Electronic Supplementary Information

Single source precursor routes for synthesis of PdTe nanorods and particles: solvent dependent control of shapes

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Experimental details

Physical measurements

The C, H and N analyses were carried out with a Perkin-Elmer 2400 Series II C, H and N analyzer. The ^1H, $^{13}C\{^1H\}$ and $^{77}Se\{^1H\}$ NMR spectra were recorded on a Bruker Spectrospin DPX-300 NMR spectrometer at 300.13, 75.47 and 57.24 MHz respectively. IR spectra in the range 4000-400 cm^{-1} were recorded on a Nicolet Protége 460 FT-IR spectrometer as KBr pellets. High resolution mass spectral (HR-MS) measurements were performed with electron spray ionization (10 *eV*, 180 °C source temperature) and using sodium formate as calibrant on a Bruker MIcroTOF-Q II, taking sample in CH_3CN. The diffraction data on single crystals of **1** and **2** were collected on a Bruker AXS SMART Apex CCD diffractometer using Mo-*Ka* (0.71073 Å) radiations at 298(2) K. The software SADABS[1] was used for absorption correction (if needed) and SHELXTL for space group, structure determination and refinements.[2] All non–hydrogen atoms were refined anisotropically. Hydrogen atoms were included in idealized positions with isotropic thermal parameters set at 1.2 times that of the carbon atom to which they are attached. The least-square refinement cycles on F^2 were performed until the model converged. High-resolution TEM characterization revealing particle sizes and shapes was performed with a Philips Tecnai F20 operated at 200 kV. Samples for high resolution transmission electron microscopy

(HR-TEM) were prepared by drying a drop of dispersion of nano-crystals in ethanol on carbon-coated copper grid. The elemental composition of NPs were studied with a Carl ZEISS EVO5O scanning electron microscope (SEM) and associated EDX system Model QuanTax 200, which is based on the SDD technology and provides an energy resolution of 127 eV at Mn-*K*α. Sample was mounted on a circular metallic sample holder with a sticky carbon tape. The melting points determined in an open capillary are reported as such. Yields refer to isolated yields of compounds which have purity ≥ 95%.

Chemicals and reagents

4-Bromopyrazole, sodium borohydride, palladium(II) chloride procured from Sigma-Aldrich (USA) were used as received. 4–Bromo–1–(2–chloroethyl)–1*H*–pyrazole was prepared by the method reported earlier.[3] All the solvents were dried and distilled before use by standard procedures.[4] The common reagents and chemicals available commercially within the country were used.

Synthesis of L1

Ditelluride (0.469 g, 1.0 mmol) dissolved in 30 mL of EtOH was stirred under reflux in N_2 atmosphere. Sodium borohydride (0.076 g, 2.0 mmol) was added to it as solid so that it became colorless due to the formation of (p-$MeOC_6H_4$)TeNa. 4–Bromo–1–(2–chloroethyl)–1*H*–pyrazole (0.419 g, 2.0 mmol) dissolved in 10 mL of ethanol was added to the colorless solution with constant stirring and the mixture was further refluxed for 5 h. It was extracted with chloroform (4 × 25 mL). The extract was washed with water (3 × 40 mL) and dried over anhydrous sodium sulphate. The solvent from extract was evaporated off under reduced pressure on a rotary evaporator to get **L1** as yellow oil.

Yield: 0.718 g, 88%. ^{1}H NMR ($CDCl_3$, 25 °C vs Me_4Si): δ (ppm) 3.15 (t, $^3J_{H–H}$ = 7.199 Hz, 2H, H_5), 3.80 (s, 3H, OCH_3), 4.38 (t, 2H, $^3J_{H–H}$ = 7.20 Hz, H_6), 6.73-7.78 (m, 2H, H_2), 7.35 (s, 1H, H_7), 7.40 (s, 1H, H_9), 7.66-7.68 (m, 2H, H_3). ^{13}C{^{1}H} NMR ($CDCl_3$, 25 °C vs Me_4Si): δ (ppm) 6.9 (C_5), 54.6 (C_6), 55.2 (OCH_3), 92.8 (C_8), 99.4 (C_1), 115.40 (C_2), 129.0 (C_7), 140.0 (C_9), 141.4 (C_3), 160.15 (C_4). ^{125}Te{^{1}H} NMR ($CDCl_3$, 25 °C vs Me_2Te): δ (ppm). 457.1. HR-MS (CH_3CN) $[M + Na]^+$ (m/z) = 432.9148; calculated value for $[C_{12}H_{13}BrN_2NaOTe]^+$ = 432.9157 (δ: 2.2 ppm). IR (KBr, cm^{-1}): 2929 (m; $\nu_{C–H\ aromatic}$), 2843 (s; $\nu_{C–H\ aliphatic}$), 1580 (s; $\nu_{C=N\ aromatic}$), 1485 (s; $\nu_{C=C\ aromatic}$), 1288 (m; $\nu_{C–N\ aliphatic}$), 817 (m; $\nu_{C–H\ aromatic}$).

Synthesis of L2

Tellurium powder (0.127 g, 1.0 mmol) added in 30 mL of ethanol were stirred under reflux in N_2 atmosphere. Solid sodium borohydride (0.074 g, 2.0 mmol) was added to it so that it became colourless. 4–Bromo–1–(2–chloroethyl)–1*H*–pyrazole (0.418 g, 2.0 mmol) dissolved in 10 mL of ethanol was added with constant stirring and the mixture stirred with refluxing further for 5 h. It was extracted with chloroform (4 × 25 mL). The extract was washed with water (3 × 40 mL) and dried over anhydrous sodium sulphate. The solvent was evaporated off under reduced pressure on a rotary evaporator to get **L2** as yellow oil.

Yield: 0.404 g, 85%. ^{1}H NMR ($CDCl_3$, 25 °C vs Me_4Si): δ (ppm) 2.92 (t, $^3J_{H–H}$ = 7.2 Hz, 4H, H_5), 4.37 (t, $^3J_{H–H}$ = 7.2 Hz, 4H, H_4), 7.43 (s, 2H, H_3), 7.47 (s, 2H, H_1). ^{13}C{^{1}H} NMR ($CDCl_3$, 25 °C vs Me_4Si): δ (ppm) 2.3 (C_5), 54.8 (C_4), 92.9 (C_2), 129.3 (C_3), 140.1 (C_1). ^{125}Te{^{1}H} NMR ($CDCl_3$, 25 °C vs Me_2Te): δ (ppm). 238.6. HR-MS (CH_3CN) $[M + Na]^+$ (m/z) = 498.8347; calculated value for $[C_{10}H_{12}Br_2N_4NaTe]^+$ = 498.8384 (δ: 7.6 ppm). IR (KBr, cm^{-1}): 2924 (m; $\nu_{C–H\ aromatic}$), 2857 (s; $\nu_{C–H\ aliphatic}$), 1595 (s; $\nu_{C=N\ aromatic}$), 1445 (s; $\nu_{C=C\ aromatic}$), 1299 (m; $\nu_{C–N\ aliphatic}$), 800 (m; $\nu_{C–H\ aromatic}$).

Synthesis of [Pd(L1)Cl$_2$] complex (1)

Solid [Pd(CH$_3$CN)$_2$Cl$_2$] (0.052 g, 0.2 mmol) taken in CH$_3$CN (20 mL) was stirred under reflux until a clear light yellow colored solution was obtained. The **L1** (0.082 g, 0.2 mmol) dissolved in CH$_3$CN (5 mL) was added. The reaction mixture was further refluxed for 5 h. It was cooled thereafter to room temperature, concentrated upto 7 mL on a rotary evaporator and mixed with diethyl ether (10 mL). The complex **1** resulting as orange colored solid was filtered, washed with diethyl ether (10 mL) and dried in *vacuo*. Single crystals of **1** were grown by slow evaporation of its solution in DMSO.

Yield: 0.108 g, 92%. Anal. Calcd for C$_{12}$H$_{13}$BrCl$_2$N$_2$OPdTe: C, 24.59; H, 2.24; N, 4.78. Found: C, 24.67; H, 2.06; N, 5.40. Mp 190.0 °C. ^{1}H NMR (CDCl$_3$, 25 °C vs Me$_4$Si): δ (ppm) 2.61 (bs, 1H, H$_5$), 2.97-3.03 (m, 1H, H$_5$), 3.31 (s, 3H, OCH$_3$), 4.77-4.84 (m, 1H, H$_6$), 5.01-5.04 (m, 1H, H$_6$), 4.77-4.88 (m, 1H, H$_6$), 5.01-5.04 (m, 1H, H$_6$), 6.97-6.99 (m, 2H, H$_2$), 7.86-7.88 (m, 2H, H$_3$), 8.10 (s, 1H, H$_7$), 8.33 (s, 1H, H$_9$). ^{13}C{^{1}H} NMR (CDCl$_3$, 25 °C vs Me$_4$Si): δ (ppm) 18.3 (C$_5$), 52.7 (C$_6$), 55.2 (OCH$_3$), 92.4 (C$_8$), 109.0 (C$_1$), 115.4 (C$_2$), 135.2 (C$_7$), 137.8 (C$_3$), 144.0 (C$_9$), 160.6 (C$_4$). ^{125}Te{^{1}H} NMR (CDCl$_3$, 25 °C vs Me$_2$Te): δ (ppm). 683.9. HR-MS (CH$_3$CN) $[M - Cl]^+$ (*m*/*z*) = 550.7967; calulated value for $[C_{12}H_{13}BrClN_2PdTe]^+$ = 550.7989 (δ: 3.9 ppm). IR (KBr, cm^{-1}): 3113 (m; $\nu_{\text{C–H aromatic}}$), 2992 (s; $\nu_{\text{C–H aliphatic}}$), 1578 (s; $\nu_{\text{C=N aromatic}}$), 1488 (m; $\nu_{\text{C=C aromatic}}$), 1295 (m; $\nu_{\text{C–N aliphatic}}$), 819 (m; $\nu_{\text{C–H aromatic}}$).

Synthesis of [Pd(L2)Cl]BF$_4$ complex (2)

Solid [Pd(CH$_3$CN)$_2$Cl$_2$] (0.052 g, 0.2 mmol) taken in CH$_3$CN (20 mL) was stirred under reflux until a clear light yellow colored solution was obtained. The solution of ligand **L2** (0.095 g, 0.2 mmol) dissolved in CH$_3$CN (5 mL) was added. The reaction mixture was further refluxed for 5 h. Thereafter solid AgBF$_4$ (0.038 g, 0.2 mmol) was added and the mixture refluxed further for 2 h.

It was cooled to room temperature and precipitated AgCl was filtered off through celite. The filtrate was concentrated to 5 mL on a rotary evaporated and mixed with diethyl ether (10 mL) to obtain **2** as yellow solid, which was filtered and dried in *vacuo*. The single crystals of **2** were grown by slow evaporation of its solution in CH_3CN.

Yield: 0.591 g, 84%. Anal. Calcd for $C_{10}H_{12}BBr_2ClF_4N_4PdTe$: C, 17.05; H, 1.72; N, 7.95. Found: C, 17.92; H, 1.67; N, 8.63. Mp 170.0 °C. ^1H NMR ($CDCl_3$, 25 °C vs Me_4Si): δ (ppm) 2.85-2.92 (m, 2H, H_5), 3.28-3.32 (m, 2H, H_5), 5.21-5.32 (m, 2H, H_4), 5.40-5.45 (m, 2H, H_4), 7.97 (s, 2H, H_3), 8.37 (s, 2H, H_1). $^{13}C\{^1H\}$ NMR ($CDCl_3$, 25 °C vs Me_4Si): δ (ppm) 17.8 (C_5), 55.7 (C_4), 93.1 (C_8), 135.8 (C_3), 144.0 (C_1). $^{125}Te\{^1H\}$ NMR ($CDCl_3$, 25 °C vs Me_2Te): δ (ppm). 697.9. HR-MS (CH_3CN) $[M - BF_4]^+$ (*m*/*z*) = 616.7175; calulated value for $[C_{10}H_{12}Br_2ClN_4PdTe]^+$ = 616.7193 (δ: 3.0 ppm).IR (KBr, cm^{-1}): 3123 (m; $\nu_{C–H\ aromatic}$), 2923 (s; $\nu_{C–H\ aliphatic}$), 1641 (s; $\nu_{C=N\ aromatic}$), 1446 (m; $\nu_{C=C\ aromatic}$), 1303 (m; $\nu_{C–N\ aliphatic}$), 844 (m; $\nu_{C–H\ aromatic}$).

Synthesis of PdTe nano-structures

(a) Thermolysis of 1 and 2 in OA-ODE

A mixture of OA-ODE (3 mL/3 mL) and **1**/**2** (0.586/0.704 g, 1.0 mmol) was heated to 220 ºC under N_2 atmosphere in a three neck flask for 2 h with continuous stirring. The colour of the mixture changed from dark red to red-brown within 30 min and brown-black precipitate started appearing thereafter. The mixture was cooled to room temperature and 20 mL of acetone was added into the flask to obtain a brown-black precipitate which was separated by centrifugation. The precipitate was washed three times with methanol (20 mL) and dried in vacuo.

