<Supporting Information>

Coordination-Driven Nanosized Lanthanide "Molecular Lantern" as Luminescent Chemosensors for the Selective Sensing of Magnesium Ions

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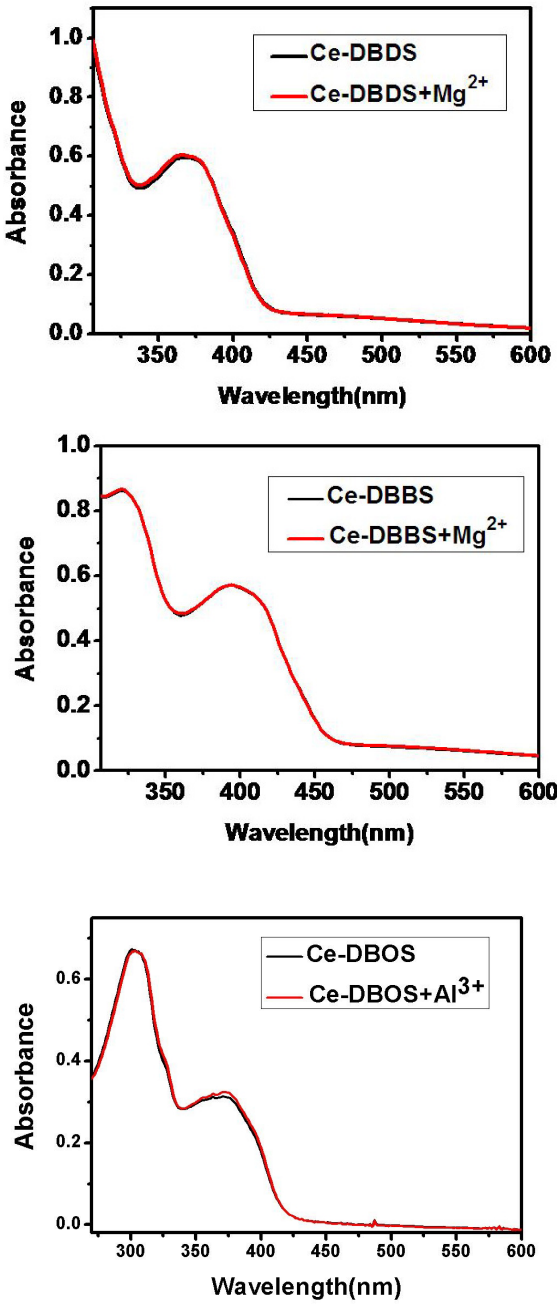
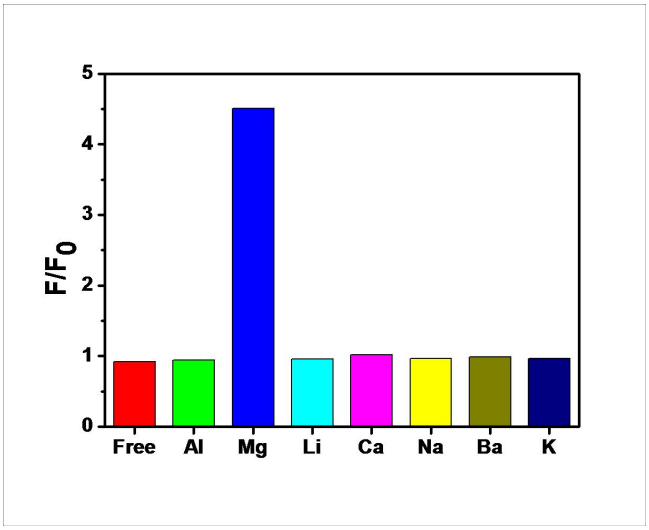
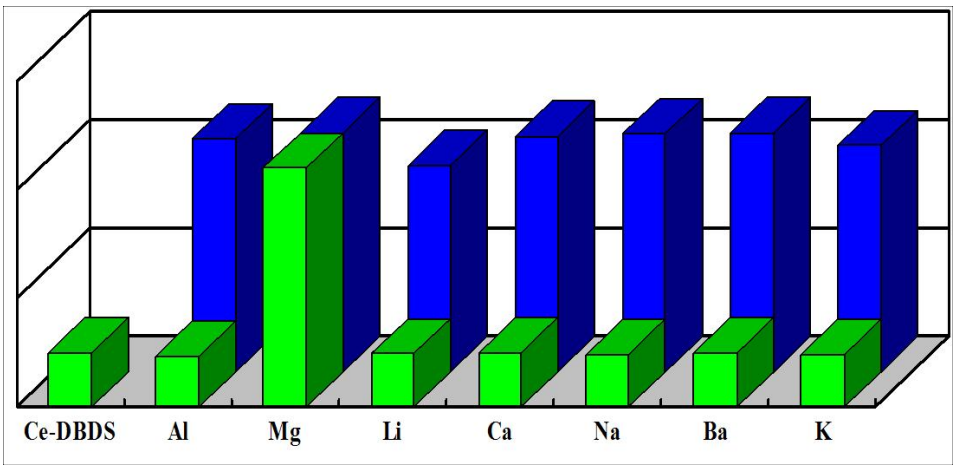
1. Figure S1 Uv-*vis* absorption spectra of Ce-**DBDS** (top), Ce-**DBBS** (middle) and Ce-**DBOS** (bottom) in DMF/CH_3CN solution (1×10^{-5} M) upon the addition of Mg^{2+} ions (10 eq) and Al^{3+} ions (40 eq).

