

## Supporting Information

### **Tunable Synthesis of Oxindoles and Sulfonated Oxindoles via Photoredox-Catalyzed C-H/C-H Coupling**

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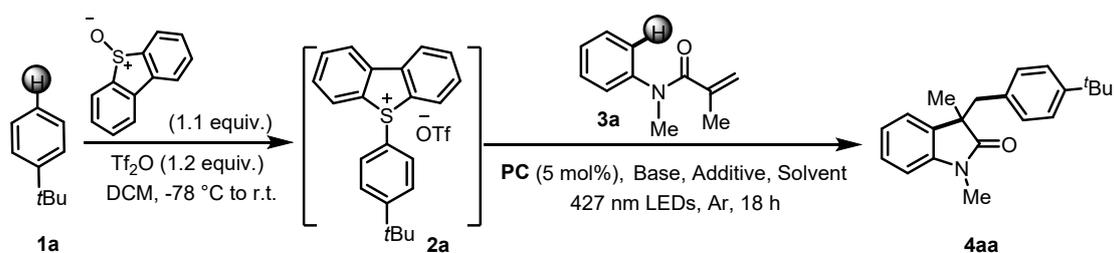
## 1. General Information

Nuclear magnetic resonance spectra were recorded on Bruker 600 MHz instruments internally referenced to TMS (0.0 ppm) or residue of CDCl<sub>3</sub> (7.26 ppm for <sup>1</sup>H, and 77.00 ppm for <sup>13</sup>C) signal. The following abbreviations were used to explain multiplicities: s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, br = broad. High-resolution mass spectra (HRMS) were conducted at Micromass Q-T of instrument (ESI). All reagents were purchased at the highest commercial quality and used without further purification unless otherwise stated. All reactions were performed under an inert atmosphere of dry argon in dried glassware, unless otherwise stated. Solvents were distilled using standard techniques. Acetonitrile and dichloromethane were distilled over calcium hydride under an atmosphere of argon. Room temperature reactions were performed between 25-28 °C. The reactions that require heating were put in an oil bath with a temperature monitor. Kessil lamp (427 nm) was used as the light source. The oxindoles were synthesized according to the literature.<sup>1,2</sup>

## 2. Experimental Section

### 2.1. Optimization Studies

Table S1 Optimization of the reaction conditions <sup>a,b</sup>



Entry	PC	Solvent	Base	Additive	Yield (%)
1	PTH	$\text{CH}_3\text{CN}$	$\text{K}_2\text{CO}_3$	—	15%
2	$[\text{Ir}(\text{dtbbpy})(\text{ppy})_2]\text{PF}_6$	$\text{CH}_3\text{CN}$	$\text{K}_2\text{CO}_3$	—	10%
3	$\text{Ru}(\text{bpy})_3\text{Cl}_2$	$\text{CH}_3\text{CN}$	$\text{K}_2\text{CO}_3$	—	trace
4	PTH	DMSO	$\text{K}_2\text{CO}_3$	—	23%
5	PTH	THF	$\text{K}_2\text{CO}_3$	—	trace
6	PTH	DCM	$\text{K}_2\text{CO}_3$	—	trace
7	PTH	DMF	$\text{K}_2\text{CO}_3$	—	9%
8	PTH	$\text{PhCF}_3$	$\text{K}_2\text{CO}_3$	—	trace
9	PTH	DMSO	$\text{CH}_3\text{COONa}$	—	8%
10	PTH	DMSO	DABCO	—	15%
11	PTH	DMSO	DIPEA	—	19%
12	PTH	DMSO	Pyridine	—	26%
13	PTH	DMSO	2,6-Lutidine	—	30%
14	PTH	DMSO	2,6-Lutidine	$\text{Bu}_4\text{NBr}$	38%
15	PTH	$\text{DMSO}/\text{CH}_3\text{CN}(1:1)$	2,6-Lutidine	$\text{Bu}_4\text{NBr}$	42%
16	PTH	$\text{DMSO}/\text{DCM}(1:1)$	2,6-Lutidine	$\text{Bu}_4\text{NBr}$	33%
17	PTH	$\text{DMSO}/\text{DMF}(1:1)$	2,6-Lutidine	$\text{Bu}_4\text{NBr}$	29%
18 <sup>c</sup>	PTH	$\text{DMSO}/\text{CH}_3\text{CN}(1:1)$	2,6-Lutidine	$\text{Bu}_4\text{NBr}$	47%

19 <sup>d</sup>	PTH	DMSO/CH <sub>3</sub> CN(1:1)	2,6-Lutidine	Bu <sub>4</sub> NBr	54%
20 <sup>e</sup>	PTH	DMSO/CH <sub>3</sub> CN(1:1)	2,6-Lutidine	Bu <sub>4</sub> NBr	43%
21 <sup>f</sup>	PTH	DMSO/CH <sub>3</sub> CN(1:1)	2,6-Lutidine	Bu <sub>4</sub> NBr	63%
22 <sup>g</sup>	PTH	DMSO/CH <sub>3</sub> CN(1:1)	2,6-Lutidine	Bu <sub>4</sub> NBr	67%
23 <sup>h</sup>	PTH	DMSO/CH <sub>3</sub> CN(1:1)	2,6-Lutidine	Bu <sub>4</sub> NBr	71%

<sup>a</sup>Reaction Conditions: *N*-arylacrylamide **3a** (0.3 mmol, 1.0 equiv.), Arene **1a** (0.3 mmol), 2,6-lutidine (2 equiv.), Bu<sub>4</sub>NBr (0.1 equiv.) and photocatalyst (5 mol%) in solvent (3 mL) under 427 nm LED irradiation for 18 h at room temperature. <sup>b</sup>The yield was determined by <sup>1</sup>HNMR analysis of crude product using 1,3,5-trimethoxybenzene as an internal standard. <sup>c</sup>*N*-arylacrylamide **3a** (1.5 equiv.). <sup>d</sup>*N*-arylacrylamide **3a** (2.0 equiv.). <sup>e</sup>*N*-arylacrylamide **3a** (0.3 mmol) and Arene **1a** (2.0 equiv.). <sup>f</sup>*N*-arylacrylamide **3a** (2.5 equiv.). <sup>g</sup>*N*-arylacrylamide **3a** (2.5 equiv.), DMSO/CH<sub>3</sub>CN (1:1, 2 mL). <sup>h</sup>*N*-arylacrylamide **3a** (2.5 equiv.), DMSO/CH<sub>3</sub>CN (1:1, 1.5 mL).

## 2.2. General A Procedure for the Oxindoles

To a solution of dibenzothiopheneoxide (0.33 mmol, 1.1 equiv., 66.0 mg) and arene (0.30 mmol, 1.0 equiv.) in dichloromethane (1.5 mL) in -78 °C was added trifluoromethanesulfonic anhydride (0.36 mmol, 1.2 equiv., 61 μL) dropwise, and the mixture was stirred at this temperature for 30 mins. The mixture was concentrated and filtered with a short column washing with 5% CH<sub>3</sub>OH/ dichloromethane. The filtrate was concentrated and used for the next step without purification.

To a solution of the above residue in CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 ml), was add amide (0.750 mmol, 2.5 equiv.), PTH (5 mol%, 4.1 mg), Bu<sub>4</sub>NBr (10 mol%, 9.7 mg) and 2,6-lutidine (0.600 mmol, 68 μL) in a Schlenk tube, the mixture was degassed under vacuum and purged with argon for three times and was stirred for 18 h irradiated by the LEDs at room temperature. After the reaction is complete, the reaction mixture was filtered through a pad of Celite. The filtrate was concentrated in vacuo to afford crude products, which were purified by flash column chromatography on silica gel to give the pure products.

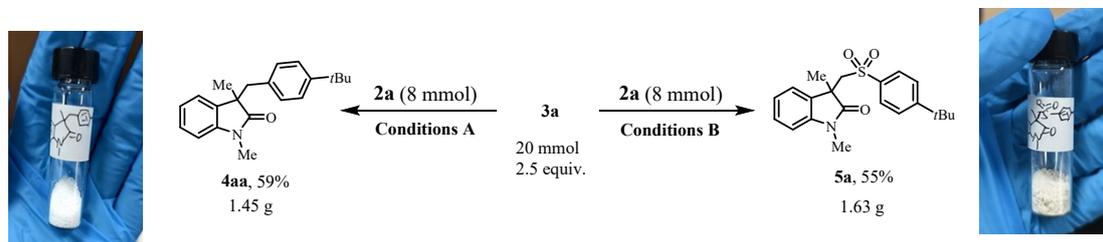
## 2.3. General B Procedure for the Sulfonated Oxindoles

To a solution of dibenzothiopheneoxide (0.33 mmol, 1.1 equiv., 66.0 mg) and arene (0.30 mmol, 1.0 equiv.) in dichloromethane (1.5 mL) in -78 °C was added trifluoromethanesulfonic anhydride (0.36 mmol, 1.2 equiv., 61 μL) dropwise, and the mixture was stirred at this temperature for 30 mins. The mixture was concentrated and filtered with a short column washing with 5% CH<sub>3</sub>OH/ dichloromethane. The filtrate was concentrated and used for the next step without purification.

To a solution of the above residue in CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 ml), was add amide (0.750 mmol, 2.5 equiv.), DABSO (0.300 mmol, 1 equiv., 0.072 g), PTH (5 mol%, 4.1 mg), Bu<sub>4</sub>NBr (10 mol%, 9.7 mg) and 2,6-lutidine (0.600 mmol, 68 μL) in a Schlenk tube, the mixture was degassed under vacuum and purged with argon for three times and was stirred for 18 h irradiated by the LEDs at room temperature. After the reaction is complete, the reaction mixture was filtered through

a pad of Celite. The filtrate was concentrated in vacuo to afford crude products, which were purified by flash column chromatography on silica gel to give the pure products.

## 2.4. Gram-Scale Synthesis for Products 4aa and 5a



The reaction of the dibenzothiophenium salt **2a** was synthesized from *tert*-butylbenzene (8.0 mmol, 1.074g). Two parallel experiments were conducted: One without DABSO and one with DABSO addition (8.0 mmol, 1.92 g) addition. To each mixture, *N*-arylacrylamide **3a** (5.0 mmol, 1.31g), PTH (5 mol%, 0.11g), Bu<sub>4</sub>NBr (10 mol%, 258 mg) and 2,6-lutidine (16.0 mmol, 1.86 mL) were added to a Schlenk tube, and the mixture was degassed under vacuum and purged with argon for three times at room temperature. CH<sub>3</sub>CN (20 mL) and DMSO (20 mL) were added and the mixture was stirred for 18 h above the LEDs at room temperature. After the reaction is complete, the reaction mixture was filtered through a pad of Celite. The filtrate was concentrated in vacuo to afford crude products, which were purified by flash column chromatography on silica gel to give the pure products **4aa** (1.45 g, 59%) and **5a** (1.63 g, 55%), respectively.

## 2.5. Mechanism Experiments

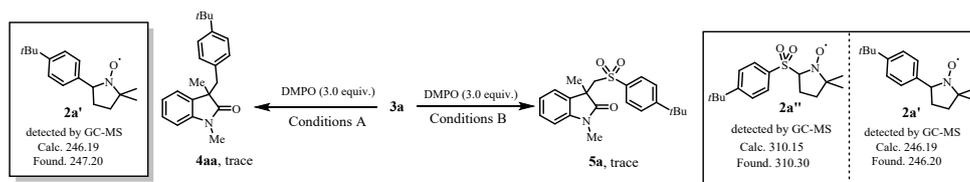
### 2.5.1. Radical- trapping with TEMPO



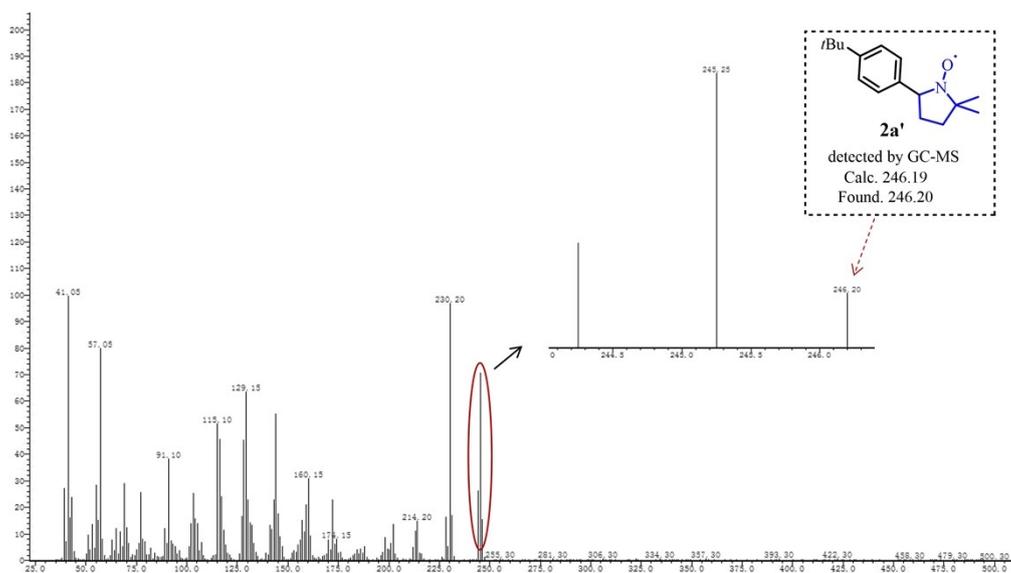
The reaction of the dibenzothiopheneoxide (0.33 mmol, 66 mg), *tert*-butylbenzene (0.30 mmol, 40.2 mg) and trifluoromethanesulfonic anhydride (0.36 mmol, 61 μL) in DCM (1.5 mL). Two parallel experiments were conducted: One without DABSO and one with DABSO addition. To each reaction mixture, *N*-phenylacrylamide (131.2 mg, 0.750 mmol), PTH (5 mol%, 4.1 mg), Bu<sub>4</sub>NBr (10 mol%, 9.7 mg), 2,6-lutidine (68 μL, 0.600 mmol), and TEMPO (3.0 equivalents) were subsequently added to a Schlenk

tube, and the mixture was degassed under vacuum and purged with argon for three times at room temperature. CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 ml) were added and the mixture was stirred for 18 h above the LEDs at room temperature. After the reaction is complete, the reaction mixture was filtered through a pad of Celite, and products **4aa** and **5a** were detected.

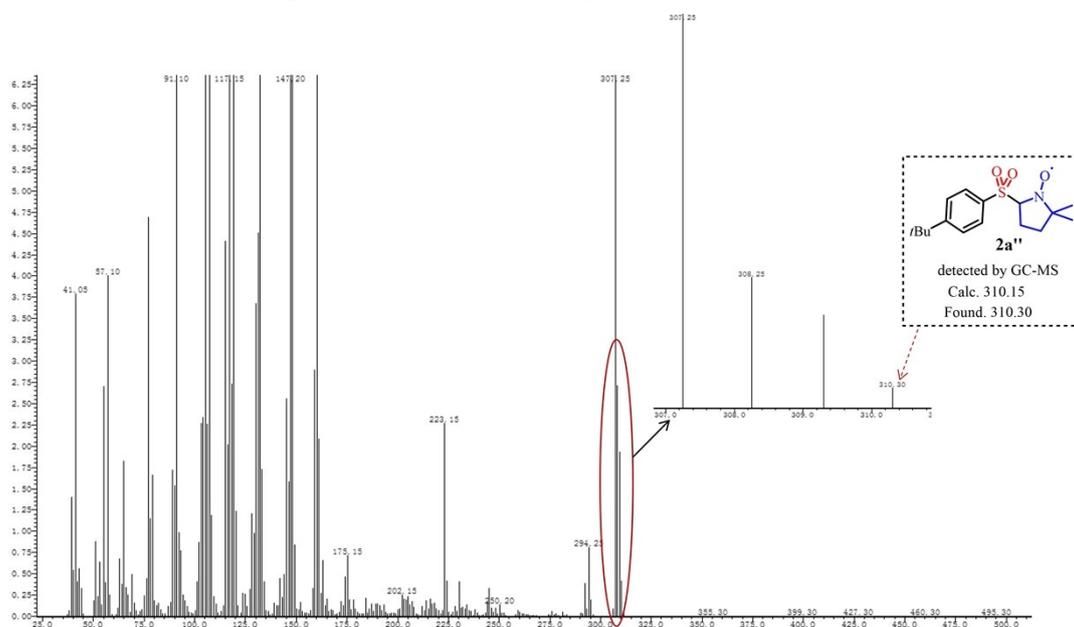
### 2.5.2. Radical- trapping with DMPO



The reaction of the dibenzothiopheneoxide (0.33 mmol, 66 mg), tert-butylbenzene (0.30 mmol, 40.2 mg) and trifluoromethanesulfonic anhydride (0.36 mmol, 61 μL) in DCM (1.5 mL). Two parallel experiments were conducted: One without DABSO and one with DABSO addition. To each reaction mixture, *N*-phenylacrylamide (0.750 mmol, 131.2 mg), PTH (5 mol%, 4.1 mg), Bu<sub>4</sub>NBr (10 mol%, 9.7 mg) and 2,6-lutidine (0.600 mmol, 68 μL) and 5,5-dimethyl-1-pyrroline *N*-oxide (DMPO) (3.0 equiv.) were added to a Schlenk tube, and the mixture was degassed under vacuum and purged with argon for three times at room temperature. CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 ml) were added and the mixture was stirred for 18 h above the LEDs at room temperature. After the reaction is complete, the reaction mixture was filtered through a pad of Celite. The diluted filtrate was analyzed by GC-MS, and a trace amounts of products **4aa** and **5a** were detected. Meanwhile, possible radical intermediates adducts **2a'** and **2a''** were also detected.

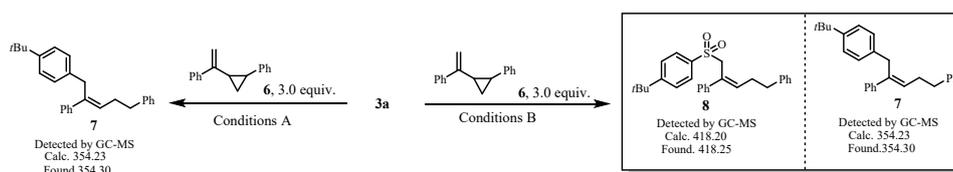


**Figure S1.** The GC-MS analysis of compound **2a'**



**Figure S2.** The GC-MS analysis of compound **2a''**

### 2.5.3. Radical clock experiments



The reaction of the dibenzothiopheneoxide (0.33 mmol, 66 mg), *tert*-butylbenzene (0.30 mmol, 40.2 mg) and trifluoromethanesulfonic anhydride (0.36 mmol, 61  $\mu$ L) in DCM (1.5 mL). Two parallel experiments were conducted: One without DABSO and

one with DABSO addition. To each reaction mixture, *N*-phenylmethacrylamide (0.750 mmol, 131.2 mg), PTH (5 mol%, 4.1 mg), Bu<sub>4</sub>NBr (10 mol%, 9.7 mg) and 2,6-lutidine (0.600 mmol, 68 μL) and **6** (3.0 equiv.) were added to a Schlenk tube, and the mixture was degassed under vacuum and purged with argon for three times at room temperature. CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL) were added and the mixture was stirred for 18 h above the LEDs at room temperature. After the reaction is complete, the reaction mixture was filtered through a pad of Celite. The diluted filtrate was analyzed by GC-MS, and the ring-opened products **7** and **8** were detected.

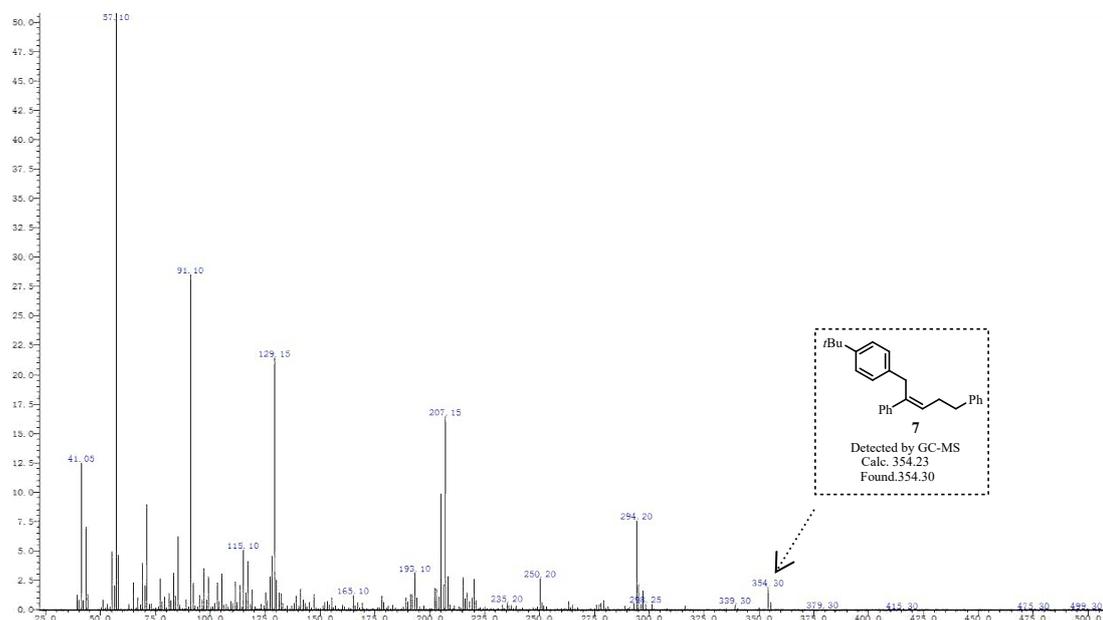


Figure S3. The GC-MS analysis of compound **7**

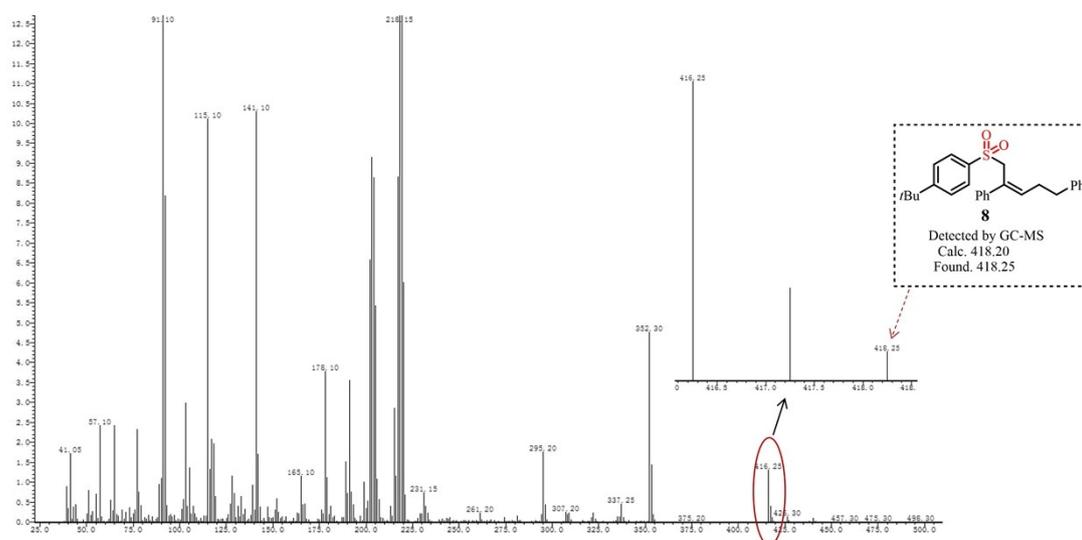


Figure S4. The GC-MS analysis of compound **8**

### 2.5.4. Stern-Volmer fluorescence quenching experiments

The Stern-Volmer fluorescence quenching experiment Emission intensities were recorded using a 198-5303 PC Fluorescence Spectrometer for all experiments. All PTH solutions were excited at 329 nm and the emission intensity at 380-550 nm was collected. CH<sub>3</sub>CN/DMSO was degassed with a stream of N<sub>2</sub> for 30 min. All the solutions were prepared under N<sub>2</sub> atmosphere. In a typical experiment, the emission spectrum of a 1x10<sup>-4</sup> M solution of PTH in CH<sub>3</sub>CN/DMSO was collected. Then appropriate amount of quencher (**2a**, DABSO, **3a**) was added to the measured solution in a 5.0 cm quartz cuvette and the emission spectrum of the sample was collected. Here, I<sub>0</sub> and I represent the intensities of the emission in the absence and presence of the quencher.

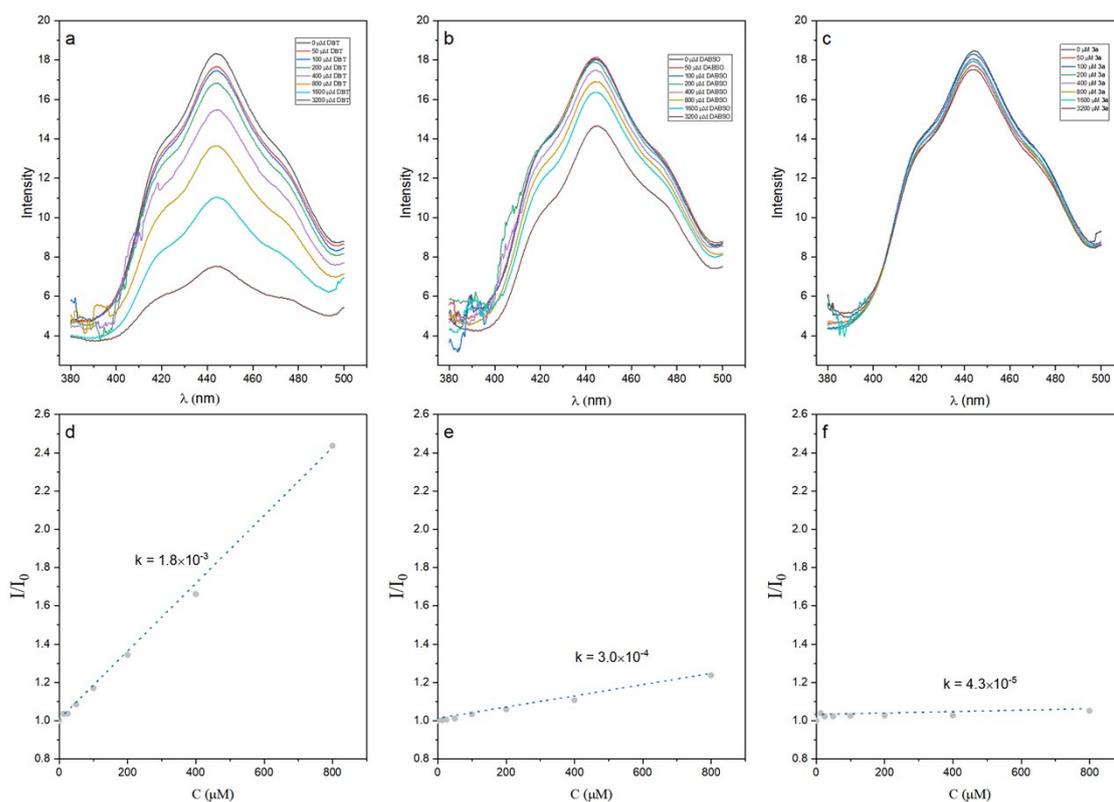
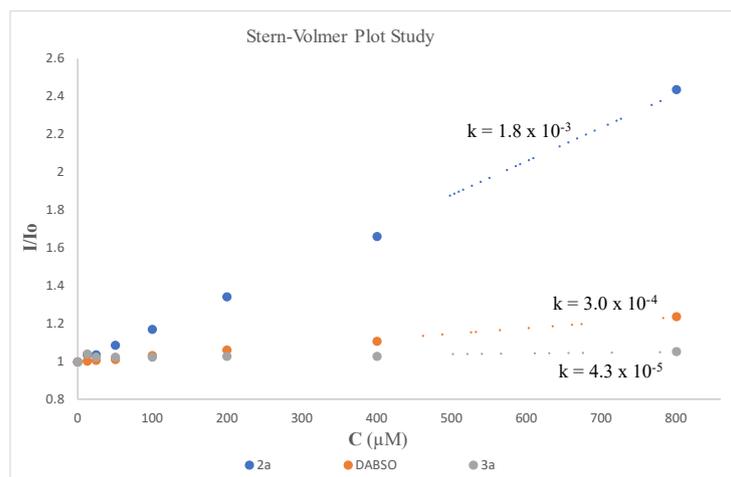
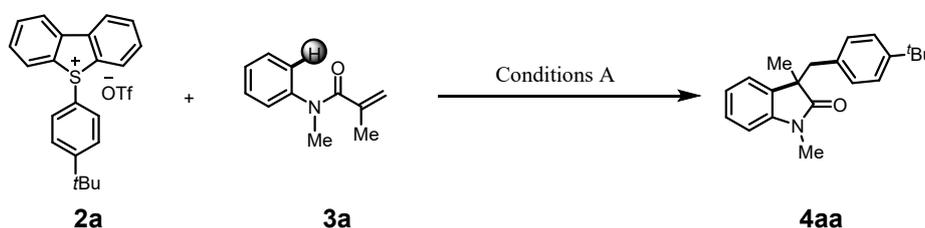


Figure S5. Emission spectra and Stern–Volmer plot study



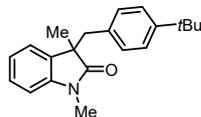
### 2.5.5. Control experiments



Entry	Variation	Yield
1	no PTH	0
2	no PTH K <sub>2</sub> CO <sub>3</sub> instead of 2,6-lutidine	0
3	no light	0

## 2.6. Characterization Date of All Products

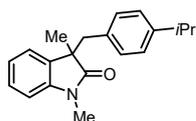
### 3-(4-(*tert*-butyl) benzyl)-1,3-dimethylindolin-2-one (**4aa**)



Compound **4aa** (m.p.: 111 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4aa** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 72% (66.3 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl

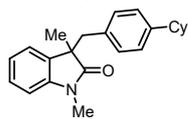
acetate/hexanes ( $R_f = 0.45$ , 10% ethyl acetate/hexanes).  $^1\text{H NMR}$  (600 MHz,  $\text{CDCl}_3$ )  $\delta$  7.20 (td,  $J = 7.8, 1.2$  Hz, 1H), 7.09 (d,  $J = 7.8$  Hz, 3H), 7.03 (t,  $J = 7.2$  Hz, 1H), 6.78 (d,  $J = 8.4$  Hz, 1H), 6.64 (d,  $J = 7.8$  Hz, 1H), 3.01 (d,  $J = 3.6$  Hz, 2H), 2.99 (s, 3H), 1.45 (s, 3H), 1.22 (s, 9H);  $^{13}\text{C NMR}$  (150 MHz,  $\text{CDCl}_3$ )  $\delta$  180.1, 149.2, 143.2, 133.3, 133.0, 129.6, 127.7, 124.3, 123.4, 122.0, 107.7, 49.7, 44.0, 34.3, 31.3, 25.9, 22.5; **HRMS (ESI<sup>+</sup>)** Calcd for  $\text{C}_{21}\text{H}_{25}\text{NO}$   $[\text{M}+\text{H}]^+$  308.2009, found 308.2009.

### 3-(4-isopropylbenzyl)-1,3-dimethylindolin-2-one (4ba)



Compound **4ba** (m.p.: 113 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ba** was obtained through the reaction of Ar-DBT **2b** derived from **1b** (36.0 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 70% (61.5 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes ( $R_f = 0.40$ , 10% ethyl acetate/hexanes).  $^1\text{H NMR}$  (600 MHz,  $\text{CDCl}_3$ )  $\delta$  7.19 (td,  $J = 0.6, 7.2$  Hz, 1H), 7.09 (d,  $J = 7.2$  Hz, 1H), 7.03 (t,  $J = 7.2$  Hz, 1H), 6.92 (d,  $J = 7.8$  Hz, 2H), 6.77 (d,  $J = 8.4$  Hz, 2H), 6.63 (d,  $J = 7.8$  Hz, 1H), 3.03 (d,  $J = 13.2$  Hz, 1H), 3.01-2.98 (m, 4H), 2.80-2.74 (m, 1H), 1.45 (s, 3H), 1.15 (dd,  $J = 2.4, 7.2$  Hz, 6H);  $^{13}\text{C NMR}$  (150 MHz,  $\text{CDCl}_3$ )  $\delta$  180.1, 147.0, 143.2, 133.4, 133.2, 129.8, 127.6, 125.5, 123.4, 122.0, 107.7, 49.8, 44.1, 33.6, 25.9, 24.0, 23.9, 22.5; **HRMS (ESI<sup>+</sup>)** Calcd for  $\text{C}_{20}\text{H}_{23}\text{NO}$   $[\text{M}+\text{H}]^+$  294.1852, found 294.1852.

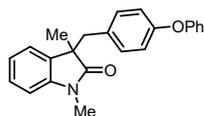
### 3-(4-cyclohexylbenzyl)-1,3-dimethylindolin-2-one (4ca)



Compound **4ca** (m.p.: 103 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ca** was obtained through the reaction of Ar-DBT **2c** derived from **1c** (48.0 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and

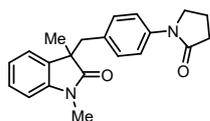
DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 66% (65.9 mg) as a white solid after purification via silica gel column chromatography with 20% ethyl acetate/hexanes R<sub>f</sub> = 0.4, 20% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.19 (t, *J* = 7.8 Hz, 1H), 7.09 (d, *J* = 7.2 Hz, 1H), 7.03 (t, *J* = 7.2 Hz, 1H), 6.90 (d, *J* = 7.8 Hz, 2H), 6.76 (d, *J* = 7.8 Hz, 2H), 6.62 (d, *J* = 7.8 Hz, 1H), 3.03 (d, *J* = 12.6 Hz, 1H), 3.01-2.97 (m, 4H), 2.39-2.33(m, 1H), 1.81-1.74 (m, 4H), 1.71 (d, *J* = 13.2 Hz, 1H), 1.45 (s, 3H), 1.36-1.28(m, 4H), 1.23-1.18(m, 1H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 180.1, 146.2, 143.2, 133.4, 133.2, 129.7, 127.6, 125.8, 123.4, 122.0, 107.7, 49.8, 44.1, 44.0, 34.4, 34.3, 26.8, 26.1, 25.8, 22.4; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>23</sub>H<sub>27</sub>NO [M+H]<sup>+</sup> 334.2165, found 334.2165.

### 1,3-dimethyl-3-(4-phenoxybenzyl) indolin-2-one (4da)



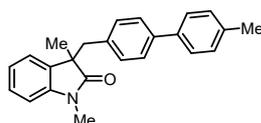
Compound **4da** (m.p.: 133 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4da** was obtained through the reaction of Ar-DBT **2d** derived from **1d** (51.0 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 74% (76.2 mg) as a white solid after purification via silica gel column chromatography with 12.5% ethyl acetate/hexanes (R<sub>f</sub> = 0.50, 12.5% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.29-7.26 (m, 2H), 7.20 (td, *J* = 7.8, 1.2 Hz, 1H), 7.15 (d, *J* = 7.2 Hz, 1H), 7.07-7.03 (m, 2H), 6.86 (d, *J* = 7.8 Hz, 2H), 6.80 (d, *J* = 8.4 Hz 2H), 6.70 (d, *J* = 9.0 Hz, 2H), 6.64 (d, *J* = 7.8 Hz, 1H), 3.12 (d, *J* = 12.6 Hz, 1H), 3.01 (s, 3H), 2.99 (d, *J* = 13.2 Hz, 1H), 1.48 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.9, 157.5, 155.5, 143.2, 132.9, 131.3, 131.0, 129.6, 127.8, 123.2, 122.9, 122.1, 118.3, 118.2, 107.7, 50.0, 43.9, 25.9, 22.6; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>23</sub>H<sub>21</sub>NO<sub>2</sub> [M+H]<sup>+</sup> 344.1645, found 344.1645.

### 1,3-dimethyl-3-(4-(2-oxopyrrolidin-1-yl) benzyl) indolin-2-one (4ea)



Compound **4ea** (m.p.: 144 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ea** was obtained through the reaction of Ar-DBT **2e** derived from **1e** (48.3 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 61% (61.1 mg) as a white solid after purification via silica gel column chromatography with 50% ethyl acetate/hexanes (R<sub>f</sub> = 0.30, 50% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.33 (d, *J* = 8.4 Hz, 2H), 7.18 (t, *J* = 7.8 Hz, 1H), 7.12 (d, *J* = 7.2 Hz, 1H), 7.02 (t, *J* = 7.8 Hz, 1H), 6.85 (d, *J* = 8.4 Hz, 2H), 6.64 (d, *J* = 7.8 Hz, 1H), 3.75 (t, *J* = 7.2 Hz, 2H), 3.08 (d, *J* = 13.2 Hz, 1H), 3.02-2.97 (m, 4H), 2.55 (t, *J* = 8.4 Hz, 2H), 2.12-2.06 (m, 2H), 1.45 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 179.9, 174.0, 143.1, 137.9, 132.9, 132.3, 130.2, 127.8, 123.2, 122.1, 118.7, 107.9, 49.8, 48.6, 43.7, 32.8, 25.9, 22.9, 17.8; HRMS (ESI<sup>+</sup>) Calcd for C<sub>21</sub>H<sub>22</sub>N<sub>2</sub>O<sub>2</sub> [M+H]<sup>+</sup> 335.1754, found 335.1754.

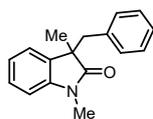
### 1,3-dimethyl-3-((4'-methyl-[1,1'-biphenyl]-4-yl) methyl) indolin-2-one (4fa)



Compound **4fa** (m.p.: 135 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4fa** was obtained through the reaction of Ar-DBT **2f** derived from **1f** (50.4 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 68% (69.6 mg) as a white solid after purification via silica gel column chromatography with 12.5% ethyl acetate/hexanes (R<sub>f</sub> = 0.45, 12.5% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>)

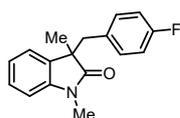
$\delta$  7.40 (d,  $J = 7.8$  Hz, 2H), 7.29 (d,  $J = 7.8$  Hz, 2H), 7.20 (d,  $J = 6.6$  Hz, 3H), 7.16 (d,  $J = 7.2$  Hz, 1H), 7.05 (t,  $J = 7.8$  Hz, 1H), 6.90 (d,  $J = 7.8$  Hz, 2H), 6.63 (d,  $J = 7.2$  Hz, 1H), 3.14 (d,  $J = 12.6$  Hz, 1H), 3.05 (d,  $J = 12.6$  Hz, 1H), 3.00 (s, 3H), 2.36 (s, 3H), 1.50 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  180.0, 143.2, 139.0, 137.8, 136.8, 135.0, 133.0, 130.2, 129.4, 127.8, 126.6, 125.9, 123.3, 122.1, 107.8, 49.9, 44.1, 25.9, 22.7; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{24}\text{H}_{23}\text{NO}$   $[\text{M}+\text{H}]^+$  342.1852, found 342.1850.

### 3-benzyl-1,3-dimethylindolin-2-one (4ga)



Compound **4ga** (m.p.: 130 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ga** was obtained through the reaction of Ar-DBT **2g** derived from **1g** (23.4 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 65% (48.9 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes ( $R_f = 0.45$ , 10% ethyl acetate/hexanes).  $^1\text{H}$  NMR (600 MHz,  $\text{CDCl}_3$ )  $\delta$  7.18 (td,  $J = 7.8, 1.2$  Hz, 1H), 7.12 (d,  $J = 7.2$  Hz, 1H), 7.08-7.02 (m, 4H), 6.84 (d,  $J = 6.0$  Hz, 2H), 6.61 (d,  $J = 7.8$  Hz, 1H), 3.12 (d,  $J = 13.2$  Hz, 1H), 3.01 (d,  $J = 13.2$  Hz, 1H), 2.98 (s, 3H), 1.47 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  179.9, 143.1, 136.2, 133.0, 129.8, 127.7, 127.4, 126.4, 123.3, 122.0, 107.7, 49.9, 44.5, 25.8, 22.7; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{17}\text{H}_{17}\text{NO}$   $[\text{M}+\text{H}]^+$  252.1383, found 252.1383.

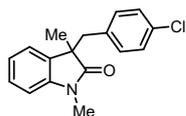
### 3-(4-fluorobenzyl)-1,3-dimethylindolin-2-one (4ha)



Compound **4ha**<sup>3</sup> was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ha** was obtained through the reaction of Ar-DBT **2h** derived from **1h** (28.8 mg, 0.30 mmol), with *N*-arylacrylamide

**3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 63% (50.8 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.30, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.19 (t, *J* = 7.8 Hz, 1H), 7.16 (d, *J* = 7.2 Hz, 1H), 7.05 (t, *J* = 7.8 Hz, 1H), 6.80-6.76 (m, 2H), 6.72 (t, *J* = 9.0 Hz, 2H), 6.62 (d, *J* = 7.8 Hz, 1H), 3.11 (d, *J* = 13.2 Hz, 1H), 2.99-2.95 (m, 4H), 1.47 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.7, 162.4, 160.8, 143.1, 132.8, 131.9 (d, *J* = 4.5 Hz), 131.1 (d, *J* = 9.0 Hz), 127.9, 123.1, 122.1, 114.3, 114.2, 107.8, 50.0, 43.7, 25.8, 22.7; **<sup>19</sup>F NMR** (565 MHz, CDCl<sub>3</sub>) δ -116.6; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>17</sub>H<sub>16</sub>FNO [M+H]<sup>+</sup> 270.1289, found 270.1289.

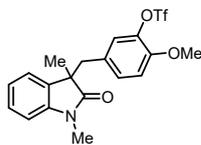
### 3-(4-chlorobenzyl)-1,3-dimethylindolin-2-one (**4ia**)



Compound **4ia**<sup>3</sup> was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ia** was obtained through the reaction of Ar-DBT **2i** derived from **1i** (33.6 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 71% (60.7 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes R<sub>f</sub> = 0.30, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.20 (t, *J* = 8.4 Hz, 1H), 7.16 (d, *J* = 7.2 Hz, 1H), 7.05 (t, *J* = 7.8 Hz, 1H), 7.00 (d, *J* = 8.4 Hz, 2H), 6.76 (d, *J* = 8.4 Hz, 2H), 6.63 (d, *J* = 7.8 Hz, 1H), 3.11 (d, *J* = 13.2 Hz, 1H), 2.99 (s, 3H), 2.96 (d, *J* = 13.2 Hz, 1H), 1.47 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.6, 143.1, 134.7, 132.6, 132.3, 131.0, 127.9, 127.6, 123.1, 122.2, 107.9, 49.9, 43.8, 25.9, 22.9; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>17</sub>H<sub>16</sub>ClNO [M+H]<sup>+</sup> 286.0993, found 286.0993.

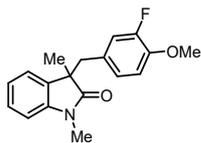
**5-((1,3-dimethyl-2-oxindolin-3-yl)  
trifluoromethanesulfonate (4ja)**

**methyl)-2-methoxyphenyl**



Compound **4ja** (m.p.: 97 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ja** was obtained through the reaction of Ar-DBT **2j** derived from **1j** (76.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 67% (86.2 mg) as a white solid after purification via silica gel column chromatography with 12.5% ethyl acetate/hexanes (R<sub>f</sub> = 0.25, 12.5% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.20 (t, *J* = 7.8 Hz, 1H), 7.16 (d, *J* = 7.2 Hz, 1H), 7.06 (t, *J* = 7.2 Hz, 1H), 6.80 (d, *J* = 8.4 Hz, 1H), 6.70 (d, *J* = 9.0 Hz, 1H), 6.65 (d, *J* = 9.0 Hz, 2H), 3.79 (s, 3H), 3.09 (d, *J* = 13.2 Hz, 1H), 2.98 (s, 3H), 2.95 (d, *J* = 13.2 Hz, 1H), 1.46 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 179.4, 149.9, 143.1, 137.7, 132.4, 130.4, 129.4, 128.1, 123.4, 122.9, 122.3, 118.6 (q, *J* = 319.5 Hz), 112.0, 108.1, 56.0, 49.9, 43.3, 25.8, 22.7; <sup>19</sup>F NMR (565 MHz, CDCl<sub>3</sub>) δ -74.0; HRMS (ESI<sup>+</sup>) Calcd for C<sub>19</sub>H<sub>18</sub>F<sub>3</sub>NO<sub>5</sub>S [M+H]<sup>+</sup> 430.0931, found 430.0929.

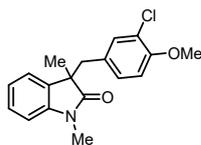
**3-(3-fluoro-4-methoxybenzyl)-1,3-dimethylindolin-2-one (4ka)**



Compound **4ka**<sup>3</sup> was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ka** was obtained through the reaction of Ar-DBT **2k** derived from **1k** (37.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and

DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 59% (52.9 mg) as a white solid after purification via silica gel column chromatography with 12.5% ethyl acetate/hexanes (R<sub>f</sub> = 0.25, 12.5% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.20 (td, *J* = 7.8, 1.2 Hz, 1H), 7.14 (d, *J* = 7.2 Hz, 1H), 7.05 (t, *J* = 7.2 Hz, 1H), 6.66-6.63 (m, 2H), 6.58 (d, *J* = 8.4 Hz, 1H), 6.53 (dd, *J* = 1.8, 12.0 Hz, 1H), 3.77 (s, 3H), 3.06 (d, *J* = 13.2 Hz, 1H), 3.01 (s, 3H), 2.92 (d, *J* = 13.2 Hz, 1H), 1.45 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.7, 152.2, 150.6, 146.1 (d, *J* = 10.5 Hz), 143.1, 132.8, 129.3 (d, *J* = 6.0 Hz), 127.9, 125.5 (d, *J* = 3.0 Hz), 123.0, 122.2, 117.2 (d, *J* = 18.0 Hz), 112.3, 107.9, 56.0, 49.9, 43.5, 25.9, 22.8; **<sup>19</sup>F NMR** (565 MHz, CDCl<sub>3</sub>) δ -136.4; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>18</sub>H<sub>18</sub>FNO<sub>2</sub> [M+H]<sup>+</sup> 300.1394, found 300.1394.

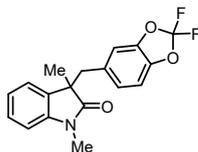
### 3-(3-chloro-4-methoxybenzyl)-1,3-dimethylindolin-2-one (4la)



Compound **4la** (m.p.: 93 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4la** was obtained through the reaction of Ar-DBT **2l** derived from **1l** (42.6 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 72% (68.0 mg) as a white solid after purification via silica gel column chromatography with 12.5% ethyl acetate/hexanes R<sub>f</sub> = 0.25, 12.5% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.20 (td, *J* = 7.8, 1.2 Hz, 1H), 7.14 (d, *J* = 7.2 Hz, 1H), 7.06 (t, *J* = 7.2 Hz, 1H), 6.81 (d, *J* = 2.4 Hz, 1H), 6.73 (dd, *J* = 8.4, 1.8 Hz, 1H), 6.65 (d, *J* = 7.8 Hz, 1H), 6.61 (d, *J* = 8.4 Hz, 1H), 3.79 (s, 3H), 3.04 (d, *J* = 13.8 Hz, 1H), 3.01 (s, 3H), 2.91 (d, *J* = 13.2 Hz, 1H), 1.45 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.7, 153.5, 143.1, 132.7, 131.2, 129.4, 129.1, 127.9, 123.1, 122.2, 121.2, 111.0, 107.9, 56.0, 49.9, 43.3, 25.9,

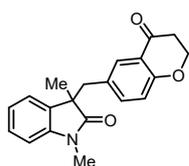
22.7; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>18</sub>H<sub>18</sub>ClNO<sub>2</sub> [M+H]<sup>+</sup> 316.1099, found 316.1099.

**3-((2,2-difluorobenzo[d][1,3] dioxol-5-yl) methyl)-1,3-dimethylindolin-2-one (4ma)**



Compound **4ma** (m.p.: 91 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ma** was obtained through the reaction of Ar-DBT **2m** derived from **1m** (47.4 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 69% (68.5 mg) as a white solid after purification via silica gel column chromatography with 12.5% ethyl acetate/hexanes (R<sub>f</sub> = 0.45, 12.5% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.22 (t, *J* = 7.8 Hz, 1H), 7.17 (d, *J* = 7.2 Hz, 1H), 7.07 (t, *J* = 7.2 Hz, 1H), 6.72 (d, *J* = 8.4 Hz, 1H), 6.66 (d, *J* = 7.8 Hz, 1H), 6.56 (d, *J* = 6.6 Hz, 2H), 3.14 (d, *J* = 13.2 Hz, 1H), 3.02 (s, 3H), 2.98 (d, *J* = 13.2 Hz, 1H), 1.46 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.5, 143.0 (d, *J* = 9.0 Hz), 142.3, 132.5, 132.4, 131.5, 128.1, 124.9, 123.0, 122.3, 110.8, 108.4, 108.1, 60.4, 50.0, 44.0, 26.0, 23.0, 21.0, 14.2; **<sup>19</sup>F NMR** (565 MHz, CDCl<sub>3</sub>) δ -49.9, -50.1, -50.2, -50.3; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>18</sub>H<sub>15</sub>F<sub>2</sub>NO<sub>3</sub> [M+H]<sup>+</sup> 332.1093, found 332.1093.

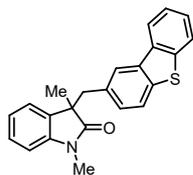
**1,3-dimethyl-3-((4-oxochroman-7-yl) methyl) indolin-2-one (4na)**



Compound **4na** (m.p.: 99 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4na** was obtained through the reaction of Ar-DBT **2n** derived from **1n** (44.4 mg, 0.30 mmol), with *N*-

arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 62% (59.7 mg) as a white solid after purification via silica gel column chromatography with 25% ethyl acetate/hexanes (R<sub>f</sub> = 0.34, 25% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.34 (d, *J* = 1.2 Hz, 1H), 7.18 (t, *J* = 7.8 Hz, 1H), 7.12 (d, *J* = 7.2 Hz, 1H), 7.06-7.02(m, 2H), 6.69 (d, *J* = 8.4 Hz, 1H), 6.64 (d, *J* = 7.8 Hz, 1H), 4.42 (t, *J* = 6.6 Hz, 2H), 3.08 (d, *J* = 13.2 Hz, 1H), 3.03 (s, 3H), 2.96 (d, *J* = 13.8 Hz, 1H), 2.70 (t, *J* = 6.6 Hz, 2H), 1.45 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 191.4, 179.8, 160.5, 143.0, 137.5, 132.6, 129.5, 128.0, 127.9, 123.2, 122.3, 120.4, 117.0, 107.8, 66.9, 49.6, 43.3, 37.7, 26.0, 22.7; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>20</sub>H<sub>19</sub>NO<sub>3</sub> [M+H]<sup>+</sup> 322.1438, found 322.1439.

