Supporting Information

New Journal of Chemistry

A one-pot 'click' reaction from *spiro*-epoxides catalyzed by Cu(I)-pyrrolidinyl-oxazole-carboxamide

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HPLC GRADIENT ELUTION:

Table 1. HPLC gradient elution for the final compounds **3a–z**, **3aa**, **3ab**, and **4a–t**.

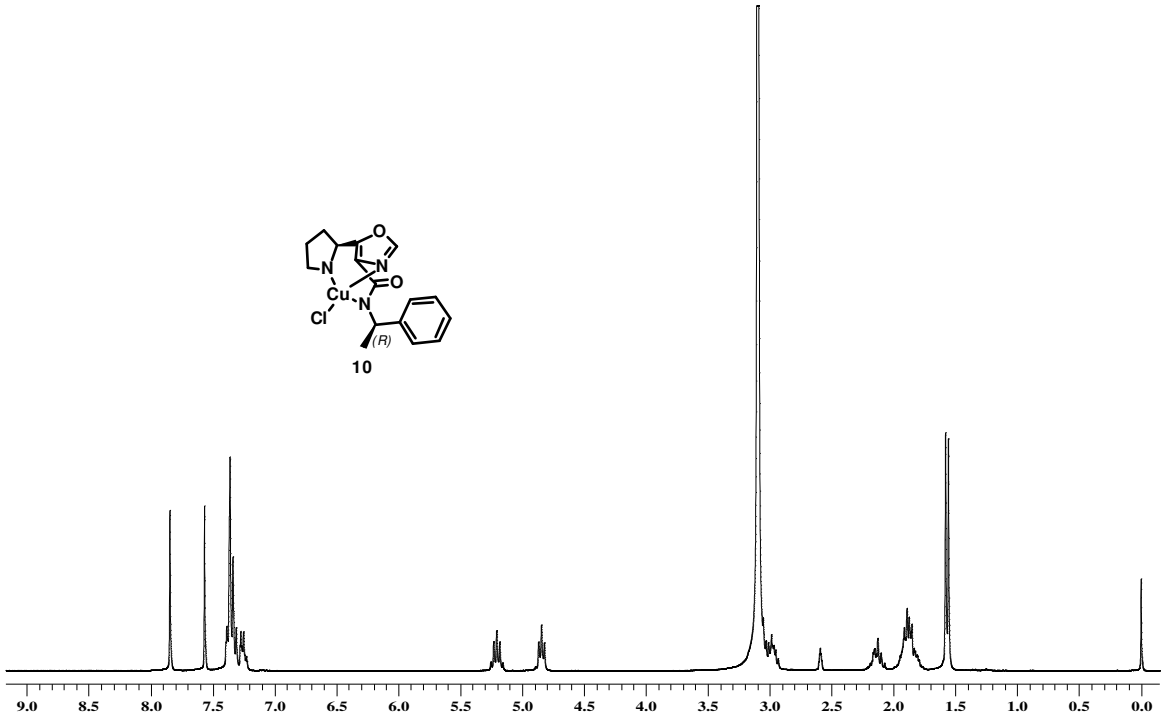
Time (min.)	% (Phosphate buffer)	% (Acetonitrile)
0	75.0	25.0
3	75.0	25.0
3.01	75.0	25.0
15	20.0	80.0
15.01	20.0	80.0
19	75	25
20	75	25

QUANTUM CHEMICAL CALCULATIONS:

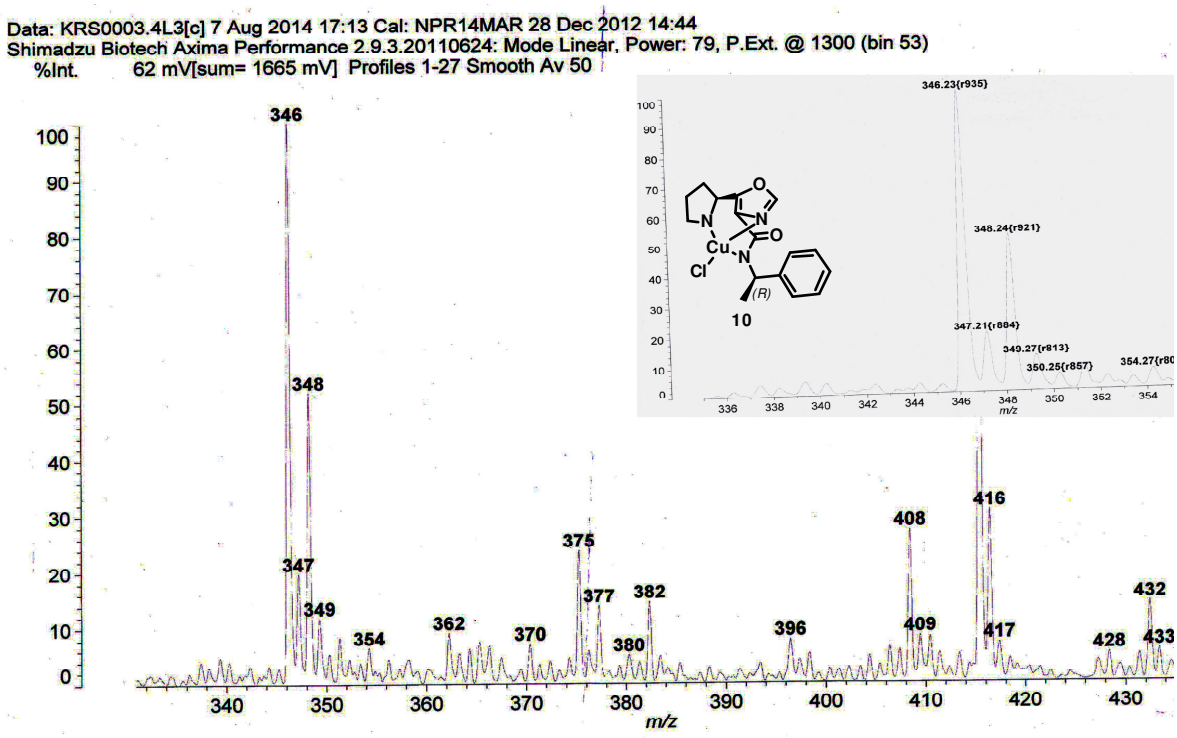
Table 2. Standard Gibbs energies of activation (kcal/mol) for **1a** calculated at the B3LYP/6-311++g(d,p) level in water.

Transition state	$\Delta^{\ddagger}G^{\circ}$	$\Delta\Delta^{\ddagger}G^{\circ}$
α	34.37	
		5.04
β	29.33	

^{1}H NMR Spectrum of catalyst 10



MALDI of catalyst 10



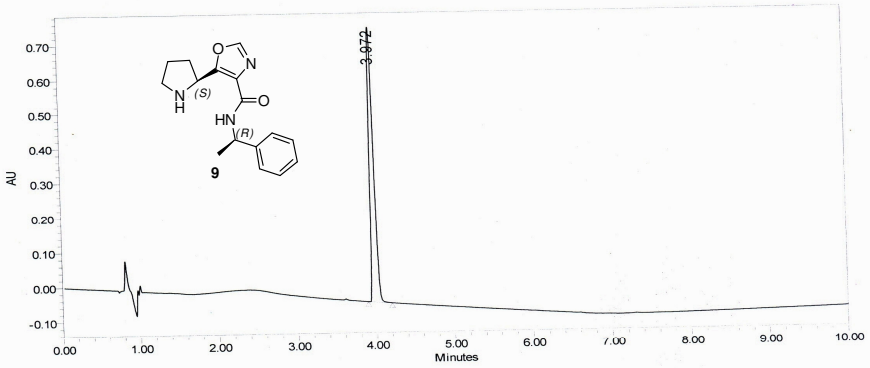
HPLC DATA of 9 and 10

Empower 3 SOFTWARE

Default Individual Report

SAMPLE INFORMATION

Sample Name:	kish-starting gr1	Acquired By:	System
Sample Type:	Unknown	Sample Set Name	kishan
Vial:	1:A,1	Acq. Method Set:	GR1
Injection #:	1	Processing Method	TEST
Injection Volume:	1.00 ul	Channel Name:	230.0nm
Run Time:	10.0 Minutes	Proc. Chnl. Descr.:	PDA 230.0 nm
Date Acquired:	6/27/2014 6:15:34 PM IST		
Date Processed:	7/14/2014 3:39:08 PM IST		



	RT	Area	% Area	Height
1	3.972	2851331	100.00	796382

Empower 3 SOFTWARE

Default Individual Report

SAMPLE INFORMATION

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Sample Type:	Unknown	Sample Set Name	kishan
Vial:	1:A,2	Acq. Method Set:	GR1
Injection #:	1	Processing Method	TEST1
Injection Volume:	1.00 ul	Channel Name:	230.0nm
Run Time:	10.0 Minutes	Proc. Chnl. Descr.:	PDA 230.0 nm
Date Acquired:	6/27/2014 6:33:15 PM IST		
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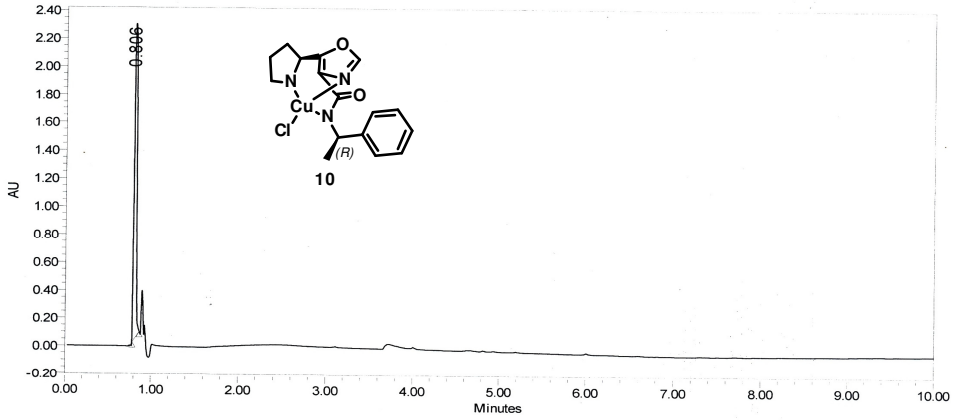

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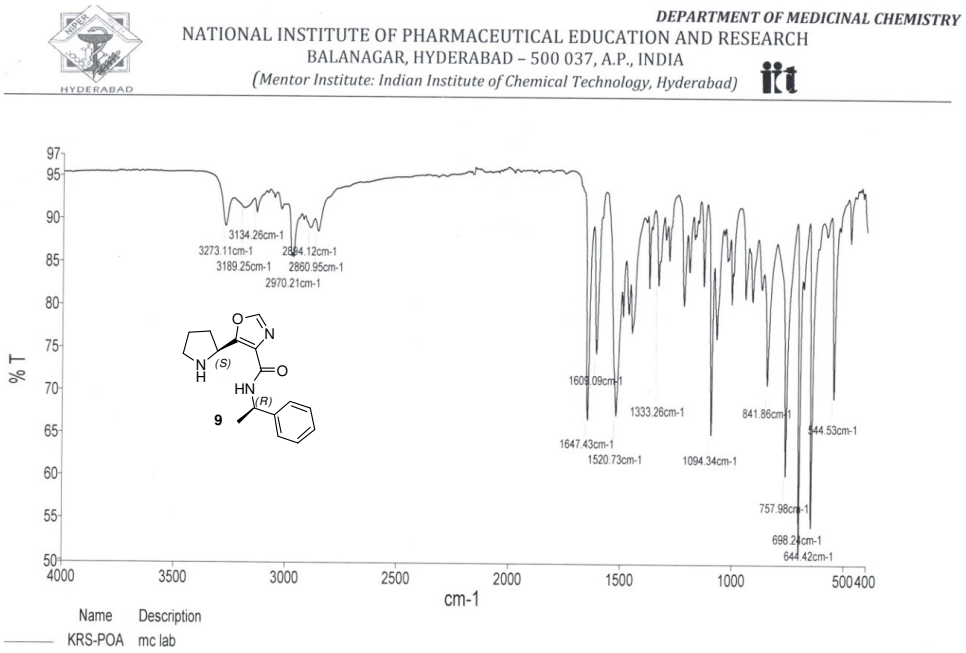
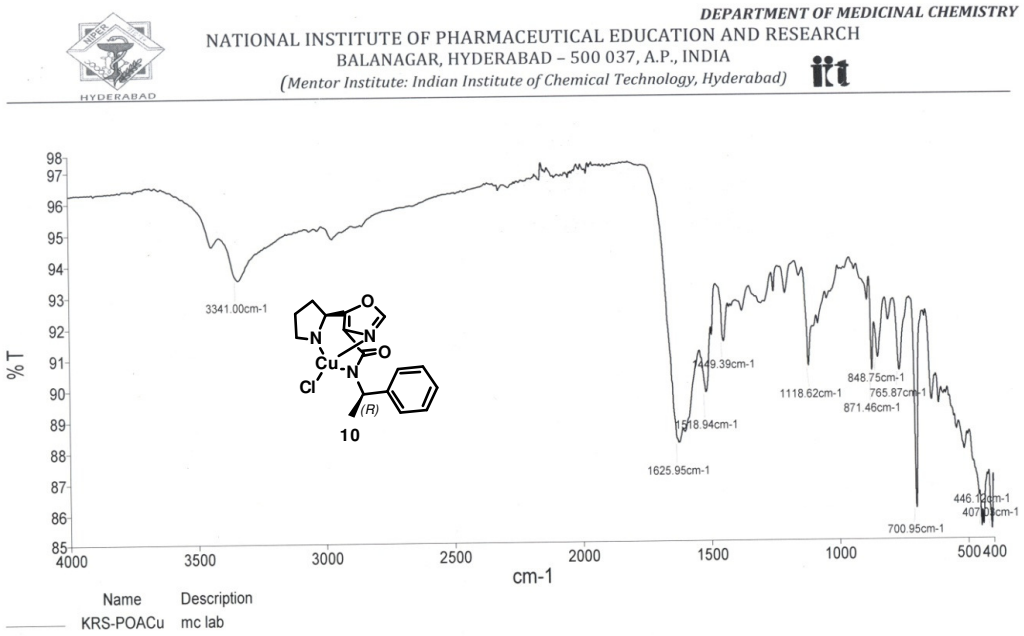
1	0.806	4797600	100.00	2256046

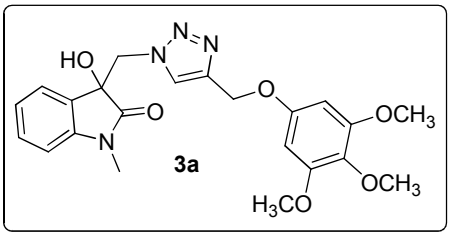
FT-IR Spectra of 9 and 10





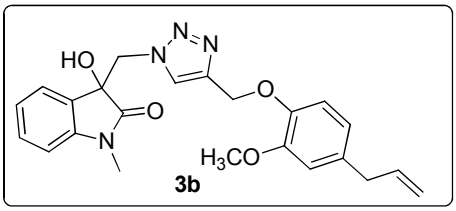
NMR DATA of 3a-z, 3aa, 3ab and 4a-t:

3-Hydroxy-1-methyl-3-((4-((3,4,5-trimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)indolin-2-one (3a). White solid; yield 96%; purity: >99.5%, t_R = 9.44 min.; mp: 183–185 °C; IR (KBr): 3225, 2931, 1714, 1611, 1230, 1129, 1022, 772 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.10 (s, 3H), 3.46 (brs, 1H), 3.80 (d, 9H, J = 8.3 Hz), 4.68 (d, 1H, J = 13.6 Hz), 4.77 (d, 1H, J = 13.6 Hz), 5.21 (s, 2H), 6.23 (s, 2H), 6.70 (d, 1H, J = 7.5 Hz), 6.74 (d, 1H, J = 7.5 Hz), 6.98 (t, 1H, J = 7.5 Hz), 7.32 (t, 1H, J = 7.5 Hz), 7.76 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 26.4, 55.4, 56.2, 61.1, 62.2, 75.3, 92.7, 108.9, 123.7, 124.5, 124.6, 126.7, 130.8, 132.5, 143.0, 144.2, 153.7, 154.7, 175.4; HRMS (ESI): *m/z* calcd. for $C_{22}H_{24}N_4O_6Na$, 463.1588, found 463.1572 $[M+Na]^+$.



