

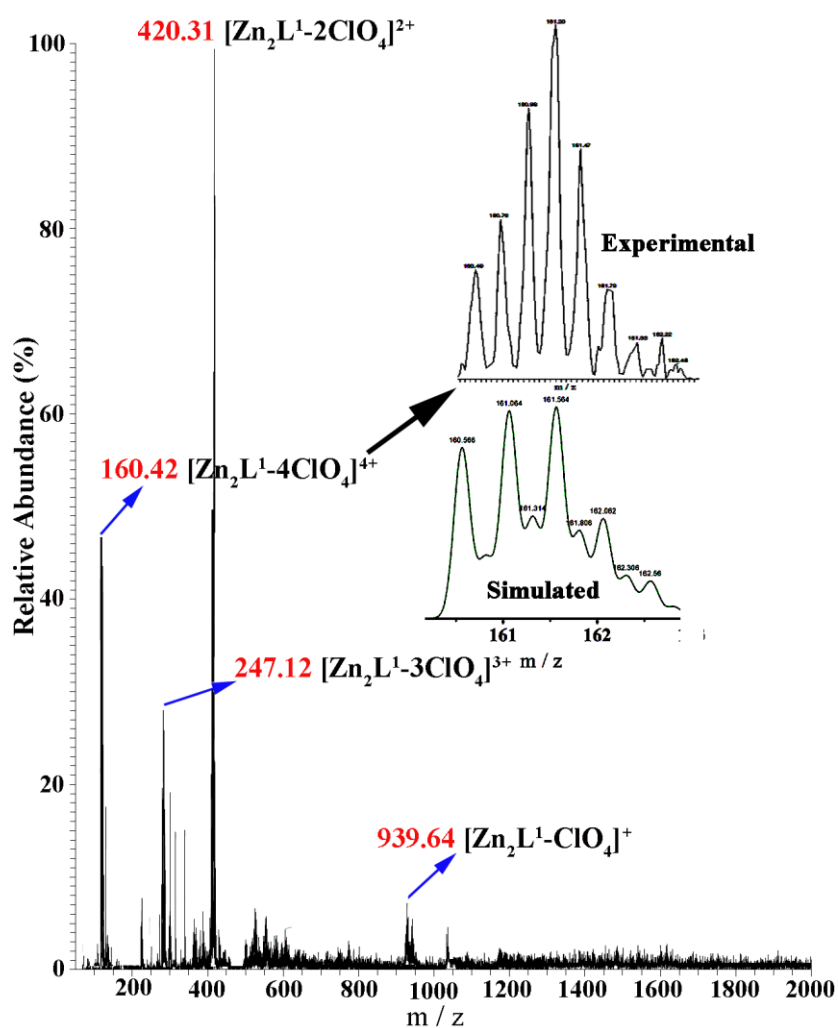
## Supplementary Information

### DNA targeting polyaza macrobicyclic dizinc(II) complexes promoting high *in vitro* caspase dependent anti-proliferative activity against human carcinoma cancer cells†

