

## Supplementary Material

### Synthesis and Structures of Rare Earth 3-(4'-Methylbenzoyl)-propanoate Complexes – New Corrosion Inhibitors

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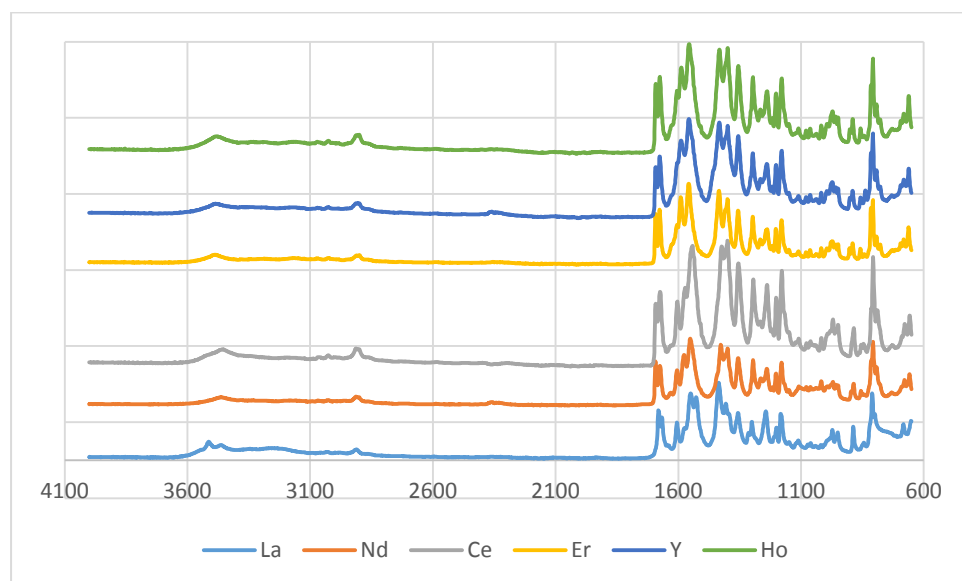


Figure S1: Infrared Spectra of [RE(mbp)<sub>3</sub>(H<sub>2</sub>O)] Complexes

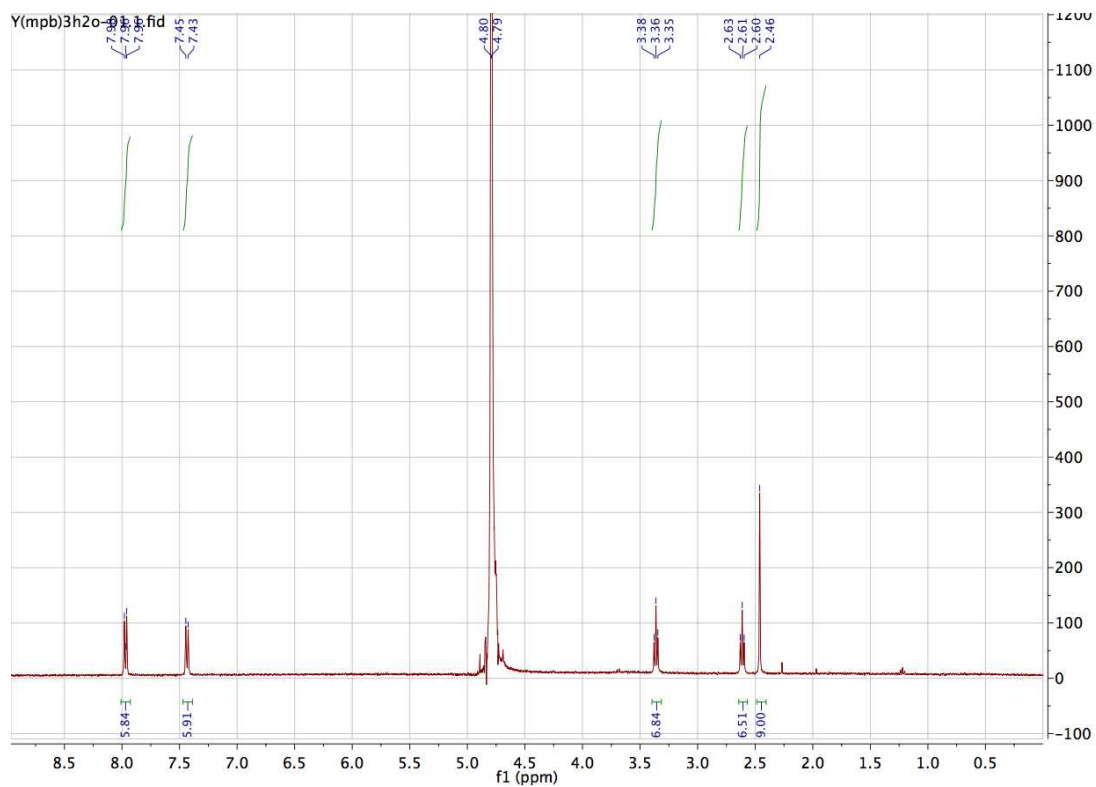


Figure S2:  $^1\text{H}$  NMR spectrum of  $[\text{Y}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $\text{D}_2\text{O}$ .