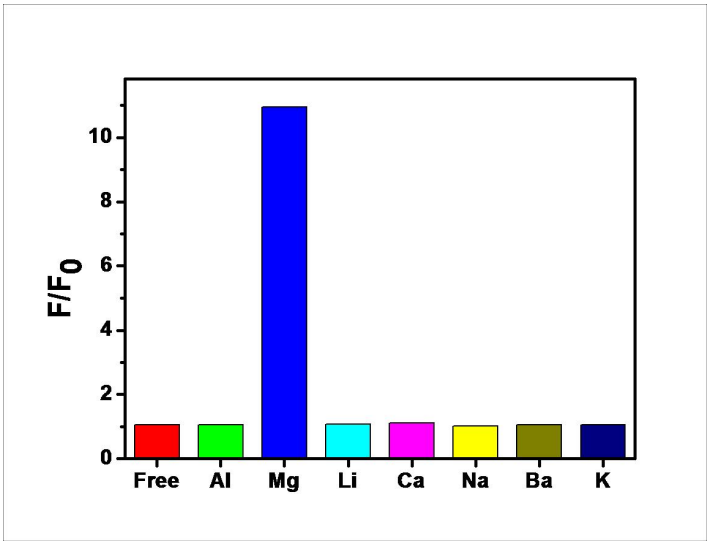


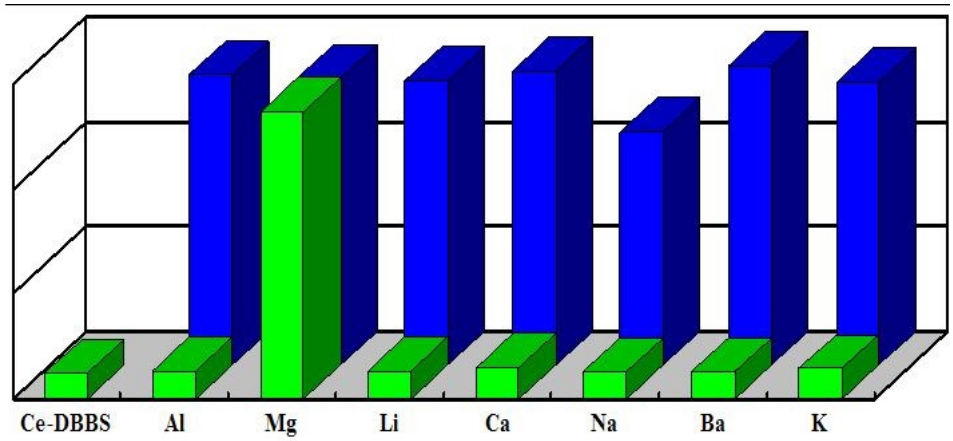
2. Figure S2 Selectivity and competition experiments of Ce-**DBDS** in DMF/CH_3CN (1:9 v/v) solution (1×10^{-5} M) with 10 equiv of Al^{3+}, Mg^{2+}, Li^{+}, Ca^{2+}, Na^{+}, Ba^{2+} and K^{+} cations. (Excitation at 365 nm and emission at 480 nm)