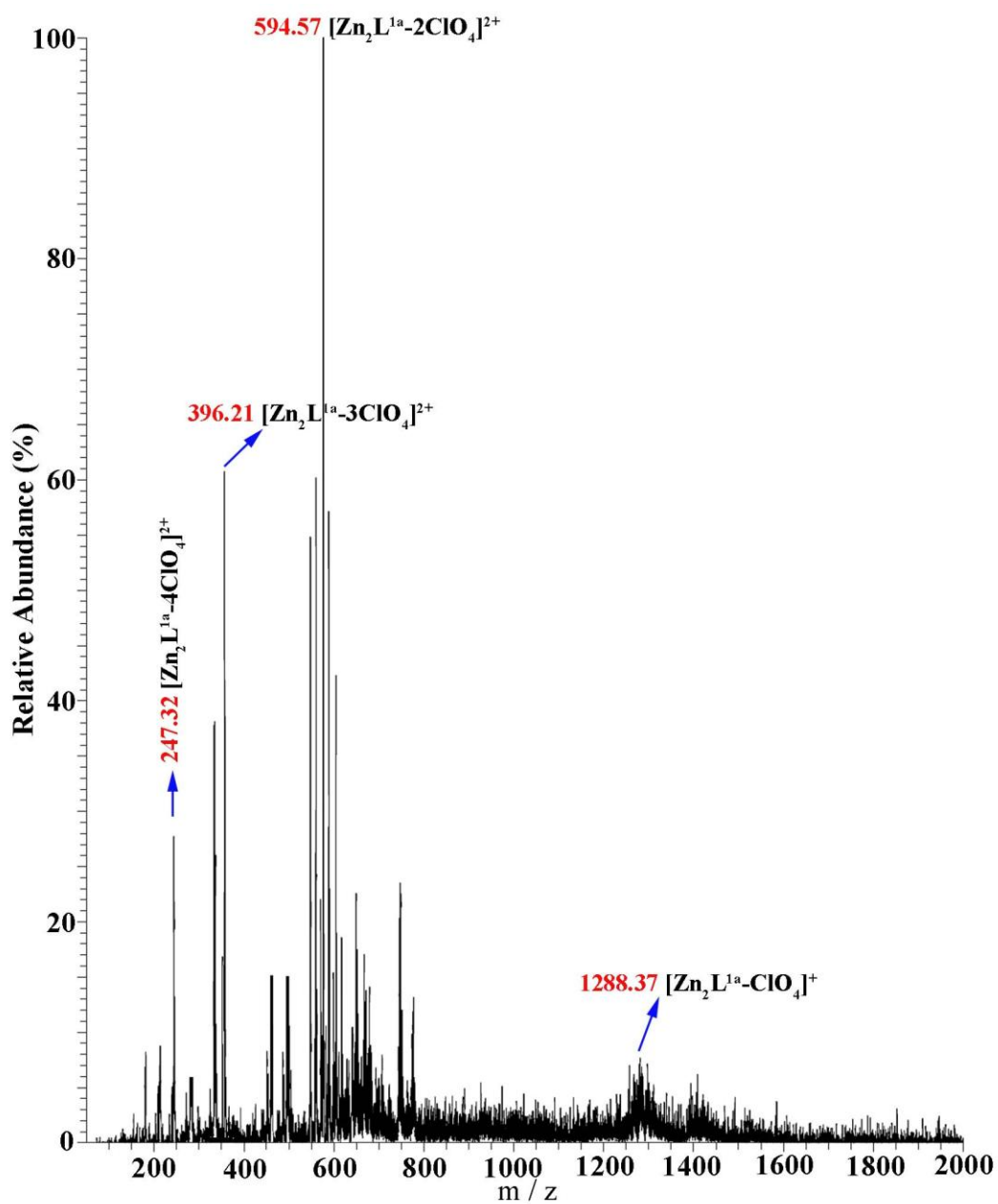
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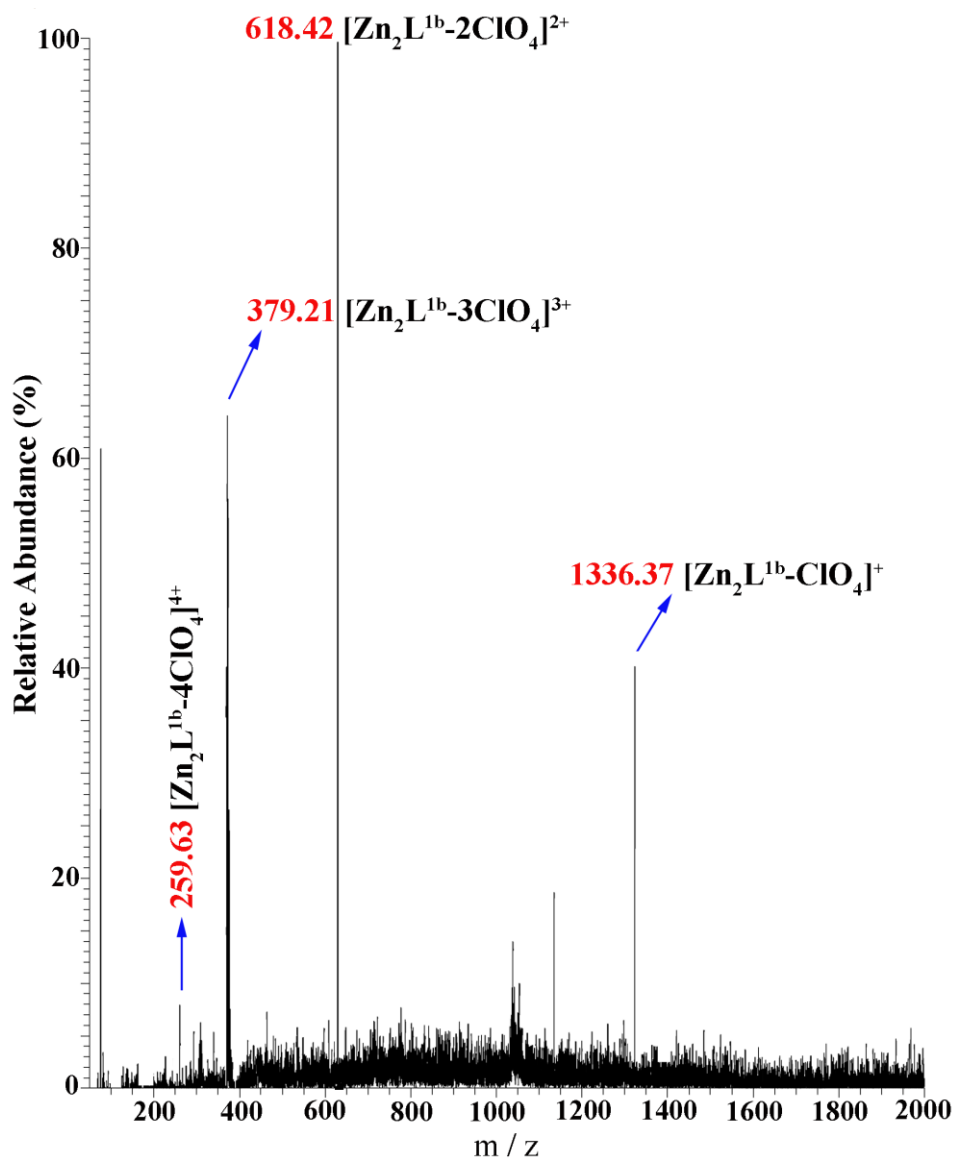
<sup>b</sup>Department of Biochemistry, Indian Institute of Science, Bangalore - 560 012, India.



