Supporting Information

Mononuclear manganese(III) complexes as building blocks for the design of trinuclear manganese clusters. Study of the ligand influence on the magnetic properties of the $[Mn_3(\mu_3\text{-}O)]^{7+}$ core.

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Figure S1: Hydrogen bond details complex **2**

Figure S2: Hydrogen bond details complex **3**

Figure S3: Magnetic details at low T for complex **1**.

Table S1. Hydrogen bond details (distances [Å] and angles [°]) for $[Mn_3(\mu_3\text{-}O)(phpzMe)_3(MeOH)_3(OAc)]\cdot 1.5MeOH$ **(2)** and for $[Mn_3(\mu_3\text{-}O)(phpzH)_3(MeOH)_4(N_3)]MeOH$ **(3).**

Donor–H···Acceptor	D–H	H···A	D···A	D–H···A
Complex **2**				
O(5)–H(5D)···O(6)	0.8410	1.9865	2.760(11)	152.59
O(6)–H(6D)···O(7)	0.8438	1.7727	2.613(10)	173.63
O(7)–H(7)···O(2)	0.8398	1.9572	2.780(119	166.42
O(8)–H(8)···O(4)	0.8406	2.2194	2.987(18)	151.76
Complex **3**				
O(2)–H(2A)···O(10)	0.8407	1.9275	2.709(4)	154.04
O(4)–H(4A)···O(2)	0.8419	2.3718	2.951(4)	126.53
O(4)–H(4A)···N(2)	0.8419	2.3629	3.055(5)	139.90
O(6)–H(6A)···N(2)	0.8395	2.5857	3.290(4)	142.23
O(8)–H(8A)···N(1)	0.8408	2.4908	3.113(5)	131.56
O(10)–H(10D)···O(121)	0.8393	2.0974	2.932(4)	173.18

Figure S1. Pluton projection of the complex $[Mn_3(\mu_3\text{-}O)(phpzMe)_3(MeOH)_3(OAc)]$ **(2)** showing the hydrogen bonding interactions. Hydrogen atoms that are not involved in hydrogen bonds have been omitted for clarity. Color code: green, manganese; blue, nitrogen; red, oxygen; grey, carbon.

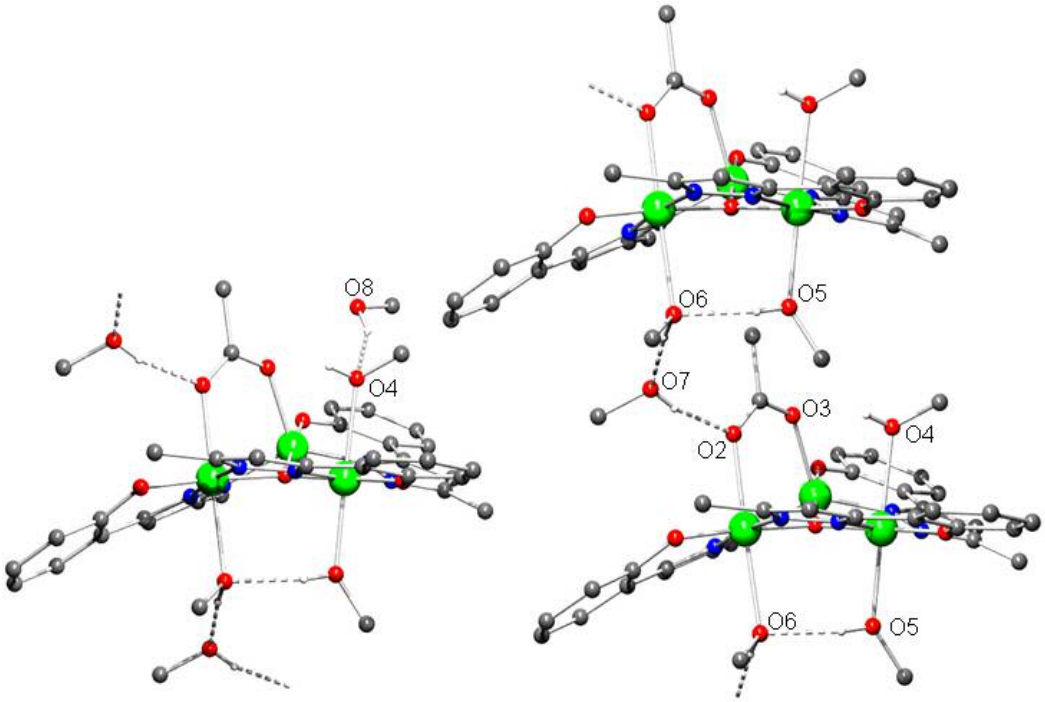

Figure S2. Pluton projection of the complex $[Mn_3(\mu_3\text{-}O)(phpzH)_3(MeOH)_4(N_3)]\cdot MeOH$ **(3)** showing the hydrogen bonding interactions. Hydrogen atoms that are not involved in hydrogen bonds have been omitted for clarity. Color code: green, manganese; blue, nitrogen; red, oxygen; grey, carbon.