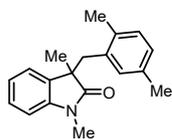
### 3-(dibenzo [b, d] thiophen-2-ylmethyl)-1,3-dimethylindolin-2-one (**4oa**)



Compound **4oa** (m.p.: 117 °C) was synthesized following the General **A** Procedure for the Modular Construction of Oxindoles. The product **4oa** was obtained through the reaction of Ar-DBT **2o** derived from **1o** (55.2 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 78% (83.5 mg) as a white solid after purification via silica gel column chromatography with 20% ethyl acetate/hexanes (R<sub>f</sub> = 0.50, 20% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.97-7.94 (m, 1H), 7.80-7.77 (m, 1H), 7.61 (s, 1H), 7.52 (d, *J* = 7.8 Hz, 1H), 7.42-7.39 (m, 2H), 7.22 (d, *J* = 7.8 Hz, 1H), 7.16 (t, *J* = 7.2 Hz, 1H), 7.07 (t, *J* = 7.2 Hz, 1H), 6.96 (d, *J* = 8.4 Hz, 1H), 6.56 (d, *J* = 7.8 Hz, 1H), 3.31 (d, *J* = 13.2 Hz, 1H), 3.19 (d, *J* = 13.2 Hz, 1H), 2.93 (s, 3H), 1.54 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.9, 143.2, 139.5, 137.5, 135.4, 135.0, 132.9, 132.6, 128.8, 127.9, 126.5, 124.2, 123.2,

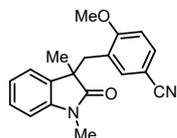
122.7, 122.5, 122.1, 121.7, 121.4, 107.9, 50.1, 44.5, 25.9, 22.8; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>23</sub>H<sub>19</sub>NOS [M+H]<sup>+</sup> 358.1260, found 358.1260.

### 3-(2,5-dimethylbenzyl)-1,3-dimethylindolin-2-one (4pa)



Compound **4pa** (m.p.: 118 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4pa** was obtained through the reaction of Ar-DBT **2p** derived from **1p** (31.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 60% (50.2 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.35, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.20 (t, *J* = 7.8 Hz, 1H), 6.94 (t, *J* = 7.2 Hz, 1H), 6.89 (d, *J* = 7.2 Hz, 1H), 6.85 (t, *J* = 6.0 Hz, 2H), 6.72 (d, *J* = 7.8 Hz, 2H), 3.11 (s, 3H), 3.05 (d, *J* = 13.2 Hz, 1H), 3.50 (d, *J* = 13.8 Hz, 1H), 2.18 (s, 3H), 1.96 (s, 3H), 1.46 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 180.6, 143.1, 134.5, 134.3, 133.9, 133.1, 131.3, 130.0, 127.7, 127.3, 123.8, 121.8, 107.6, 49.2, 40.0, 26.0, 22.3, 20.8, 19.4; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>19</sub>H<sub>21</sub>NO [M+H]<sup>+</sup> 280.1696, found 280.1696.

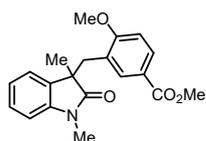
### 3-((1,3-dimethyl-2-oxoindolin-3-yl) methyl)-4-methoxybenzotrile (4qa)



Compound **4qa** (m.p.: 166 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4qa** was obtained through the reaction of Ar-DBT **2q** derived from **1q** (39.9 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN

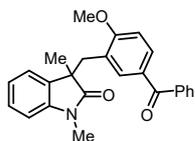
(0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 79% (72.5 mg) as a white solid after purification via silica gel column chromatography with 20% ethyl acetate/hexanes ( $R_f = 0.25$ , 20% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.36 (d,  $J = 8.4$  Hz, 1H), 7.23 (s, 1H), 7.14 (t,  $J = 7.8$  Hz, 1H), 7.06 (d,  $J = 7.2$  Hz, 1H), 6.95 (t,  $J = 7.8$  Hz, 1H), 6.63 (d,  $J = 5.4$  Hz, 2H), 3.62 (s, 3H), 3.31 (d,  $J = 13.2$  Hz, 1H), 3.10 (s, 3H), 2.98 (d,  $J = 13.2$  Hz, 1H), 1.44 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.9, 160.6, 142.8, 134.4, 132.7, 132.4, 127.8, 126.8, 123.7, 121.6, 119.1, 110.4, 107.6, 103.0, 55.1, 49.4, 36.4, 26.0, 22.7; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>19</sub>H<sub>18</sub>N<sub>2</sub>O<sub>2</sub> [M+H]<sup>+</sup> 307.1441, found 307.1440.

#### **Methyl 3-((1,3-dimethyl-2-oxindolin-3-yl) methyl)-4-methoxybenzoate (4ra)**



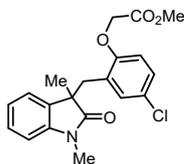
Compound **4ra** (m.p.: 90 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ra** was obtained through the reaction of Ar-DBT **2r** derived from **1r** (49.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 76% (77.3 mg) as a white solid after purification via silica gel column chromatography with 20% ethyl acetate/hexanes ( $R_f = 0.30$ , 20% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.78 (d,  $J = 9.0$  Hz, 1H), 7.64 (s, 1H), 7.12 (t,  $J = 7.8$  Hz, 1H), 6.98 (d,  $J = 7.2$  Hz, 1H), 6.91 (t,  $J = 7.8$  Hz, 1H), 6.63 (d,  $J = 8.4$  Hz, 2H), 3.84 (s, 3H), 3.61 (s, 3H), 3.29 (d,  $J = 13.2$  Hz, 1H), 3.10 (s, 3H), 3.01 (d,  $J = 13.2$  Hz, 1H), 1.44 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 180.3, 166.9, 161.1, 142.9, 133.0, 132.4, 130.2, 127.5, 125.2, 123.7, 121.6, 121.4, 109.4, 107.4, 55.0, 51.8, 49.2, 36.7, 26.0, 22.6; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>20</sub>H<sub>21</sub>NO<sub>4</sub> [M+H]<sup>+</sup> 340.1543, found 340.1541.

### 3-(2-benzoyl-5-methoxybenzyl)-1,3-dimethylindolin-2-one (4sa)



Compound **4sa** (m.p.: 162 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4sa** was obtained through the reaction of Ar-DBT **2s** derived from **1s** (63.6 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 66% (76.2 mg) as a white solid after purification via silica gel column chromatography with 33% ethyl acetate/hexanes (R<sub>f</sub> = 0.5, 33% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.70-7.64 (m, 3H), 7.56 (t, *J* = 7.2 Hz, 1H), 7.48-7.43 (m, 3H), 7.15 (t, *J* = 7.8 Hz, 1H), 7.01 (d, *J* = 7.2 Hz, 1H), 6.94 (t, *J* = 7.2 Hz, 1H), 6.71 (d, *J* = 8.4 Hz, 1H), 6.66 (d, *J* = 7.8 Hz, 1H), 3.65 (s, 3H), 3.29 (d, *J* = 13.8 Hz, 1H), 3.09 (s, 3H), 3.04 (d, *J* = 13.2 Hz, 1H), 1.44 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 195.4, 180.2, 161.1, 142.9, 138.1, 133.8, 133.0, 131.8, 131.0, 129.6, 129.2, 128.1, 127.6, 125.1, 123.7, 121.6, 109.5, 107.5, 55.1, 49.1, 36.9, 26.0, 22.8; HRMS (ESI<sup>+</sup>) Calcd for C<sub>25</sub>H<sub>23</sub>NO<sub>3</sub> [M+H]<sup>+</sup> 386.1751, found 386.1750.

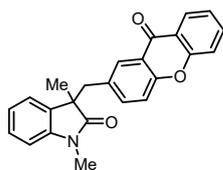
### Methyl 2-(4-chloro-2-((1,3-dimethyl-2-oxoindolin-3-yl) methyl) phenoxy) acetate (4ta)



Compound **4ta** (m.p.: 142 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ta** was obtained through the reaction of Ar-DBT **2t** derived from **1t** (60.0 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and

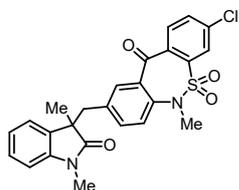
DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 88% (98.5 mg) as a white solid after purification via silica gel column chromatography with 20% ethyl acetate/hexanes (R<sub>f</sub> = 0.30, 20% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.16-7.09 (m, 2H), 7.02-6.96 (m, 2H), 6.91 (t, *J* = 7.2 Hz, 1H), 6.64 (d, *J* = 7.8 Hz, 1H), 6.38 (d, *J* = 9.0 Hz, 1H), 4.28 (q, *J* = 16.2 Hz, 2H), 3.80 (s, 3H), 3.38 (d, *J* = 13.2 Hz, 1H), 3.11 (s, 3H), 2.98 (d, *J* = 13.2 Hz, 1H), 1.46 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 180.2, 169.0, 154.2, 142.9, 132.7, 131.0, 127.7, 127.6, 127.4, 125.8, 123.9, 121.5, 65.4, 52.2, 49.4, 36.5, 26.0, 22.6; HRMS (ESI<sup>+</sup>) Calcd for C<sub>20</sub>H<sub>20</sub>ClNO<sub>4</sub> [M+H]<sup>+</sup> 374.1154, found 374.1151.

### 1,3-dimethyl-3-((9-oxo-9H-xanthen-3-yl) methyl) indolin-2-one (4ua)



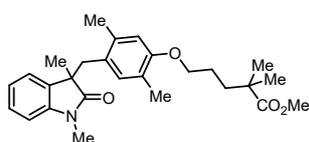
Compound **4ua**<sup>3</sup> was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ua** was obtained through the reaction of Ar-DBT **2u** derived from **1u** (58.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 64% (70.8 mg) as a white solid after purification via silica gel column chromatography with 20% ethyl acetate/hexanes (R<sub>f</sub> = 0.30, 20% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 8.26 (d, *J* = 7.8 Hz, 1H), 7.74 (s, 1H), 7.68 (t, *J* = 7.8 Hz, 1H), 7.42 (d, *J* = 8.4 Hz, 1H), 7.32 (dd, *J* = 7.2, 13.8 Hz, 2H), 7.21 (t, *J* = 9.0 Hz, 2H), 7.16 (t, *J* = 7.2 Hz, 1H), 7.07 (t, *J* = 7.2 Hz, 1H), 6.58 (d, *J* = 7.2 Hz, 1H), 3.27 (d, *J* = 13.2 Hz, 1H), 3.13 (d, *J* = 13.2 Hz, 1H), 3.00 (s, 3H), 1.51 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 179.7, 176.9, 156.0, 154.9, 142.9, 136.5, 134.6, 132.4, 132.3, 128.0, 127.3, 126.7, 123.8, 123.2, 122.5, 121.7, 120.9, 117.8, 117.1, 107.9, 49.8, 43.7, 26.0, 22.9; HRMS (ESI<sup>+</sup>) Calcd for C<sub>24</sub>H<sub>19</sub>NO<sub>3</sub> [M+H]<sup>+</sup> 370.1438, found 370.1440.

**2-chloro-9-((1,3-dimethyl-2-oxindolin-3-yl) methyl)-6-methyldibenzo [c, f] [1,2] thiazepin-11(6H)-one 5,5-dioxide (4va)**



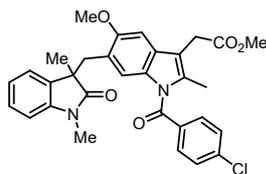
Compound **4va** (m.p.: 184 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4va** was obtained through the reaction of Ar-DBT **2v** derived from **1v** (92.1 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 55% (79.2 mg) as a white solid after purification via silica gel column chromatography with 25% ethyl acetate/hexanes (R<sub>f</sub> = 0.30, 25% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.90 (d, *J* = 2.4 Hz, 1H), 7.84 (d, *J* = 8.4 Hz, 1H), 7.69 (d, *J* = 1.8 Hz, 1H), 7.64 (dd, *J* = 8.4, 1.8 Hz, 1H), 7.21-7.16 (m, 3H), 7.08 (t, *J* = 7.8 Hz, 1H), 7.04 (d, *J* = 8.4 Hz, 1H), 6.61 (d, *J* = 7.2 Hz, 1H), 3.25 (s, 3H), 3.18 (d, *J* = 13.2 Hz, 1H), 3.06 (d, *J* = 13.2 Hz, 1H), 2.97 (s, 3H), 1.50 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 189.0, 179.4, 143.0, 139.6, 138.6, 138.3, 136.2, 134.6, 134.3, 133.1, 133.0, 132.3, 130.0, 128.1, 125.3, 123.7, 123.1, 122.4, 108.0, 49.7, 43.7, 38.8, 25.9, 22.5; HRMS (ESI<sup>+</sup>) Calcd for C<sub>25</sub>H<sub>21</sub>ClN<sub>2</sub>O<sub>4</sub>S [M+H]<sup>+</sup> 481.0983, found 481.0984.

**Methyl 5-(4-((1,3-dimethyl-2-oxindolin-3-yl) methyl)-2,5-dimethylphenoxy)-2,2-dimethylpentanoate (4wa)**



Compound **4wa** (**m.p.**: 148 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4wa** was obtained through the reaction of Ar-DBT **2w** derived from **1w** (79.2 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 63% (82.6 mg) as a white solid after purification via silica gel column chromatography with 20% ethyl acetate/hexanes (*R*<sub>f</sub> = 0.5, 20% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.20 (td, *J* = 0.6, 7.2 Hz, 1H), 6.94 (t, *J* = 7.2 Hz, 1H), 6.86 (d, *J* = 7.2 Hz, 1H), 6.71 (d, *J* = 7.8 Hz, 1H), 6.66 (s, 1H), 6.42 (s, 1H), 3.87-3.81 (m, 2H), 3.65 (s, 3H), 3.11 (s, 3H), 3.00 (d, *J* = 13.8 Hz, 1H), 2.92 (d, *J* = 13.8 Hz, 1H), 2.05 (s, 3H), 1.94 (s, 3H), 1.69 (d, *J* = 3.0 Hz, 4H), 1.44 (s, 3H), 1.20 (s, 6H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 180.8, 178.3, 155.4, 143.1, 135.3, 133.3, 132.9, 127.6, 126.2, 123.8, 123.1, 121.8, 112.8, 107.6, 67.9, 51.7, 49.4, 42.1, 39.4, 37.0, 26.0, 25.2, 22.2, 20.0, 15.5; **HRMS** (**ESI**<sup>+</sup>) Calcd for C<sub>27</sub>H<sub>35</sub>NO<sub>4</sub> [**M**+**H**]<sup>+</sup> 438.2639, found 438.2639.

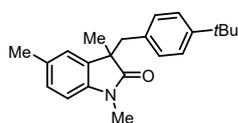
**Methyl 2-(1-(4-chlorobenzoyl)-6-((1,3-dimethyl-2-oxindolin-3-yl) methyl)-5-methoxy-2-methyl-1H-indol-3-yl) acetate (4xa)**



Compound **4xa** (**m.p.**: 184 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4xa** was obtained through the reaction of Ar-DBT **2x** derived from **1x** (111.3 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 51% (83.2 mg) as a white solid after purification via silica gel column chromatography with 33% ethyl acetate/hexanes (*R*<sub>f</sub> = 0.4, 33% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ

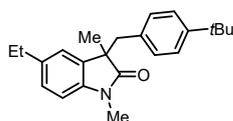
7.63 (d,  $J = 7.8$  Hz, 2H), 7.45 (d,  $J = 7.8$  Hz, 2H), 7.13 (t,  $J = 7.8$  Hz, 1H), 6.87 (t,  $J = 6.6$  Hz, 1H), 6.76 (d,  $J = 7.2$  Hz, 1H), 6.74 (s, 1H), 6.68 (d,  $J = 7.2$  Hz, 2H), 3.69 (s, 3H), 3.62 (s, 2H), 3.60 (s, 3H), 3.11 (s, 3H), 3.07 (d,  $J = 13.2$  Hz, 1H), 2.90 (d,  $J = 13.2$  Hz, 1H), 2.32 (s, 3H), 1.28 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  180.5, 171.4, 168.3, 154.4, 142.8, 139.2, 135.1, 133.9, 133.6, 131.0, 129.9, 129.2, 129.1, 127.3, 123.7, 121.6, 121.4, 117.0, 112.3, 107.5, 98.7, 55.1, 52.1, 48.9, 37.3, 30.2, 26.1, 22.3, 13.3; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{31}\text{H}_{29}\text{ClN}_2\text{O}_5$   $[\text{M}+\text{H}]^+$  545.1838, found 545.1840.

### 3-(4-(tert-butyl) benzyl)-1,3,5-trimethylindolin-2-one (4ab)



Compound **4ab** (m.p.: 108 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ba** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3b** (141.8 mg, 0.750 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 85% (81.8 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes ( $R_f = 0.35$ , 10% ethyl acetate/hexanes).  $^1\text{H}$  NMR (600 MHz,  $\text{CDCl}_3$ )  $\delta$  7.10 (d,  $J = 7.8$  Hz, 2H), 7.00 (d,  $J = 7.8$  Hz, 1H), 6.88 (s, 1H), 6.78 (d,  $J = 7.2$  Hz, 2H), 6.53 (d,  $J = 7.8$  Hz, 1H), 3.00 (s, 2H), 2.96 (s, 3H), 2.34 (s, 3H), 1.44 (s, 3H), 1.23 (s, 9H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  180.0, 149.2, 140.8, 133.3, 133.2, 131.4, 129.5, 127.8, 124.3, 107.4, 49.7, 43.9, 34.2, 31.3, 25.8, 22.6, 21.1; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{22}\text{H}_{27}\text{NO}$   $[\text{M}+\text{H}]^+$  322.2165, found 322.2165.

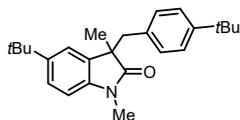
### 3-(4-(tert-butyl) benzyl)-5-ethyl-1,3-dimethylindolin-2-one (4ac)



Compound **4ac** (m.p.: 84 °C) was synthesized following the General A Procedure

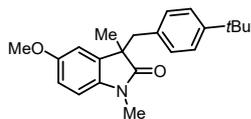
for the Modular Construction of Oxindoles. The product **4ac** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3c** (152.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 82% (82.4 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.35, 10% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.11 (d, *J* = 8.4 Hz, 2H), 7.02 (d, *J* = 8.4 Hz, 1H), 6.83-6.78 (m, 3H), 6.57 (d, *J* = 7.8 Hz, 1H), 3.02-2.99 (m, 4H), 2.98-2.94 (m, 1H), 2.64-2.59 (m, 2H), 1.44 (s, 3H), 1.25-1.20 (m, 12H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 180.2, 149.2, 140.9, 138.0, 133.23, 133.18, 129.7, 126.7, 124.3, 123.3, 107.4, 49.6, 43.9, 34.3, 31.3, 28.6, 25.9, 22.3, 16.1; HRMS (ESI<sup>+</sup>) Calcd for C<sub>23</sub>H<sub>29</sub>NO [M+H]<sup>+</sup> 336.2322, found 336.2322.

#### 5-(*tert*-butyl)-3-(4-(*tert*-butyl) benzyl)-1,3-dimethylindolin-2-one (**4ad**)



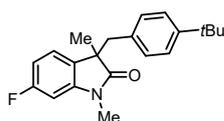
Compound **4ad** (m.p.: 102 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ad** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3d** (173.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 73% (79.5 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.47, 10% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.22 (d, *J* = 7.8 Hz, 1H), 7.14 (d, *J* = 8.4 Hz, 2H), 6.83 (t, *J* = 6.6 Hz, 3H), 6.62 (d, *J* = 7.8 Hz, 1H), 3.07-3.02 (m, 4H), 2.87 (d, *J* = 13.2 Hz, 1H), 1.44 (s, 3H), 1.27 (d, *J* = 10.2 Hz, 18H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 180.6, 149.3, 144.9, 140.6, 133.2, 132.7, 130.0, 124.4, 123.9, 121.4, 107.0, 49.4, 43.7, 34.5, 34.3, 31.5, 31.3, 26.0, 22.0; HRMS (ESI<sup>+</sup>) Calcd for C<sub>25</sub>H<sub>33</sub>NO [M+H]<sup>+</sup> 364.2635, found 364.2635.

### 3-(4-(*tert*-butyl) benzyl)-5-methoxy-1,3-dimethylindolin-2-one (4ae)



Compound **4ae** (m.p.: 106 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ae** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3e** (153.8 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 76% (76.8 mg) as a white solid after purification via silica gel column chromatography with 12.5% ethyl acetate/hexanes (*R*<sub>f</sub> = 0.40, 12.5% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.11 (d, *J* = 7.8 Hz, 2H), 6.82 (d, *J* = 7.8 Hz, 2H), 6.73 (dd, *J* = 2.4, 8.4 Hz, 1H), 6.64 (d, *J* = 2.4 Hz, 1H), 6.55 (d, *J* = 8.4 Hz, 1H), 3.76 (s, 3H), 3.03-2.96 (m, 5H), 1.43 (s, 3H), 1.23 (s, 9H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.8, 155.6, 149.3, 136.7, 134.6, 133.0, 129.6, 124.4, 112.1, 110.9, 107.9, 55.8, 50.0, 43.8, 34.3, 31.3, 26.0, 22.5; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>22</sub>H<sub>27</sub>NO<sub>2</sub> [M+H]<sup>+</sup> 338.2115, found 338.2119.

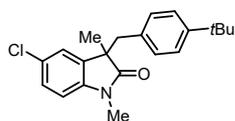
### 3-(4-(*tert*-butyl) benzyl)-5-fluoro-1,3-dimethylindolin-2-one (4af)



Compound **4af** (m.p.: 124 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4af** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3f** (144.8 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 43% (41.9 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (*R*<sub>f</sub> = 0.48, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>)

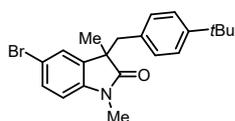
$\delta$  7.12 (q,  $J = 7.8$  Hz, 1H), 7.02 (d,  $J = 7.8$  Hz, 2H), 6.78 (d,  $J = 8.4$  Hz, 2H), 6.72 (t,  $J = 8.4$  Hz, 1H), 6.34 (d,  $J = 7.8$  Hz, 1H), 3.19 (q,  $J = 13.2$  Hz, 2H), 2.92 (s, 3H), 1.59 (s, 3H), 1.18 (s, 9H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  179.3, 159.9, 158.3, 149.2, 145.1 (d,  $J = 10.5$  Hz), 133.2, 129.4 (d,  $J = 9.0$  Hz), 128.7, 124.4, 118.4 (d,  $J = 19.5$  Hz), 109.8 (d,  $J = 21.0$  Hz), 103.8 (d,  $J = 1.5$  Hz), 50.7, 42.5, 34.2, 31.2, 26.2, 22.0;  $^{19}\text{F}$  NMR (565 MHz,  $\text{CDCl}_3$ )  $\delta$  -121.0; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{21}\text{H}_{24}\text{FNO}$  [M+H]<sup>+</sup> 326.1915, found 326.1915.

### 3-(4-(*tert*-butyl) benzyl)-5-chloro-1,3-dimethylindolin-2-one (4ag)



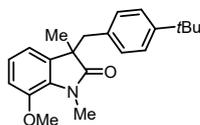
Compound **4ag** (m.p.: 108 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ag** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3g** (156.8 mg, 0.750 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 77% (78.8 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes ( $R_f = 0.37$ , 10% ethyl acetate/hexanes).  $^1\text{H}$  NMR (600 MHz,  $\text{CDCl}_3$ )  $\delta$  7.16 (d,  $J = 8.4$  Hz, 1H), 7.11 (d,  $J = 7.8$  Hz, 2H), 7.04 (s, 1H), 6.78 (d,  $J = 7.8$  Hz, 2H), 6.54 (d,  $J = 8.4$  Hz, 1H), 3.03 (d,  $J = 13.2$  Hz, 1H), 2.98-2.95 (m, 4H), 1.45 (s, 3H), 1.23 (s, 9H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  179.6, 149.5, 141.7, 135.0, 132.6, 129.5, 127.6, 127.4, 124.5, 123.9, 108.6, 50.1, 43.9, 34.3, 31.3, 26.0, 22.4; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{21}\text{H}_{24}\text{ClNO}$  [M+H]<sup>+</sup> 342.1619, found 342.1619.

### 5-bromo-3-(4-(*tert*-butyl) benzyl)-1,3-dimethylindolin-2-one (4ah)



Compound **4ah** (m.p.: 117 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ah** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3h** (189.8 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 58% (66.9 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.33, 10% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.31 (dd, *J* = 1.8, 8.4 Hz, 1H), 7.16 (d, *J* = 1.8 Hz, 1H), 7.11 (d, *J* = 8.4 Hz, 2H), 6.78 (d, *J* = 7.8 Hz, 2H), 6.50 (d, *J* = 8.4 Hz, 1H), 3.02 (d, *J* = 13.2 Hz, 1H), 2.98-2.95 (m, 4H), 1.44 (s, 3H), 1.23 (s, 9H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 179.4, 149.5, 142.2, 135.4, 132.5, 130.5, 129.5, 126.6, 124.5, 114.7, 109.1, 50.0, 43.9, 34.3, 31.3, 25.9, 22.4; HRMS (ESI<sup>+</sup>) Calcd for C<sub>21</sub>H<sub>24</sub>BrNO [M+H]<sup>+</sup> 386.1114, found 386.1113.

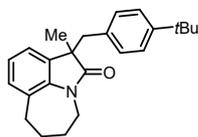
### 3-(4-(*tert*-butyl) benzyl)-7-methoxy-1,3-dimethylindolin-2-one (**4ai**)



Compound **4ai** (m.p.: 77 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ai** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3i** (153.8 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 49% (49.5 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.34, 10% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.10 (d, *J* = 7.8 Hz, 2H), 6.97 (d, *J* = 7.8 Hz, 1H), 6.80-6.56 (m, 3H), 6.74 (d, *J* = 7.2 Hz, 1H), 3.75 (s, 3H), 3.25 (s, 3H), 3.01 (d, *J* = 13.2 Hz, 1H), 2.96 (d, *J* = 13.2 Hz, 1H), 1.43 (s, 3H), 1.23 (s, 9H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 180.3, 149.2, 145.1, 135.0, 133.1, 131.2, 129.5, 124.3, 122.4, 116.3, 112.0, 56.2, 49.8, 44.2, 34.3, 31.3,

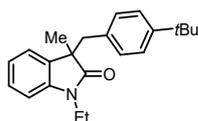
29.1, 22.7; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>22</sub>H<sub>27</sub>NO<sub>2</sub> [M+H]<sup>+</sup> 338.2115, found 338.2110.

**7-(4-(*tert*-butyl) benzyl)-7-methyl-1,2,3,4-tetrahydroazepino[3,2,1-hi] indol-6(7H)-one (4aj)**



Compound **4aj** (m.p.: 87 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4aj** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3j** (161.2 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 83% (86.4 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.4, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.05 (d, *J* = 7.8 Hz, 3H), 6.94 (t, *J* = 7.2 Hz, 1H), 6.88 (d, *J* = 7.2 Hz, 1H), 6.67 (d, *J* = 7.2 Hz, 2H), 3.76-3.70 (m, 1H), 3.57 (t, *J* = 11.4 Hz, 1H), 3.07 (d, *J* = 13.2 Hz, 1H), 2.98 (t, *J* = 12.0 Hz, 1H), 2.92 (d, *J* = 12.6 Hz, 1H), 2.52 (d, *J* = 15.6 Hz, 1H), 1.86-1.80 (m, 1H), 1.70-1.64 (m, 1H), 1.48 (s, 4H), 1.26 (s, 1H), 1.23 (s, 9H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.8, 149.2, 142.1, 133.3, 133.0, 129.3, 128.8, 125.0, 124.2, 121.9, 120.8, 50.2, 45.2, 39.6, 34.2, 31.3, 29.8, 25.9, 25.6, 22.0; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>24</sub>H<sub>29</sub>NO [M+H]<sup>+</sup> 348.2322, found 348.2320.

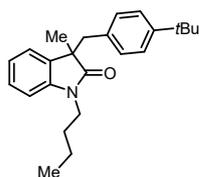
**3-(4-(*tert*-butyl) benzyl)-1-ethyl-3-methylindolin-2-one (4ak)**



Compound **4ak** (m.p.: 106 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4ak** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-

arylacrylamide **3k** (141.8 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 59% (56.8 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.5, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.23-7.19 (m, 2H), 7.08-7.03 (m, 3H), 6.71 (d, *J* = 7.8 Hz, 2H), 6.62 (d, *J* = 7.8 Hz, 1H), 3.78-3.71 (m, 1H), 3.31-3.24 (m, 1H), 3.08 (d, *J* = 13.2 Hz, 1H), 3.00 (d, *J* = 13.2 Hz, 1H), 1.47 (s, 3H), 1.19 (s, 9H), 0.73 (t, *J* = 7.2 Hz, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.3, 149.2, 142.4, 133.6, 133.0, 129.4, 127.6, 124.3, 123.3, 121.8, 107.8, 49.8, 44.4, 34.2, 34.0, 31.2, 22.6, 11.9; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>22</sub>H<sub>27</sub>NO [M+H]<sup>+</sup> 322.2165, found 322.2165.

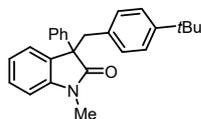
#### 1-*n*-butyl-3-(4-(*tert*-butyl) benzyl)-3-methylindolin-2-one (**4al**)



Compound **4al** (m.p.: 49 °C) was synthesized following the General A Procedure for the Modular Construction of Oxindoles. The product **4al** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3l** (162.8 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 72% (75.4 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.45, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.19 (t, *J* = 6.6 Hz, 2H), 7.07-7.03 (m, 3H), 6.74 (d, *J* = 8.4 Hz, 2H), 6.63 (d, *J* = 7.8 Hz, 1H), 3.70-3.63 (m, 1H), 3.30-3.24 (m, 1H), 3.07 (d, *J* = 12.6 Hz, 1H), 3.00 (d, *J* = 13.2 Hz, 1H), 1.46 (s, 3H), 1.29-1.25 (m, 2H), 1.20 (s, 9H), 1.15-1.07 (m, 2H), 0.84 (d, *J* = 7.2 Hz, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 179.6, 149.2, 142.8, 133.5, 133.1, 129.5, 127.6, 124.4, 123.3, 121.8, 108.0, 49.7, 44.0, 39.3, 34.2, 31.3, 29.0, 23.1, 19.9,

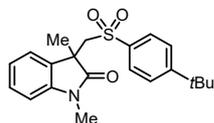
13.8; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>24</sub>H<sub>31</sub>NO [M+H]<sup>+</sup> 350.2478, found 350.2480.

### 3-(4-(*tert*-butyl) benzyl)-1-methyl-3-phenylindolin-2-one (**4am**)



Compound **4am** (m.p.: 85 °C) was synthesized following the General **A** Procedure for the Modular Construction of Oxindoles. The product **4am** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3m** (177.8 mg, 0.750 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 59% (65.3 mg) as a white solid after purification via silica gel column chromatography with 10% ethyl acetate/hexanes (R<sub>f</sub> = 0.45, 10% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.52 (d, *J* = 7.8 Hz, 2H), 7.35 (t, *J* = 7.8 Hz, 2H), 7.29 (t, *J* = 7.2 Hz, 1H), 7.25-7.19 (m, 2H), 7.09 (d, *J* = 7.2 Hz, 1H), 7.04 (d, *J* = 8.4 Hz, 2H), 6.74 (d, *J* = 7.8 Hz, 2H), 6.62 (d, *J* = 7.8 Hz, 1H), 3.64 (d, *J* = 13.2 Hz, 1H), 3.47 (d, *J* = 13.2 Hz, 1H), 2.93 (s, 3H), 1.21 (s, 9H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 177.8, 149.3, 143.8, 139.7, 132.5, 131.4, 129.6, 128.5, 128.1, 127.33, 127.29, 125.4, 124.2, 122.1, 107.9, 58.2, 43.6, 34.2, 31.2, 26.0; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>26</sub>H<sub>27</sub>NO [M+H]<sup>+</sup> 370.2165, found 370.2168.

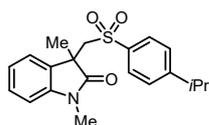
### 3-(((4-(*tert*-butyl) phenyl) sulfonyl) methyl)-1,3-dimethylindolin-2-one (**5a**)



Compound **5a**<sup>4</sup> was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5a** was obtained through the reaction of Ar-DBT **2a** derived from **1a** (40.2 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent

system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 68% (75.7 mg) as a white solid after purification via silica gel column chromatography with 33% ethyl acetate/hexanes (R<sub>f</sub> = 0.35, 33% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.41 (d, *J* = 8.4 Hz, 2H), 7.36 (d, *J* = 8.4 Hz, 2H), 7.26 (t, *J* = 7.2 Hz, 1H), 7.03 (d, *J* = 7.2 Hz, 1H), 6.88-6.83 (m, 2H), 3.86 (d, *J* = 14.4 Hz, 1H), 3.68 (d, *J* = 14.4 Hz, 1H), 3.17 (s, 3H), 1.38 (s, 3H), 1.32 (s, 9H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 177.6, 157.1, 143.2, 136.8, 129.5, 128.5, 127.5, 125.8, 124.0, 122.4, 108.3, 61.8, 45.5, 35.1, 31.0, 26.5, 25.4; HRMS (ESI<sup>+</sup>) Calcd for C<sub>21</sub>H<sub>25</sub>NO<sub>3</sub>S [M+H]<sup>+</sup> 372.1628, found 372.1630.

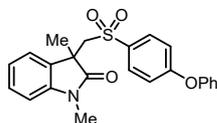
### 3-(((4-isopropylphenyl) sulfonyl)methyl)-1,3-dimethylindolin-2-one (**5b**)



Compound **5b** (m.p.: 106 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5b** was obtained through the reaction of Ar-DBT **2b** derived from **1b** (36.0 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 77% (82.5 mg) as a white solid after purification via silica gel column chromatography with 33% ethyl acetate/hexanes (R<sub>f</sub> = 0.3, 33% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.40 (d, *J* = 8.4 Hz, 2H), 7.28-7.24 (m, 1H), 7.20 (d, *J* = 8.4 Hz, 2H), 7.04 (d, *J* = 7.2 Hz, 1H), 6.87 (t, *J* = 7.2 Hz, 1H), 6.83 (d, *J* = 7.8 Hz, 1H), 3.85 (d, *J* = 14.4 Hz, 1H), 3.67 (d, *J* = 14.4 Hz, 1H), 3.16 (s, 3H), 2.96-2.90 (m, 1H), 1.38 (s, 3H), 1.24 (dd, *J* = 1.8, 6.6 Hz, 6H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 177.6, 154.9, 143.2, 137.2, 129.5, 128.5, 127.8, 127.0, 124.0, 122.4, 108.3, 61.8, 45.6, 34.1, 26.5, 25.4, 23.6, 23.5; HRMS (ESI<sup>+</sup>) Calcd for C<sub>20</sub>H<sub>23</sub>NO<sub>3</sub>S

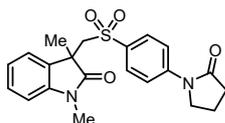
[M+H]<sup>+</sup> 358.1471, found 358.1470.

### 1,3-dimethyl-3-(((4-phenoxyphenyl) sulfonyl) methyl) indolin-2-one (**5c**)



Compound **5c** (m.p.: 154 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5c** was obtained through the reaction of Ar-DBT **2d** derived from **1d** (51.0 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 87% (106.2 mg) as a white solid after purification via silica gel column chromatography with 50% ethyl acetate/hexanes (R<sub>f</sub> = 0.4, 50% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.42-7.38 (m, 4H), 7.28-7.24 (m, 1H), 7.21 (t, *J* = 7.8 Hz, 1H), 7.07 (d, *J* = 7.2 Hz, 1H), 7.03 (d, *J* = 7.8 Hz, 2H), 6.94 (t, *J* = 7.2 Hz, 1H), 6.86 (d, *J* = 9.0 Hz, 2H), 6.82 (d, *J* = 7.8 Hz, 1H), 3.85 (d, *J* = 15.0 Hz, 1H), 3.65 (d, *J* = 14.4 Hz, 1H), 3.16 (s, 3H), 1.37 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 177.6, 162.1, 154.9, 143.2, 133.4, 130.2, 130.1, 129.6, 128.6, 125.1, 124.0, 122.5, 120.3, 117.3, 108.4, 62.0, 45.6, 26.5, 25.5; HRMS (ESI<sup>+</sup>) Calcd for C<sub>23</sub>H<sub>21</sub>NO<sub>4</sub>S [M+H]<sup>+</sup> 408.1264, found 408.1262.

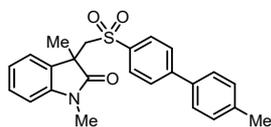
### 1,3-dimethyl-3-(((4-(2-oxopyrrolidin-1-yl) phenyl) sulfonyl) methyl) indolin-2-one (**5d**)



Compound **5d** (m.p.: 147 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5d** was obtained

through the reaction of Ar-DBT **2e** derived from **1e** (48.3 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 69% (82.4 mg) as a white solid after purification via silica gel column chromatography with 200% ethyl acetate/hexanes (*R<sub>f</sub>* = 0.25, 200% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.64 (d, *J* = 8.4 Hz, 2H), 7.43 (d, *J* = 8.4 Hz, 1H), 7.29-7.25 (m, 1H), 7.06 (d, *J* = 7.2 Hz, 1H), 6.91 (t, *J* = 7.8 Hz, 1H), 6.84 (d, *J* = 7.8 Hz, 1H), 3.86-3.82 (m, 3H), 3.65 (d, *J* = 14.4 Hz, 1H), 3.14 (s, 3H), 2.63 (t, *J* = 8.4 Hz, 2H), 2.21-2.16 (m, 1H), 1.36 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 177.5, 174.7, 143.7, 143.2, 134.3, 129.4, 128.8, 128.6, 124.0, 122.5, 118.8, 108.4, 61.9, 48.3, 45.6, 32.7, 26.5, 25.5, 17.7; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>21</sub>H<sub>22</sub>N<sub>2</sub>O<sub>4</sub>S [M+H]<sup>+</sup> 399.1373, found 399.1370.

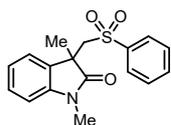
**1,3-dimethyl-3-(((4'-methyl-[1,1'-biphenyl]-4-yl) sulfonyl) methyl) indolin-2-one (5e)**



Compound **5e** (m.p.: 167 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5e** was obtained through the reaction of Ar-DBT **2f** derived from **1f** (50.4 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 60% (72.9 mg) as a white solid after purification via silica gel column chromatography with 50% ethyl acetate/hexanes (*R<sub>f</sub>* = 0.50, 50% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.54 (d, *J* = 8.4 Hz, 2H), 7.51-7.46 (m, 4H), 7.31-7.26 (m, 3H), 7.06 (d, *J* = 7.8 Hz, 1H), 6.89 (t, *J* = 7.8 Hz, 1H), 6.84 (d,

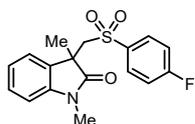
$J = 7.8$  Hz, 1H), 3.93 (d,  $J = 14.4$  Hz, 1H), 3.72 (d,  $J = 15.0$  Hz, 1H), 3.15 (s, 3H), 2.42 (s, 3H), 1.40 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  177.5, 146.1, 143.2, 138.7, 137.8, 136.2, 129.8, 129.4, 128.6, 128.3, 127.12, 127.10, 124.1, 122.4, 108.3, 61.9, 45.6, 26.5, 25.6, 21.1; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{24}\text{H}_{23}\text{NO}_3\text{S}$  [M+H]<sup>+</sup> 406.1471, found 406.1470.

### 1,3-dimethyl-3-((phenylsulfonyl) methyl) indolin-2-one (5f)



Compound **5f**<sup>4</sup> was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5f** was obtained through the reaction of Ar-DBT **2g** derived from **1g** (23.4 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 62% (58.6 mg) as a white solid after purification via silica gel column chromatography with 50% ethyl acetate/hexanes ( $R_f = 0.45$ , 50% ethyl acetate/hexanes).  $^1\text{H}$  NMR (600 MHz,  $\text{CDCl}_3$ )  $\delta$  7.53 (t,  $J = 7.2$  Hz, 1H), 7.49 (d,  $J = 7.8$  Hz, 2H), 7.37 (t,  $J = 7.2$  Hz, 2H), 7.27 (t,  $J = 7.8$  Hz, 1H), 7.04 (d,  $J = 7.2$  Hz, 1H), 6.89 (t,  $J = 7.8$  Hz, 1H), 6.84 (d,  $J = 7.8$  Hz, 1H), 3.87 (d,  $J = 14.4$  Hz, 1H), 3.68 (d,  $J = 14.4$  Hz, 1H), 3.16 (s, 3H), 1.38 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  177.6, 143.2, 139.9, 133.3, 129.4, 128.9, 128.6, 127.7, 124.0, 122.5, 108.4, 61.8, 45.6, 26.5, 25.4; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{17}\text{H}_{17}\text{NO}_3\text{S}$  [M+H]<sup>+</sup> 316.1002, found 316.1002.

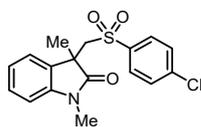
### 3-(((4-fluorophenyl) sulfonyl) methyl)-1,3-dimethylindolin-2-one (5g)



Compound **5g**<sup>4</sup> was synthesized following the General **B** Procedure for the Modular

Construction of sulfonyl Oxindoles. The product **5g** was obtained through the reaction of Ar-DBT **2h** derived from **1h** (28.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 80% (79.9 mg) as a white solid after purification via silica gel column chromatography with 33% ethyl acetate/hexanes (*R<sub>f</sub>* = 0.25, 33% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.44 (t, *J* = 5.4 Hz, 2H), 7.28-7.23 (m, 1H), 7.02-6.96 (m, 3H), 6.88 (t, *J* = 7.2 Hz, 1H), 6.83 (d, *J* = 7.8 Hz, 1H), 3.87 (d, *J* = 15.0 Hz, 1H), 3.66 (d, *J* = 15.0 Hz, 1H), 3.15 (s, 3H), 1.35 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 177.4, 166.3, 164.6, 143.2, 135.9 (d, *J* = 3.0 Hz), 130.6 (d, *J* = 10.5 Hz), 129.3, 128.7, 123.9, 122.5, 116.2, 116.0, 108.4, 62.0, 45.5, 26.5, 25.5; <sup>19</sup>F NMR (565 MHz, CDCl<sub>3</sub>) δ -103.81; HRMS (ESI<sup>+</sup>) Calcd for C<sub>17</sub>H<sub>16</sub>FNO<sub>3</sub>S [M+H]<sup>+</sup> 334.0908, found 334.0910.

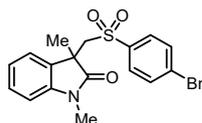
### 3-(((4-chlorophenyl) sulfonyl) methyl)-1,3-dimethylindolin-2-one (**5h**)



Compound **5h**<sup>4</sup> was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5h** was obtained through the reaction of Ar-DBT **2i** derived from **1i** (33.6 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 64% (67.0 mg) as a white solid after purification via silica gel column chromatography with 33% ethyl acetate/hexanes (*R<sub>f</sub>* = 0.25, 33% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.38 (d, *J* = 8.4 Hz, 2H), 7.34-7.28 (m, 3H), 7.00 (d, *J* = 7.2 Hz, 1H), 6.91 (t, *J* = 7.2 Hz, 1H), 6.85 (d, *J* = 7.8 Hz, 1H),

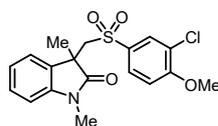
3.90 (d,  $J = 15.0$  Hz, 1H), 3.68 (d,  $J = 15.0$  Hz, 1H), 3.16 (s, 3H), 1.38 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  177.4, 143.3, 140.1, 138.2, 129.3, 129.2, 129.1, 128.7, 124.0, 122.5, 108.4, 61.9, 45.5, 26.5, 25.5; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{17}\text{H}_{16}\text{ClNO}_3\text{S}$   $[\text{M}+\text{H}]^+$  350.0612, found 350.0612.

### 3-(((4-bromophenyl) sulfonyl) methyl)-1,3-dimethylindolin-2-one (5i)



Compound **5i**<sup>4</sup> was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5i** was obtained through the reaction of Ar-DBT dibenzothiophene salt derived from bromobenzene (46.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 63% (74.3 mg) as a white solid after purification via silica gel column chromatography with 33% ethyl acetate/hexanes ( $R_f = 0.25$ , 33% ethyl acetate/hexanes).  $^1\text{H}$  NMR (600 MHz,  $\text{CDCl}_3$ )  $\delta$  7.49 (d,  $J = 7.8$  Hz, 2H), 7.29 (d,  $J = 7.8$  Hz, 3H), 7.00 (d,  $J = 7.2$  Hz, 1H), 6.91 (t,  $J = 7.8$  Hz, 1H), 6.84 (d,  $J = 7.8$  Hz, 1H), 3.90 (d,  $J = 15.0$  Hz, 1H), 3.67 (d,  $J = 15.0$  Hz, 1H), 3.16 (s, 3H), 1.37 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  177.4, 143.3, 138.7, 132.1, 129.4, 129.2, 128.73, 128.71, 123.9, 122.5, 108.4, 61.9, 45.5, 26.5, 25.5; HRMS (ESI<sup>+</sup>) Calcd for  $\text{C}_{17}\text{H}_{16}\text{BrNO}_3\text{S}$   $[\text{M}+\text{H}]^+$  394.0107, found 394.0105.

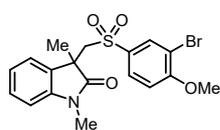
### 3-(((3-chloro-4-methoxyphenyl) sulfonyl) methyl)-1,3-dimethylindolin-2-one (5j)



Compound **5j** (m.p.: 134 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5j** was obtained

through the reaction of Ar-DBT **21** derived from **11** (42.6 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 75% (85.3 mg) as a white solid after purification via silica gel column chromatography with 100% ethyl acetate/hexanes (*R<sub>f</sub>* = 0.5, 100% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.43 (dd, *J* = 1.8, 8.4 Hz, 1H), 7.30 (t, *J* = 7.2 Hz, 1H), 7.27-7.25 (m, 1H), 7.01 (d, *J* = 7.2 Hz, 1H), 6.91 (t, *J* = 7.8 Hz, 1H), 6.87 (d, *J* = 8.4 Hz, 2H), 3.95 (s, 3H), 3.89 (d, *J* = 14.4 Hz, 1H), 3.66 (d, *J* = 14.4 Hz, 1H), 3.17 (s, 3H), 1.37 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 177.4, 158.9, 143.2, 132.1, 130.0, 129.2, 128.8, 128.4, 123.9, 123.0, 122.4, 62.2, 56.6, 45.5, 26.5, 25.6; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>18</sub>H<sub>18</sub>ClNO<sub>4</sub>S [M+H]<sup>+</sup> 380.0718, found 380.0718.

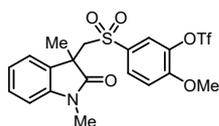
### 3-(((3-bromo-4-methoxyphenyl) sulfonyl) methyl)-1,3-dimethylindolin-2-one (**5k**)



Compound **5k** (m.p.: 141 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5k** was obtained through the reaction of Ar-DBT dibenzothiophene salt derived from 1-bromo-2-methoxybenzene (55.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 65% (82.5 mg) as a white solid after purification via silica gel column chromatography with 50% ethyl acetate/hexanes (*R<sub>f</sub>* = 0.2, 50% ethyl acetate/hexanes). **<sup>1</sup>H NMR** (600 MHz, CDCl<sub>3</sub>) δ 7.47 (dd, *J* = 1.8, 8.4 Hz, 1H), 7.42 (s, 1H), 7.30 (t, *J* = 7.8 Hz, 1H), 7.01 (d, *J* = 7.2 Hz, 1H), 6.91 (t, *J* = 7.2 Hz, 1H), 6.87 (d, *J* = 7.8 Hz, 1H), 6.83 (d, *J* = 9.0 Hz, 1H), 3.94 (s, 3H), 3.89 (d, *J* = 14.4 Hz, 1H), 3.66 (d, *J* = 15.0 Hz, 1H), 3.16 (s, 3H), 1.37 (s, 3H); **<sup>13</sup>C NMR** (150 MHz, CDCl<sub>3</sub>) δ 177.4, 159.8, 143.2, 133.0, 132.4, 129.1, 128.9,

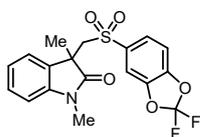
123.9, 122.4, 111.8, 111.3, 108.5, 62.1, 56.7, 45.5, 26.5, 25.6; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>18</sub>H<sub>18</sub>BrNO<sub>4</sub>S [M+H]<sup>+</sup> 424.0213, found 424.0210.

**5-(((1,3-dimethyl-2-oxindolin-3-yl)methyl)sulfonyl)-2-methoxyphenyl trifluoromethanesulfonate (5l)**



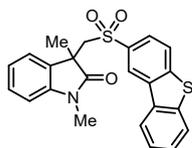
Compound **5l** (m.p.: 109 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5l** was obtained through the reaction of Ar-DBT **2j** derived from **1j** (76.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 50% (74.0 mg) as a white solid after purification via silica gel column chromatography with 100% ethyl acetate/hexanes (R<sub>f</sub> = 0.5, 100% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.43 (dd, *J* = 1.8, 8.4 Hz, 1H), 7.28 (t, *J* = 7.8 Hz, 1H), 7.24 (d, *J* = 1.8 Hz, 1H), 6.95 (t, *J* = 6.0 Hz, 2 H), 6.90-6.85 (m, 2H), 3.97 (s, 3 H), 3.91 (d, *J* = 15.0 Hz 1 H), 3.67 (d, *J* = 14.4 Hz, 1H), 3.20 (s, 3H), 1.38 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 177.4, 155.4, 143.3, 137.9, 132.2, 129.7, 129.1, 128.8, 123.8, 122.5 (d, *J* = 4.5 Hz), 121.8, 119.6, 117.5, 112.8, 108.5, 62.1, 56.8, 45.5, 26.5, 25.4; <sup>19</sup>F NMR (565 MHz, CDCl<sub>3</sub>) δ -73.6; **HRMS (ESI<sup>+</sup>)** Calcd for C<sub>19</sub>H<sub>18</sub>F<sub>3</sub>NO<sub>7</sub>S<sub>2</sub> [M+H]<sup>+</sup> 494.0550, found 494.0551.