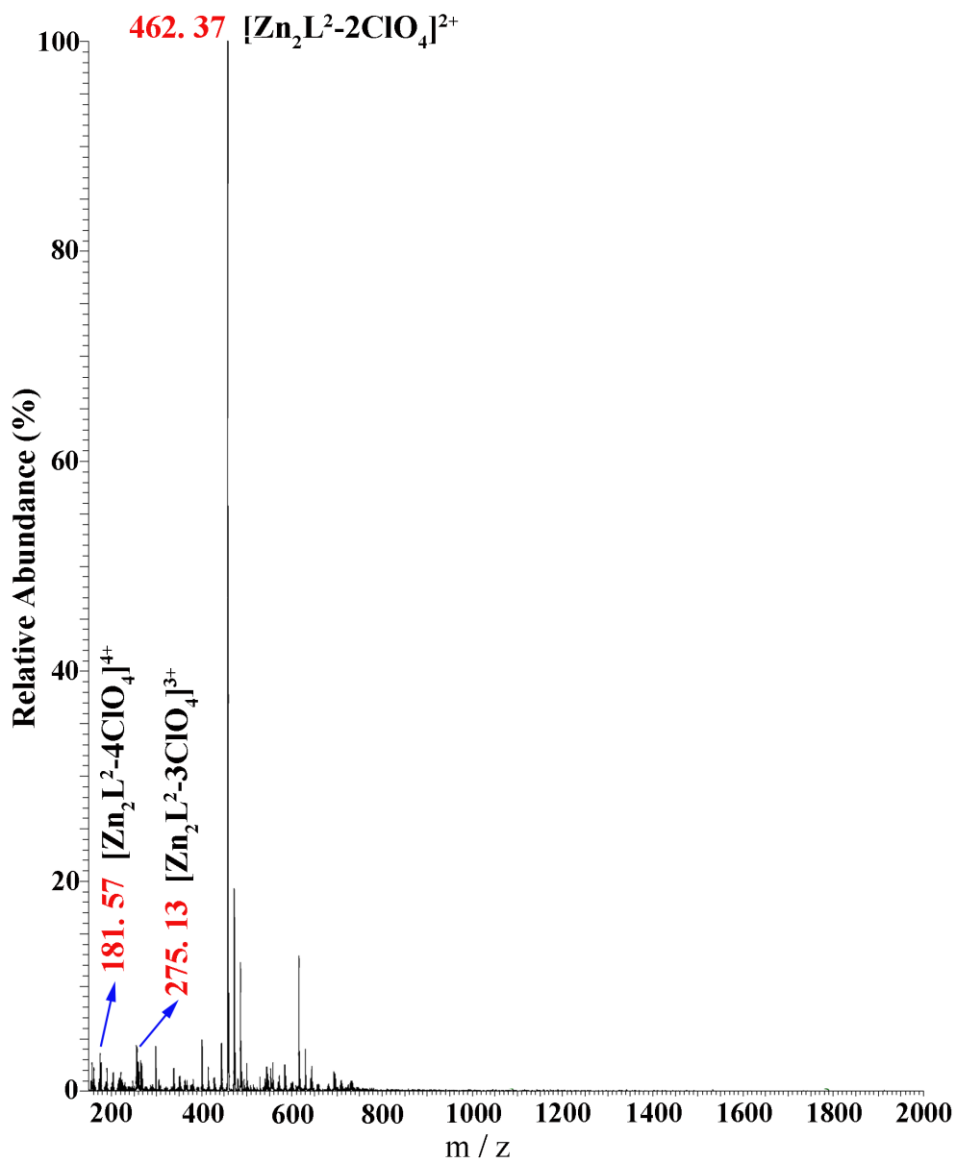
**Figure S1.** ESI-MS spectrum of complex  $[\text{Zn}_2\text{L}^1(\text{ClO}_4)_2(\text{H}_2\text{O})_2](\text{ClO}_4)_2$  (1) showing the parent ion peak in MeCN. The peak corresponds to  $[\text{M}-2\text{ClO}_4]^{2+}$  species.