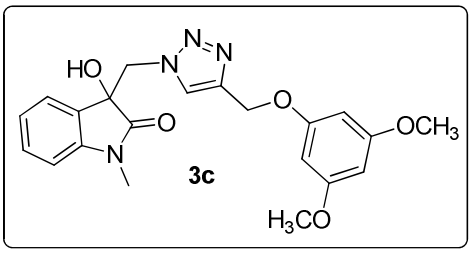
3a

3-((4-((4-Allyl-2-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (3b). White solid; yield 93%; purity: 91.0%, t_R = 10.90 min.; mp: 97–98 °C; IR (KBr): 3270, 1698, 1617, 1470, 1231, 1139, 759 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ 3.10 (s, 3H), 3.32 (d, 2H, J = 6.6 Hz), 3.72 (brs, 1H), 3.84 (s, 3H), 4.64 (d, 1H, J = 14.3 Hz), 4.73 (d, 1H, J = 14.3 Hz), 5.04–5.09 (m, 2H), 5.26 (s, 2H), 5.90–5.98 (m, 1H), 6.65–6.73 (m, 4H), 6.90 (d, 1H, J = 8.8 Hz), 6.94 (t, 1H, J = 7.7 Hz), 7.28 (t, 1H, J = 7.7 Hz), 7.76 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 26.4, 39.9, 55.4, 55.9, 63.1, 75.3, 108.9, 112.4, 114.5, 115.8, 120.6, 123.7, 124.6, 124.8, 126.8, 130.6, 133.8, 137.6, 143.0, 144.2, 145.8, 149.5, 175.5; HRMS (ESI): *m/z* calcd. for $C_{23}H_{25}N_4O_4$, 421.1870, found 421.1869 $[M+H]^+$.



3b

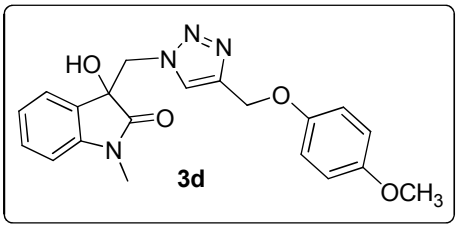
3-((4-((3,5-Dimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (3c). White solid; yield 93%; purity: >99.5%, t_R = 11.39 min.; mp: 165–167 °C; IR (KBr): 3290, 1690, 1616, 1470, 1145, 1068, 820 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.13 (s, 3H), 3.61 (brs, 1H), 3.75 (s, 6H), 4.67 (d, 1H, J = 13.6 Hz), 4.76 (d, 1H, J = 14.3 Hz), 5.18 (s, 2H), 6.10 (s, 1H), 6.15 (s, 2H), 6.69–6.77 (m, 2H), 6.99 (t, 1H, J = 7.5 Hz),



3c

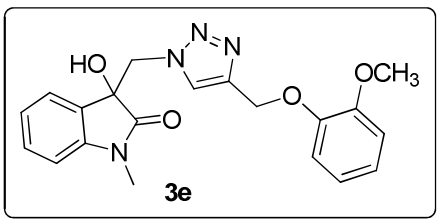
7.31 (t, 1H, J = 7.5 Hz), 7.76 (s, 1H); ^{13}C NMR (125 MHz, DMSO-d_6): δ 25.8, 54.1, 55.0, 60.8, 74.2, 93.1, 93.4, 108.5, 122.1, 124.0, 125.5, 127.8, 129.7, 142.2, 143.0, 159.6, 161.0, 174.9; HRMS (ESI): *m/z* calcd. for $C_{21}H_{23}N_4O_5$, 411.1663, found 411.1663 $[M+H]^+$.

3-Hydroxy-3-((4-((4-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3d). White solid; yield 90%; purity: 99.0%, t_R = 10.59 min.; mp: 182–185 ^{o}C; IR (KBr): 3252, 2923, 1715, 1613, 1505, 1207, 1045, 761 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.15 (s, 3H), 3.46 (brs, 1H), 3.77 (s, 3H), 4.66 (d, 1H, J = 13.6 Hz), 4.76 (d, 1H, J = 15.1 Hz), 5.18 (s, 2H), 6.66–7.01 (m, 7H), 7.30–7.35 (m, 1H), 7.75 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.6, 54.7, 55.1, 61.9, 74.3, 107.9, 114.1, 115.4, 122.4, 123.9, 124.3, 127.2, 129.5, 142.6, 143.2, 151.7, 153.5, 175.1; HRMS (ESI): *m/z* calcd. for $C_{20}H_{21}N_4O_4$, 381.1557, found 381.1563 $[M+H]^+$.



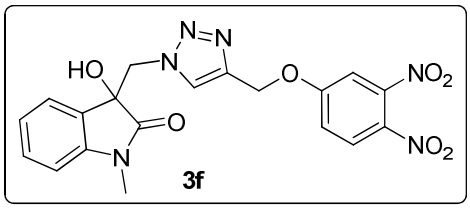
3d

3-Hydroxy-3-((4-((2-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3e). White solid; yield 90%; purity: >99.5%, t_R = 10.13 min.; mp: 164–165 ^{o}C; IR (KBr): 3285, 2940, 1716, 1614, 1500, 1249, 749 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.10 (s, 3H), 3.86 (s, 3H), 3.96 (brs, 1H), 4.65 (d, 1H, J = 14.3 Hz), 4.74 (d, 1H, J = 14.3 Hz), 5.29 (s, 2H), 6.64 (d, 1H, J = 7.5 Hz), 6.72 (d, 1H, J = 7.5 Hz), 6.84–7.00 (m, 5H), 7.27–7.31 (m, 1H), 7.79 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.8, 54.9, 55.5, 62.6, 74.6, 108.1, 111.8, 114.4, 120.5, 121.5, 122.7, 124.1, 124.6, 127.3, 129.7, 142.7, 143.5, 147.2, 149.4, 175.3; HRMS (ESI): *m/z* calcd. for $C_{20}H_{21}N_4O_4$, 381.1557, found 381.1562 $[M+H]^+$.



3e

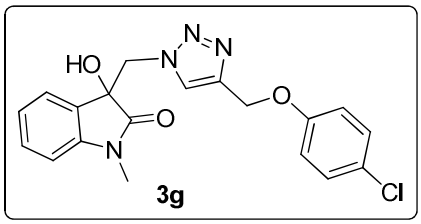
3-((4-((3,4-Dinitrophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (3f). Pale yellow solid; yield 88%; purity: 98.4%, t_R = 12.09 min.; mp: 157–159 ^{o}C; IR (KBr): 3329, 1700, 1558, 1340, 752 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.15 (s, 3H), 4.68 (d, 1H, J = 14.0 Hz), 4.76 (d, 1H, J = 14.0 Hz), 5.38 (s, 2H), 6.62 (d, 1H, J = 7.4 Hz), 6.73 (brs, 1H), 6.79 (d, 1H, J = 7.9 Hz), 6.93 (t, 1H, J = 7.7 Hz), 7.27 (dt, 1H, J = 1.1, 7.9 Hz), 7.38 (dd, 1H, J = 2.6, 9.1 Hz), 7.52 (d, 1H, J = 2.6 Hz), 8.07–8.11 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ



3f

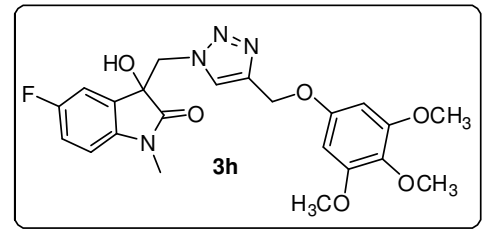
25.5, 54.5, 62.2, 73.9, 107.8, 110.9, 117.4, 122.1, 123.6, 125.2, 126.8, 127.0, 129.4, 133.8, 140.4, 142.4, 144.5, 161.6, 174.7; HRMS (ESI): *m/z* calcd. for $C_{19}H_{17}N_6O_7$, 441.1153, found 441.1160 $[M+H]^+$.

3-((4-((4-Chlorophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)m-ethyl)-3-hydroxy-1-methylindolin-2-one (3g). White solid; yield 90%; purity: 99.4%, t_R = 12.38 min.; mp: 174–175 °C; IR (KBr): 3248, 1721, 1613, 1490, 755 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.14 (s, 3H), 3.65 (brs, 1H), 4.69 (d, 1H, J = 14.3 Hz), 4.76 (d, 1H, J = 14.3 Hz), 5.20 (s, 2H), 6.69 (d, 1H, J = 7.5 Hz), 6.77 (d, 1H, J = 7.5 Hz), 6.89–7.01 (m, 3H), 7.22–7.35 (m, 3H), 7.76 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.6, 54.6, 61.4, 74.2, 107.9, 115.8, 122.4, 123.8, 124.4, 125.1, 127.1, 128.7, 129.5, 142.5, 156.2, 175.0; HRMS (ESI): *m/z* calcd. for $C_{19}H_{18}ClN_4O_3$, 385.1062, found 385.1068 $[M+H]^+$.



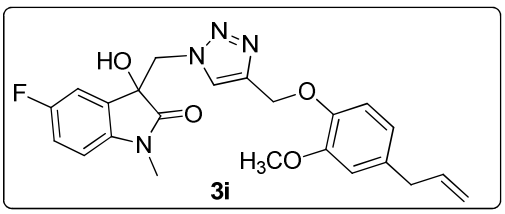
3g

5-Fluoro-3-hydroxy-1-methyl-3-((4-((3,4,5-trimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)in-ndolin-2-one (3h). White solid; yield 95%; purity: >99.5%, t_R = 13.03 min.; mp: 169–171 °C; IR (KBr): 3227, 2931, 1727, 1609, 1133 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.05 (s, 3H), 3.78 (s, 3H), 3.81 (s, 6H), 4.07 (brs, 1H), 4.69 (d, 1H, J = 13.6 Hz), 4.77 (d, 1H, J = 14.3 Hz), 5.19 (s, 2H), 6.21 (s, 2H), 6.56 (dd, 1H, J = 2.3, 7.5 Hz), 6.64 (dd, 1H, J = 3.7, 8.3 Hz), 7.00 (dt, 1H, J = 3.0, 9.1 Hz), 7.74 (s, 1H); ^{13}H NMR (75 MHz, $CDCl_3$): δ 26.5, 55.3, 56.2, 61.1, 62.2, 75.5, 92.8, 109.6, 109.7, 112.7, 113.0, 116.9, 117.2, 124.6, 128.4, 128.5, 132.6, 138.9, 144.3, 153.8, 154.7, 157.9, 161.2, 175.4; HRMS (ESI): *m/z* calcd. for $C_{22}H_{24}FN_4O_6$, 459.1674, found 459.1675 $[M+H]^+$.



3h

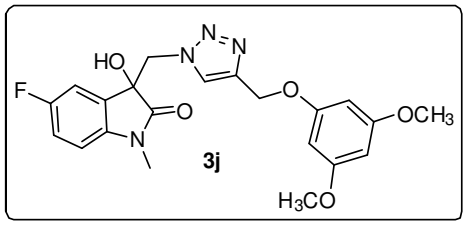
3-((4-((4-Allyl-2-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-5-fluoro-3-hydroxy-1-methylin-dolin-2-one (3i). White solid; yield 94%; purity: 98.3%, t_R = 13.91 min.; mp: 114–116 °C; IR (KBr): 3155, 1711, 1622, 1498, 1358, 1270, 1228, 1125, 835 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.07 (s, 3H), 3.32 (d, 2H, J = 6.8 Hz), 3.83 (s, 3H), 4.34 (brs, 1H), 4.66 (d, 1H, J = 14.3 Hz), 4.74 (d, 1H, J = 13.6 Hz), 5.04–5.11 (m, 2H), 5.24 (s, 2H), 5.87–6.01 (m, 1H), 6.50 (d, 1H, J =



3i

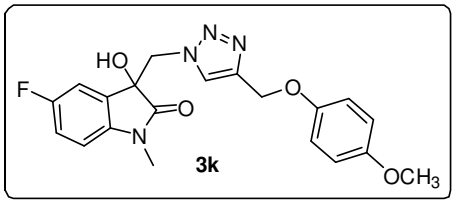
6.8 Hz), 6.61–6.70 (m, 3H), 6.87 (d, 1H, *J* = 7.5 Hz), 6.98 (t, 1H, *J* = 8.3 Hz), 7.78 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 26.5, 39.9, 55.2, 55.9, 63.1, 75.5, 109.5, 109.6, 112.4, 112.8, 113.1, 114.5, 115.8, 116.7, 117.1, 120.7, 124.8, 128.4, 128.5, 133.9, 137.6, 138.9, 144.5, 145.7, 149.5, 157.9, 161.1, 175.3; HRMS (ESI): *m/z* calcd. for $C_{23}H_{24}FN_4O_4$, 439.1776, found 439.1772 $[M+H]^+$.

3-((4-((3,5-Dimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-5-fluoro-3-hydroxy-1-methylindolin-2-one (3j). White solid; yield 92%; purity: 99.4%, t_R = 11.82 min.; mp: 177–178 °C; IR (KBr): 3166, 1716, 1614, 1594, 1469, 1198, 1157, 822 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.10 (s, 3H), 3.75 (s, 6H), 3.88 (brs, 1H), 4.69 (d, 1H, *J* = 14.3 Hz), 4.76 (d, 1H, *J* = 13.6 Hz), 5.17 (s, 2H), 6.11 (s, 1H), 6.14 (s, 2H), 6.59 (d, 1H, *J* = 7.5 Hz), 6.65–6.69 (m, 1H), 6.99–7.04 (m, 1H), 7.73 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 26.1, 55.0, 55.2, 61.7, 75.0, 93.5, 93.6, 108.9, 109.0, 112.5, 112.8, 116.1, 116.4, 124.5, 129.1, 129.2, 138.9, 143.6, 157.5, 159.9, 160.7, 161.3, 175.3; HRMS (ESI): *m/z* calcd. for $C_{21}H_{22}FN_4O_5$, 429.1569, found 429.1567 $[M+H]^+$.



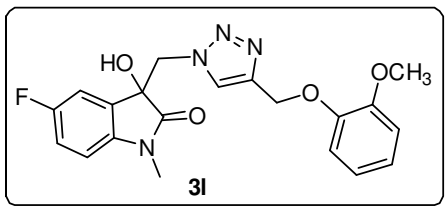
3j

5-Fluoro-3-hydroxy-3-((4-((4-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3k). White solid; yield 92%; purity: 98.9%, t_R = 11.07 min.; mp: 158–159 °C; IR (KBr): 3151, 1712, 1625, 1510, 1233, 1103, 831 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.11 (s, 3H), 3.76 (s, 3H), 4.26 (brs, 1H), 4.67 (d, 1H, *J* = 13.6 Hz), 4.75 (d, 1H, *J* = 13.6 Hz), 5.15 (s, 2H), 6.51 (d, 1H, *J* = 7.5 Hz), 6.67–6.71 (m, 1H), 6.80–6.90 (m, 4H), 7.02 (t, 1H, *J* = 9.1 Hz), 7.75 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.9, 54.7, 55.3, 62.1, 74.7, 108.7, 108.8, 112.2, 112.6, 114.3, 115.6, 115.7, 116.1, 124.4, 129.0, 129.1, 138.7, 143.6, 151.9, 153.7, 157.2, 160.4, 175.1; HRMS (ESI): *m/z* calcd. for $C_{20}H_{20}FN_4O_4$, 399.1463, found 399.1466 $[M+H]^+$.



3k

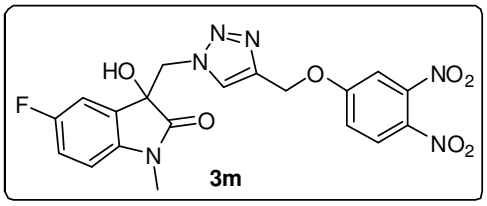
5-Fluoro-3-hydroxy-3-((4-((2-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3l). White solid; yield 92%; purity: >99.5%, t_R = 10.67 min.; mp: 155–156 °C; IR (KBr): 3421, 1712, 1622, 1499, 1258, 1124, 1059, 743 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$,): δ 3.06 (s, 3H), 3.84 (s, 3H),



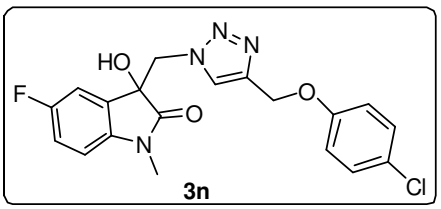
3l

4.43 (brs, 1H), 4.67 (d, 1H, *J* = 13.6 Hz), 4.74 (d, 1H, *J*= 14.3 Hz), 5.27 (s, 2H), 6.50 (dd, 1H, *J* = 2.3, 7.5 Hz), 6.63 (dd, 1H, *J* = 3.8, 8.3 Hz), 6.84–7.01 (m, 5H), 7.78 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 26.5, 55.3, 55.9, 62.9, 75.5, 109.6, 109.7, 112.0, 112.8, 113.1, 114.4, 116.8, 117.1, 121.1, 121.9, 124.8, 128.4, 128.5, 138.9, 144.4, 147.4, 149.6, 157.9, 161.1, 175.4; HRMS (ESI): *m/z* calcd. for $C_{20}H_{20}FN_4O_4$, 399.1463, found 399.1467 $[M+H]^+$.