**3-(((2,2-difluorobenzo[d][1,3]dioxol-5-yl)sulfonyl)methyl)-1,3-dimethylindolin-2-one (5m)**



Compound **5m** (m.p.: 123 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5m** was obtained through the reaction of Ar-DBT **2m** derived from **1m** (47.4 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 62% (73.5 mg) as a white solid after purification via silica gel column chromatography with 50% ethyl acetate/hexanes (R<sub>f</sub> = 0.5, 50% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 7.36 (d, *J* = 8.4 Hz, 1H), 7.29 (t, *J* = 7.8 Hz, 1H), 7.06 (d, *J* = 8.4 Hz, 1H), 6.97 (s, 1H), 6.88 (dd, *J* = 7.2, 12.6 Hz, 2H), 6.84 (t, *J* = 7.8 Hz, 1H), 3.92 (d, *J* = 15.0 Hz, 1H), 3.69 (d, *J* = 14.4 Hz, 1H), 3.21 (s, 3H), 1.37 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 177.3, 147.0, 143.4 (d, *J* = 9.0 Hz), 135.9, 131.6 (t, *J* = 258.0 Hz), 129.1, 128.9, 125.0, 123.6, 122.2, 109.6 (d, *J* = 4.5 Hz), 108.5, 62.4, 45.5, 26.5, 25.4; <sup>19</sup>F NMR (565 MHz, CDCl<sub>3</sub>) δ -48.9, -49.1, -49.6, -49.8; HRMS (ESI<sup>+</sup>) Calcd for C<sub>16</sub>H<sub>15</sub>F<sub>2</sub>NO<sub>5</sub>S [M+H]<sup>+</sup> 396.0712, found 396.0710.

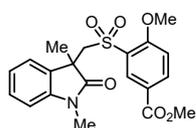
### 3-((dibenzo [b, d] thiophen-2-ylsulfonyl) methyl)-1,3-dimethylindolin-2-one (**5n**)



Compound **5n** (m.p.: 148 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5n** was obtained through the reaction of Ar-DBT **2o** derived from **1o** (55.2 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 86% (108.6 mg) as a white solid after purification via silica gel column chromatography with 50% ethyl acetate/hexanes (R<sub>f</sub> = 0.50, 50% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 8.00 (d, *J* = 7.2 Hz, 1H), 7.96 (d, *J* =

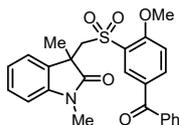
1.2 Hz, 1H), 7.89-7.85 (m, 2H), 7.62 (dd,  $J = 1.8, 8.4$  Hz, 1H), 7.56-7.51 (m, 2H), 7.11 (t,  $J = 7.8$  Hz, 1H), 6.99 (d,  $J = 7.2$  Hz, 1H), 6.74 (t,  $J = 7.2$  Hz, 1H), 6.70 (d,  $J = 7.8$  Hz, 1H), 4.04 (d,  $J = 15.0$  Hz, 1H), 3.78 (d,  $J = 15.0$  Hz, 1H), 2.99 (s, 3H), 1.37 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  177.5, 144.9, 143.2, 139.7, 135.5, 135.3, 134.3, 129.1, 128.6, 127.9, 125.1, 125.0, 124.1, 123.1, 122.9, 122.4, 122.3, 121.8, 108.2, 62.3, 45.7, 26.4, 25.8; **HRMS (ESI<sup>+</sup>)** Calcd for  $\text{C}_{23}\text{H}_{19}\text{NO}_3\text{S}_2$   $[\text{M}+\text{H}]^+$  422.0879, found 422.0880.

**Methyl 3-(((1,3-dimethyl-2-oxindolin-3-yl) methyl) sulfonyl)-4-methoxybenzoate (5o)**



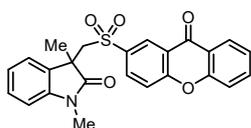
Compound **5o** (m.p.: 179 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5o** was obtained through the reaction of Ar-DBT **2r** derived from **1r** (49.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 71% (85.8 mg) as a white solid after purification via silica gel column chromatography with 100% ethyl acetate/hexanes ( $R_f = 0.40$ , 100% ethyl acetate/hexanes).  $^1\text{H}$  NMR (600 MHz,  $\text{CDCl}_3$ )  $\delta$  8.12 (d,  $J = 8.4$  Hz, 1H), 7.79 (s, 1H), 7.10 (t,  $J = 7.2$  Hz, 1H), 6.98 (d,  $J = 9.0$  Hz, 1H), 6.89 (t,  $J = 7.2$  Hz, 1H), 6.73 (d,  $J = 7.8$  Hz, 1H), 6.68 (t,  $J = 7.8$  Hz, 1H), 4.08 (s, 3H), 4.00 (d,  $J = 15.0$  Hz, 1H), 3.94 (d,  $J = 15.0$  Hz, 1H), 3.86 (s, 3H), 3.12 (s, 3H), 1.38 (s, 3H);  $^{13}\text{C}$  NMR (150 MHz,  $\text{CDCl}_3$ )  $\delta$  177.4, 165.1, 160.4, 143.2, 136.7, 132.0, 129.2, 128.5, 127.5, 123.4, 122.8, 122.0, 111.8, 108.2, 59.8, 56.8, 52.1, 45.4, 26.4, 25.0; **HRMS (ESI<sup>+</sup>)** Calcd for  $\text{C}_{20}\text{H}_{21}\text{NO}_6\text{S}$   $[\text{M}+\text{H}]^+$  404.1262, found 404.1262.

**3-(((5-benzoyl-2-methoxyphenyl) sulfonyl) methyl)-1,3-dimethylindolin-2-one (5p)**



Compound **5p** (m.p.: 193 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5p** was obtained through the reaction of Ar-DBT **2s** derived from **1s** (63.6 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 65% (87.6 mg) as a white solid after purification via silica gel column chromatography with 200% ethyl acetate/hexanes (R<sub>f</sub> = 0.5, 200% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 8.00 (d, *J* = 9.0 Hz, 1H), 7.63 (d, *J* = 7.8 Hz, 2H), 7.57 (d, *J* = 9.6 Hz, 2H), 7.46 (t, *J* = 7.2 Hz, 2H), 7.06 (t, *J* = 6.6 Hz, 2H), 6.88 (d, *J* = 7.2 Hz, 1H), 6.68 (t, *J* = 7.2 Hz, 1H), 6.64 (d, *J* = 9.0 Hz, 1H), 4.12 (s, 3H), 3.99 (q, *J* = 15.0 Hz, 2H), 3.05 (s, 3H), 1.37 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 193.5, 177.4, 160.1, 143.1, 137.2, 136.9, 132.5, 129.8, 129.5, 129.1, 128.6, 128.4, 127.2, 123.3, 122.0, 111.9, 108.1, 59.8, 56.9, 45.3, 26.4, 25.1; HRMS (ESI<sup>+</sup>) Calcd for C<sub>25</sub>H<sub>23</sub>NO<sub>5</sub>S [M+H]<sup>+</sup> 450.1370, found 450.1370.

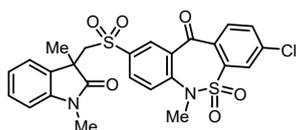
### 1,3-dimethyl-3-(((9-oxo-9H-xanthen-2-yl) sulfonyl) methyl) indolin-2-one (**5q**)



Compound **5q** (m.p.: 155 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5q** was obtained through the reaction of Ar-DBT **2u** derived from **1u** (58.8 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 49% (63.6 mg) as a white solid after purification via silica gel

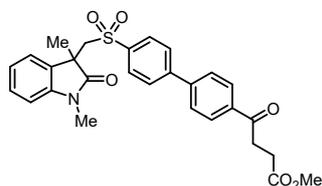
column chromatography with 100% ethyl acetate/hexanes ( $R_f = 0.5$ , 100% ethyl acetate/hexanes).  $^1\text{H NMR}$  (600 MHz,  $\text{CDCl}_3$ )  $\delta$  8.39 (s, 1H), 8.33 (d,  $J = 7.8$  Hz, 1H), 7.80 (t,  $J = 7.2$  Hz, 1H), 7.76 (d,  $J = 8.4$  Hz, 1H), 7.54 (d,  $J = 8.4$  Hz, 1H), 7.46 (t,  $J = 9.0$  Hz, 2H), 7.19 (t,  $J = 7.8$  Hz, 1H), 6.88 (t,  $J = 7.8$  Hz, 2H), 6.74 (t,  $J = 7.2$  Hz, 1H), 3.96 (d,  $J = 14.4$  Hz, 1H), 3.77 (d,  $J = 15.0$  Hz, 1H), 3.22 (s, 3H), 1.39 (s, 3H);  $^{13}\text{C NMR}$  (150 MHz,  $\text{CDCl}_3$ )  $\delta$  177.3, 175.5, 158.5, 155.8, 143.4, 135.7, 132.9, 129.2, 128.8, 128.3, 126.9, 125.0, 123.4, 122.3, 121.6, 121.5, 119.2, 118.2, 108.7, 62.1, 45.5, 26.6, 25.3; **HRMS (ESI<sup>+</sup>)** Calcd for  $\text{C}_{24}\text{H}_{19}\text{NO}_5\text{S}$   $[\text{M}+\text{H}]^+$  434.1057, found 434.1056.

**3-chloro-9-(((1,3-dimethyl-2-oxindolin-3-yl) methyl) sulfonyl)-6-methyldibenzo [c, f] [1,2] thiazepin-11(6*H*)-one 5,5-dioxide (5r)**



Compound **5r** (**m.p.**: 211 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5r** was obtained through the reaction of Ar-DBT **2v** derived from **1v** (92.1 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of  $\text{CH}_3\text{CN}$  (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%),  $\text{Bu}_4\text{NBr}$  (9.7 mg, 10 mol%), and 2,6-lutidine (68  $\mu\text{L}$ , 0.600 mmol) as additives. Yield: 53% (86.5 mg) as a white solid after purification via silica gel column chromatography with 100% ethyl acetate/hexanes ( $R_f = 0.40$ , 100% ethyl acetate/hexanes).  $^1\text{H NMR}$  (600 MHz,  $\text{CDCl}_3$ )  $\delta$  8.21 (s, 1H), 7.92 (d,  $J = 1.8$  Hz, 1H), 7.81 (d,  $J = 8.4$  Hz, 1H), 7.71 (dd,  $J = 1.8, 7.8$  Hz, 1H), 7.64 (d,  $J = 5.4$  Hz, 1H), 7.23 (t,  $J = 8.4$  Hz, 2H), 6.89-6.82 (m, 3H), 3.98 (d,  $J = 15.0$  Hz, 1H), 3.78 (d,  $J = 15.0$  Hz, 1H), 3.42 (s, 3H), 3.18 (s, 3H), 1.38 (s, 3H);  $^{13}\text{C NMR}$  (150 MHz,  $\text{CDCl}_3$ )  $\delta$  187.8, 177.2, 144.9, 143.2, 139.0, 138.0, 136.6, 133.9, 133.8, 133.1, 132.2, 129.8, 129.0, 128.7, 124.8, 123.6, 123.5, 122.6, 108.7, 61.9, 45.4, 38.4, 26.5, 25.5; **HRMS (ESI<sup>+</sup>)** Calcd for  $\text{C}_{25}\text{H}_{21}\text{ClN}_2\text{O}_6\text{S}_2$   $[\text{M}+\text{H}]^+$  545.0602, found 545.0600.

## Methyl 4-(4'-(((1,3-dimethyl-2-oxindolin-3-yl) methyl) sulfonyl)-[1,1'-biphenyl]-4-yl)-4-oxobutanoate (**5s**)



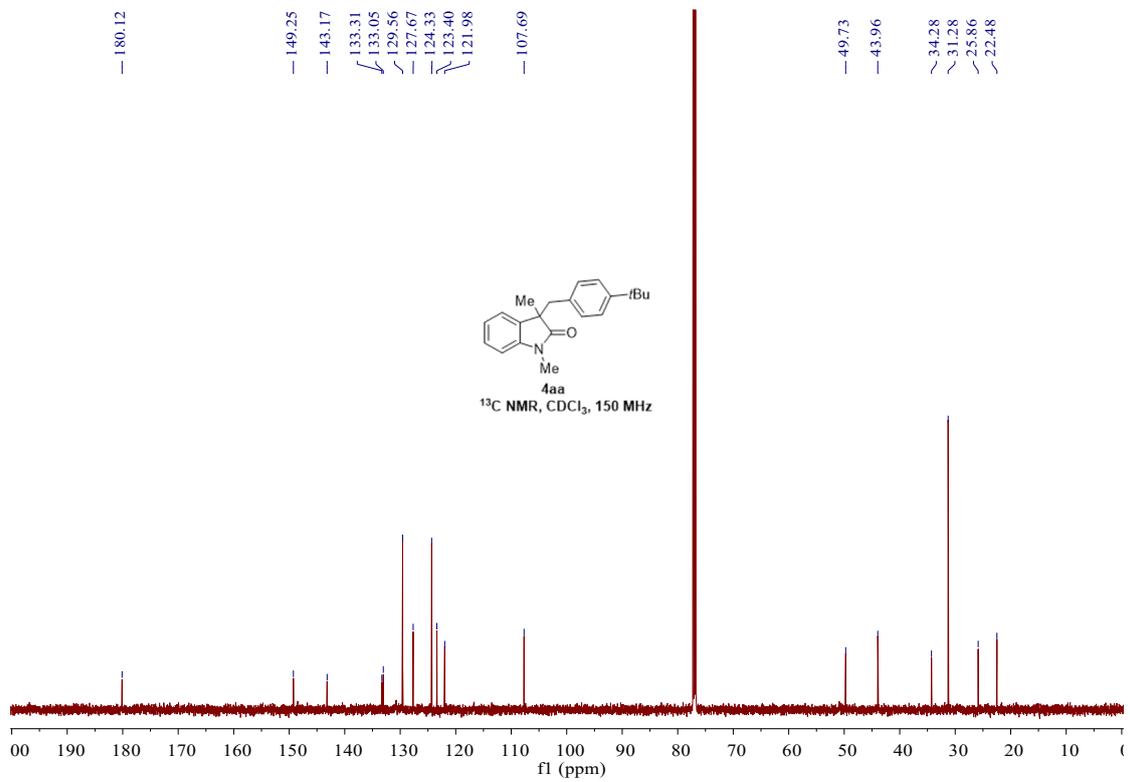
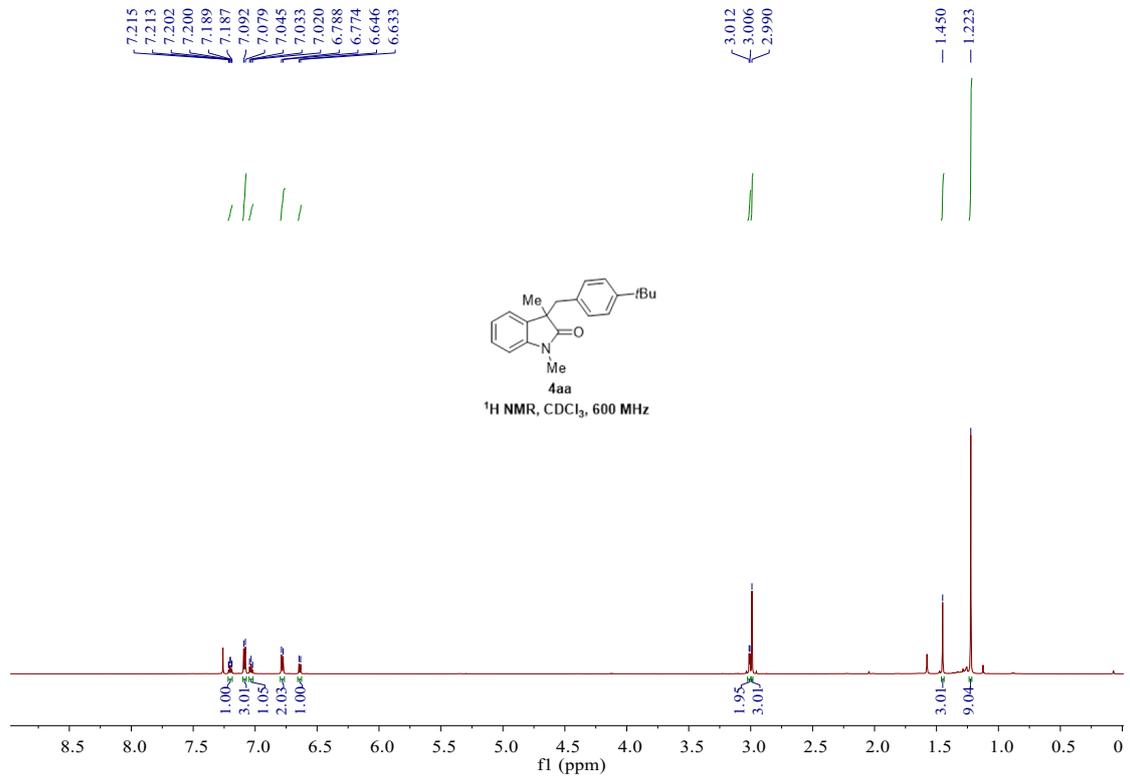
Compound **5s** (m.p.: 189 °C) was synthesized following the General **B** Procedure for the Modular Construction of sulfonyl Oxindoles. The product **5s** was obtained through the reaction of Ar-DBT dibenzothiophene salt derived from methyl 4-([1,1'-biphenyl]-4-yl)-4-oxobutanoate (80.4 mg, 0.30 mmol), with *N*-arylacrylamide **3a** (131.2 mg, 0.750 mmol) and DABSO (72.0 mg, 0.30 mmol) in a mixed solvent system of CH<sub>3</sub>CN (0.75 mL) and DMSO (0.75 mL), using PTH (4.1 mg, 5 mol%), Bu<sub>4</sub>NBr (9.7 mg, 10 mol%), and 2,6-lutidine (68 μL, 0.600 mmol) as additives. Yield: 47% (71.2 mg) as a white solid after purification via silica gel column chromatography with 100% ethyl acetate/hexanes ( $R_f = 0.40$ , 100% ethyl acetate/hexanes). <sup>1</sup>H NMR (600 MHz, CDCl<sub>3</sub>) δ 8.09 (d,  $J = 7.8$  Hz, 2H), 7.66 (d,  $J = 7.8$  Hz, 2H), 7.57 (q,  $J = 8.4$  Hz, 4H), 7.29 (t,  $J = 7.8$  Hz, 1H), 7.05 (d,  $J = 7.2$  Hz, 1H), 6.90-6.83 (m, 2H), 3.93 (d,  $J = 15.0$  Hz, 1H), 3.76-3.70 (m, 4H), 3.36 (t,  $J = 6.6$  Hz, 2H), 3.17 (s, 3H), 2.80 (t,  $J = 6.6$  Hz, 2H), 1.40 (s, 3H); <sup>13</sup>C NMR (150 MHz, CDCl<sub>3</sub>) δ 197.5, 177.5, 173.3, 144.8, 143.6, 143.3, 139.3, 136.3, 129.4, 128.8, 128.6, 128.5, 127.6, 127.5, 124.0, 122.4, 108.4, 61.9, 51.9, 45.6, 33.5, 28.0, 26.5, 25.5; HRMS (ESI<sup>+</sup>) Calcd for C<sub>28</sub>H<sub>27</sub>NO<sub>6</sub>S [M+H]<sup>+</sup> 506.1632, found 506.1630.

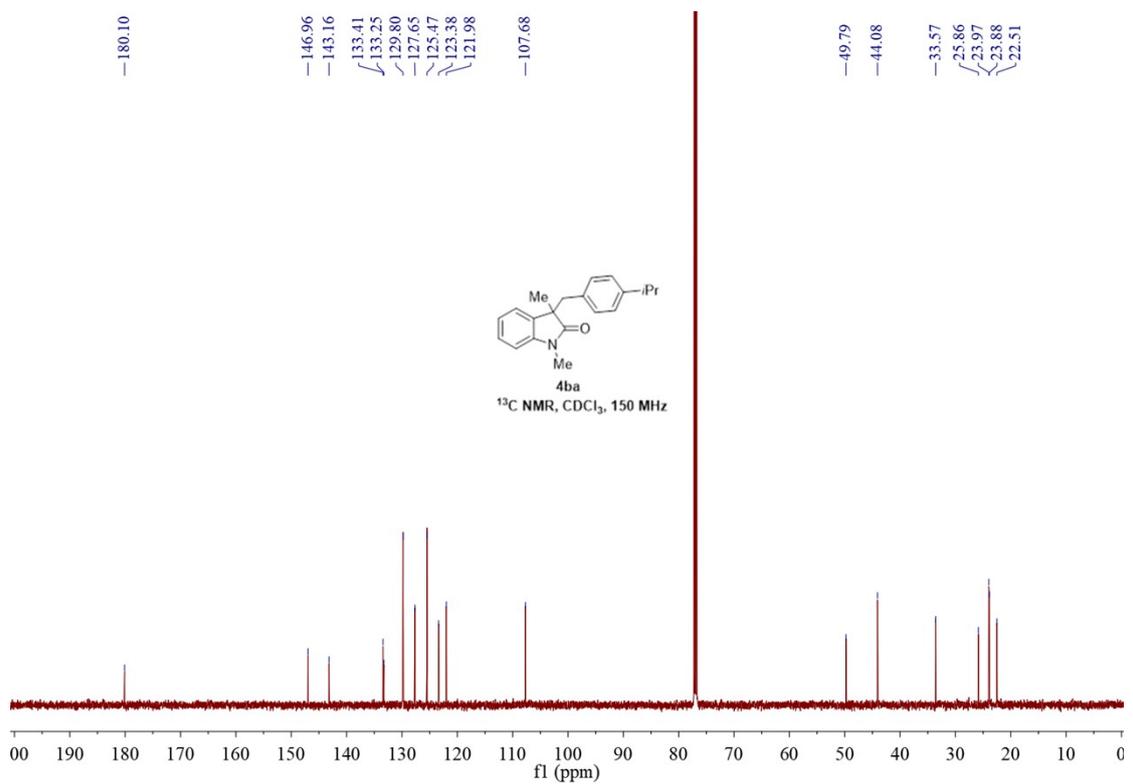
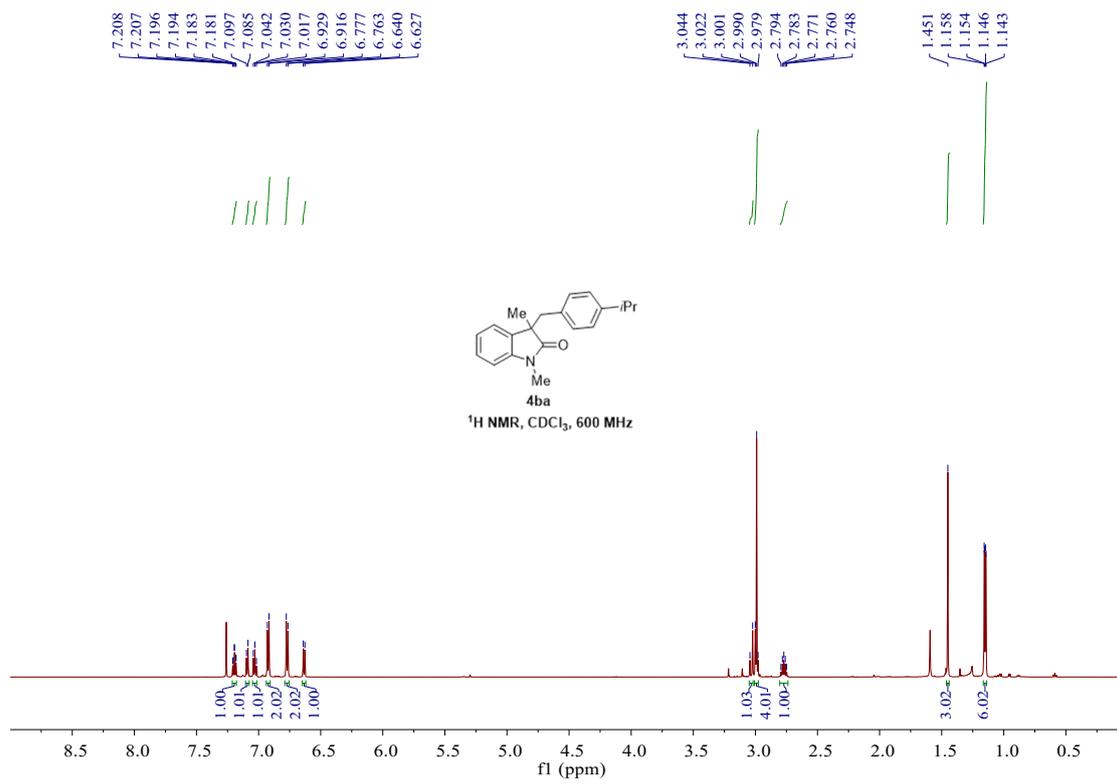
## 2.7. References

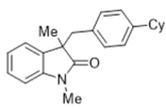
1. Zhao, J.-J.; Pan, Y.-H.; Shi, Y.-X.; Fu, W. Nickel-Catalyzed Transformation of Diazoacetates to Alkyl Radicals Using Alcohol as a Hydrogen Source. *Org. Lett.* **2019**, *21*, 9386.
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4. Liu, J.; Zhuang, S.; Gui, Q.; Chen, X.; Yang, Z.; Tan, Z. Synthesis of Oxindoles through Silver-

Catalyzed Trifluoromethylation-, Difluoromethylation-and Arylsulfonylation-Cyclization Reaction of N-Arylacrylamides. *Eur. J. Org. Chem.*, **2014**, *15*, 3196.

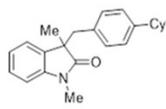
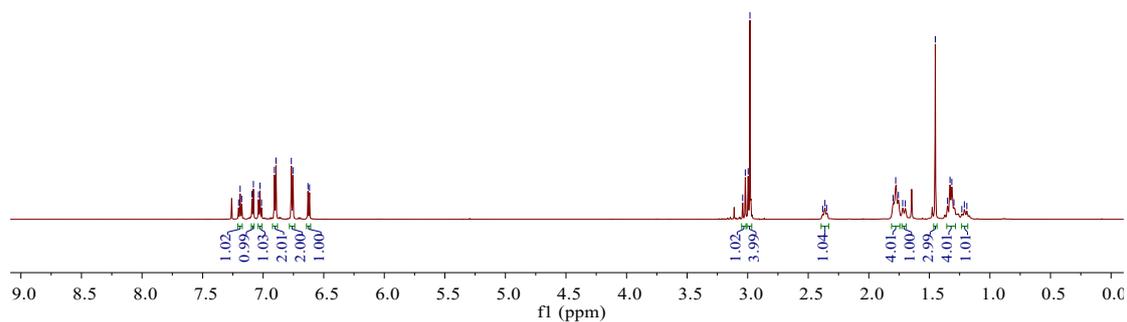
### 3. $^1\text{H}$ , $^{13}\text{C}$ and $^{19}\text{F}$ spectra of All Products



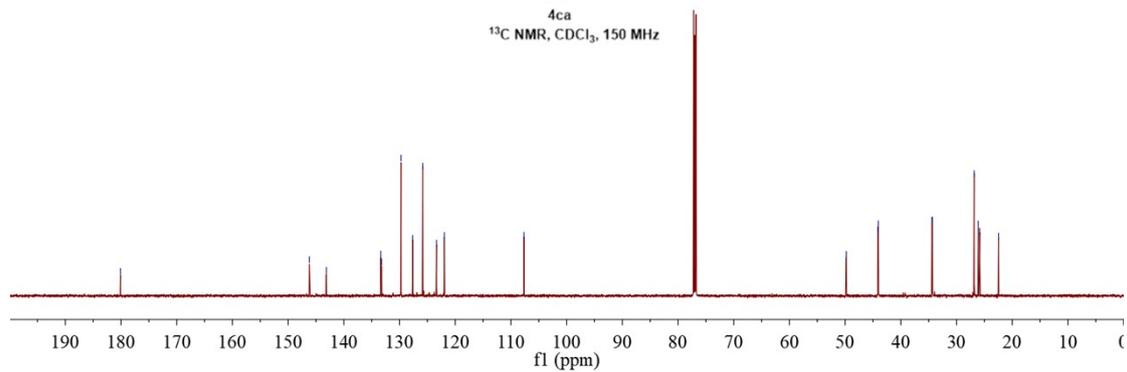


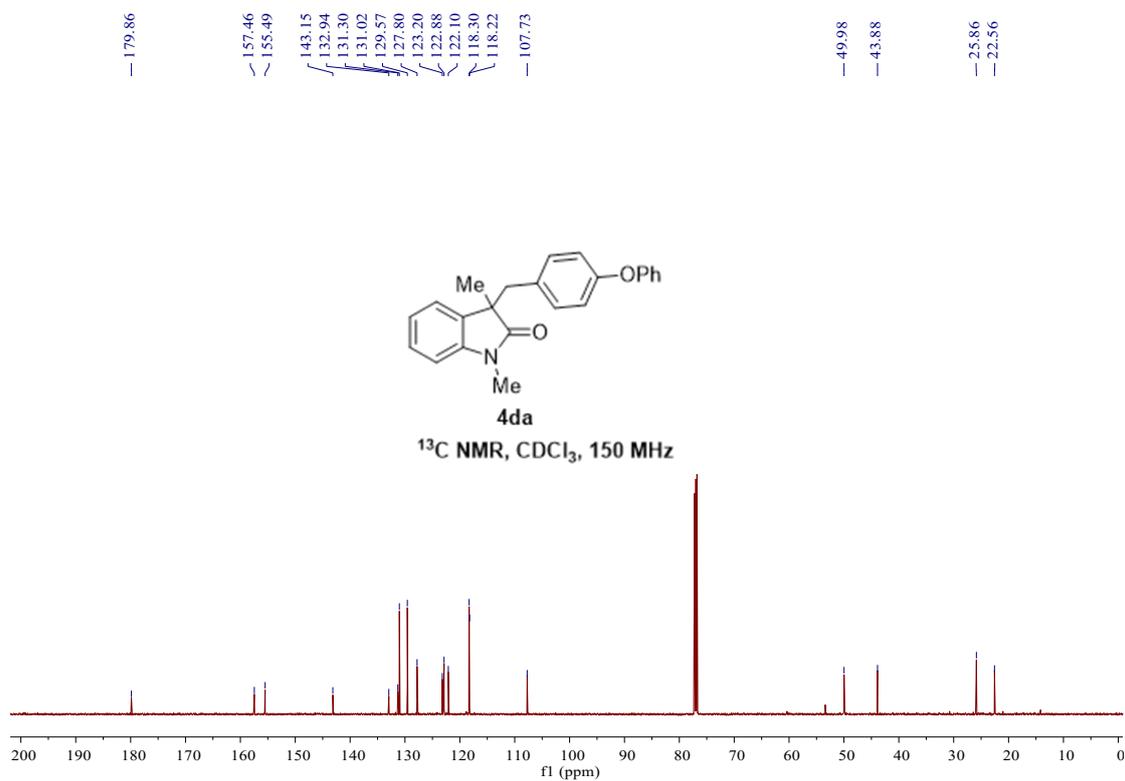
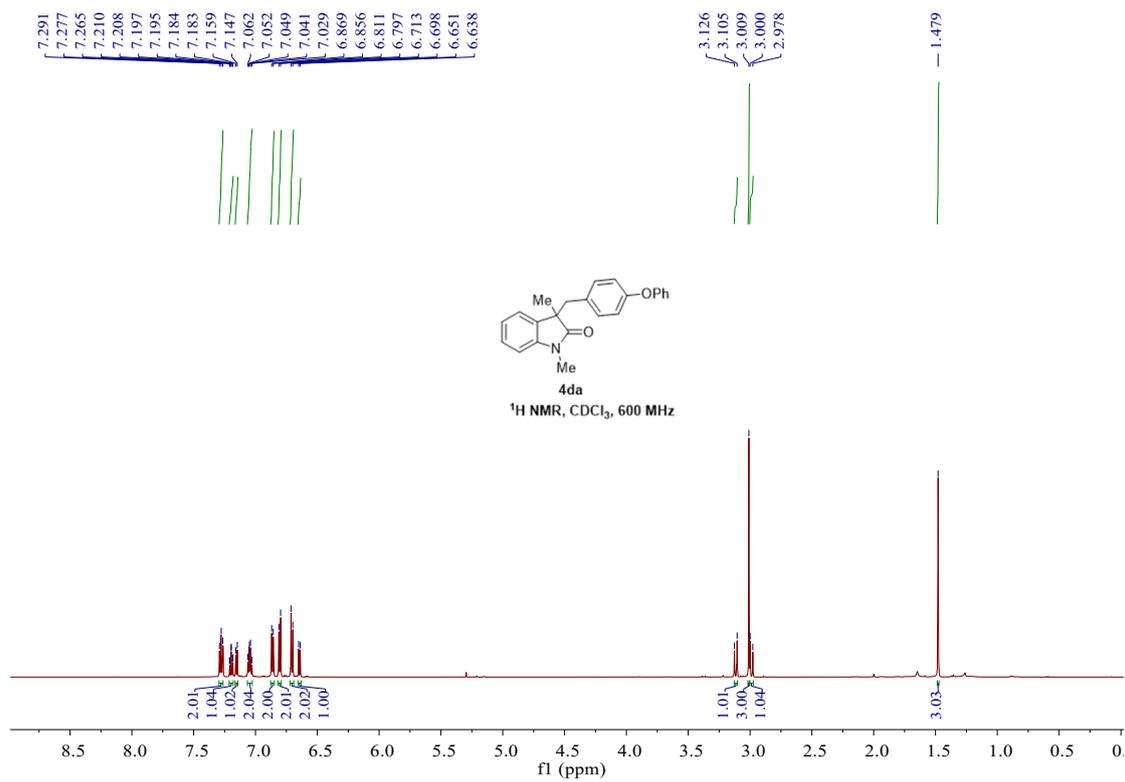


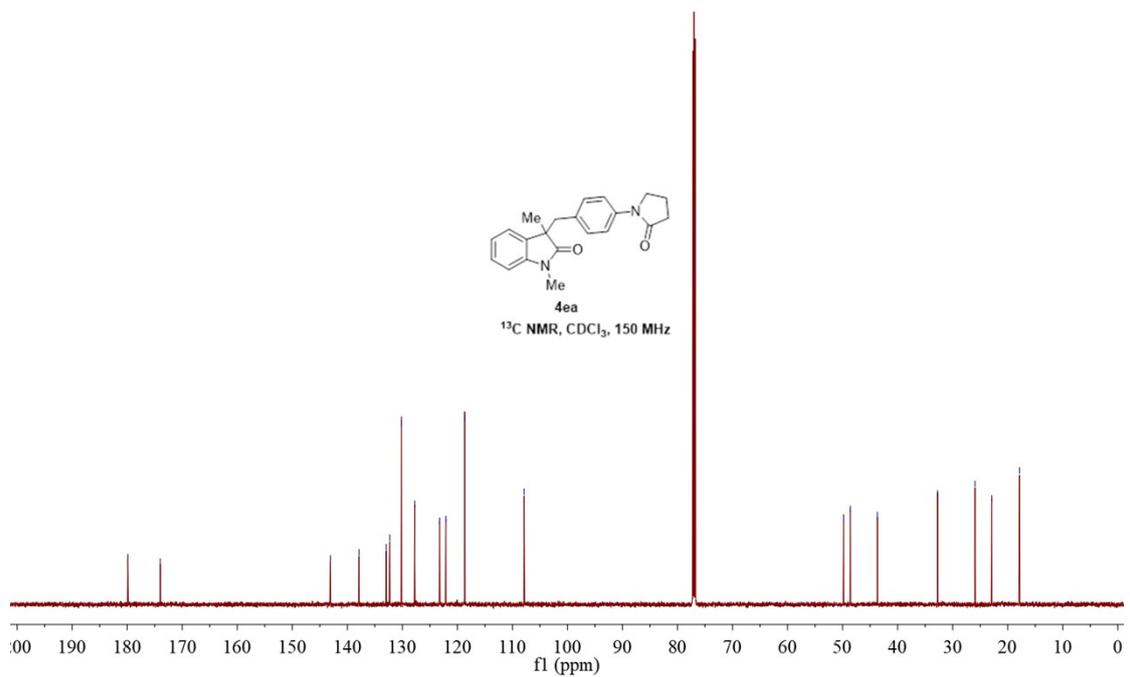
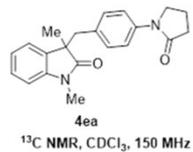
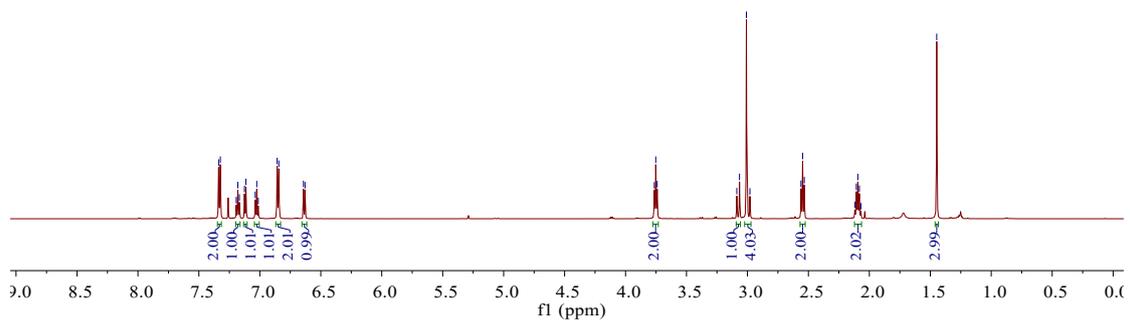
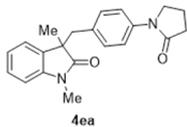
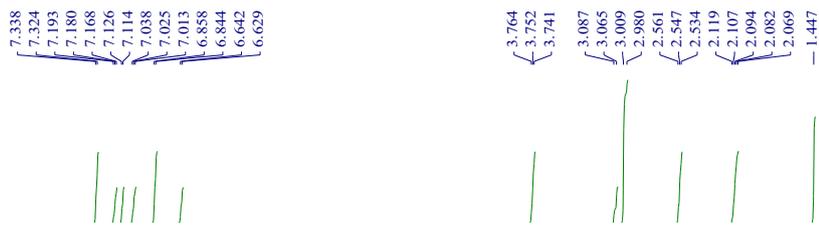
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

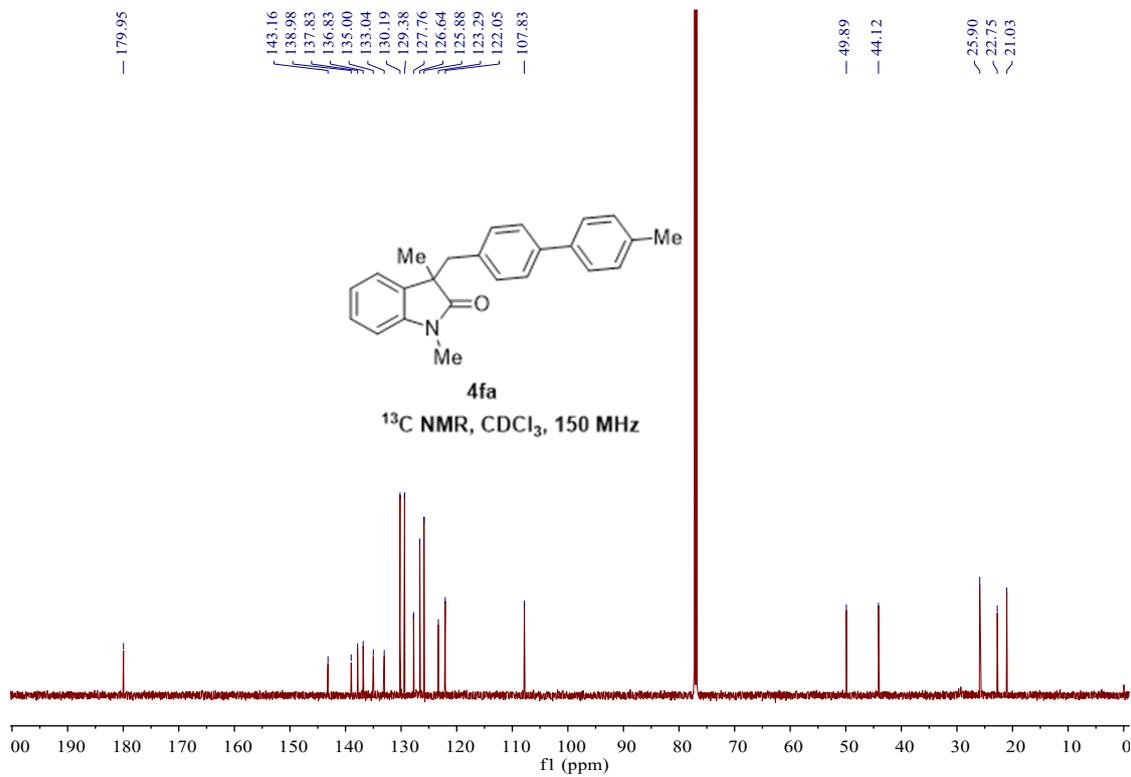
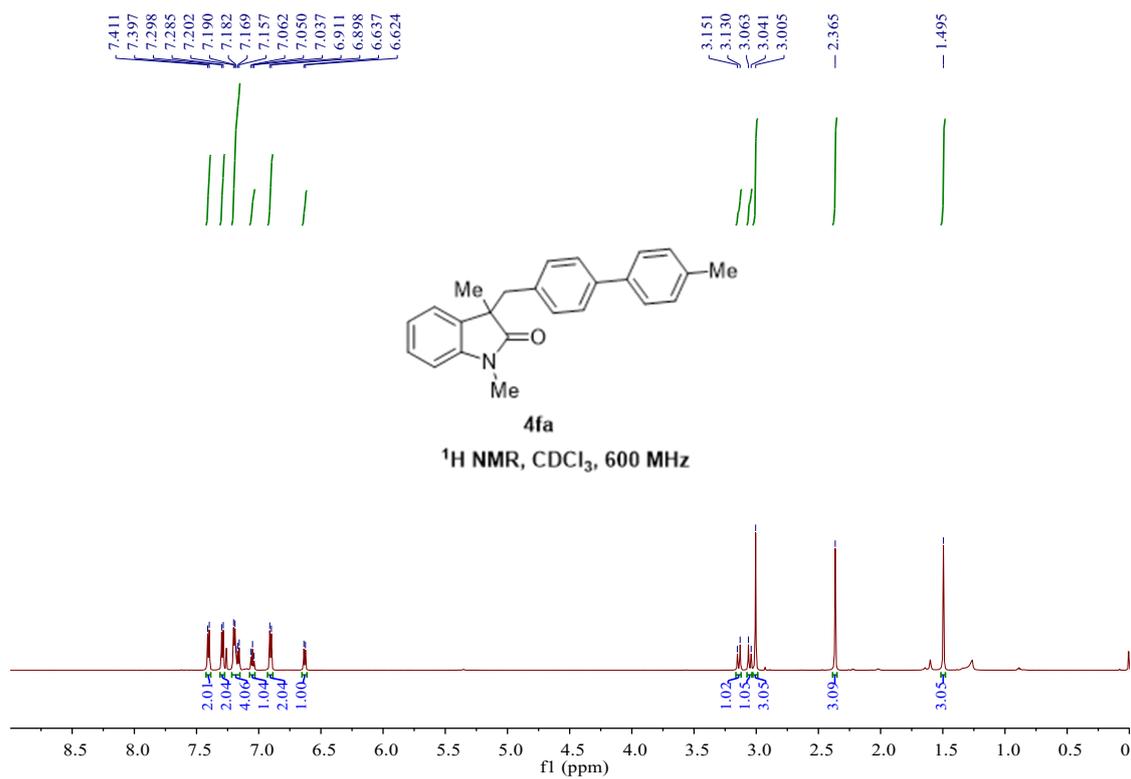


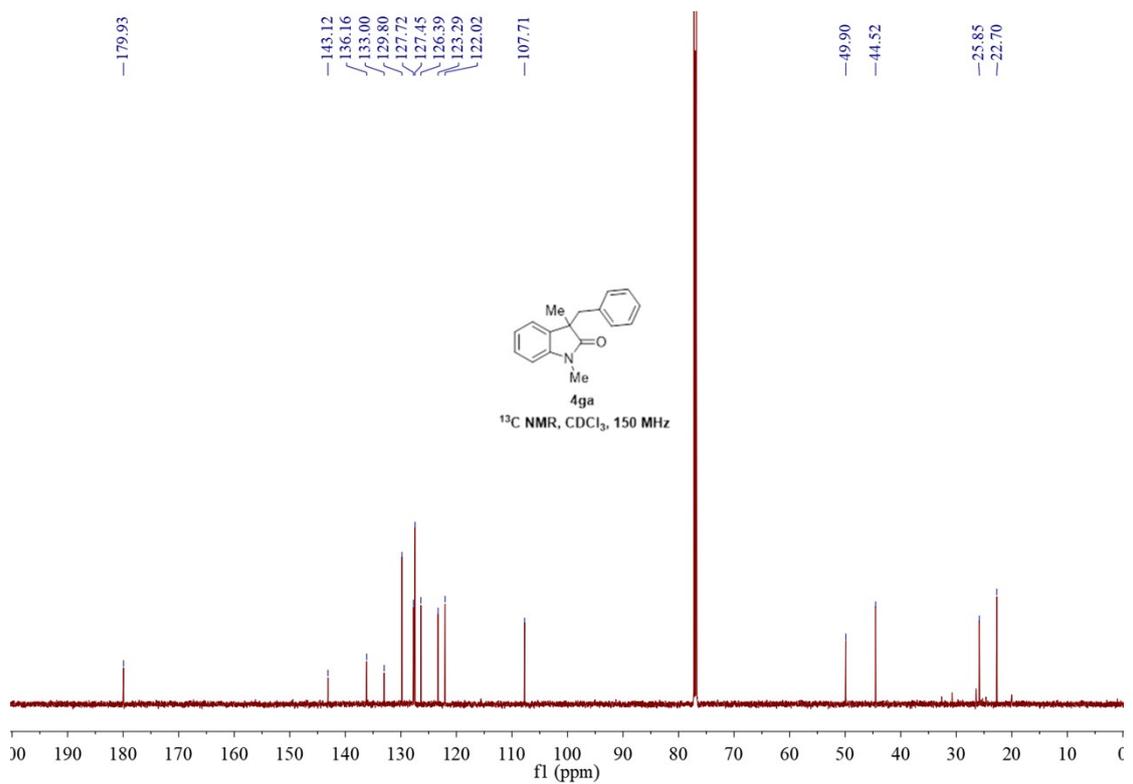
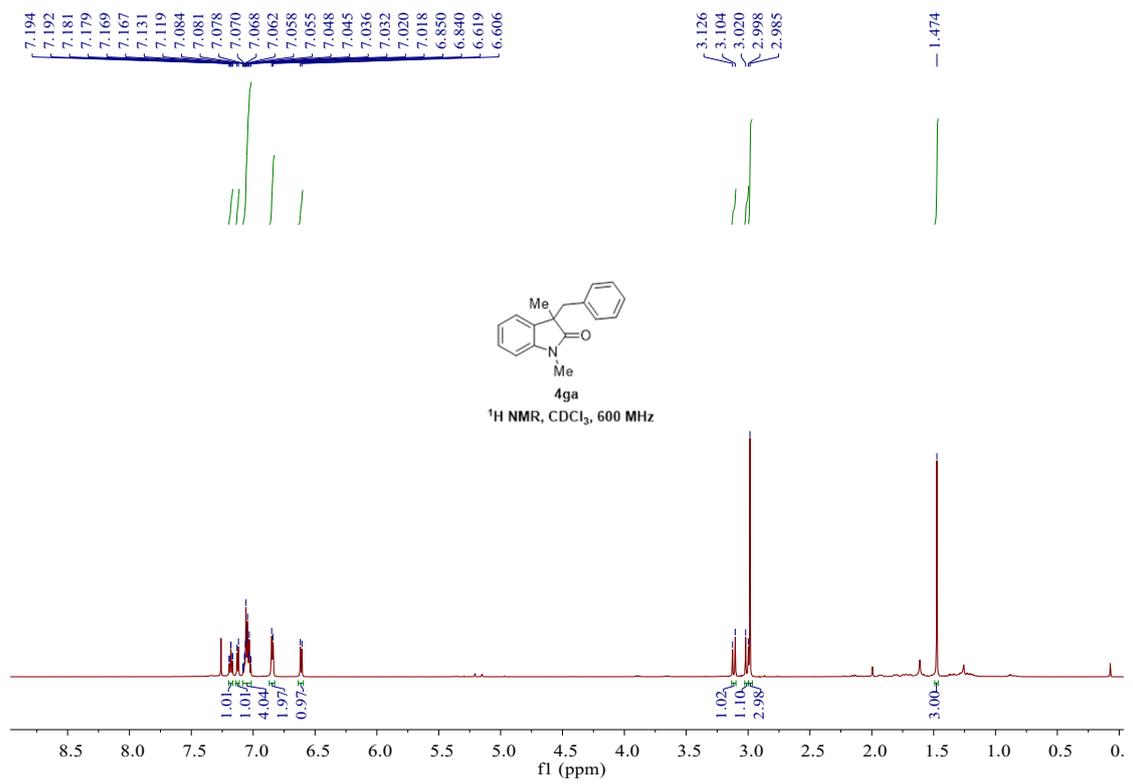
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

