**Supporting information**

**Synthesis and physicochemical characterization of Schiff base complexes and examination of their selectivity index for breast and colon cancer cells.**

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**Table S1:** Analytical data and some physical properties of Schiff base ligand, and its complexes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Elem. Anal . found (calcd. ) | *Ʌ* m \* | M.P(0c) | Colour | Molecular formula (M.Wt) |
| M | **Cl** | **O** | **N** | **H** | **C** |  |  |  |  |
| ------- | ------- | 8.12(8.05) | 10.98(10.57) | 5.77(5.84) | 75.65(75.53) | 0.68 | 155 | Orange | HLC25H23N3O2 (397.51) |
| 11.72(10.81) | 7.88(6.50) | 13.97(14.68) | 7.42(7.71) | 4.99(5.18) | 54.08(55.09) | 7.42 | 170 | Yellowish green | (1)[Co(HL)Cl (H2O)3]CoC25H22N3O2Cl(H2O)3(544.95) |
| 22.62(18.78) | 5.88(5.92) | 13.98(13.36) | 7.53(7.02) | 4.55(4.72) | 50.02(50.17) | 1.78 | 210 | Yellowish White | (2)[Cd(HL)Cl.(H2O)3]CdC25H22N3O2Cl(H2O)3 (598.42) |
| 20.34(19.86) | -------- | 23.78(23.03) | 10.67(10.08) | 3.65(3.78) | 44.23(43.22) | 7.17 | 188 | Yellow | (3)[La(HL)(NO3)3(H2O)]LaC25H22N3O2(NO3)3 (H2O)2 (694.56) |
| 21.98(22.02) | ------- | 22.98(22.41) | 10.09(9.81) | 3.55(3.67) | 42.76(42.06) | 1.58 | 195 | Yellow | (4) [Gd(HL)(NO3)3(H2O)]GdC25H22N3O2(NO3)3 (H2O)2 (713.81) |
| 21.85(22.02) | ------- | 22.38(22.41) | 9.19(9.81) | 3.24(3.67) | 41.62(42.06) | 1.50 | 115 | Yellow | (5) [Gd(HL)(NO3)3(H2O)]GdC25H22N3O2(NO3)3 (H2O)2 (713.81) (nano) |



**Fig.S1.** IR spectrum analysis of (a) HL ligand, (b) complex of cobalt [Co(HL)Cl.3H2O], (c) complex of cadmium [Cd(HL)Cl.3H2O], (d) complex of lithium [La(HL)(NO3)3.H2O], (e) complex of Gadolinium [Gd(HL)(NO3)3.H2O] and (f) nano-complex of lithium [La(HL)(NO3)3.H2O].



**Fig.S2.** Mass spectrum fragmentation pathway of the ligand (b).

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**Fig.S3.** UV spectra analysis of (a) HL ligand, (b) [Co(HL)(Cl).3H2O], (c) [Cd(HL)(Cl).3H2O], (d) [La(HL).(NO3)3.H2O], (e) [Gd(HL).(NO3)3.H2O] and (f) [Gd(HL).(NO3)3.H2O] (nano).



**Fig.S4.** TGA curve of (a) [Co(HL).Cl.3H2O] complex and (b) TGA curve of the [La(HL).(NO3)3 .H2O] complex.



**Fig.S5.** Illustration represents the proposed structure of the metal complexes.