Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary Material

DNA binding, DNA cleavage, cellular uptake, cytotoxicity, and apoptosis-inducing ability of a binuclear schiff base copper(II) complex

Dandan Zhao, Yixuan Wu, Wenxin Huang, Silin Gong, Zhanfen Chen*

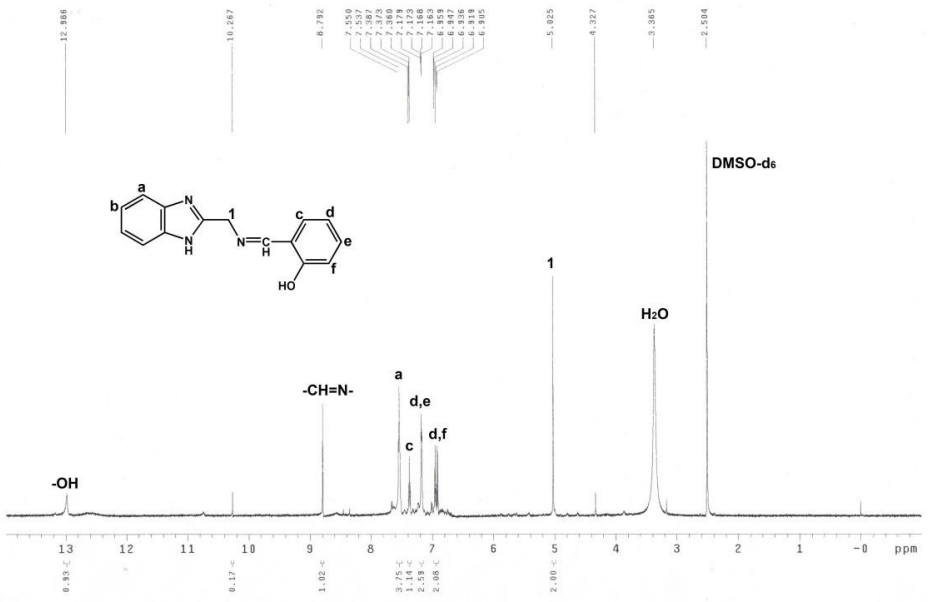


Figure S1. ^{1}H NMR spectroscopy of the ligand *N*-(2-hydroxylbenzylidene)-benzo[*d*]imidazol-2-amine (**L**) (DMSO-d_6).

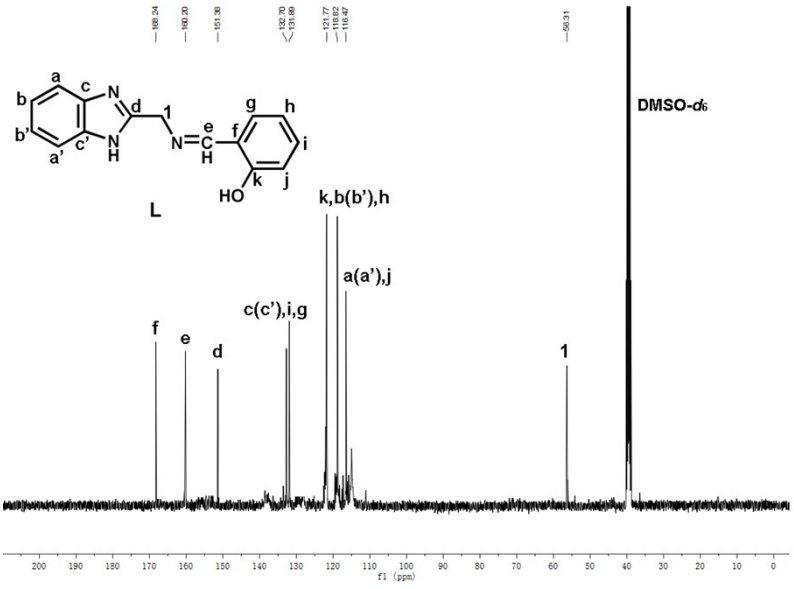


Figure S2. ^{13}C NMR spectroscopy of the ligand *N*-(2-hydroxylbenzylidene)-

benzo[*d*]imidazol-2-amine (**L**) (DMSO-d_6).