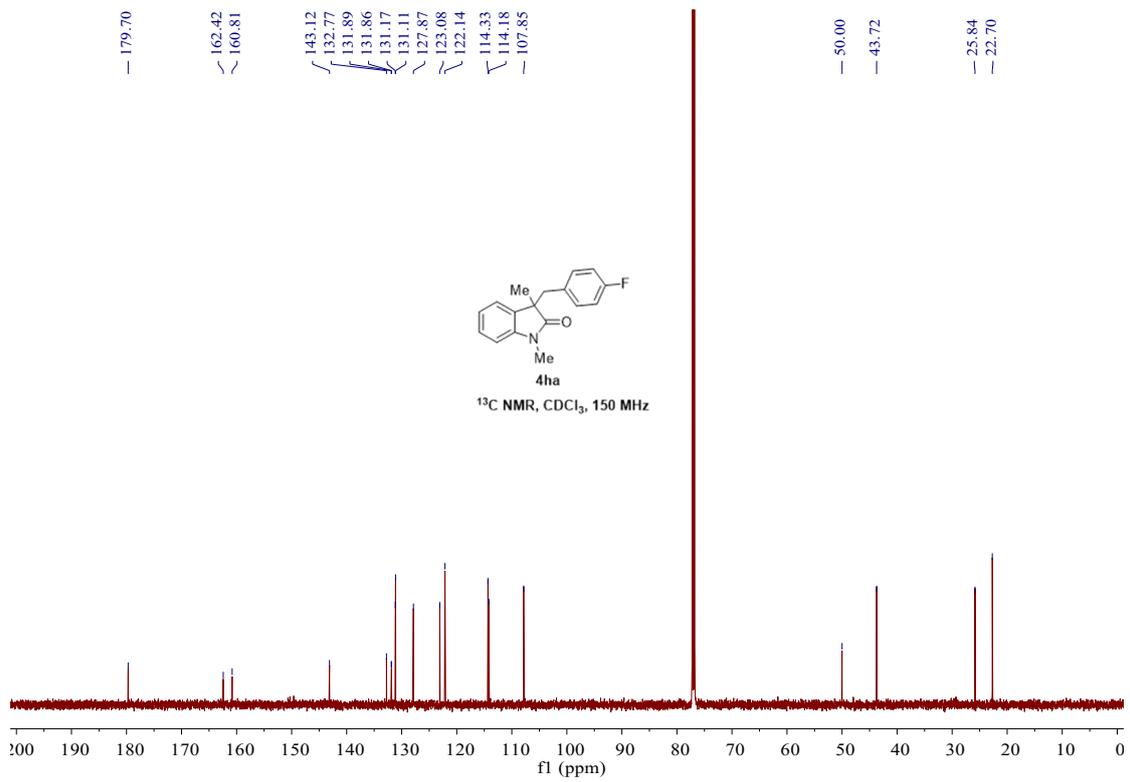
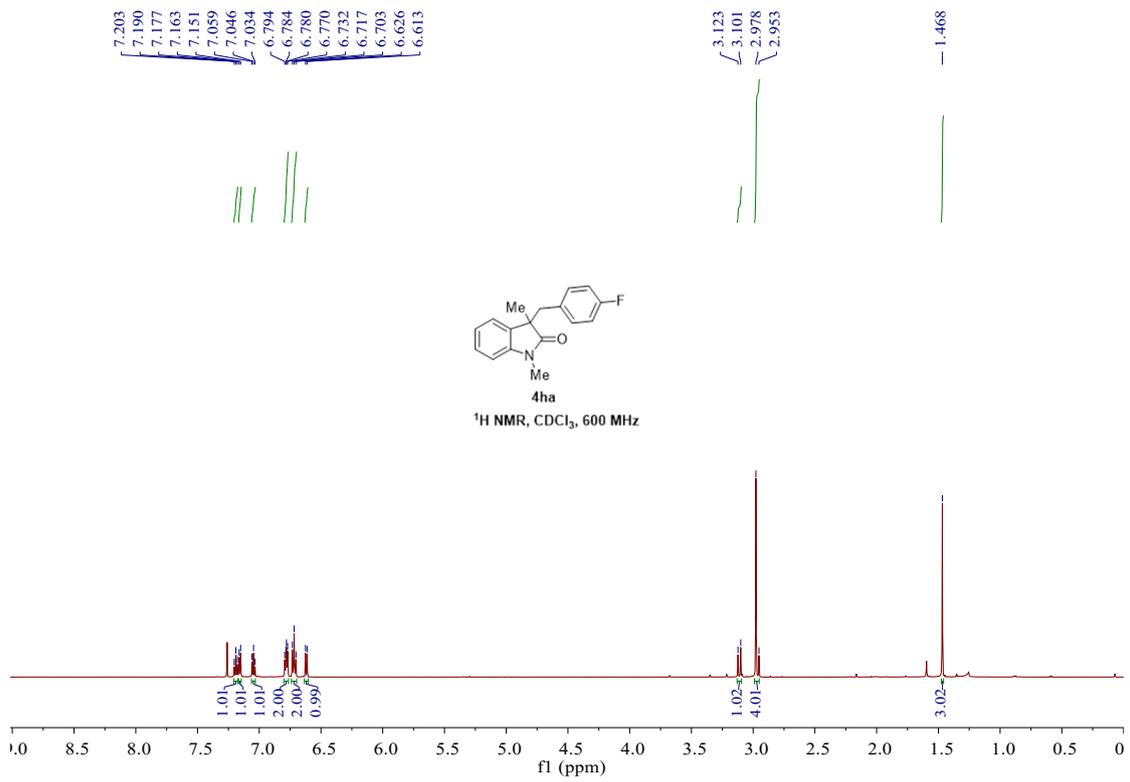


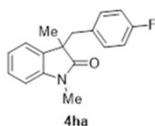




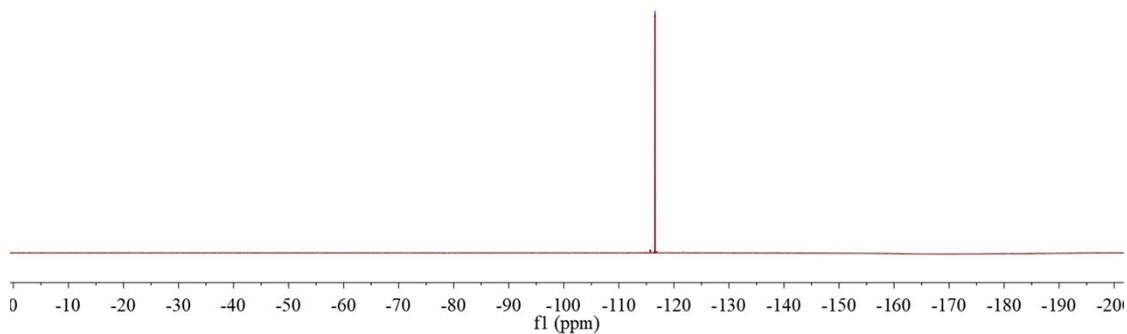








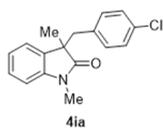
<sup>19</sup>F NMR, CDCl<sub>3</sub>, 565 MHz



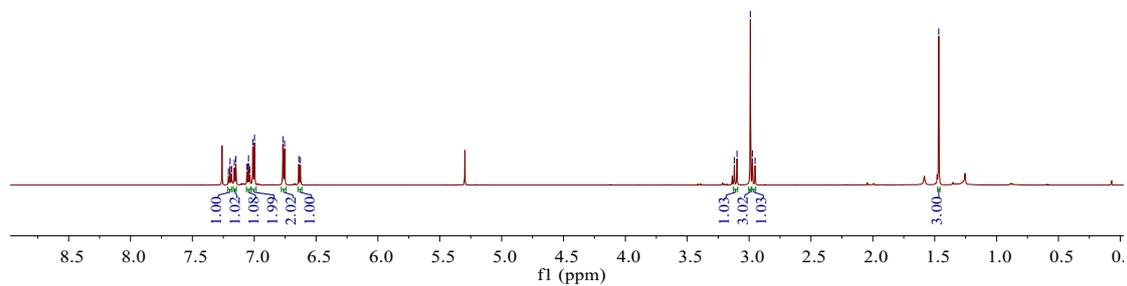
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7.182  
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7.149  
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7.012  
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6.768  
6.754  
6.640  
6.627

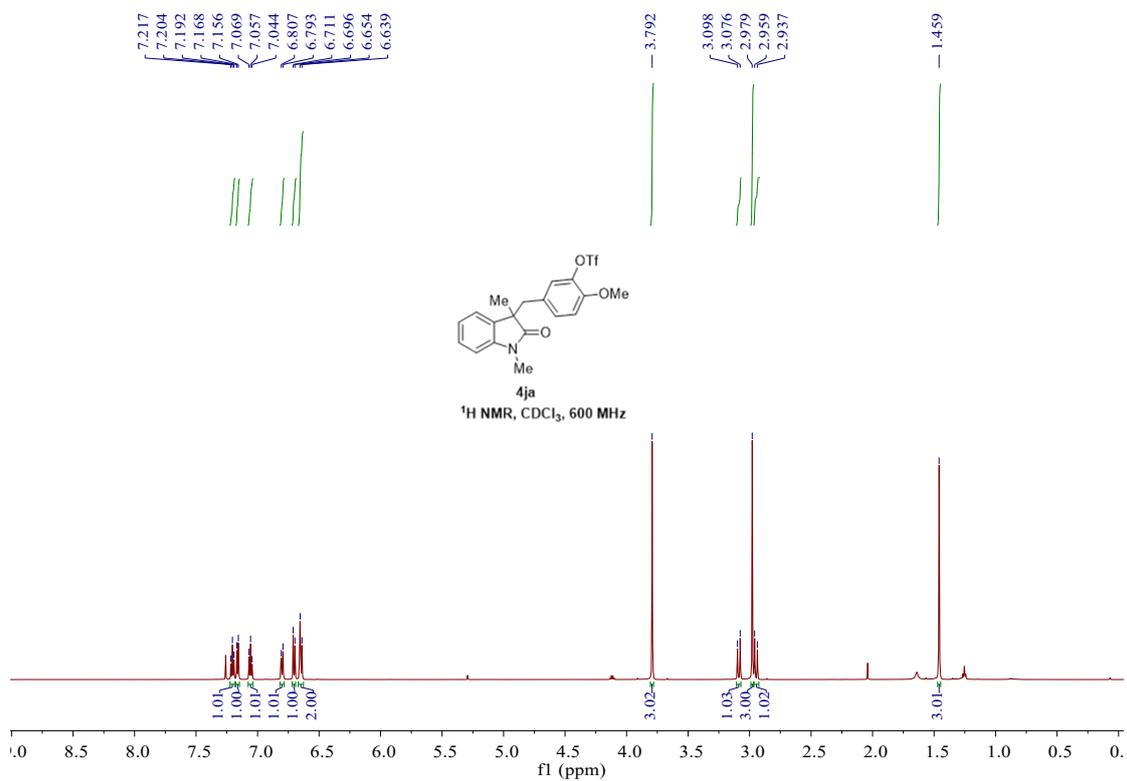
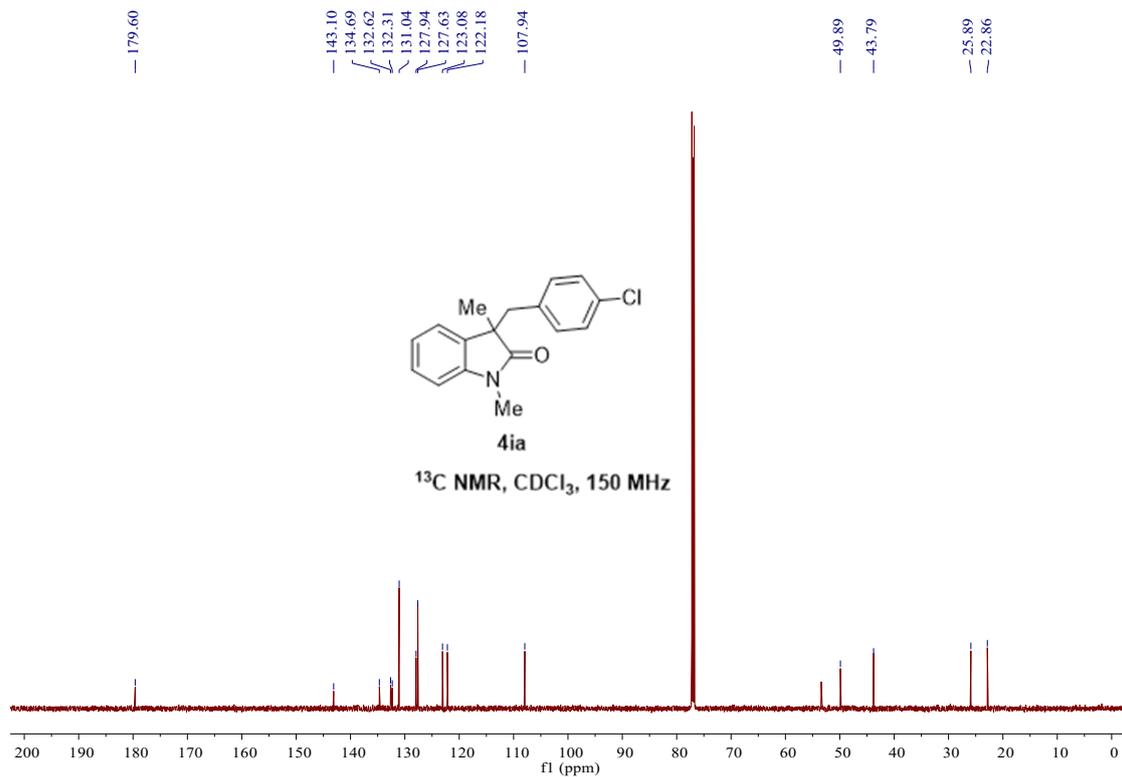
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3.098  
2.990  
2.974  
2.952

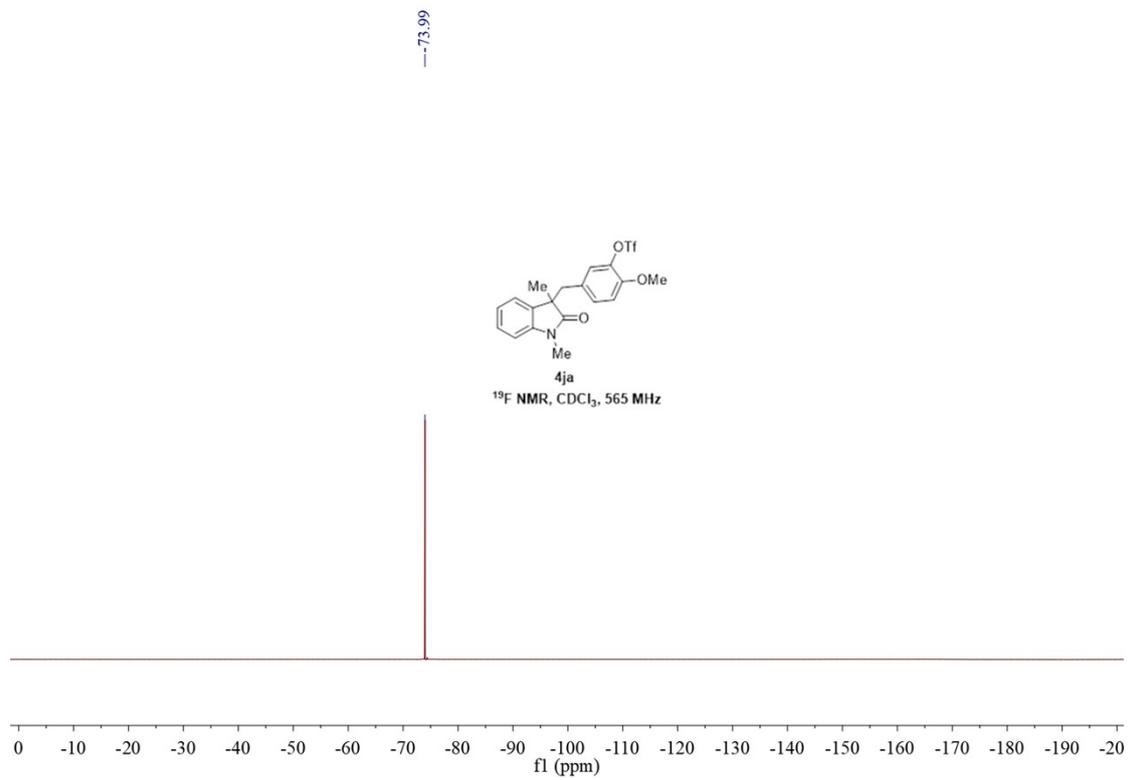
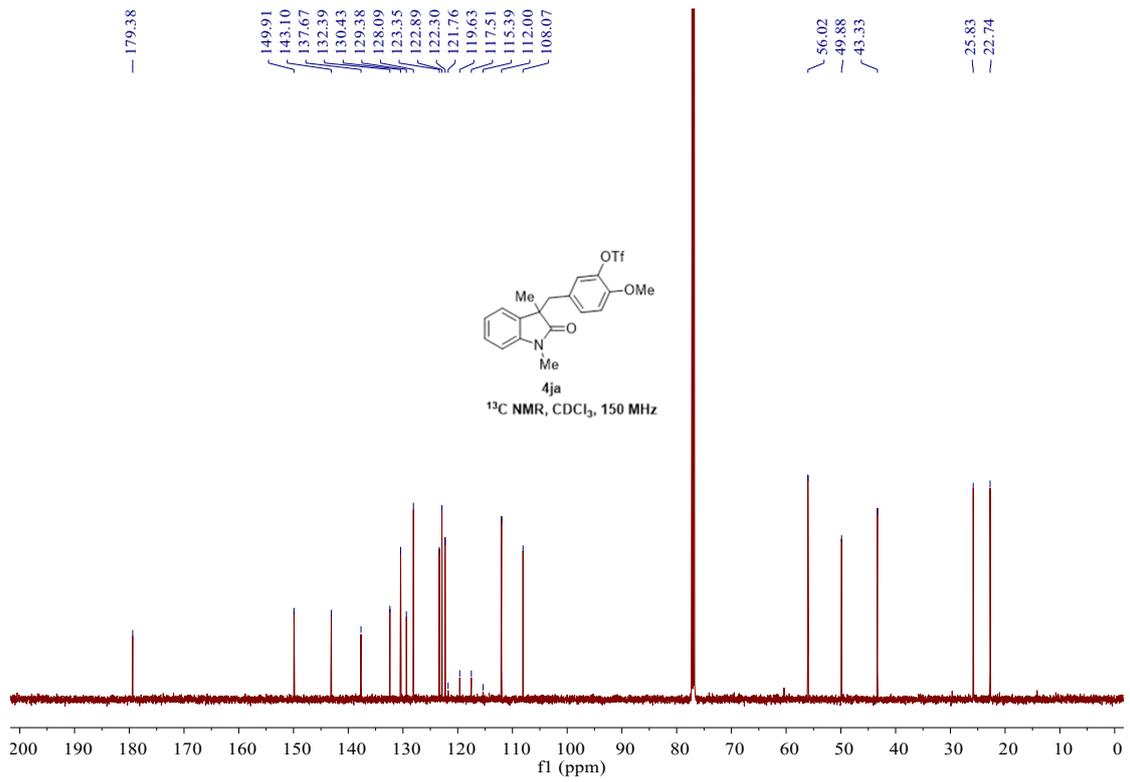
1.467

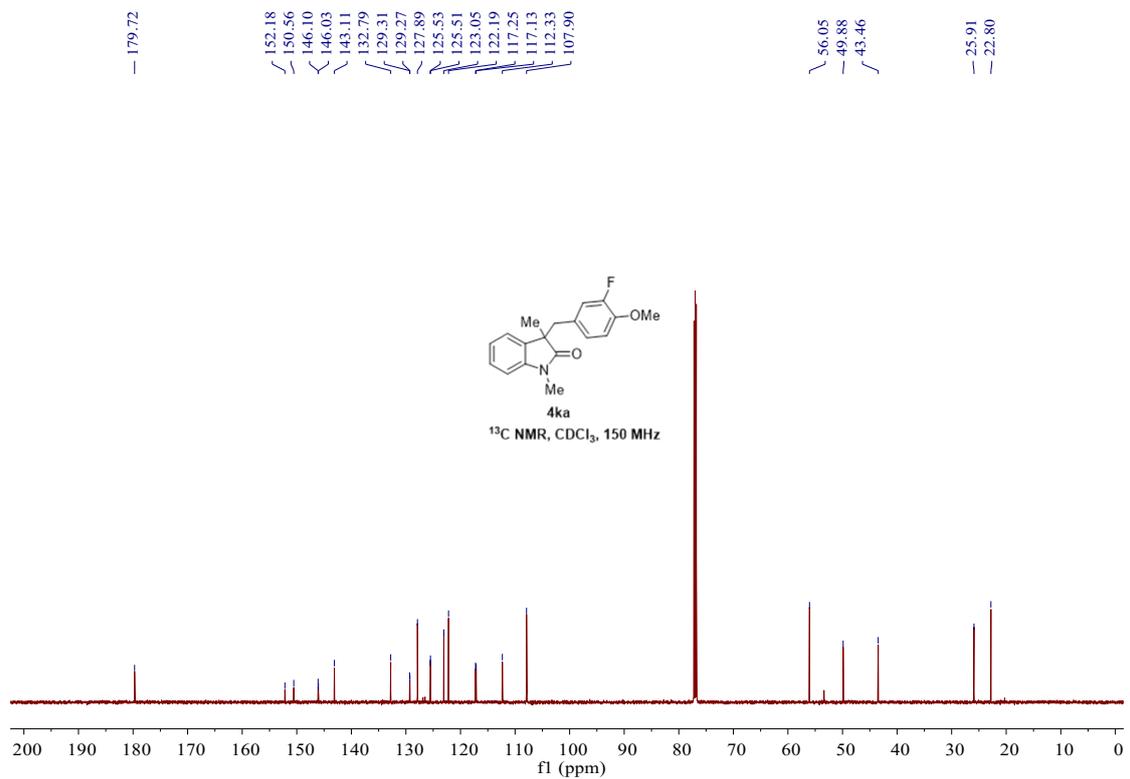
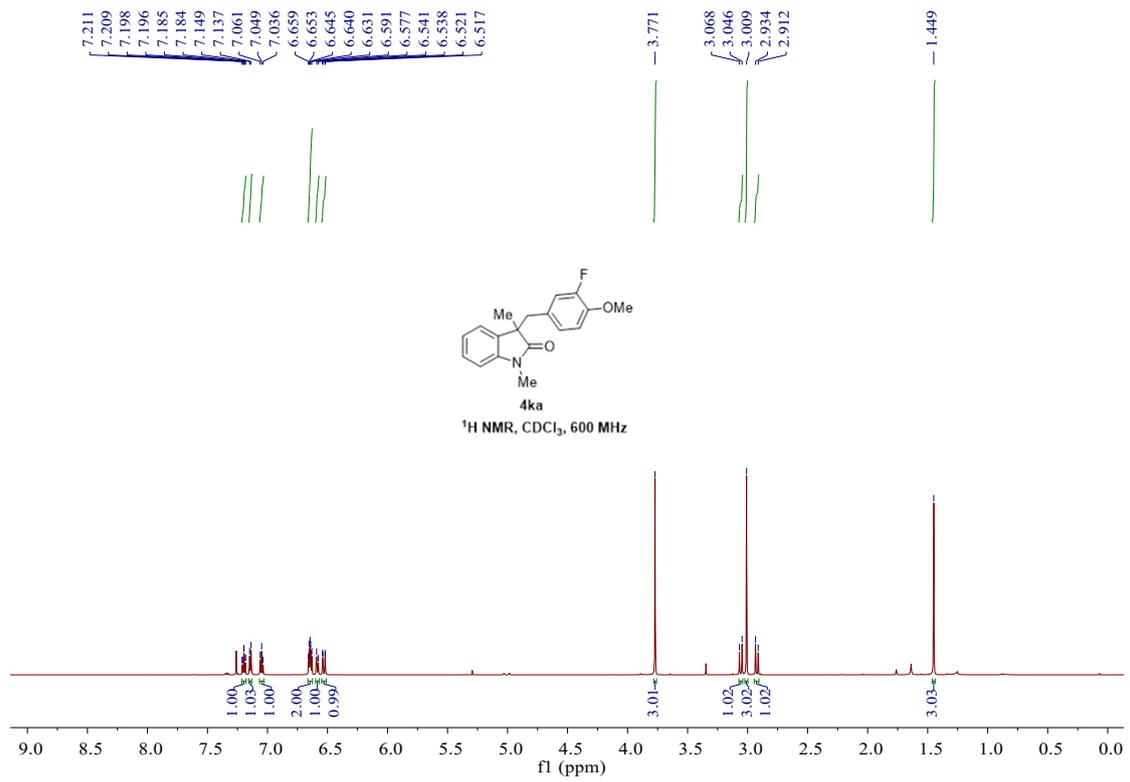


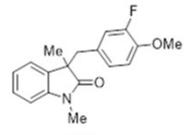
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz



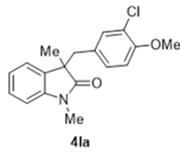
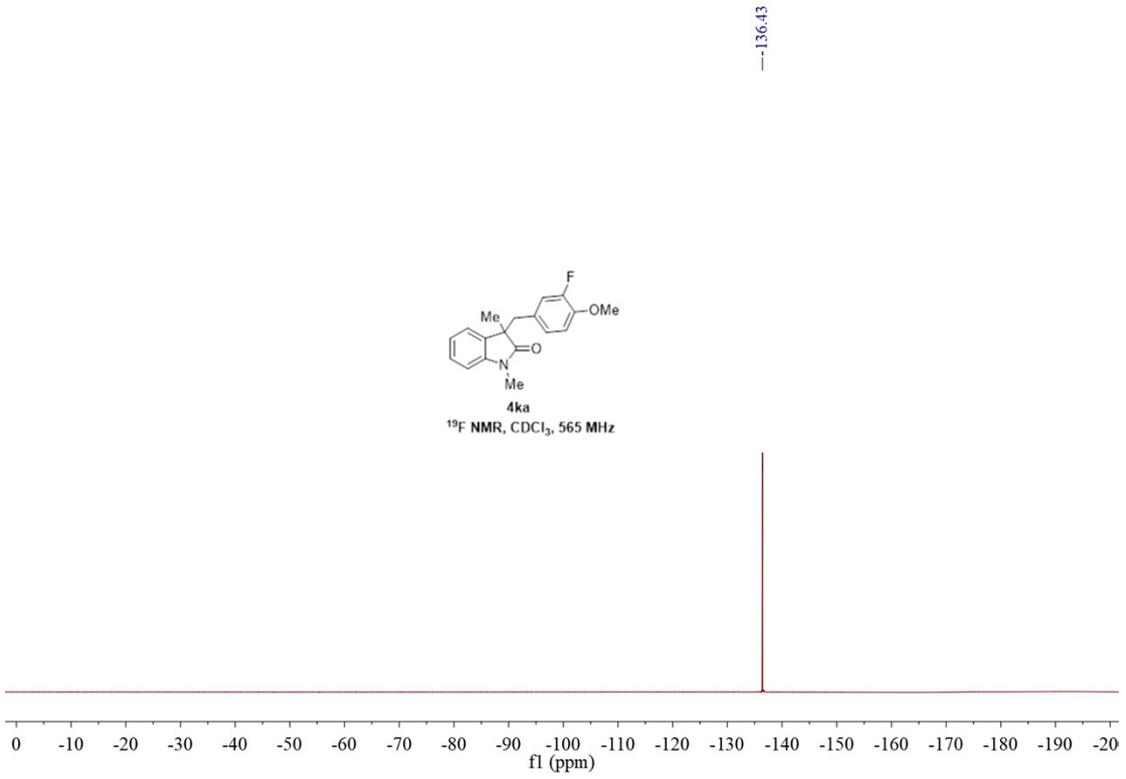




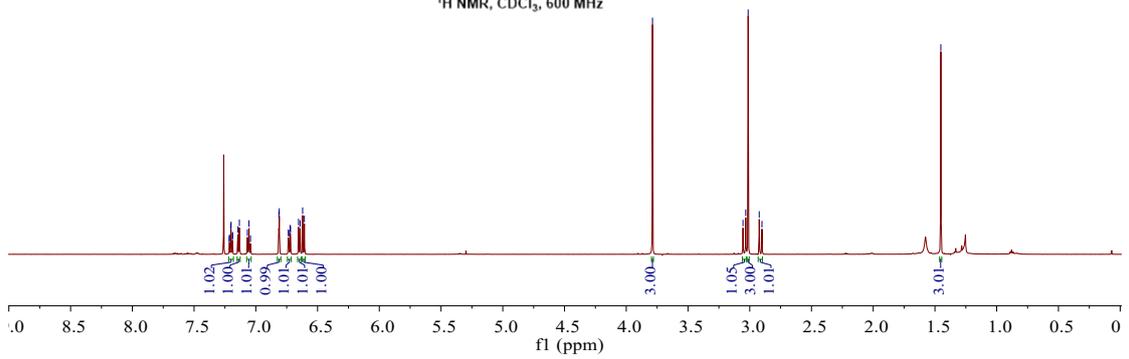


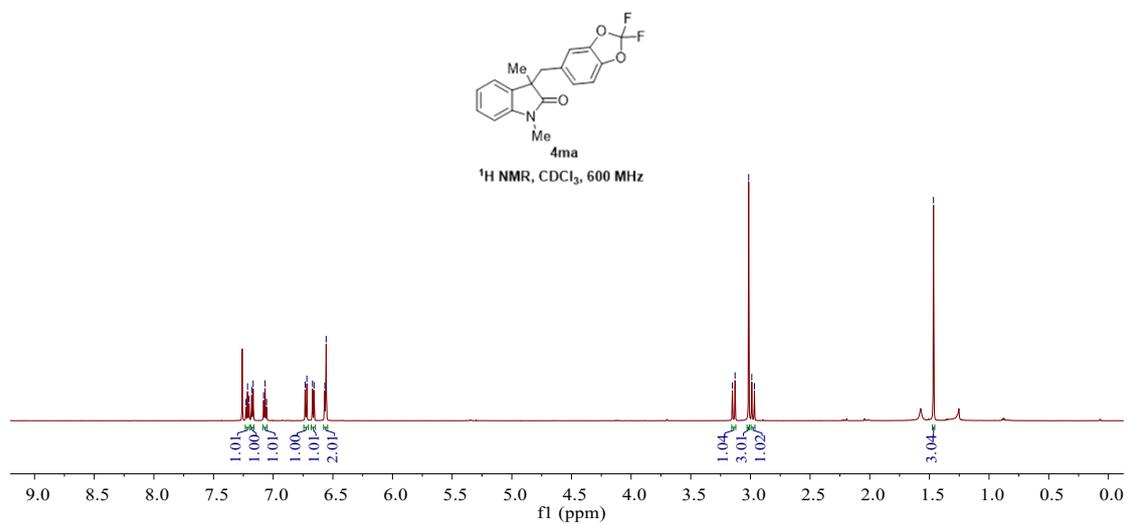
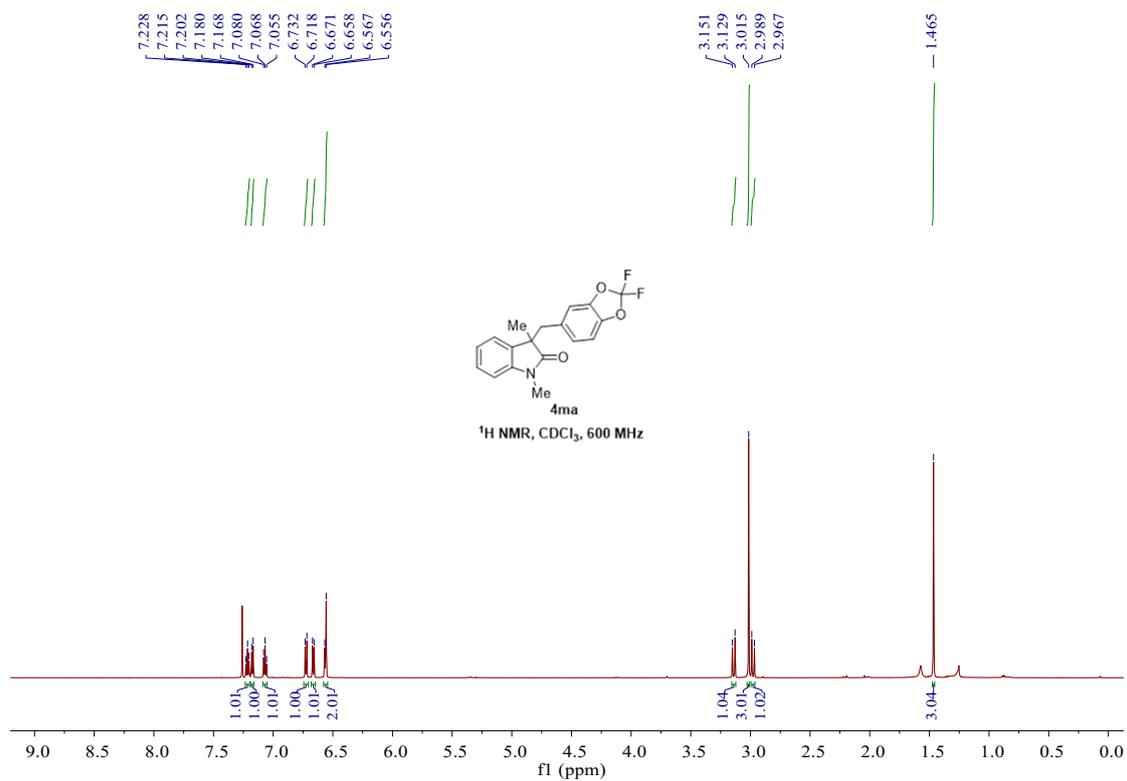
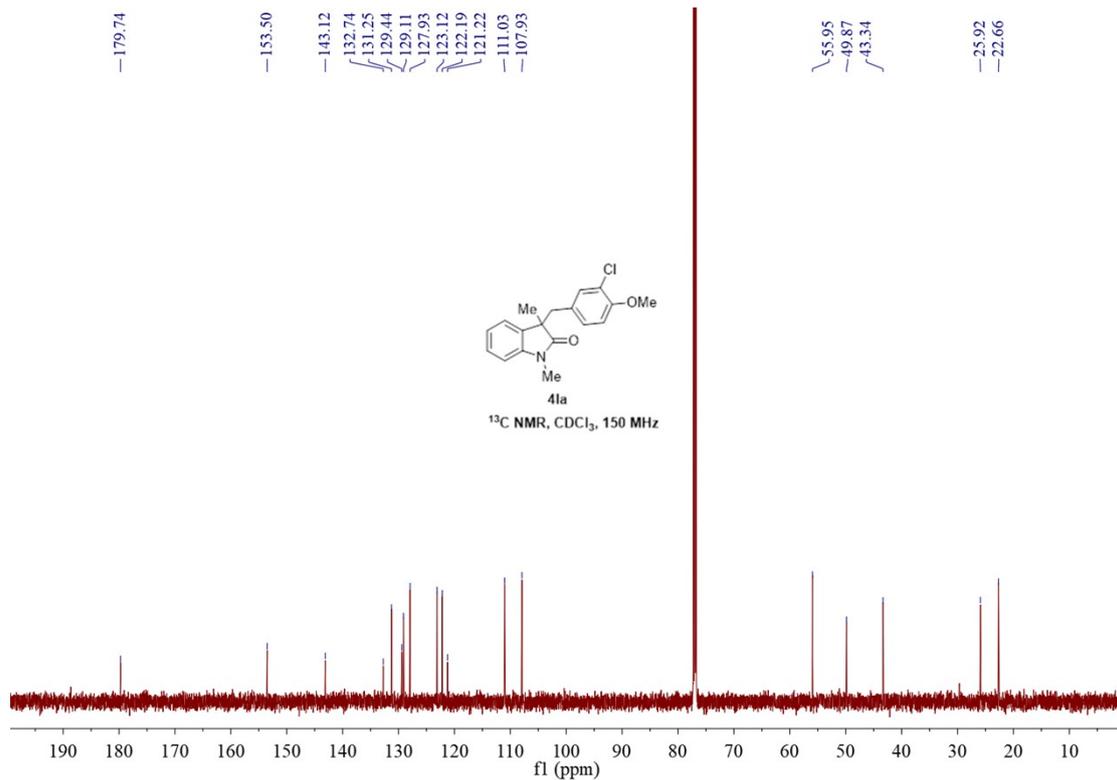


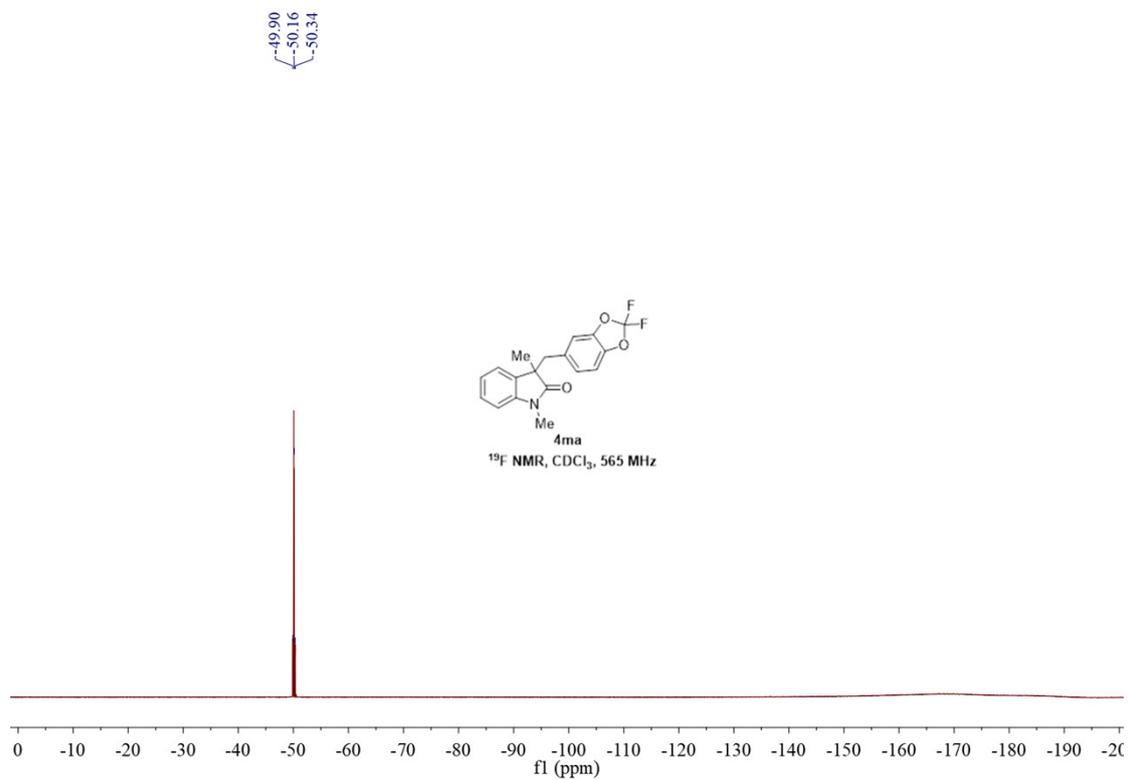
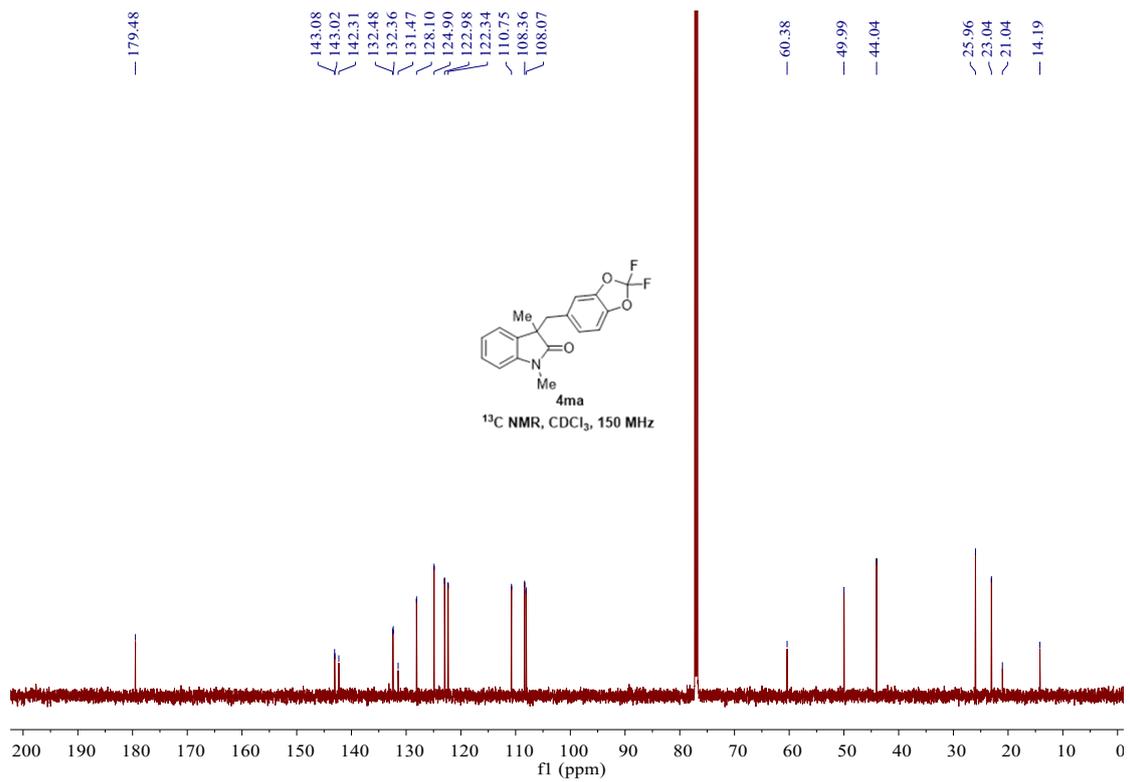
<sup>19</sup>F NMR, CDCl<sub>3</sub>, 565 MHz

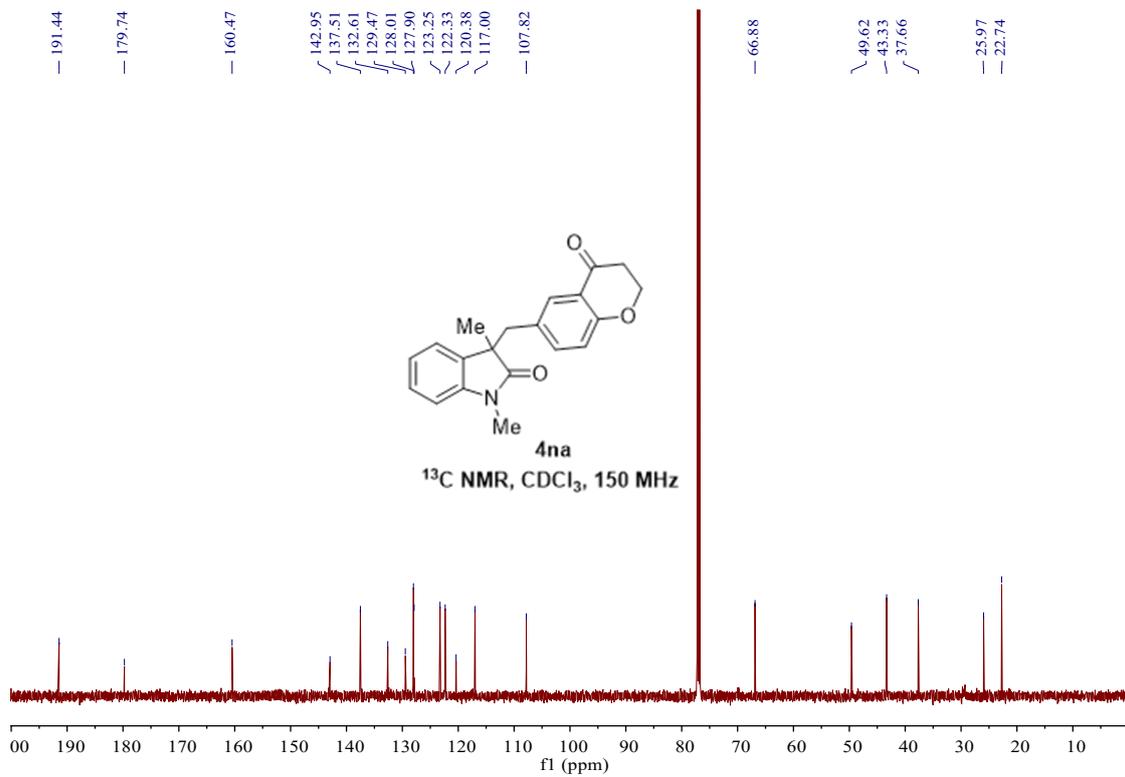
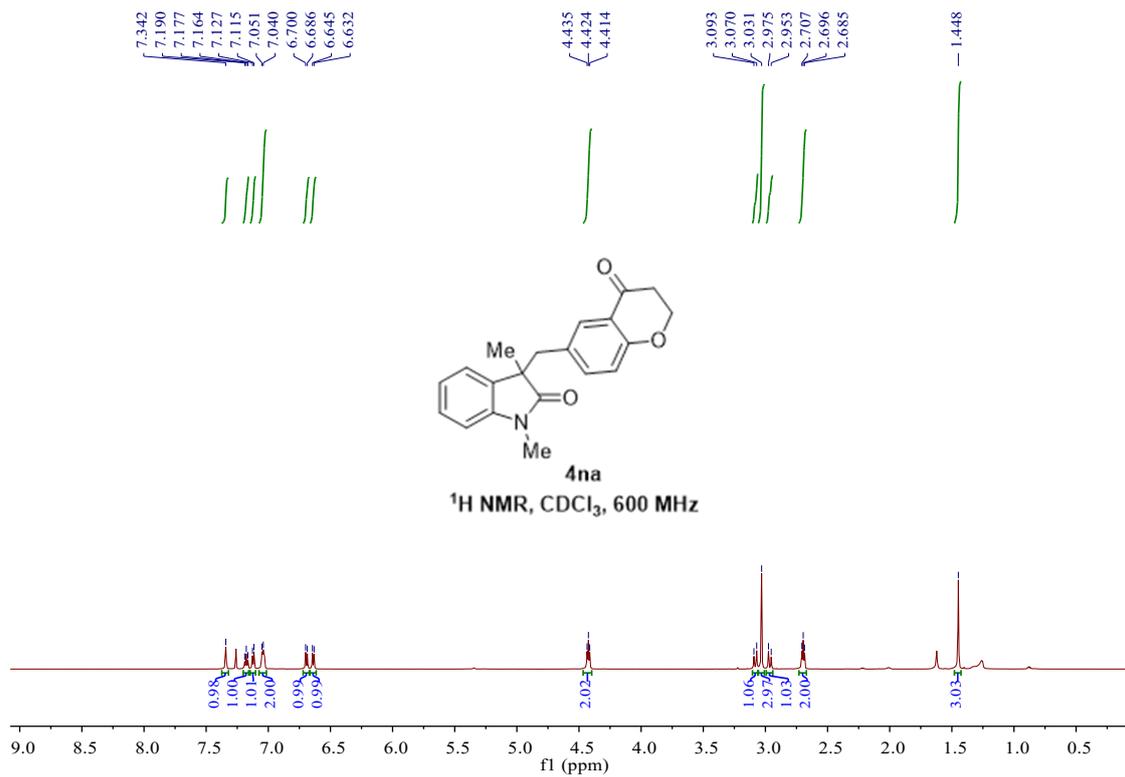


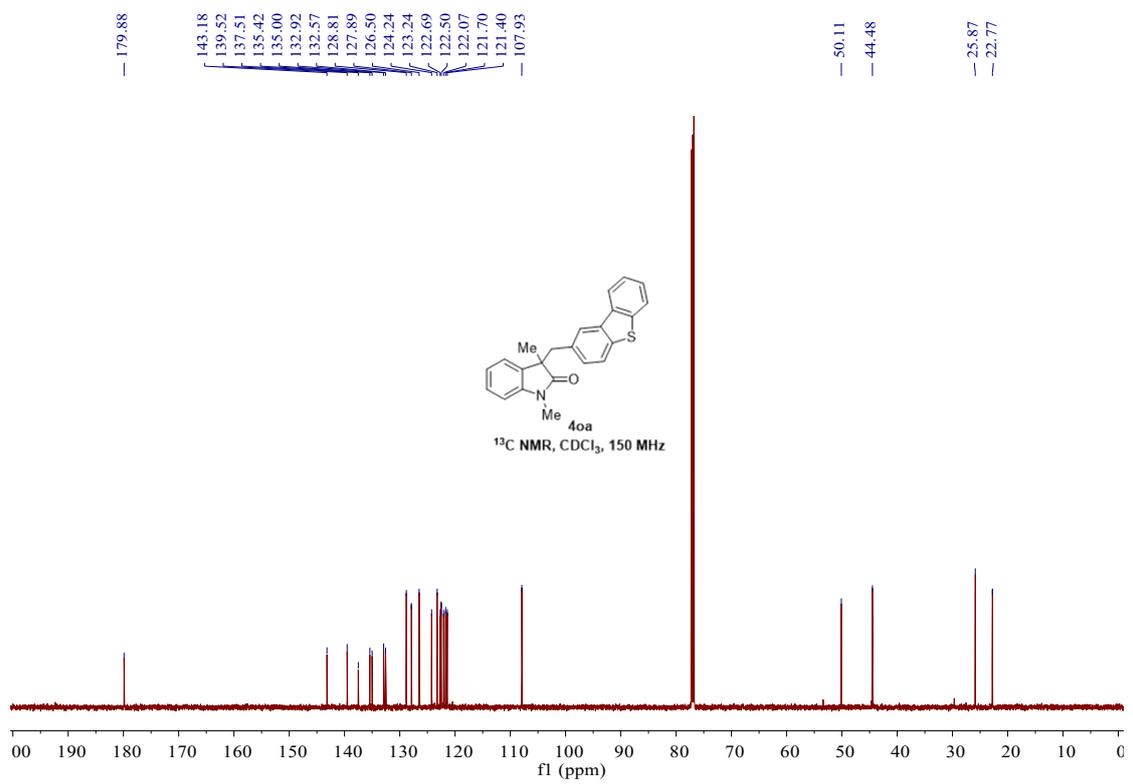
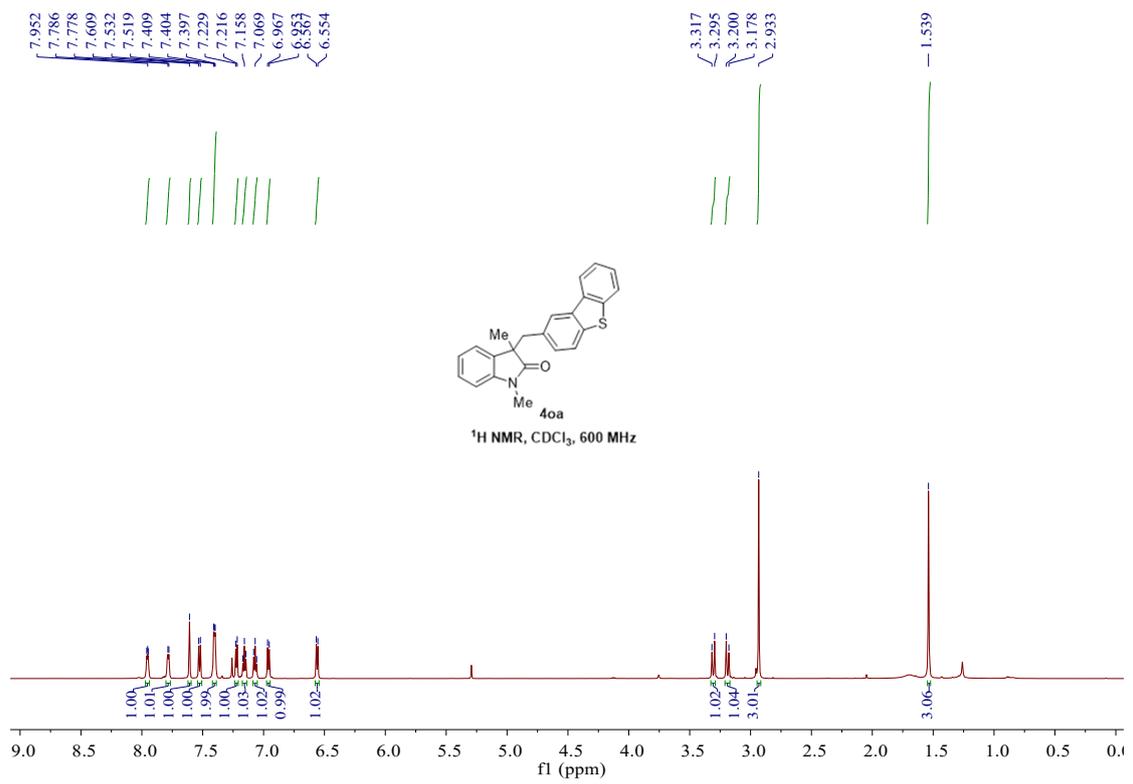
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