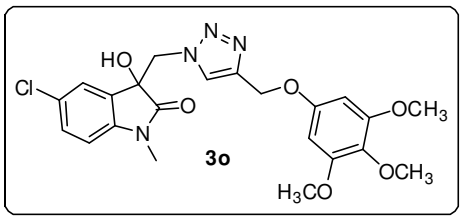
3-((4-((3,4-Dinitrophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-5-fluoro-3-hydroxy-1-methylindolin-2-one (3m). Yellow solid; yield 87%; purity: 98.8%, t_R = 12.42 min.; mp: 204–205 °C; IR (KBr): 3178, 1712, 1603, 155, 1524, 1495, 1337, 1269, 1058, 993, 816 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.15 (s, 3H), 4.67 (d, 1H, *J* = 14.0 Hz), 4.78 (d, 1H, *J* = 14.0 Hz), 5.39 (s, 2H), 6.31 (dd, 1H, *J* = 2.4, 7.5 Hz), 6.70 (brs, 1H), 6.72 (t, 1H, *J* = 4.0 Hz), 6.98 (dt, 1H, *J* = 2.6, 8.9 Hz), 7.33–7.36 (m, 1H), 7.42 (d, 1H, *J* = 2.6 Hz), 8.05 (d, 1H, *J* = 9.1 Hz), 8.09 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 26.0, 54.7, 62.5, 74.5, 108.7, 108.8, 111.3, 112.0, 112.3, 115.8, 116.1, 117.4, 125.5, 127.2, 128.8, 128.9, 134.2, 138.6, 140.9, 144.9, 157.0, 160.2, 161.8, 174.9; HRMS (ESI): *m/z* calcd. for $C_{19}H_{16}FN_6O_7$, 459.1059, found 459.1066 $[M+H]^+$.



3-((4-((4-Chlorophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-5-fluoro-3-hydroxy-1-methylindolin-2-one (3n). White solid; yield 88%; purity: >99.5%, t_R = 12.77 min.; IR (KBr): 3270, 1726, 1620, 1491, 1344, 1219, 1096, 1057, 823 cm^{-1}; mp: 175–176 °C; ^{1}H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.11 (s, 3H), 4.67 (d, 1H, *J* = 14.0 Hz), 4.77 (d, 1H, *J* = 14.0 Hz), 5.17 (s, 2H), 6.43 (dd, 1H, *J* = 2.6, 7.7 Hz), 6.70 (dd, 1H, *J* = 4.0, 8.5 Hz), 6.83 (brs, 1H), 6.90–7.02 (m, 3H), 7.20–7.26 (m, 2H), 7.93 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.7, 54.4, 61.3, 74.4, 108.5, 108.6, 111.9, 112.2, 115.5, 115.7, 124.4, 125.1, 128.7, 138.4, 142.5, 156.1, 156.8, 160.0, 174.7; HRMS (ESI): *m/z* calcd. for $C_{19}H_{17}ClFN_4O_3$, 403.0968, found 403.0972 $[M+H]^+$.

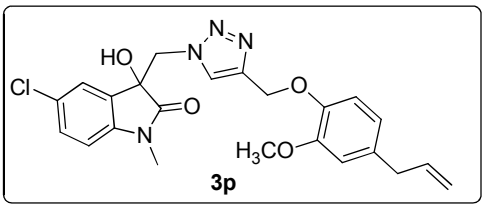


5-Chloro-3-hydroxy-1-methyl-3-((4-((3,4,5-trimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)meth-yl)indolin-2-one (3o). White solid; yield 95%; purity: 99.5%, t_R = 10.39 min.; mp: 143–145 °C; IR (KBr): 3225, 1725, 1610, 1509, 1485, 1462, 1226, 1132, 821 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ 3.03 (s, 3H),



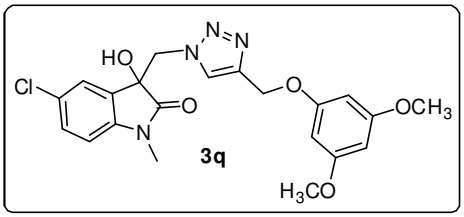
3.78 (s, 3H), 3.80 (s, 6H), 4.20 (brs, 1H), 4.72 (d, 1H, J = 14.3 Hz), 4.76 (d, 1H, J = 14.3 Hz), 5.17 (s, 2H), 6.20 (s, 2H), 6.61 (d, 1H, J = 8.8 Hz), 6.88 (s, 1H), 7.25 (d, 1H, J = 9.9 Hz), 7.70 (s, 1H); ^{13}C NMR (125 MHz, DMSO-d_6): δ 26.0, 53.8, 55.7, 60.0, 61.0, 74.3, 92.5, 110.1, 124.3, 125.7, 126.3, 129.5, 129.9, 131.5, 142.0, 142.3, 153.2, 154.2, 174.6; HRMS (ESI): *m/z* calcd. for $C_{22}H_{24}ClN_4O_6$, 475.1379, found 475.1386 $[M+H]^+$.

3-((4-((4-allyl-2-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-5-chloro-3-hydroxy-1-methylindolin-2-one (3p). White solid; yield 95%; purity: 96.6%, t_R = 11.52 min.; mp: 98–99 ^{o}C; IR (KBr): 3203, 1716, 1609, 1465, 1346, 1346, 1265, 1232, 1142, 1099, 811 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.06 (s, 3H), 3.32 (d, 2H, J = 6.0 Hz), 3.84 (s, 3H), 4.29 (brs, 1H), 4.66 (d, 1H, J = 13.6 Hz), 4.73 (d, 1H, J = 13.6 Hz), 5.05–5.12 (m, 2H), 5.24 (s, 2H), 5.87–6.00 (m, 1H), 6.62 (d, 1H, J = 8.3 Hz), 6.66–6.71 (m, 2H), 6.80 (d, 1H, J = 1.5 Hz), 6.88 (d, 1H, J = 8.3 Hz), 7.22–7.27 (m, 1H), 7.74 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 26.5, 39.9, 55.2, 55.9, 63.1, 75.3, 109.9, 112.4, 114.4, 115.8, 120.7, 124.8, 125.1, 128.6, 129.0, 130.5, 133.8, 137.6, 141.6, 144.5, 145.8, 149.5, 175.1; HRMS (ESI): *m/z* calcd. for $C_{23}H_{24}ClN_4O_4$, 455.1481, found 455.1480 $[M+H]^+$.



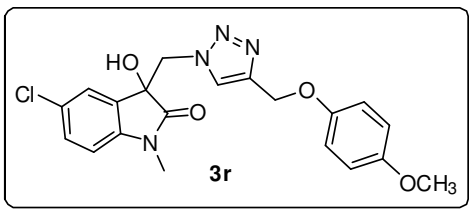
3p

5-Chloro-3-((4-((3,5-dimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methyl-indolin-2-one (3q). White solid; yield 93%; purity: >98.8%, t_R = 12.59 min.; mp: 189–191 ^{o}C; IR (KBr): 3169, 1720, 1609, 1595, 1345, 1161, 823 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.09 (s, 3H), 3.67 (brs, 1H), 3.76 (s, 6H), 4.68–4.78 (m, 2H), 5.17 (s, 2H), 6.11 (s, 1H), 6.14 (s, 2H), 6.66 (d, 1H, J = 8.3 Hz), 6.88 (s, 1H), 7.26–7.30 (m, 1H), 7.68 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.7, 54.5, 54.8, 61.3, 74.5, 93.1, 93.2, 109.0, 124.2, 124.5, 127.7, 129.1, 129.4, 141.3, 143.1, 159.5, 161.0, 174.8; HRMS (ESI): *m/z* calcd. for $C_{21}H_{22}ClN_4O_5$, 445.1273, found 445.1276 $[M+H]^+$.



3q

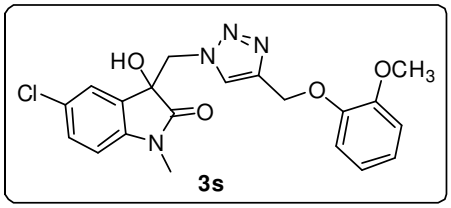
5-Chloro-3-hydroxy-3-((4-((4-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3r). White solid; yield 92%; purity: 98.8%, t_R = 11.96 min.; mp: 149–150 ^{o}C; IR (KBr): 3250, 1728, 1609, 1507, 1233, 1204, 1098, 1040, 812 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.09 (s, 3H), 3.76 (s, 3H), 4.22 (brs, 1H), 4.68 (d, 1H, J = 14.3 Hz), 4.74 (d, 1H, J = 14.3 Hz), 5.15 (s, 2H), 6.68 (d, 1H, J =



3r

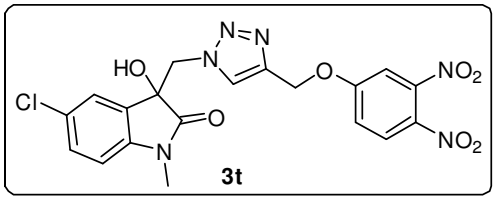
8.3 Hz), 6.81–6.90 (m, 5H), 7.27–7.30 (m, 1H), 7.71 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 26.1, 54.9, 55.5, 62.3, 74.8, 109.3, 114.5, 115.7, 124.5, 124.9, 128.2, 129.3, 129.8, 141.5, 143.9, 152.1, 153.9, 175.1; HRMS (ESI): *m/z* calcd. for $C_{20}H_{20}ClN_4O_4$, 415.1168, found 415.1170 $[M+H]^+$.

5-Chloro-3-hydroxy-3-((4-((2-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3s). White solid; yield 92%; purity: 99.1%, t_R = 11.65 min.; mp: 167–168 °C; IR (KBr): 3225, 1725, 1609, 1498, 1346, 1236, 1096, 757 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 3.05 (s, 3H), 3.85 (s, 3H), 4.23 (brs, 1H), 4.67 (d, 1H, *J* = 13.6 Hz), 4.73 (d, 1H, *J* = 14.3 Hz), 5.28 (s, 2H), 6.62 (d, 1H, *J* = 8.3 Hz), 6.82–6.98 (m, 5H), 7.24–7.27 (m, 1H), 7.75 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 26.5, 55.2, 55.9, 62.9, 75.3, 109.9, 111.9, 114.3, 121.1, 121.9, 124.8, 125.1, 128.5, 129.1, 130.6, 141.6, 144.4, 147.5, 149.6, 175.1; HRMS (ESI): *m/z* calcd. for $C_{20}H_{20}ClN_4O_4$, 415.1168, found 415.1168 $[M+H]^+$.



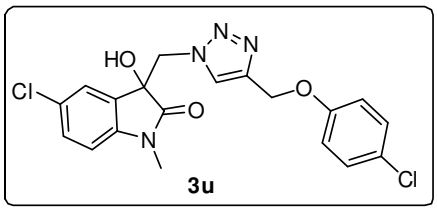
3s

5-Chloro-3-((4-((3,4-dinitrophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (3t). Yellow solid; yield 88%; purity: 99.1%, t_R = 13.04 min.; mp: 183–184 °C; IR (KBr): 3389, 1694, 1608, 1546, 1527, 1348, 1255, 1101, 798 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.15 (s, 3H), 4.68 (d, 1H, *J* = 14.0 Hz), 4.77 (d, 1H, *J* = 14.0 Hz), 5.39 (s, 2H), 6.55 (d, 1H, *J* = 1.9 Hz), 6.69–6.73 (m, 2H), 7.24 (dd, 1H, *J* = 2.1, 8.3 Hz), 7.33–7.37 (m, 1H), 7.42 (d, 1H, *J* = 2.6 Hz), 8.04–8.07 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 26.0, 54.7, 62.5, 74.4, 109.2, 111.3, 117.4, 124.5, 125.5, 127.2, 127.8, 129.0, 129.6, 134.3, 141.0, 141.4, 145.0, 161.8, 174.8; HRMS (ESI): *m/z* calcd. for $C_{19}H_{16}ClN_6O_7$, 475.0763, found 475.0774 $[M+H]^+$.



3t

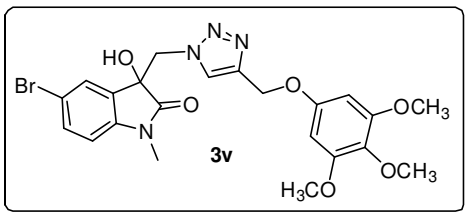
5-Chloro-3-((4-((4-chlorophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (3u). White solid; yield 89%; purity: 95.0%, t_R = 13.48 min.; mp: 190–191 °C; IR (KBr): 3421, 1704, 1610, 1491, 1116, 1009, 822 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$+DMSO-d_6): δ 3.10 (s, 3H), 4.68 (d, 1H, *J* = 13.6 Hz), 4.76 (d, 1H, *J* = 13.6 Hz), 5.16 (s, 2H), 6.68 (s, 1H), 6.74 (dd, 1H, *J* = 1.5, 8.3 Hz), 6.87 (brs, 1H), 6.91–6.96 (m, 2H), 7.22–7.27 (m, 2H), 7.72–7.76 (m, 1H), 7.93 (s, 1H); ^{13}C



3u

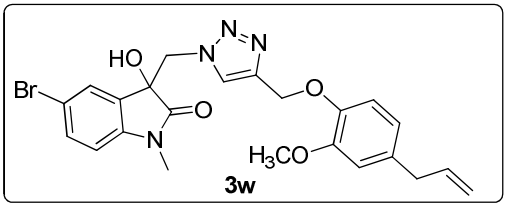
NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.0, 53.5, 60.5, 73.5, 108.5, 115.2, 123.6, 124.0, 124.2, 126.3, 128.0, 128.5, 140.7, 141.6, 155.6, 173.8; HRMS (ESI): *m/z* calcd. for $C_{19}H_{17}Cl_2N_4O_3$, 419.0678, found 419.0677 $[M+H]^+$.

5-bromo-3-hydroxy-1-methyl-3-((4-((3,4,5-trimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)indolin-2-one (3v). White solid; yield 92%; purity: 95.8%, t_R = 13.72 min.; mp: 169–170 °C; IR (KBr): 3230, 1728, 1605, 1506, 1232, 1206, 1037, 807 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.03 (s, 3H), 3.78 (s, 3H), 3.80 (s, 6H), 4.23 (brs, 1H), 4.69–4.79 (m, 2H), 5.14–5.19 (m, 2H), 6.20 (s, 2H), 6.56 (d, 1H, *J* = 8.3 Hz), 7.02 (d, 1H, *J* = 1.5 Hz), 7.41 (dd, 1H, *J* = 1.5, 8.3 Hz), 7.69 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 24.5, 52.8, 54.3, 58.7, 59.9, 73.1, 91.2, 108.7, 113.0, 123.8, 125.8, 128.7, 130.4, 130.9, 140.9, 141.3, 151.8, 153.0, 173.2; HRMS (ESI): *m/z* calcd. for $C_{22}H_{24}BrN_4O_6$, 519.0874, found 519.0878 $[M+H]^+$.



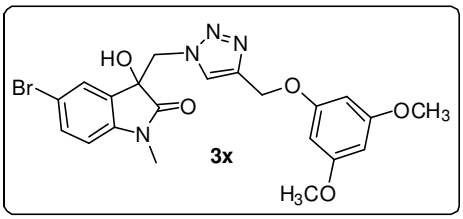
3v

3-((4-((4-Allyl-2-methoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-5-bromo-3-hydroxy-1-methylindolin-2-one (3w). White solid; yield 90%; purity: 95.0%, t_R = 12.68 min.; mp: 123–125 °C; IR (KBr): 3210, 1716, 1610, 1465, 1233, 1142, 811 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.06 (s, 3H), 3.32 (d, 2H, *J* = 6.8 Hz), 3.84 (s, 3H), 4.00 (brs, 1H), 4.67 (d, 1H, *J* = 14.3 Hz), 4.72 (d, 1H, *J* = 13.6 Hz), 5.04–5.11 (m, 2H), 5.25 (s, 2H), 5.87–6.01 (m, 1H), 6.58 (d, 1H, *J* = 8.3 Hz), 6.66–6.70 (m, 2H), 6.88 (d, 1H, *J* = 8.3 Hz), 6.96 (d, 1H, *J* = 1.5 Hz), 7.40 (dd, 1H, *J* = 1.5, 8.3 Hz), 7.71 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 26.5, 39.9, 55.2, 55.9, 63.1, 75.2, 110.3, 112.4, 114.3, 115.8, 116.2, 120.7, 124.8, 127.8, 129.0, 133.4, 133.8, 137.6, 142.1, 144.5, 145.8, 149.4, 175.0; HRMS (ESI): *m/z* calcd. for $C_{23}H_{24}BrN_4O_4$, 499.0975, found 499.0987 $[M+H]^+$.



