Supporting Information for "Circularly Polarized Luminescence on dinuclear Tb(III) and Eu(III) complexes with (S-) and (R-) 2-Phenylpropionate"

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CPL spectra

The samples were excited with a UV-B fluorescent lamp (λ_{max} = 365 nm) with a 90° degree geometry. The spectra were recorded on a quartz plate deposition prepared from a CH_3CN suspension. At least two different depositions for each enantiomer were measured to check the reproducibility of the measurements. In order to rule out the occurrence of contributions from linear luminescence anisotropy, the sample was rotated by 90°, 180°, 270° and then flipped around its *C2* axis in order to measure both the faces of the deposition. A spectrum was recorded after each rotation to check that no significant difference depending on the rotation angle was present.
Solution spectra were measured on a 10^{-3} M CH_2Cl_2 solution.

ECD spectra

ECD spectra were recorded with a Jasco J-710 spectropolarimeter on the same samples used for CPL measurements. In order to rule out the occurrence of contributions from linear dichroism/linear birefringence, the sample was rotated as described above for CPL spectra.

Luminescence spectra

The comparison between he excitation/emission spectra in powder solid and in CH_3CN suspension was performed with a iHR 320 Horiba Jobin Yvon spectrometer.

NMR spectra

NMR were performed with a Varian spectrometer operating at 600 MHz for ^1H. Temperature was set to 25.0 ± 0.1 °C. The spectra were measured in $CDCl_3$.

Table S1. Selected bonds (Å) for the complexes ***S*/*R*-1 - *S*/*R*-2**

	***S*-1**	***S*-2**	***R*-1**	***R*-2**

Ln1B-O1B	2.328(4)	2.353(3)	2.328(4)	2.352(3)
Ln1B-O3B	2.534(4)	2.556(3)	2.534(4)	2.564(3)
Ln1B-O4B	2.476(4)	2.492(3)	2.470(4)	2.510(3)
Ln1B-O5B	2.329(4)	2.337(3)	2.325(4)	2.357(3)
Ln1B-O7B	2.344(4)	2.383(3)	2.348(4)	2.377(3)
Ln1B-N1B	2.596(5)	2.505(3)	2.496(4)	2.525(3)
Ln1B-N2B	2.603(5)	2.461(3)	2.432(4)	2.470(3)
Ln1B-O9B	2.504(4)	2.590(4)	2.590(5)	2.612(4)
Ln1B-O10B	2.440(4)	2.626(4)	2.607(4)	2.622(3)
Ln2B-O2B	2.370(4)	2.384(3)	2.337(4)	2.370(3)
Ln2B-O3B	2.316(4)	2.336(3)	2.311(3)	2.338(2)
Ln2B-O6B	2.339(4)	2.363(3)	2.362(4)	2.391(3)
Ln2B-O7B	2.544(4)	2.552(3)	2.545(4)	2.565(3)
Ln2B-O8B	2.416(4)	2.438(3)	2.415(4)	2.437(3)
Ln2B-O11B	2.521(4)	2.531(3)	2.452(4)	2.480(3)
Ln2B -O12B	2.451(4)	2.490(3)	2.517(4)	2.545(3)
Ln2B-N3B	2.579(5)	2.601(4)	2.560(4)	2.593(3)
Ln2B -N4B	2.561(5)	2.586(4)	2.575(4)	2.606(3)
Ln1B···Ln2B	3.881	3.910	3.881	3.9077(7)