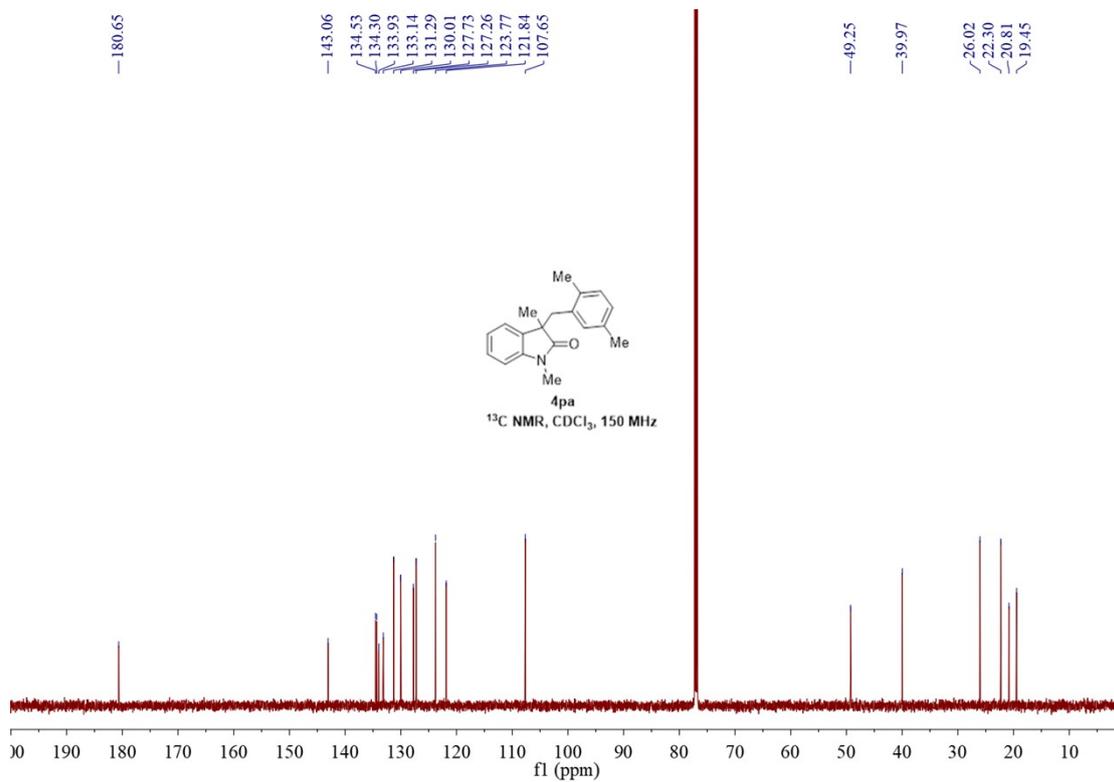
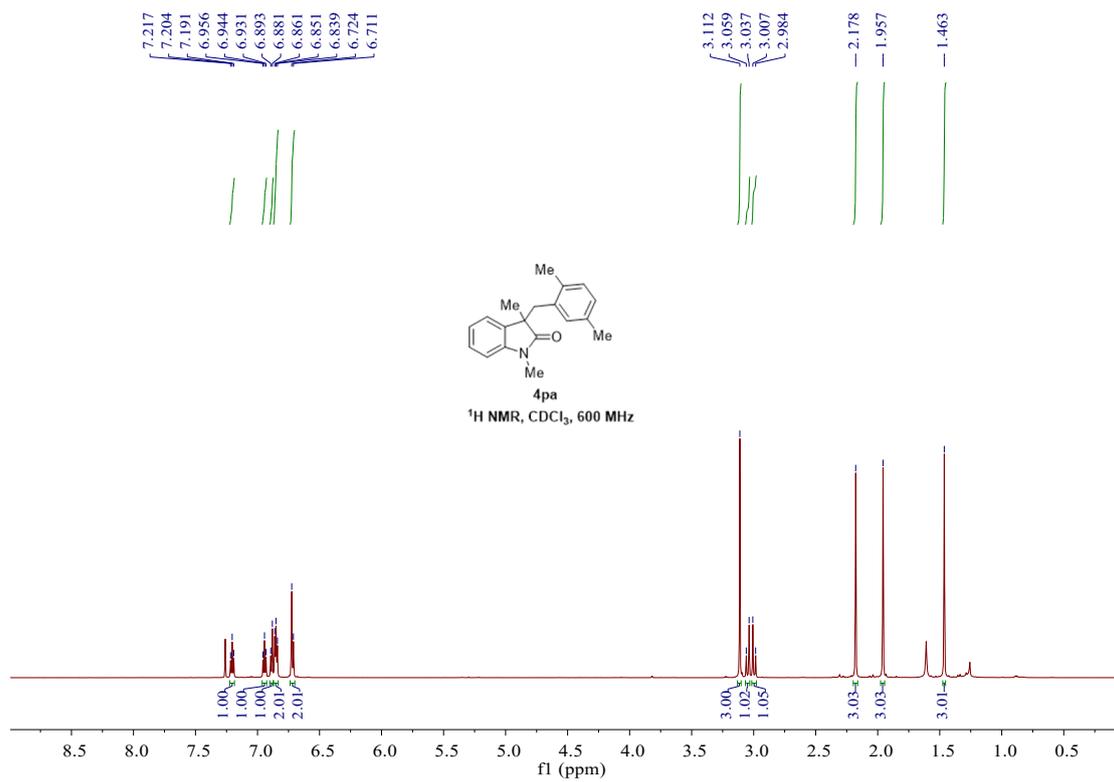


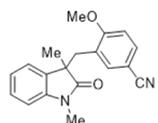




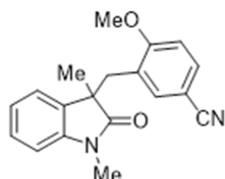
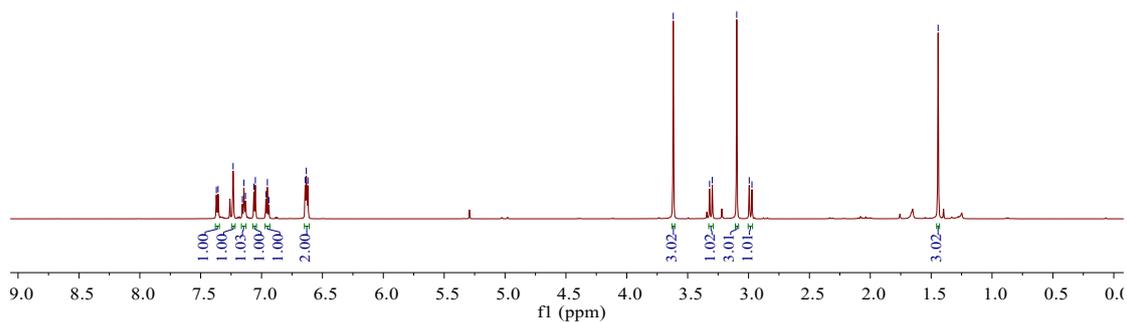




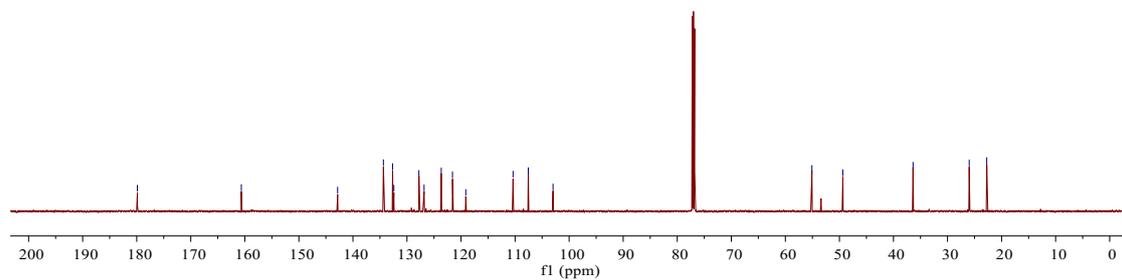


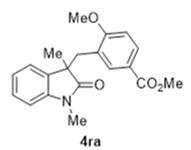
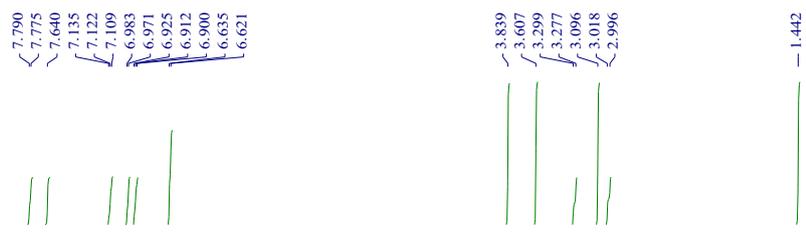


4qa  
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

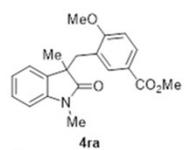
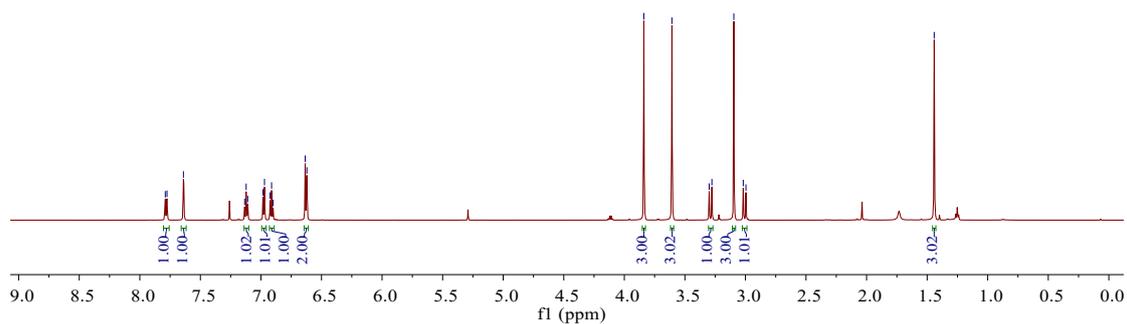


4qa  
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

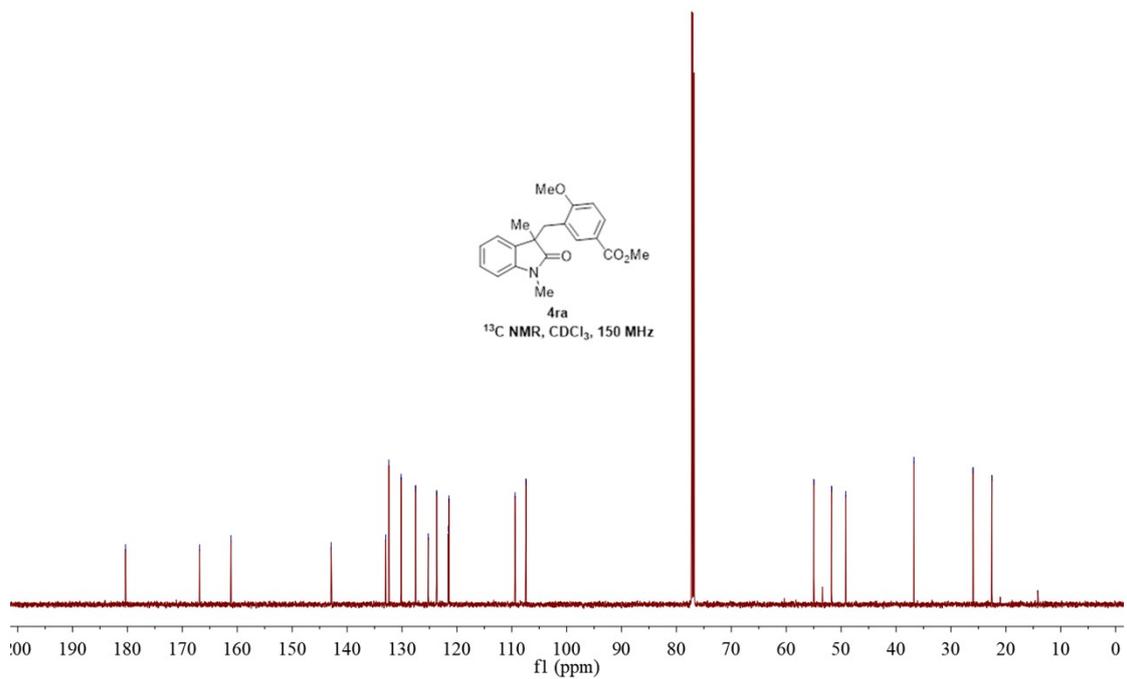


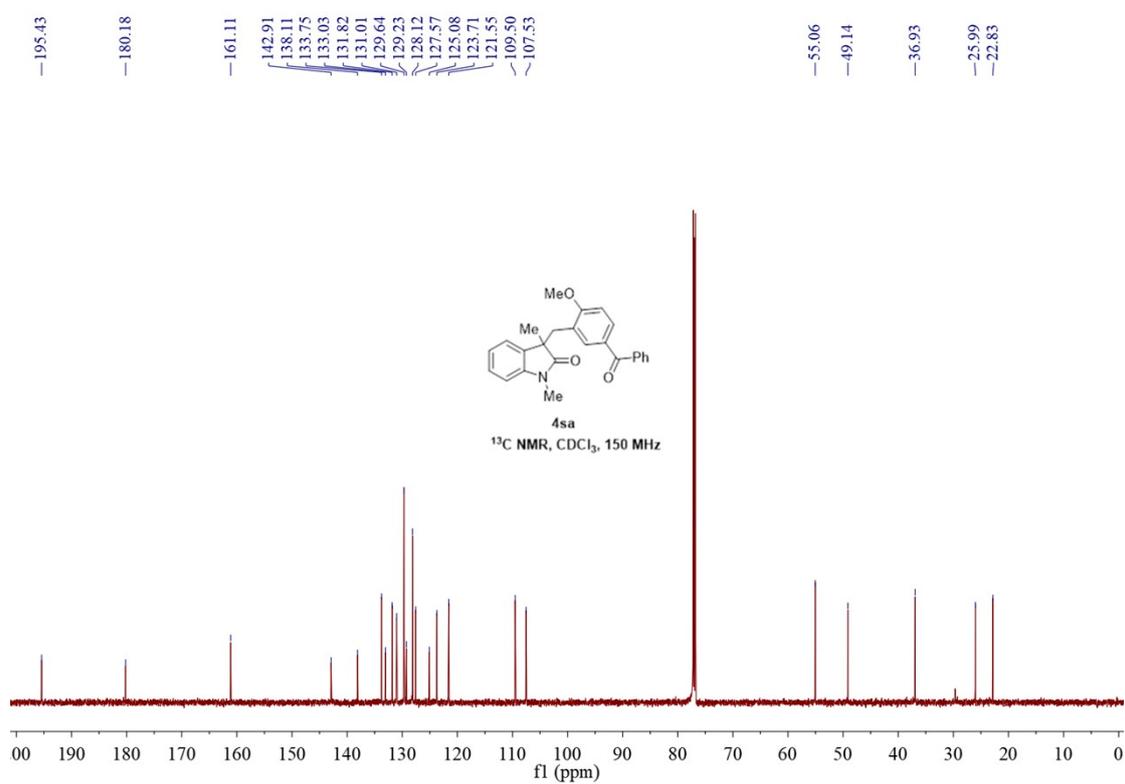
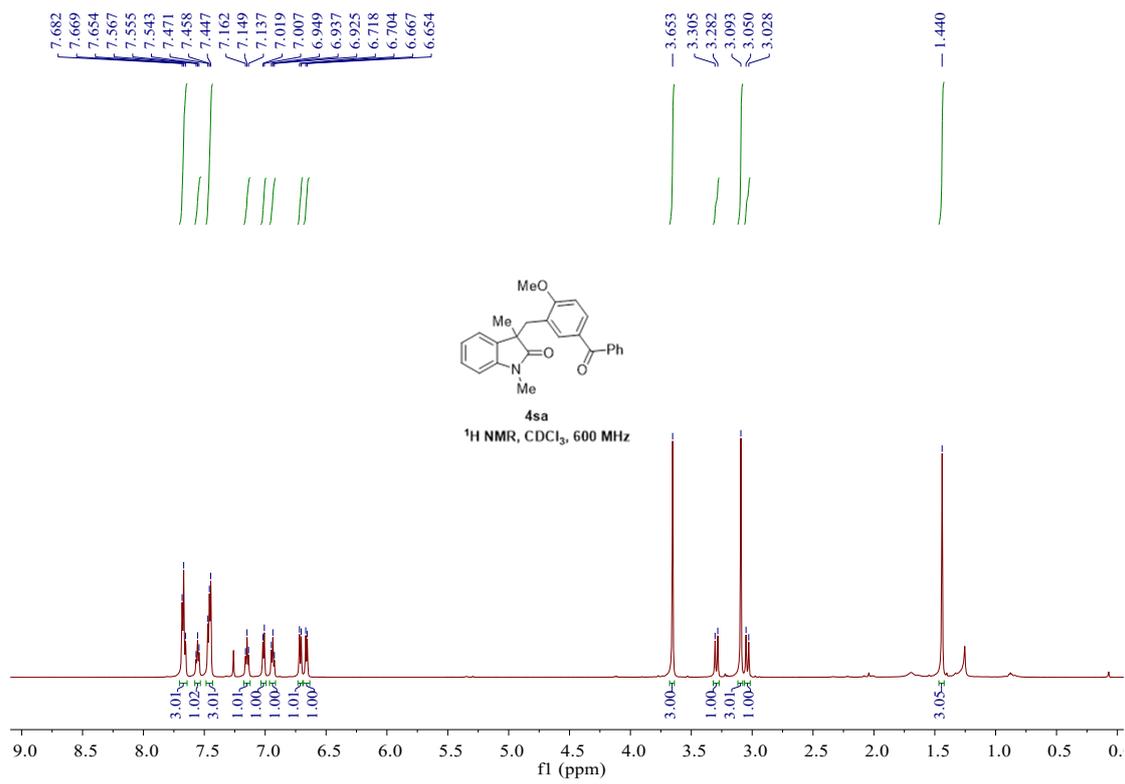


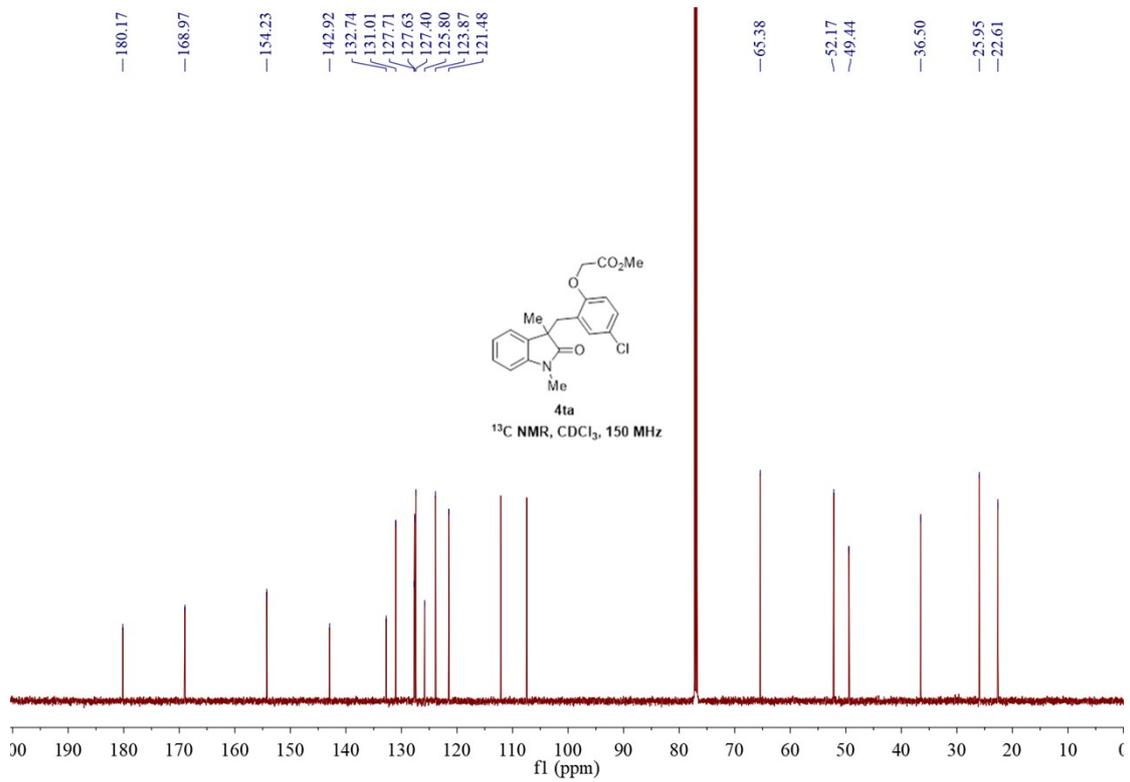
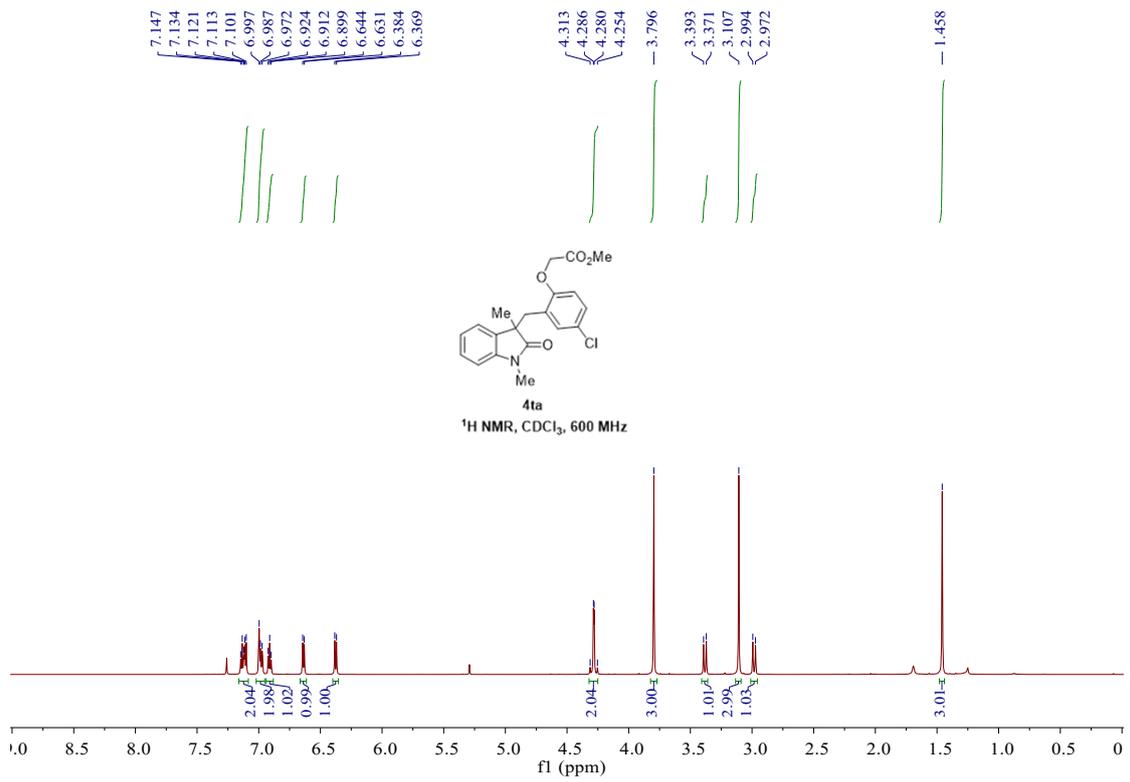
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

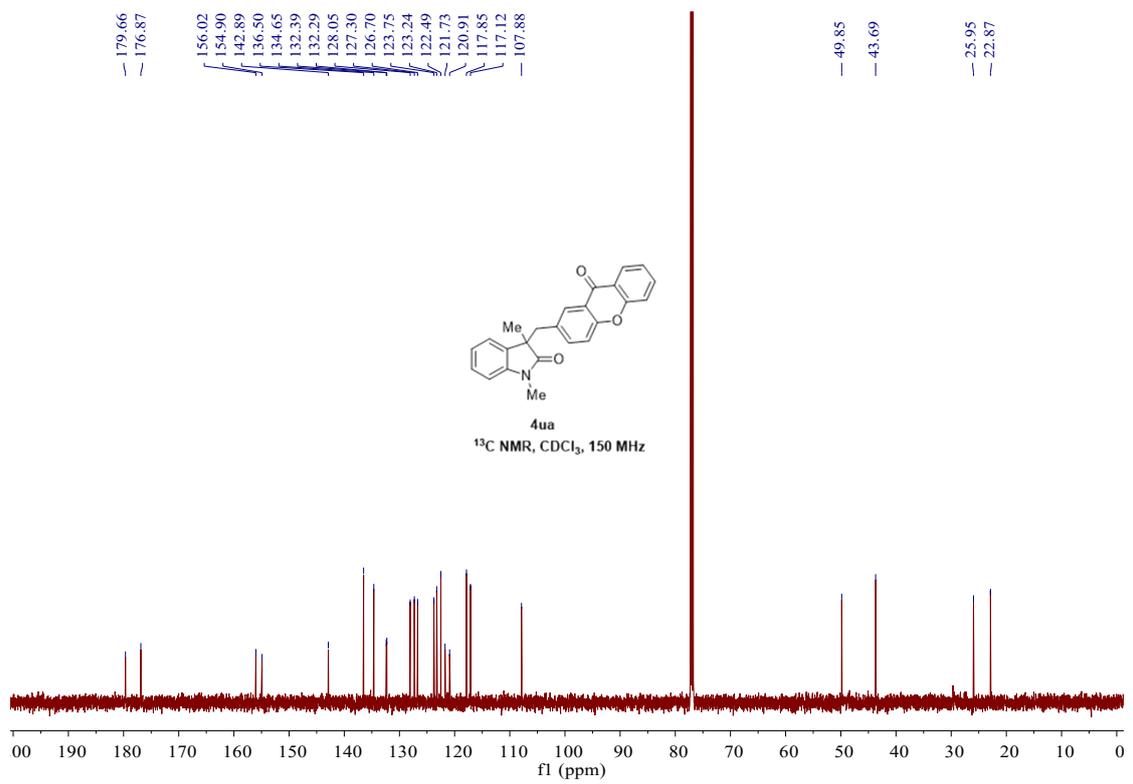
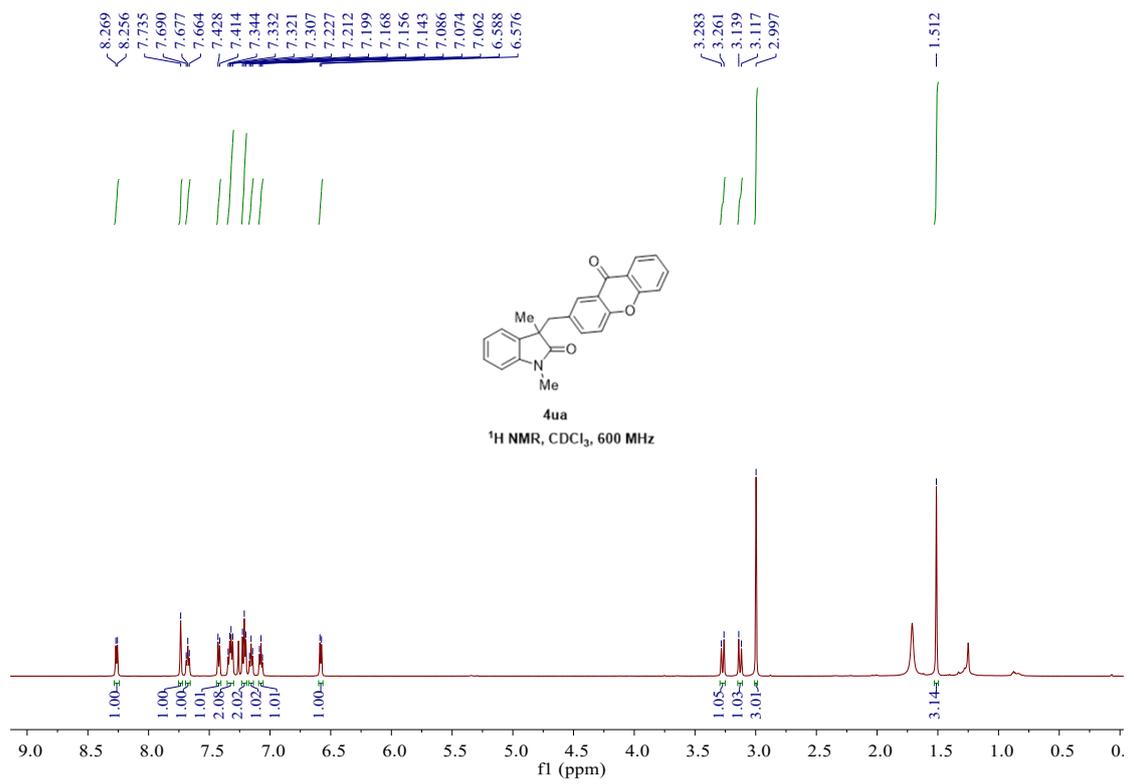


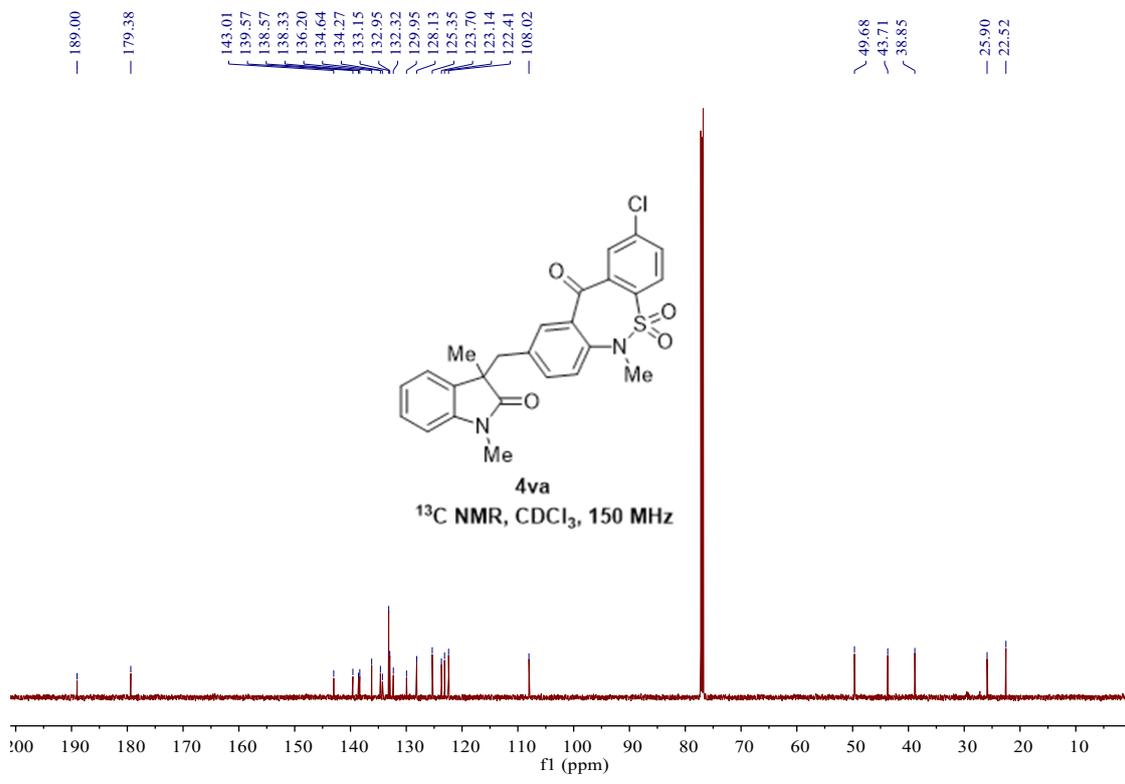
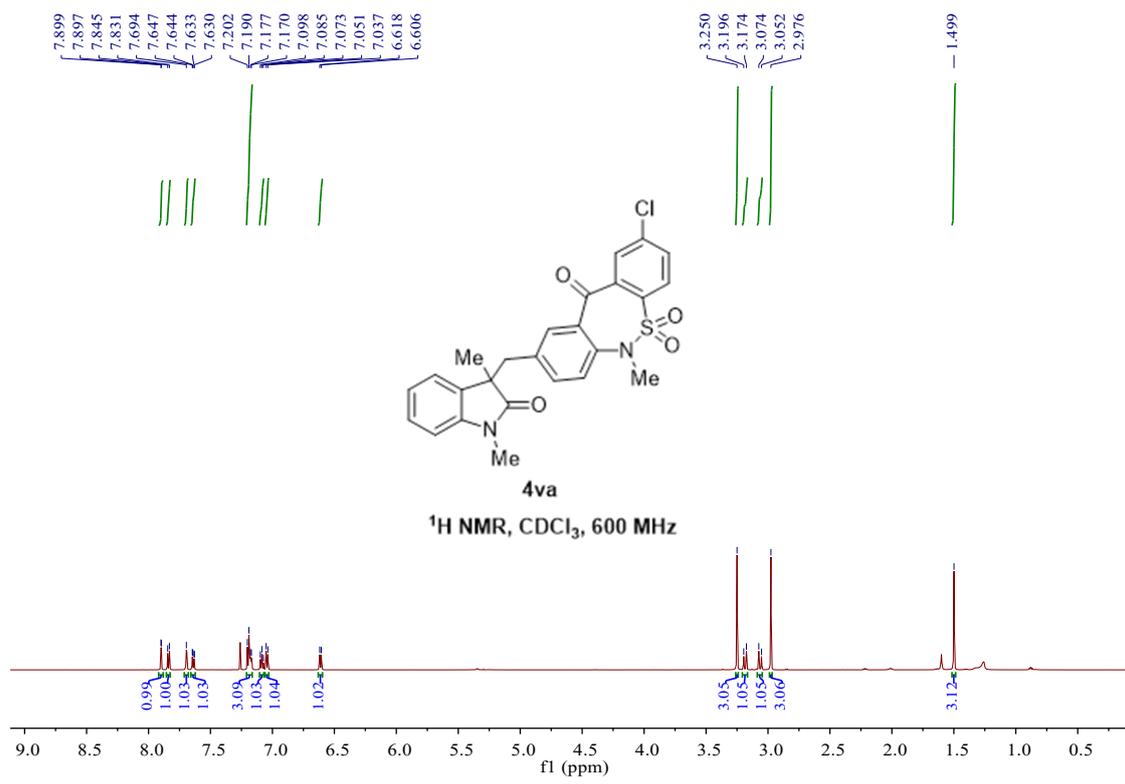
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

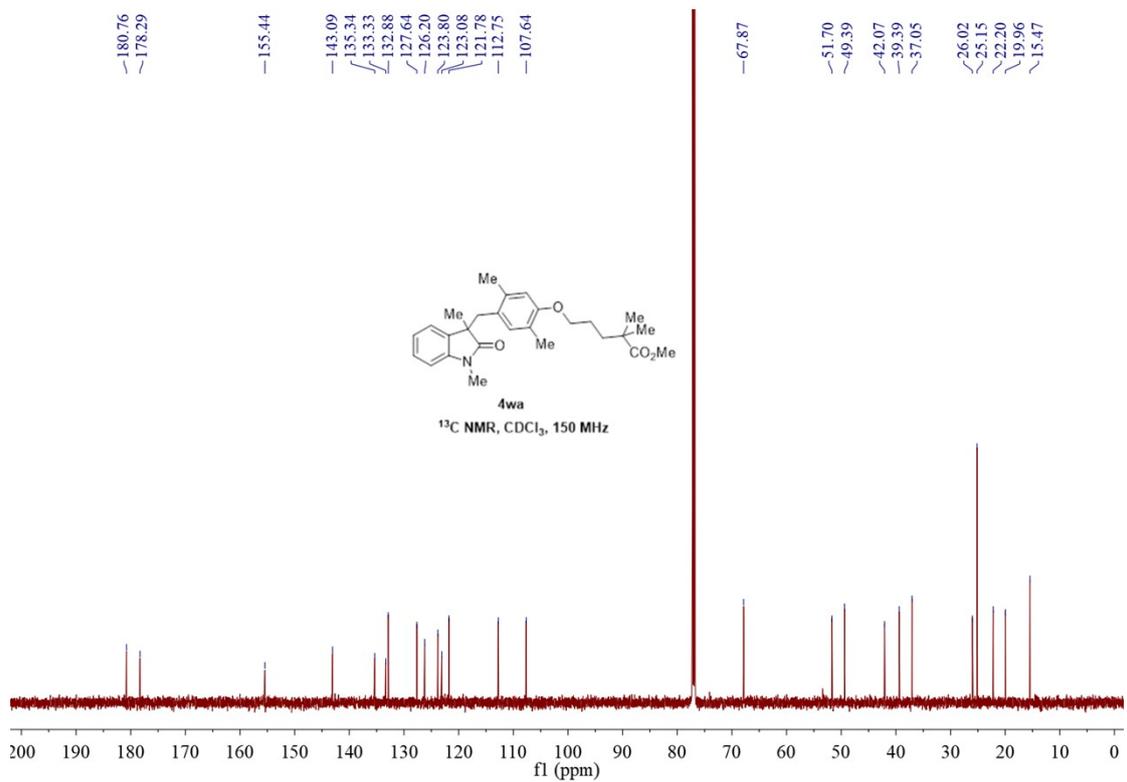
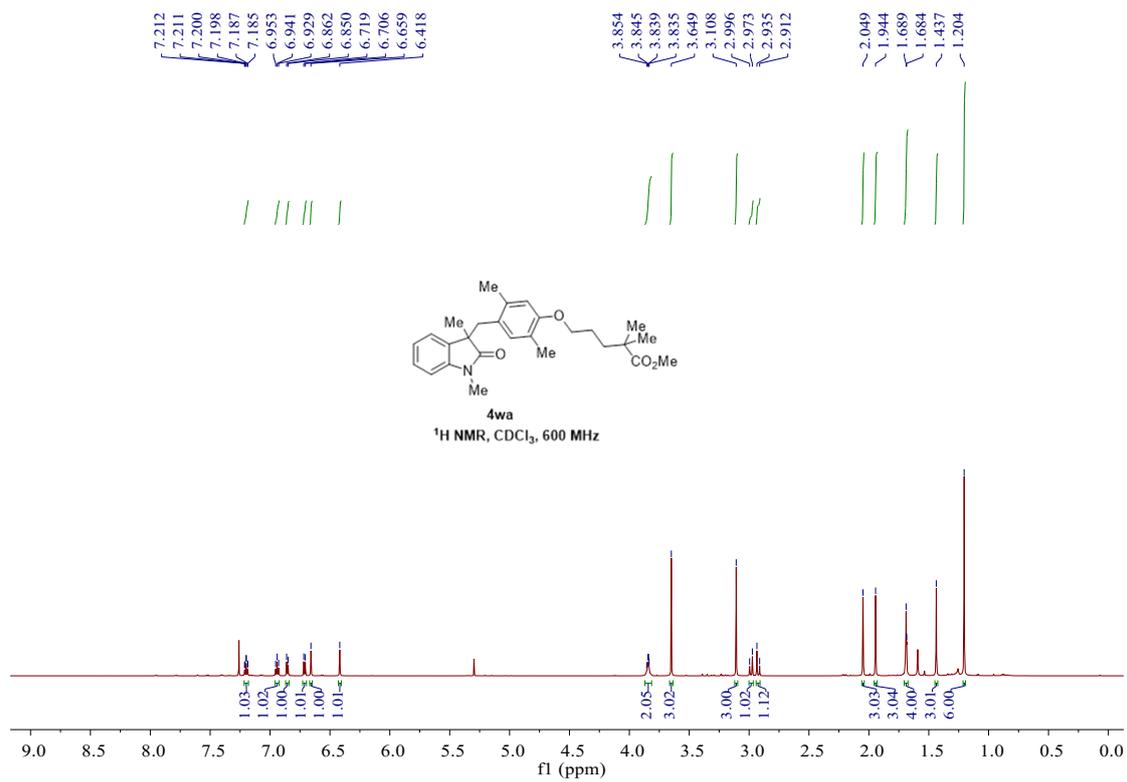


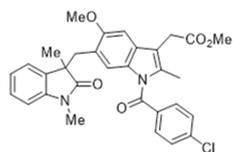




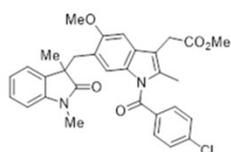
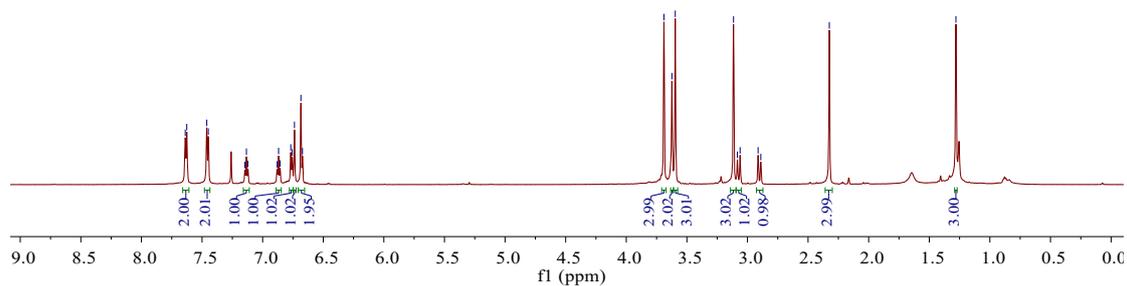




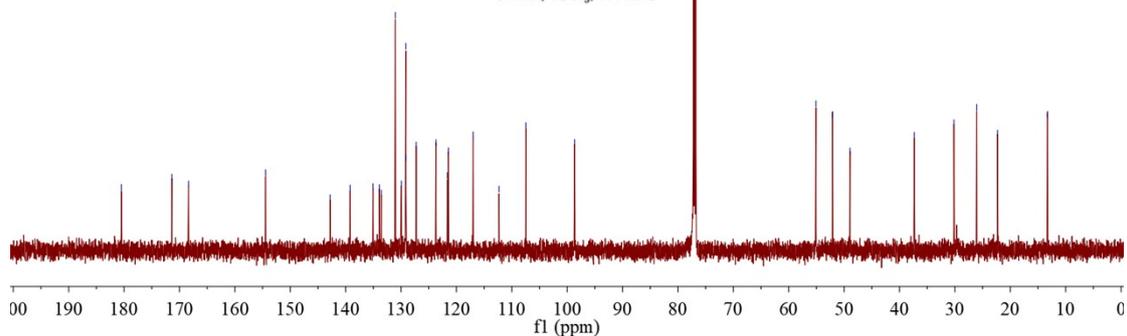


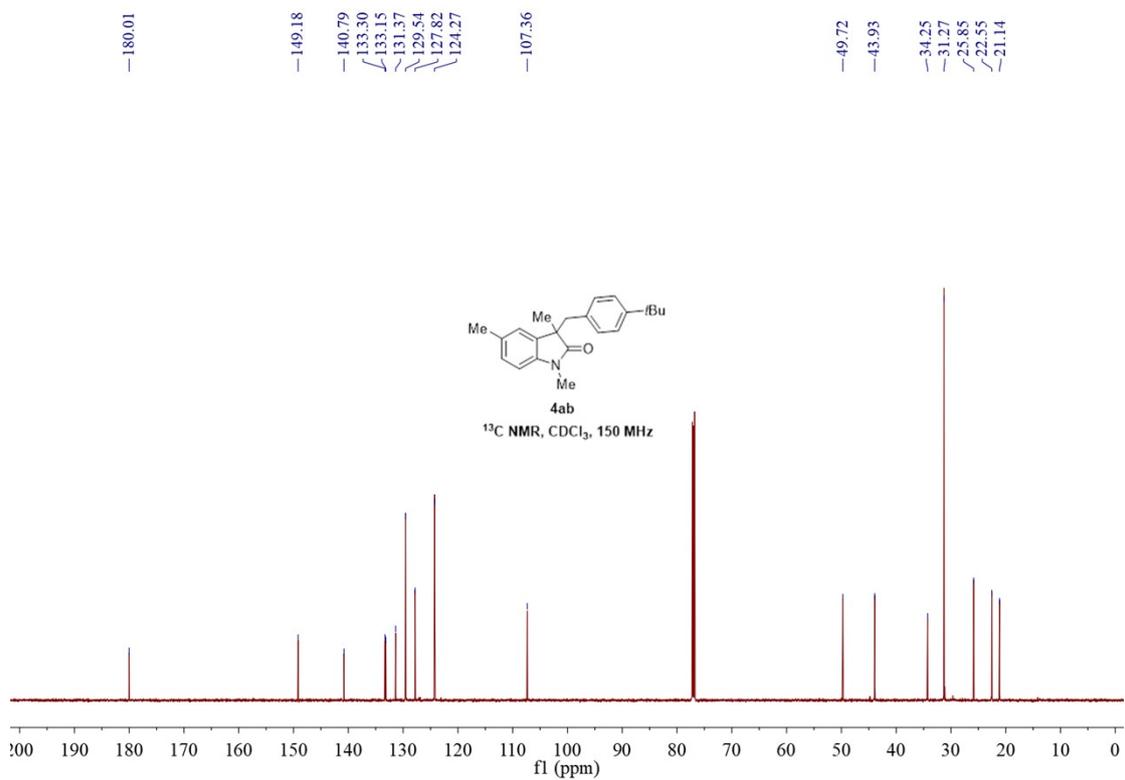
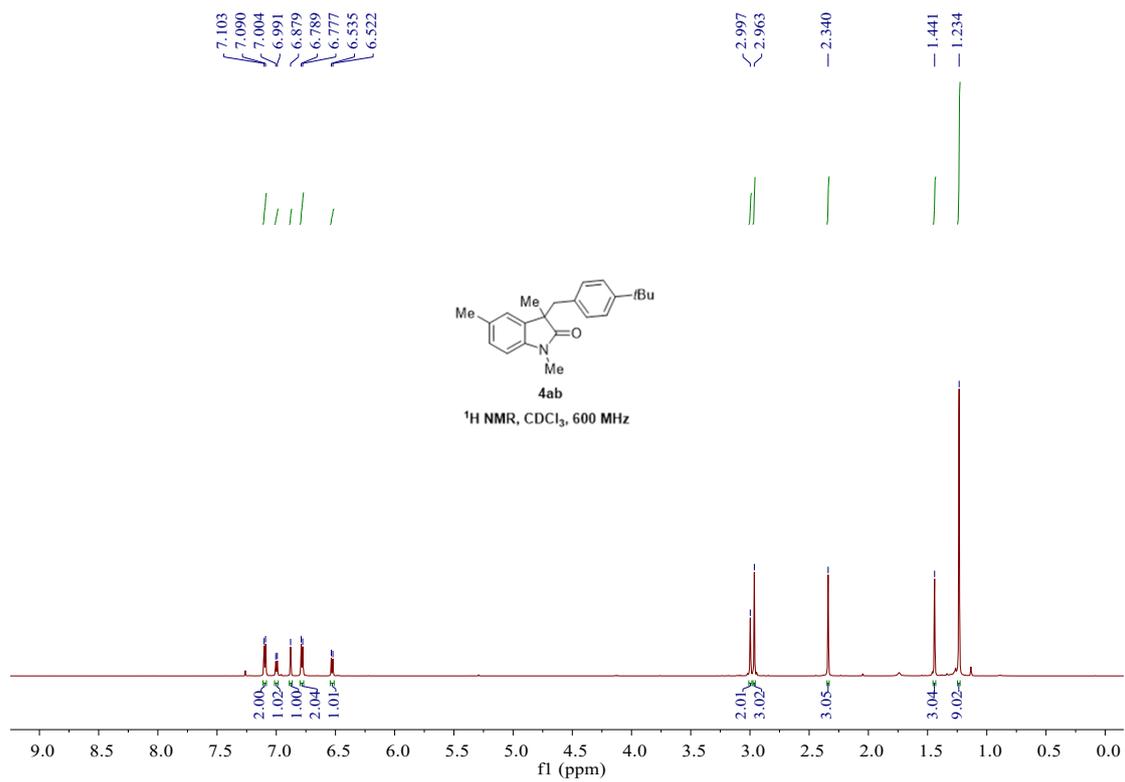


