Supplementary Material (ESI) for Dalton Transactions

Structural and Magnetic Studies of original tetranuclear Co^{II}-Ln^{III} complexes (Ln^{III} = Gd, Tb, Y)

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Supplementary Material

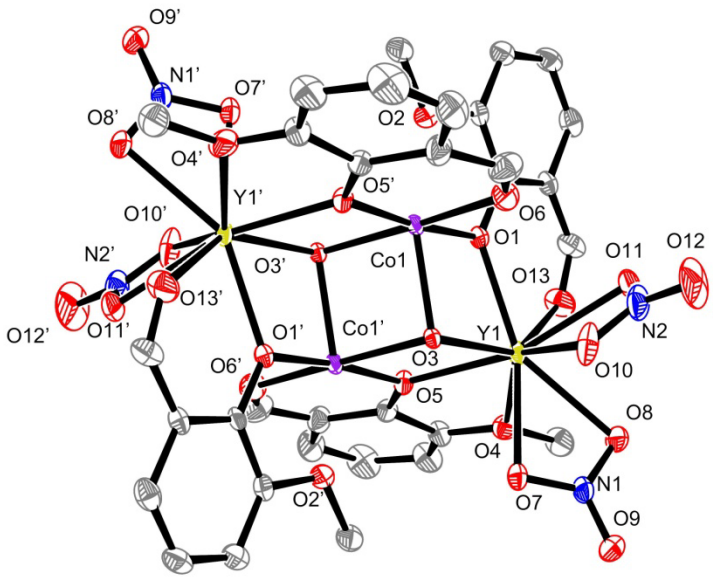

Figure S1. Plot of complex **3** with ellipsoids drawn at the 30 % probability level and with atom numbering. Hydrogen atoms have been omitted for clarity. Selected bond lengths [Å] and angles [°]:Co O1 2.047(4), Co O2 2.177(5), Co O3 2.068(3), Co O3' 2.072(3), Co O5 2.029(4), Co O6 2.074(5), Y O1 2.286 (4), Y O2 2.603(5), Y O3 2.331(3), Y O4 2.603(5), Y O5 2.344(4), Y O7 2.403(4), Y O8 2.452(4), Y O10 2.404(5),Y O11 2.474(5), Y O13 2.352(5), Co1 Y1 3.4201(9), Co1 Y1' 3.4911(9), Co1 Co1' 3.0501(9) Å, Co1'O3 Co1 94.90(14), Co1 O1 Y1 104.12(16), Co1 O3 Y1 101.89(14), Co1' O3 Y1 104.77(14), Co1' O5 Y1 105.72(14), O1 Co1 O3 81.72(14), O1 Co1 O3' 97.83(14), O3' Co1 O3 85.10(14), O5' Co1 O1 172.93(16), O5' Co1 O3 104.87(15), O5' Co1 O3' 80.43(14), O1 Y1 O3 71.33(13), O1 Y1 O5 86.46(13), O3 Y1 O5 69.00(12)°.