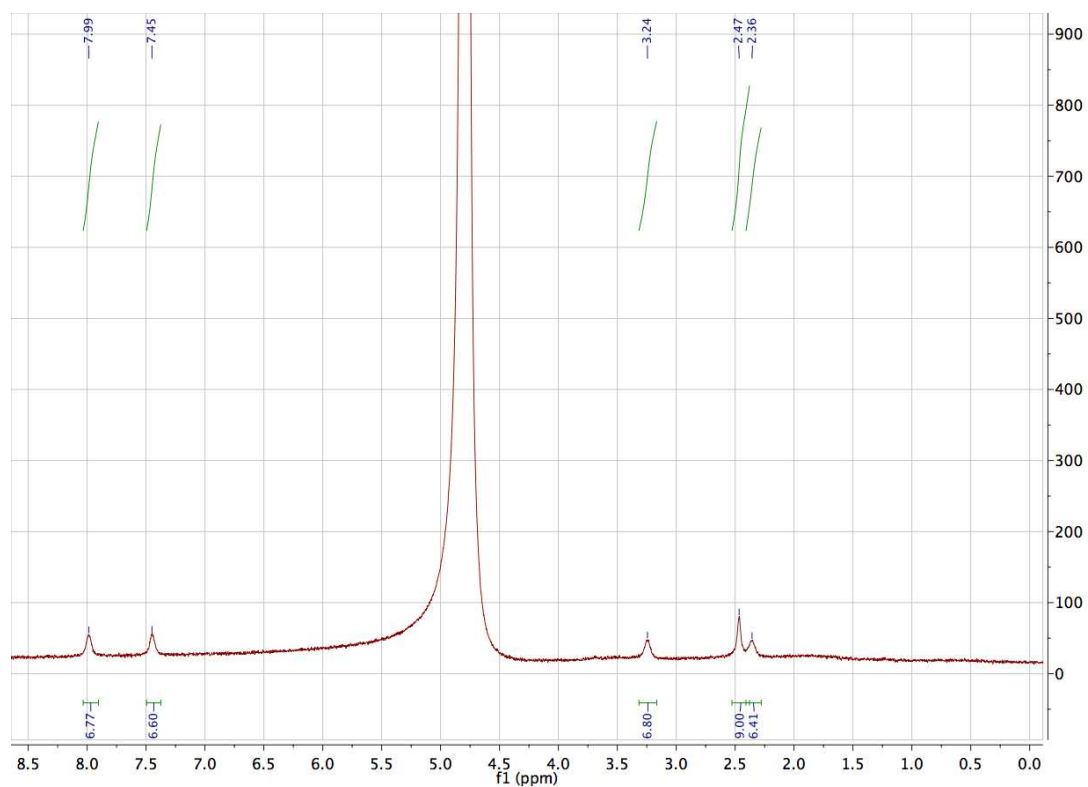


Figure S3:  $^1\text{H}$  NMR spectrum of  $[\text{Er}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $\text{D}_2\text{O}$

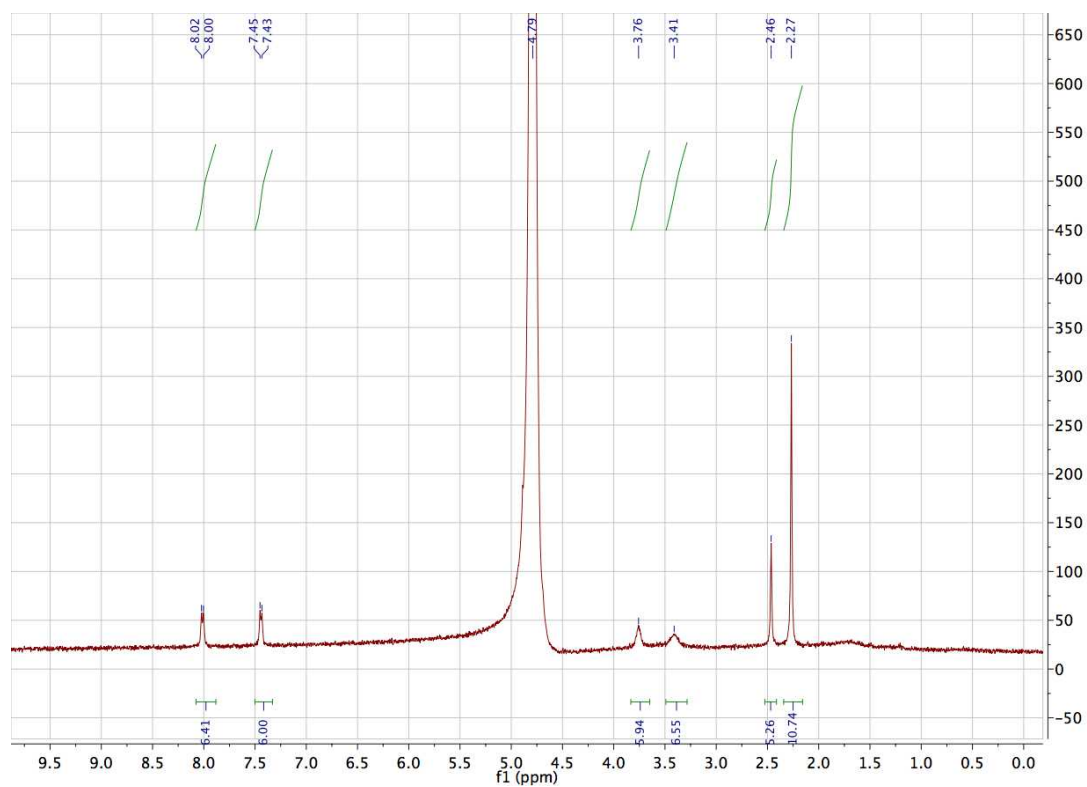


Figure S4:  $^1\text{H}$  NMR spectrum of  $[\text{Ho}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $\text{D}_2\text{O}$

