Supporting Information for:

A Promising New Route towards Single-Molecule Magnets Based on the Oxalate Ligand

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Experimental Section

An aqueous solution (20 mL) of $K_2ox{\cdot}H_2O$ (0.184 g, 1 mmol) and $K(HBpz_3)$ (1.01 g, 4 mmol) was added to a stirred aqueous solution (20 mL) of $DyCl_3{\cdot}6H_2O$ (0.754 g, 2 mmol,). The solution was stirred for 5 min, and then cooled in a refrigerator overnight. The resulting white precipitate was filtered off, washed three times with water, and dried under vacuum. The crude product was recrystallized from dichloromethane-acetonitrile several times (yield = 43%). Single crystals, suitable for X-ray diffraction analysis, were obtained by slow evaporation of the solvent from a solution of the compound in dichloromethane–acetonitrile. Anal. Calcd for $C_{43}H_{48}N_{26}O_4B_4Cl_2Dy_2$: C, 36.06; H, 3.38; N, 25.43. Found: C, 35.37; H, 3.24; N, 25.86.

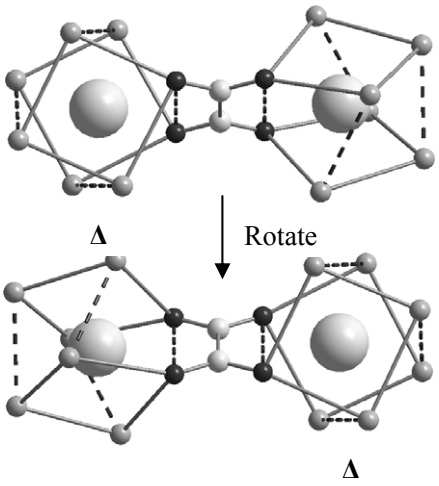

Fig. S1. Absolute coordination configuration around the Dy(III) ions.
Nomenclature of Inorganic Chemistry (IUPAC Recommendations 2005)

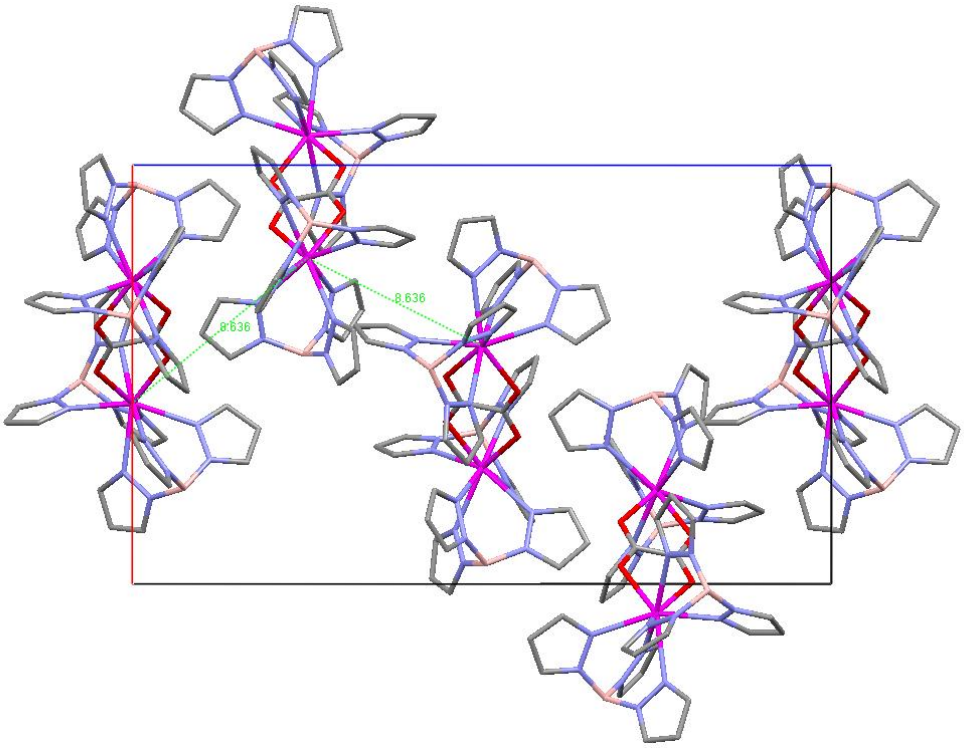

Fig. S2. Packing diagram of compound **1**, showing the shortest intermolecular Dy···Dy distance, between dinuclear [Dy_2] units.