(b) Thermolysis of 1 and 2 in TOP

A mixture of TOP (3 mL/3 mL) and **1**/**2** (0.586/0.704 g, 1.0 mmol) was heated to 220 ºC under N_2 atmosphere in a three neck flask for 2 h with continuous stirring. The colour of the mixture changed from dark red to red-brown within 30 min and brown-black precipitate started appearing thereafter. The mixture was cooled to room temperature and 20 mL of acetone was added into the flask to obtain a brown-black precipitate which was separated by centrifugation. The precipitate was washed three times with methanol (20 mL) and dried in vacuo.

Solubility of ligands and complexes in common solvents

The yellow solids **1** and **2** were found air stable and thermally robust. The ligands **L1**, **L2** were found soluble in common organic solvents. The complex **1** shows good solubility in DMF and DMSO. It has been found sparingly soluble in CH_3CN, CH_2Cl_2 and $CHCl_3$. In CH_3OH, diethyl ether, THF and hexane it has negligible solubility. On the other hand complex **2** has been found soluble in DMF, DMSO and CH_3CN, sparingly soluble in CH_2Cl_2, and $CHCl_3$ and insoluble in diethyl ether, hexane and CH_3OH.

TEM images of PdTe nanostructures and their stability against aggregation over time

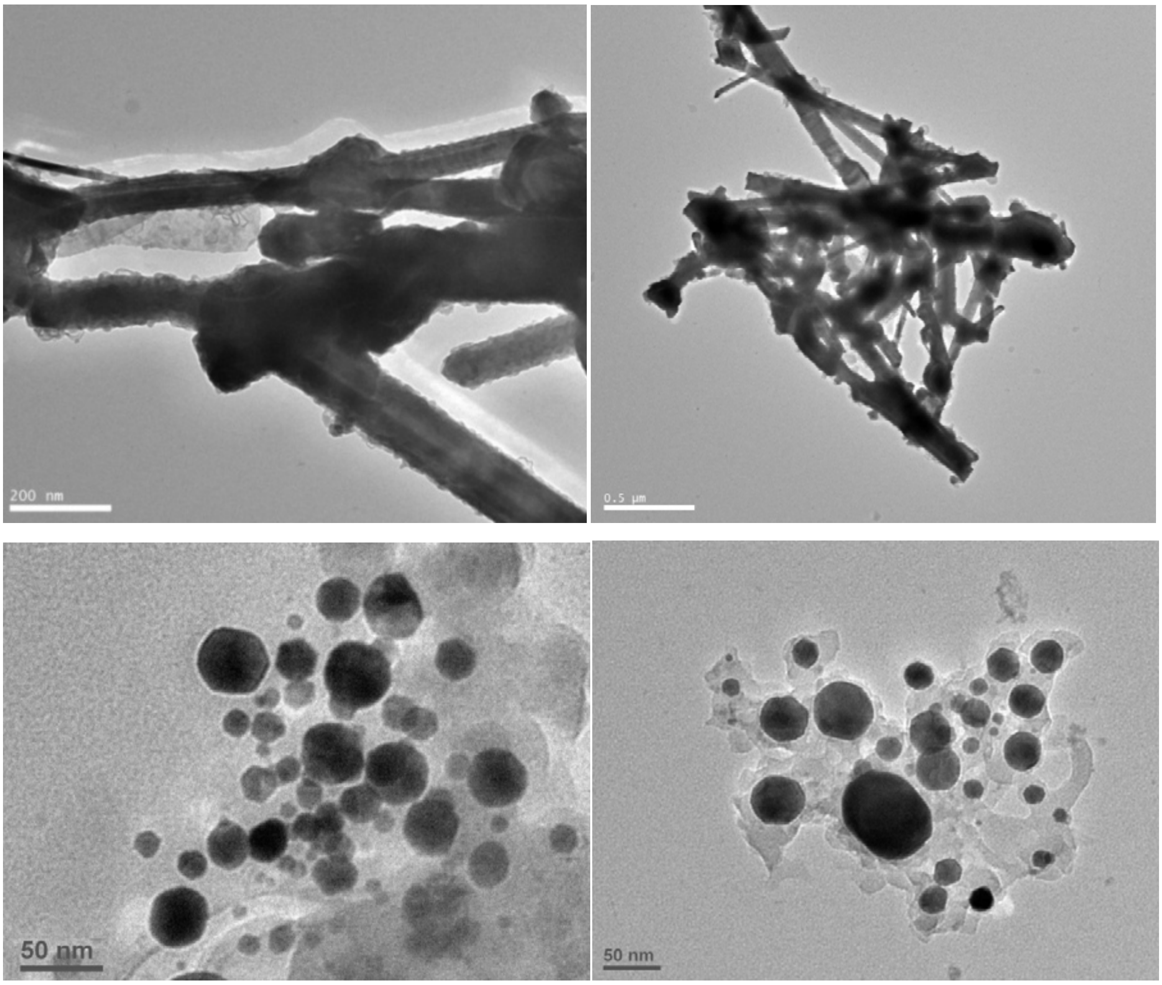


Figure S1. TEM Images of freshly prepared nanostructures

TEM images of freshly prepared PdTe nanostructures (nanorod and hexagonal nanoparticles) are shown in Figure S1. To understand the stability of nanoparticles with time, TEM images were taken after two months of their preparation and shown in Figure S2. The nanostructures (nanorod and hexagonal nanoparticles) show slight aggregation as compared to that of freshly prepared sample. Thus their instability is not much.

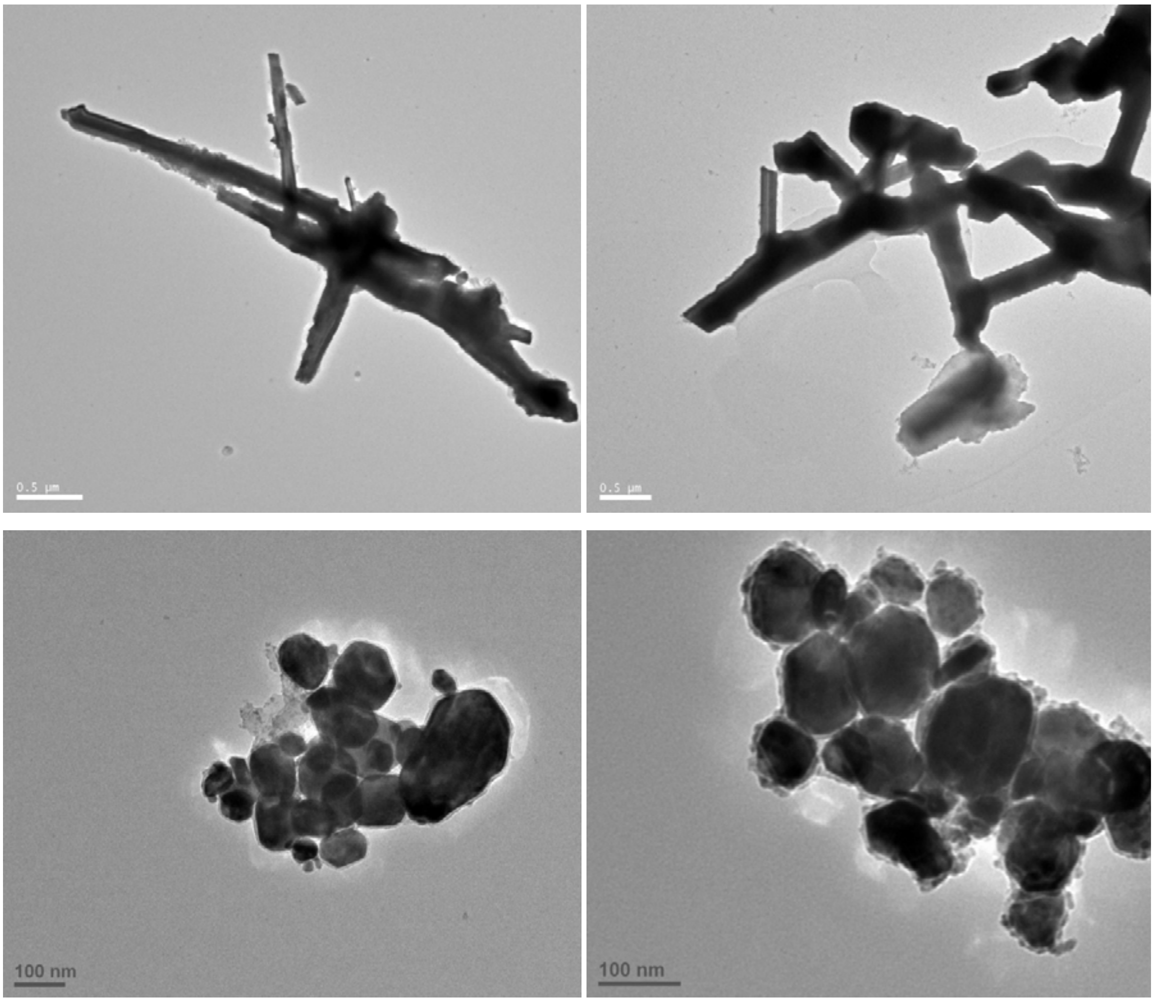


Figure S2. TEM images of PdTe nanostructures after two months

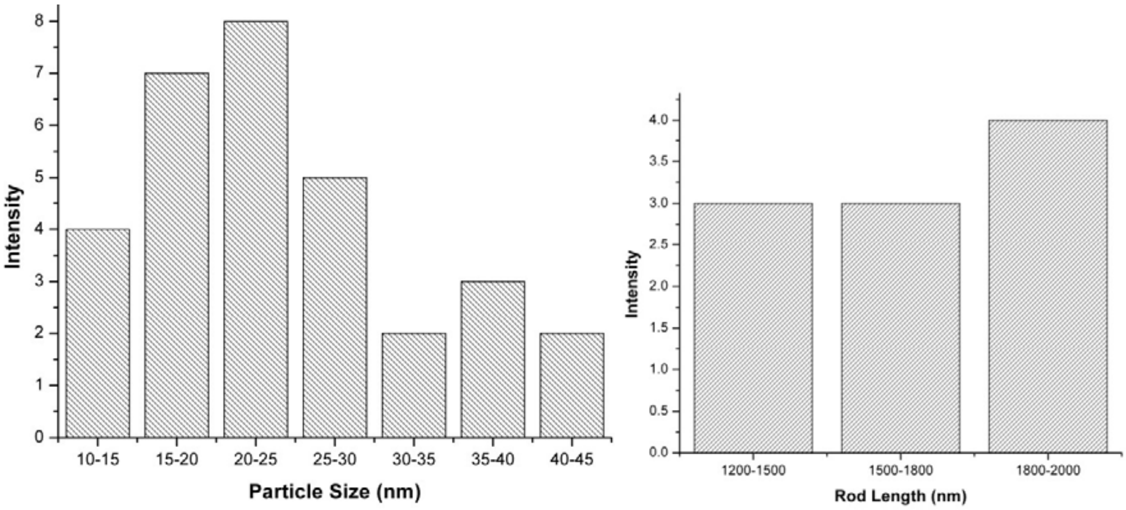


Figure S3. Size distribution curve of PdTe hexagonal nanoparticles and nanorod.