*n/b: The small peak at 2.46 ppm is attributable to residual acetone*

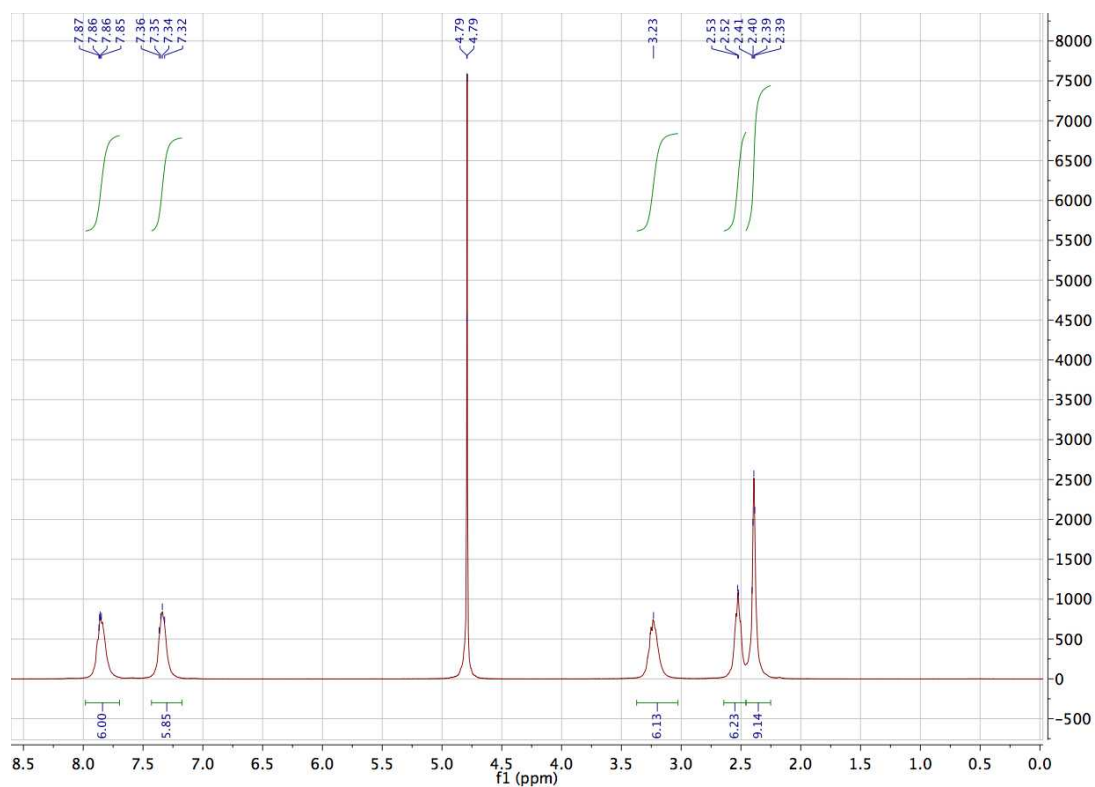


Figure S5:  $^1\text{H}$  NMR spectrum of  $\text{Na}(\text{mbp})$  in  $\text{D}_2\text{O}$

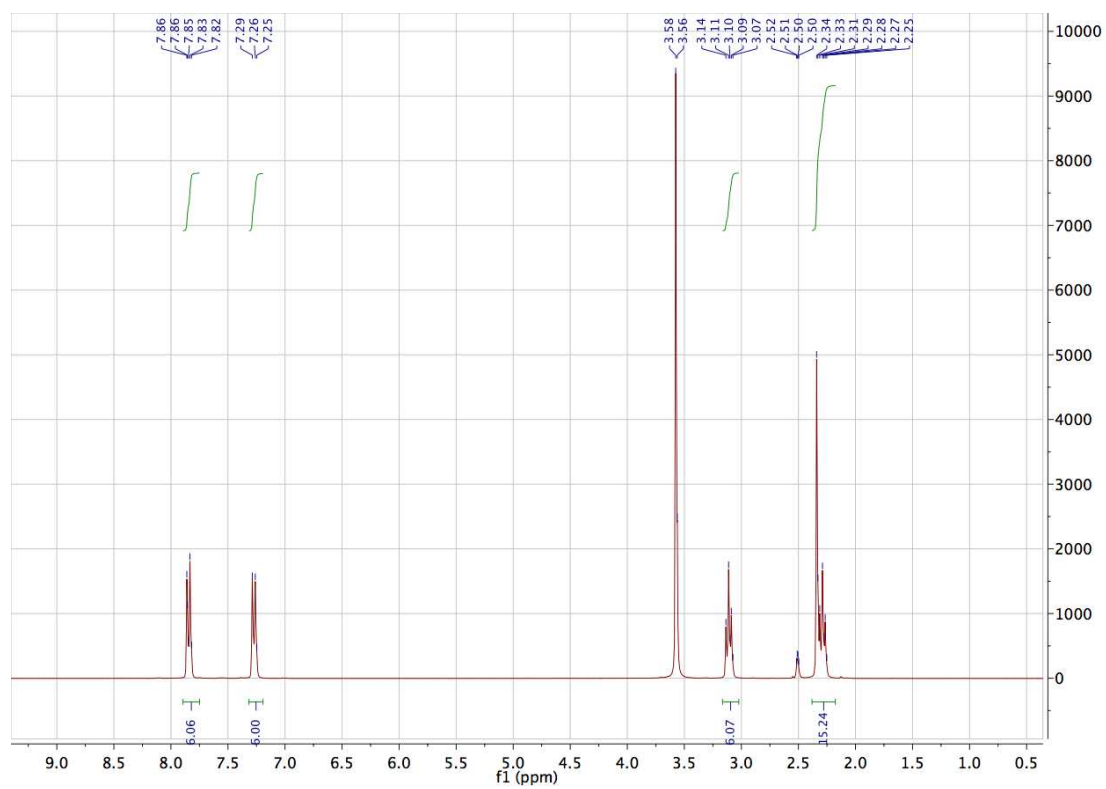


Figure S6:  $^1\text{H}$  NMR spectrum of  $[\text{Y}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