Table S2. Hydrogen bonds and angles for the complexes ***S*/*R*-1 - *S*/*R*-2**

		d(OD -- H)(Å)	**d(H.. OA)(Å)**	**d(OD .. OA)(Å)**	**Angle (°)**
***S*-1**	O1L -- H1OL .. O9A	0.80(4)	1.81(4)	2.586(7)	166(6)
	O3L -- H3OL .. O11A	0.796	1.818	2.608	171.5
	O5L -- H5OL .. O9B_a	0.80(2)	1.816(14)	2.609(9)	172
	O5K -- H5OK .. O9B_a	0.797	1.878	2.632	172
	O7L -- H7OL .. O11B	0.800(9)	1.858(9)	2.658(6)	178.3(16)
	O9L -- H9OL .. O12B	0.80(4)	1.84(4)	2.639(5)	173(6)
***S*-2**	O1L -- H1OL .. O9A_b	0.80(3)	1.82(3)	2.597(4)	163(3)
	O3L -- H3OL .. O11A	0.80(3)	1.85(3)	2.627(5)	166(4)
	O5L -- H5OL .. O9B	0.800(12)	1.819(8)	2.618(6)	176(12)
	O5K -- H5OK .. O9B	0.8	1.962	2.627	140.2
	O7L -- H7OL .. O11B	0.80(3)	1.89(4)	2.691(4)	177(5)
	O9L -- H9OL .. O12B_c	0.80(3)	1.82(3)	2.609(4)	167(4)
***R*-1**	O1L -- H1OL .. O9A	0.81(7)	1.81(6)	2.607(7)	169(8)
	O3L -- H3OL .. O11A	0.80(4)	1.85(5)	2.591(7)	155(5)
	O5L -- H5OL .. O9B	0.80(3)	1.83(2)	2.624(9)	178
	O5K -- H5OK .. O10B	0.80(9)	1.85(7)	2.639(12)	168(16)
	O7L -- H7OL .. O11B	0.81(6)	1.86(6)	2.645(5)	165(5)
	O9L -- H9OL .. O12B_a	0.81(8)	1.86(8)	2.663(7)	172(5)
***R*-2**	O1L -- H1OL .. O9A	0.82(3)	1.82(3)	2.615(5)	164(4)
	O3L -- H3OL .. O11A_d	0.81(4)	1.81(3)	2.593(5)	166(5)
	O5L -- H5OL .. O9B	0.814(17)	1.808(14)	2.615(5)	171(9)
	O5K -- H5OK .. O10B	0.810	1.830	2.633	171
	O7L -- H7OL .. O11B	0.82(4)	1.82(4)	2.628(4)	169(4)

	O9L -- H9OL .. O12B	0.85(5)	1.84(5)	2.689(5)	175(7)
a = 1-x,1/2+y,1-z					
b = x,1+y,z					
c = 1+x,y,z					
d = 1-x,-1/2+y,1-z					

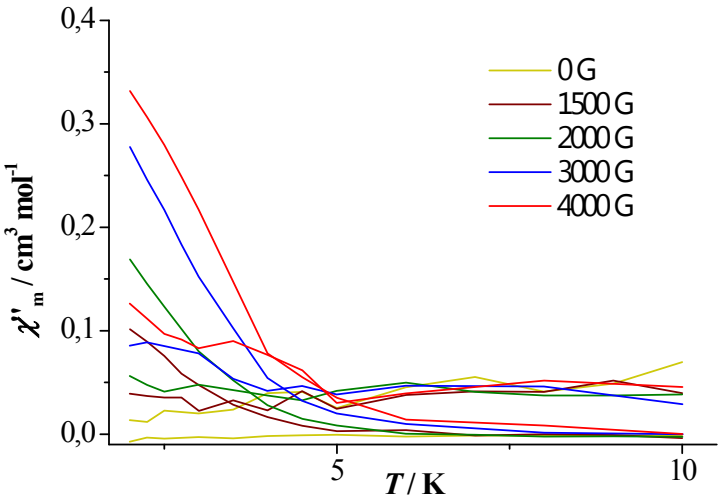

Figure S1: AC susceptibility measurements for ***S*-1**.

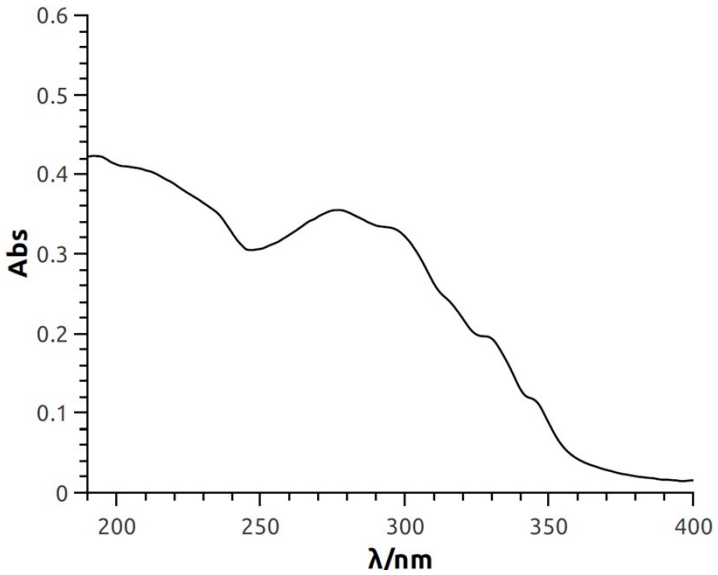

Figure S2: Solid state absorption spectrum of Tb complexes on a quartz plate deposition.

