SUPPLEMENTARY INFORMATION

EFFECTS OF N,N-HETEROCYCLIC LIGANDS ON THE IN VITRO CYTOTOXICITY AND DNA INTERACTIONS OF COPPER(II) CHLORIDE COMPLEXES FROM AMIDINO-O-METHYLUREA LIGANDS

Atittaya Meenongwa,a Rosa F. Brissos,b Chaiyaporn Soikum,c Prapansak Chaveerach,c Patrick Gamez,bd Yanee Trongpaniche and Unchulee Chaveeracha,*

a Materials Chemistry Research Center, Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand

b Departament de Química Inorgànica, Universitat de Barcelona, Martí I Franquès 1-11, 08028 Barcelona, Spain

c Department of Veterinary Public Health, Faculty of Veterinary Medicine, Khon Kaen University, Khon Kaen 40002, Thailand

d Institució Catalana de Recerca i Estudis Avançats (ICREA), Passeig Lluís Companys, 23, 08010 Barcelona, Spain

e Department of Biochemistry, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand
Fig. S1 ESI+ mass spectra of 1
Fig. S2 ESI+ mass spectra of 2
Fig. S3 ESI+ mass spectra of 3
Fig. S4 ESI+ mass spectra of 4
Fig. S5 Electronic absorption spectra of the copper(II) complexes; (a) 1, (b) 2, (c) 3 and (d) 4 in solid state (—), MeOH (----) and DMSO (····).
Fig. S6 Circular dichroism spectra of free CT-DNA (——) (200 μM), free complexes (200 μM) (-----) and CT-DNA treated by ethidium bromide (a) and 1-4 (b-e) at the [Complex]/[DNA] ratios of 0.5 (——) and 1.0 (—), incubated at 37 °C for 24 h. Arrows indicate direction of the intensity changes of the positive and the negative bands.
Fig. S7 Thermal denaturation profiles of CT-DNA (200 μM) in the presence of the complexes 1-4 at different [Complex]/[DNA] ratios of 0.0 (■), 0.5 (●), 1.0 (▲), 1.5 (▼) and 2.0 (♦) in 3% MeOH/Tris-buffer, pH = 7.2.
Fig. S8 Effect of the complexes 1-4 on the fluorescence emission spectra of the EB-DNA complex in 3% MeOH/Tris-buffer (5 mM Tris-HCl/50 mM NaCl at pH = 7.2) at 37 °C. 
[EB] = 25 μM, [DNA] = 50 μM, [Complex] = 0–50 μM, λ<sub>ex</sub> = 500 nm and λ<sub>em</sub> = 593 nm. 
Insets: the Stern-Volmer plots of fluorescence quenching of the EB-DNA at different complex concentrations.
Fig. S9 Plots of % supercoiled DNA (Form I) (■) and circular nicked DNA (Form II) (●) vs. the concentration of the complexes (a) [Cu(L¹)(bpy)]Cl₂ (1); (b) [Cu(L¹)(phen)]Cl₂ (2); (c) [Cu(L²)(bpy)]Cl₂ (3) and (d) [Cu(L²)(phen)]Cl₂ (4). Incubation in HEPES-buffer at 37 °C for 1 h.
Fig. S10 Plots of % supercoiled DNA (Form I) (––), circular nicked DNA (Form II) (—) and linear DNA (Form III) (▲) vs. the concentration of the complexes (a) [Cu(L\(^1\))(bipy)]Cl\(_2\) (1); (b) [Cu(L\(^1\))(phen)]Cl\(_2\) (2); (c) [Cu(L\(^2\))(bipy)Cl\(_2\)] (3) and (d) [Cu(L\(^2\))(phen)]Cl\(_2\) (4) in the presence of H\(_2\)ASC (100 μM). Incubation in HEPES-buffer at 37°C for 1 h.