Supporting Information for

1D zigzag chain *vs* 1D helical chain: the role of the supramolecular interactions in the formation of chiral architecture

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General Information. Commercially available reagents were used as received without further purification. Elemental analyses (C,H,N) were performed with a PerkinElmer 240 elemental analyzer. Thermal gravimetric analysis (TGA) was performed under N_2 on a PerkinElmer TGA 7 instrument. Photoluminescence spectra were performed on a Perkin Elmer LS 50B luminescence spectrometer.

Synthesis of 2 with bulk homochiral crystallization: H_2atiip (0.02 g, 0.04 mmol) , $Cd(NO_3)_2 \cdot 4H_2O$ (0.02 g, 0.08 mmol) and (S)-N-(1,2,3,4-tetrahydronaphthalen-1-yl)acetamide (0.01g,0.053mmol) were dissolved in 16 mL mixture of dmf, ethonal and H_2O (v/v = 5:2:1), to which one drop of pyridine was added. The clear solution was allowed to evaporate at 90 º for two days to give colorless block crystals of **2**.

Crystal structure determination of compound 1 and 2: Single-crystal X-ray diffraction was performed using a Bruker Apex II CCD diffractometer equipped with a fine-focus sealed-tube X-ray source ($Mo_{K\alpha}$ radiation, graphite monochromated). Structures were solved

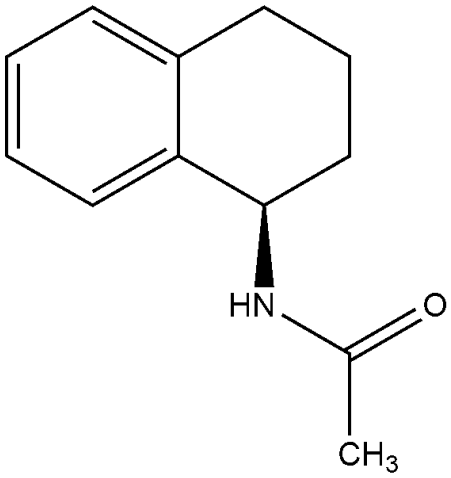
by direct methods using SHELXTL and were refined by full-matrix least-squares on F^2 using SHELX-97. Non-hydrogen atoms were refined with anisotropic displacement parameters during the final cycles. Hydrogen atoms were placed in calculated positions with isotropic displacement parameters set to $1.2 \times U_{eq}$ of the attached atom.

Table S1. Crystal Data Collection and Structure Refinement for compound **1** and **2**

	Compound 1	**Compound 2**
empirical formula	$C_{14}H_8CdI_3N_5O_4$	$C_{14}H_{12}CdI_3N_3O_5$
formula weight	803.35	795.37
temp (K)	298(2)	298(2)
crystal system	Monoclinic	Tetragonal
space group	$P2_1/c$	$P4_32_12$
a (Å)	9.701(2)	11.3689(3)
b (Å)	24.227(5)	11.3689(3)
c (Å)	9.861(2)	16.5658(11)
α(deg)	90	90
β(deg)	111.821(4)	90
γ(deg)	90	90
V (Å^3)	2151.6(8)	2141.16(16)
Z	4	4
ρcalc (g/cm^3)	2.486	2.467
F(000)	1472	1512
data/restraints/params	4889 / 0 / 244	2194/0/125
GOF on $F2$	1.072	1.053
final R indices [$I > 2\sigma(I)$]	R1 = 0.1077, wR2 = 0.2923	R1 = 0.0383, wR2 = 0.0986

Table S2. A summary of the 10 structure determinations of complex **2** ($P4_32_12$) with the R factors and Flack absolute structure parameters for each refinement, after being added chiral (R)-N-(1,2,3,4-tetrahydronaphthalen-1-yl)acetamide as the cosolute.