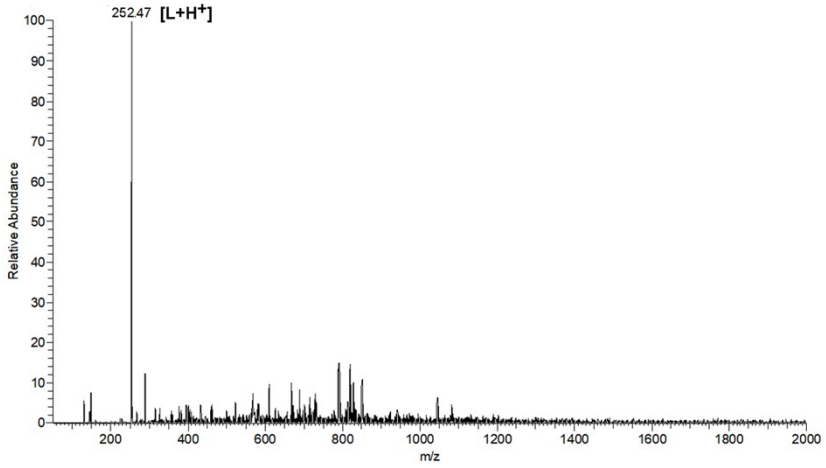


Figure S3. ESI mass spectrometry of the ligand *N*-(2-hydroxylbenzylidene)-benzo[*d*]imidazol-2-amine (**L**) in methanol.

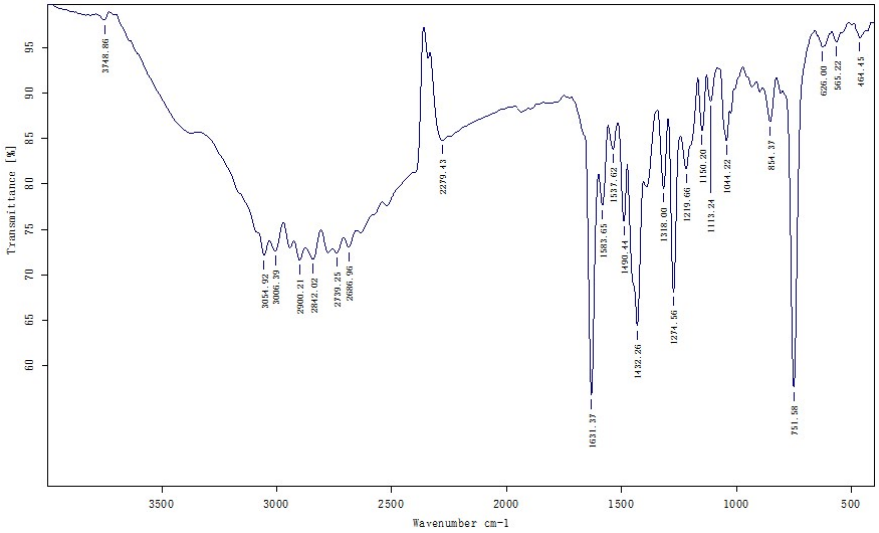


Figure S4. IR spectrum of *N*-(2-hydroxylbenzylidene)-benzo[*d*]imidazol-2-amine (**L**).

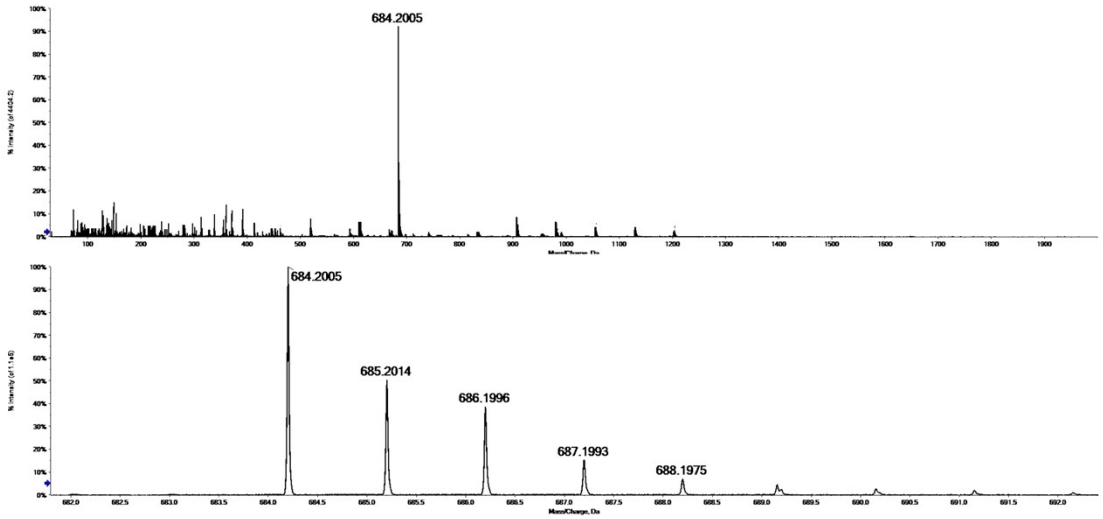


Figure S5. High resolution electrospray ionization-mass spectrum (HRMS, ESI) of **1** in methanol solution. The signal at *m*/*z* 684.20 should be assigned to $[M - Cl + Na - H]^+$ ($M = [Cu_2(\mathbf{L}–H)_2]Cl_2$).