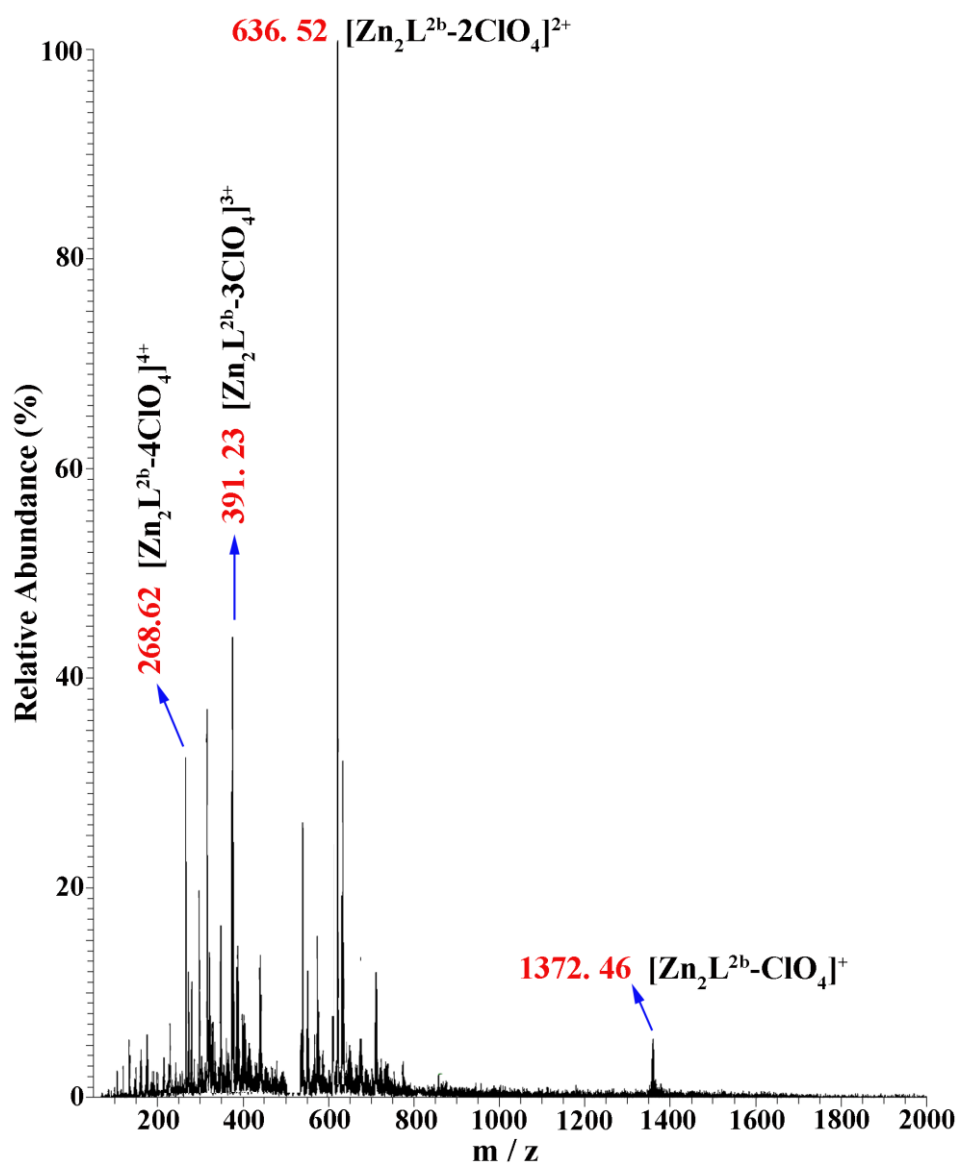
**Figure S2.** ESI-MS spectrum of complex  $[Zn_2L^{1a}(bpy)_2(H_2O)_2](ClO_4)_4$  (2) showing the parent ion peak in MeCN. The peak corresponds to  $[M-2ClO_4]^{2+}$  species.