Table S1. Crystal data and structural refinement parameters

Compounds	**1**	**2**
Empirical formula	$C_{12}H_{13}BrCl_2N_2OPdTe$	$C_{10}H_{12}Br_2ClN_4PdTe. BF_4$
Formula wt.	586.04	704.30
Crystal size [mm]	0.35×0.23×0.22	0.35×0.25×0.21
Crystal system	Triclinic	Monoclinic
Space group	*P-1*	*P 21/c*
Unit Cell dimension	a = 8.2495(14)Å b = 10.2881(18) c = 10.6749(18) α = 75.921(3)° β = 68.737(3)° γ = 88.690(3)°	a = 15.213(6) b = 11.222(5) c = 11.102(5) α = 90.00 β = 102.930(7) γ = 90.00
Volume [$Å^3$]	816.8(2)	1847.1(13)
Z	2	4
Density (Calc.) [$Mg\cdot m^{-3}$]	2.383	2.552
Absorption coeff. [mm^{-1}]	5.655	7.061
F(000)	548.0	1304.0
θ range [°]	2.55–28.07	2.34–24.18
Index ranges	$-9 \leq h \leq 9$ $-12 \leq k \leq 12$ $-12 \leq l \leq 12$	$-18 \leq h \leq 18$ $-13 \leq k \leq 13$ $-13 \leq l \leq 13$
Reflections collected	7657	17275
Independent reflections ($R_{int.}$)	2839 (0.0370)	3251(0.0429)
Max./min. Transmission	0.291/0.226	0.082/0.035
Data/restraints/parameters	2839/0/182	3251/0/217
Goodness-of-fit on F^2	1.041	1.117
Final R indices [$I > 2\sigma(I)$]	$R_1 = 0.0380$, $wR_2 = 0.0980$	$R_1 = 0.0832$ $wR_2 = 0.1023$
R indices (all data)	$R_1 = 0.0421$, $wR_2 = 0.1005$	$R_1 = 0.0518$ $wR_2 = 0.1065$
Largest diff. peak/hole [e.$Å^{-3}$]	1.778/–1.178	0.576/–0.688

Table S2. Selected bond lengths [Å] and bond angles [^{o}]

Compounds	Bond length [Å]		Bond angle [^{o}]	
1	Pd(1)—Te(1)	2.5116(6)	Cl(1)—Pd(1)—Te(1)	82.02(4)
	Pd(1)—N(2)	2.036(4)	Cl(2)—Pd(1)—Te(1)	175.70(3)
	Pd(1)—Cl(1)	2.3012(14)	N(2)—Pd(1)—Te(1)	92.81(12)
	Pd(1)—Cl(2)	2.3938(13)	N(2)—Pd(1)—Cl(1)	169.88(12)
	Te(1)—C(6)	2.122(5)	N(2)—Pd(1)—Cl(2)	90.66(12)
	Te(1)—C(7)	2.144(5)	Cl(2)—Pd(1)—Cl(1)	94.16(5)
	N(1)—N(2)	1.361(5)	C(6)—Te(1)—Pd(1)	96.64(14)
	N(1)—C(8)	1.450(6)	C(7)—Te(1)—Pd(1)	101.16(15)
	N(1)—C(9)	1.342(6)	C(11)—N(2)—Pd(1)	123.9(3)
	N(2)—C(11)	1.340(6)	N(1)—N(2)—Pd(1)	129.3(3)
	Br(1)—C(10)	1.869(5)	C(9)—C(10)—Br(1)	127.8(4)
			C(11)—C(10)—Br(1)	125.9(4)
2	Pd(1)—N(2)	1.993(5)	N(2)–Pd(1)–Te(1)	90.26(16)
	Pd(1)—N(4)	2.014(6)	N(4)–Pd(1)–Te(1)	91.33(17)
	Pd(1)—Te(1)	2.5313(10)	Te(1)–Pd(1)–Cl(1)	177.51(6)
	Pd(1)—Cl(1)	2.3236(19)	N(2)–Pd(1)–Cl(1)	89.26(16)
	Te(1)—C(5)	2.157(8)	N(4)–Pd(1)–Cl(1)	89.26(17)
	Te(1)—C(6)	2.142(7)	N(2)–Pd(1)–N(4)	177.0(2)
	N(1)—C(3)	1.328(9)	C(5)–Te(1)–Pd(1)	97.2(2)
	N(1)—C(4)	1.465(9)	C(6)–Te(1)–Pd(1)	96.5(2)
	N(2)—C(1)	1.331(9)	C(1)–N(2)–Pd(1)	127.4(5)
	N(3)—C(7)	1.455(9)	N(1)–N(2)–Pd(1)	126.1(4)
	N(3)—C(8)	1.326(10)	C(10)–N(4)–Pd(1)	128.3(5)
	N(4)—C(10)	1.335(9)	N(3)–N(4)–Pd(1)	123.2(4)
	N(1)—N(2)	1.359(8)	C(1)—C(2)—Br(1)	124.8(6)
	N(3)—N(4)	1.363(8)	C(3)—C(2)—Br(1)	128.7(6)
	Br(1)—C(2)	1.868(7)		
	Br(2)—C(9)	1.864(7)		

Table S3. Distances [Å] of inter and intra-molecular interactions for complexes **1** and **2**.

1		**2**	
Cl(1)···H(7A) (Inter-molecular)	2.769(2)	B(1)—F(1)···H(5A) (inter-molecular)	2.373(12)
Cl(2)···H(8B) (Inter-molecular)	2.772(4)	B(1)—F(2)···H(6B) (inter-molecular)	2.466(14)
Cl(1)···H(8A) (Inter-molecular)	2.706(5)	B(1)—F(3)···H(4B) (inter-molecular)	2.671(11)
Cl(2)···H(8A) (Inter-molecular)	2.728(4)	B(1)—F(3)···H(3) (inter-molecular)	2.523(10)
C(12)—H(12C)···π	2.937(4)	B(1)—F(3)···H(8) (inter-molecular)	2.781(12)
		B(1)—F(4)···H(7A) (inter-molecular)	2.480(9)
		B(1)—F(1)···H(6A) (inter-molecular)	2.486(13)

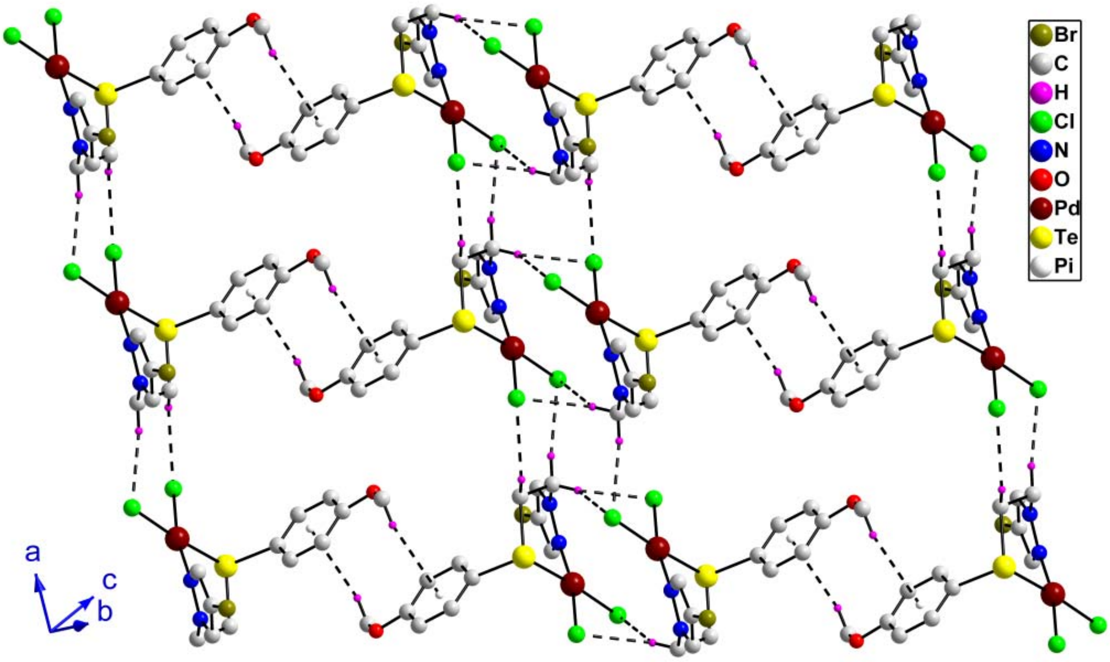


Figure S4. Inter-molecular C–H···Cl and C–H···π interactions in complex **1**

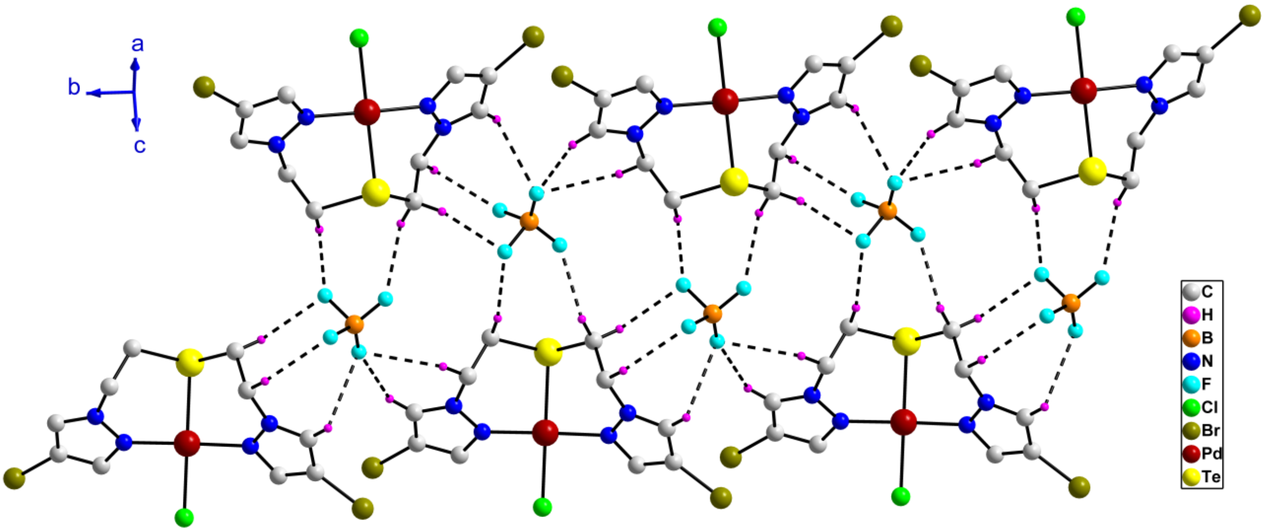


Figure S5. Inter-molecular C–H···F interactions in complex **2**

NMR Spectra of ligands and complexes

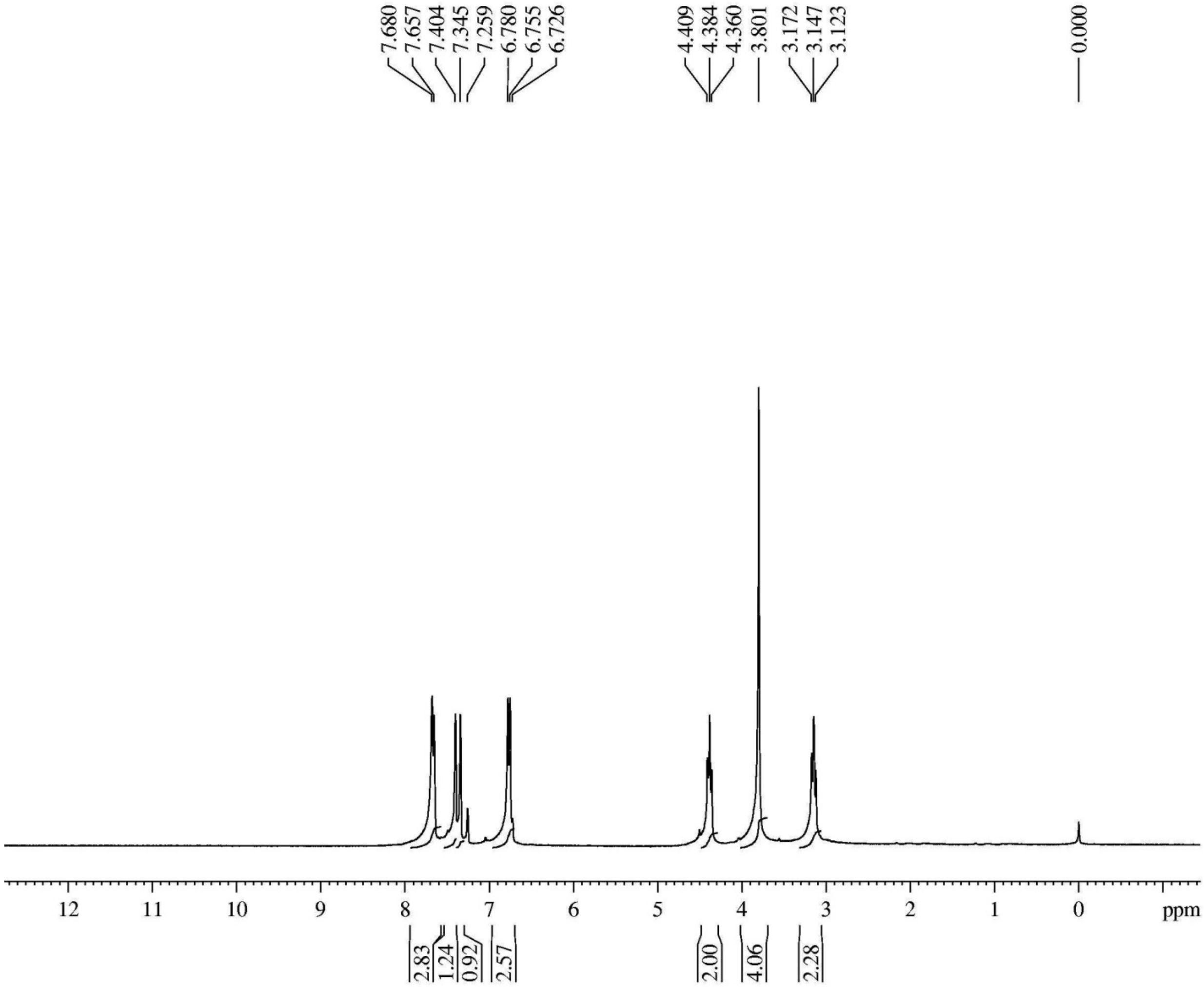


Figure S6. ^{1}H NMR of Ligand (**L1**)