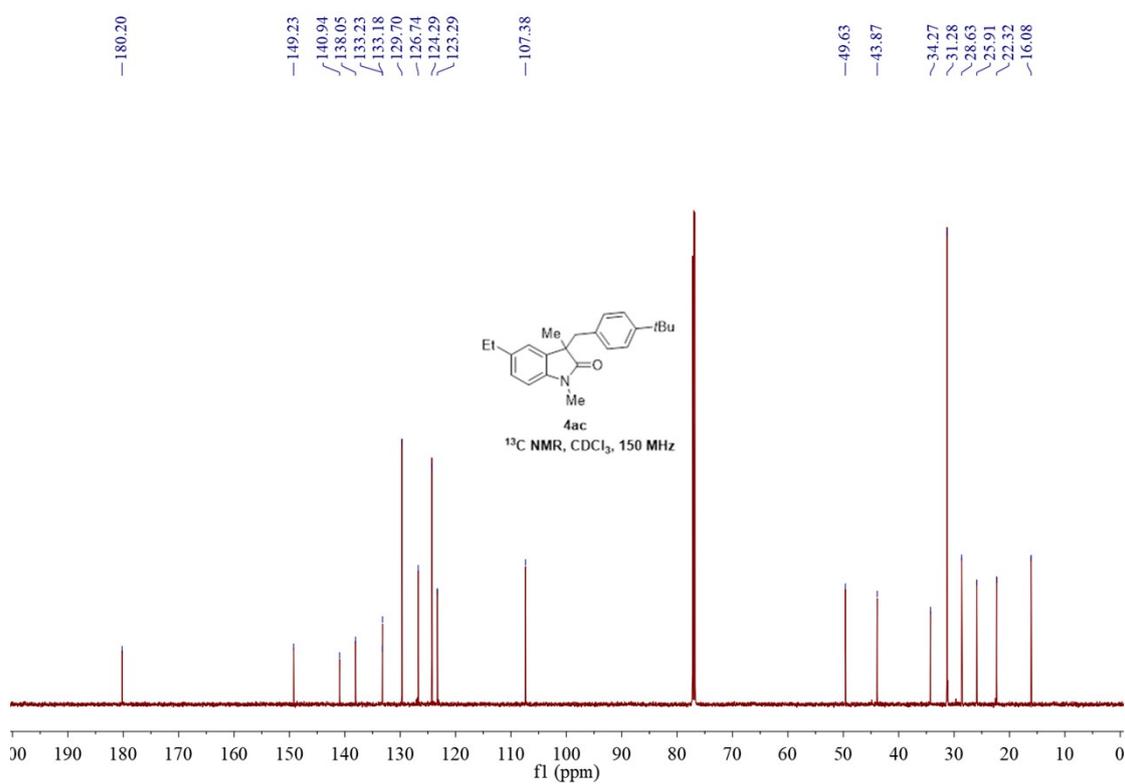
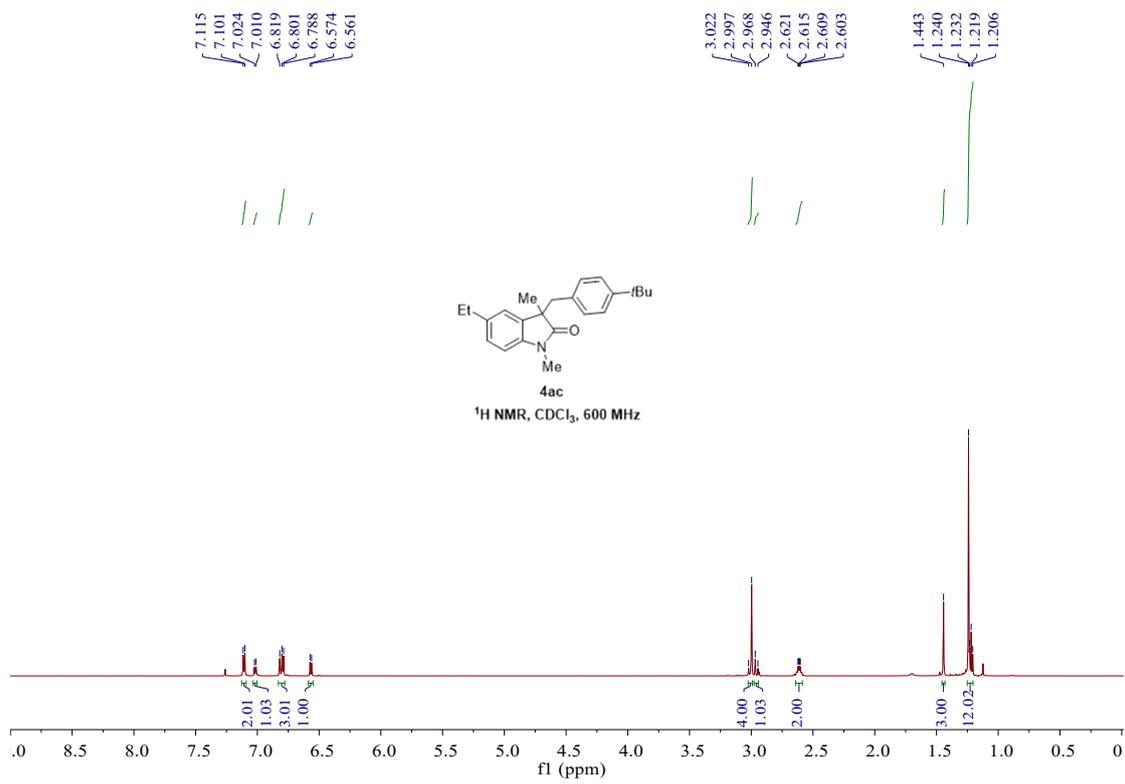
4xa  
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

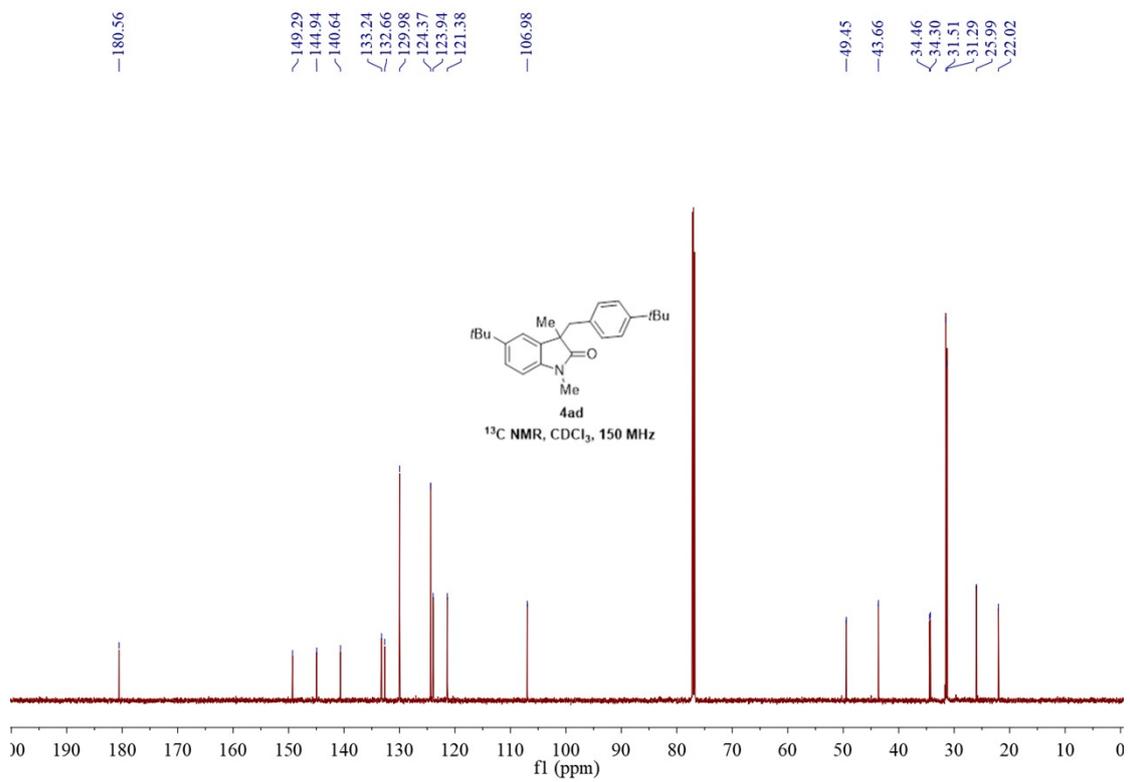
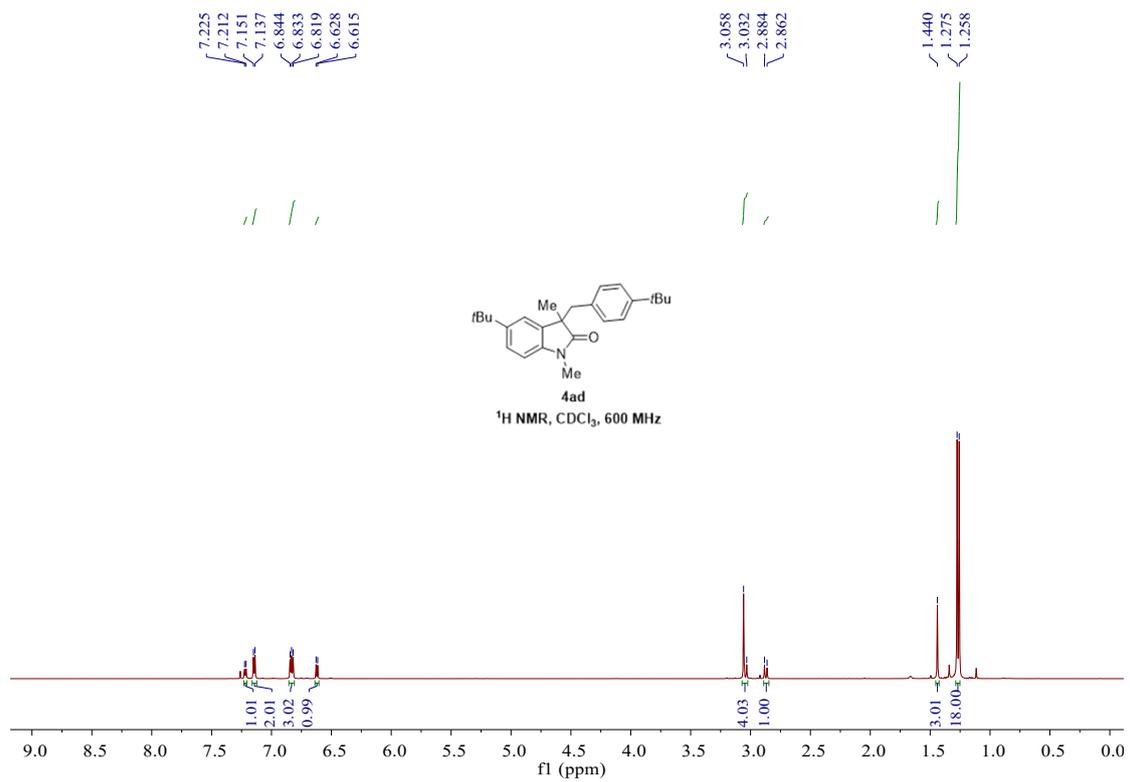


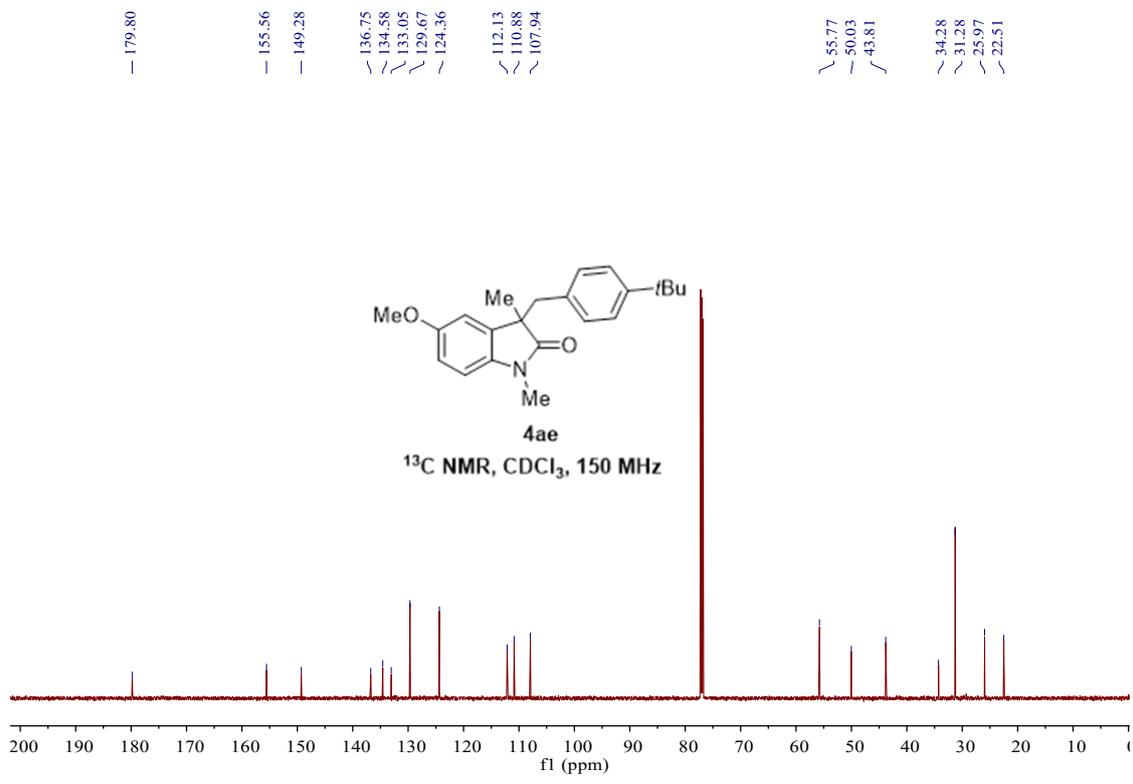
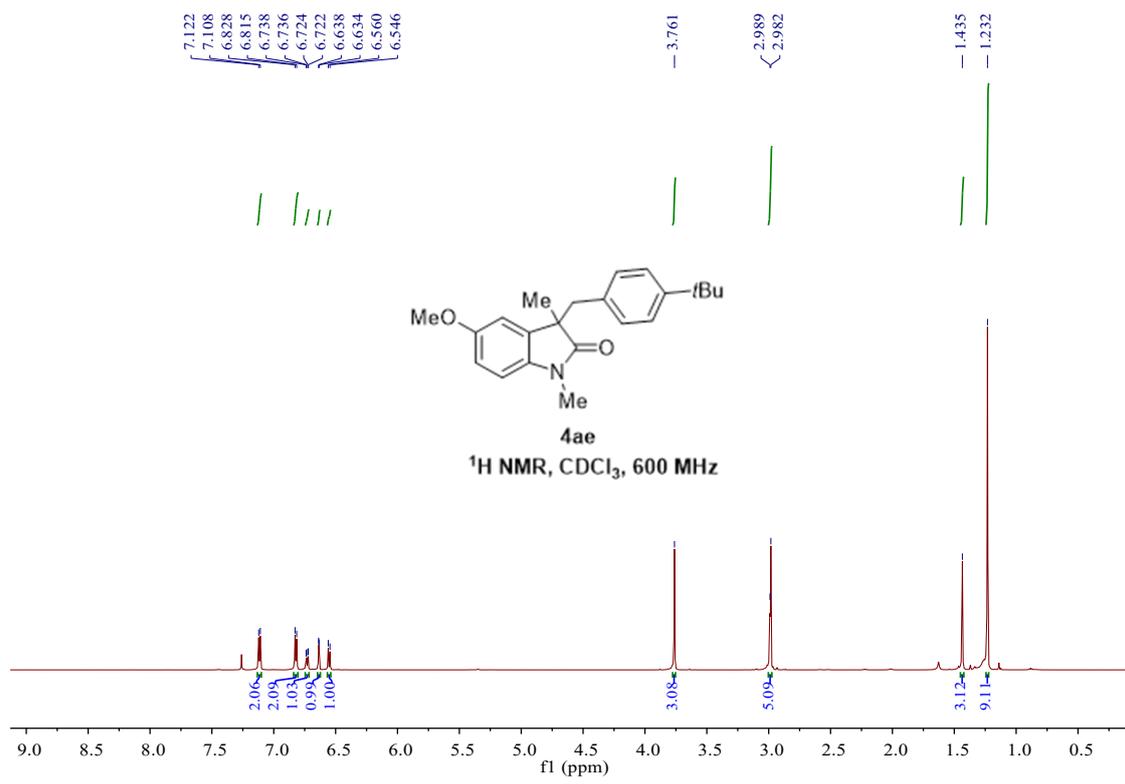
4xa  
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

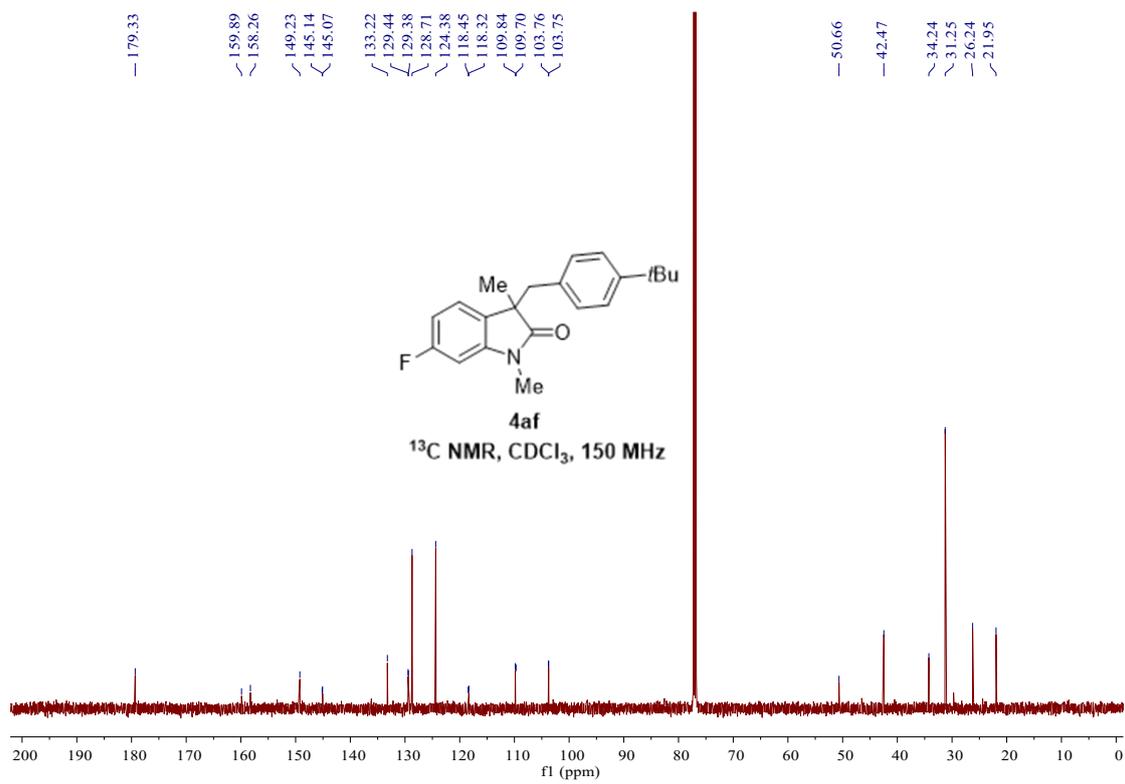
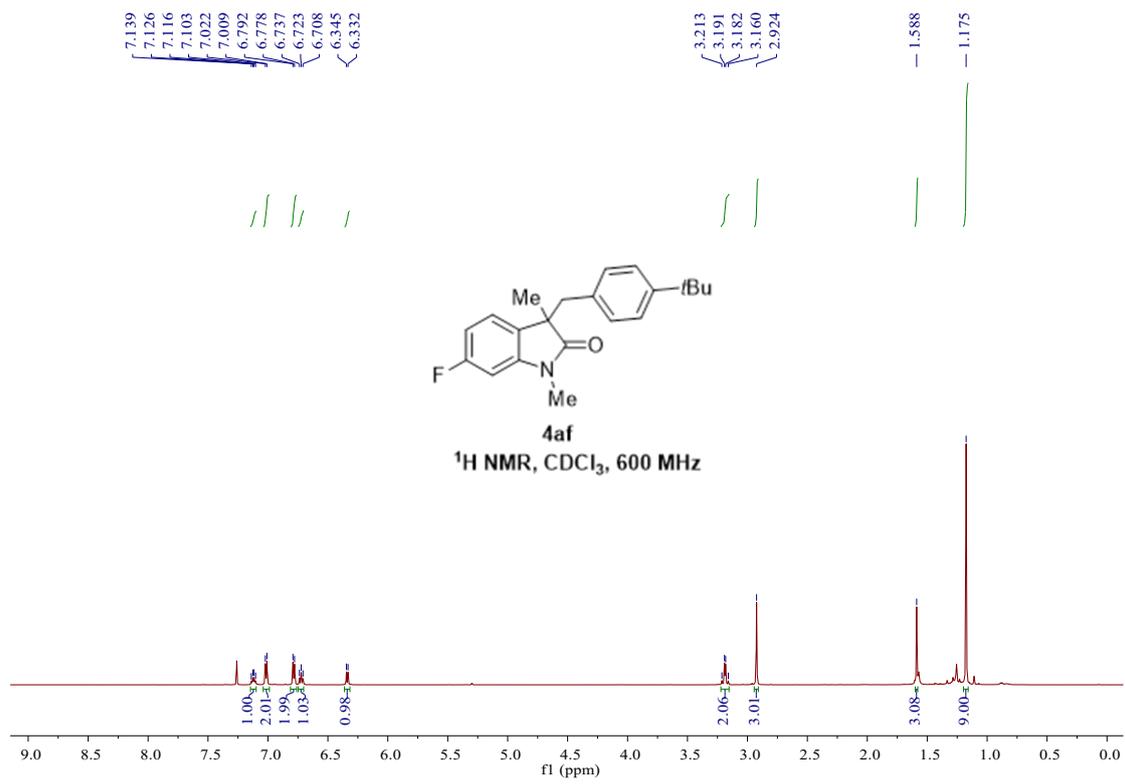




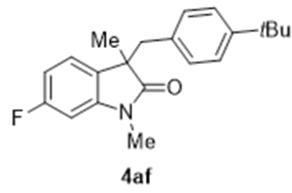




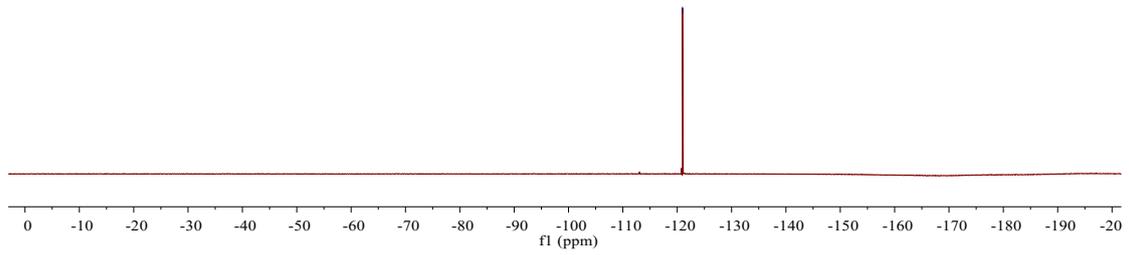




-120.97



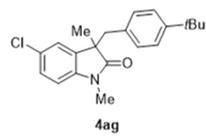
<sup>19</sup>F NMR, CDCl<sub>3</sub>, 565 MHz



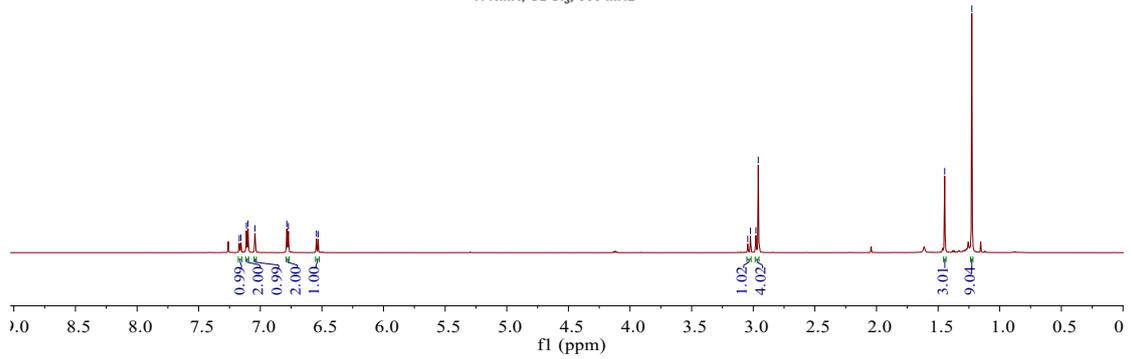
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7.100  
7.043  
6.785  
6.772  
6.545  
6.531

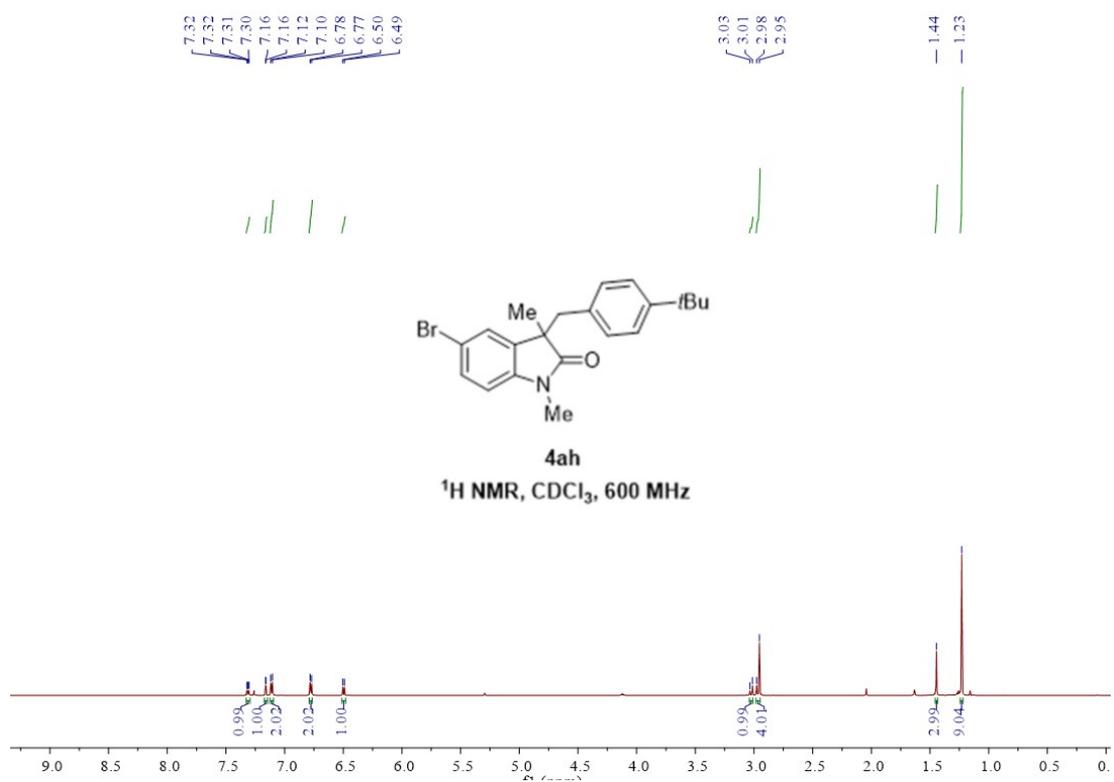
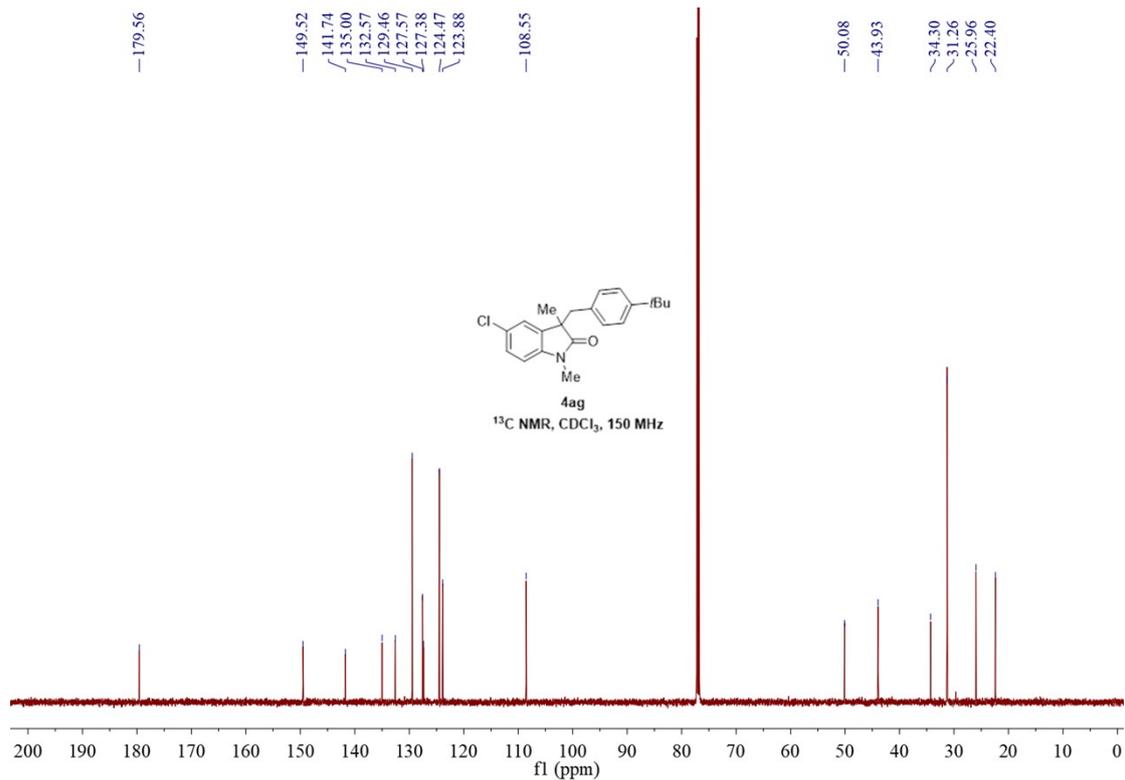
3.045  
3.023  
2.979  
2.960

1.447  
1.227



<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz





— 179.43

— 149.53

— 142.21

— 135.35

— 132.54

— 130.47

— 129.46

— 126.64

— 124.46

— 114.66

— 109.08

— 50.02

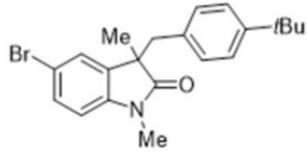
— 43.93

— 34.29

— 31.26

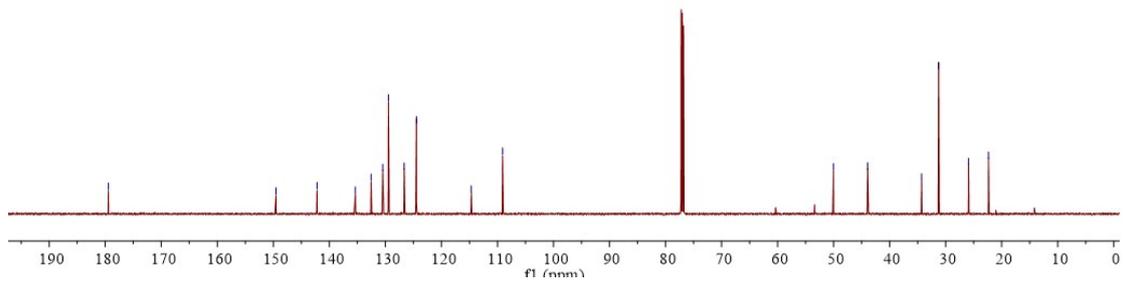
— 25.92

— 22.56



4ah

<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz



7.102

7.089

6.982

6.969

6.956

6.788

6.774

6.770

6.741

6.729

— 3.748

3.254

3.024

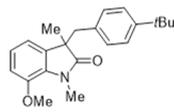
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2.968

2.946

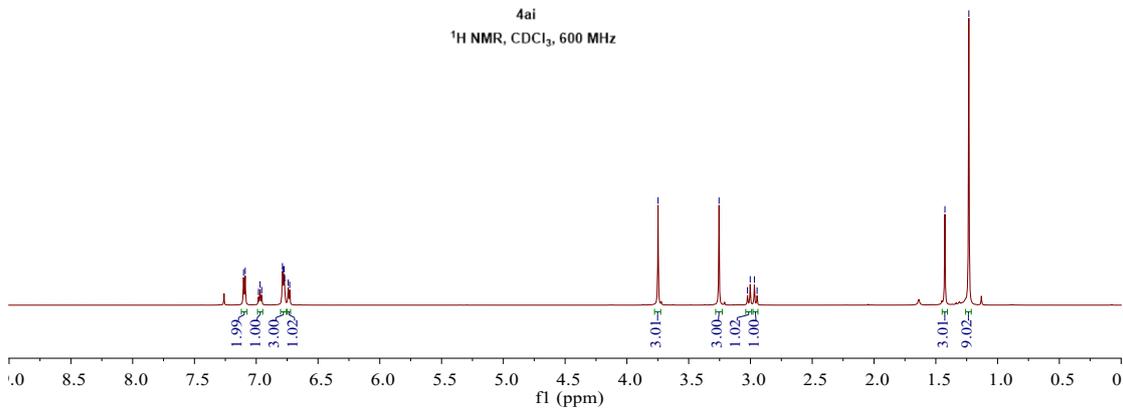
— 1.426

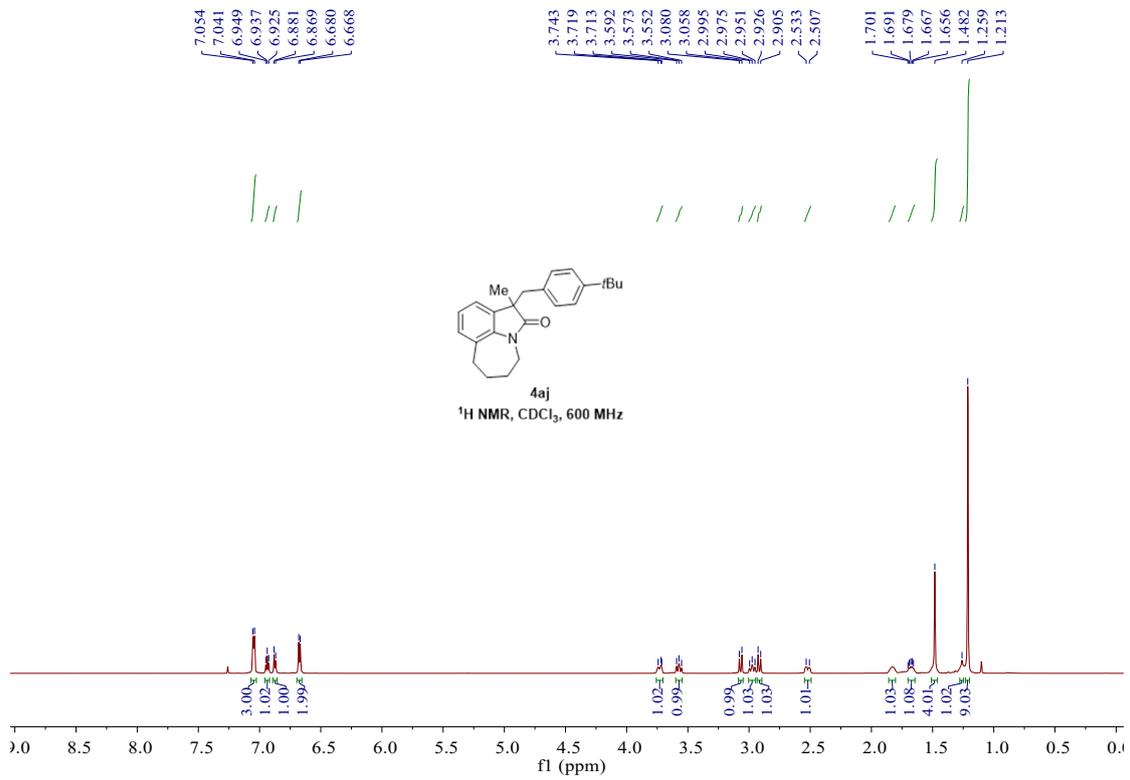
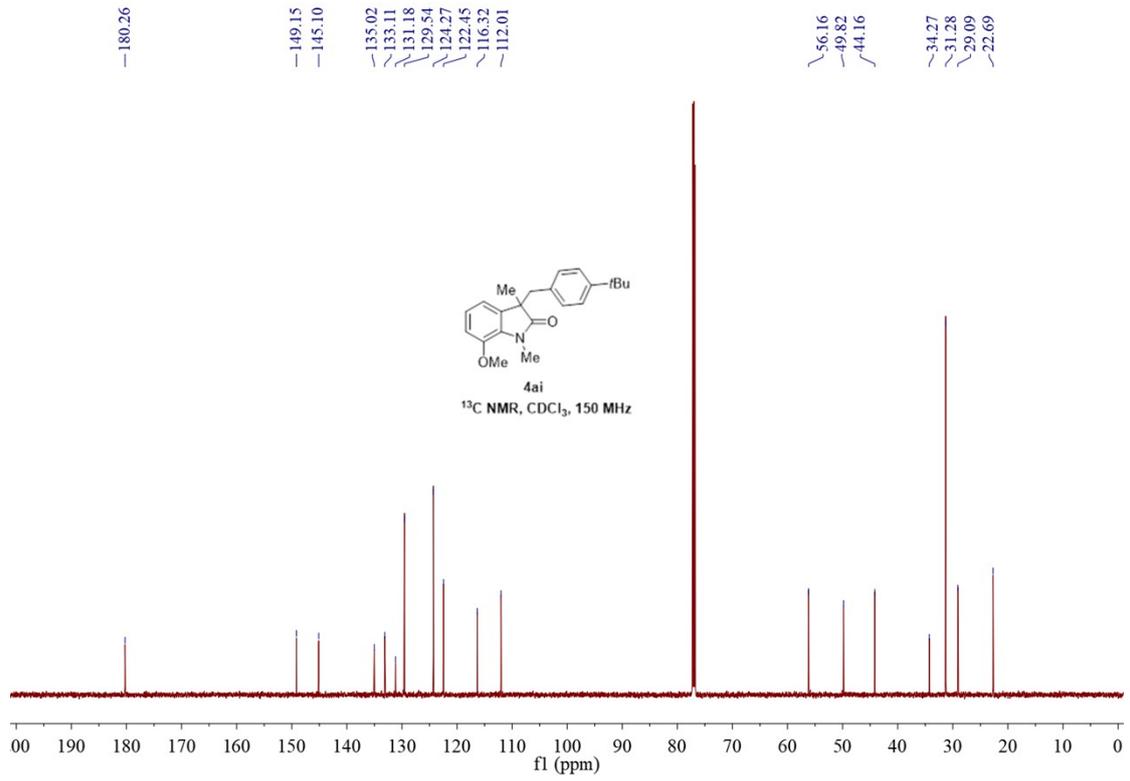
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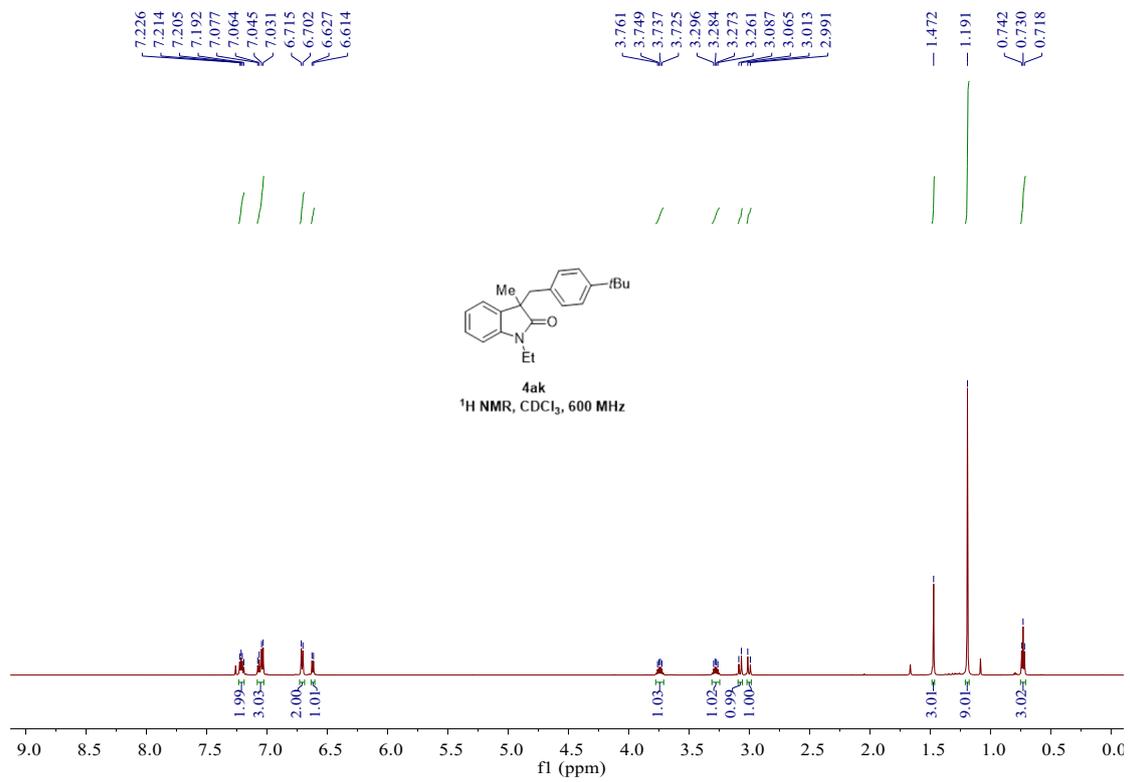
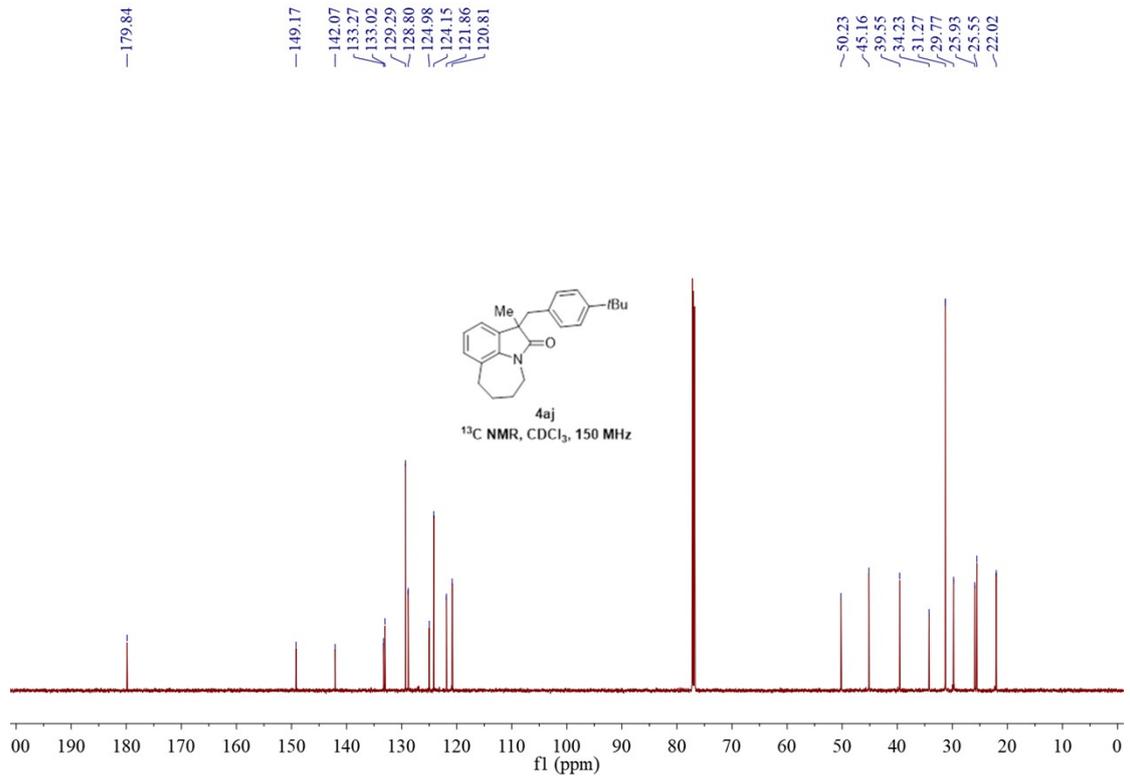


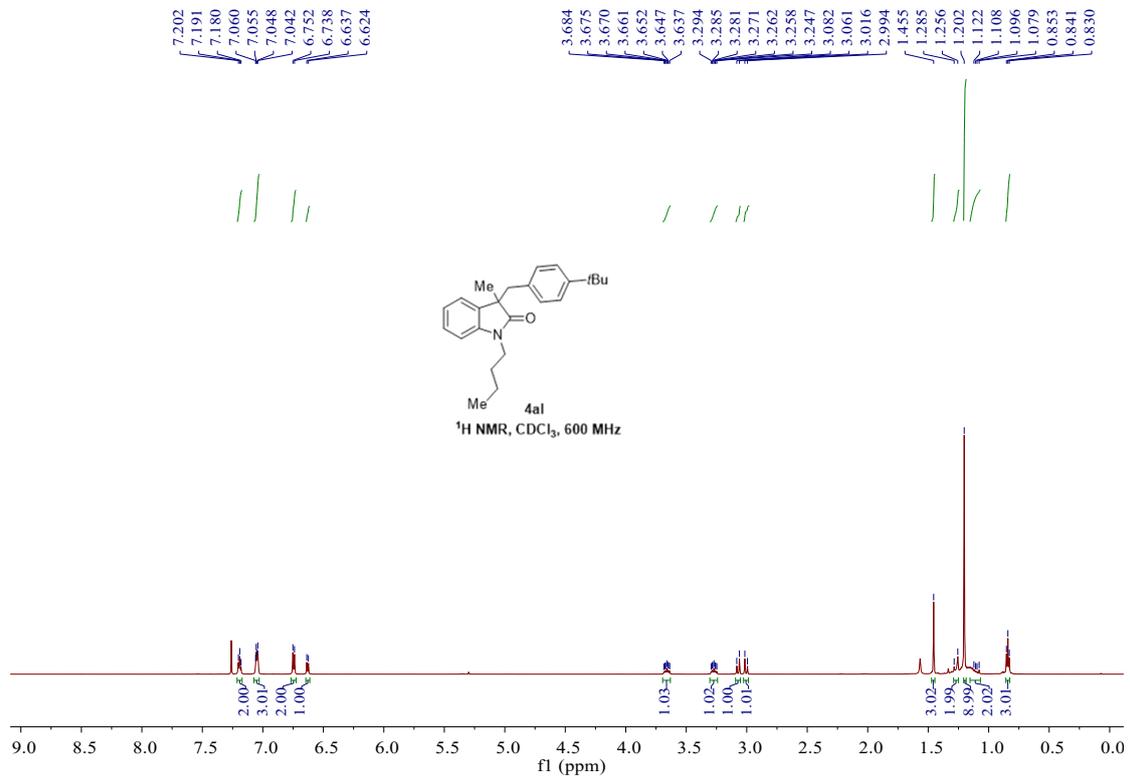
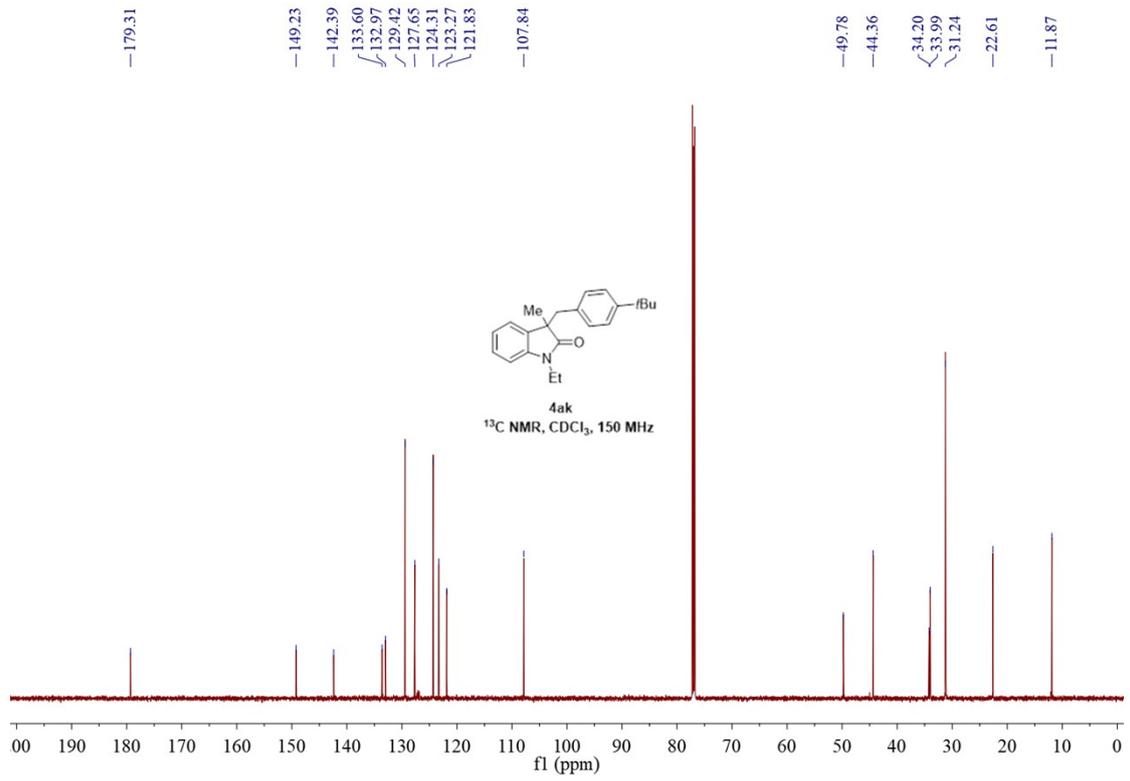
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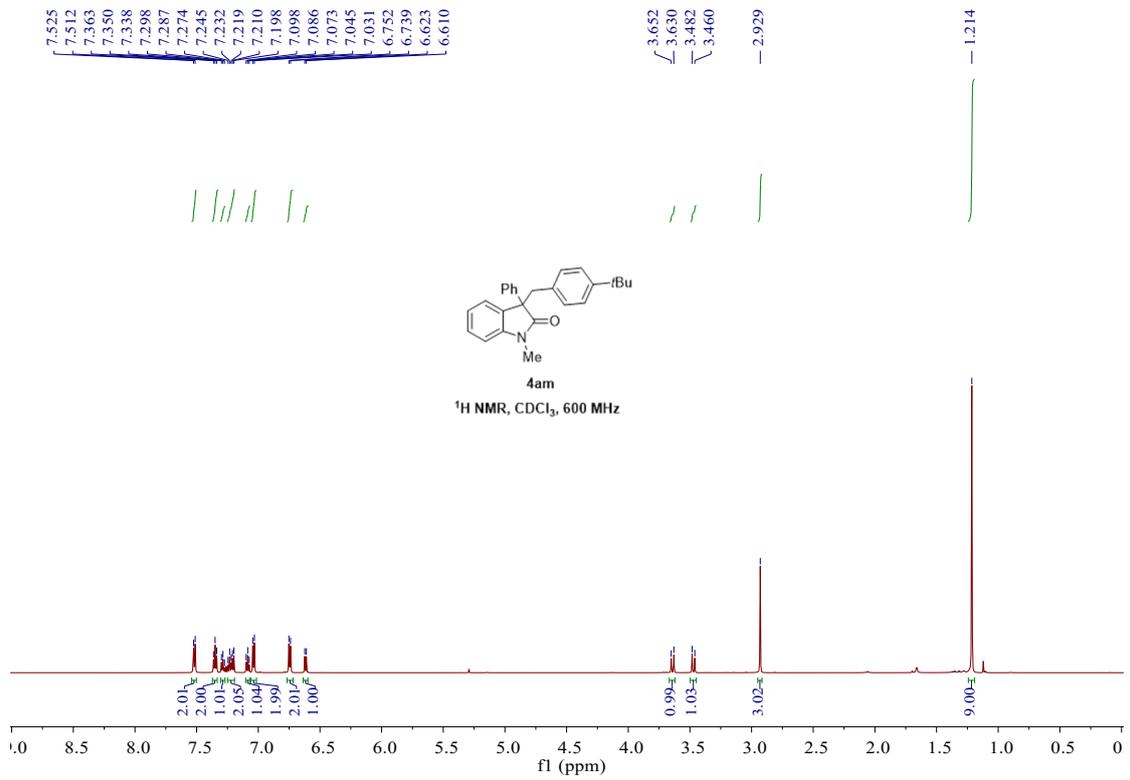
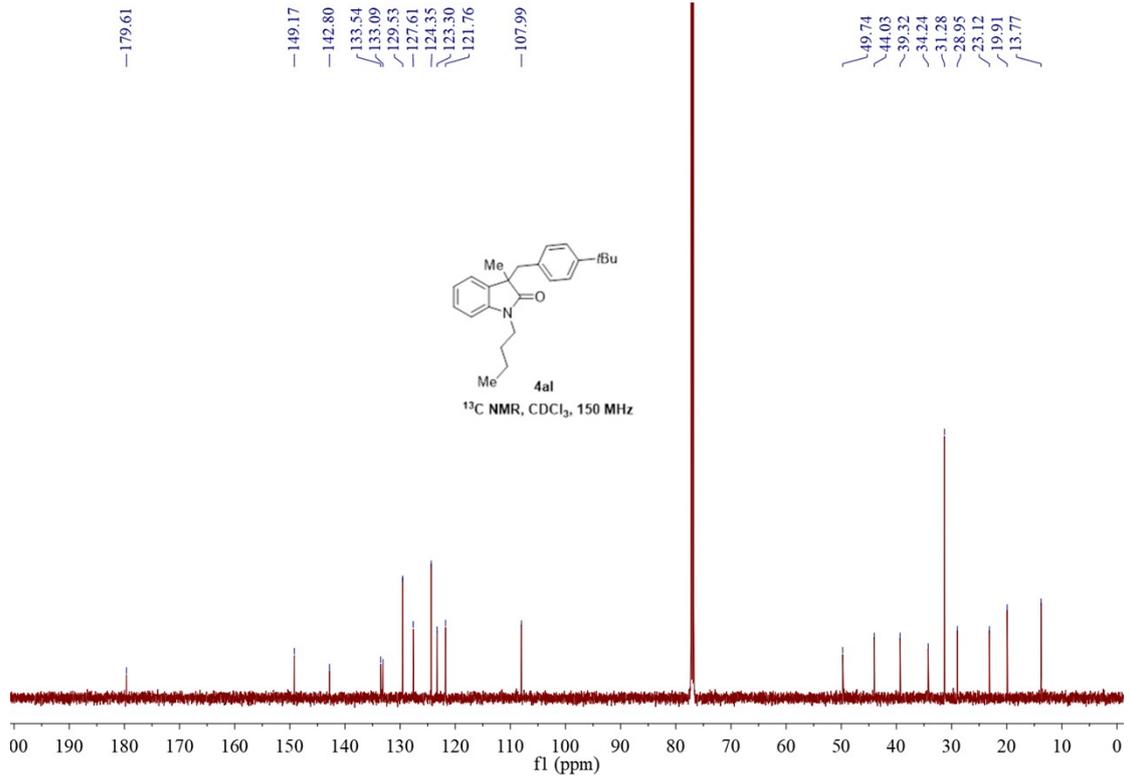
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