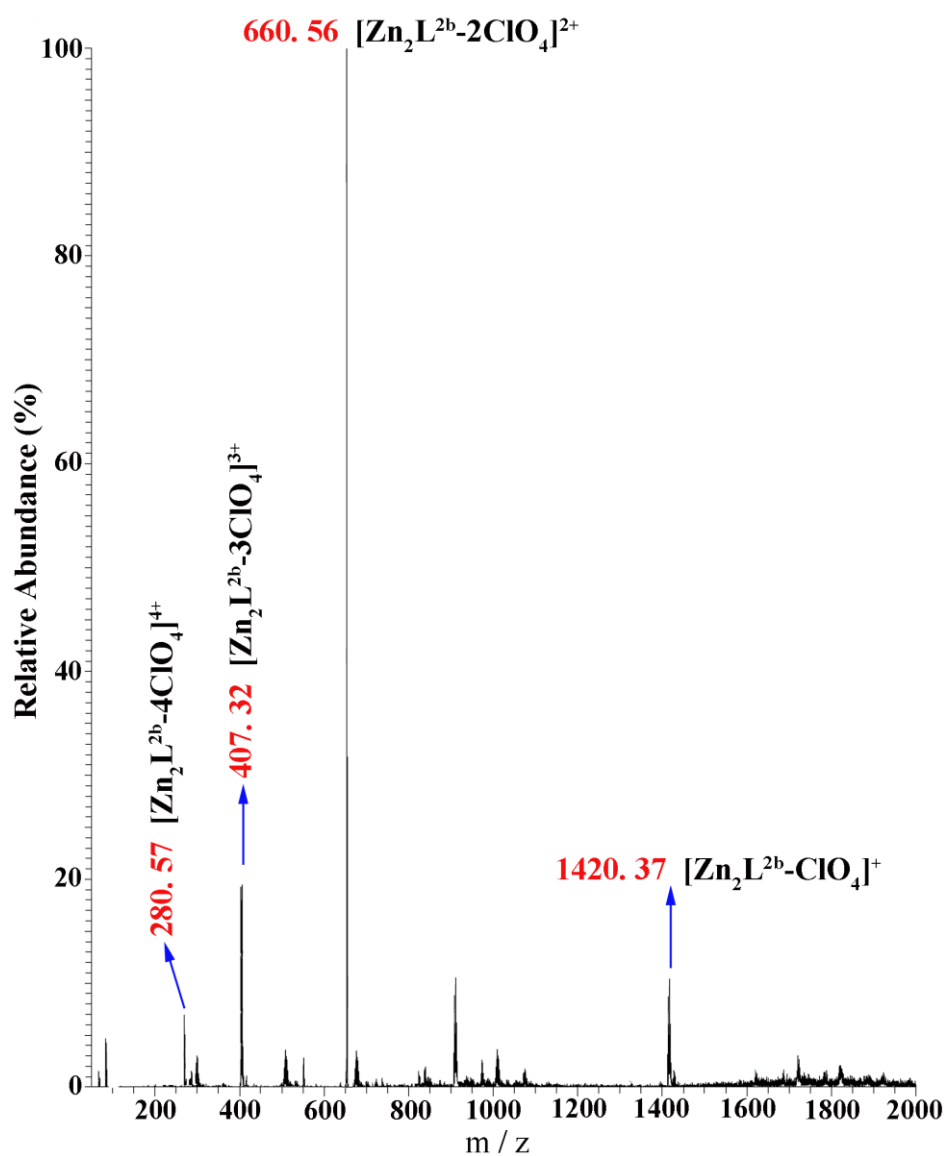
**Figure S3.** ESI-MS spectrum of complex  $[\text{Zn}_2\text{L}^{1\text{b}}(\text{phen})_2(\text{H}_2\text{O})_2](\text{ClO}_4)_4$  (3) showing the parent ion peak in MeCN. The peak corresponds to  $[\text{M}-2\text{ClO}_4]^{2+}$  species.