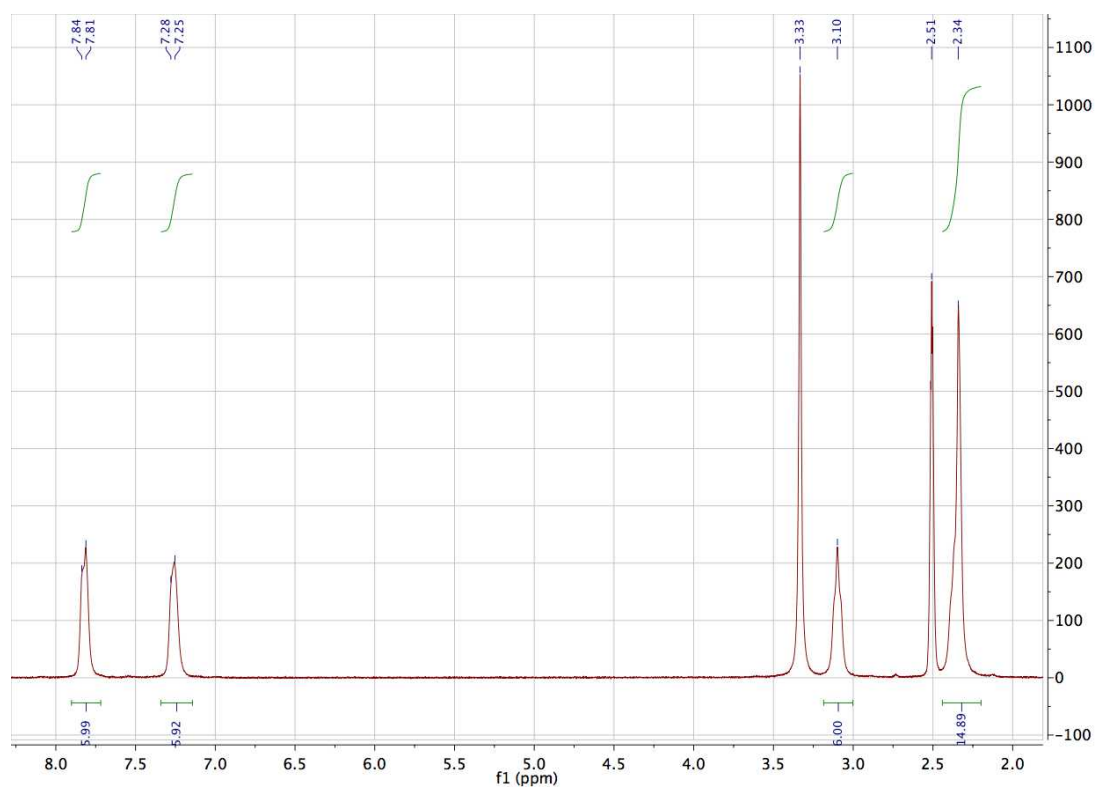


Figure S7:  $^1\text{H}$  NMR spectrum of  $[\text{La}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

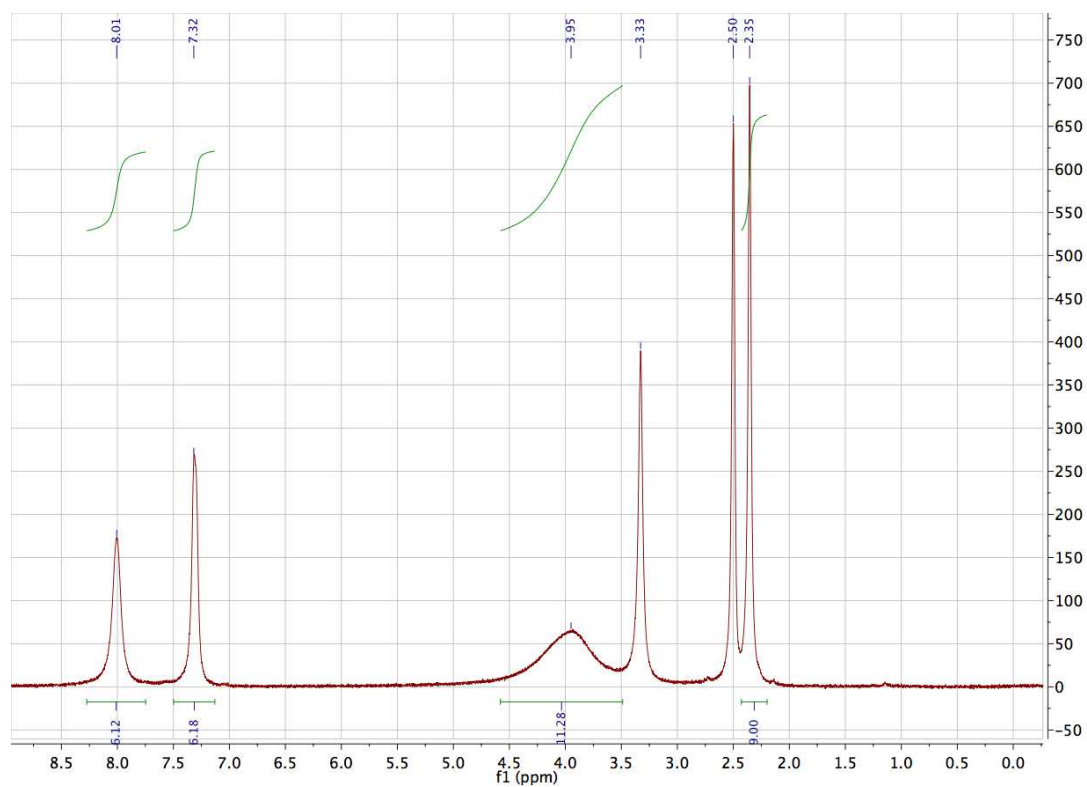


Figure S8:  $^1\text{H}$  NMR spectrum of  $[\text{Ce}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