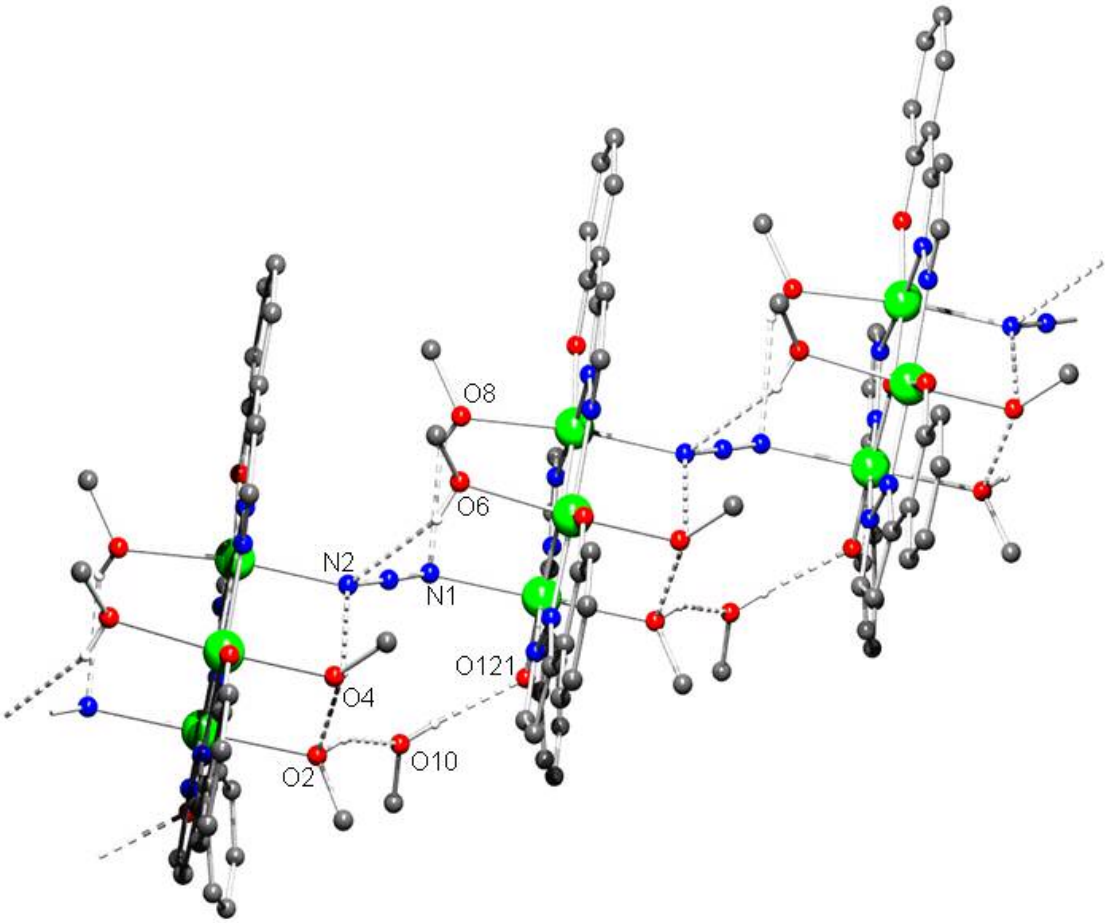
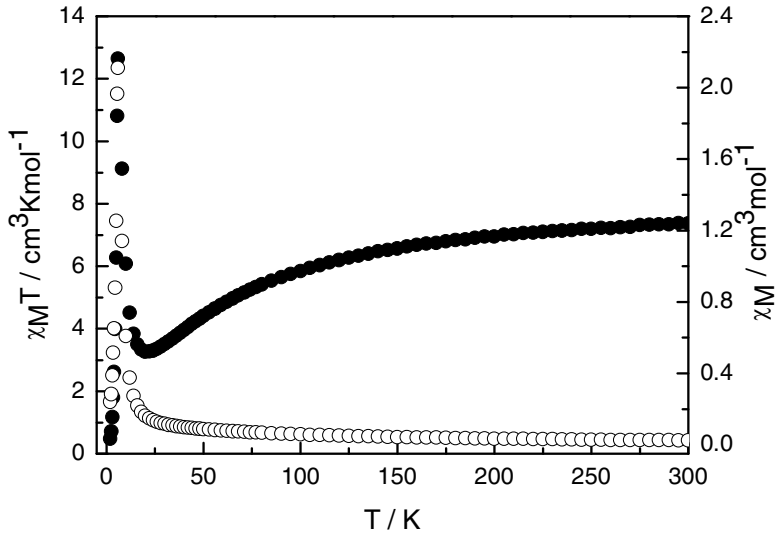
Figure S3. Plot of $\chi_M T$ *vs* T and χ_M *vs* T for **1** in the range 1.8 to 300 K in 0.1 T field.