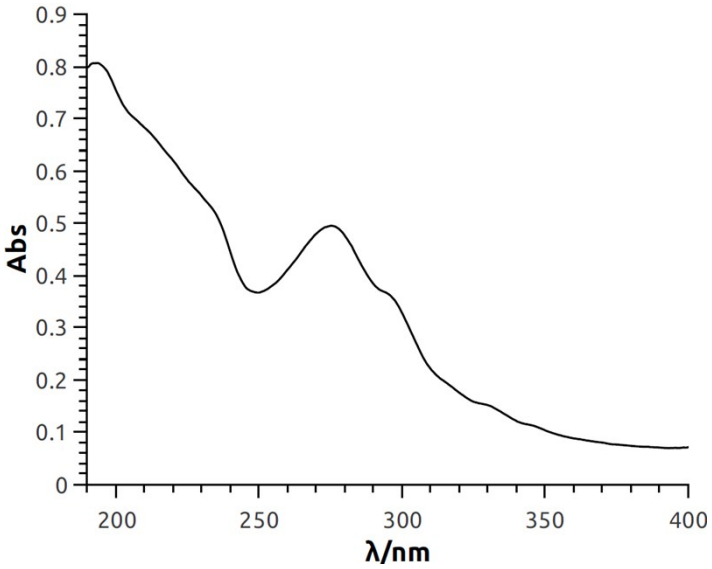

Figure S3: Solid state absorption spectrum of Eu complexes on a quartz plate deposition.