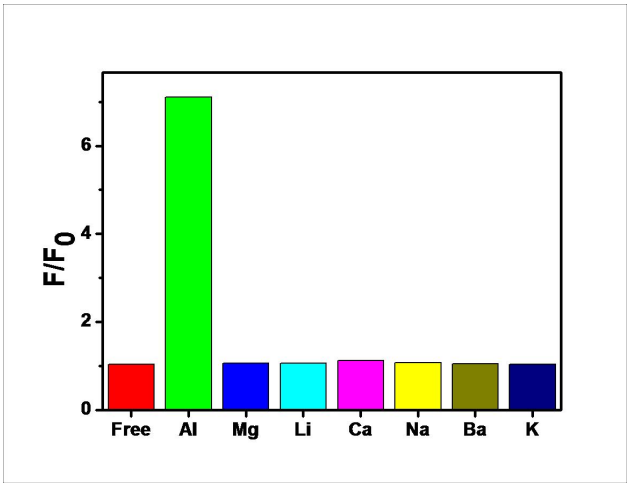


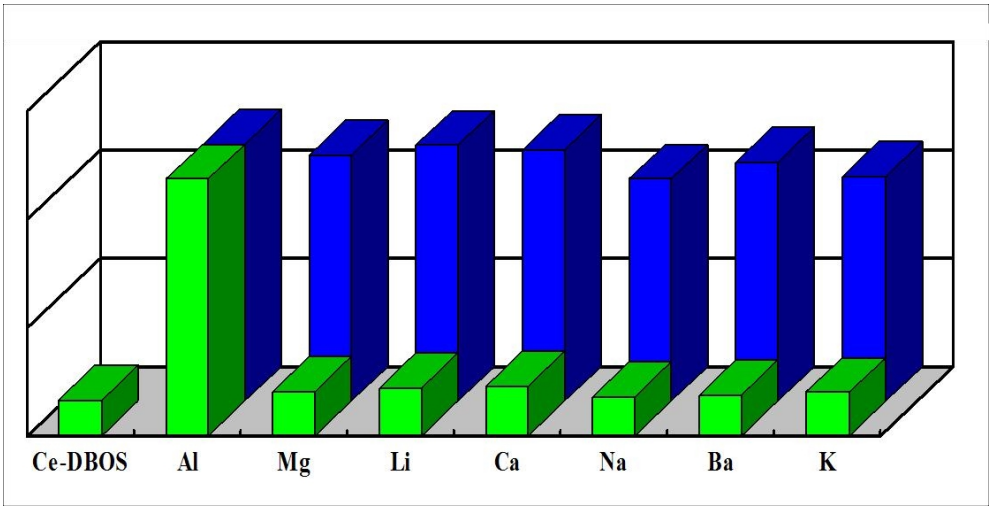
3. Figure S3 Selectivity and competition experiments of Ce-**DBBS** in DMF/CH_3CN (1:9 v/v) solution (1×10^{-5} M) with 10 equiv of Al^{3+}, Mg^{2+}, Li^{+}, Ca^{2+}, Na^{+}, Ba^{2+} and K^{+} cations. (Excitation at 365 nm and emission at 480 nm)



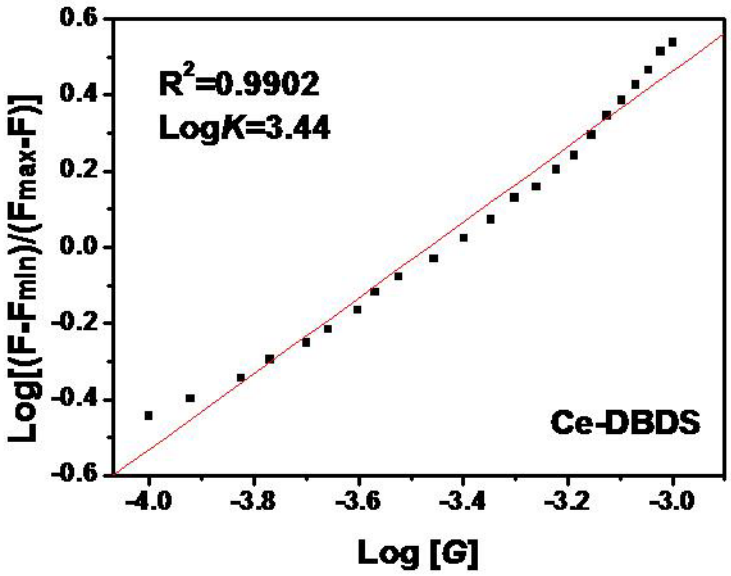


4. Figure S4 Selectivity and competition experiments of Ce-**DBOS** in DMF/CH_3CN (1:9 v/v) solution (1×10^{-5} M) with 40 equiv of Al^{3+}, Mg^{2+}, Li^{+}, Ca^{2+}, Na^{+}, Ba^{2+} and K^{+} cations. (Excitation at 380 nm and emission at 442 nm)