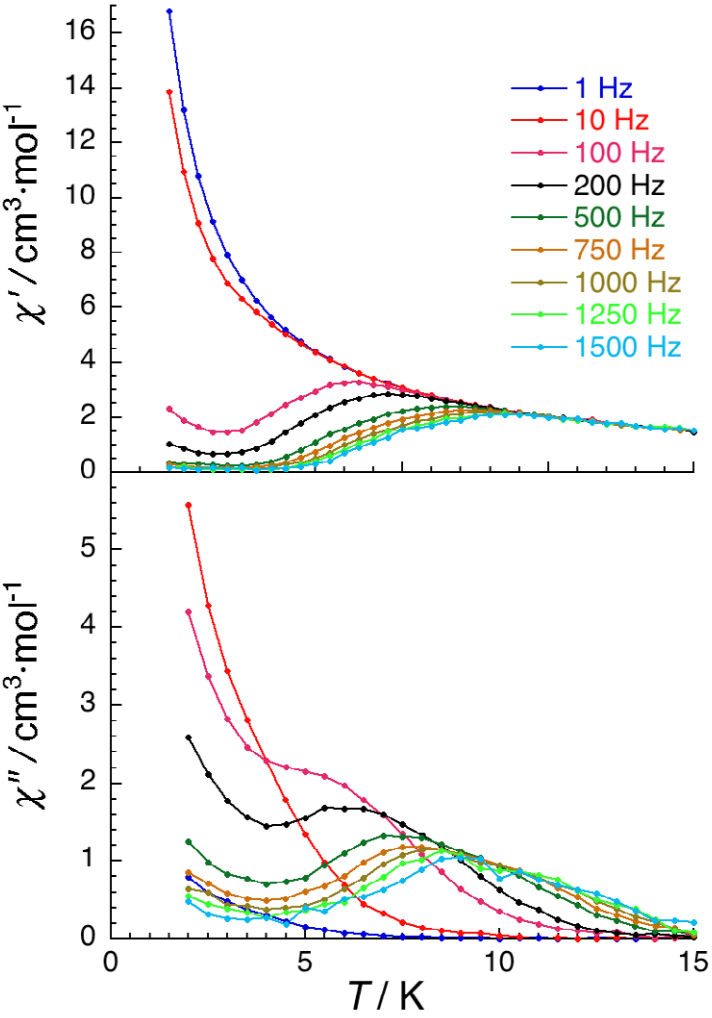

Fig. S3. Temperature dependence of the in-phase (top) and out-of-phase (bottom) ac susceptibility under zero-dc field for **1**.

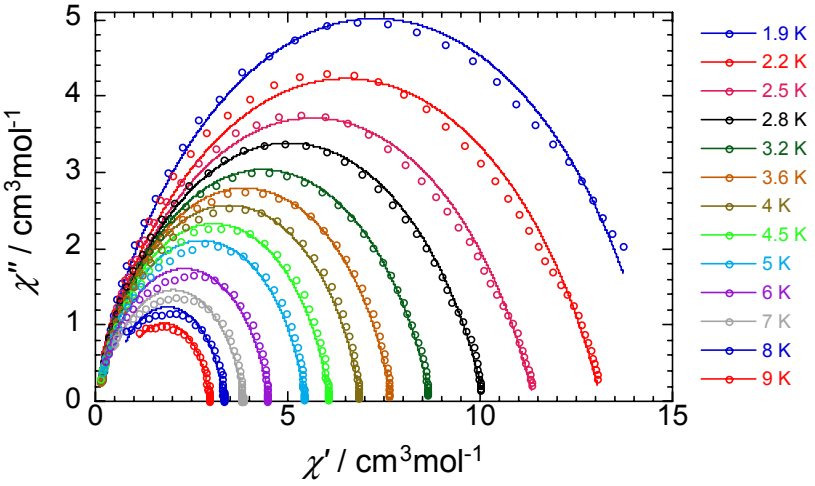

Fig. S4. Cole-Cole plots measured below 9 K and zero-dc field; the solid lines are the best fits to the experimental data, obtained with the generalized Debye model with α parameters below 0.25.

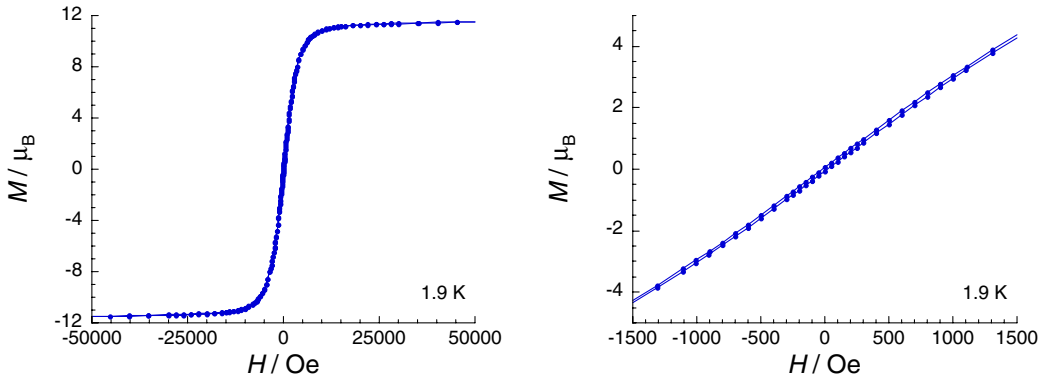

Fig. S5. *M vs*. *H* data of **1** at 1.9 K emphasizing the absence of significant magnetic hysteresis loop at 1.9 K