ELECTRONIC SUPPLEMENTARY INFORMATION

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Dodecanuclear [Mn$^{III}_6$Ln$^{III}_6$] species: Synthesis, structure and characterization of magnetic relaxation phenomena †

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SYNTHETIC DETAILS

All manipulations were performed under aerobic conditions using materials (reagent grade) and solvents as received.

*General synthetic strategy applicable to 1-2:*

Mn(O₂CPh)₂2H₂O (120.33 mg, 0.33 mmol), Ln(NO₃)₃·6H₂O (0.33 mmol), H₃L (86 mg, 0.33 mmol) and NEt₃ (~ 1 mmol) were dissolved in MeCN (20 mL) forming a yellow suspension that was left upon stirring for ~35’ to yield a dark brown solution. The solution was then filtered and left undisturbed to evaporate slowly at room temperature. Dark-brown single-crystals suitable for X-ray crystallography were formed after ~ 3 days in 30-35% yields, and they were washed with Et₂O and dried in air.

Elemental Anal. calcd (found) for \( \text{1} \)·4MeCN·H₂O: C 45.54 (45.63), H 3.12 (2.98), N 2.33 (2.17); \( \text{2} \)·3MeCN·H₂O: C 45.63 (45.74), H 3.14 (2.99), N 2.34 (2.22) %.

![Experimental PXRD pattern for the Dy analogue (top) compared with the theoretical PXRD pattern of the Gd analogue (bottom).](image)
Fig. S2 IR spectra comparison for the Dy (blue line) and Gd (red line) analogues
Fig. S3 Reduced magnetization plots for compounds 1 (top) and 2 (bottom) at the indicated fields. The solid lines are guides for the eye.