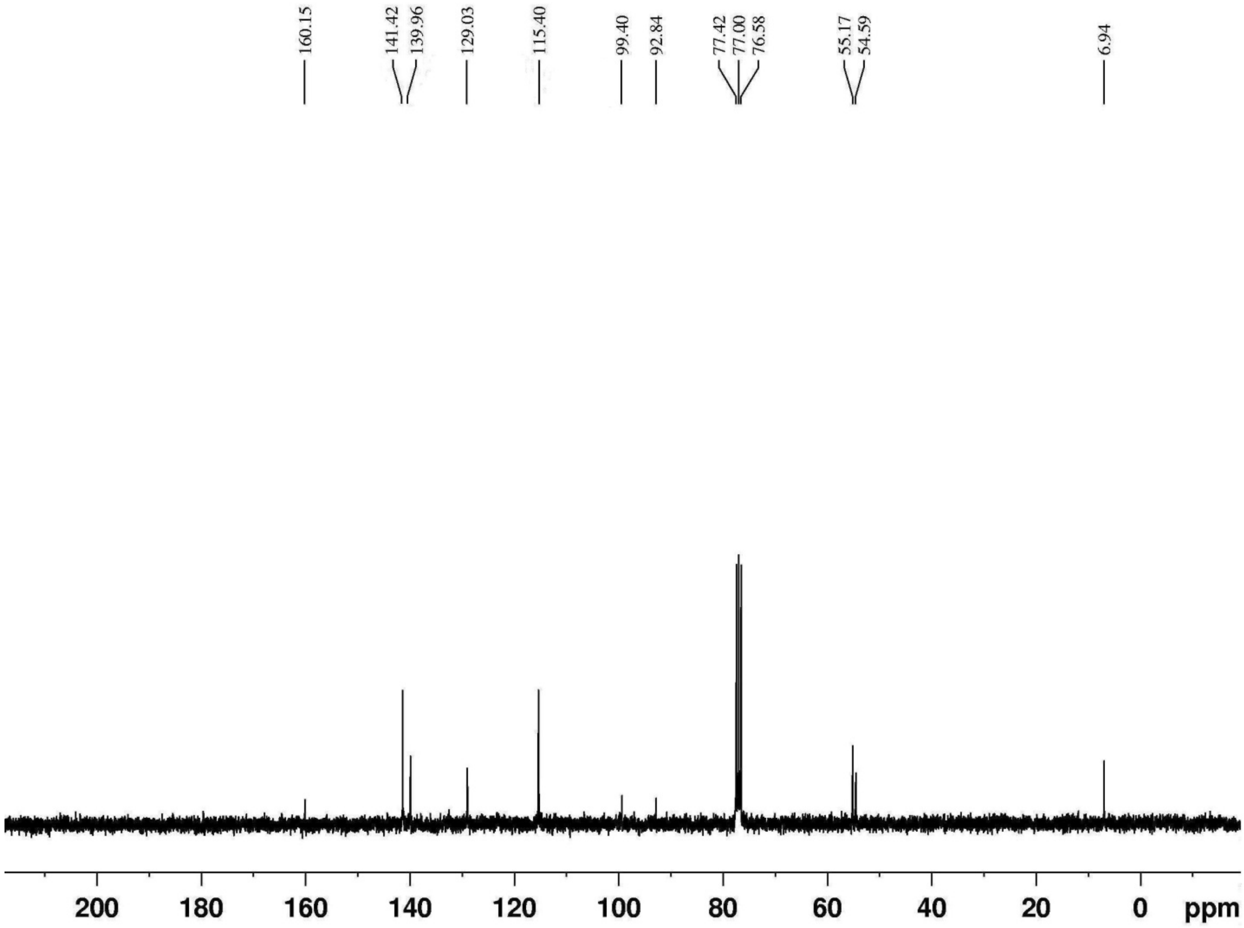


Figure S7. $^{13}C\{^1H\}$ NMR of Ligand, **L1**

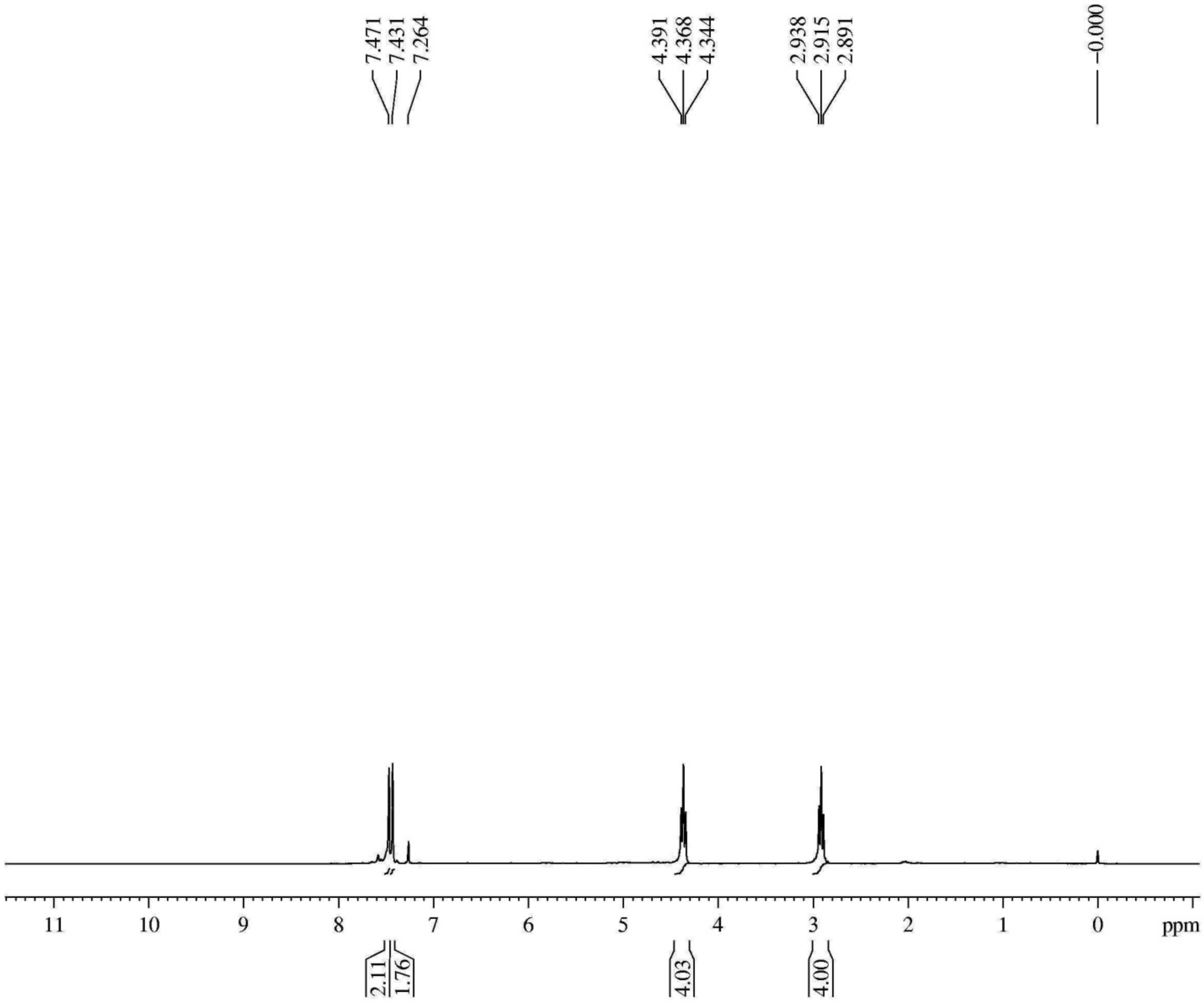


Figure S8. ^{1}H NMR of Ligand, **L2**

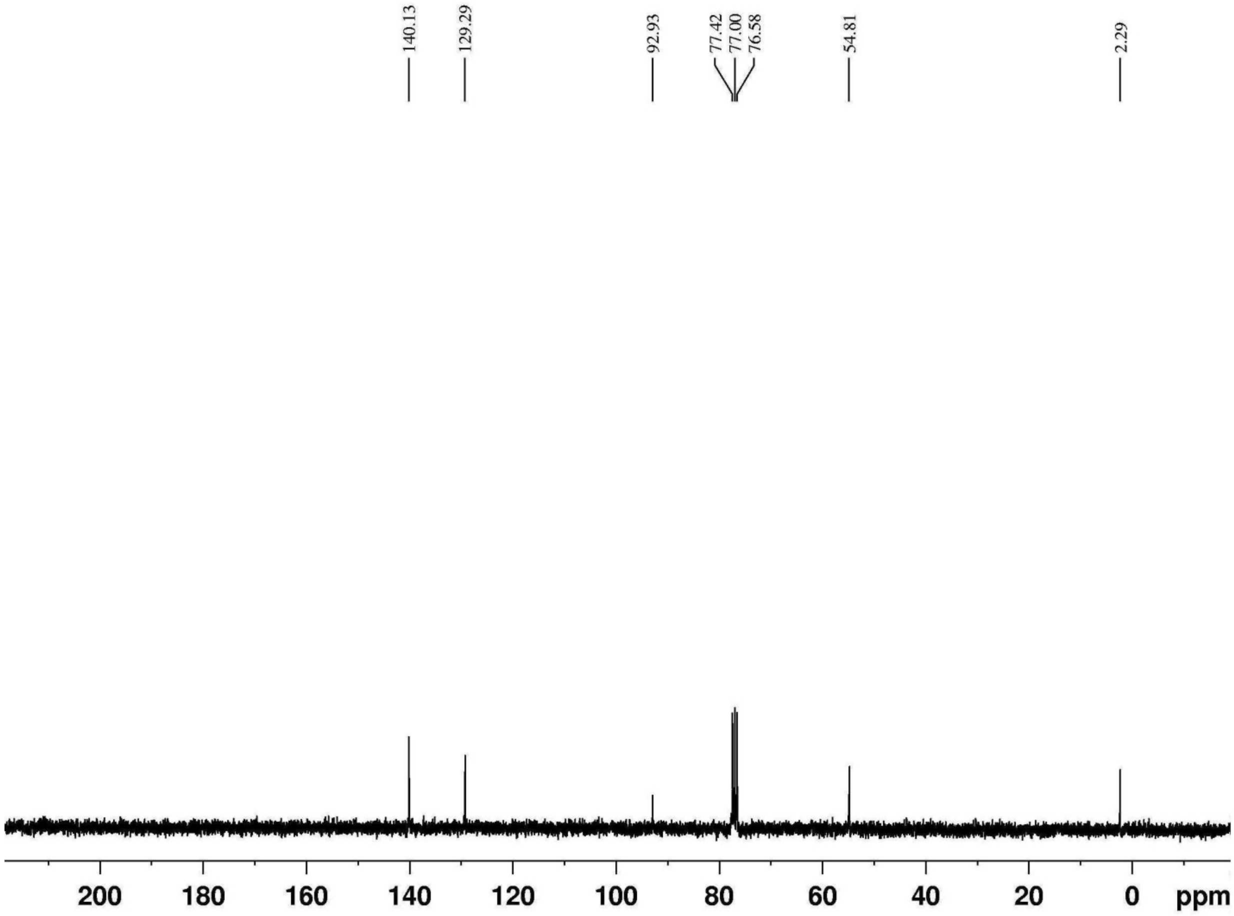


Figure S9. $^{13}C\{^1H\}$ NMR of Ligand, **L2**

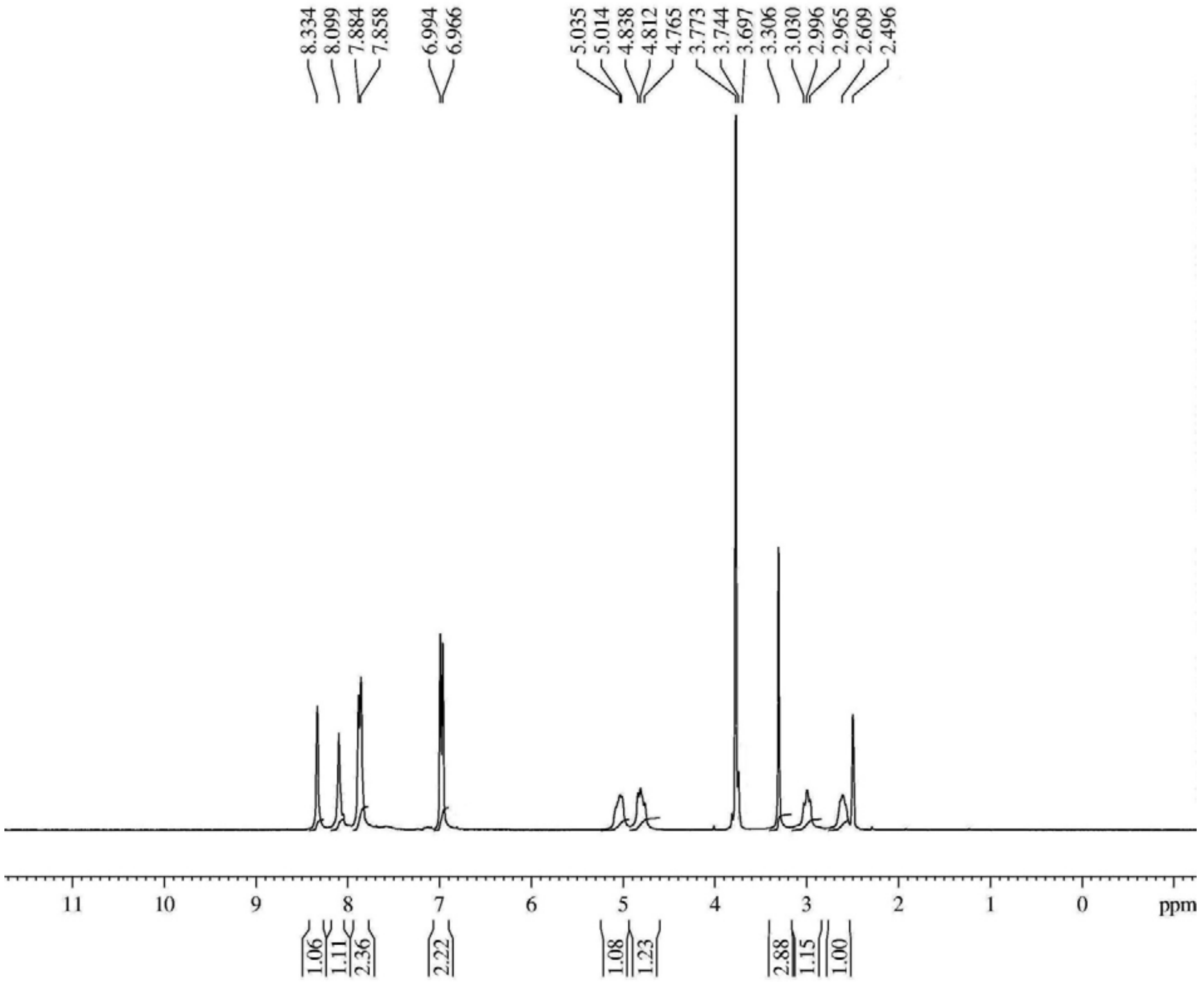


Figure S10. ^{1}H NMR of Complex **1**

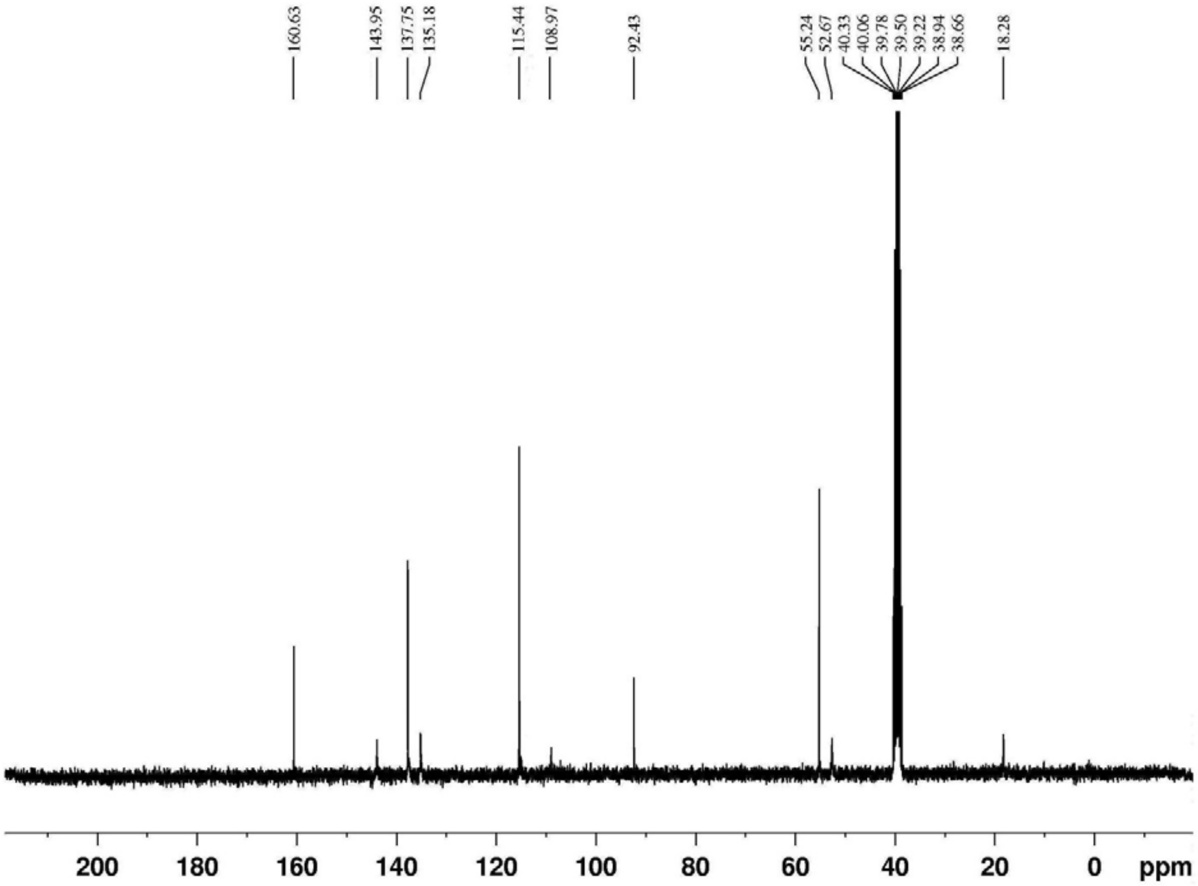


Figure S11. $^{13}C\{^{1}H\}$ NMR of Complex **1**

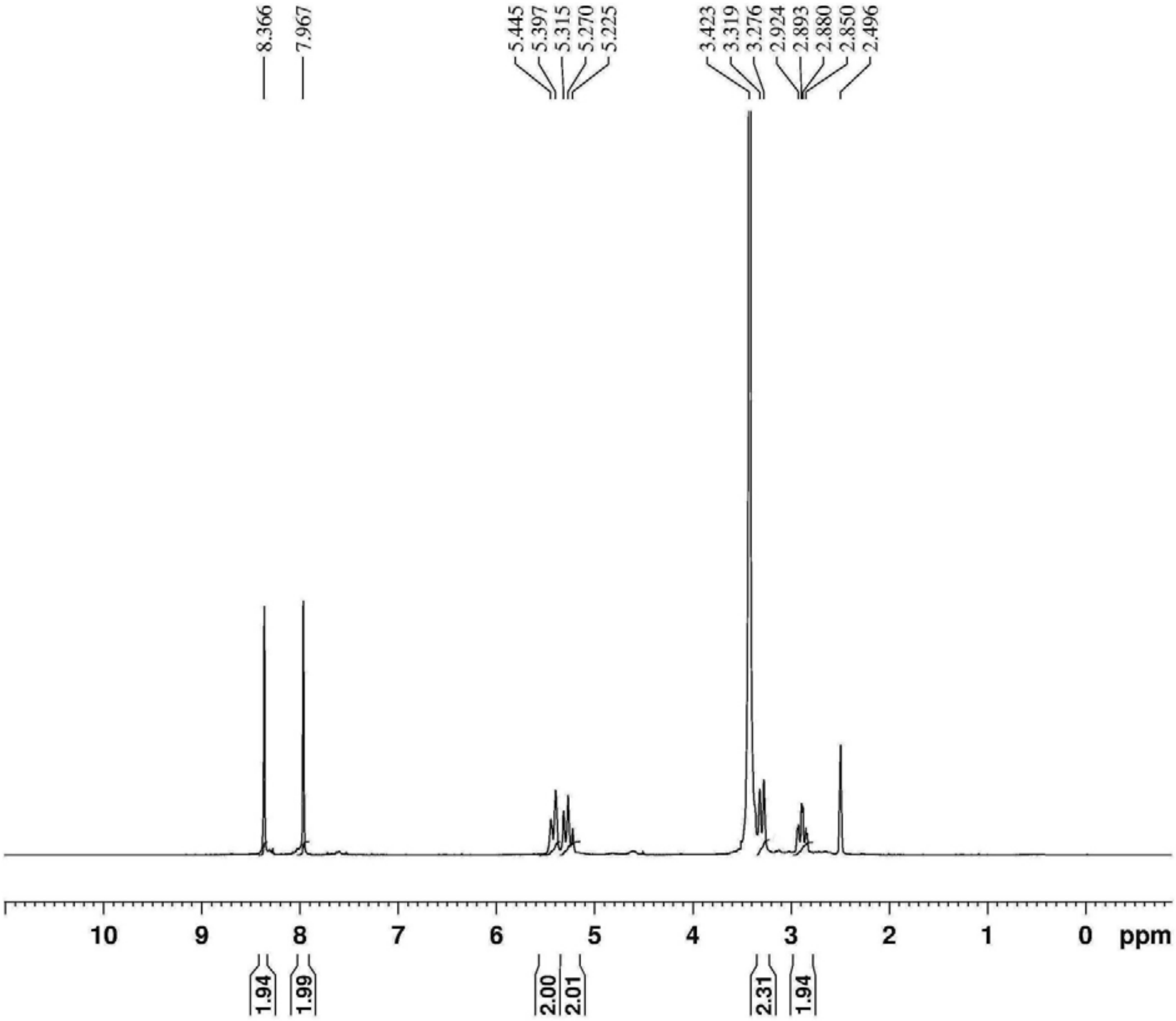


Figure S12. ^{1}H NMR of Complex **2**

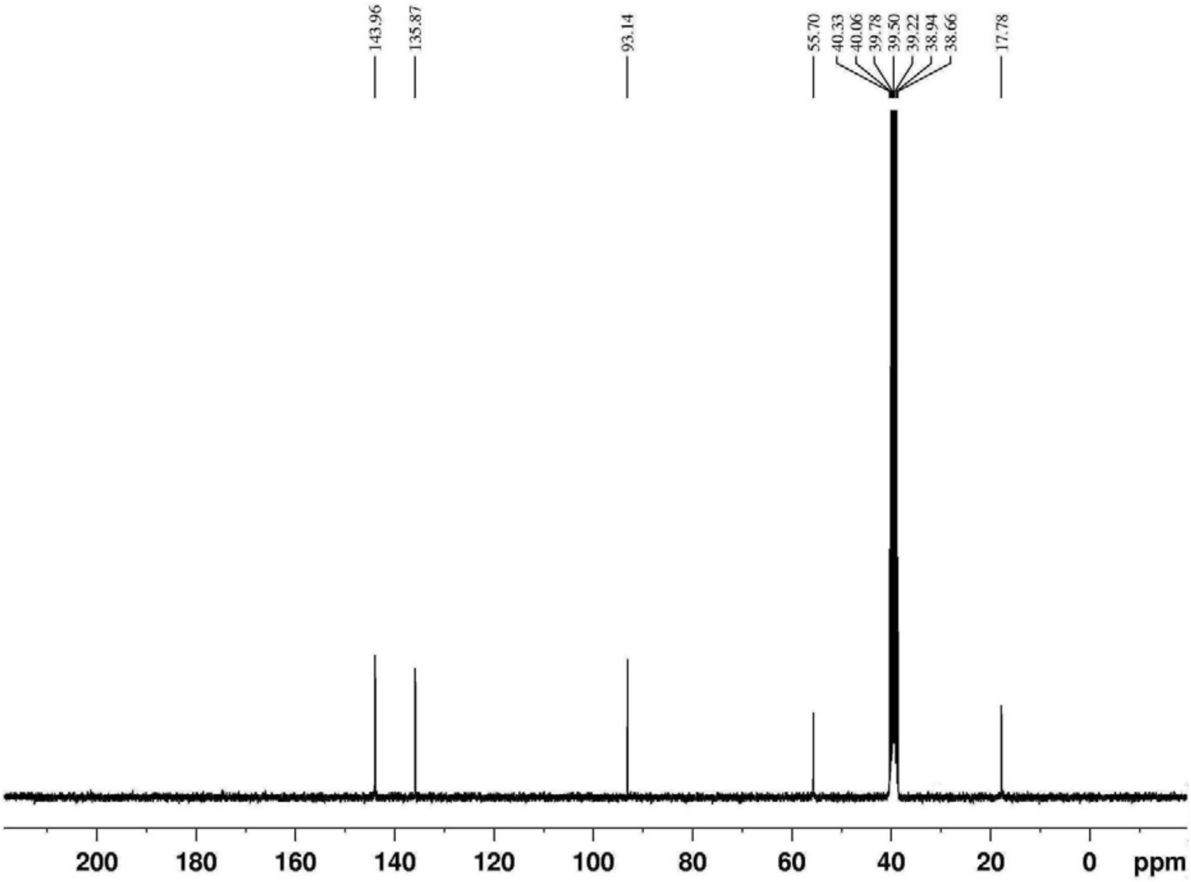


Figure S13. $^{13}C\{^1H\}$ NMR of Complex 2

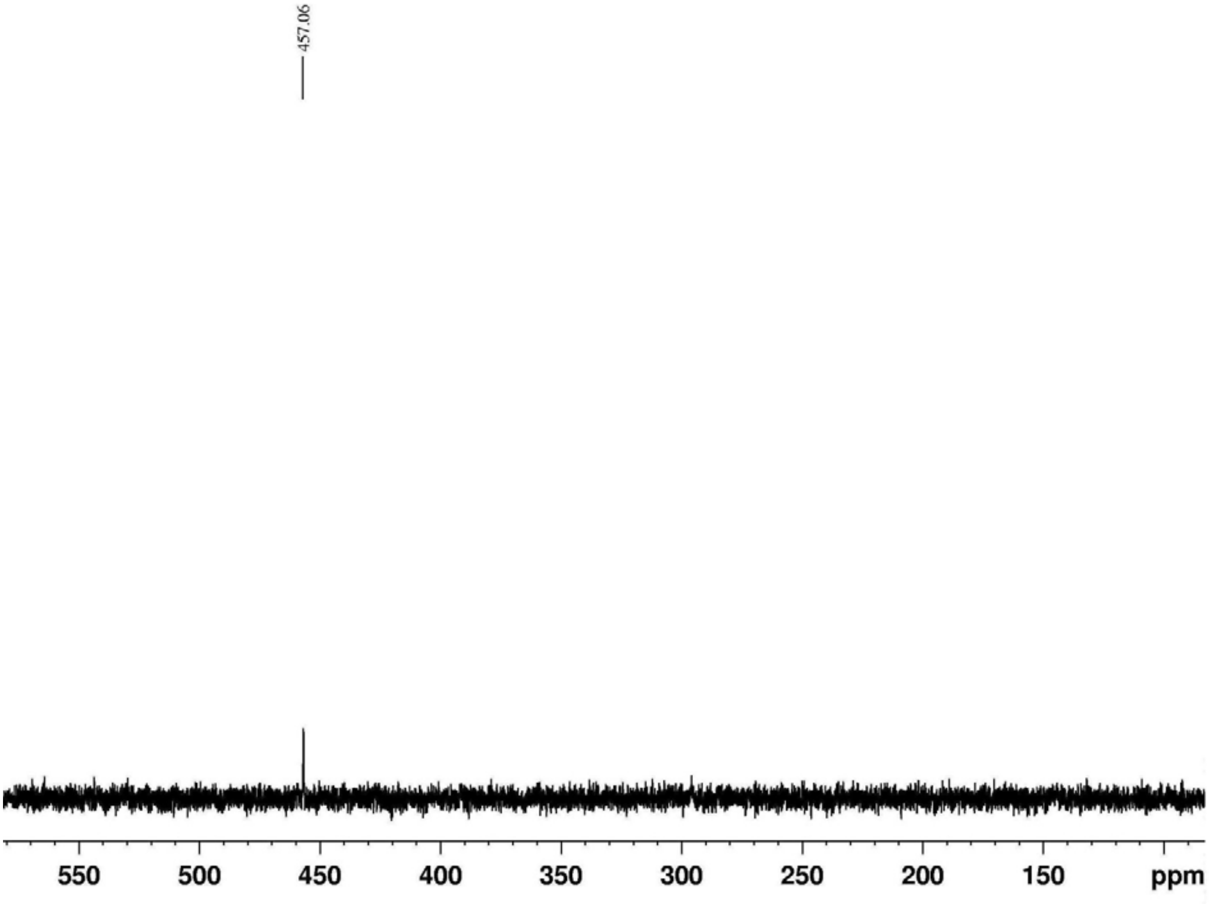


Figure S14. ^{125}Te{^{1}H} NMR of Ligand, **L1**

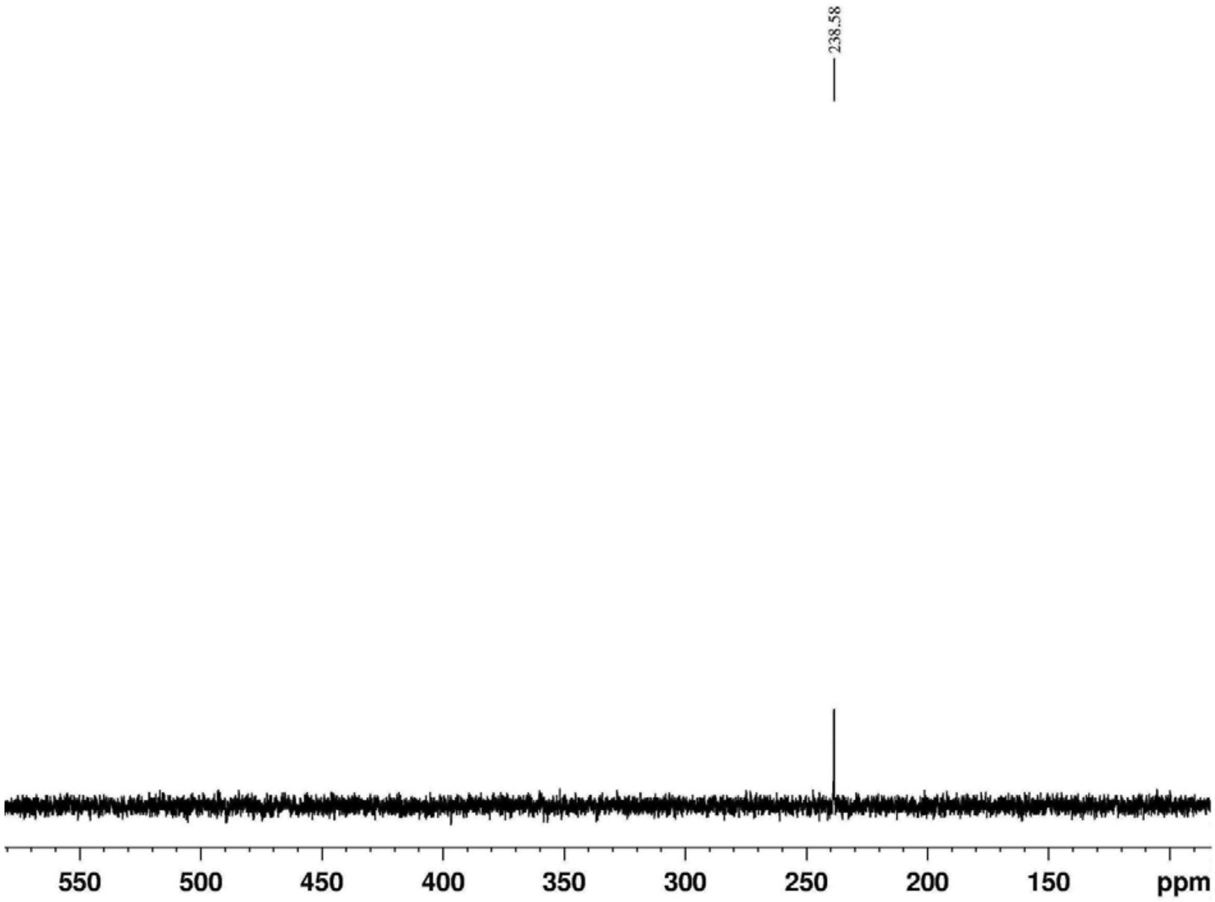