3w

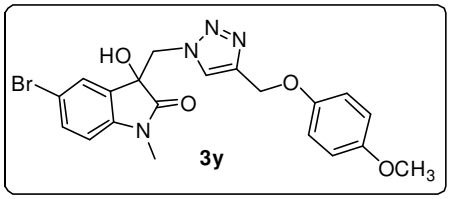
5-Bromo-3-((4-((3,5-dimethoxyphenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methyl indolin-2-one (3x). White solid; yield 90%; purity: 96.7%, t_R = 12.79 min.; mp: 182–184 °C; IR (KBr): 3215, 1721, 1609, 1595, 1342, 1156, 1064, 823 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.08 (s, 3H), 3.75 (s, 6H), 3.95 (brs, 1H), 4.68–4.78 (m, 2H), 5.17 (s, 2H), 6.12 (s, 1H), 6.14 (s, 2H), 6.60 (d, 1H, *J* = 9.1 Hz), 7.03 (s, 1H), 7.43 (d, 1H, *J* = 8.3 Hz), 7.68 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ



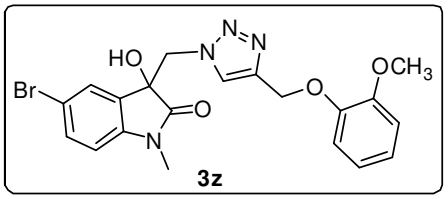
3x

25.2, 53.9, 54.2, 60.6, 73.8, 92.5, 92.7, 109.1, 114.1, 123.9, 126.6, 129.1, 131.7, 141.4, 142.3, 159.0, 160.4, 174.0; HRMS (ESI): *m/z* calcd. for $C_{21}H_{22}BrN_4O_5$, 489.0768, found 489.0777 $[M+H]^+$.

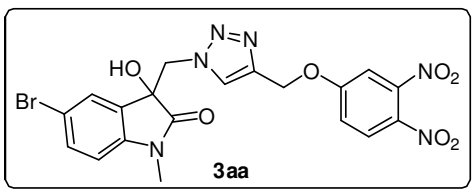
5-Bromo-3-hydroxy-3-((4-((4-methoxyphenoxy)met-hyl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3y). White solid; yield 88%; purity: 97.4%, t_R = 12.22 min.; mp: 169–170 °C; IR (KBr): 3213, 1729, 1606, 1506, 1205, 1041, 810 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 3.09 (s, 3H), 3.76 (s, 3H), 4.09 (brs, 1H), 4.65–4.75 (m, 2H), 5.15 (s, 2H), 6.63 (d, 1H, J = 8.3 Hz), 6.81–6.96 (m, 5H), 7.44 (d, 1H, J = 8.3 Hz), 7.70 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.1, 53.5, 54.4, 61.0, 73.6, 109.0, 113.5, 113.8, 114.7, 123.8, 126.4, 129.0, 131.5, 141.2, 142.3, 151.0, 152.8, 173.8; HRMS (ESI): *m/z* calcd. for $C_{20}H_{20}BrN_4O_4$, 459.0662, found 459.0669 $[M+H]^+$.



5-Bromo-3-hydroxy-3-((4-((2-methoxyphenoxy)meth-yl)-1*H*-1,2,3-triazol-1-yl)methyl)-1-methylindolin-2-one (3z). White solid; yield 89%; purity: 95.2%, t_R = 11.90 min.; mp: 185–186 °C; IR (KBr): 3219, 1726, 1607, 1497, 1237, 1096, 758 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.05 (s, 3H), 3.86 (s, 3H), 4.67 (d, 1H, J = 13.8 Hz), 4.75 (d, 1H, J = 13.8 Hz), 5.22 (s, 2H), 6.62 (d, 1H, J = 8.3 Hz), 6.84 (brs, 1H), 6.85–7.00 (m, 5H), 7.38 (dd, 1H, J = 1.9, 8.3 Hz), 7.85 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.4, 54.1, 55.1, 62.0, 74.1, 109.3, 111.4, 113.8, 114.5, 120.1, 121.1, 124.1, 126.8, 129.2, 132.0, 141.5, 142.9, 146.7, 148.9, 174.3; HRMS (ESI): *m/z* calcd. for $C_{20}H_{20}BrN_4O_4$, 459.0662, found 459.0668 $[M+H]^+$.

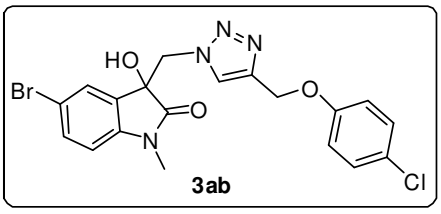


5-Bromo-3-((4-((3,4-dinitrophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylind-olin-2-one (3aa). Yellow solid; yield 87%; purity: 95.0%, t_R = 13.23 min.; mp: 180–182 °C; IR (KBr): 3434, 1707, 1607, 1544, 1527, 1338, 1257, 1113, 847 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.14 (s, 3H), 4.68 (d, 1H, J = 14.0 Hz), 4.77 (d, 1H, J = 14.0 Hz), 5.39 (s, 2H), 6.66–6.70 (m, 2H), 6.75 (brs, 1H), 7.34–7.44 (m, 3H), 8.04–8.07 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 24.7, 53.0, 61.2, 73.1, 108.8, 110.1, 113.1, 116.8, 124.8, 125.9, 126.2, 128.7,



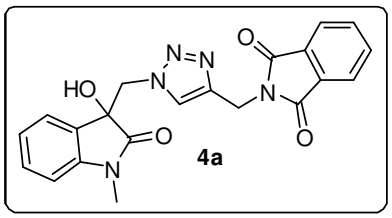
131.0, 132.6, 139.5, 141.0, 143.7, 160.9, 173.3; HRMS (ESI): *m/z* calcd. For $C_{19}H_{16}BrN_6O_7$, 519.0258, found 519.0273 $[M+H]^+$.

5-Bromo-3-((4-((4-chlorophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (3ab). White solid; yield 88%; purity: 95.0%, t_R = 13.70 min.; mp: 169–171 °C; IR (KBr): 3323, 1704, 1609, 1491, 1469, 1237, 1114, 822 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.01 (s, 3H), 4.56–4.71 (m, 2H), 5.09 (s, 2H), 6.59 (d, 1H, *J* = 8.3 Hz), 6.75 (d, 1H, *J* = 1.9 Hz), 6.82–6.88 (m, 3H), 7.13–7.18 (m, 2H), 7.33 (dd, 1H, *J* = 1.9, 8.3 Hz), 7.83 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.6, 54.3, 61.2, 74.2, 109.4, 114.7, 115.6, 124.3, 125.0, 127.0, 128.6, 129.2, 132.1, 141.6, 142.5, 156.1, 174.4; HRMS (ESI): *m/z* calcd. for $C_{19}H_{17}BrClN_4O_3$, 463.0167, found 463.0177 $[M+H]^+$.



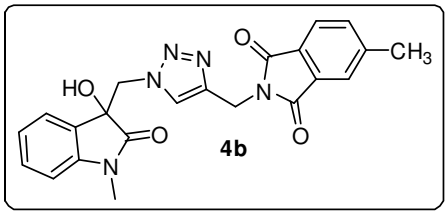
3ab

2-((1-((3-Hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)isoindoline-1,3-dione (4a). White solid; yield 89%; purity: 99.3%, t_R = 9.03 min.; mp: 258–259 °C; IR (KBr): 3216, 1711, 1617, 1383, 1085, 1058, 948 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.11 (s, 3H), 4.63 (d, 1H, *J*= 13.8 Hz), 4.69 (d, 1H, *J* = 13.8 Hz), 4.90 (s, 2H), 6.66 (brs, 1H), 6.70–6.74 (m, 2H), 6.89 (t, 1H, *J* = 7.7 Hz), 7.16 (dt, 1H, *J* = 0.9, 7.7 Hz), 7.76–7.88 (m, 5H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 24.7, 31.6, 53.7, 73.4, 107.0, 121.2, 121.9, 123.0, 126.6, 128.5, 130.6, 133.0, 140.8, 141.9, 165.9, 174.0; HRMS (ESI): *m/z* calcd. for $C_{21}H_{18}N_5O_4$, 404.1353, found 404.1357 $[M+H]^+$.



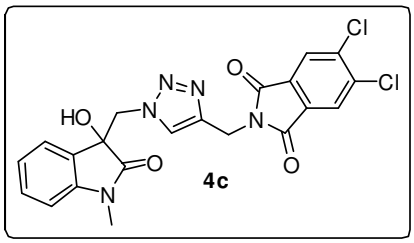
4a

2-((1-((3-Hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-5-methylisoindoline-1,3-dione (4b). White solid; yield 90%; purity: 95.0%, t_R = 10.40 min.; mp: 127–129 °C; IR (KBr): 3334, 1703, 1680, 1614, 1384, 1222, 1102, 758 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 2.52 (s, 3H), 3.16 (s, 3H), 3.82 (brs, 1H), 4.64 (d, 1H, *J* = 14.3 Hz), 4.73 (d, 1H, *J* = 14.3 Hz), 4.96 (s, 2H), 6.71–6.78 (m, 2H), 6.96 (t, 1H, *J* = 8.3 Hz), 7.21–7.27 (m, 1H), 7.52 (d, 1H, *J* = 6.8 Hz), 7.66 (s, 1H), 7.72 (t, 2H, *J* = 7.5 Hz); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 21.3, 25.4, 32.2, 54.5, 74.1, 107.6, 122.1, 122.5, 123.1, 123.7, 127.1, 128.6, 129.3, 131.6, 134.0, 142.4, 144.7, 166.7, 166.8, 174.8; HRMS (ESI): *m/z* calcd. for $C_{22}H_{20}N_5O_4$, 418.1510, found 418.1509 $[M+H]^+$.

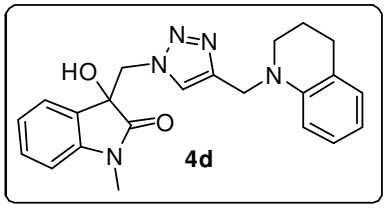


4b

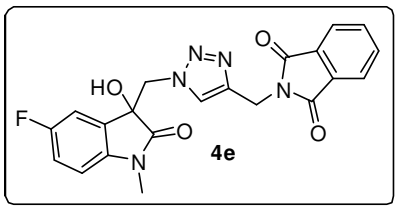
5,6-Dichloro-2-((1-((3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)isoindoline-1,3-dione (4c). White solid; yield 90%; purity: 99.3%, t_R = 12.48 min.; mp: 215–217 °C; IR (KBr): 3315, 1713, 1695, 1618, 1384, 1194, 1110, 754 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-d_6): δ 3.07 (s, 3H), 4.59–4.70 (m, 2H), 4.83 (s, 2H), 6.66–6.71 (m, 2H), 6.82–6.91 (m, 2H), 7.14 (t, 1H, J = 7.7 Hz), 7.83 (s, 1H), 8.08–8.17 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.4, 32.6, 54.4, 74.0, 107.6, 122.1, 123.7, 123.8, 124.6, 127.0, 129.2, 130.5, 137.9, 140.9, 142.4, 164.6, 174.7; HRMS (ESI): *m/z* calcd. for $C_{21}H_{16}Cl_2N_5O_4$, 472.0574, found 472.0583 $[M+H]^+$.



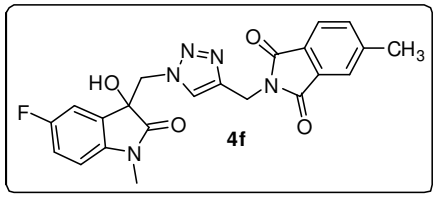
3-((4-((3,4-Dihydroquinolin-1(2*H*)-yl)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (4d). White solid; yield 95%; purity: 97.0%, t_R = 12.25 min.; mp: 153–155 °C; IR (KBr):3344, 1697, 1615, 1469, 1381, 1240, 759 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$): δ 1.92–2.00 (m, 2H), 2.75 (t, 2H, J = 6.0 Hz), 3.04 (s, 3H), 3.31 (dt, 2H, J = 1.5, 5.3 Hz), 3.84 (brs, 1H), 4.54 (s, 2H), 4.61 (d, 1H, J = 13.6 Hz), 4.70 (d, 1H, J = 14.3 Hz), 6.55–6.61 (m, 2H), 6.68–6.73 (m, 2H), 6.92–7.01 (m, 3H), 7.25–7.31 (m, 1H), 7.37 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$): δ 22.5, 26.3, 28.1, 47.1, 49.9, 55.4, 75.4, 108.9, 111.3, 116.6, 123.0, 123.2, 123.6, 124.5, 126.9, 127.2, 129.3, 130.6, 143.1, 144.8, 145.4, 175.5; HRMS (ESI): *m/z* calcd. for $C_{22}H_{24}N_5O_2$, 390.1924, found 390.1918 $[M+H]^+$.



2-((1-((5-Fluoro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)isoindoline-1,3-dione (4e). White solid; yield 90%; purity: 95.0%, t_R = 9.74 min.; mp: 226–227 °C; IR (KBr): 3421, 1719, 1621, 1488, 1402, 1347, 1193, 1116, 825 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.12 (s, 3H), 4.64 (d, 1H, J= 14.0 Hz), 4.72 (d, 1H, J = 14.0 Hz), 4.94 (s, 2H), 6.49 (dd, 1H, J = 2.4, 7.5 Hz), 6.65–6.69 (m, 1H), 6.75 (brs, 1H), 6.88 (dt, 1H, J = 2.6, 8.9 Hz), 7.75–7.87 (m, 5H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.8, 32.5, 54.5, 74.6, 108.5, 108.6, 112.1, 112.4, 115.5, 115.8, 122.8, 124.0, 129.0, 131.4, 133.7, 138.6, 141.9, 157.0, 160.1, 166.9, 166.9, 174.9; HRMS (ESI): *m/z* calcd. for $C_{21}H_{17}FN_5O_4$, 422.1259, found 422.1260 $[M+H]^+$.

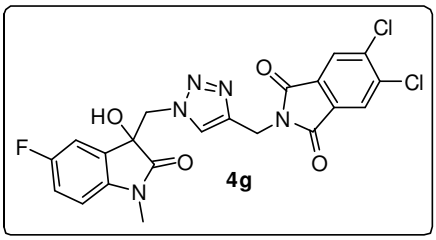


2-((1-((5-Fluoro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-5-meth-ylisoindoline-1,3-dione (4f). White solid; yield 92%; purity: 99.5%, t_R =

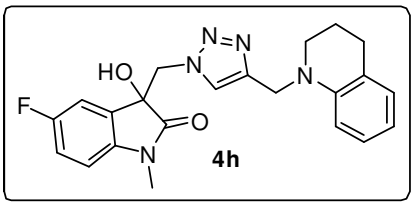


10.92 min.; mp: 195–197 °C; IR (KBr): 3357, 1729, 1710, 1619, 1468, 1392, 1192, 1102, 760 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 2.53 (s, 3H), 3.12 (s, 3H), 4.64 (d, 1H, J = 13.8 Hz), 4.72 (d, 1H, J = 14.0 Hz), 4.92 (s, 2H), 6.50 (dd, 1H, J = 2.6, 7.5 Hz), 6.64–6.68 (m, 2H), 6.88 (dt, 1H, J = 2.6, 9.1 Hz), 7.54 (d, 1H, J = 7.7 Hz), 7.65 (s, 1H), 7.73 (d, 1H, J = 7.7 Hz), 7.80 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 20.9, 25.2, 31.9, 53.9, 74.0, 108.0, 108.1, 111.4, 111.8, 114.9, 115.2, 122.1, 122.7, 123.4, 128.3, 128.5, 128.6, 131.3, 133.7, 138.2, 141.4, 144.4, 156.2, 159.4, 166.3, 166.4, 174.3; HRMS (ESI): *m/z* calcd. for $C_{22}H_{19}FN_5O_4$, 436.1416, found 436.1415 $[M+H]^+$.

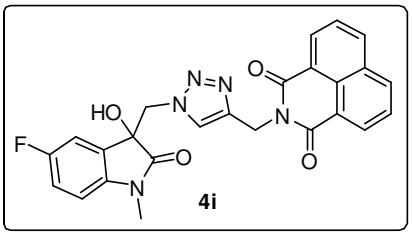
5,6-Dichloro-2-((1-((5-fluoro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl) isoindoline-1,3-dione (4g). White solid; yield 92%; purity: 99.5%, t_R = 12.85 min.; mp: 239–240 °C; IR (KBr): 3370, 1728, 1711, 1619, 1489, 1386, 1190, 1102, 744 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6): δ 3.04 (s, 3H), 4.65 (d, 1H, J = 13.8 Hz), 4.71 (d, 1H, J = 13.8 Hz), 4.80 (s, 2H), 6.59 (dd, 1H, J = 2.6, 8.1 Hz), 6.79 (brs, 1H), 6.85–6.89 (m, 1H), 6.98–7.04 (m, 1H), 7.87 (s, 1H), 8.15–8.28 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 25.4, 32.5, 54.0, 74.0, 108.2, 108.3, 111.6, 111.9, 115.0, 115.3, 123.8, 124.5, 128.5, 128.7, 130.3, 137.7, 138.3, 140.8, 156.4, 159.6, 164.5, 174.4; HRMS (ESI): *m/z* calcd. for $C_{21}H_{15}Cl_2FN_5O_4$, 490.0480, found 490.0489 $[M+H]^+$.