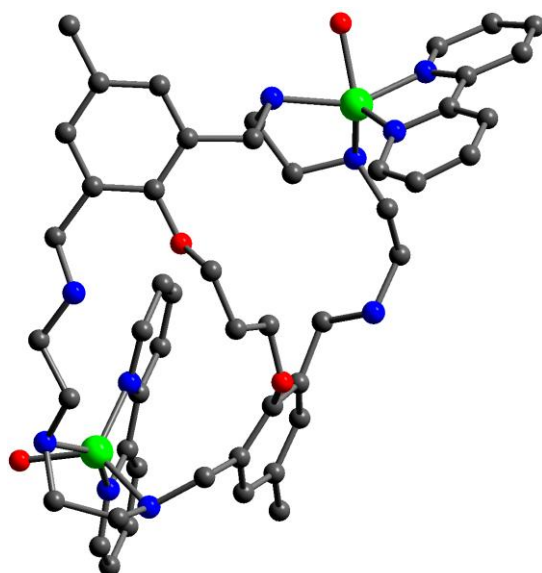
**Figure S4.** ESI-MS spectrum of complex  $[Zn_2L^2(ClO_4)_2(H_2O)_2](ClO_4)_2$  (4) showing the parent ion peak in MeCN. The peak corresponds to  $[M-2ClO_4]^{2+}$  species.



