Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Information for

The one pot synthesis of heterobimetallic complexes from a homoditopic pyrimidine-hydrazone ligand

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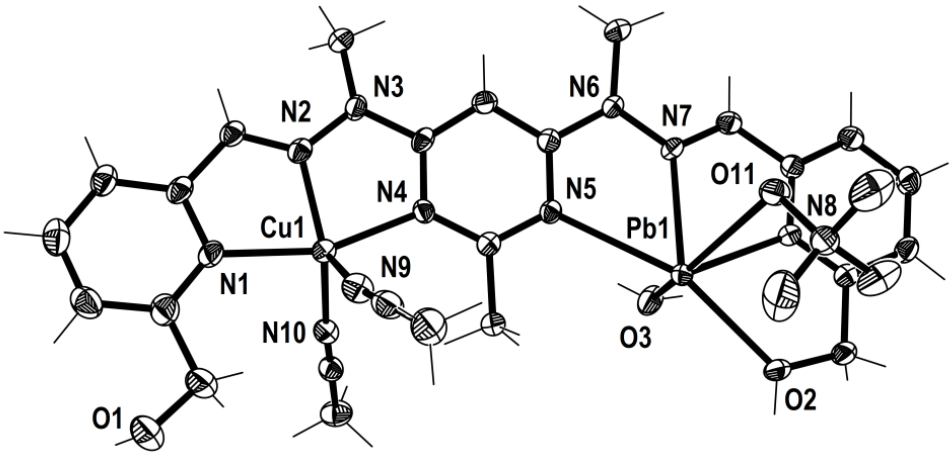
Figures S1-S3. Thermal ellipsoid views of complexes **1-3**.

Tables S1-S3. Selected bond lengths (Å) and angles (°) of complexes **1-3**.

Discussion of Disorder. Complexes **2** and **3** contained $SO_3CF_3^-$ anions which were disordered over two sites. The site occupancy factors for the major components of the disordered anions in complexes **2** and **3** were 0.50, and 0.80, respectively.



Figures S1. View of the $[CuPb\mathbf{L1}(ClO_4)(CH_3CN)_2(H_2O)]^{3+}$ cation of complex **1** (crystallographic numbering). Thermal ellipsoids are drawn at the 50 % probability level.

Table S1. Selected bond lengths (Å) and angles (°) of $[CuPb\mathbf{L1}(ClO_4)(CH_3CN)_2(H_2O)](ClO_4)_3$ (**1**).

Cu1-N1	2.053(5)	Pb1-N8	2.507(5)	N2-Cu1-N10	124.9(2)
Cu1-N2	1.952(5)	Pb1-O2	2.552(4)	N9-Cu1-N10	110.9(2)
Cu1-N4	2.009(5)	Pb1-O11	2.710(4)	N5-Pb1-N7	59.70(19)
Cu1-N9	2.027(5)	Pb1-O3	2.411(4)	N7-Pb1-N8	65.52(15)
Cu1-N10	2.063(6)	N1-Cu1-N2	80.1(2)	N8-Pb1-O2	62.66(14)
Pb1-N5	2.709(5)	N2-Cu1-N4	79.6(2)	O2-Pb1-N5	152.76(15)
Pb1-N7	2.563(5)	N1-Cu1-N4	159.7(2)	O11-Pb1-O3	145.04(16)

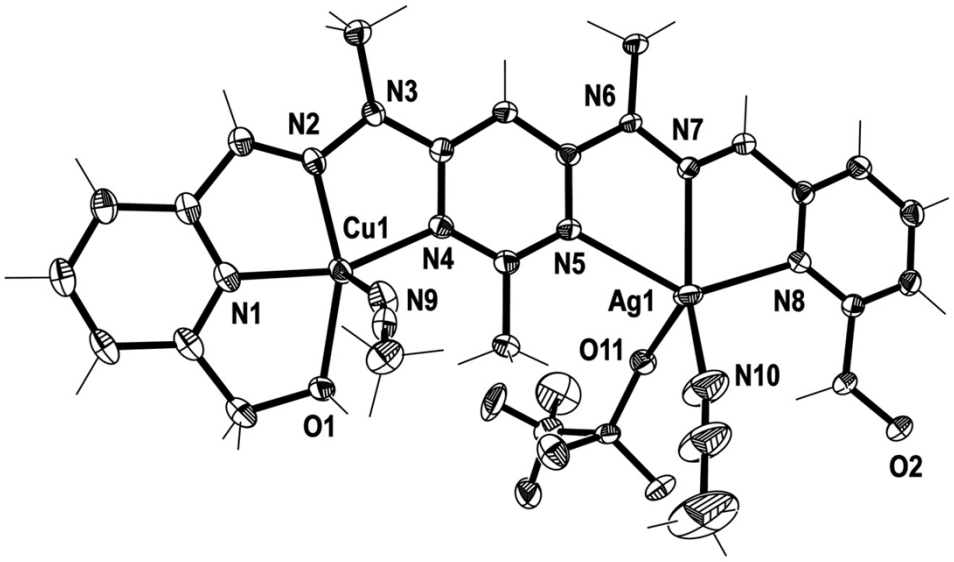


Figure S2. View of the $[CuAg\mathbf{L1}(SO_3CF_3)(CH_3CN)_2]^{2+}$ cation of complex **2** (crystallographic numbering). Thermal ellipsoids are drawn at the 50 % probability level.