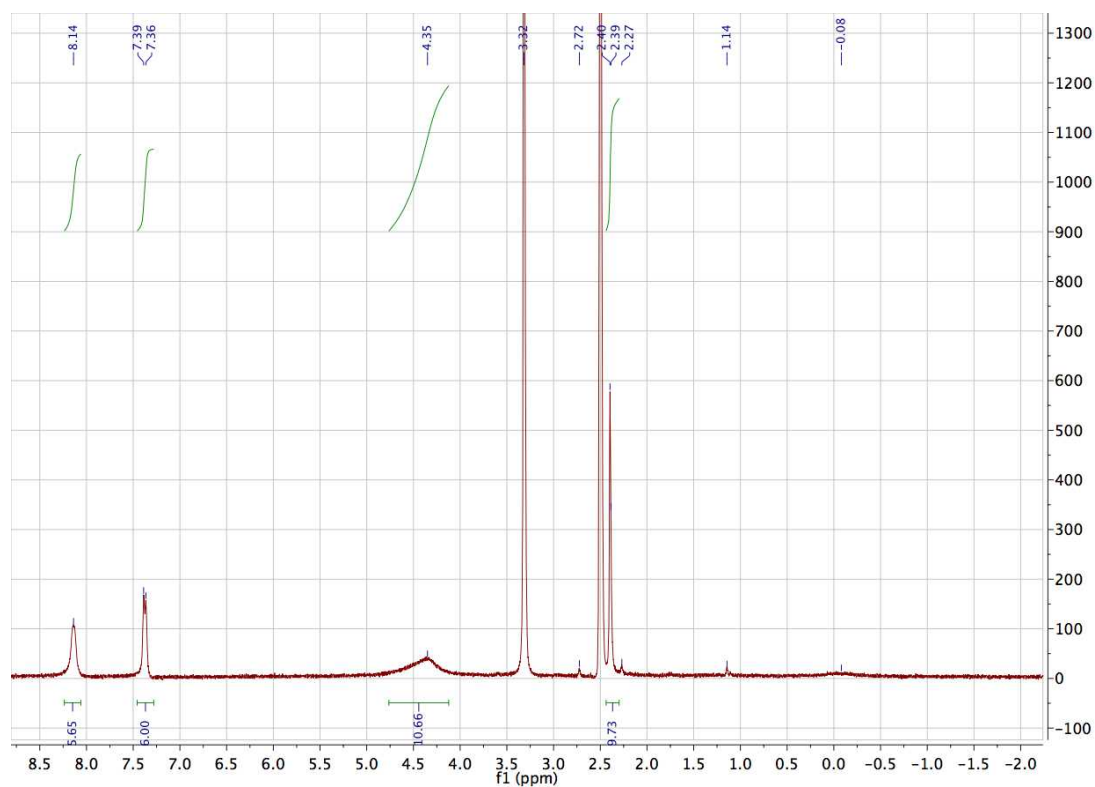


Figure S9:  $^1\text{H}$  NMR spectrum of  $[\text{Nd}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

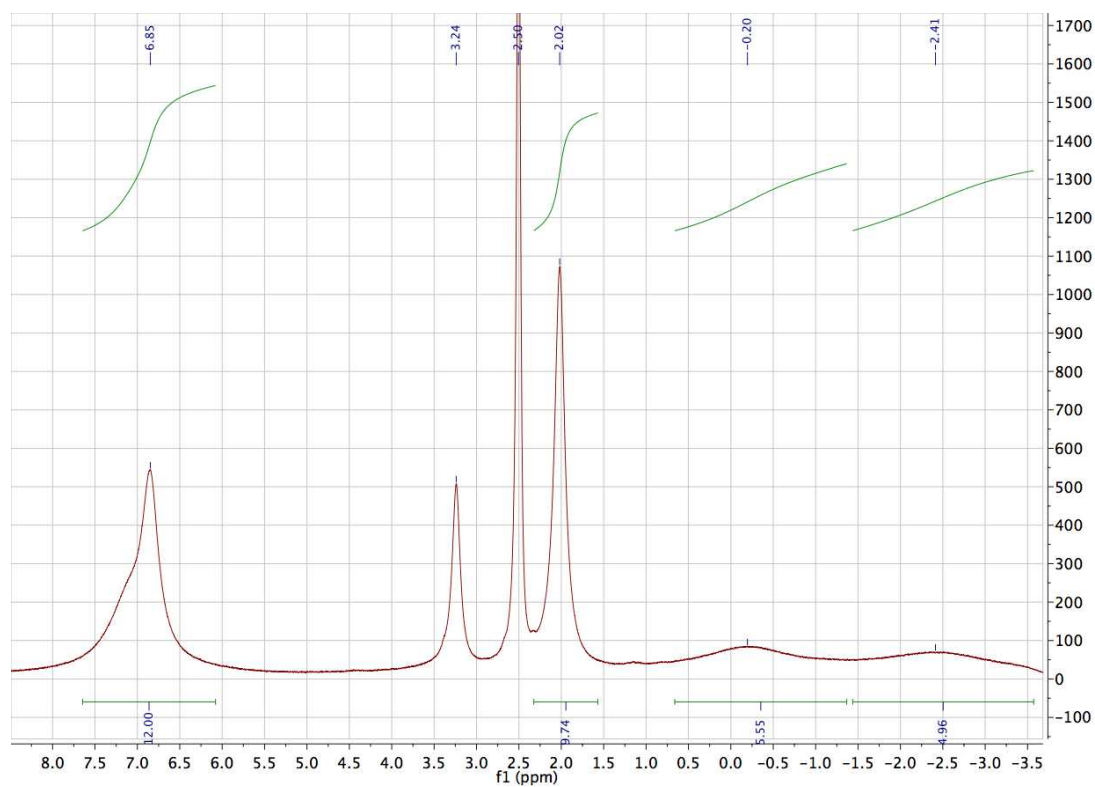


Figure S10:  $^1\text{H}$  NMR spectrum of  $[\text{Er}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

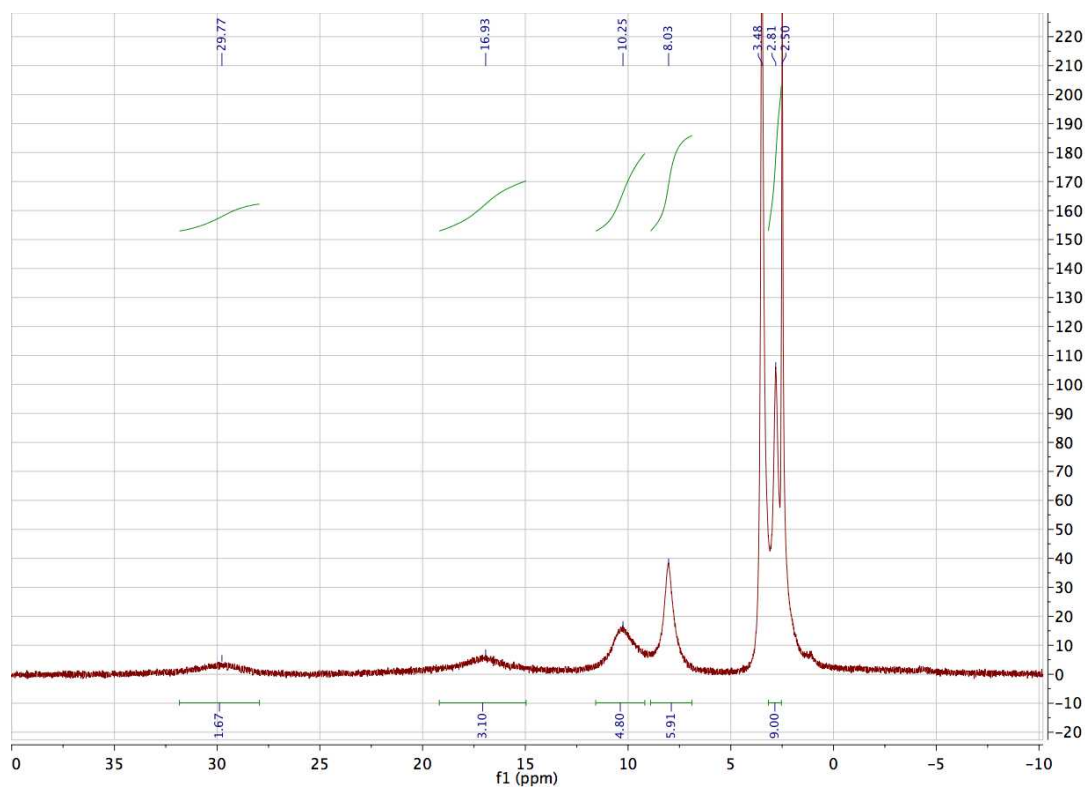


Figure S11:  $^1\text{H}$  NMR spectrum of  $[\text{Ho}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