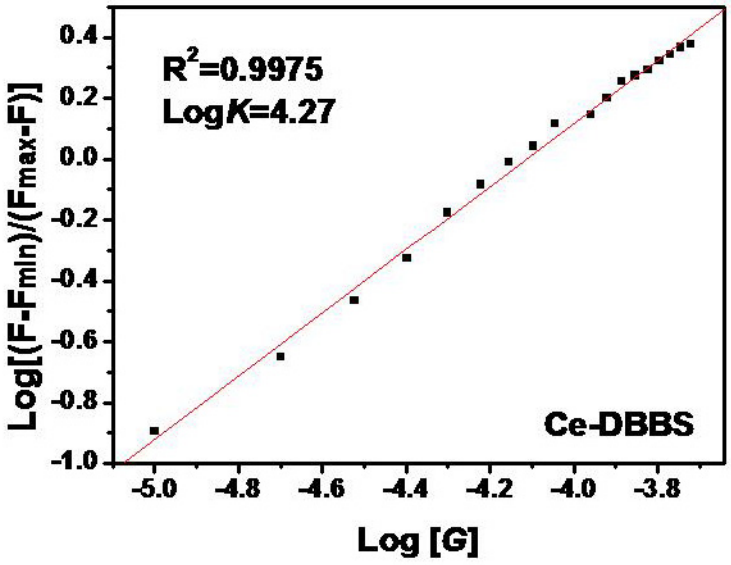




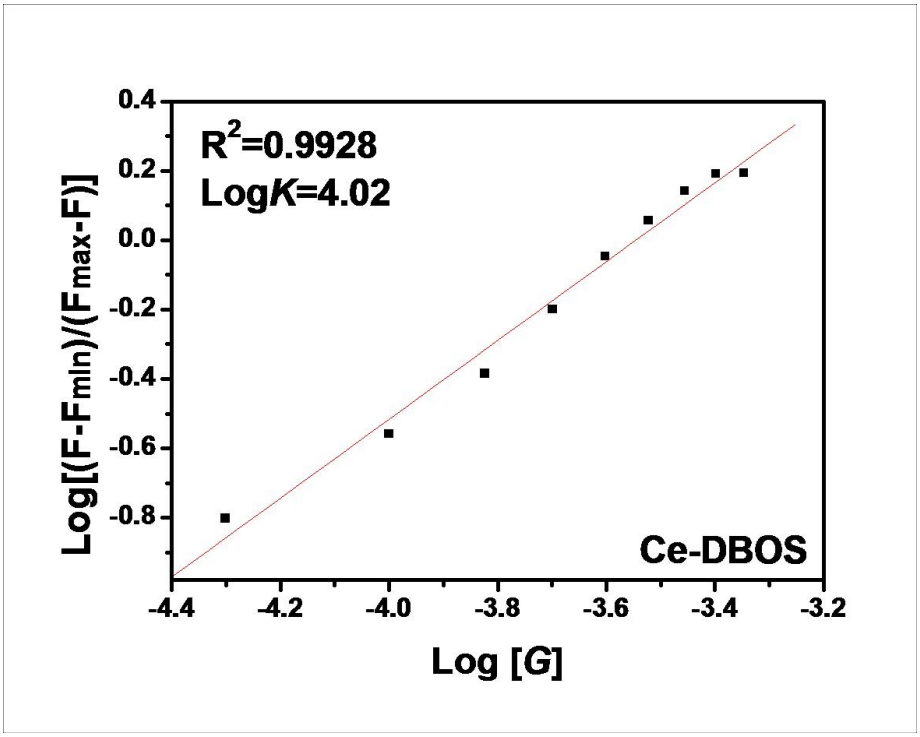
5. Figure S5 Association constant calculation for the 1:1 complexation to linearly fit the fluorescence titration (at 480 nm) of Ce-**DBDS** upon addition of Mg^{2+} in DMF/CH_3CN (1:9 v/v) solution (1×10^{-5} M)[S1]



6. Figure S6 Association constant calculation for the 1:1 complexation to linearly fit the fluorescence titration (at 480 nm) of Ce-**DBBS** upon addition of Mg^{2+} in DMF/CH_3CN (1:9 v/v) solution (1×10^{-5} M)[S1]



7. Figure S7 Association constant calculation for the 1:1 complexation to linearly fit the fluorescence titration (at 442 nm) of Ce-**DBOS** upon addition of Al^{3+} in DMF/CH_3CN (1:9 v/v) solution (1×10^{-5} M)[S1]