Figure S15. ^{125}Te{^{1}H} NMR of Ligand, **L2**

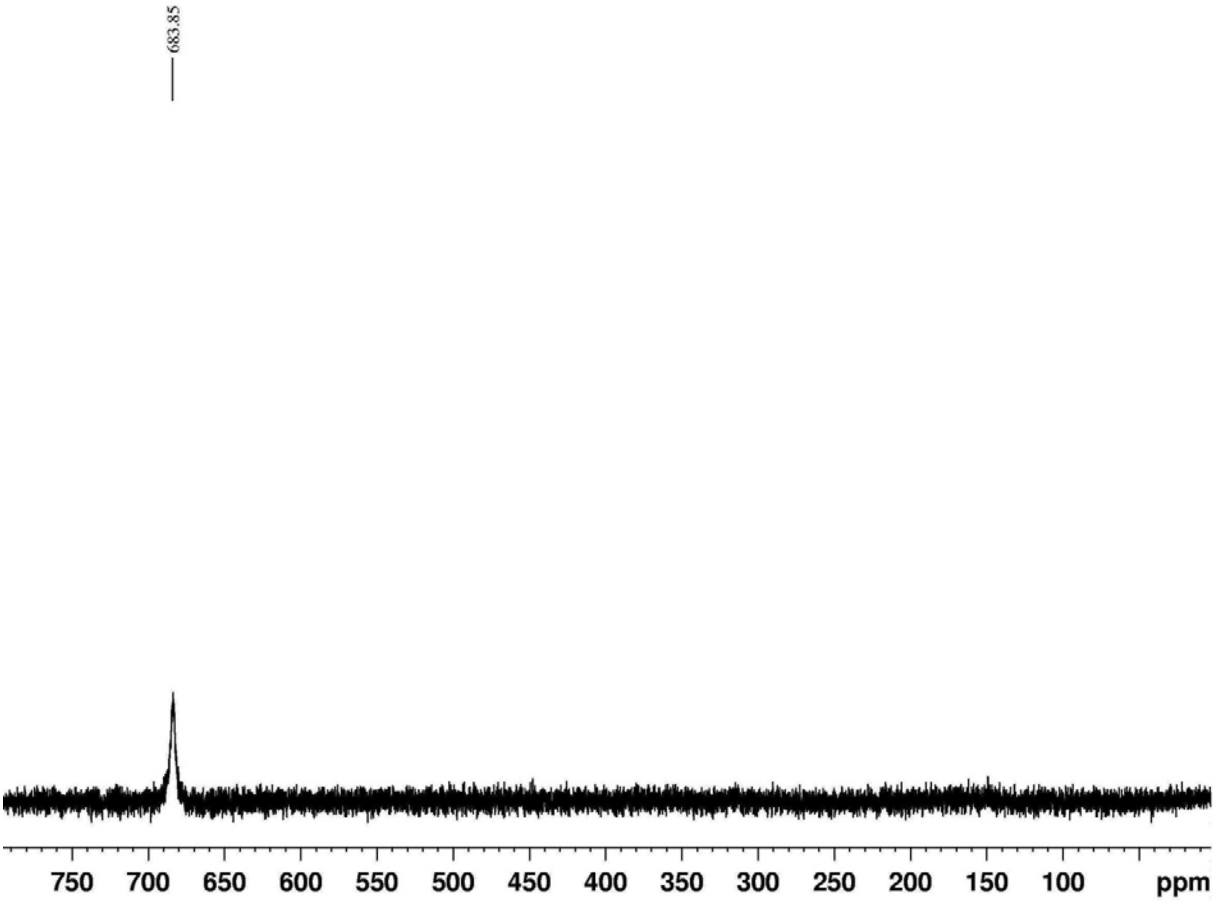


Figure S16. ^{125}Te{^{1}H} NMR of Complex, **1**

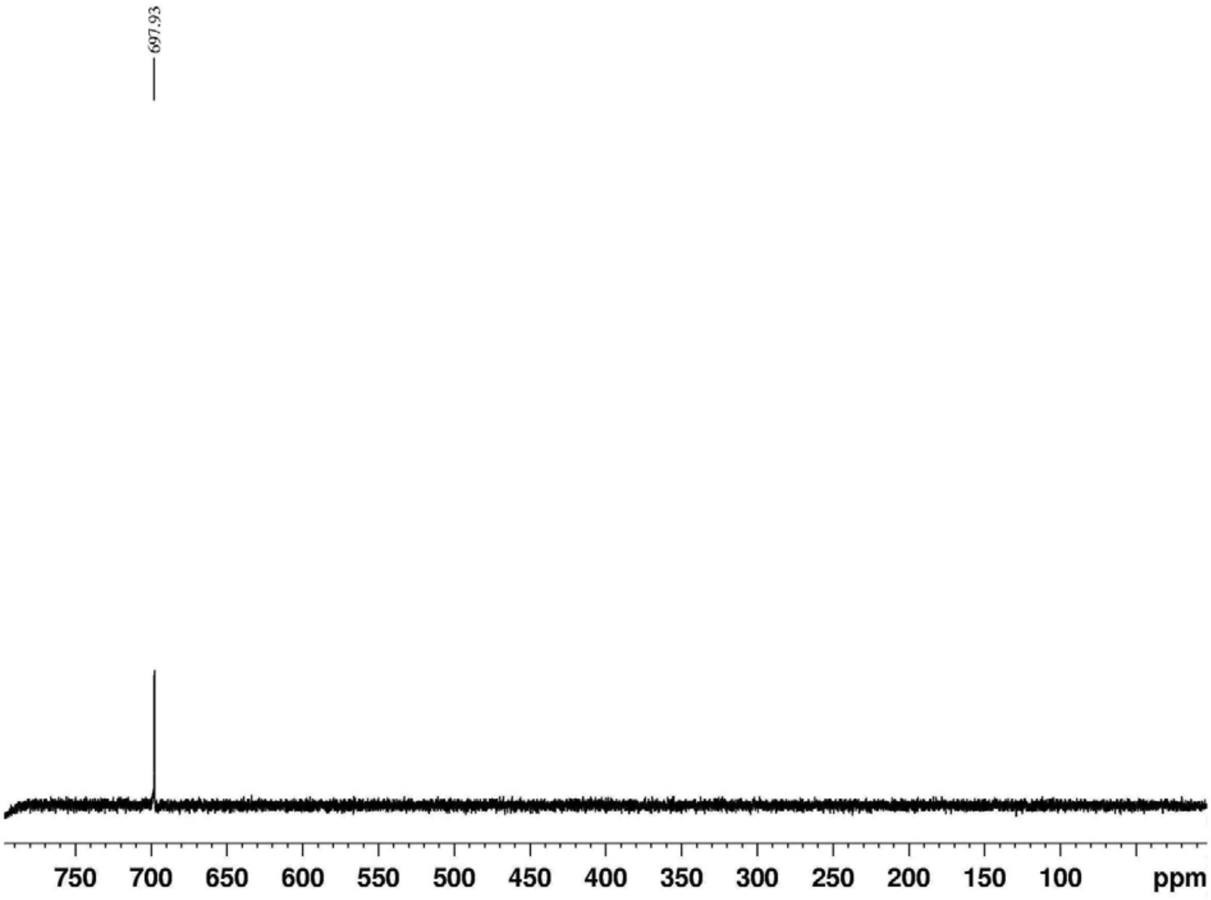
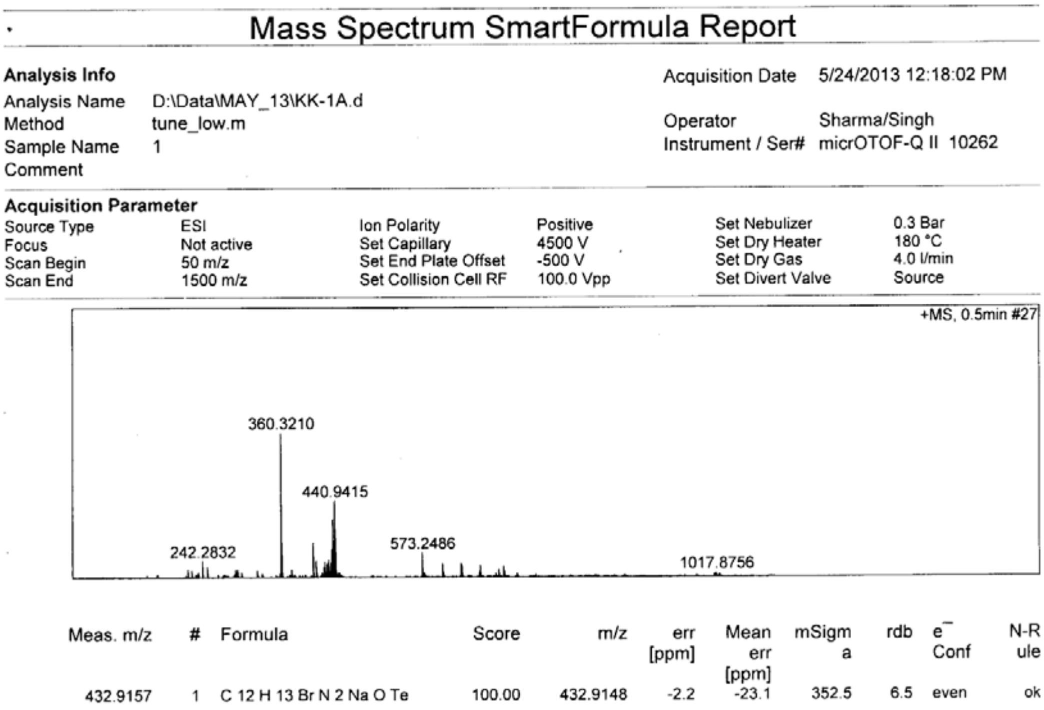


Figure S17. ^{125}Te{^{1}H} NMR of Complex, **2**

HR-MS Spectra of Ligands and Complexes



Mass Spectrum SmartFormula Report

Analysis Info

Analysis Name D:\Data\MAY_13\KK-1A.d
Method tune_low.m
Sample Name 1
Comment

Acquisition Date 5/24/2013 12:18:02 PM

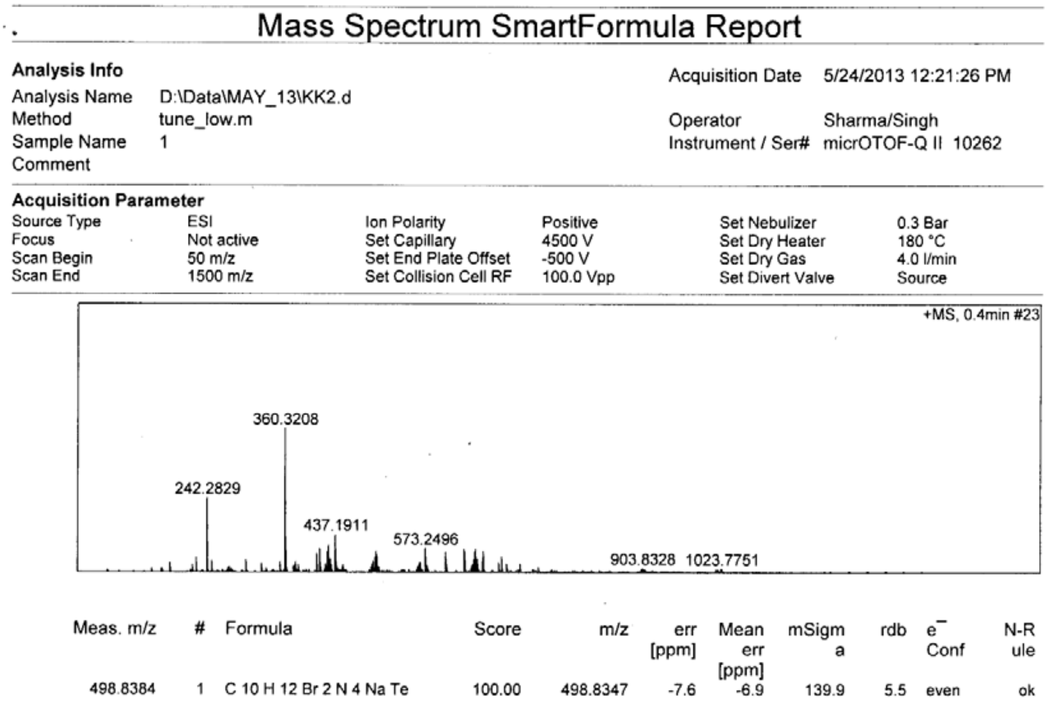
Operator Sharma/Singh
Instrument / Ser# micrOTOF-Q II 10262

Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active	Set Capillary	4500 V	Set Dry Heater	180 °C
Scan Begin	50 m/z	Set End Plate Offset	-500 V	Set Dry Gas	4.0 l/min