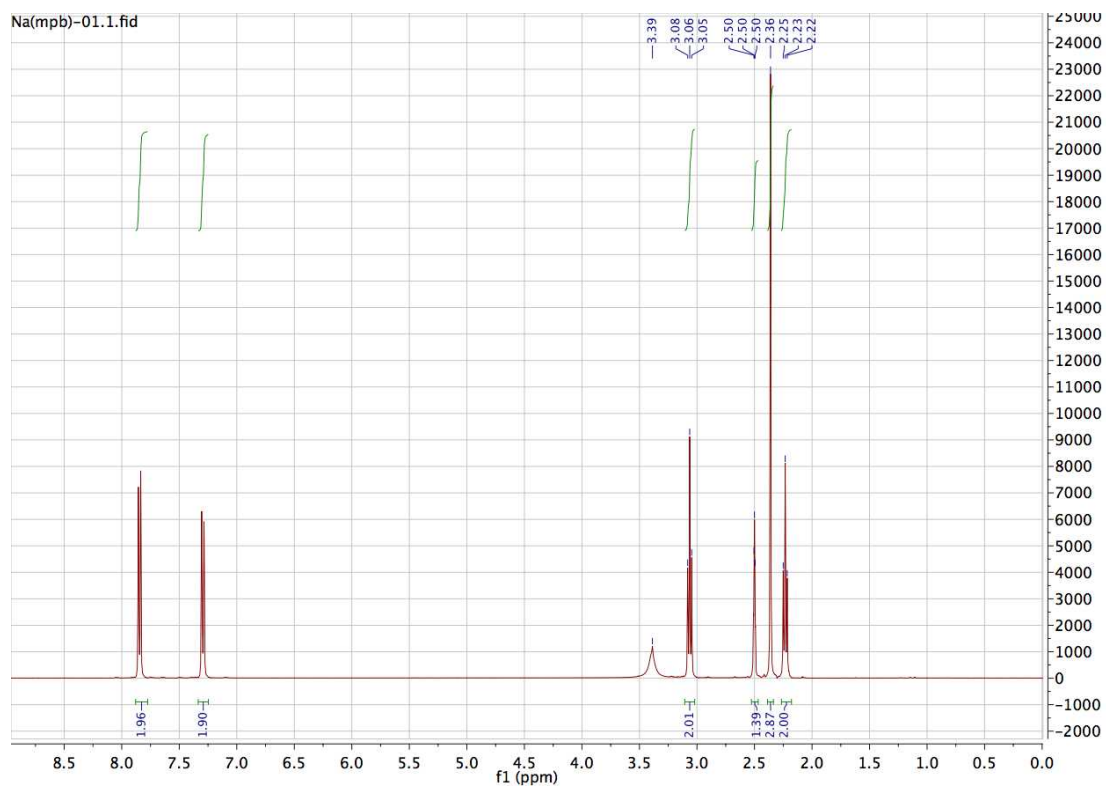


Figure S12:  $^1\text{H}$  NMR spectrum of Na(mpb) in  $d_6$ -DMSO

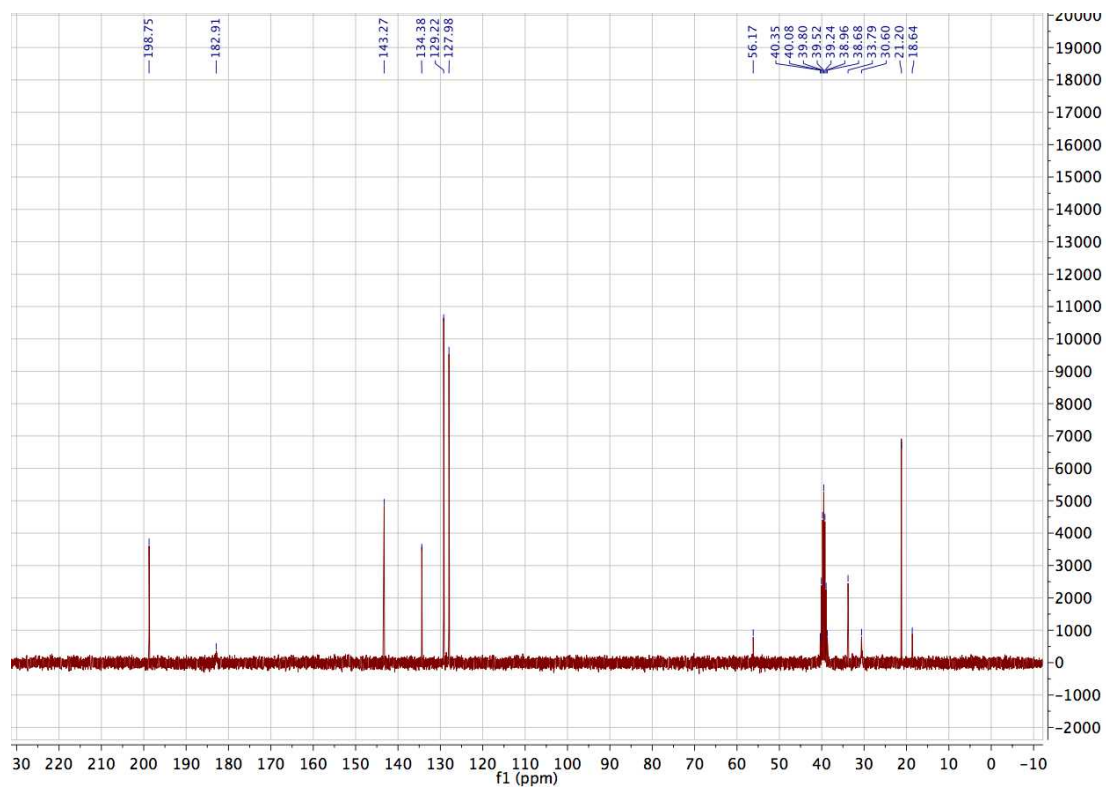


Figure S13:  $^{13}\text{C}$  NMR spectrum of  $[\text{Y}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