	a	b	c	$R1$	$wR1$	Flack parameter
2	11.3689(3)	11.3689(3)	16.5658(11)	0.0395	0.1043	0.00(8)
#1	11.3702(10)	11.3702(10)	16.5651(4)	0.0413	0.1137	0.03(8)
#2	11.3687(4)	11.3687(4)	16.5721(15)	0.0492	0.1642	0.07(12)
#3	11.3632(2)	11.3632(2)	16.5725(4)	0.0403	0.1015	0.02(8)
#4	11.3736(10)	11.3736(10)	16.5547(3)	0.0426	0.1082	0.04(8)
#5	11.3672(10)	11.3672(10)	16.5682(4)	0.0386	0.1098	0.04(7)
#6	11.3591(2)	11.3591(2)	16.5835(5)	0.0415	0.1105	0.07(8)
#7	11.3682(10)	11.3682(10)	16.5606(4)	0.0406	0.1118	-0.02(8)
#8	11.3685(10)	11.3685(10)	16.5636(3)	0.0434	0.1105	0.05(8)
#9	11.3702(2)	11.3702(2)	16.5670(5)	0.0497	0.1114	0.04(10)



(*R*)-*N*-(1,2,3,4-tetrahydronaphthalen-1-yl)acetamide

Figure S1. (*R*)-N-(1,2,3,4-tetrahydronaphthalen-1-yl)acetamide.

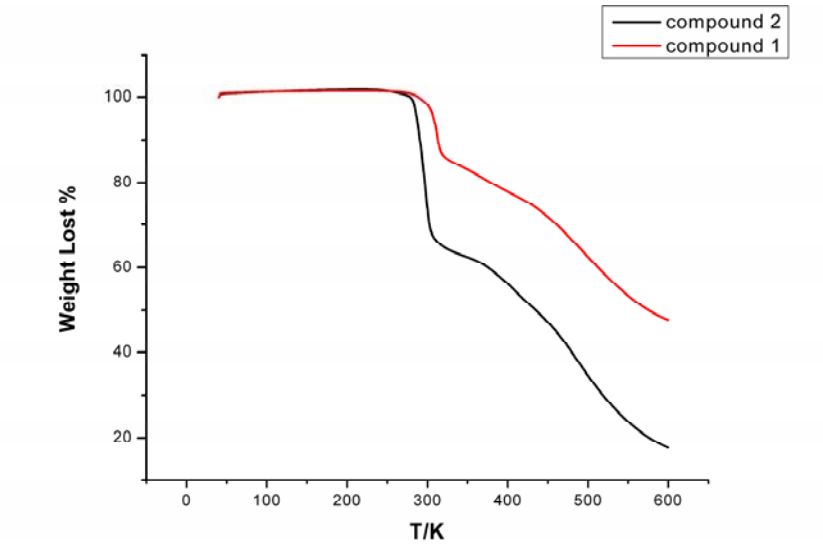


Figure S2. TGA for complexes **1** and **2**.

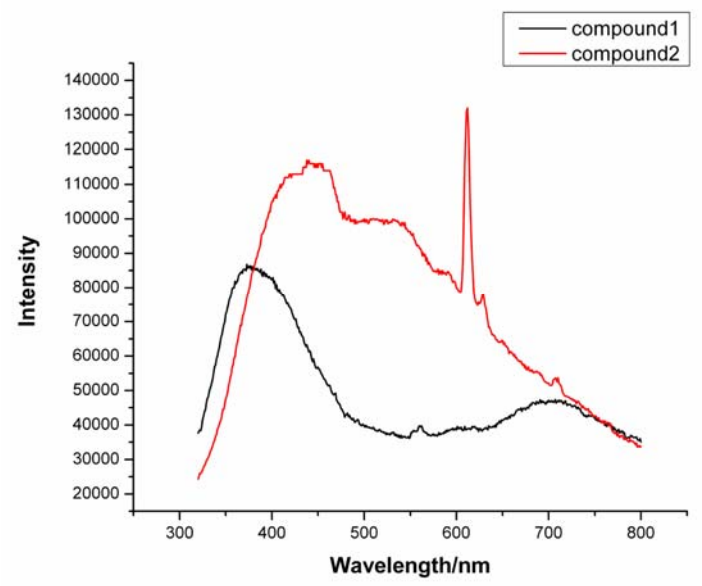


Figure S3. Photoluminescence emission spectra for compound **1**and **2** in the solid state at room temperature.