Scan End	1500 m/z	Set Collision Cell RF	100.0 Vpp	Set Divert Valve	Source

Meas. m/z	#	Formula	Score	m/z	err [ppm]	Mean err [ppm]	mSigma	rdb	e⁻ Conf	N-Rule
432.9157	1	C 12 H 13 Br N 2 Na O Te	100.00	432.9148	-2.2	-23.1	352.5	6.5	even	ok

Figure S18. Mass Spectra of Ligand **L1**



Mass Spectrum SmartFormula Report

Analysis Info

Analysis Name D:\Data\MAY_13\KK2.d
Method tune_low.m
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Comment

Acquisition Date 5/24/2013 12:21:26 PM

Operator Sharma/Singh
Instrument / Ser# micrOTOF-Q II 10262

Acquisition Parameter

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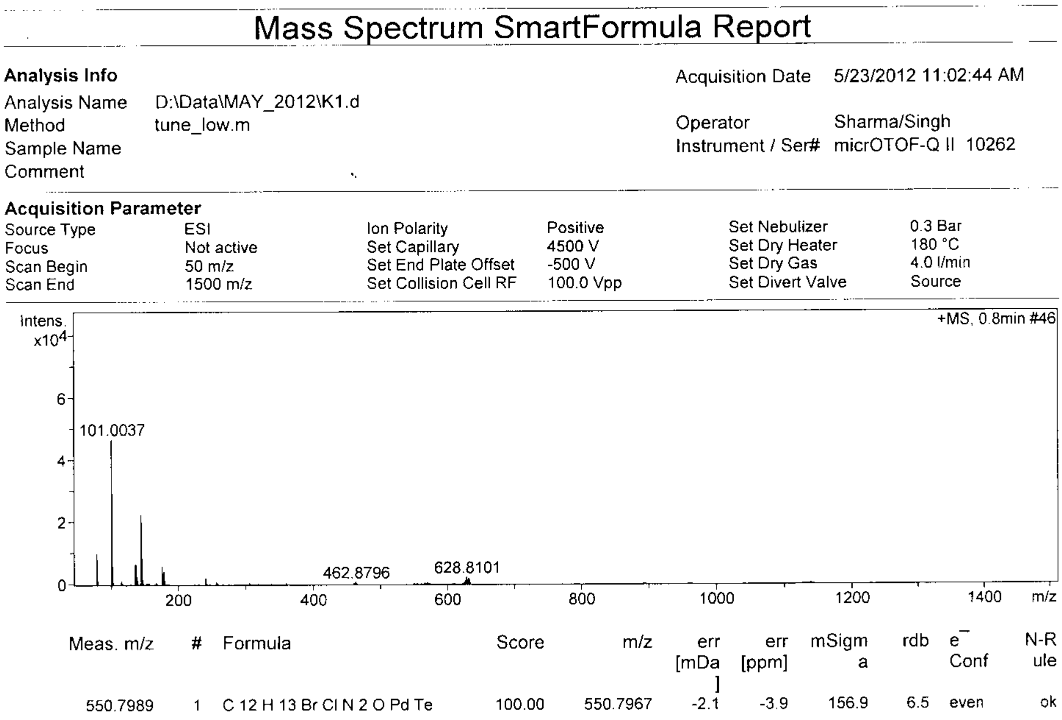
Scan Begin	50 m/z	Set End Plate Offset	-500 V	Set Dry Gas	4.0 l/min