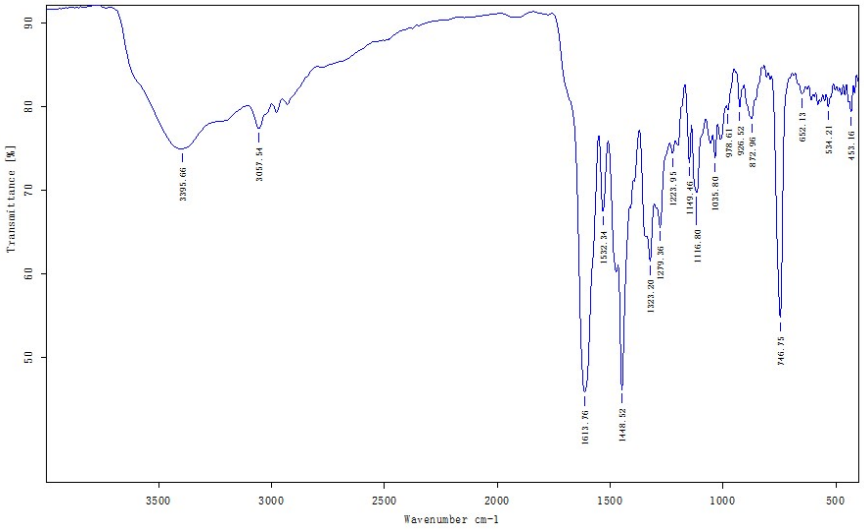


Figure S6. IR spectrum of $[Cu_2(\mathbf{L}–H)_2]Cl_2$ (**1**).

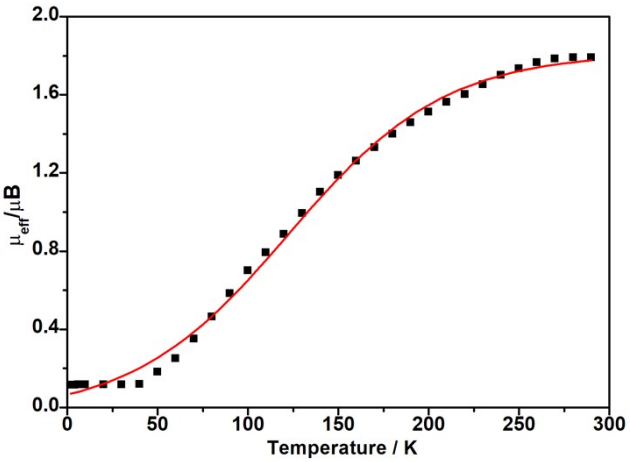


Figure S7. Plot of magnetic moment (μ_{eff}) *versus* temperature (T) for **1** in the solid state with (■) representing the experimental data and the line represent the theoretic simulation.

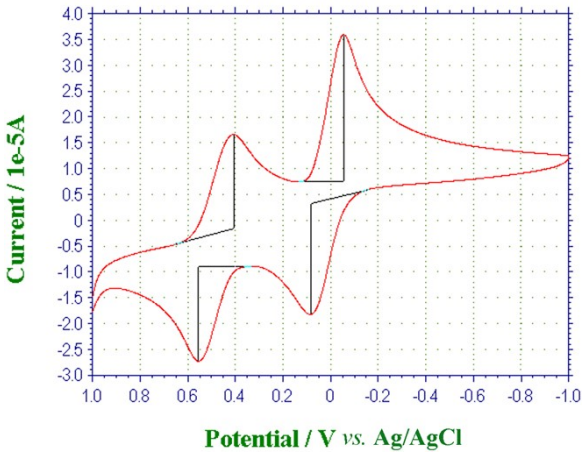


Figure S8. Cyclic voltammogram of complex **1** (2.5×10^{-3} M) in DMF containing 0.1 M TBAP as a supporting electrolyte at room temperature in a potential range of –1.0 to 1.0 V *vs.* Ag/AgCl at 100 mV/s scan rate.

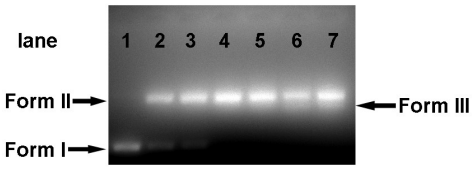


Figure S9. Time-dependent agarose gel electrophoresis patterns for the cleavage of pBR322 plasmid DNA (0.02 μg/μL) by complex (60 μM) over a period for 30 min in the presence of Vc (1 mM) in buffer (50 mM Tris-HCl/50 mM NaCl, pH 7.40) at 37 °C. Lane 1, DNA control; Lane 2~7, DNA + complex + Vc. Incubation times of lanes 2~7 equal 5, 10, 15, 20, 25, and 30 min, respectively.