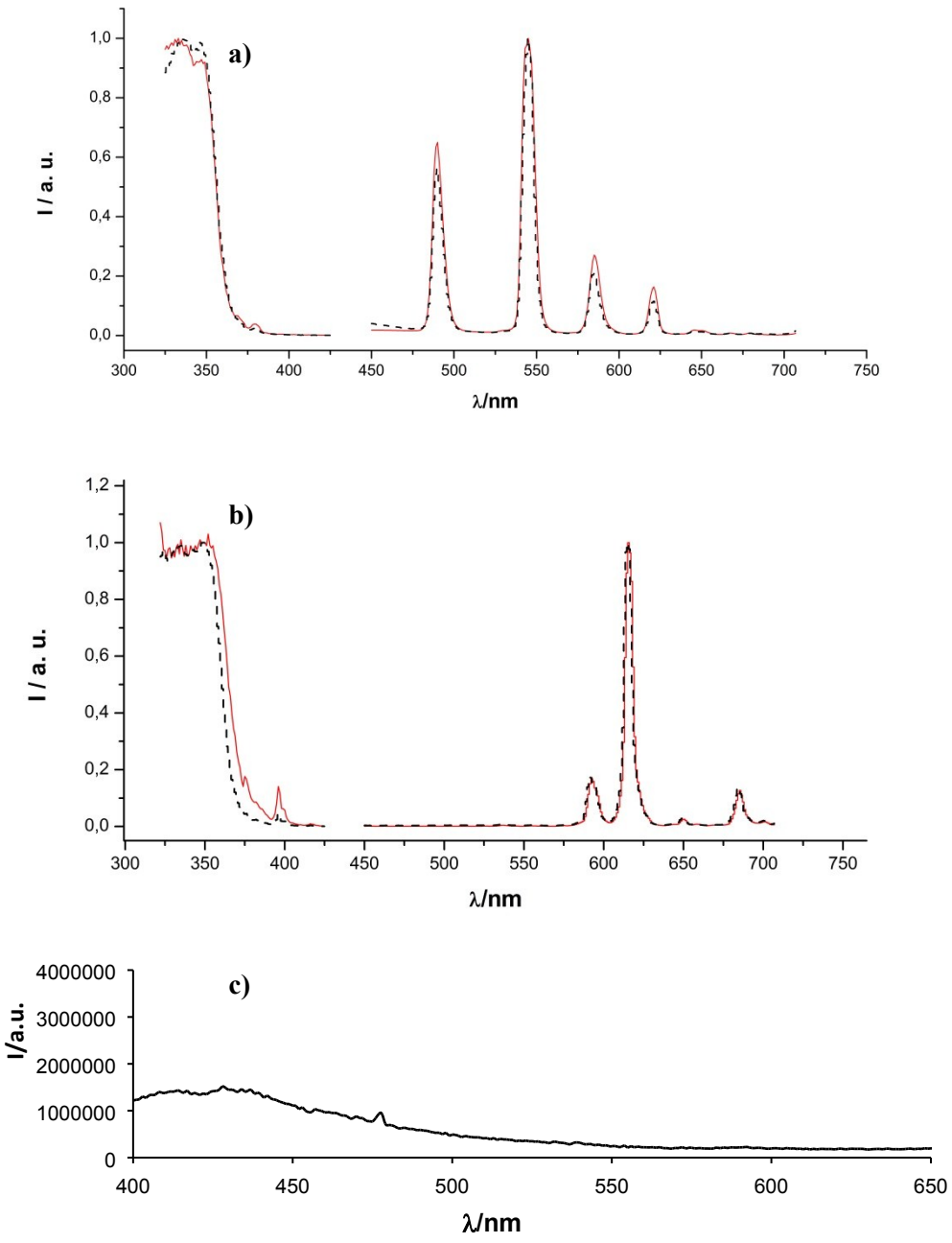

Figure S4: Excitation (λ_{em} = 545 nm for **a** and 615 nm for **b**) and emission (λ_{ex} = 365 nm) spectra of CH_3CN dispersions (dashed black lines) and full solid-state (powder sample, red lines) of ***S*-1** (a) and ***S*-2** (b)**.** (c): solid-state emission spectrum (λ_{ex} = 365 nm) of **phen** ligand.

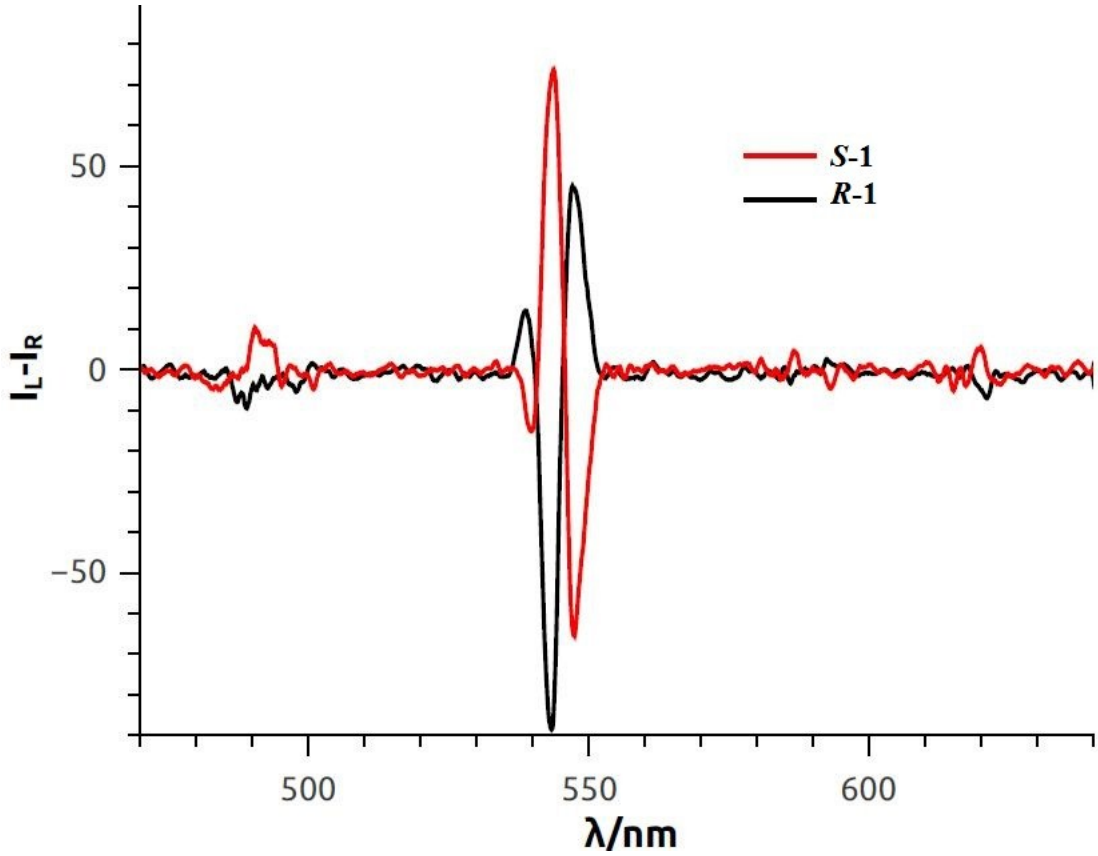

Figure S5: Solution (CH_2Cl_2) CPL spectra of ***S*-1**, ***R*-1** Tb complexes on a quartz plate deposition.