Scan End	1500 m/z	Set Collision Cell RF	100.0 Vpp	Set Divert Valve	Source

Meas. m/z	#	Formula	Score	m/z	err [ppm]	Mean err [ppm]	mSigma	rdb	e⁻ Conf	N-Rule
498.8384	1	C 10 H 12 Br 2 N 4 Na Te	100.00	498.8347	-7.6	-6.9	139.9	5.5	even	ok

Figure S19. Mass Spectra of Ligand **L2**



Mass Spectrum SmartFormula Report

Analysis Info

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Sample Name		Instrument / Ser#	micrOTOF-Q II 10262
Comment			

Acquisition Parameter

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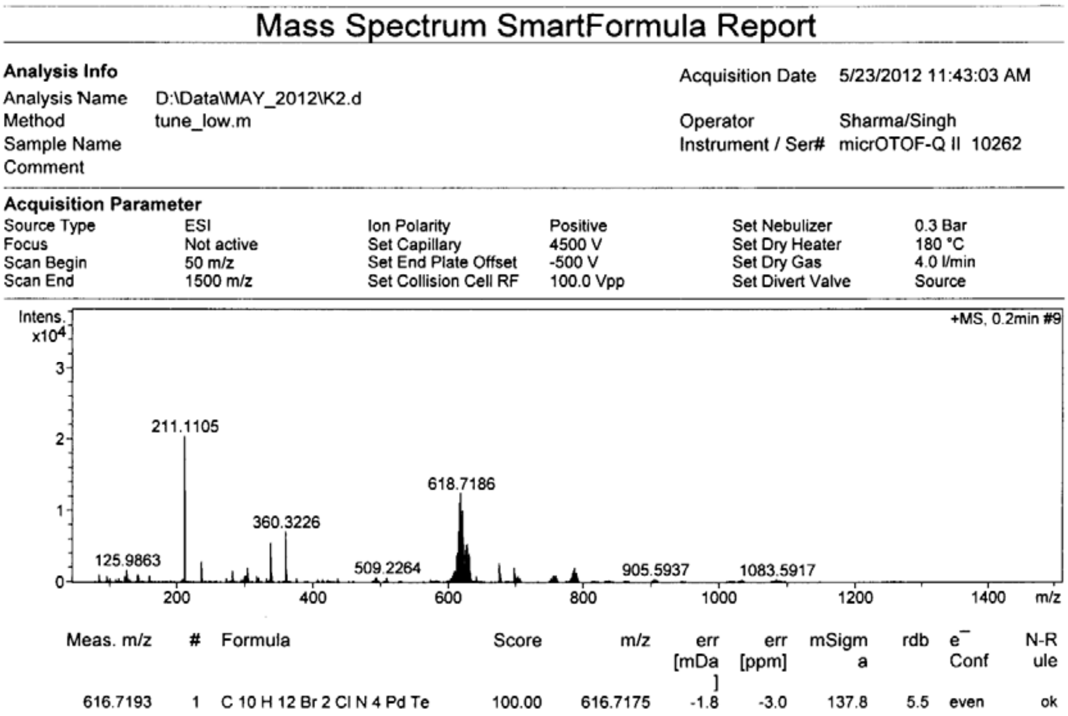
Focus	Not active	Set Capillary	4500 V	Set Dry Heater	180 °C
Scan Begin	50 m/z	Set End Plate Offset	-500 V	Set Dry Gas	4.0 l/min
Scan End	1500 m/z	Set Collision Cell RF	100.0 Vpp	Set Divert Valve	Source