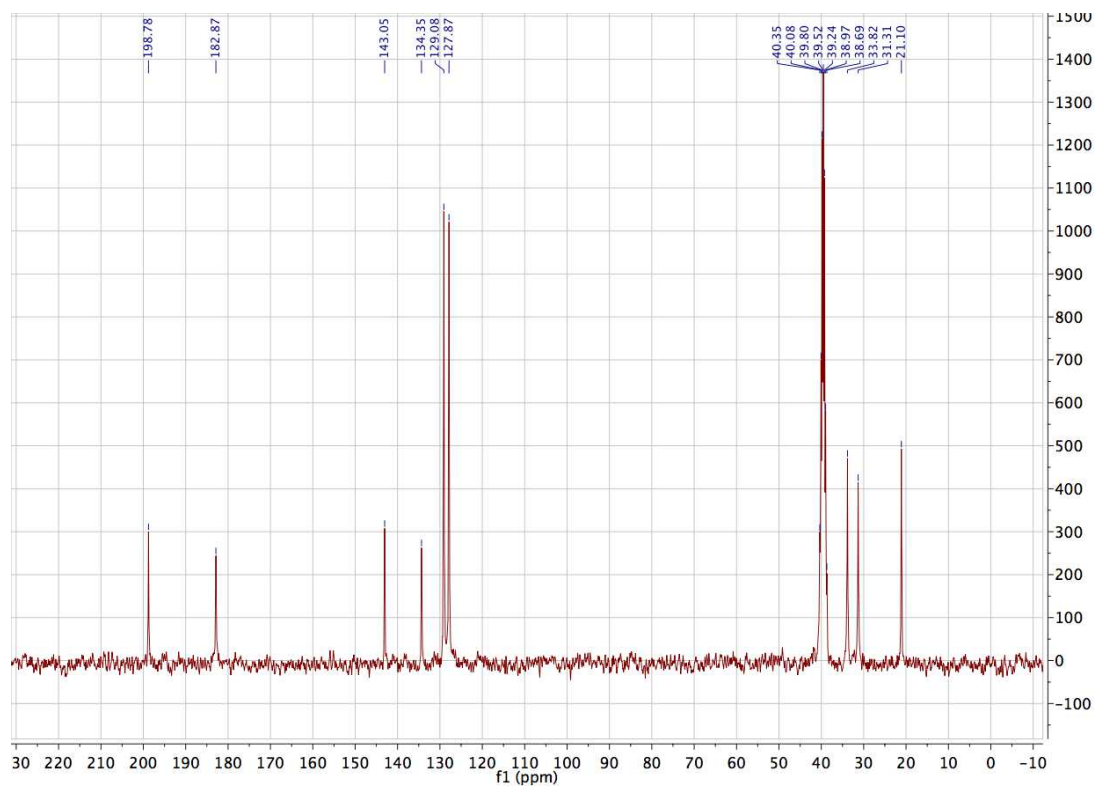


Figure S14:  $^{13}\text{C}$  NMR spectrum of  $[\text{La}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

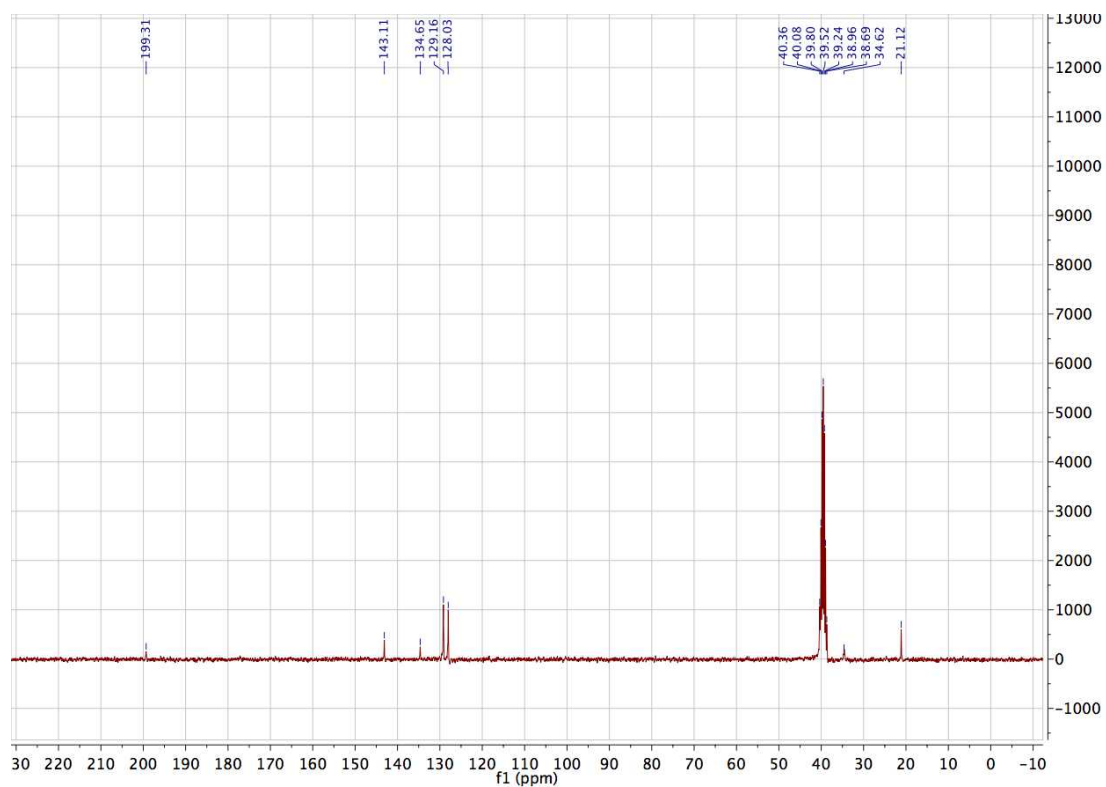


Figure S15:  $^{13}\text{C}$  NMR spectrum of  $[\text{Ce}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO



