Electronic Supporting Information

Crystal structures and magnetic properties of chiral heterobimetallic chains based on the dicyanoruthenate building block

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Caption of Content

Table S1 Selected bond lengths (Å) and angles (°) for complex **1-(*SS*)**

Ru(1)-N(1)	1.972(4)	Ru(1)-N(2)	1.990(3)
Ru(1)-O(2)	2.028(3)	Ru(1)-O(1)	2.040(3)
Ru(1)-C(17)	2.085(4)	Ru(1)-C(38)#1	2.077(4)
Mn(1)-O(3)	1.847(3)	Mn(1)-O(4)	1.875(4)
Mn(1)-N(5)	1.978(4)	Mn(1)-N(4)	1.989(4)
Mn(1)-N(3)	2.333(4)	Mn(1)-N(6)	2.346(4)
N(1)-Ru(1)-N(2)	83.10(15)	N(1)-Ru(1)-O(2)	90.16(14)
N(2)-Ru(1)-O(2)	171.09(15)	N(1)-Ru(1)-O(1)	173.18(14)
C(17)-N(3)-Mn(1)	157.9(4)	C(38)-N(6)-Mn(1)	155.6(3)
C(31)-N(4)-Mn(1)	124.8(4)	C(30)-N(4)-Mn(1)	112.3(3)
N(3)-C(17)-Ru(1)	171.4(4)	N(6)-C(38)-Ru(1)#2	175.5(5)
C(24)-N(5)-Mn(1)	123.0(4)	C(25)-N(5)-Mn(1)	113.2(3)
C(16)-O(1)-Ru(1)	124.6(3)	C(1)-O(2)-Ru(1)	122.8(3)
C(18)-O(3)-Mn(1)	125.5(3)	C(37)-O(4)-Mn(1)	128.0(3)

Symmetry transformations used to generate equivalent atoms: #1 x+1, y, z; #2 x−1, y, z

Table S2 Selected bond lengths (Å) and angles (°) for complex **2-(*SS*)**

C(90)-Ru(1)	2.034(7)	C(91)-Ru(1)	2.173(7)
Mn(1)-O(1)	2.032(5)	Mn(1)-N(1)	2.047(6)
Mn(1)-N(2)	2.049(6)	Mn(1)-O(2)	2.063(5)
Mn(1)-N(9)	2.297(7)	Mn(1)-N(10)	2.301(6)
Mn(3)-N(23)	2.352(6)	Mn(3)-N(24)	2.380(6)
Mn(3)-N(18)	2.029(6)	Mn(3)-N(17)	2.037(5)
N(3)-Ru(1)	2.072(6)	N(4)-Ru(1)	2.037(5)
N(7)-Ru(2)	2.023(6)	N(8)-Ru(2)	2.299(6)
O(7)-Ru(2)	2.055(5)	O(8)-Ru(2)	2.018(4)
O(3)-Ru(1)	2.068(4)	O(4)-Ru(1)	2.056(4)
N(9)-C(89)-Ru(2)#1	167.3(7)	N(10)-C(90)-Ru(1)	174.5(6)
N(11)-C(91)-Ru(1)	172.4(6)	N(12)-C(92)-Ru(2)	178.9(6)
N(1)-Mn(1)-N(10)	87.9(2)	N(2)-Mn(1)-N(10)	85.4(2)
O(2)-Mn(1)-N(10)	93.1(2)	N(9)-Mn(1)-N(10)	173.9(2)
C(7)-N(1)-Mn(1)	124.1(4)	C(8)-N(1)-Mn(1)	102.5(4)
C(10)-N(2)-Mn(1)	118.4(5)	C(9)-N(2)-Mn(1)	106.9(4)
C(183)-N(23)-Mn(3)	159.5(6)	C(184)-N(24)-Mn(3)	176.1(6)
C(38)-N(4)-Ru(1)	128.6(5)	C(37)-N(4)-Ru(1)	113.0(4)

Symmetry transformations used to generate equivalent atoms: #1 x, y, z−1; #2 x, y, z+1

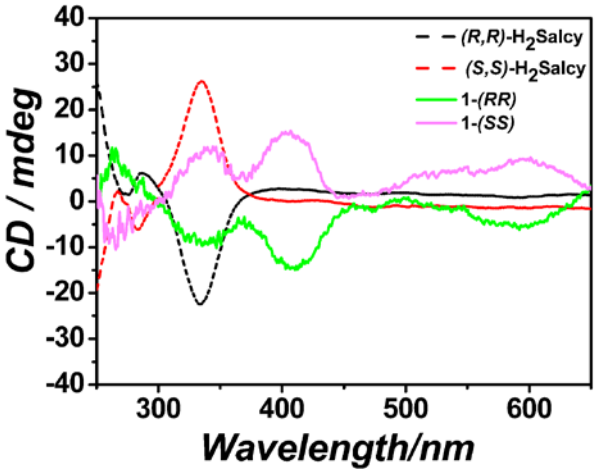

Figure S1. CD spectra of **1**-(*RR*), **1**-(*SS*), (*R*,*R*)-H_2Salcy and (*S*,*S*)- H_2Salcy in KBr pellets.