Table S2. Selected bond lengths (Å) and angles (°) of $[CuAg\mathbf{L1}(SO_3CF_3)(CH_3CN)_2](SO_3CF_3)_2 \cdot CH_3CN$ (**2**).

Cu1-N1	1.935(2)	Ag1-N8	2.398(2)	N1-Cu1-N4	158.15(9)
Cu1-N2	1.964(2)	Ag1-N10	2.197(3)	N2-Cu1-O1	157.56(8)
Cu1-N4	1.988(2)	Ag1-O11	2.593(7)	N5-Ag1-N7	64.90(7)
Cu1-N9	2.229(2)	N1-Cu1-N2	80.03(9)	N7-Ag1-N8	69.55(7)
Cu1-O1	2.0964(19)	N2-Cu1-N4	79.34(8)	N7-Ag1-N10	148.89(11)
Ag1-N5	2.480(2)	N4-Cu1-O1	120.13(8)	N5-Ag1-N8	134.15(7)
Ag1-N7	2.391(2)	N1-Cu1-N9	97.04(8)	N10-Ag1-O11	101.51(17)

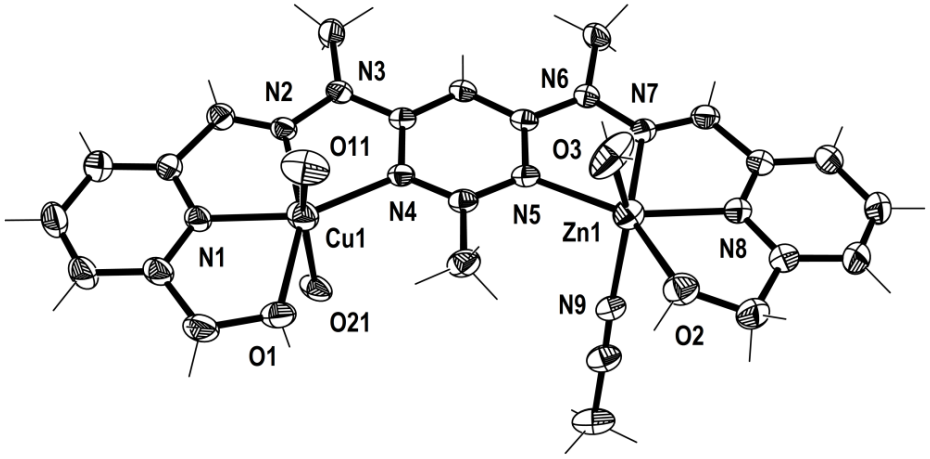


Figure S3. View of the $[CuZn\mathbf{L1}(SO_3CF_3)_2(CH_3CN)(H_2O)]^{2+}$ cation of complex **3** (crystallographic numbering). Thermal ellipsoids are drawn at the 50 % probability level (the $SO_3CF_3^-$ anions coordinated to Cu1 have been simplified to O11 and O21 for clarity).

Table S3. Selected bond lengths (Å) and angles (°) of $CuZn\mathbf{L1}(SO_3CF_3)_2(CH_3CN)(H_2O)](SO_3CF_3)_2 \cdot CH_3CN$ (**3**).

Cu1-N1	1.967(3)	Zn1-N7	2.126(3)	N4-Cu1-O1	125.11(13)
Cu1-N2	2.032(3)	Zn1-N8	2.058(3)	O11-Cu1-O21	161.71(13)
Cu1-N4	2.028(3)	Zn1-N9	2.098(3)	N5-Zn1-N7	73.36(12)
Cu1-O1	2.102(3)	Zn1-O2	2.237(3)	N7-Zn1-N8	75.78(13)
Cu1-O11	2.257(3)	Zn1-O3	2.063(4)	N8-Zn1-O2	72.64(13)
Cu1-O21	2.269(3)	N1-Cu1-N2	78.60(13)	O2-Zn1-N5	138.10(12)
Zn1-N5	2.140(3)	N2-Cu1-N4	77.94(12)	N9-Zn1-O3	145.70(19)