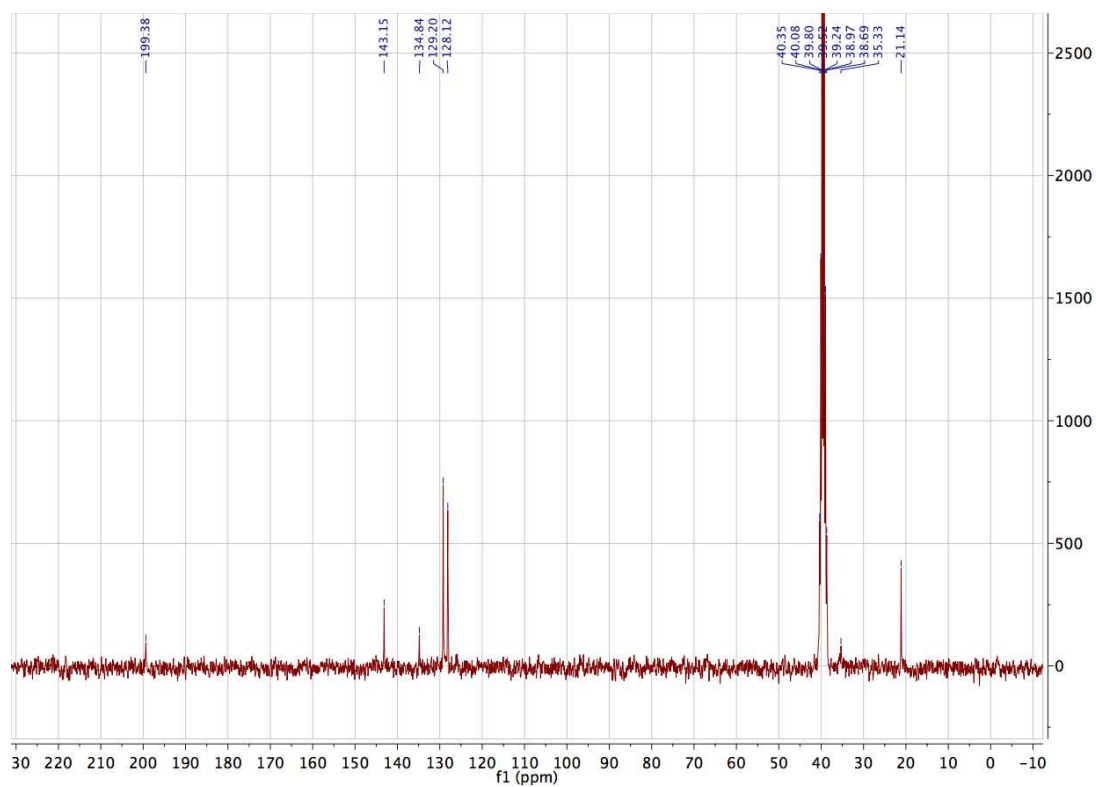


Figure S16:  $^{13}\text{C}$  NMR spectrum of  $[\text{Nd}(\text{mbp})_3(\text{H}_2\text{O})]$  in  $d_6$ -DMSO

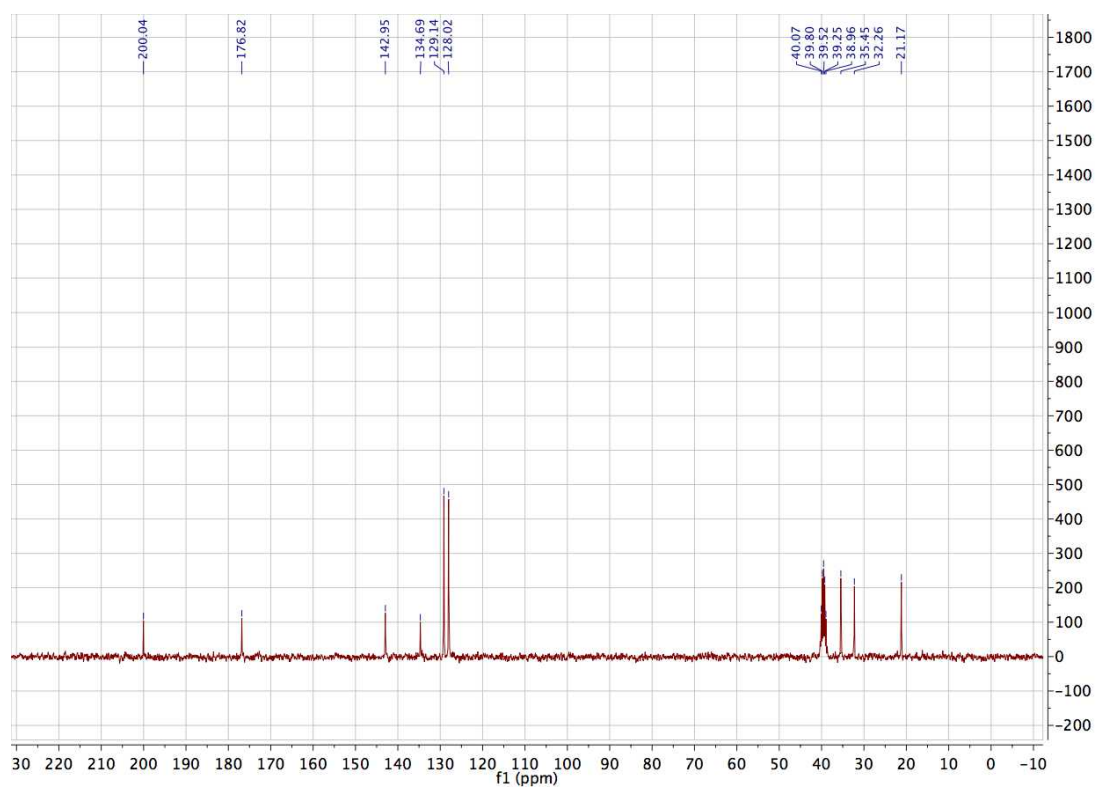


Figure S17:  $^{13}\text{C}$  NMR spectrum of  $\text{Na}(\text{mbp})$  in  $d_6$ -DMSO