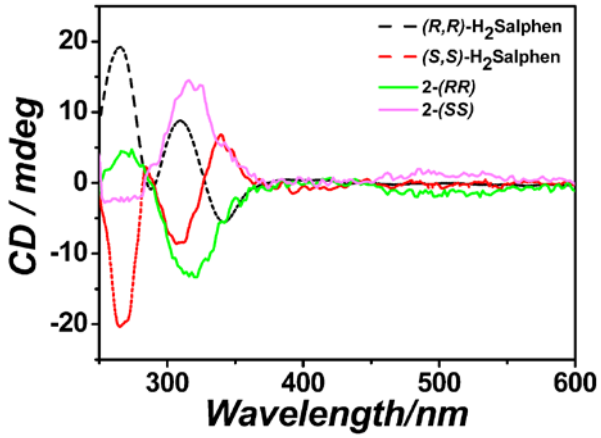

Figure S2. CD spectra of **2**-(*RR*), **2**-(*SS*), (*R*,*R*)-H_2Salphen and (*S*,*S*)- H_2Salphen in KBr pellets.

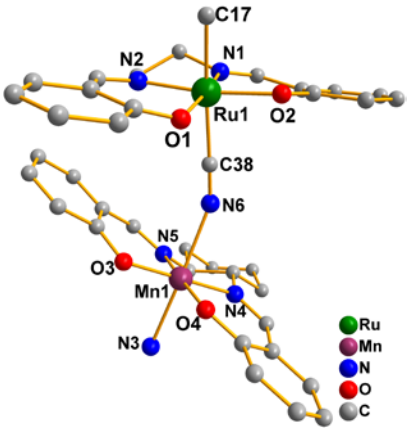

Figure S3. Perspective drawing of the crystallographically structural of unit of **1**-(*SS*) showing the atom numbering. Hydrogen atoms are omitted for clarity.

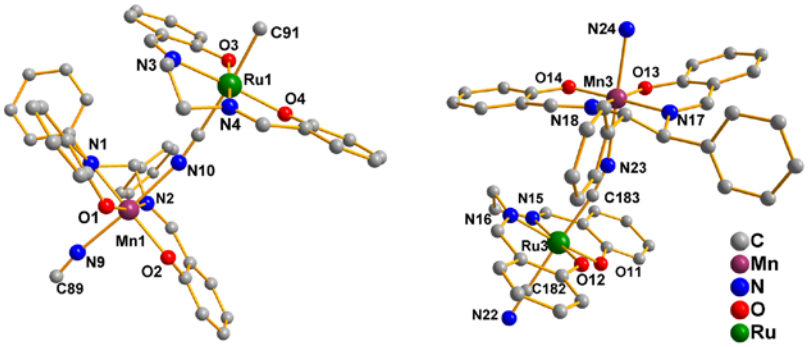

Figure S4. Perspective drawing of the crystallographically structural of unit of **2**-(*SS*) showing the atom numbering. Hydrogen atoms are omitted for clarity.

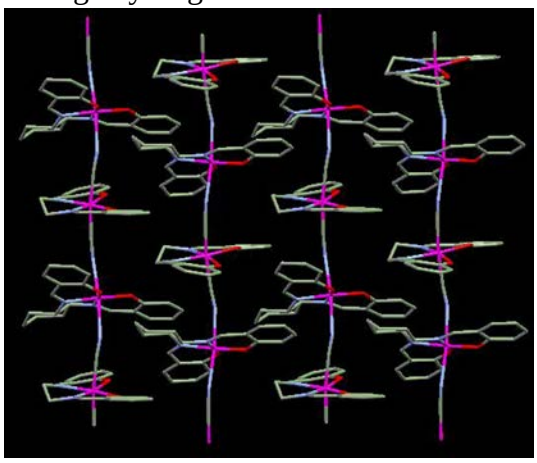

Figure S5. Packing diagram of **1**-(*RR*) showing stacking interactions between the aromatic rings of the salcy ligand.