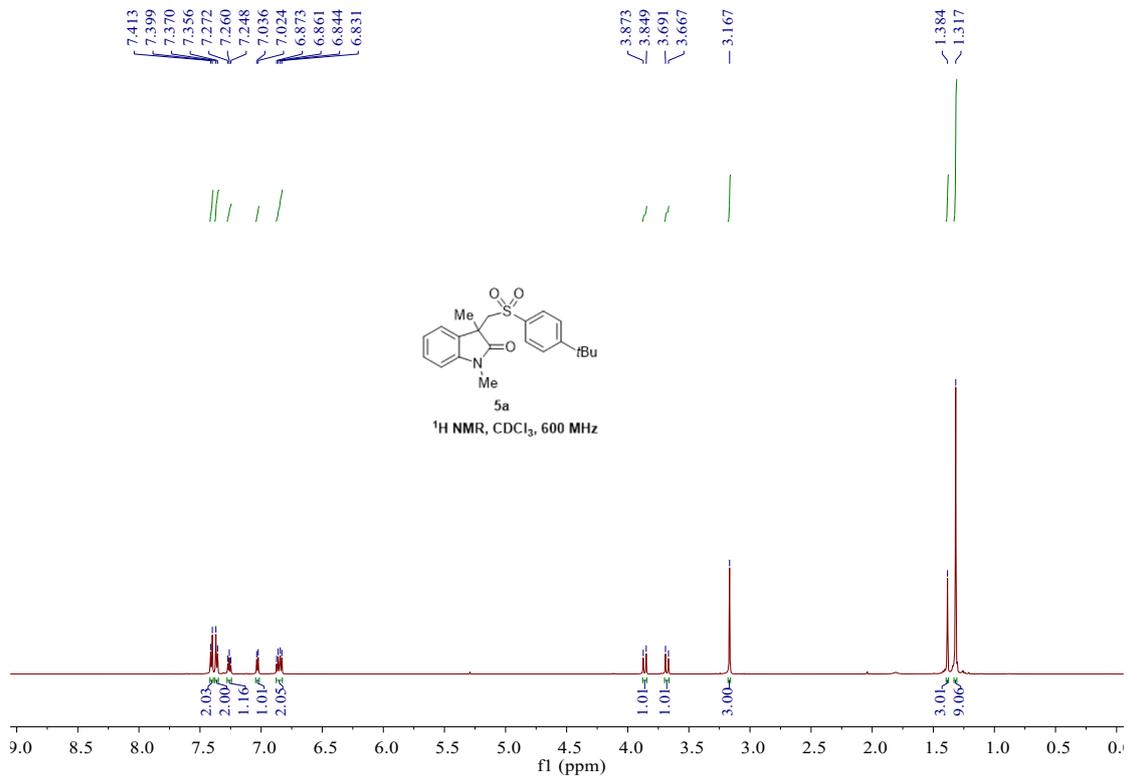
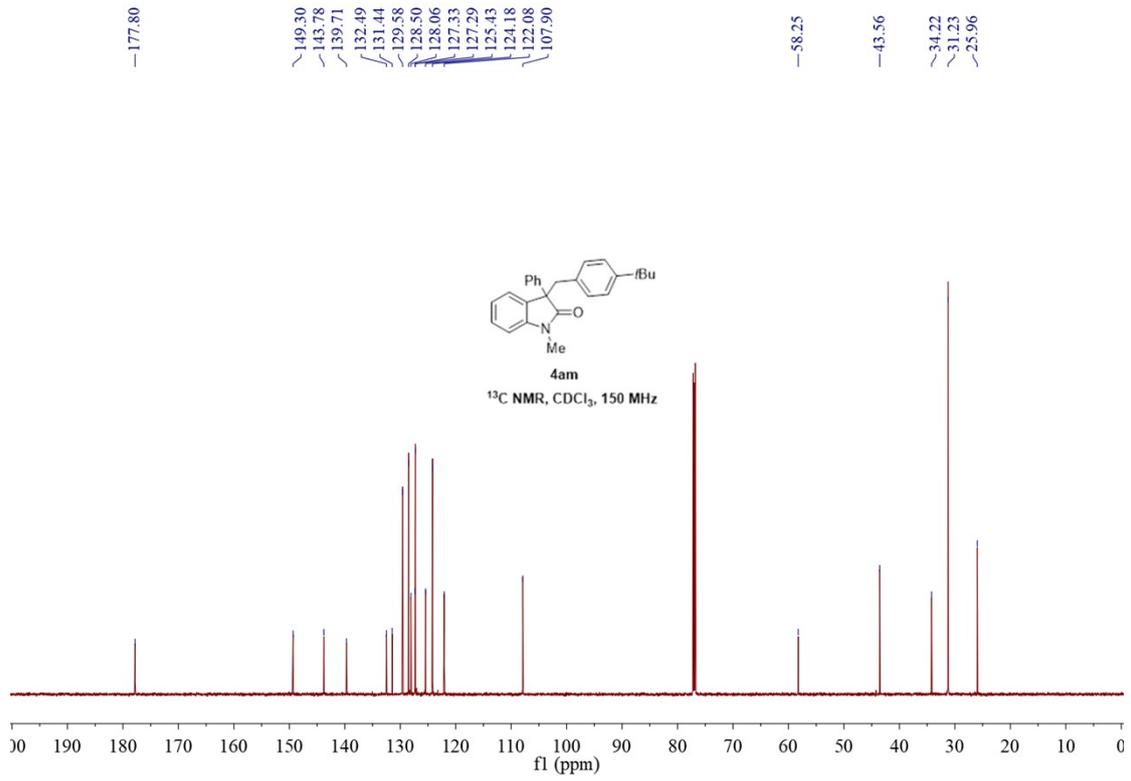


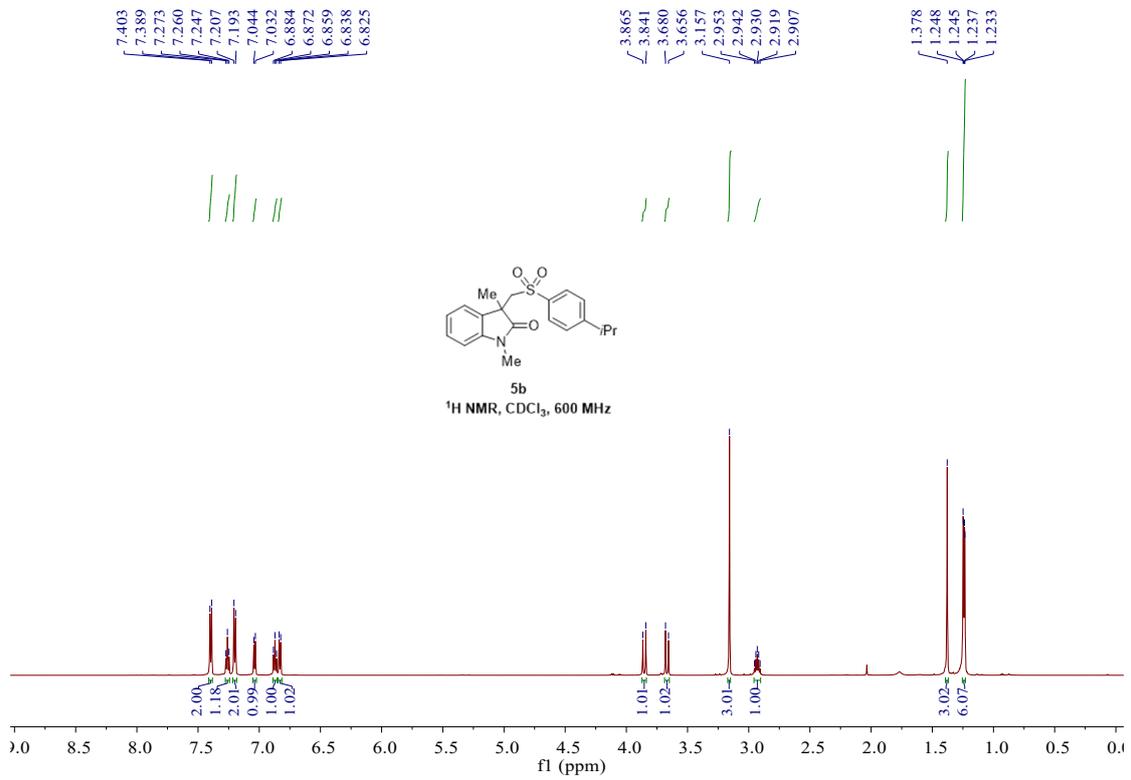
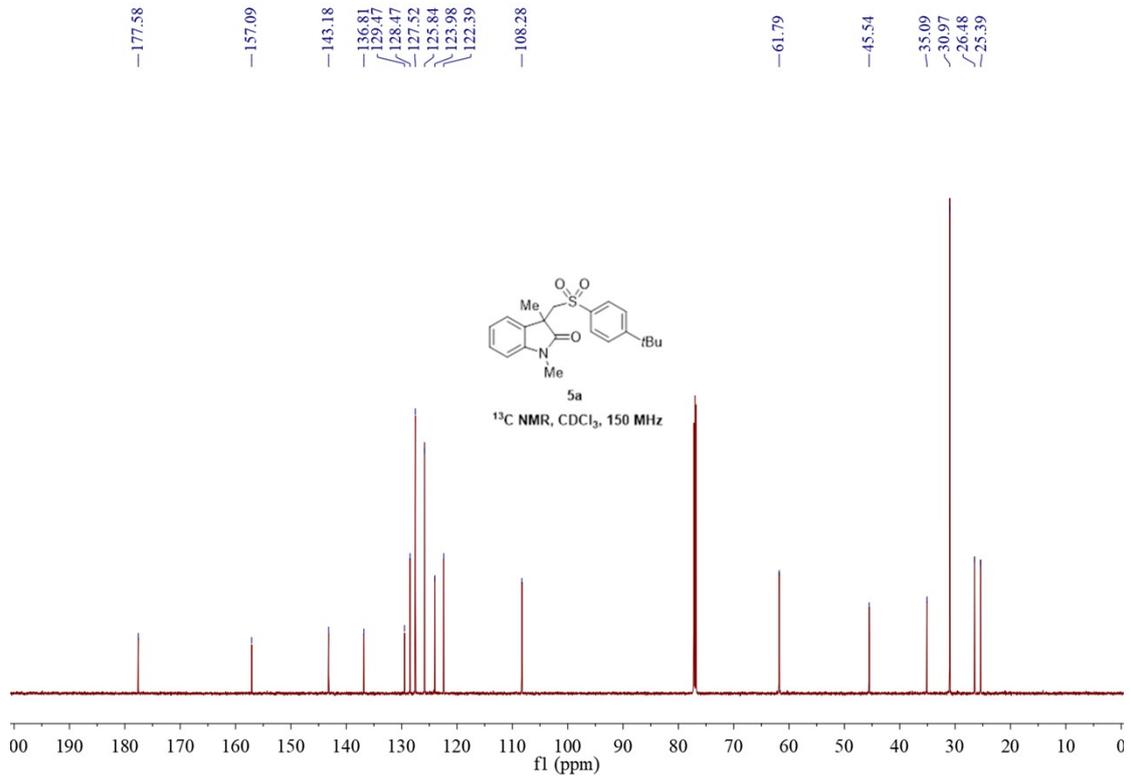




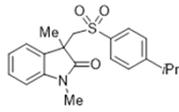




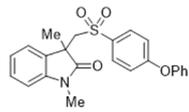
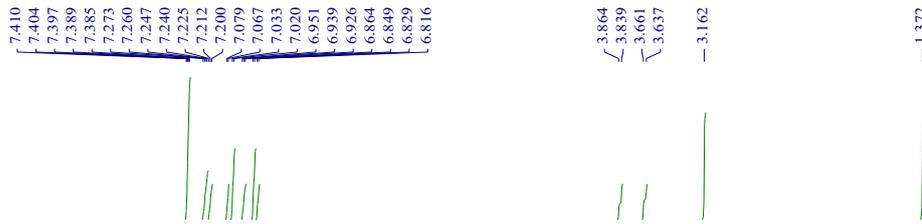
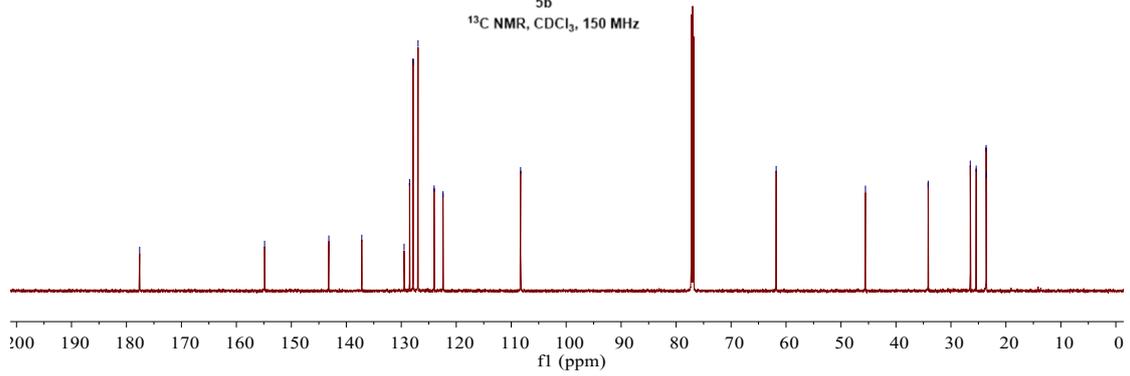




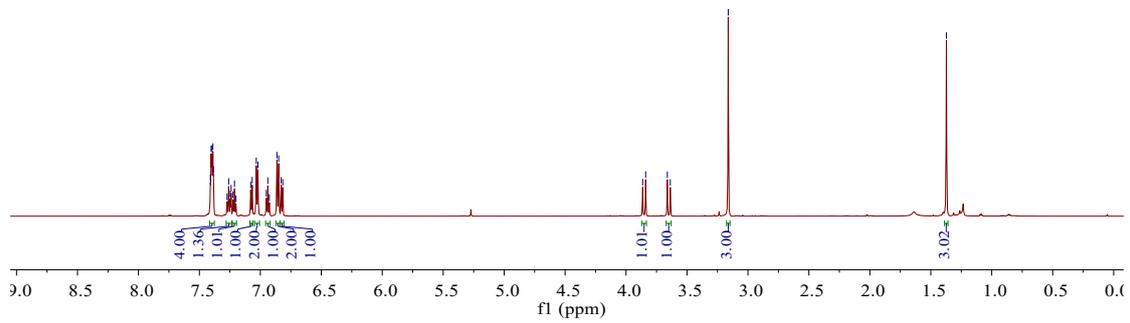
— 177.59  
 — 154.87  
 — 143.18  
 — 137.19  
 — 129.48  
 — 128.49  
 — 127.85  
 — 126.95  
 — 124.02  
 — 122.41  
 — 108.29  
 — 61.80  
 — 45.55  
 — 34.14  
 — 26.48  
 — 25.40  
 — 23.60  
 — 23.53

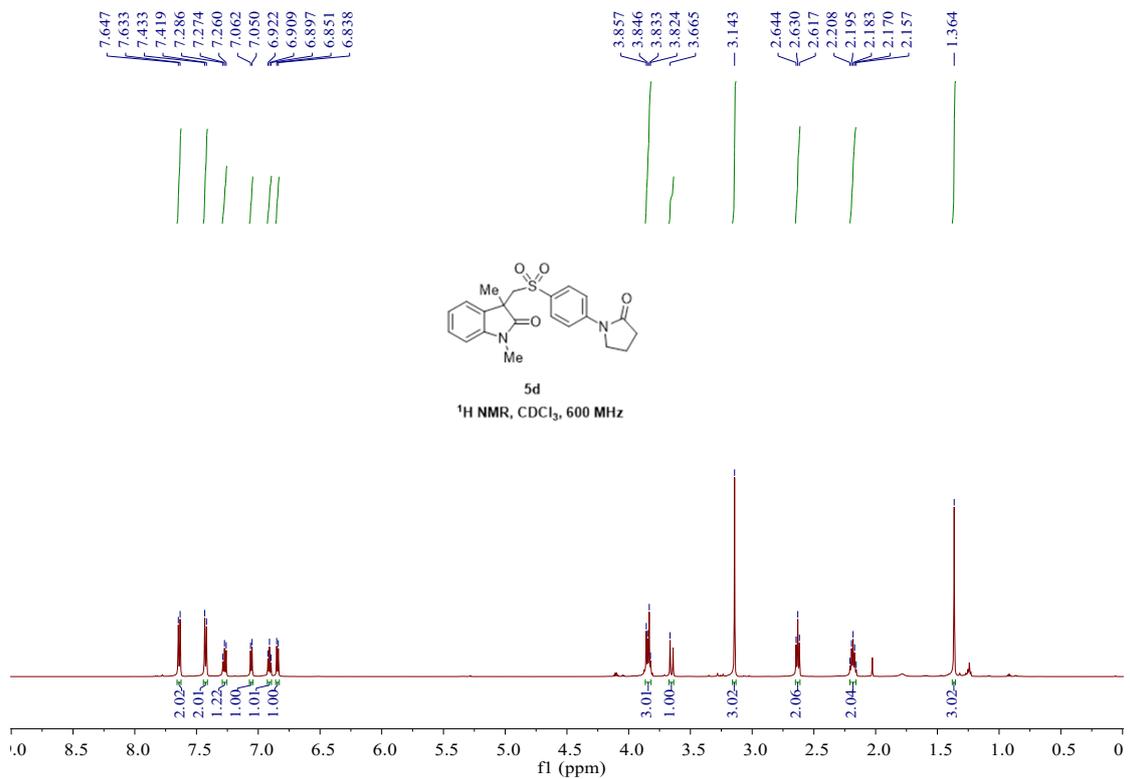
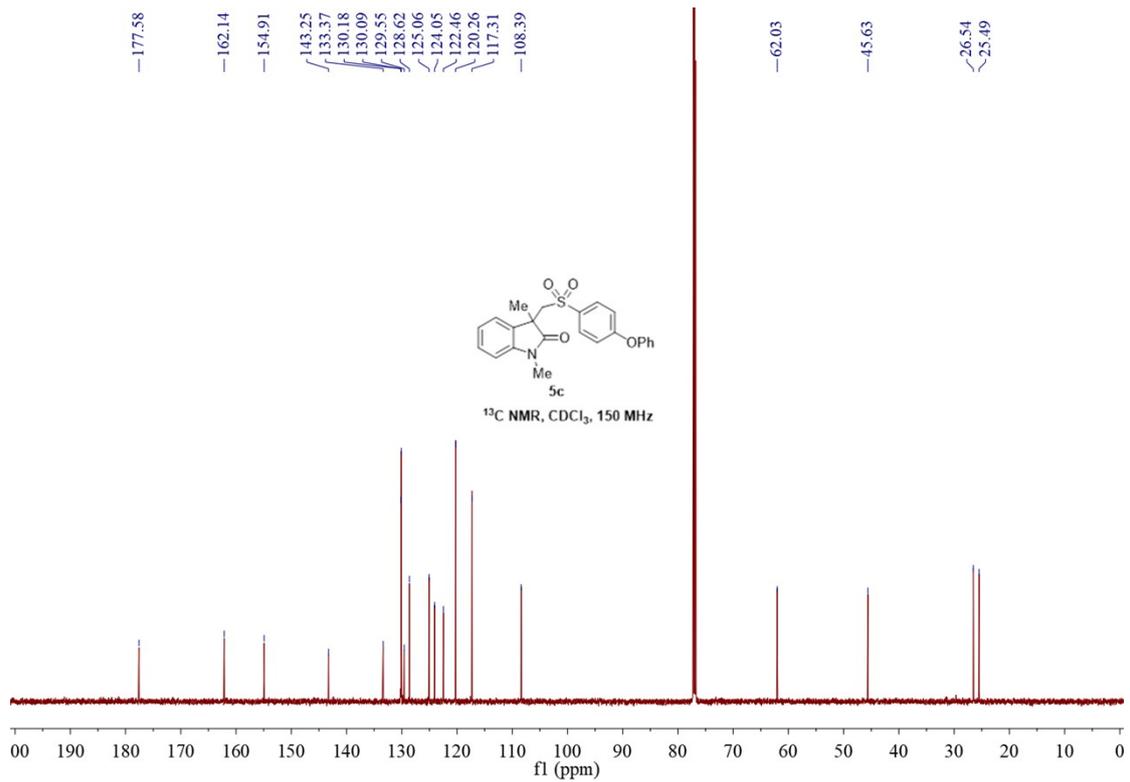


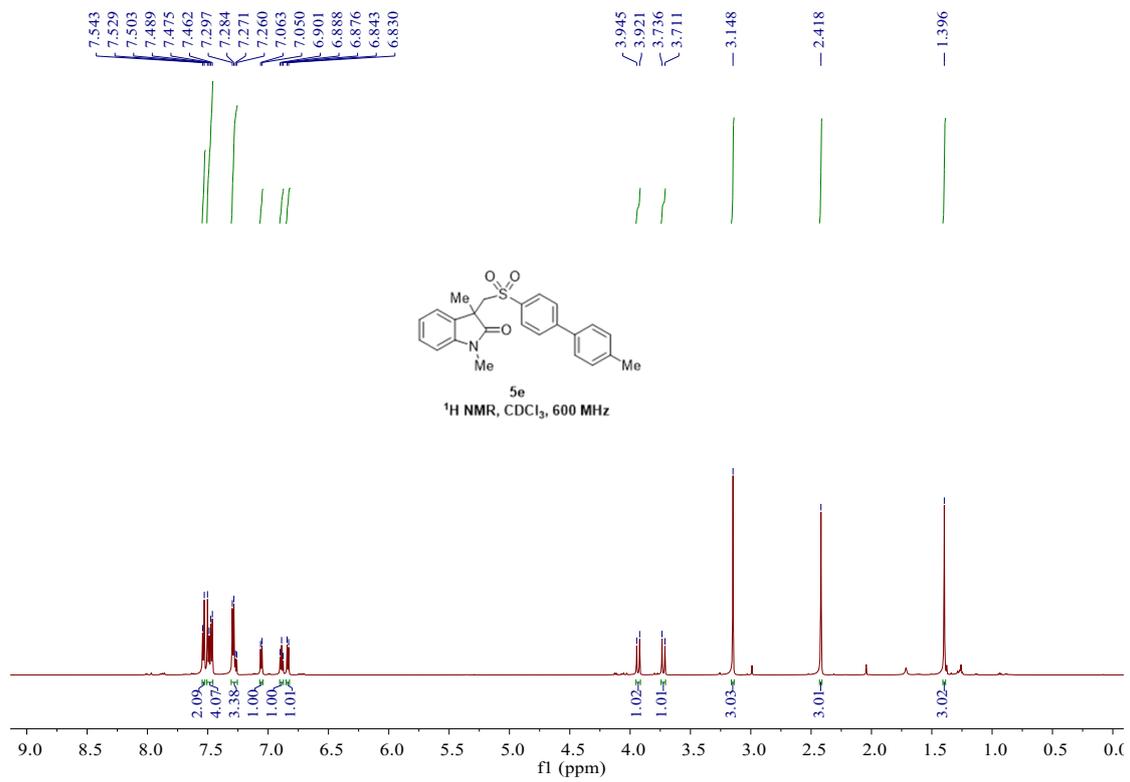
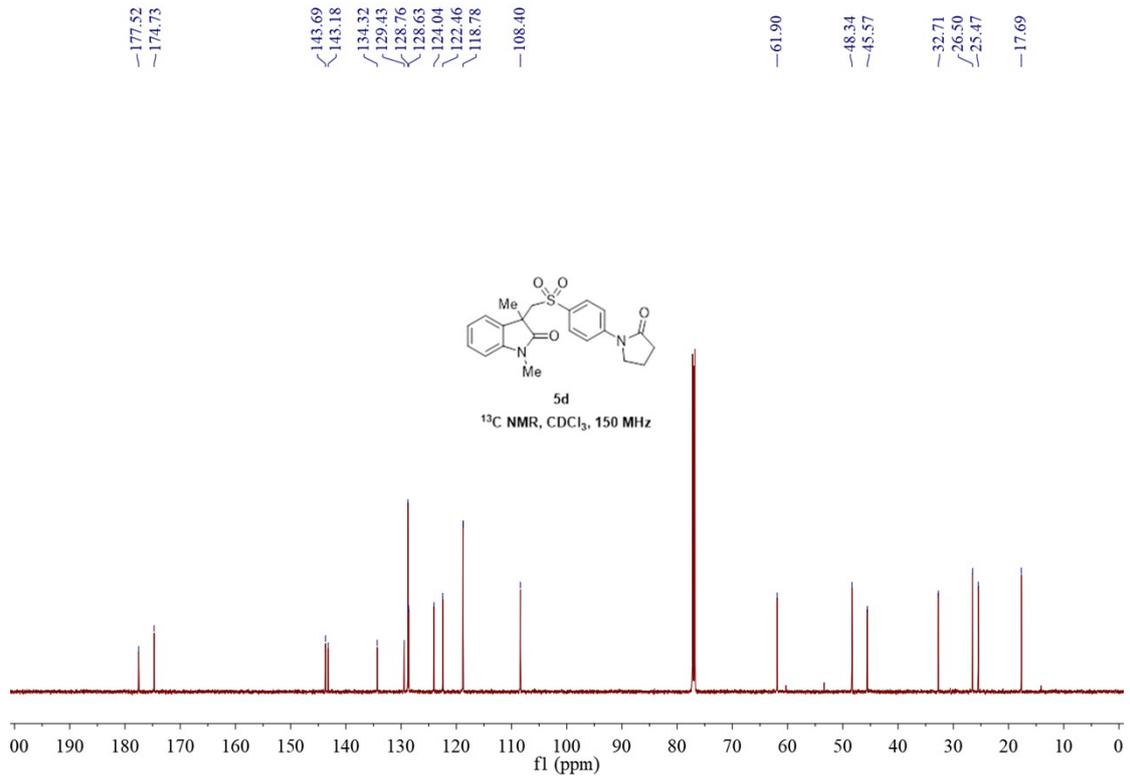
5b  
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

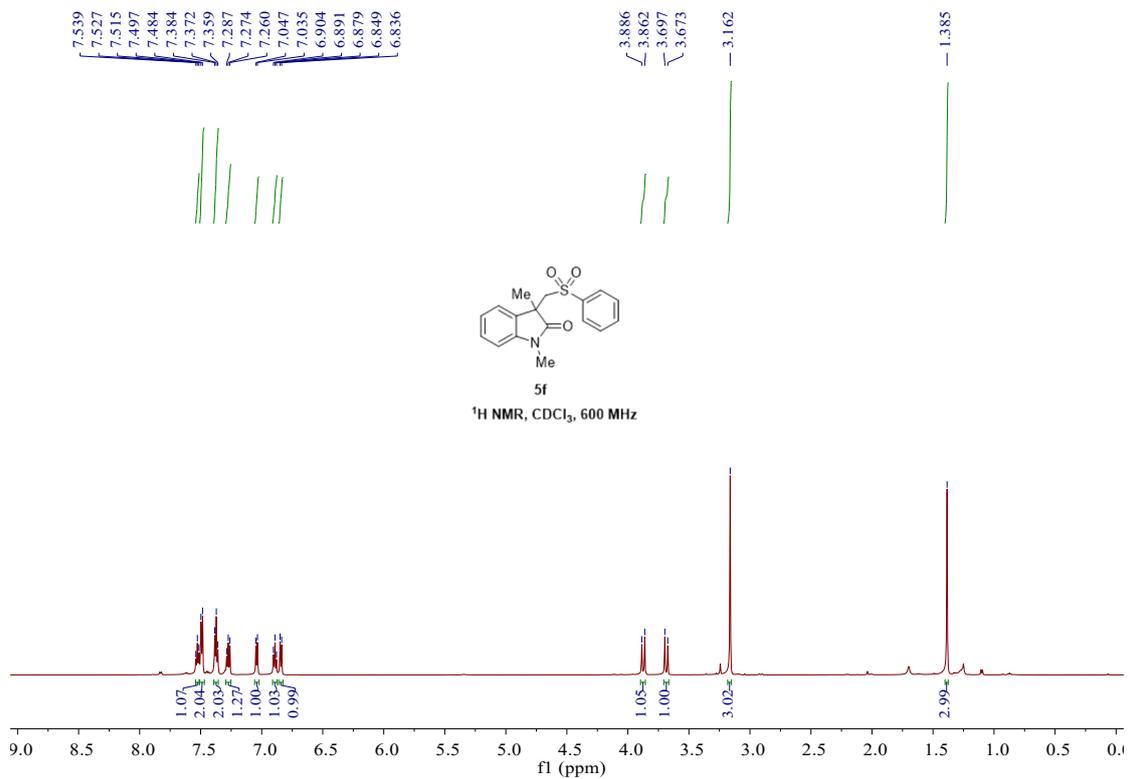
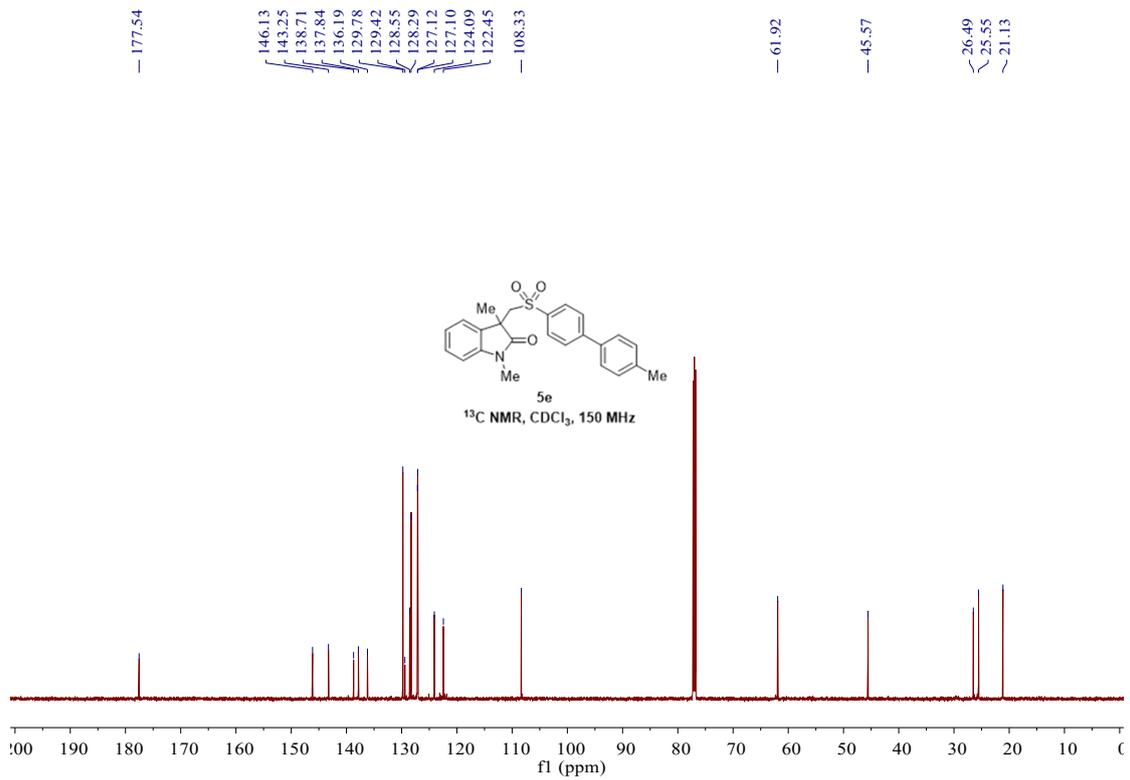


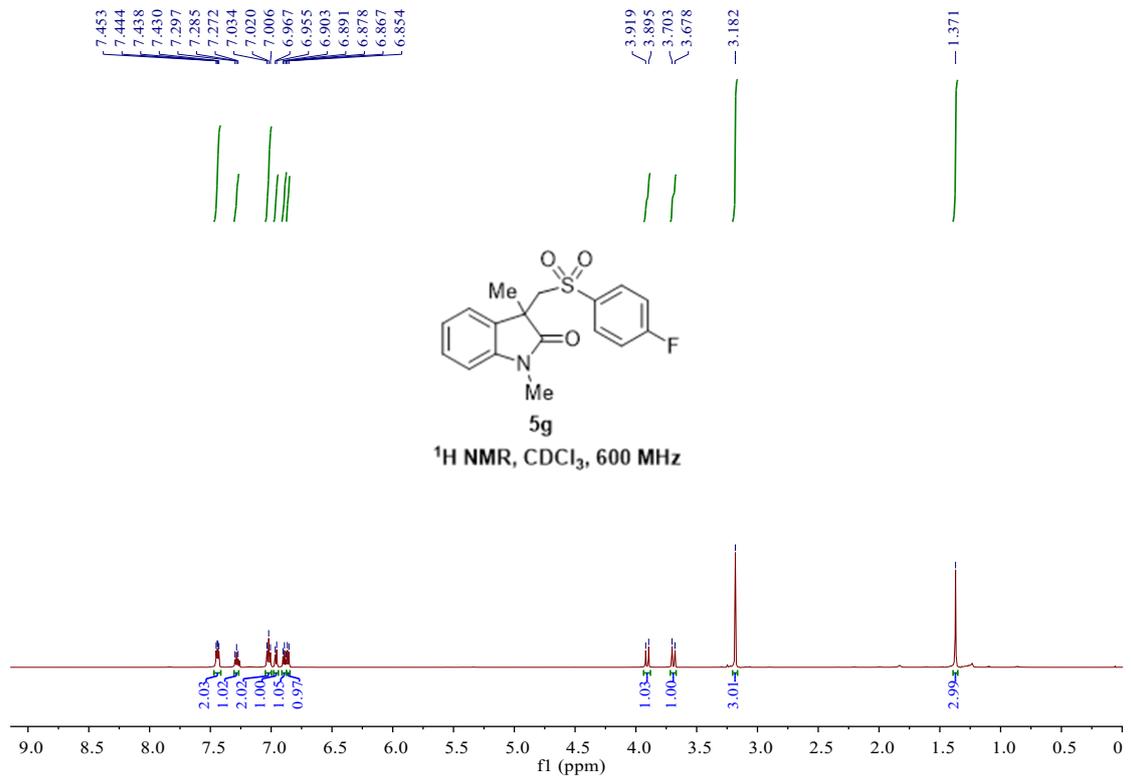
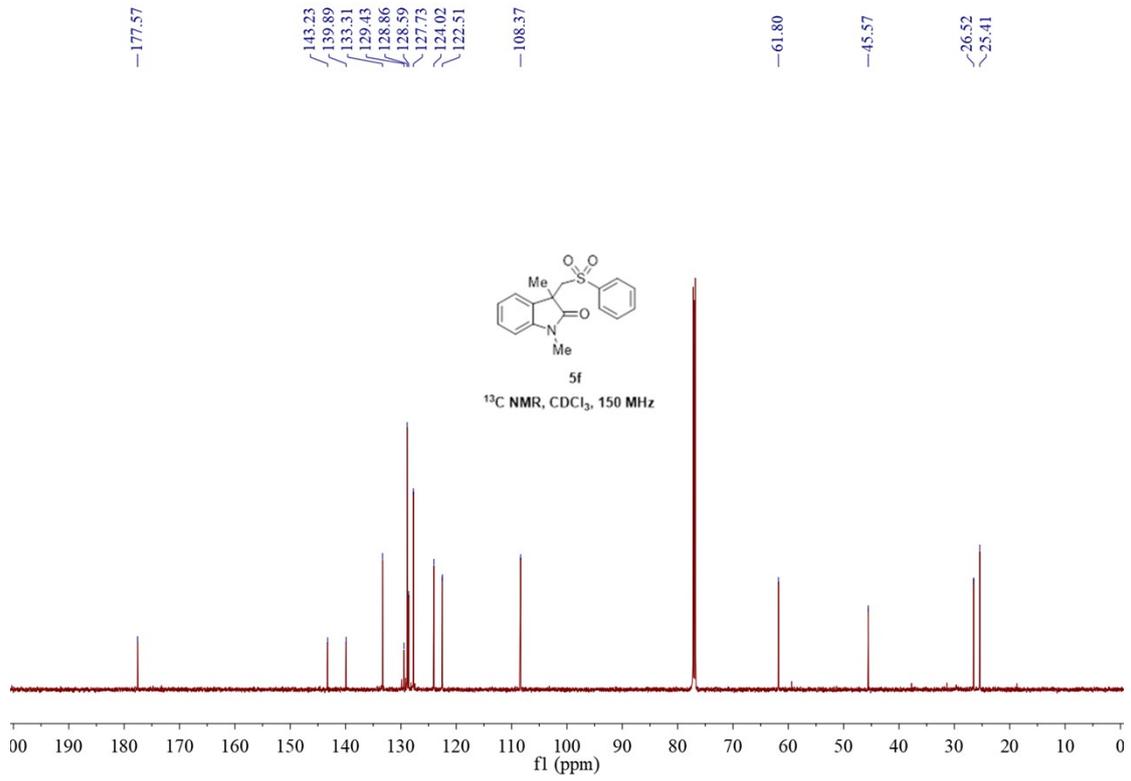
5c  
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz









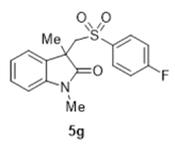


177.45  
166.32  
164.62  
143.25  
135.88  
135.86  
130.69  
130.62  
129.28  
128.68  
123.89  
122.48  
116.15  
116.00  
108.43

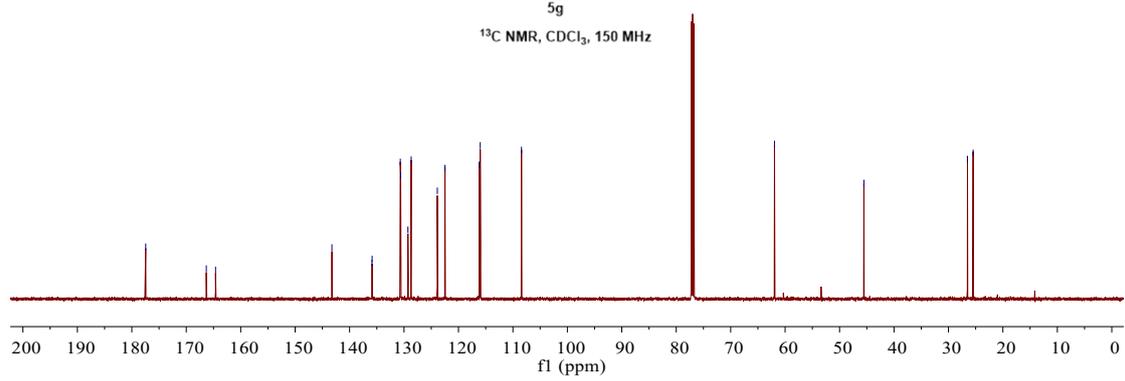
61.95

45.53

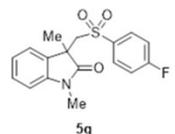
26.51  
25.47



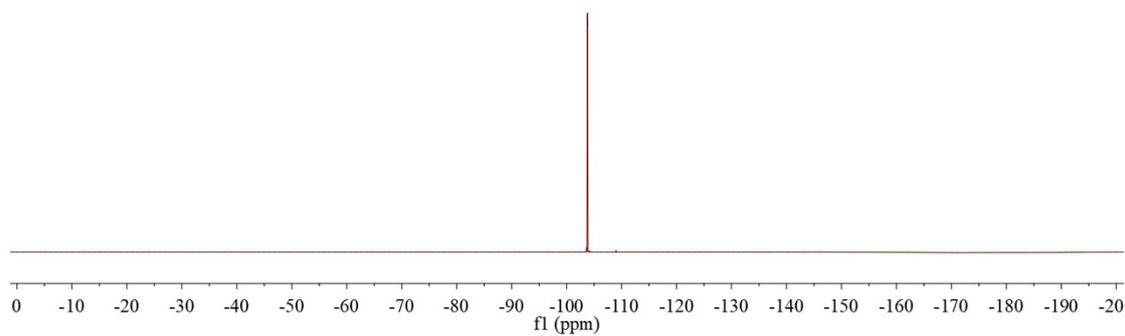
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

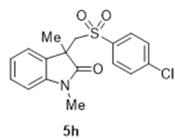
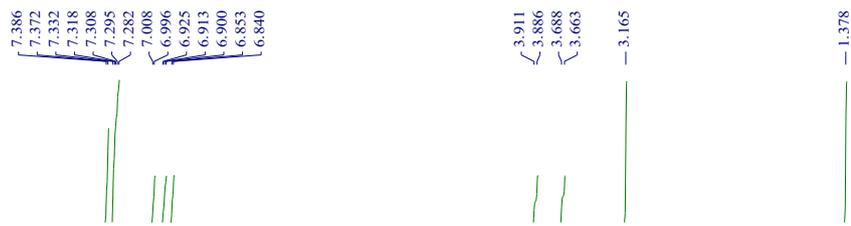


103.81

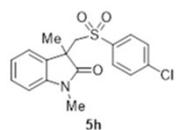
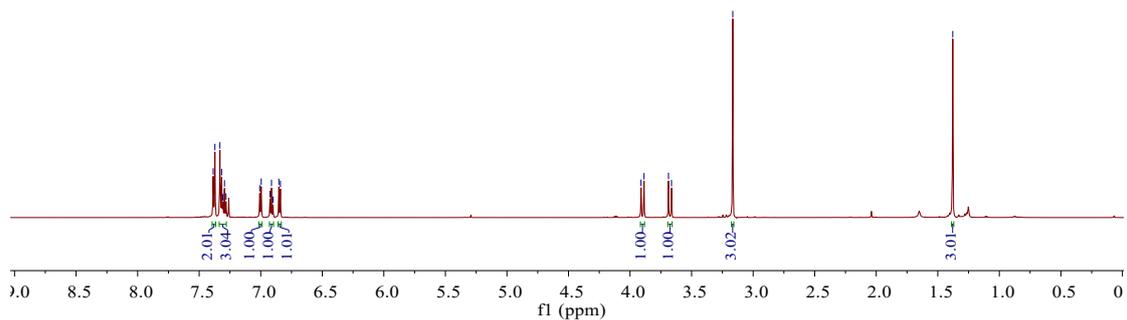


<sup>19</sup>F NMR, CDCl<sub>3</sub>, 565 MHz

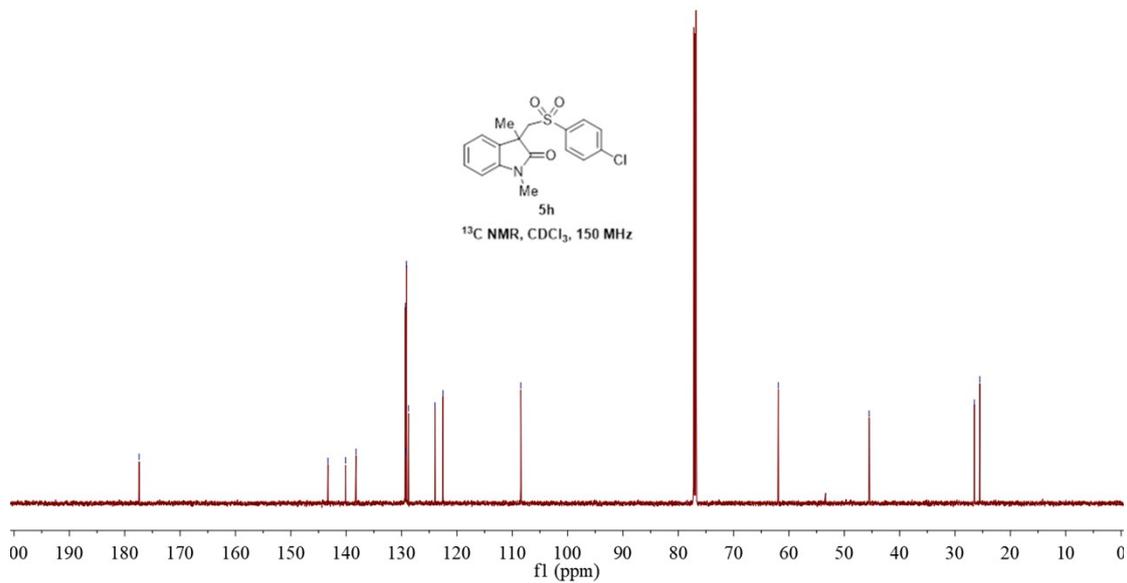


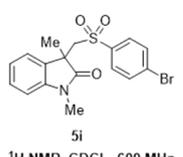
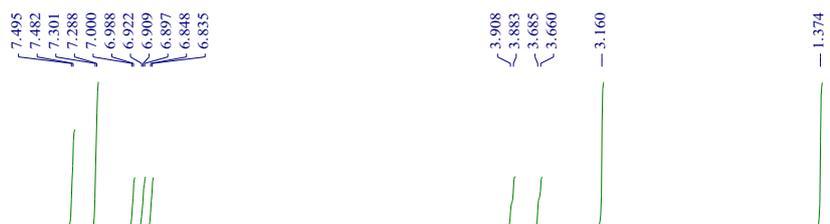


<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

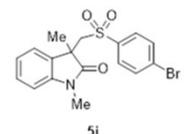
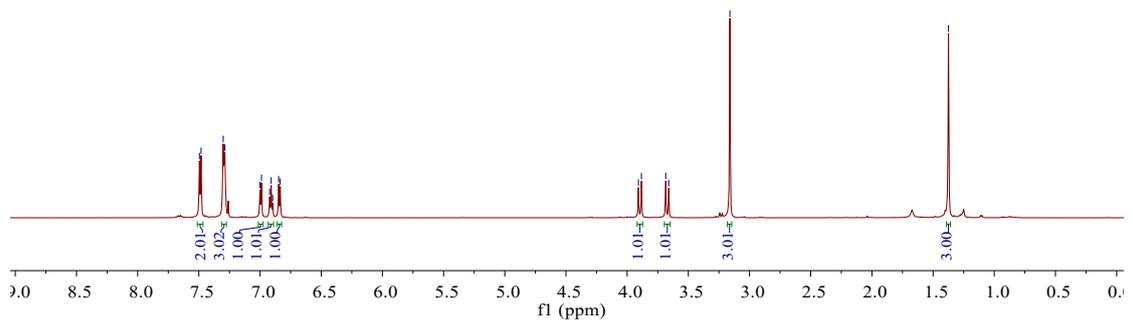