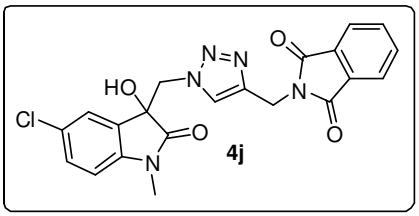
3-((4-((3,4-Dihydroquinolin-1(2*H*)-yl)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-5-fluoro-3-hydroxy-1-methylindolin-2-one (4h). White solid; yield 95%; purity: 98.3%, t_R = 12.59 min.; mp: 184–186 °C; IR (KBr): 3426, 1712, 1603, 1496, 1348, 1270, 1124, 748 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$): δ 1.92–2.00 (m, 2H), 2.75 (t, 2H, J = 6.0 Hz), 3.01 (s, 3H), 3.33 (dt, 2H, J = 1.5, 5.3 Hz), 4.15 (brs, 1H), 4.54 (s, 2H), 4.62 (d, 1H, J = 14.3 Hz), 4.70 (d, 1H, J = 14.3 Hz), 6.52–6.64 (m, 4H), 6.93–7.01 (m, 3H), 7.37 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 22.2, 26.1, 27.9, 46.9, 49.6, 55.0, 75.1, 108.9, 109.0, 111.1, 112.4, 112.8, 116.0, 116.2, 116.3, 122.8, 122.9, 127.0, 129.0, 129.2 139.0, 144.6, 145.1, 157.5, 160.7, 175.4; HRMS (ESI): *m/z* calcd. for $C_{22}H_{23}FN_5O_2$, 408.1830, found 408.1823 $[M+H]^+$.



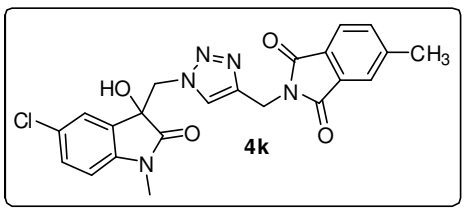
2-((1-((5-Fluoro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-1*H*-benzo[*de*]iso- quinoline-1,3(2*H*)-dione (4i). White solid; yield 87%; purity: 97.8%, t_R = 11.45 min.; mp: 285–287 ^oC; IR (KBr): 3309, 1728, 1696, 1653, 1495, 1473, 1384, 1236, 1107, 788 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6): δ 3.0 (s, 3H), 4.55 (d, 1H, J = 13.6 Hz), 4.63 (d, 1H, J = 13.9 Hz), 5.33 (s, 2H), 6.46 (d, 1H, J = 7.7 Hz), 6.53–6.56 (m, 1H), 6.69 (t, 2H, J = 8.4 Hz), 7.73–7.79 (m, 3H), 8.27 (d, 2H, J= 8.1 Hz), 8.51 (d, 2H, J = 7.0 Hz); ^{13}C NMR (125 MHz, DMSO-d_6): δ 24.3, 33.3, 52.5, 73.0, 107.4, 107.5, 110.4, 110.6, 113.8, 114.0, 120.2, 122.8, 125.4, 125.8, 127.9, 128.0, 129.2, 129.7, 132.8, 137.6, 141.0, 155.6, 157.5, 161.3, 173.2; HRMS (ESI): *m/z* calcd. for $C_{25}H_{19}FN_5O_4$, 472.1415, found 472.1399 $[M+H]^+$.



2-((1-((5-Chloro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)isoindoline-1,3-dione (4j). White solid; yield 89%; purity: 99.2%, t_R = 10.61 min.; mp: 247–248 ^oC; IR (KBr): 3202, 1772, 1713, 1617, 1403, 1384, 1230, 1103, 949, 816 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.04 (s, 3H), 4.57 (d, 1H, J= 13.9 Hz), 4.64 (d, 1H, J = 13.9 Hz), 4.87 (s, 2H), 6.55–6.64 (m, 2H), 7.06 (dd, 1H, J = 2.2, 8.4 Hz), 7.67–7.80 (m, 5H); ^{13}C NMR (125 MHz, $CDCl_3$ + DMSO-d_6): δ 24.8, 31.5, 53.3, 73.4, 108.2, 121.8, 123.1, 123.3, 125.9, 128.2, 128.4, 130.4, 132.9, 140.5, 140.8, 165.8, 173.5; HRMS (ESI): *m/z* calcd. for $C_{21}H_{17}ClN_5O_4$, 438.0964, found 438.0954 $[M+H]^+$.

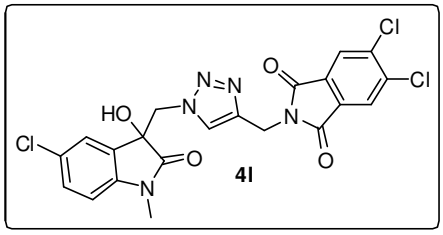


2-((1-((5-Chloro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-5-meth-ylisoindoline-1,3-dione (4k). White solid; yield 87%; purity: 97.1%, t_R = 11.71 min.; mp: 196–198 ^oC; IR (KBr): 3310, 1722, 1711, 1608, 1392, 1333, 1102, 1057, 765 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 2.52 (s, 3H), 3.11 (s, 3H), 4.66 (d, 1H, J = 14.0 Hz), 4.71 (d, 1H, J = 13.8 Hz), 4.93 (s, 2H), 6.61 (brs, 1H), 6.64 (d, 1H, J = 8.3 Hz), 6.74 (d, 1H, J = 2.1 Hz), 7.13 (dd, 1H, J = 2.3, 8.3 Hz), 7.53 (d, 1H, J = 7.5 Hz), 7.65 (s, 1H), 7.73 (d, 1H, J = 7.7 Hz), 7.76 (s, 1H); ^{13}C NMR (125 MHz, $CDCl_3$ + DMSO-d_6): δ 20.3, 24.7, 31.3, 53.1, 73.3, 108.2, 121.7, 122.2, 123.0,

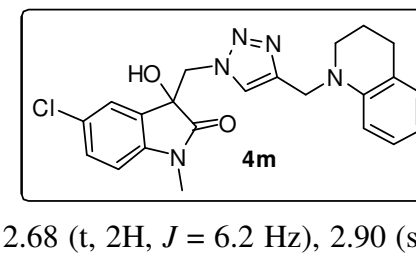


123.2, 125.8, 127.8, 128.1, 128.3, 130.7, 133.3, 140.5, 140.8, 143.9, 165.7, 165.8, 173.5; HRMS (ESI): *m/z* calcd. for $C_{22}H_{19}ClN_5O_4$, 452.1120, found 452.1125 $[M+H]^+$.

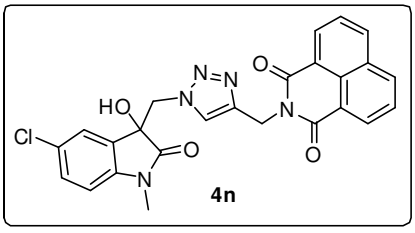
5,6-Dichloro-2-((1-((5-chloro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methy-l)isoindoline-1,3-dione (4l). White solid; yield 88%; purity: >99.5%, t_R = 13.46 min.; mp: 257–259 °C; IR (KBr): 3328, 1731, 1710, 1606, 1384, 1188, 1101, 743 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6): δ 3.10 (s, 3H), 4.64 (d, 1H, *J* = 13.8 Hz), 4.72 (d, 1H, *J* = 14.0 Hz), 4.88 (s, 2H), 6.69 (d, 1H, *J* = 2.1 Hz), 6.77 (d, 1H, *J* = 8.3 Hz), 6.82 (brs, 1H), 7.17 (dd, 1H, *J*= 2.1, 8.3 Hz), 7.86 (s, 1H), 7.91 (s, 1H), 8.01 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 24.6, 31.7, 53.0, 73.2, 108.2, 123.1, 123.8, 125.5, 125.5, 128.0, 128.3, 129.8, 136.6, 140.1, 140.5, 163.3, 173.4; HRMS (ESI): *m/z* calcd. for $C_{21}H_{15}Cl_3N_5O_4$, 506.0184, found 506.0194 $[M+H]^+$.



5-Chloro-3-((4-((3,4-dihydroquinolin-1(2*H*)-yl)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (4m). White solid; yield 94%; purity: >99.5%, t_R = 13.45 min.; mp: 230–232 °C; IR (KBr): 3250, 1724, 1608, 1488, 1345, 1098, 746 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 1.86–1.93 (m, 2H), 2.68 (t, 2H, *J* = 6.2 Hz), 2.90 (s, 3H), 3.26 (t, 2H, *J* = 5.5 Hz), 4.44 (s, 2H), 4.62 (s, 2H), 6.47–6.53 (m, 3H), 6.58 (brs, 1H), 6.73 (d, 1H, *J* = 1.5 Hz), 6.86–6.94 (m, 2H), 7.12 (dd, 1H, *J* = 1.5, 8.1 Hz), 7.38 (s, 1H) ; ^{13}C NMR (125 MHz, DMSO-d_6): δ 20.3, 24.3, 26.0, 44.3, 47.3, 52.5, 73.1, 108.1, 109.3, 114.2, 120.6, 121.7, 122.9, 125.1, 125.2, 127.1, 127.8, 128.2, 140.4, 142.2, 142.9, 173.2; HRMS (ESI): *m/z* calcd. for $C_{22}H_{23}ClN_5O_2$, 424.1535, found 424.1524 $[M+H]^+$.

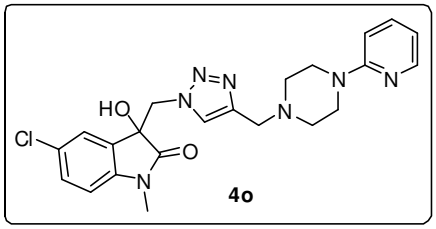


2-((1-((5-Chloro-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-1*H*-benzo[*de*] isoquinoline-1,3(2*H*)-dione (4n). White solid; yield 87%; purity: 95.2%, t_R = 12.11 min.; mp: 289–291 °C; IR (KBr): 3317, 1690, 1664, 1614, 1589, 1386, 1237, 1100, 783 cm^{-1}; ^1H NMR (300 MHz, DMSO-d_6): δ 3.0 (s, 3H), 4.64 (d, 1H, *J* = 14.0 Hz), 4.70 (d, 1H, *J* = 13.8 Hz), 5.40–5.46 (m, 2H), 6.58 (d, 1H, *J* = 8.5 Hz), 6.74 (d, 1H, *J* = 2.1 Hz), 6.79 (brs, 1H), 6.95 (dd, 1H, *J* = 1.7, 8.3 Hz), 7.74–7.85 (m, 3H), 8.33 (d, 2H, *J* = 8.3 Hz), 8.58 (d, 2H, *J* = 7.4 Hz); ^{13}C NMR (125 MHz, DMSO-d_6): δ 26.0, 35.0, 53.9, 74.6, 109.9, 121.9, 124.4, 124.4, 126.2, 127.3,

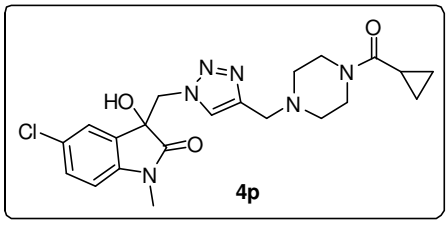


127.4, 129.3, 129.9, 131.0, 131.3, 134.6, 142.1, 142.7, 163.1, 174.7; HRMS (ESI): *m/z* calcd. for $C_{25}H_{19}ClN_5O_4$, 488.1120, found 488.1107 $[M+H]^+$.

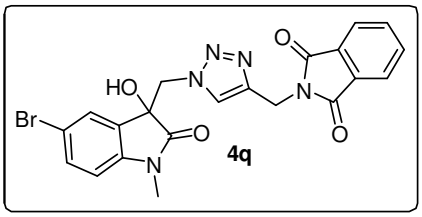
5-Chloro-3-hydroxy-1-methyl-3-((4-((4-(pyridin-2-yl)piperazin-1-yl)methyl)-1*H*-1,2,3-triazol-1-yl)me-thyl)indolin-2-one (4o). Off white solid; yield 95%; purity: >99.5%, t_R = 10.32 min.; mp: 171–173 °C; IR (KBr): 3334, 1725, 1593, 1478, 1433, 1246, 1129, 1099, 780 cm^{-1}; ^1H NMR (400 MHz, $CDCl_3$): δ 2.53 (t, 4H, J = 5.1 Hz), 3.12 (s, 3H), 3.43 (t, 4H, J = 4.2 Hz), 3.72 (s, 2H), 4.69 (d, 1H, J = 13.5 Hz), 4.76 (d, 1H, J = 14.4 Hz), 6.58–6.72 (m, 4H), 7.24 (dd, 1H, J = 1.7, 8.5 Hz), 7.46 (dt, 1H, J = 2.5, 9.3 Hz), 7.80 (s, 1H), 8.14 (dd, 1H, J = 1.7, 5.1 Hz); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 24.6, 43.1, 50.3, 51.0, 52.7, 73.2, 105.3, 108.2, 111.3, 123.1, 123.2, 125.4, 127.9, 128.3, 135.7, 140.5, 141.1, 146.0, 157.5, 173.4; HRMS (ESI): *m/z* calcd. for $C_{22}H_{25}ClN_7O_2$, 454.1753, found 454.1742$[M+H]^+$.



5-Chloro-3-((4-((4-(cyclopropanecarbonyl)pipera-zin-1-yl)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hy-droxy-1-methylindolin-2-one (4p). Off white solid; yield 93%; purity: 94.0%, t_R = 7.23 min.; mp: 221–223 °C; IR (KBr): 3315, 1726, 1612, 1402, 1232, 1120, 991, 808 cm^{-1}; ^1H NMR (400 MHz, $CDCl_3$): δ 0.73–0.78 (m, 2H), 0.93–0.97 (m, 2H), 1.67–1.73 (m, 1H), 2.40 (s, 2H), 2.54 (s, 2H), 3.16 (s, 3H), 3.59 (s, 2H), 3.68 (s, 2H), 3.74 (s, 2H), 4.70 (d, 1H, J = 14.4), 4.75 (d, 1H, J = 13.5 Hz), 6.73 (s, 1H), 6.75 (s, 1H), 7.30 (dd, 1H, J = 1.7, 8.5 Hz), 7.68 (s, 1H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-d_6): δ 5.4, 8.7, 24.5, 43.3, 50.0, 50.6, 52.5, 73.1, 108.1, 123.0, 123.2, 125.3, 127.9, 128.3, 140.5, 140.7, 169.4, 173.3**;** HRMS (ESI): *m/z* calcd. for $C_{21}H_{26}ClN_6O_3$, 445.1725, found 445.1737 $[M+H]^+$.

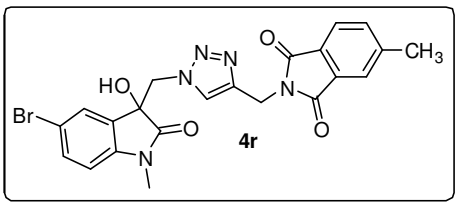


2-((1-((5-Bromo-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)isoindoline-1,3-dione (4q). White solid; yield 87%; purity: 98.6%, t_R = 10.85 min.; mp: 252–254 °C; IR (KBr): 3422, 1772, 1713, 1615, 1403, 1384, 1229, 1100, 813 cm^{-1}; ^1H NMR (300 MHz, $CDCl_3$ + DMSO-d_6): δ 3.03 (s, 3H), 4.57 (d, 1H, J= 13.9 Hz), 4.64 (d, 1H, J = 13.9 Hz), 4.86 (s, 2H), 6.56 (d, 1H, J = 8.1 Hz), 6.76 (s, 1H), 7.21 (d, 1H, J = 8.1 Hz), 7.70–7.79 (m, 5H); ^{13}C NMR (125 MHz, $CDCl_3$ + DMSO-

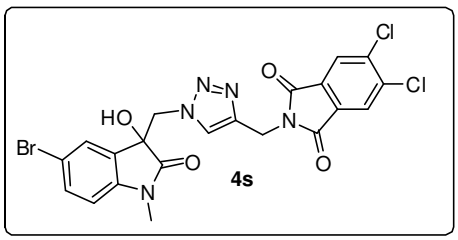


d$_6$): δ 24.8, 31.5, 53.2, 73.4, 108.7, 113.3, 121.8, 123.1, 126.0, 128.7, 130.4, 131.0, 132.9, 140.8, 141.0, 165.8, 173.4; HRMS (ESI): *m/z* calcd. for $C_{21}H_{17}BrN_5O_4$, 482.0458, found 482.0453$[M+H]^+$.

