, excitation 510 nm, emission 590 nm.