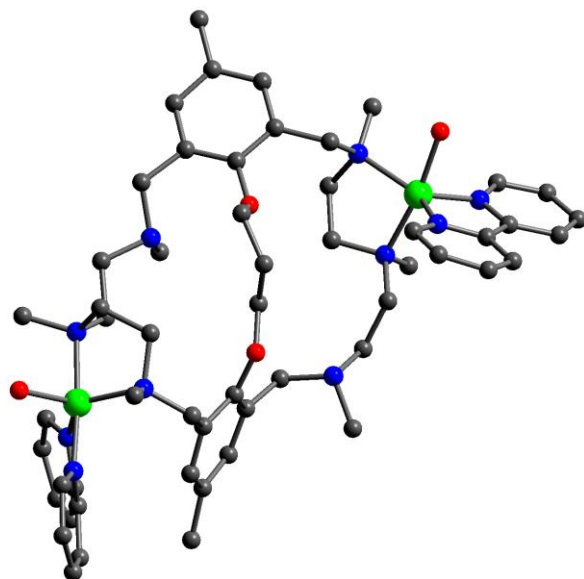
**Figure S5.** ESI-MS spectrum of complex  $[\text{Zn}_2\text{L}^{2\text{a}}(\text{bpy})_2(\text{H}_2\text{O})_2](\text{ClO}_4)_4$  (5) showing the parent ion peak in MeCN. The peak corresponds to  $[\text{M}-2\text{ClO}_4]^{2+}$  species.



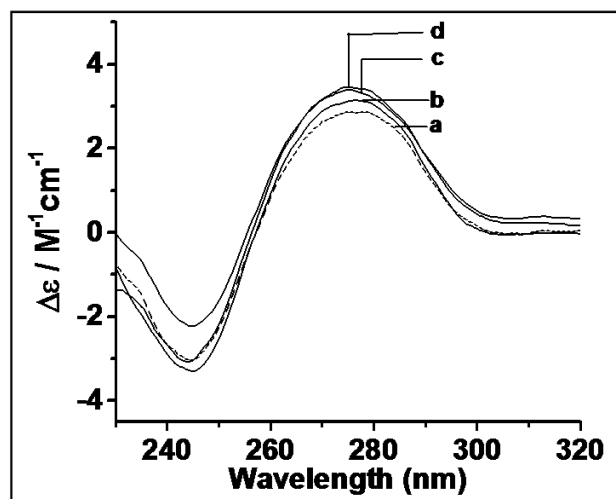
**Figure S6.** ESI-MS spectrum of complex  $[\text{Zn}_2\text{L}^{2\text{b}}(\text{phen})_2(\text{H}_2\text{O})_2](\text{ClO}_4)_4$  (6) showing the parent ion peak in MeCN. The peak corresponds to  $[\text{M}-2\text{ClO}_4]^{2+}$  species.



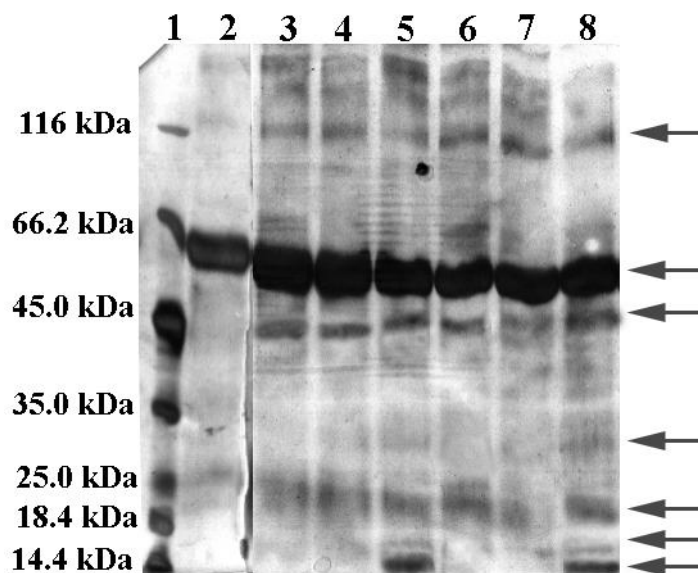
**Figure S7.** Energy minimized structure of 2,2'-bipyridine coordinated macrobicyclic dizinc(II) complex **2**. Color code; Zn = green, O = red, N = blue, C = grey.



**Figure S8.** Energy minimized structure of 2,2'-bipyridine coordinated macrobicyclic dizinc(II) complex **5**. Color code; Zn = green, O = red, N = blue, C = grey.