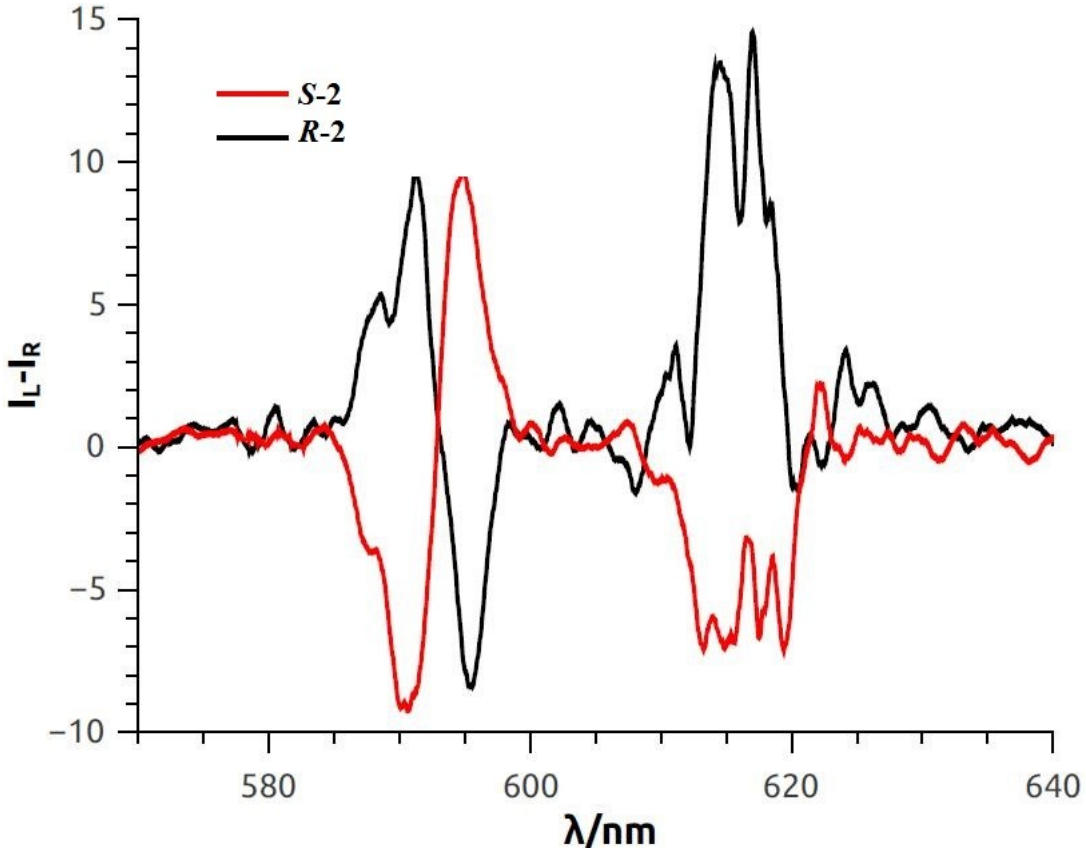

Figure S6: Solution (CH_2Cl_2) CPL spectra of ***S*-2** and ***R*-2** Eu complexes on a quartz plate deposition.