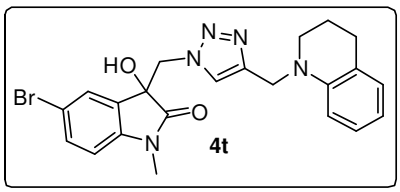
2-((1-((5-Bromo-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-5-meth-ylisoindoline-1,3-dione (4r). White solid; yield 88%; purity: 96.7%, t_R = 11.92 min.; mp: 212–214 °C; IR (KBr): 3387, 1770, 1709, 1611, 1384, 1222, 1115, 953, 807 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$ + DMSO-*d*$_6$): δ 2.53 (s, 3H), 3.10 (s, 3H), 4.65 (d, 1H, *J* = 13.8 Hz), 4.71 (d, 1H, *J* = 13.8 Hz), 4.92 (s, 2H), 6.61 (d, 1H, *J* = 8.3 Hz), 6.72 (brs, 1H), 6.86 (d, 1H, *J* = 1.9 Hz), 7.28 (dd, 1H, *J* = 1.9, 8.3 Hz), 7.54 (d, 1H, *J* = 7.5 Hz), 7.66 (s, 1H), 7.72–7.75 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-*d*$_6$): δ 21.0, 25.3, 31.9, 53.9, 73.9, 109.1, 114.1, 122.2, 122.9, 123.4, 126.6, 128.4, 129.1, 131.3, 131.6, 133.8, 141.4, 141.5, 144.5, 166.4, 166.5, 174.0; HRMS (ESI) *m/z* calcd. for $C_{22}H_{19}BrN_5O_4$, 496.0615, found 496.0623 $[M+H]^+$.



2-((1-((5-Bromo-3-hydroxy-1-methyl-2-oxoindolin-3-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-5,6-dic-hloroisoindoline-1,3-dione (4s). White solid; yield 88%; purity: 98.0%, t_R = 13.61 min.; mp: 251–253 °C; IR (KBr): 3366, 1729, 1710, 1612, 1485, 1392, 1192, 1102, 817 cm^{-1}; ^{1}H NMR (300 MHz, DMSO-*d*$_6$): δ 3.04 (s, 3H), 4.66 (d, 1H, *J* = 13.8 Hz), 4.73 (d, 1H, *J* = 13.8 Hz), 4.83 (s, 2H), 6.78–6.87 (m, 3H), 7.32 (dd, 1H, *J* = 2.1, 8.3 Hz), 7.85 (s, 1H), 8.11–8.18 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-*d*$_6$): δ 25.5, 32.5, 54.0, 74.0, 109.2, 114.3, 123.8, 124.6, 126.7, 129.1, 130.4, 131.8, 137.8, 140.9, 141.5, 164.5, 174.1; HRMS (ESI): *m/z* calcd. for $C_{21}H_{15}BrCl_2N_5O_4$, 549.9684, found 549.9665 $[M+H]^+$.

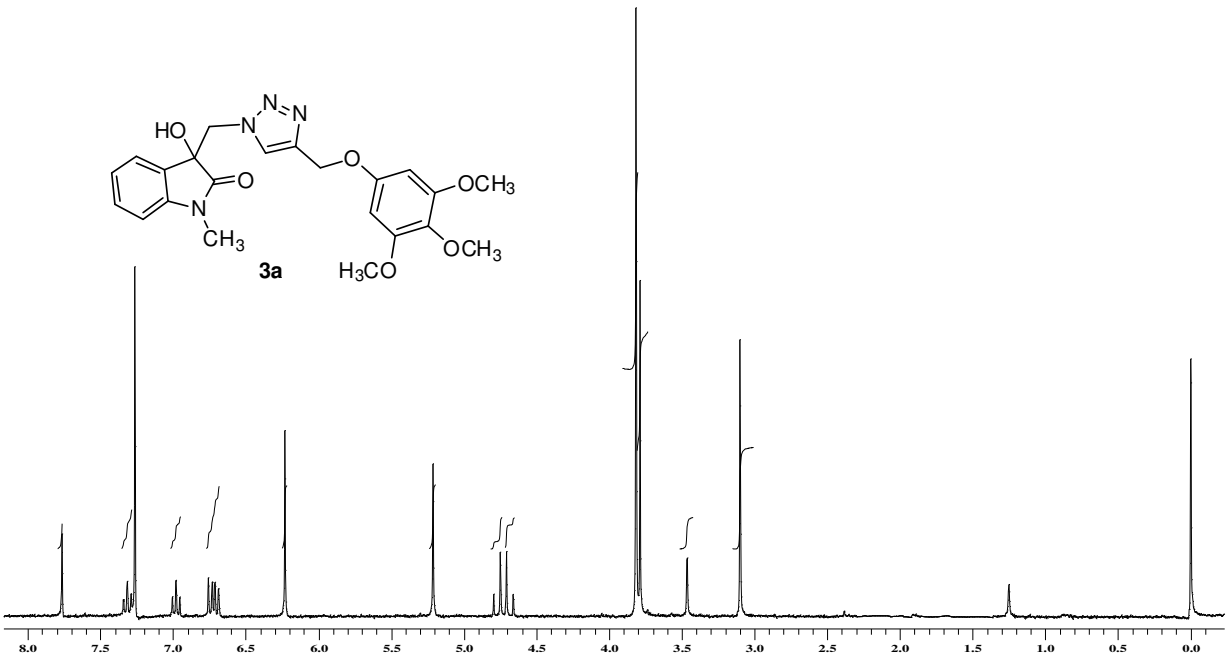


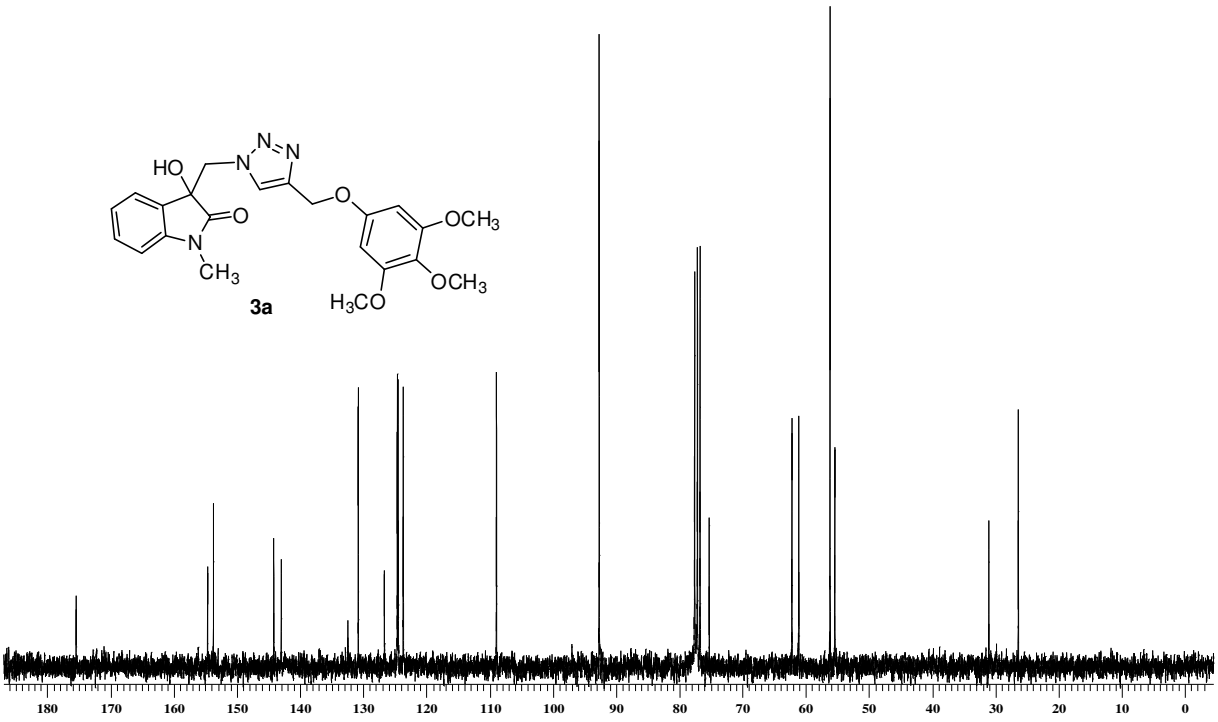
5-Bromo-3-((4-((3,4-dihydroquinolin-1(2*H*)-yl)methyl)-1*H*-1,2,3-triazol-1-yl)methyl)-3-hydroxy-1-methylindolin-2-one (4t). White solid; yield 91%; purity: 95.0%, t_R = 13.68 min.; mp: 232–234 °C; IR (KBr): 3428, 1723, 1605, 1484, 1346, 1220, 1096, 811 cm^{-1}; ^{1}H NMR (300 MHz, $CDCl_3$ + DMSO-*d*$_6$): δ 1.86–1.94 (m, 2H), 2.69 (t, 2H, *J* = 6.2 Hz), 2.90 (s, 3H), 3.26 (t, 2H, *J* = 5.5 Hz), 4.44 (s, 2H), 4.62 (s, 2H), 6.41–6.54 (m, 4H), 6.86–6.95 (m, 3H), 7.26–7.36 (m, 2H); ^{13}C NMR (75 MHz, $CDCl_3$ + DMSO-*d*$_6$): δ

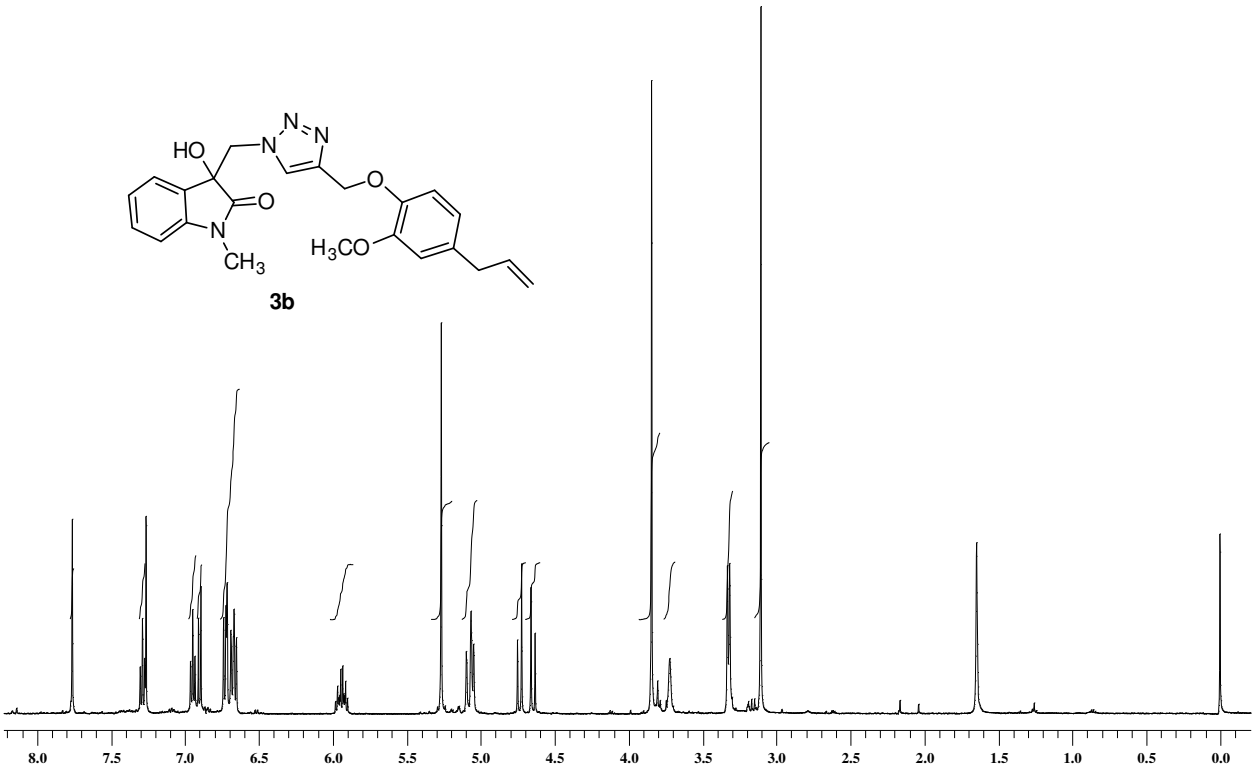


21.2, 25.0, 26.8, 45.6, 48.5, 53.7, 73.9, 109.0, 109.5, 114.0, 115.2, 121.6, 122.0, 126.0, 126.4, 128.0, 129.0, 131.6, 141.3, 143.6, 174.0; HRMS (ESI): *m/z* calcd. for $C_{22}H_{23}BrN_5O_2$, 468.1029, found 468.1015 $[M+H]^+$.

^{1}H AND ^{13}C NMR SPECTRA



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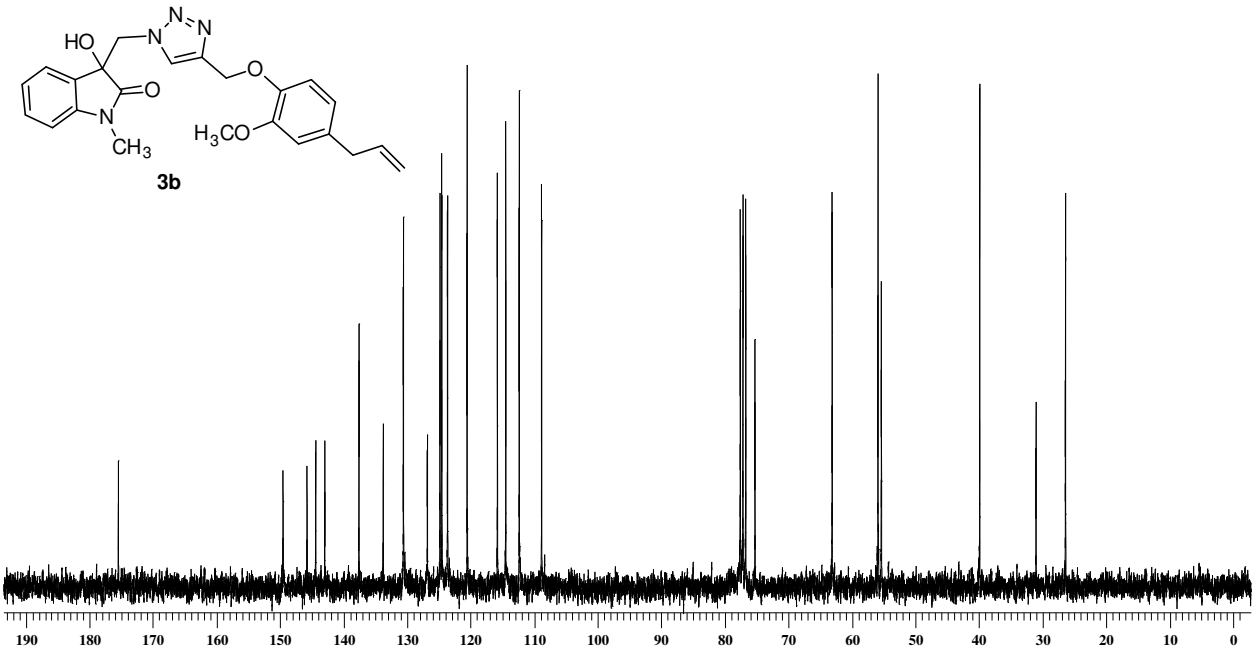
3b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60
50
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20
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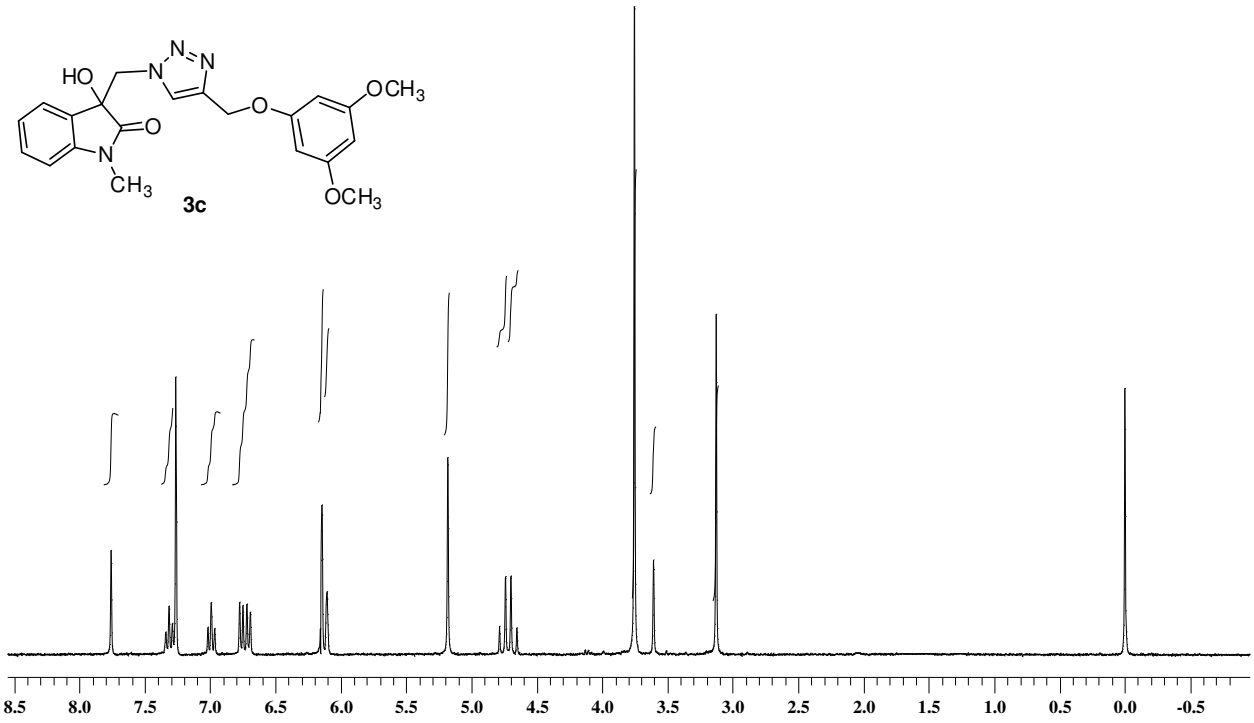
0