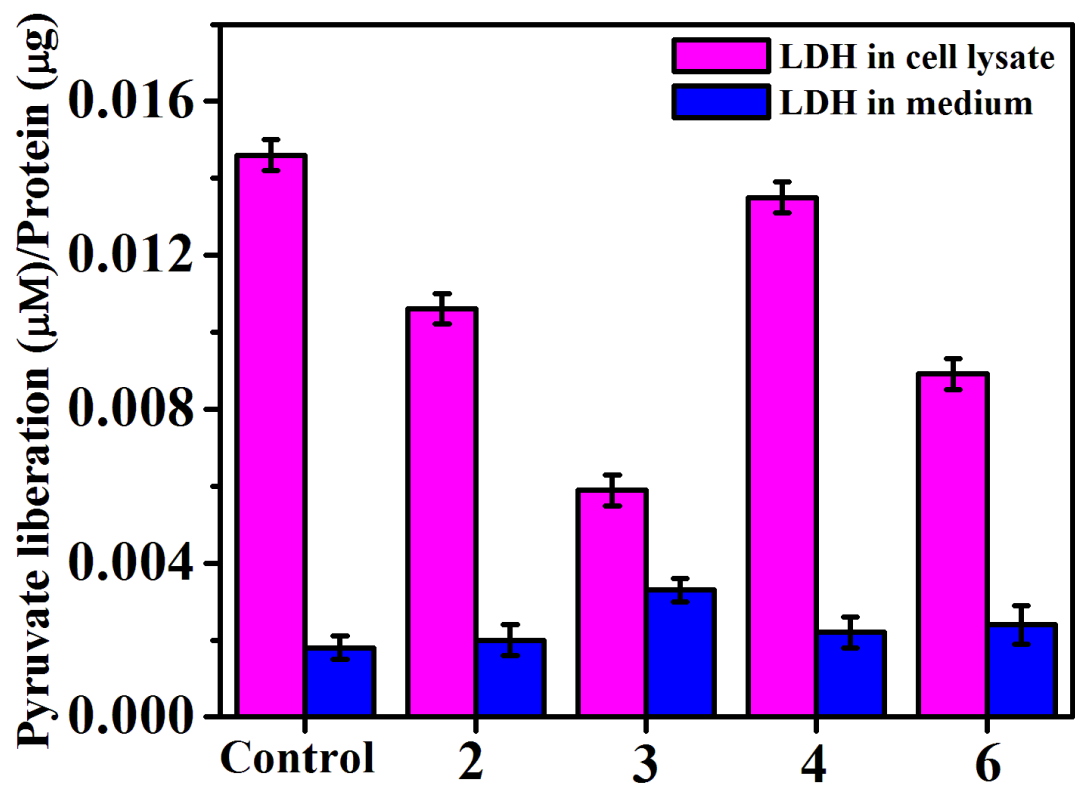


**Fig. S9.** CD spectra recorded over the wavelength range 230–320 nm for solutions containing 2:1 ratio of CT-DNA (200  $\mu\text{M}$ ) and dinuclear  $\text{Zn}^{\text{II}}$  complexes **3**, **4** and **6** (100  $\mu\text{M}$ ) in 50 mM Tris-HCl / NaCl buffer (pH = 7.5). (a = CT DNA, b = **4** + DNA, c = **3** + DNA, d = **6** + DNA).



**Fig. S10.** SDS-PAGE analysis showing cleavage of bovine serum albumin (BSA, 5  $\mu\text{M}$ ) by dizinc(II) complexes **1–6** in 50 mM Tris-HCl buffer having 5% DMF (pH=7.2) for an exposure time of 2 h. lane 1, molecular marker; lane 2, BSA control; lanes 3-8, dizinc(II) complexes 1-6 (50  $\mu\text{M}$ ), respectively.





**Fig. S11.** Cytotoxic effect of dizinc(II) complexes **2**, **3**, **4** and **6** in HeLa cells assessed by lactate dehydrogenase activity in medium and cell lysate for 24h.