Meas. m/z	#	Formula	Score	m/z	err [mDa]	err [ppm]	mSigma	rdb	e^- Conf	N-Rule
550.7989	1	C 12 H 13 Br Cl N 2 O Pd Te	100.00	550.7967	-2.1	-3.9	156.9	6.5	even	ok

Figure S20. Mass Spectra of Complex **1**



Mass Spectrum SmartFormula Report

Analysis Info

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Sample Name		Instrument / Ser#	micrOTOF-Q II 10262
Comment			

Acquisition Parameter

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Focus	Not active	Set Capillary	4500 V	Set Dry Heater	180 °C
Scan Begin	50 m/z	Set End Plate Offset	-500 V	Set Dry Gas	4.0 l/min
Scan End	1500 m/z	Set Collision Cell RF	100.0 Vpp	Set Divert Valve	Source

Meas. m/z	#	Formula	Score	m/z	err [mDa]	err [ppm]	mSigma	rdb	e^- Conf	N-Rule
616.7193	1	C 10 H 12 Br 2 Cl N 4 Pd Te	100.00	616.7175	-1.8	-3.0	137.8	5.5	even	ok

Figure S21. Mass Spectra of Complex **2**

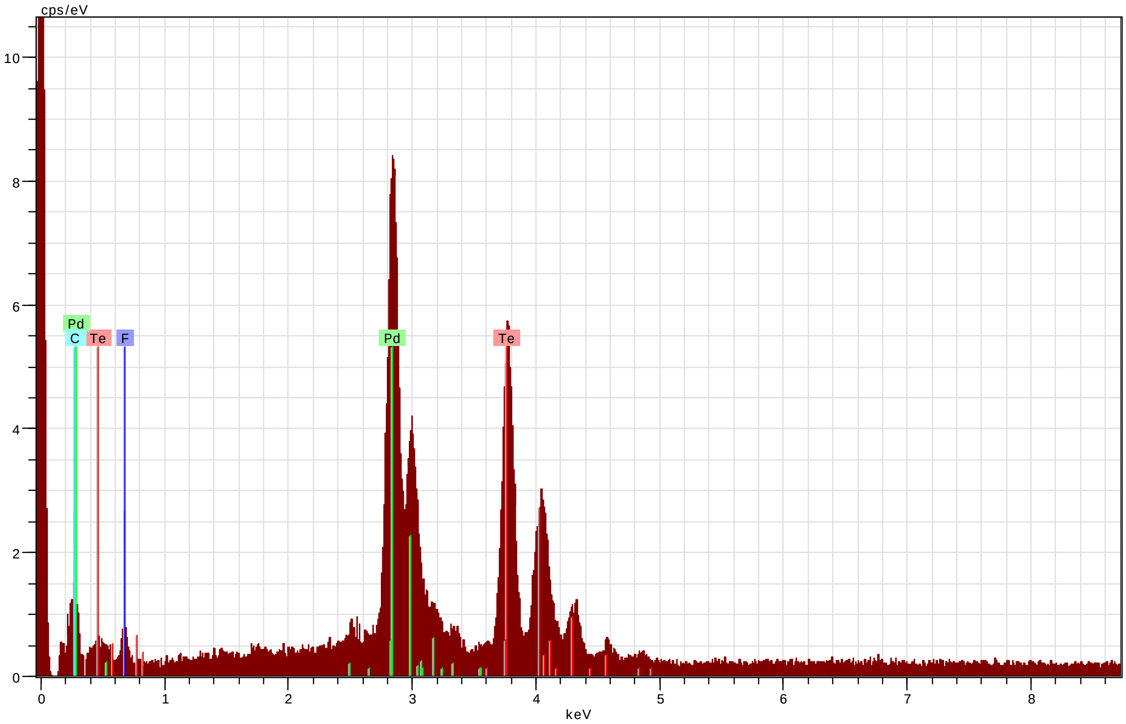

Figure S22. SEM−EDX of PdTe Nano-particles obtained by thermolysis of **1** in OA-ODE

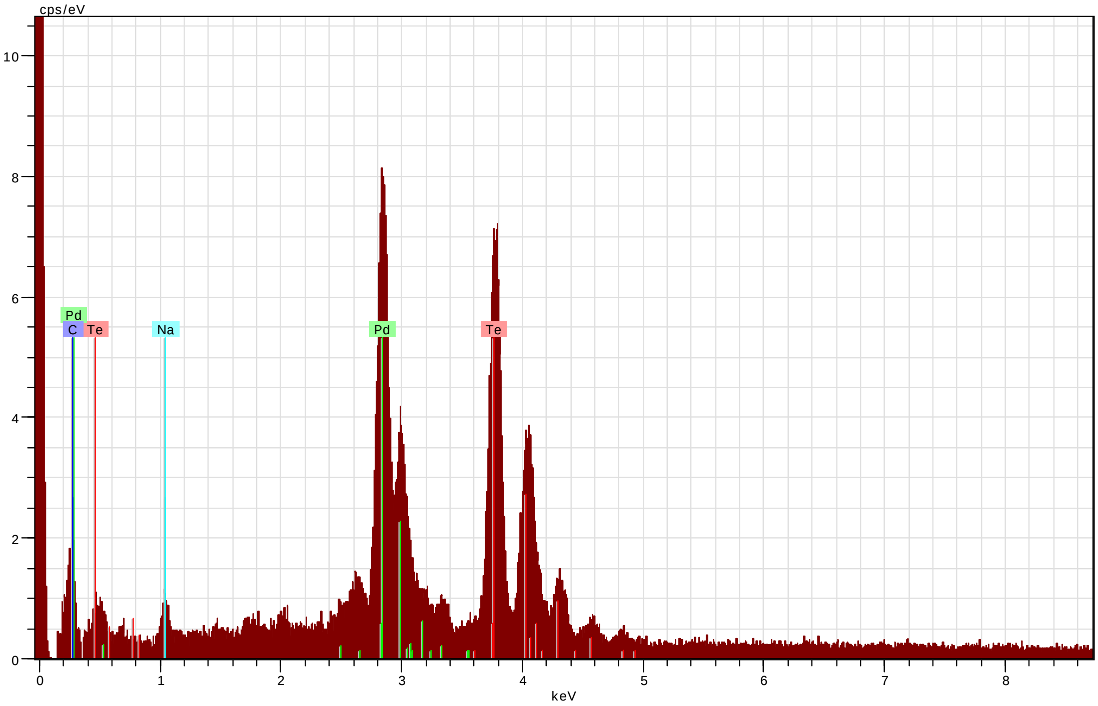

Figure S23. SEM−EDX of PdTe Nano-particles obtained by thermolysis of **2** in OA-ODE

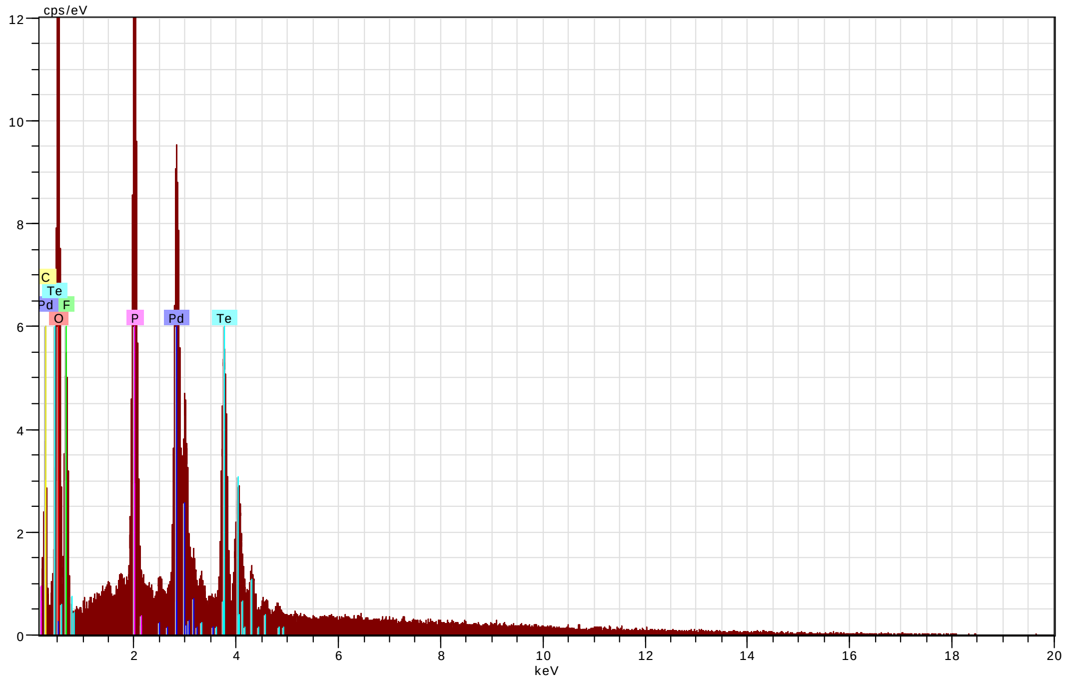

Figure S24. SEM−EDX of PdTe Nano-particles obtained by thermolysis of **1** in TOP

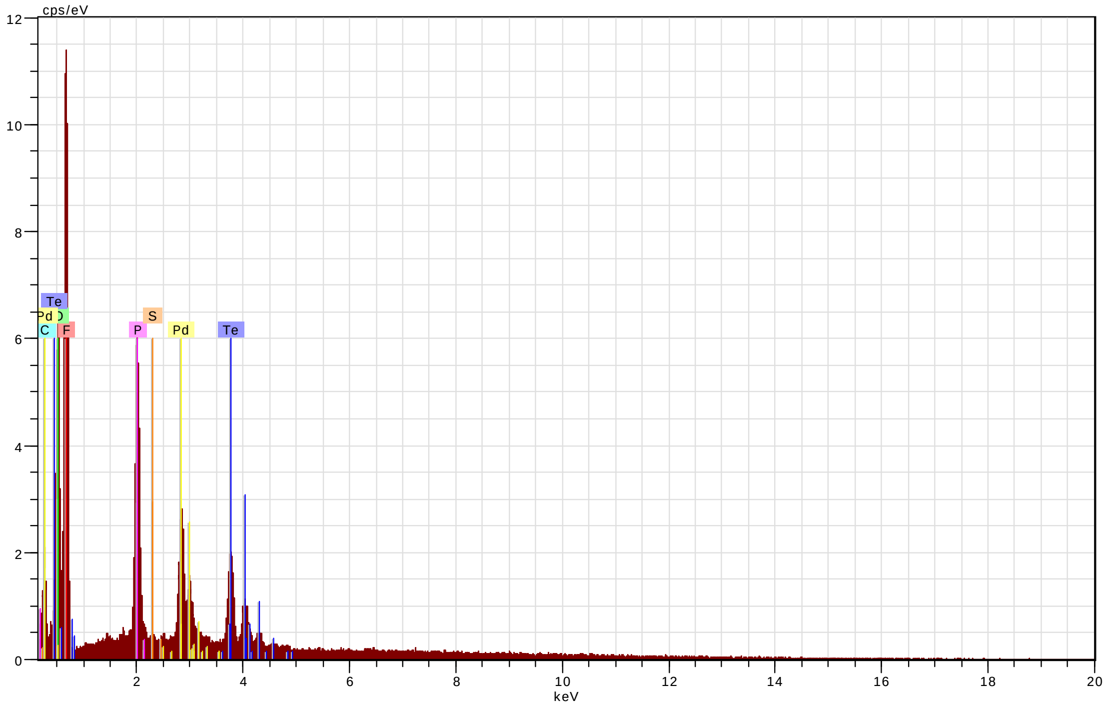

Figure S25. SEM−EDX of PdTe Nano-particles obtained by thermolysis of **2** in TOP

References

1. SADABS V2.10 (G. M. Sheldrick, 2003).
2. (a) G. M. Sheldrick, *Acta Crystallogr. Sect. A: Found. Crystallogr.* 1990, **46**, 467. (b) G. M. Sheldrick, *SHELXL-NT Version 6.12*, University of Gottingen, Germany, 2000.
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