3b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OCH3
3c
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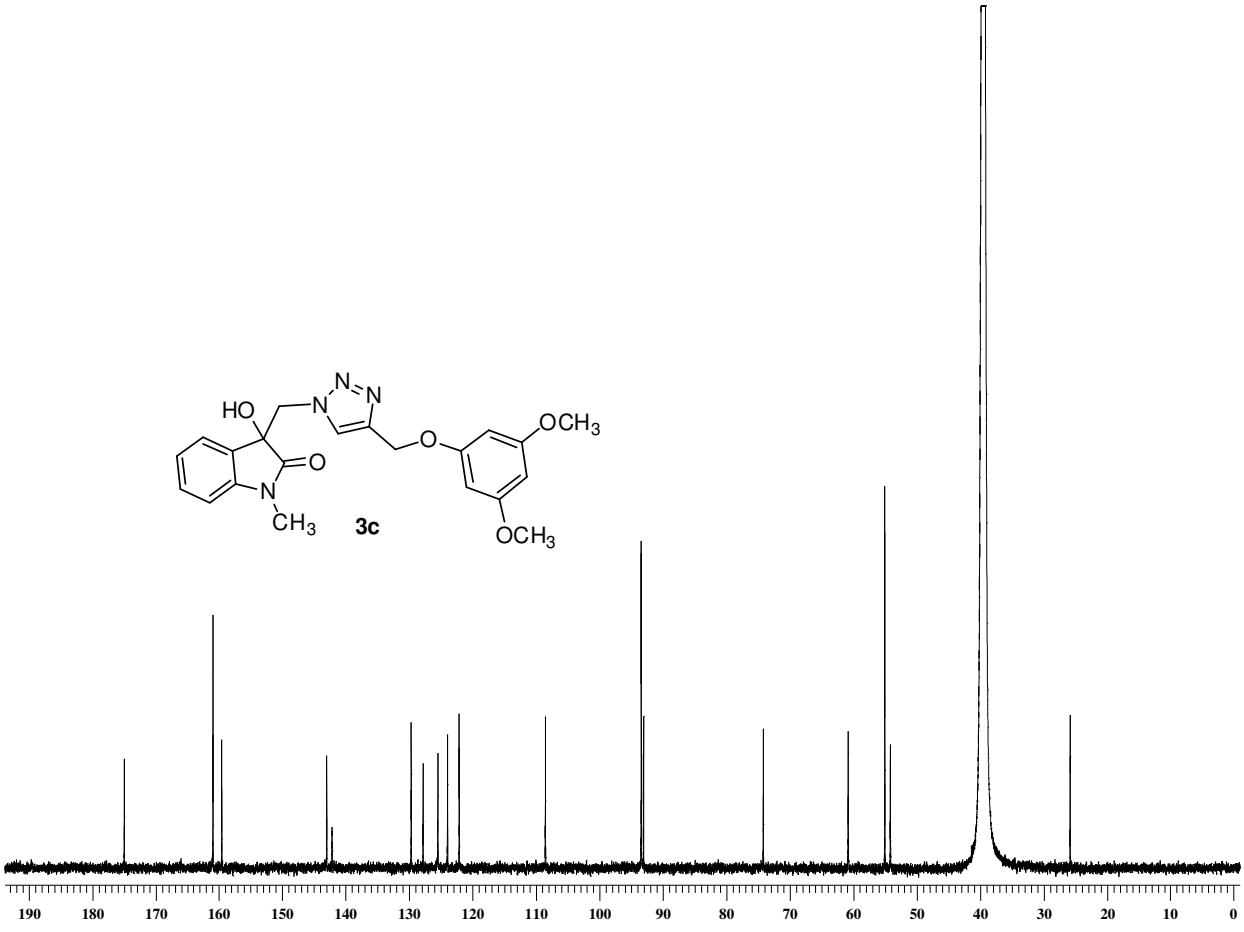
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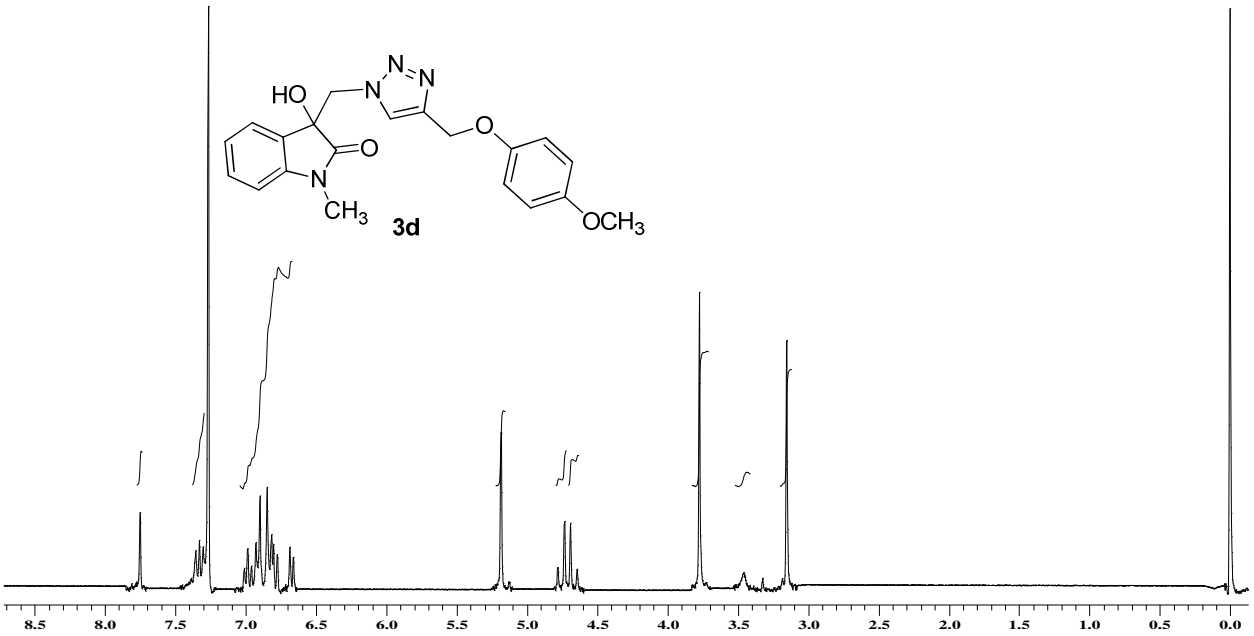
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CH3
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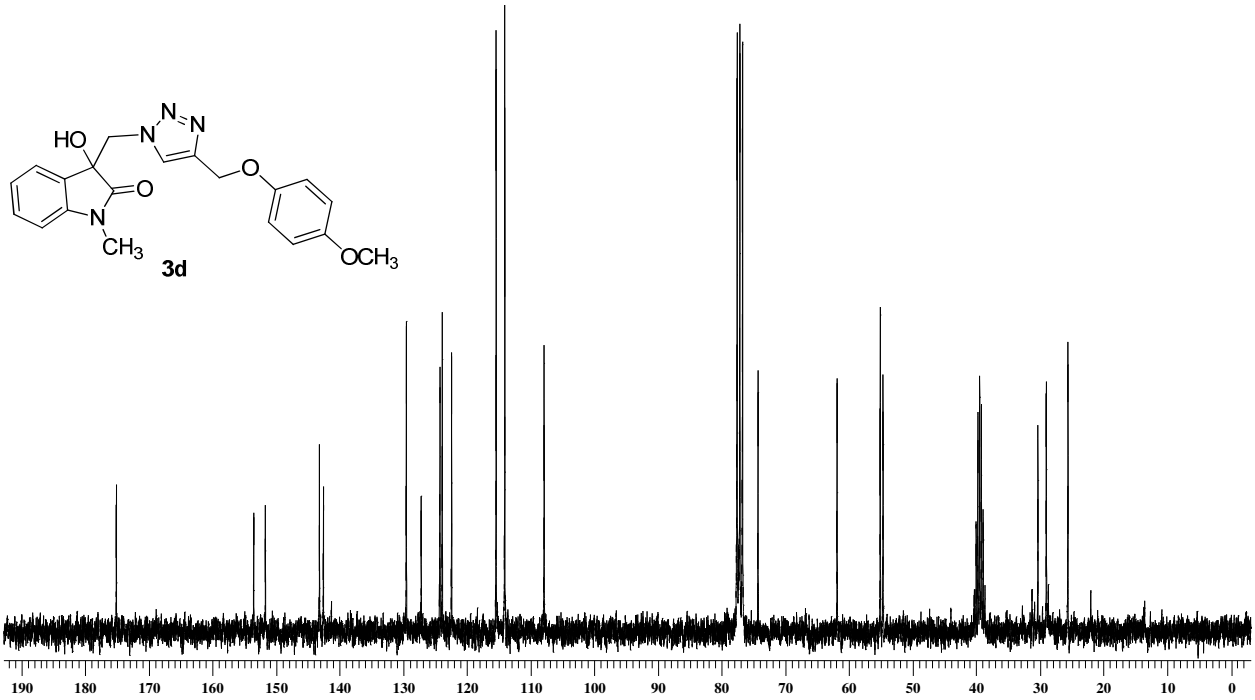
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10
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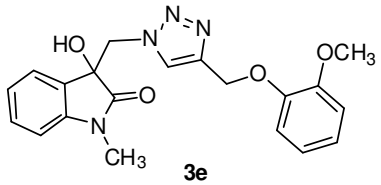
HO
N
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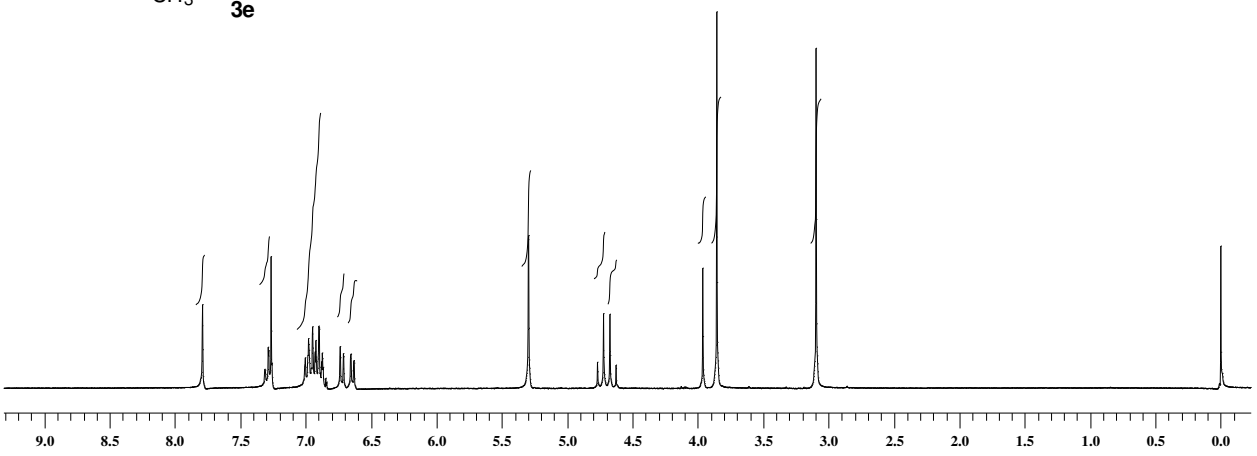
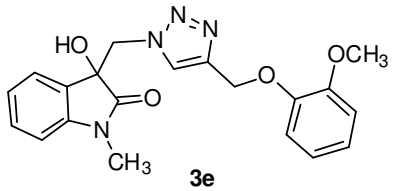
N
O
OCH3
O
N
CH3

3e


9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


HO
N
N
N
O
OCH3
O
N
CH3

3e

190
180
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150
140
130
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100
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70
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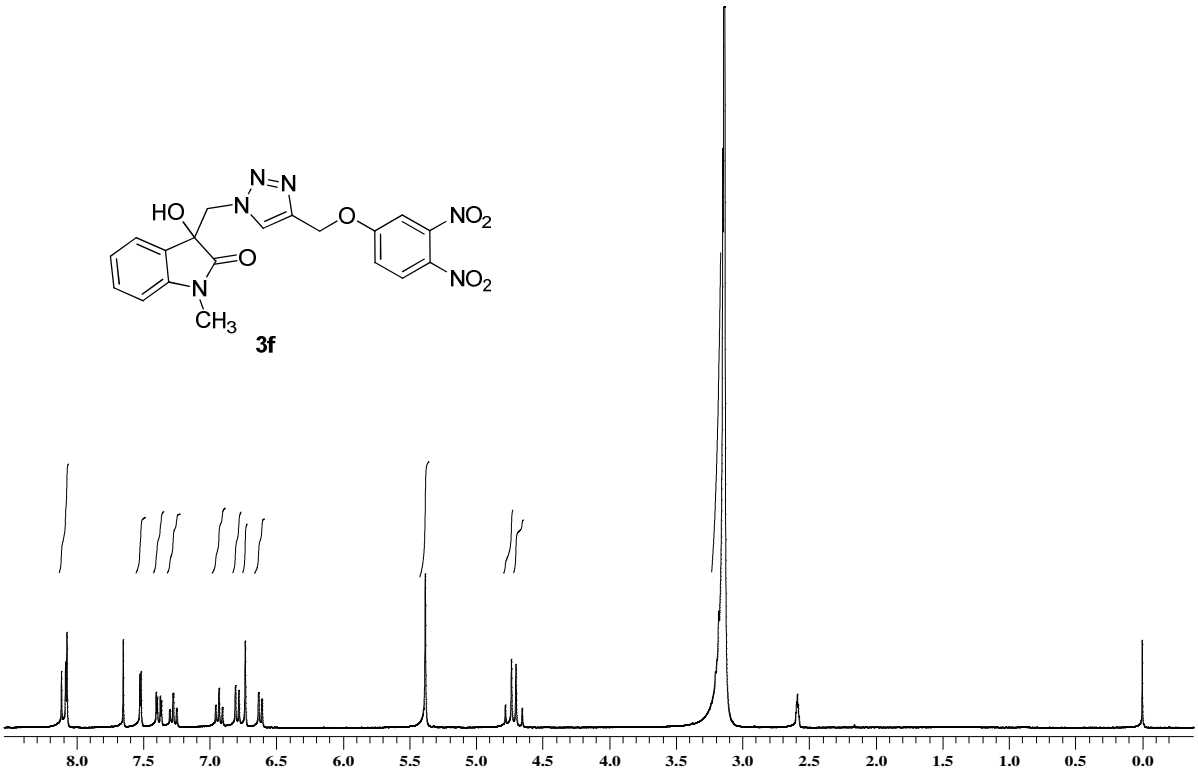
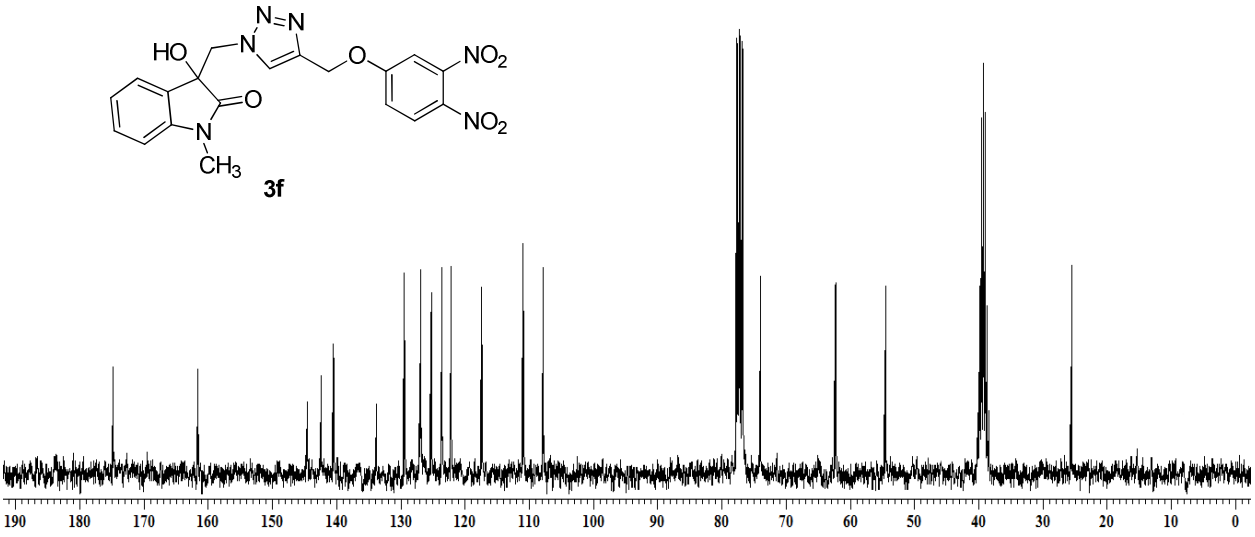
30
20
10
0