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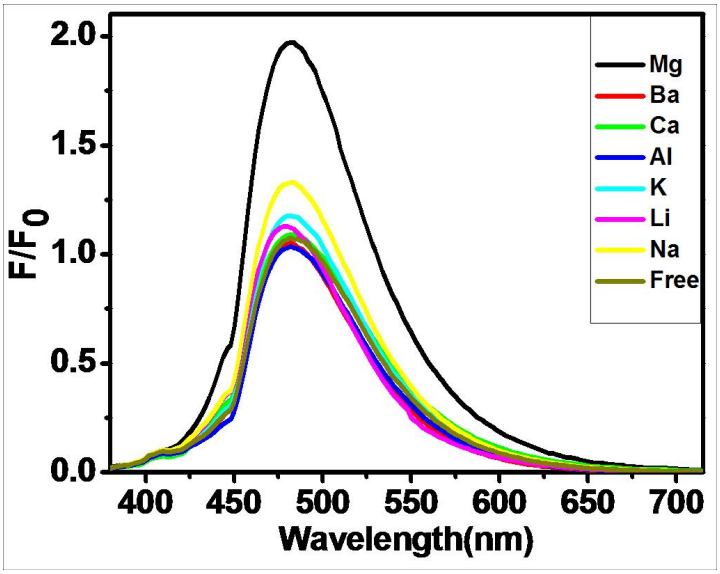

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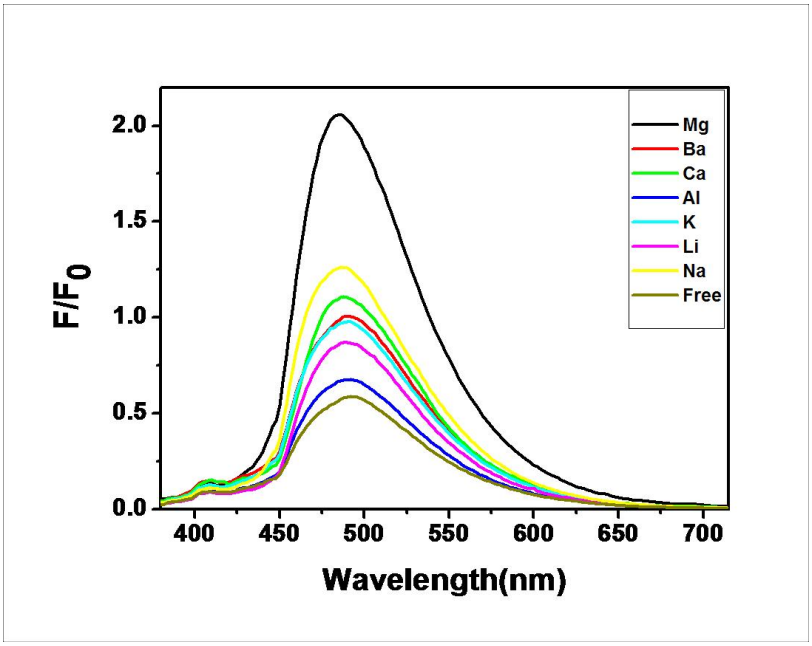
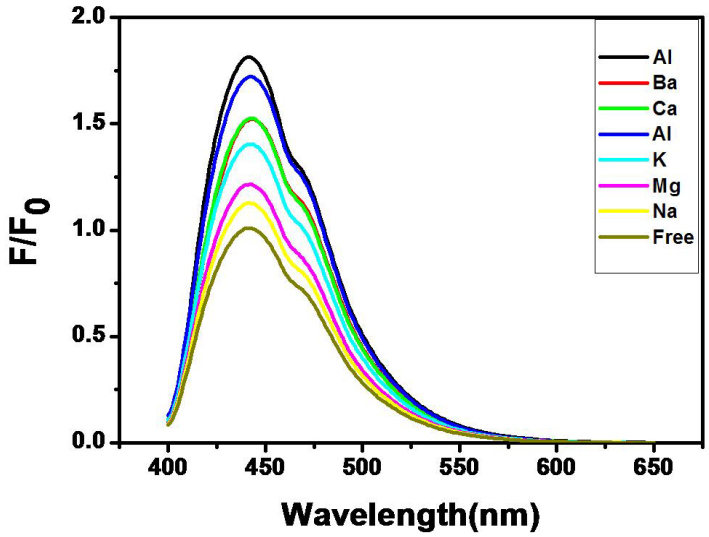


10. Figure S10 Selectivity of **DBOS** in DMF/CH_3CN (1:9 v/v) solution (3×10^{-5}M) with 40 equiv of Al^{3+}, Mg^{2+}, Li^{+}, Ca^{2+}, Na^{+}, Ba^{2+} and K^{+} cations. (Excitation at 380 nm and emission at 442nm)



S1 Y. Shiraishi, S. Sumiya, Y. Kohno and T. Hirai, *J. Org. Chem.,* 2008, **73**, 8571.