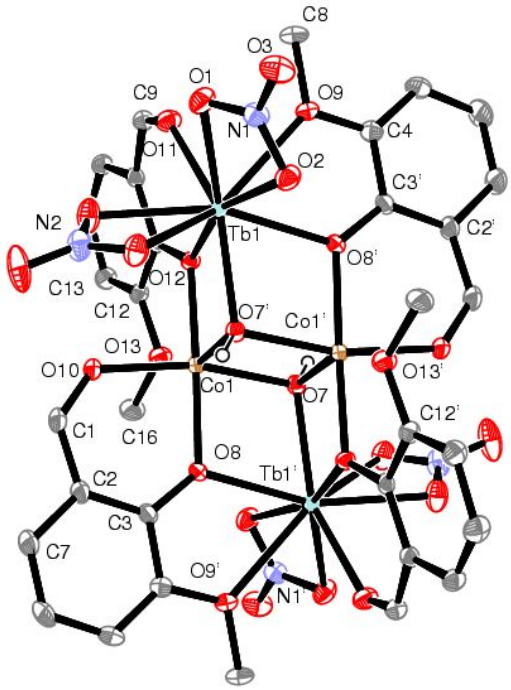

Figure S2. Plot of complex **2** with ellipsoids drawn at the 30 % probability level and with atom numbering. Hydrogen atoms, except for the hydroxo groups, have been omitted for clarity. Selected bond lengths [Å] and angles [°]:Co O1 2.055(2), Co O2 2.182(2), Co O3 2.098(2), Co O3' 2.051(2), Co O5 2.069(2), Co O6 2.057(2), Tb O1 2.325 (2), Tb O2 2.585(3), Tb O3 2.326(2), Tb O4 2.584(2), Tb O5 2.373(2), Tb O7 2.462(2), Tb O8 2.465(2), Tb O10 2.445(3),Tb O11 2.527(2), Tb O13 2.374(2), Co1 Tb1 3.4384(9), Co1 Tb1' 3.5364(9), Co1 Co1' 3.0333(9) Å, Co1'O3 Co1 93.93(8), Co1 O1 Tb1 103.27(9), Co1 O3 Tb1 101.89(9), Co1' O3 Tb1 107.61(8), Co1' O5 Tb1 105.32(8), O1 Co1 O3 82.22(8), O1 Co1 O3' 101.66(8), O3' Co1 O3 86.07(8), O5' Co1 O1 176.31(8), O5' Co1 O3 101.45(8), O5' Co1 O3' 79.13(8), O1 Tb1 O3 71.93(7), O1 Tb1 O5 83.98(7), O3 Tb1 O5 67.90(7)°.

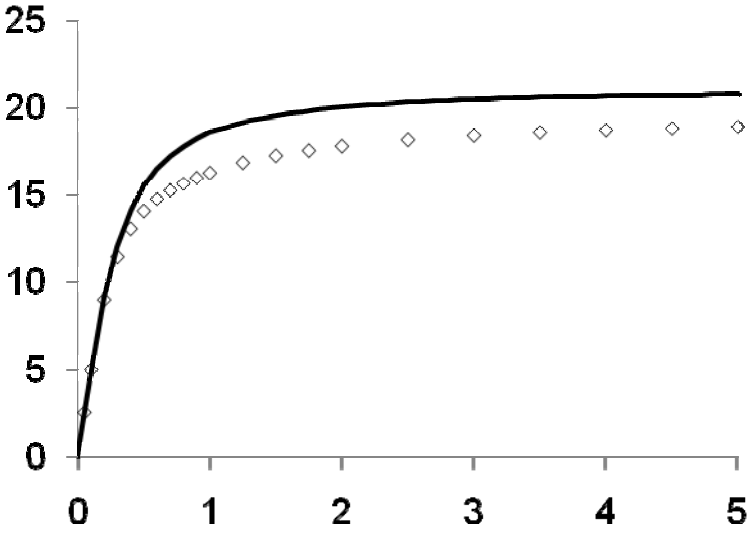

Figure S3. Field dependence of the magnetization for complex **1** at 2 K. The solid line corresponds to the parameters extracted from the χ_MT fit, without a *D* term.

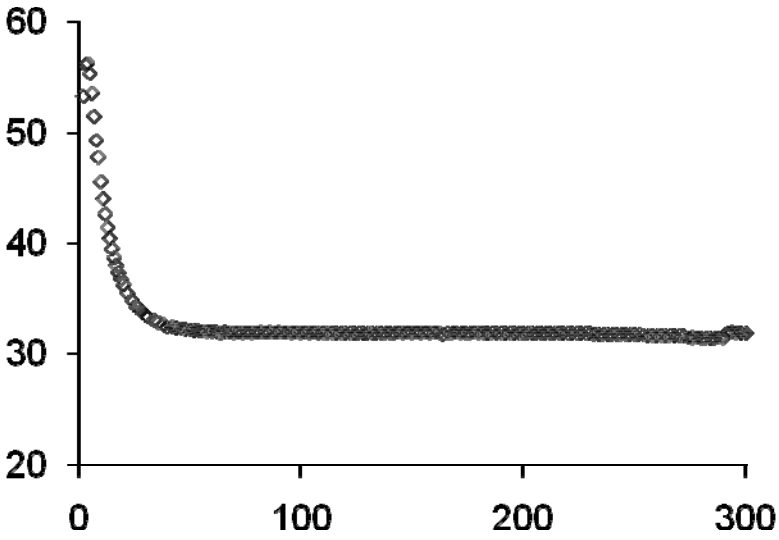

Figure S4. Temperature dependence of the $\chi_M T$ product for complex **2**.