NMR spectra

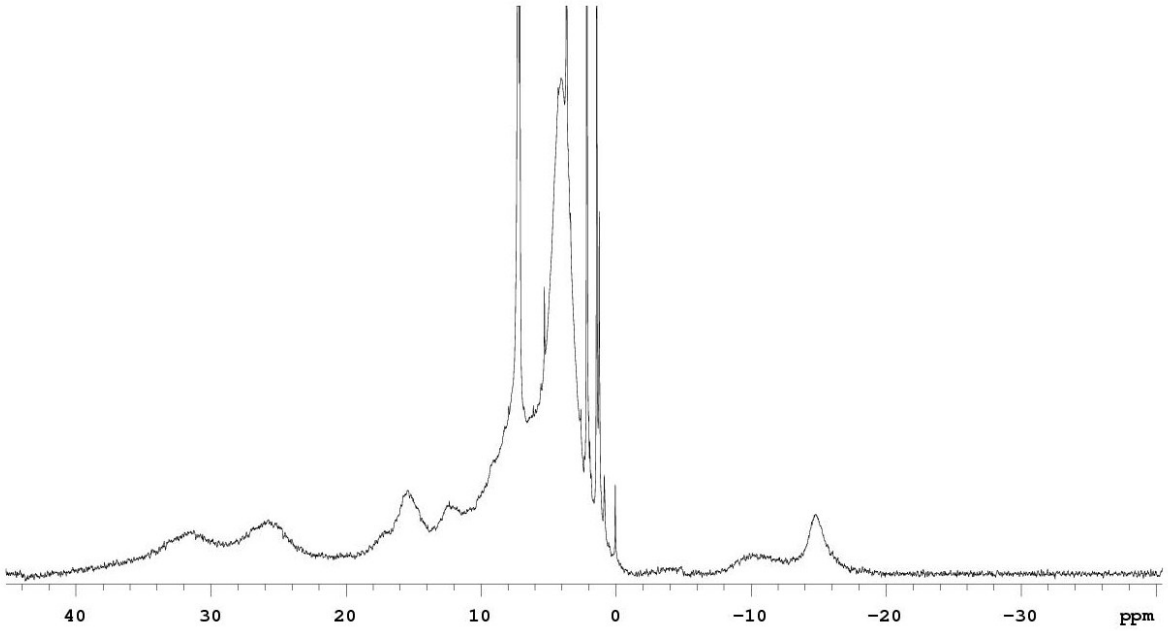

Figure S7: 1H NMR spectrum of ***S*-1** Tb complex ($CDCl_3$).

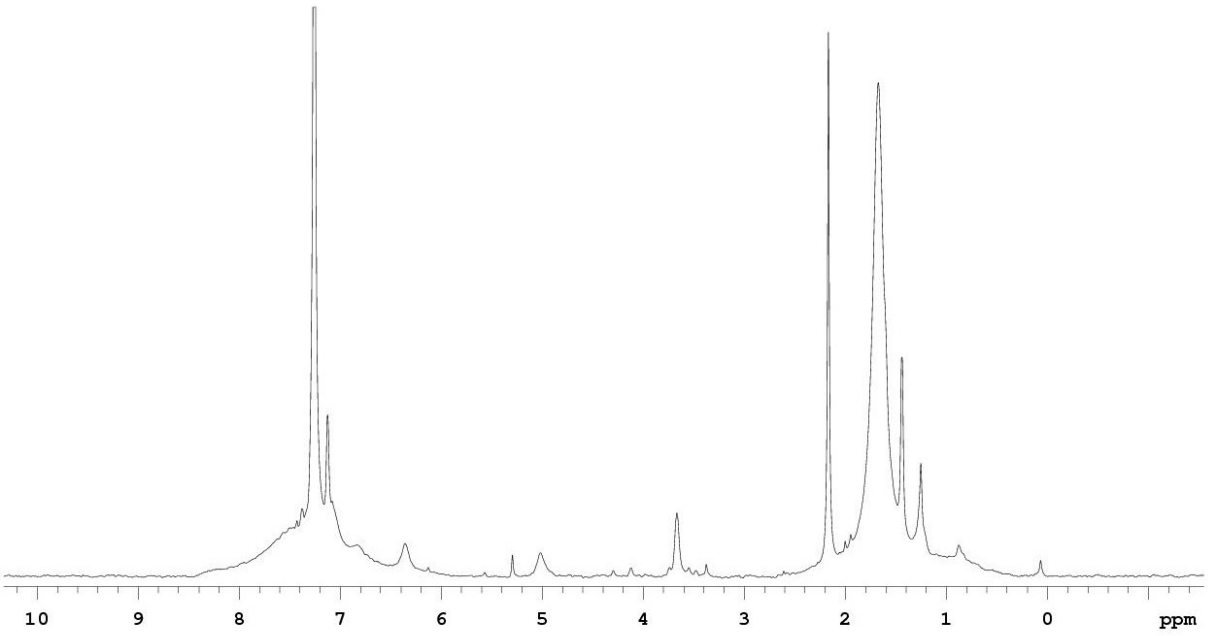

Figure S8: 1H NMR spectrum of ***S*-2** Eu complex ($CDCl_3$).