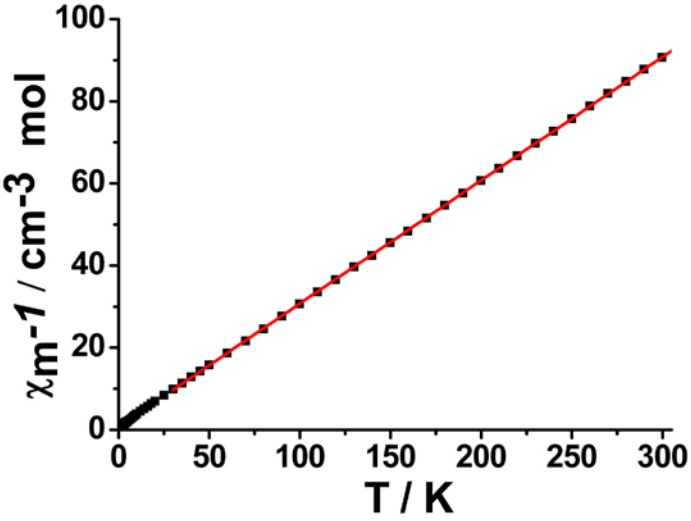

Figure S6. Plot of $1/\chi_M$ vs T for **1**-(*RR*). The red solid line is the fitting result by Curie-Weiss Law.

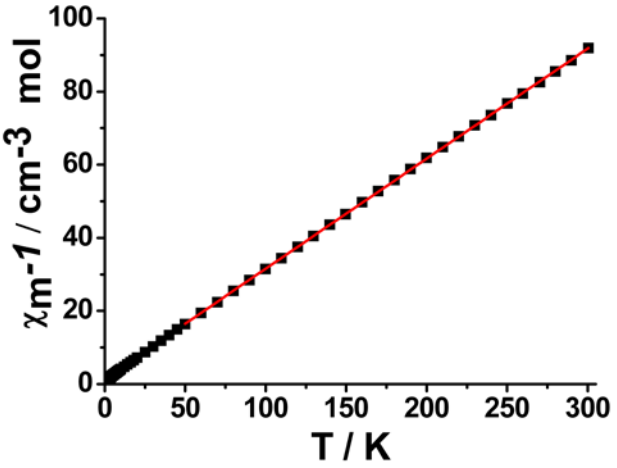

Figure S7. Plot of $1/\chi_M$ vs T for **2**-(*RR*). The red solid line is the fitting result by Curie-Weiss Law.

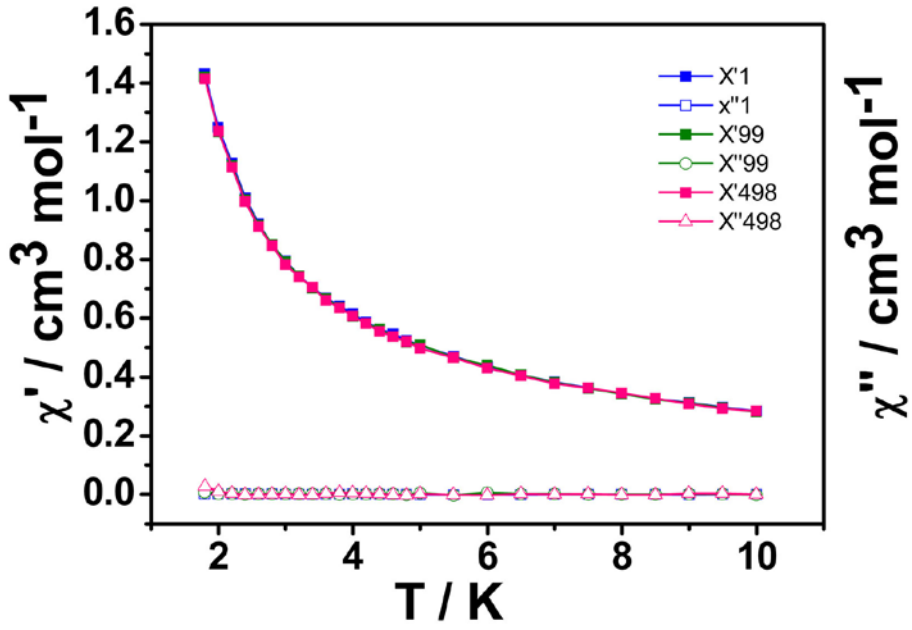

Figure S8. Top: Frequency dependence of the in-of-phase ac susceptibility (χ') of **2**-(*RR*) from 1.9 to 10 K at 0 Oe dc field. Bottom: Frequency dependence of the out-of-phase ac susceptibility (χ'') of **2**-(*RR*) from 1.9 to 10 K at a 0 Oe dc field.