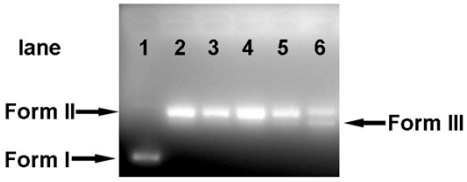
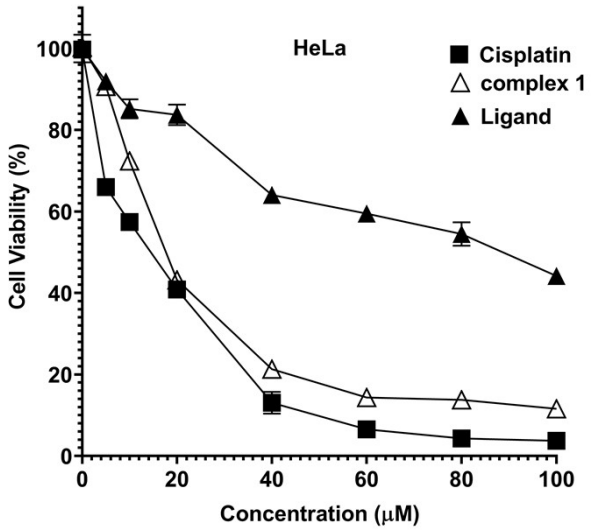


Figure S10. Agarose gel electrophoresis patterns for the cleavage of pBR322 plasmid DNA (0.02 μg/μL) by complex (60 μM) in the presence of various additives in buffer (50 mM Tris-HCl/50 mM NaCl, pH 7.40) at 37 ºC after 30 min of incubation. Lane 1, DNA control; Lane 2, DNA + 1 mM Vc + complex; Lane 3, DNA + 1 mM Vc + complex + 1 M DMSO; Lane 4, DNA + 1 mM Vc + complex + 10 mM KI; Lane 5, DNA + 1 mM Vc + complex + 10 mM NaN_3; Lane 6, DNA + 1 mM Vc + complex + 1 M tert-Butanol.



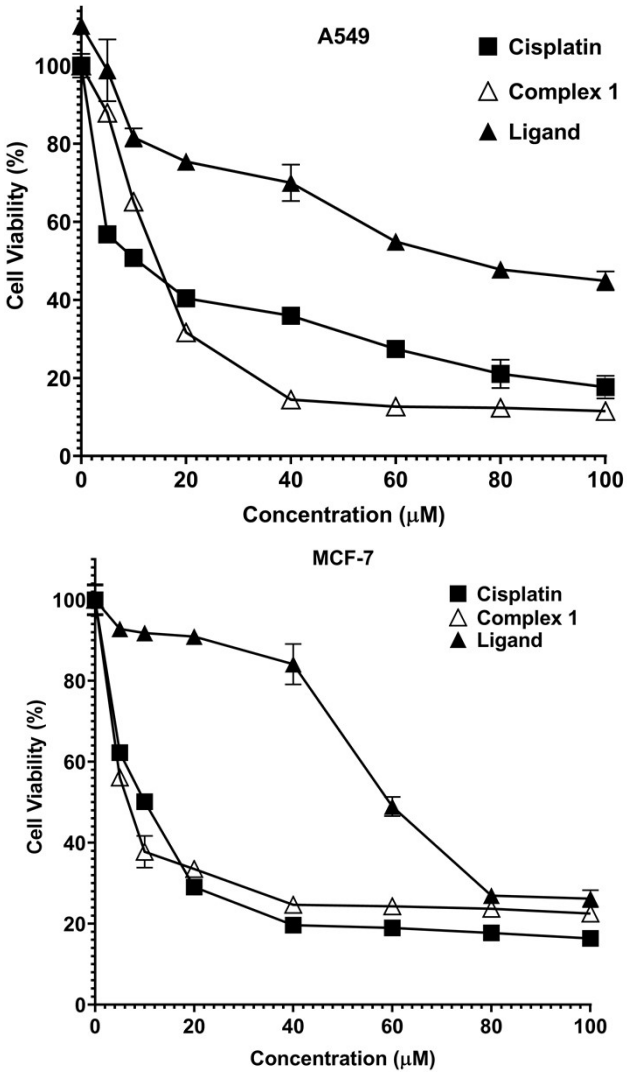


Figure S11. Plot of cell viability *versus* concentration (μM) for cisplatin, complex **1**, and **L** against Hela, A549, and MCF-7.