<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

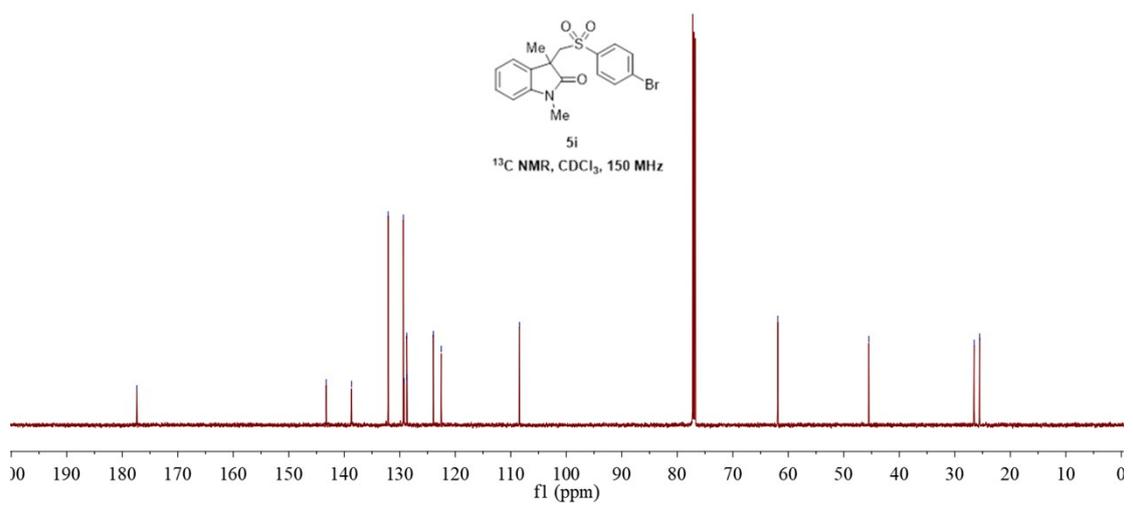


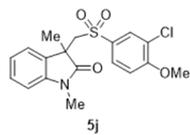


<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

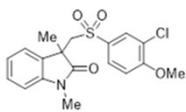
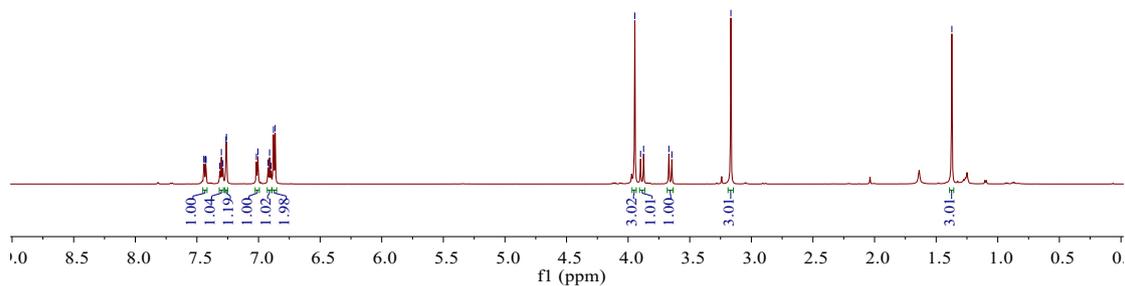


<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

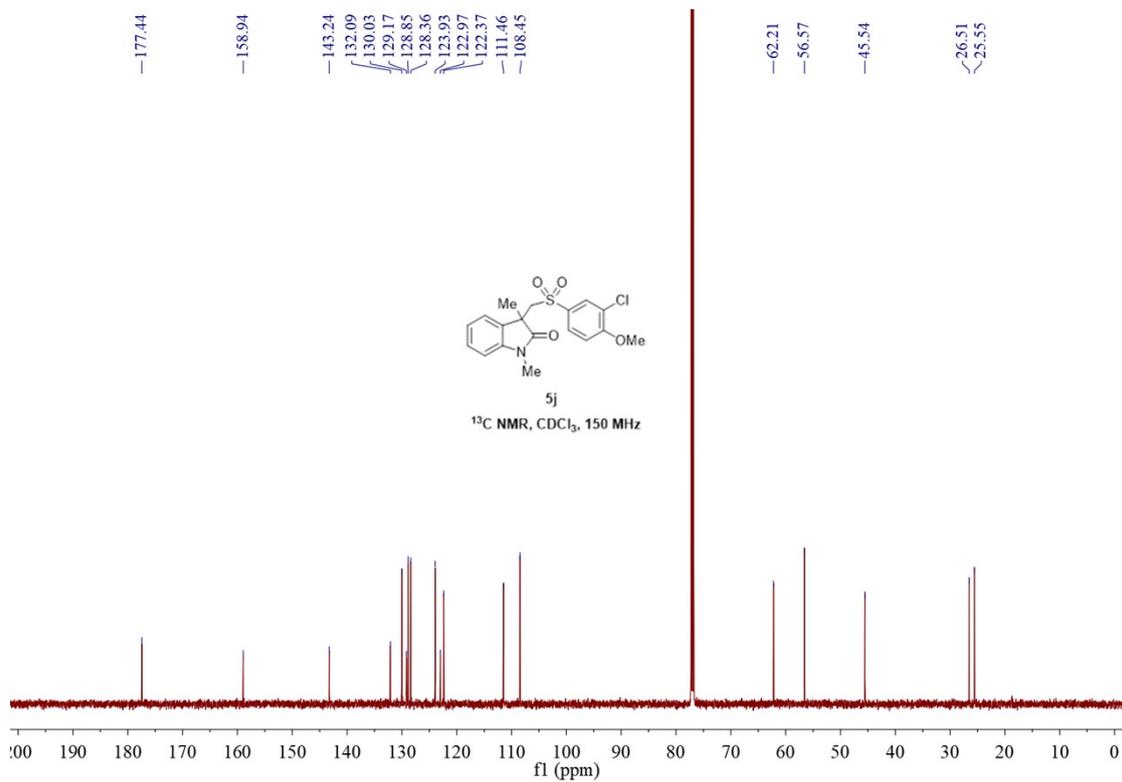


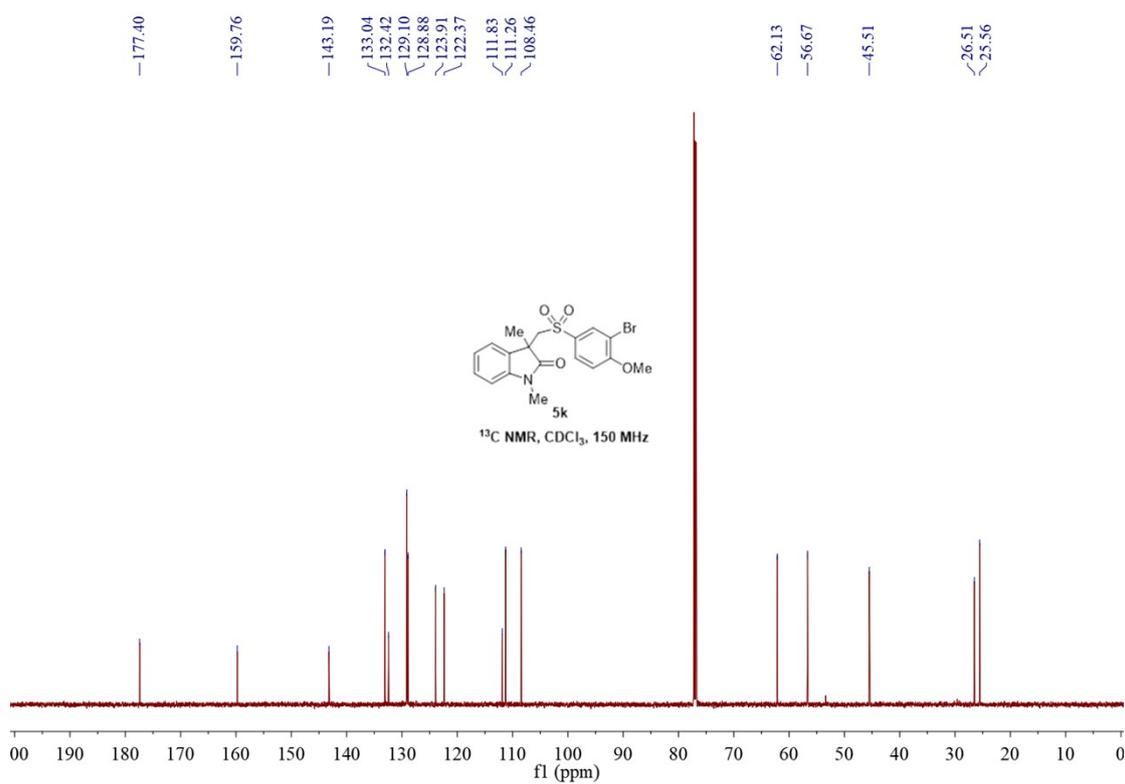
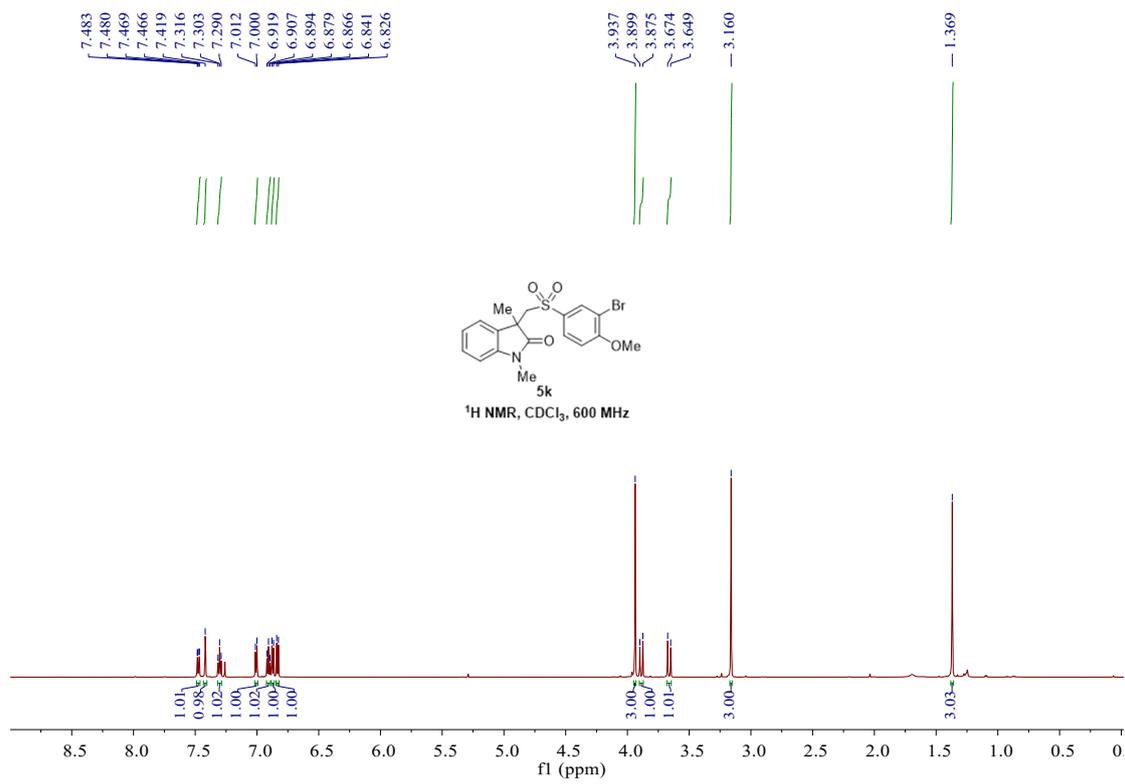


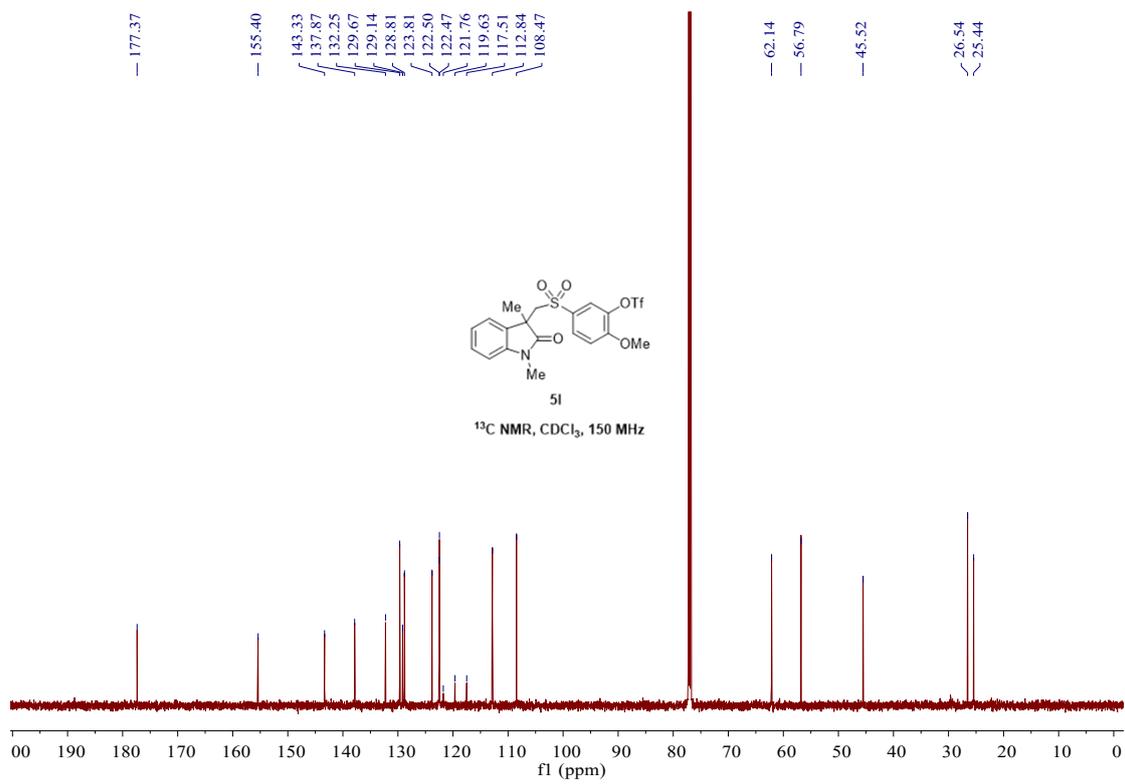
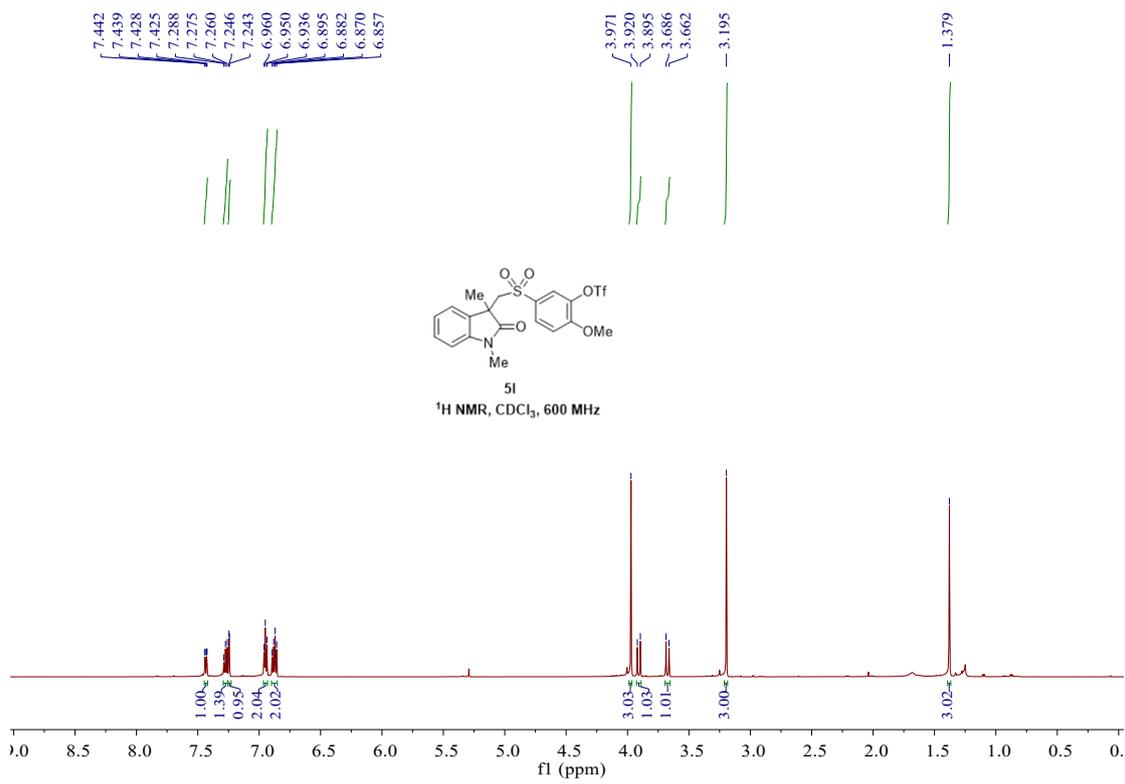
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz



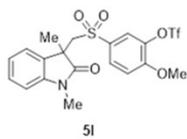
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz



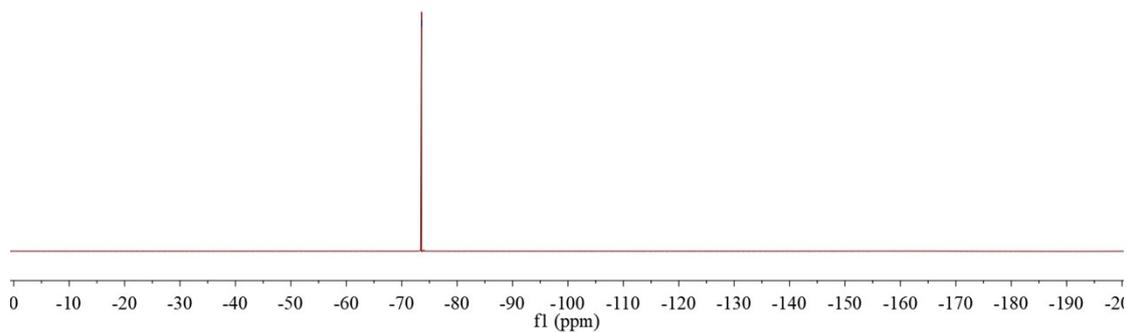




---73.57



<sup>19</sup>F NMR, CDCl<sub>3</sub>, 565 MHz

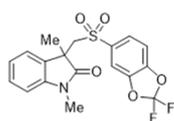


7.363  
7.349  
7.301  
7.288  
7.275  
7.065  
7.051  
6.972  
6.900  
6.888  
6.879  
6.866  
6.853  
6.840  
6.828

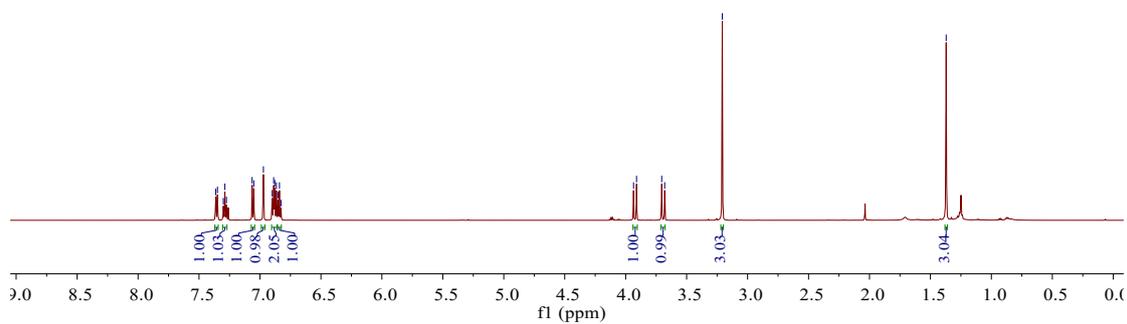
3.936  
3.911  
3.704  
3.680

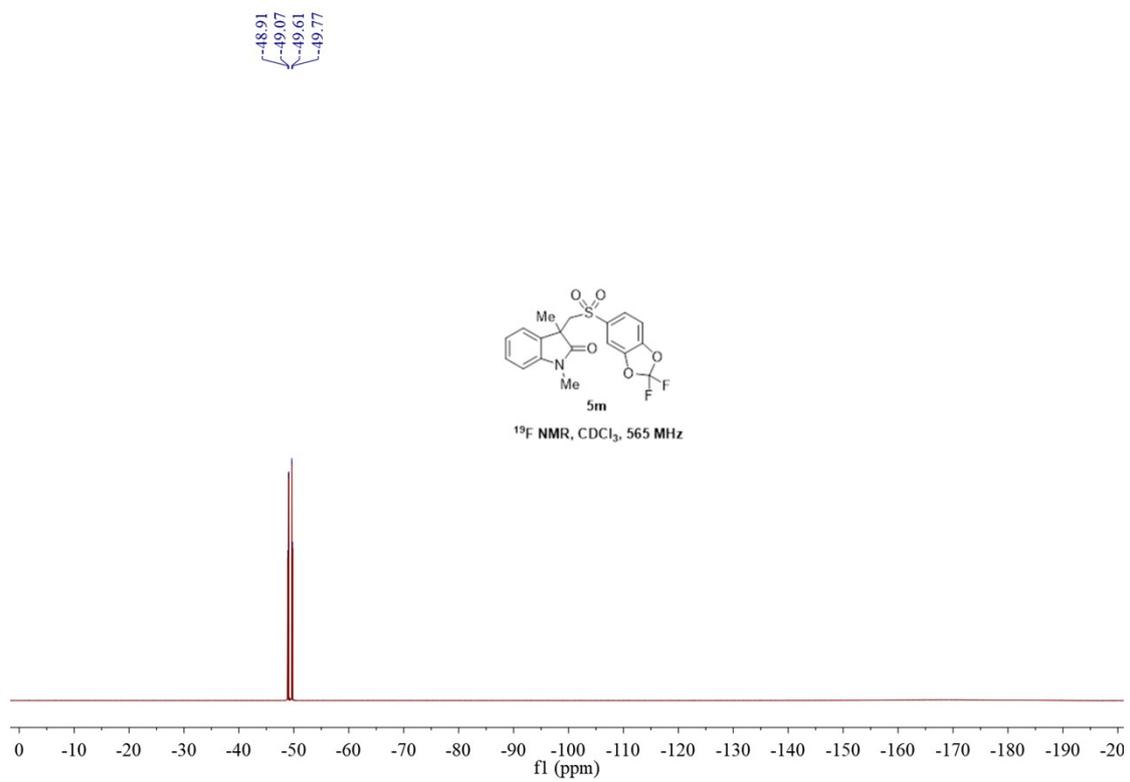
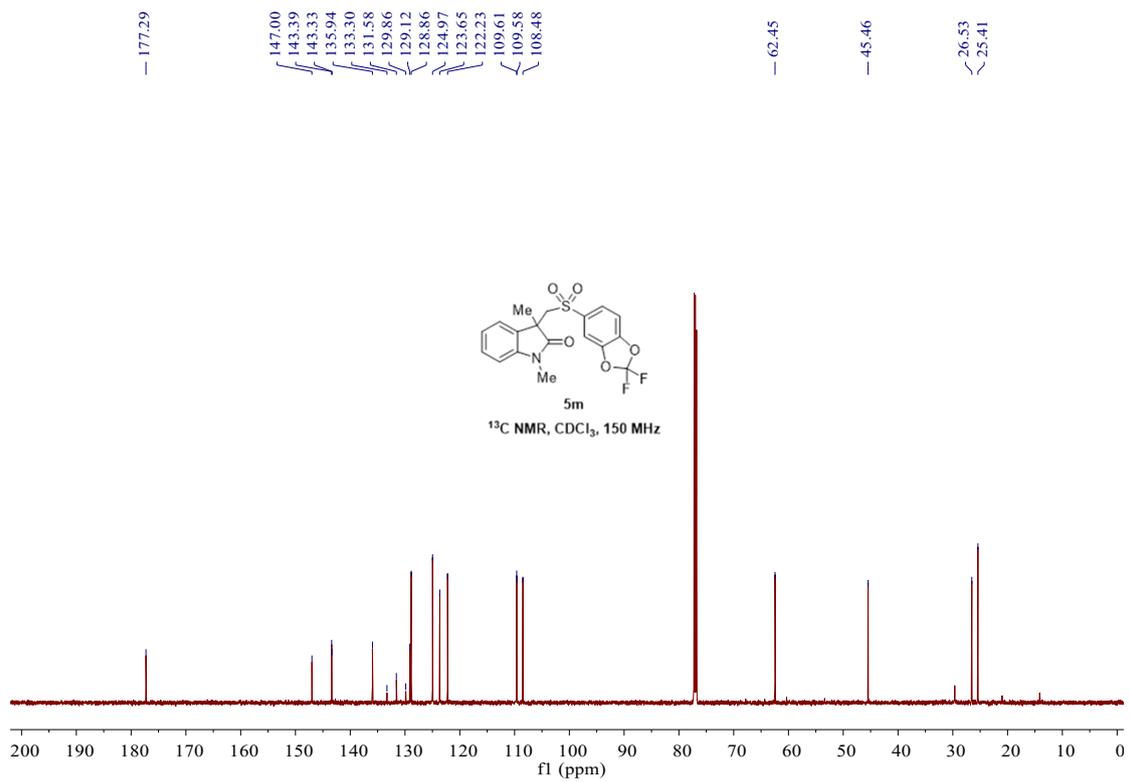
3.207

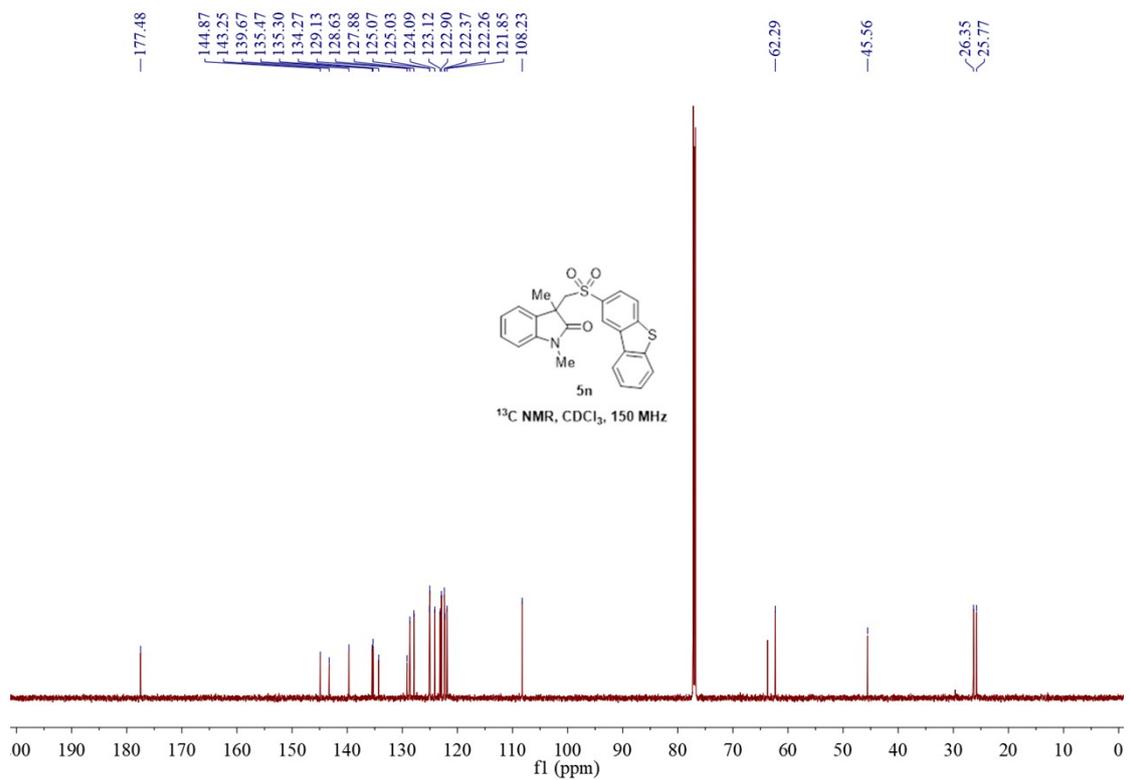
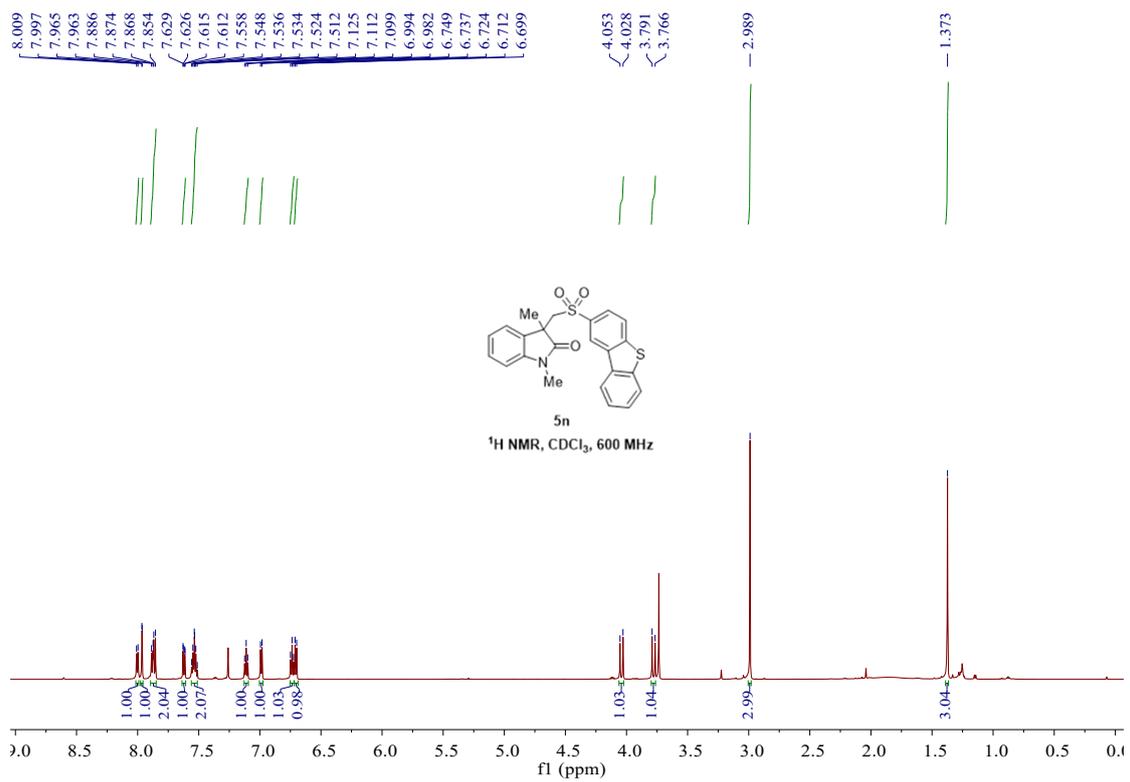
1.371

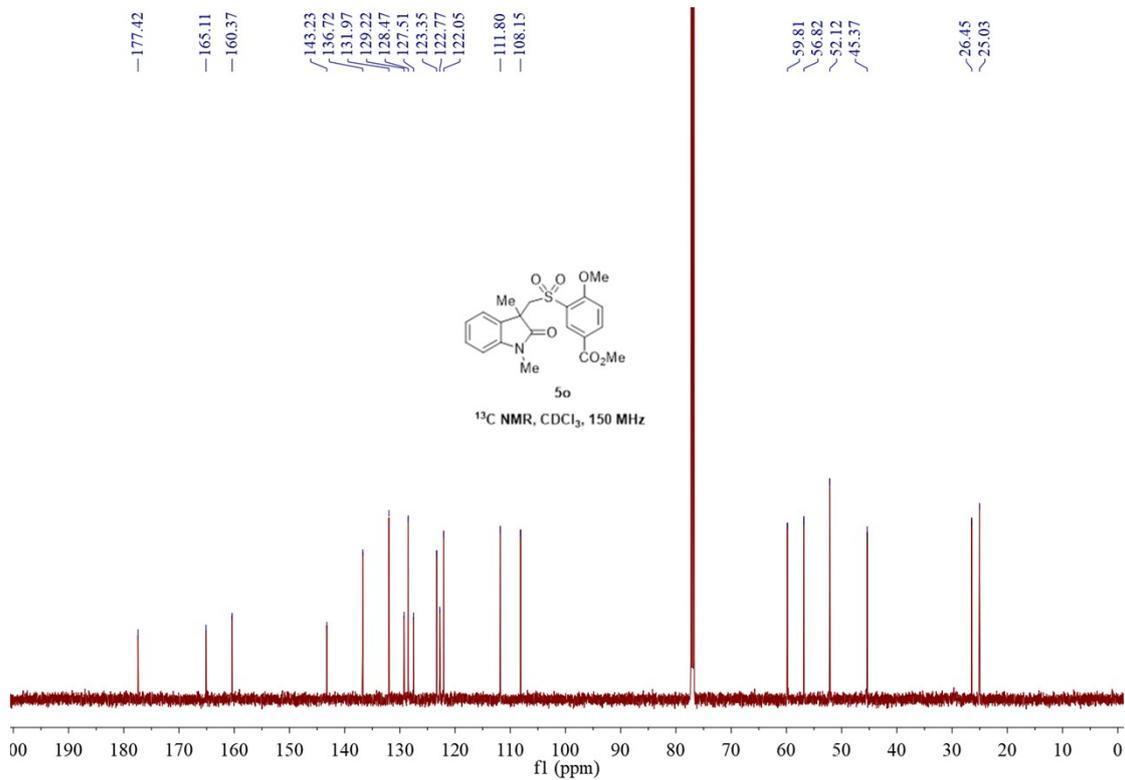
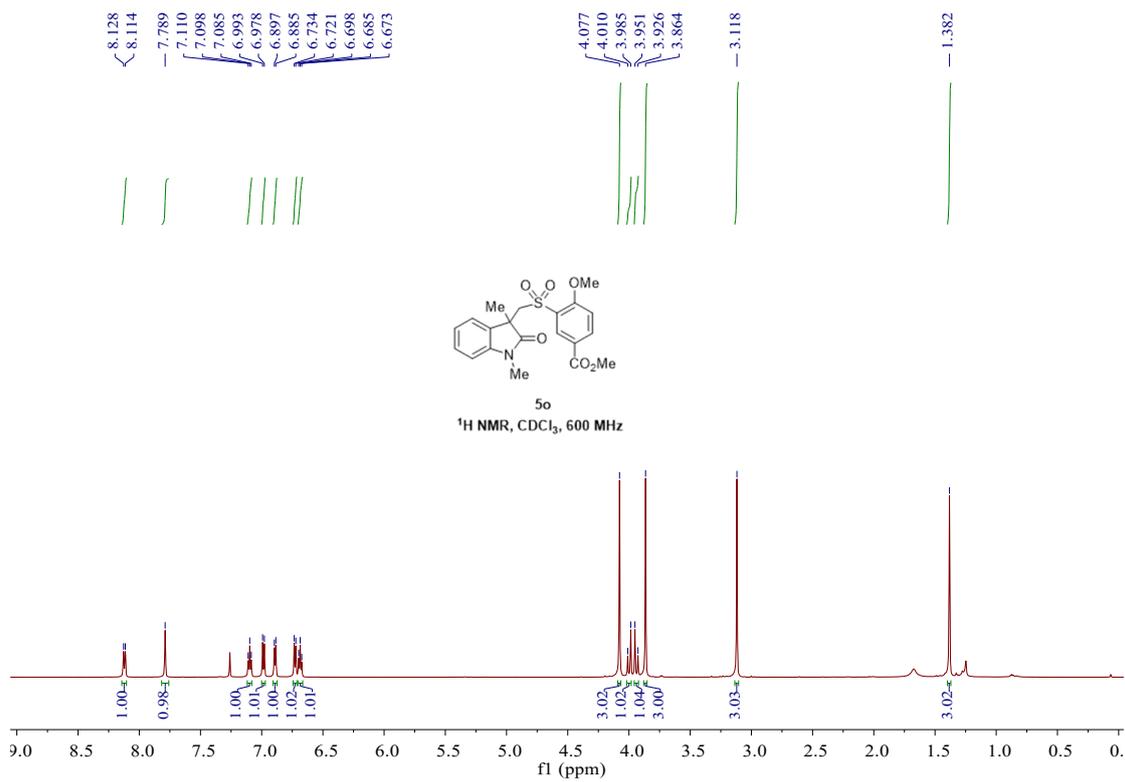


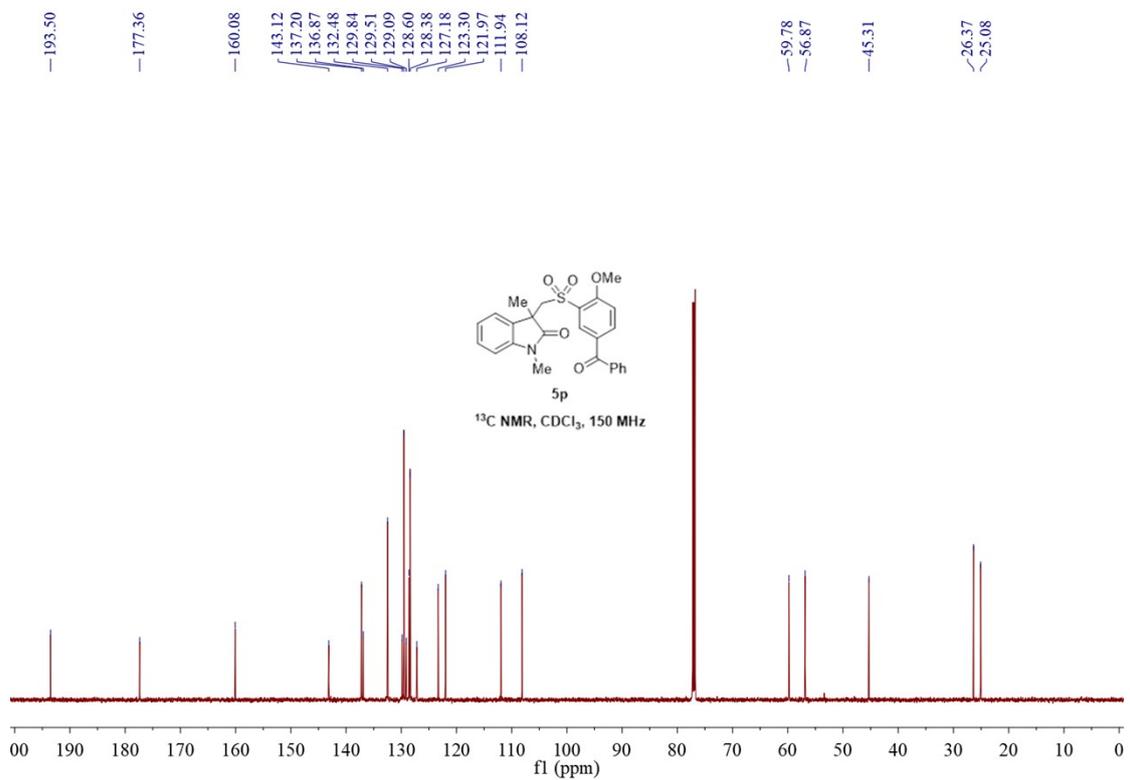
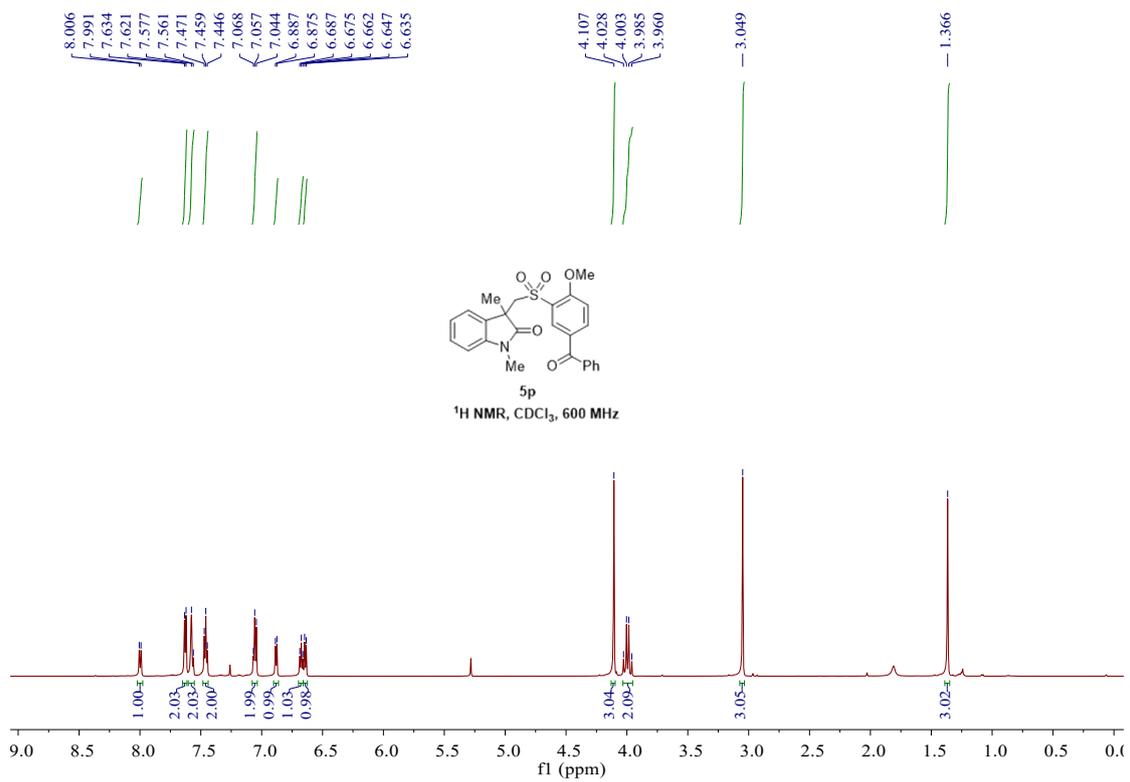
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz

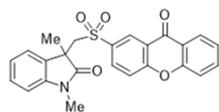




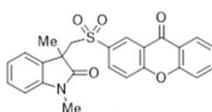
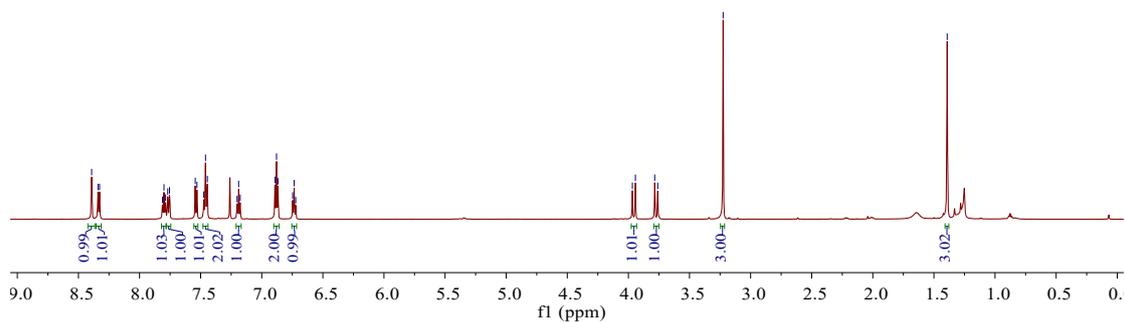




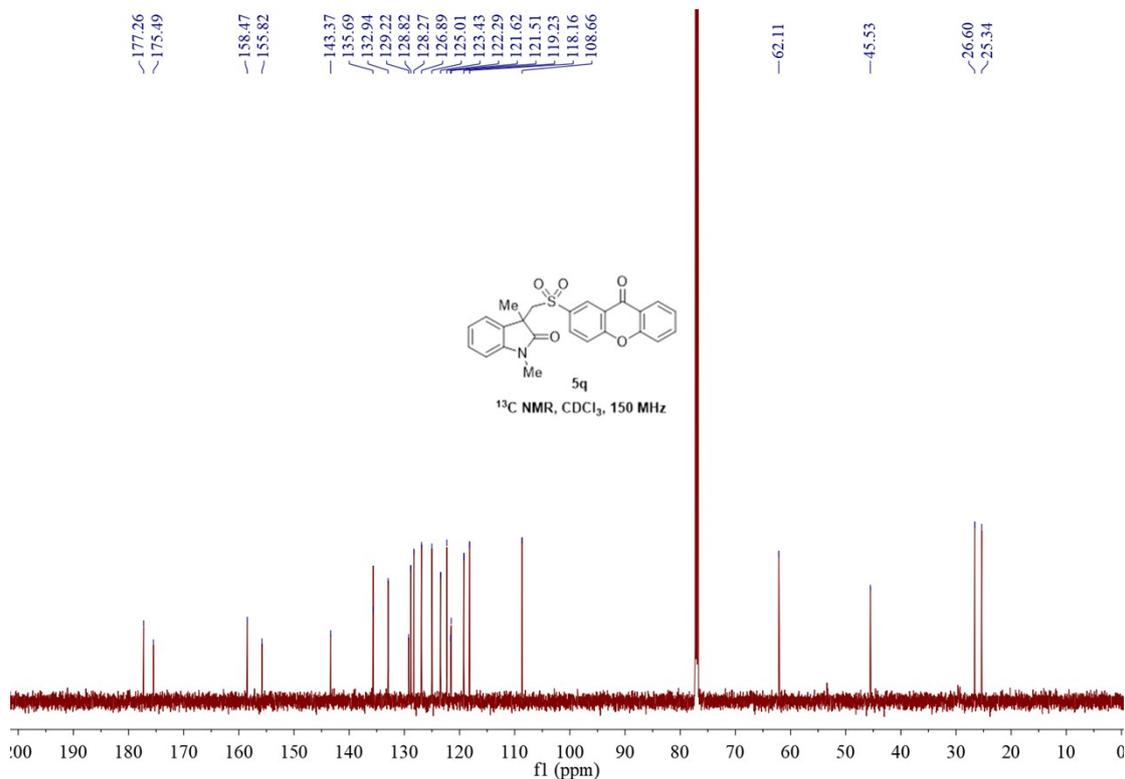


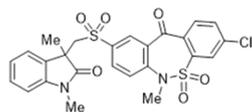


<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz



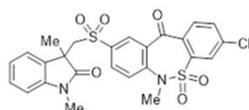
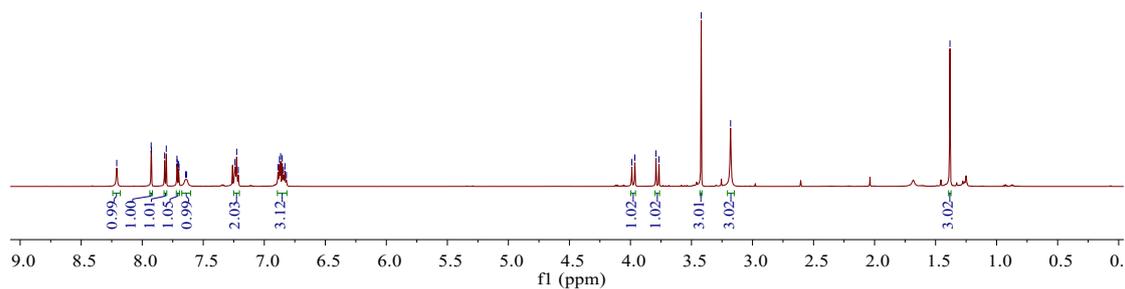
<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz





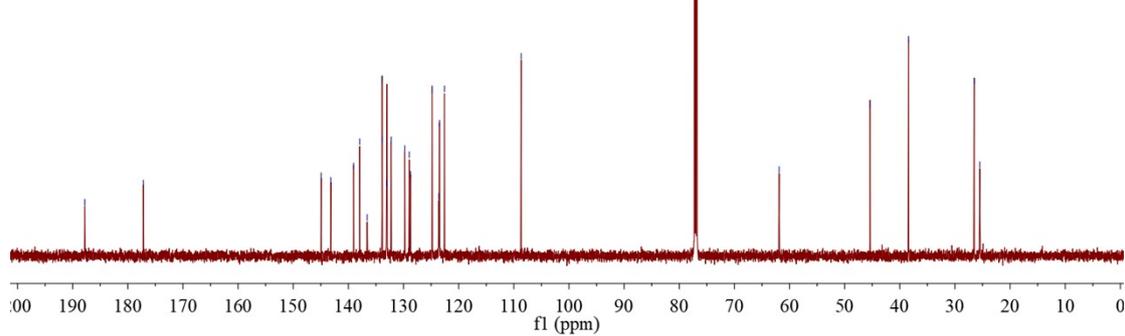
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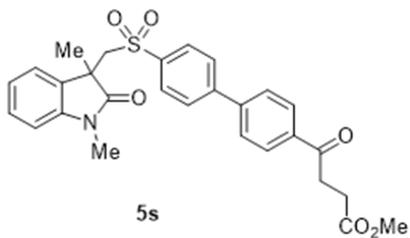
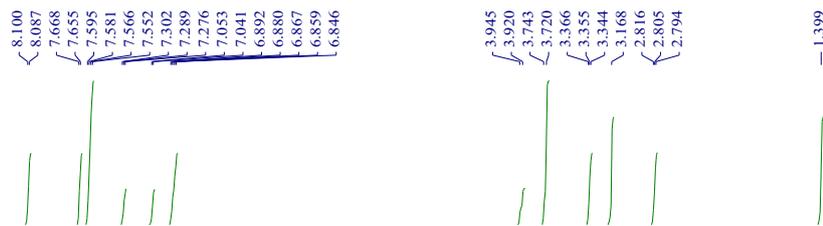
<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz



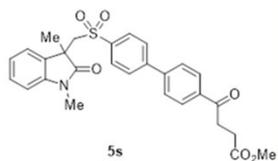
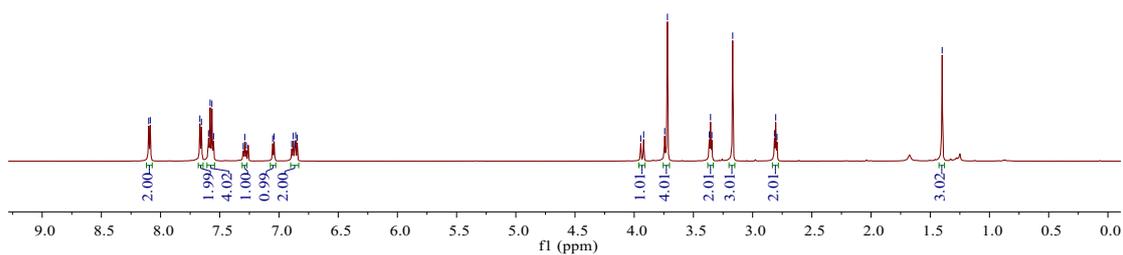
5r

<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz





<sup>1</sup>H NMR, CDCl<sub>3</sub>, 600 MHz



<sup>13</sup>C NMR, CDCl<sub>3</sub>, 150 MHz