HO
N=N
N
O
NO2
NO2
O
N
CH3
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

3f


HO
N=N
N
O
NO2
NO2
O
N
CH3
190
180
170
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140
130
120
110
100
90
80
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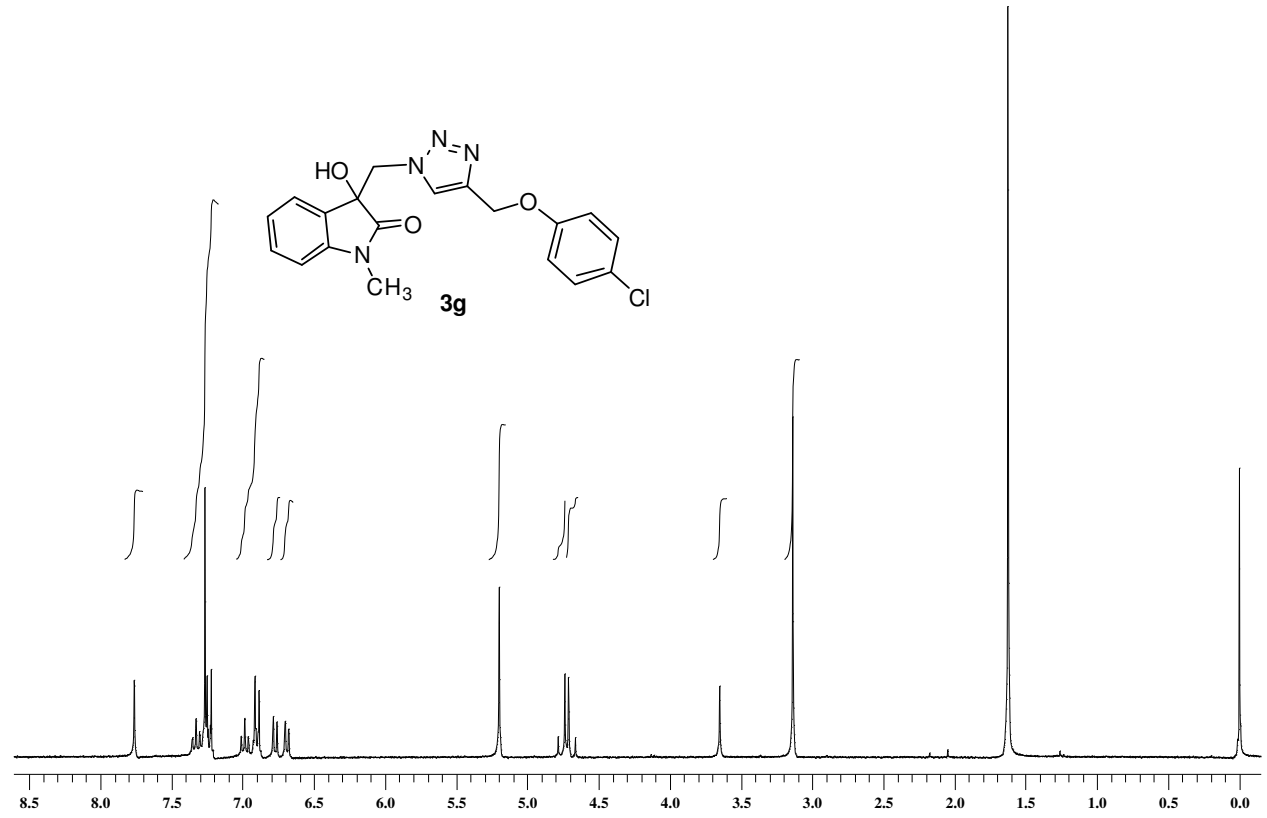
60
50
40
30
20
10
0

3f


HO
N
N
N
O
N
CH3
O
Cl
3g
8.5
8.0
7.5
7.0
6.5
6.0
5.5
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4.5
4.0
3.5
3.0
2.5
2.0
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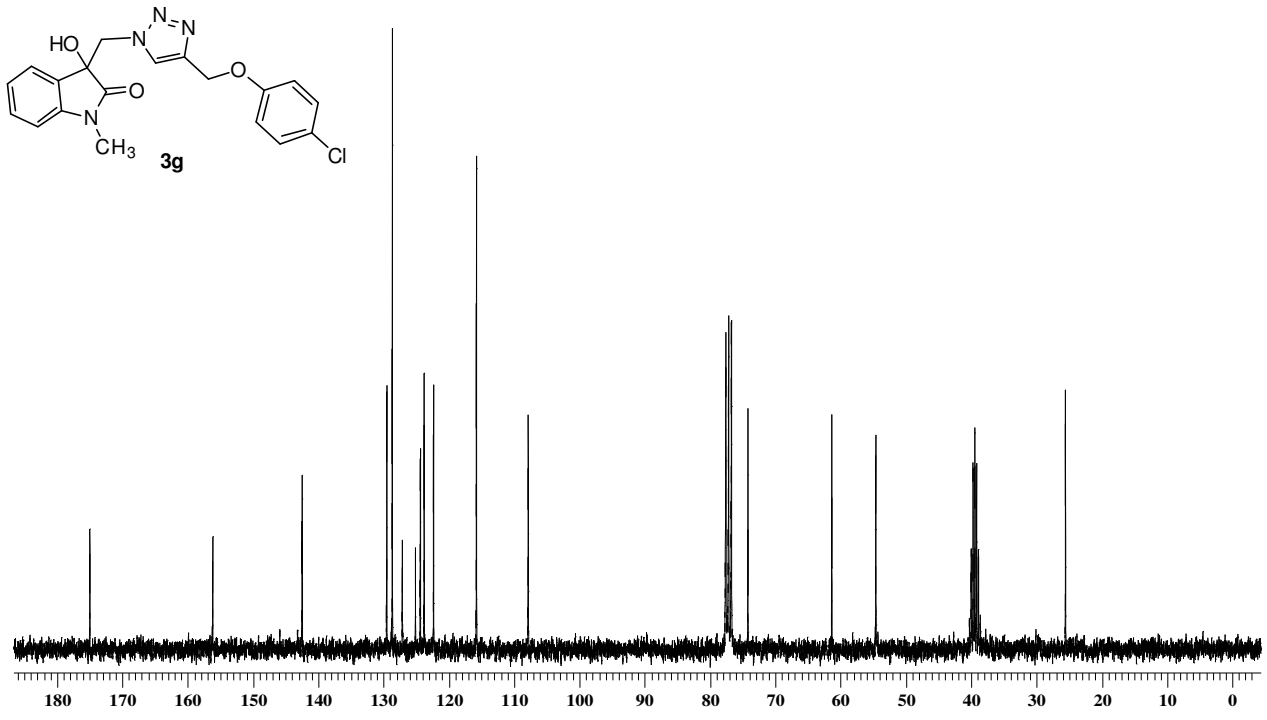
0.0


HO
N
N
N
O
N
CH3
O
Cl
3g
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150
140
130
120
110
100
90
80
70
60
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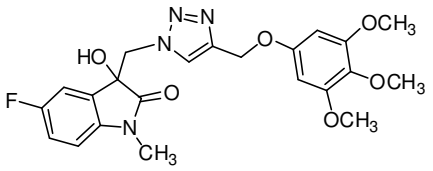
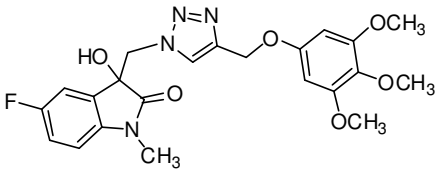
30
20
10
0


N=N
N
HO
O
OCH3
OCH3
OCH3
F
O
N
CH3

3h

8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


N=N
N
HO
O
OCH3
OCH3
OCH3
F
O
N
CH3

3h

180
170
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150
140
130
120
110
100
90
80
70
60
50
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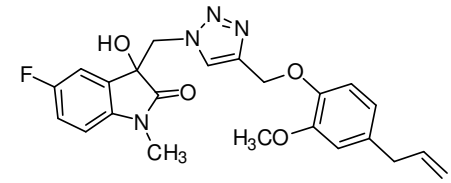
30
20
10
0


HO
N
N
N
F
O
O
N
CH3
H3CO

3i

8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
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3.0
2.5
2.0
1.5
1.0
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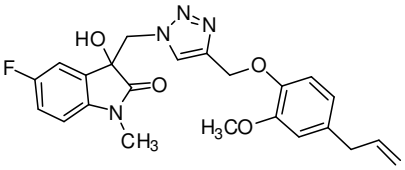
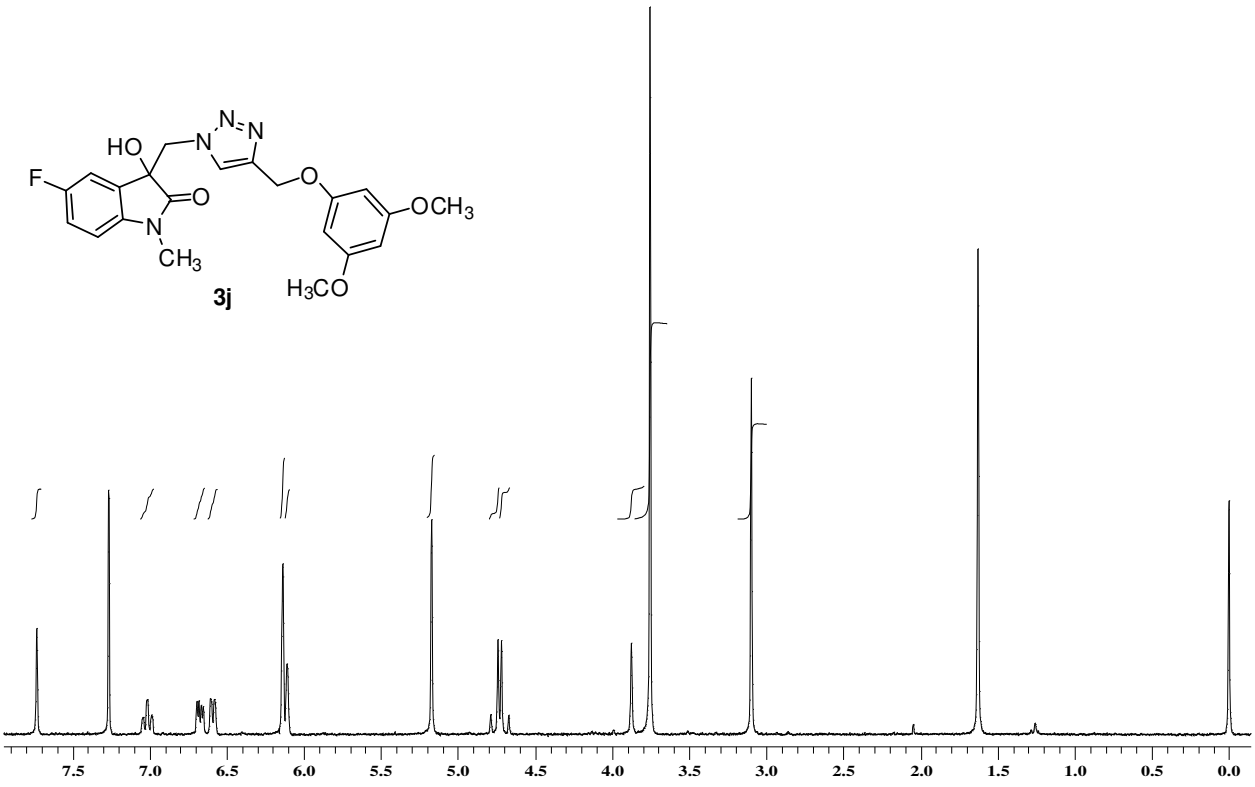
0.0

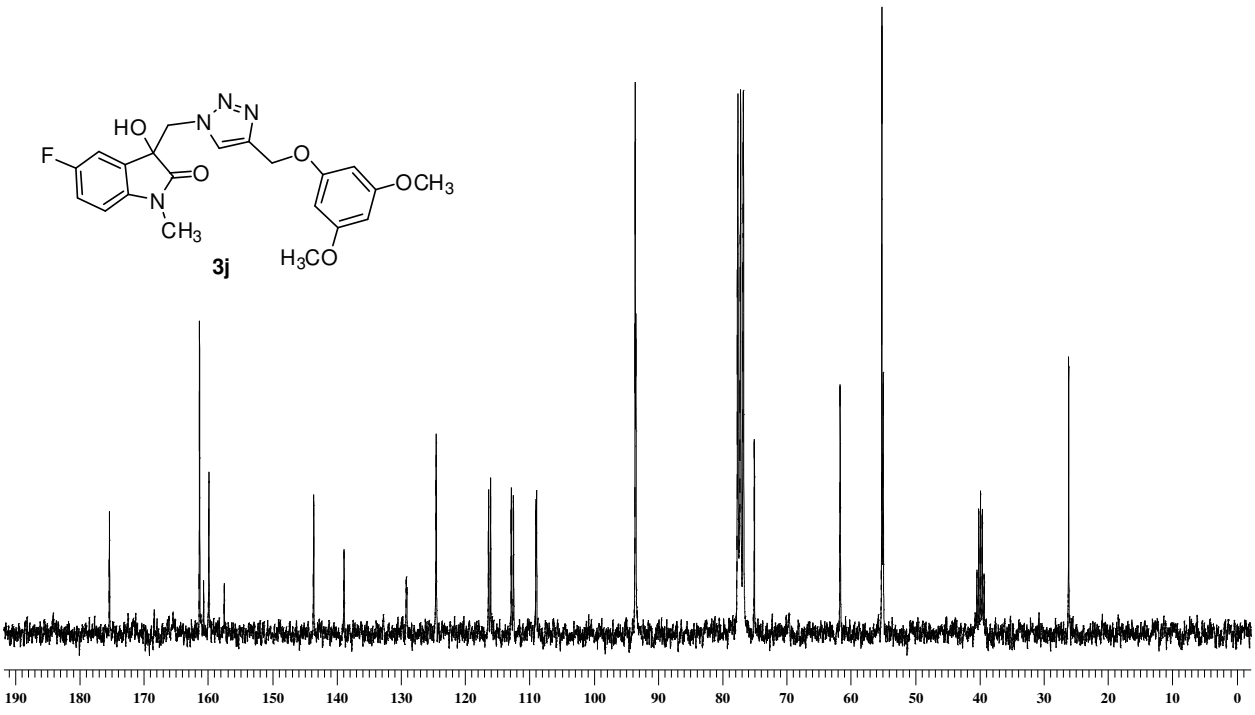

HO
N
N
N
F
O
O
N
CH3
H3CO

3i

190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


HO
F
O
N
CH3
N
N
N
O
OCH3
H3CO
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

3j


HO
F
O
N
CH3
N
N
N
O
OCH3
H3CO
190
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140
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120
110
100
90
80
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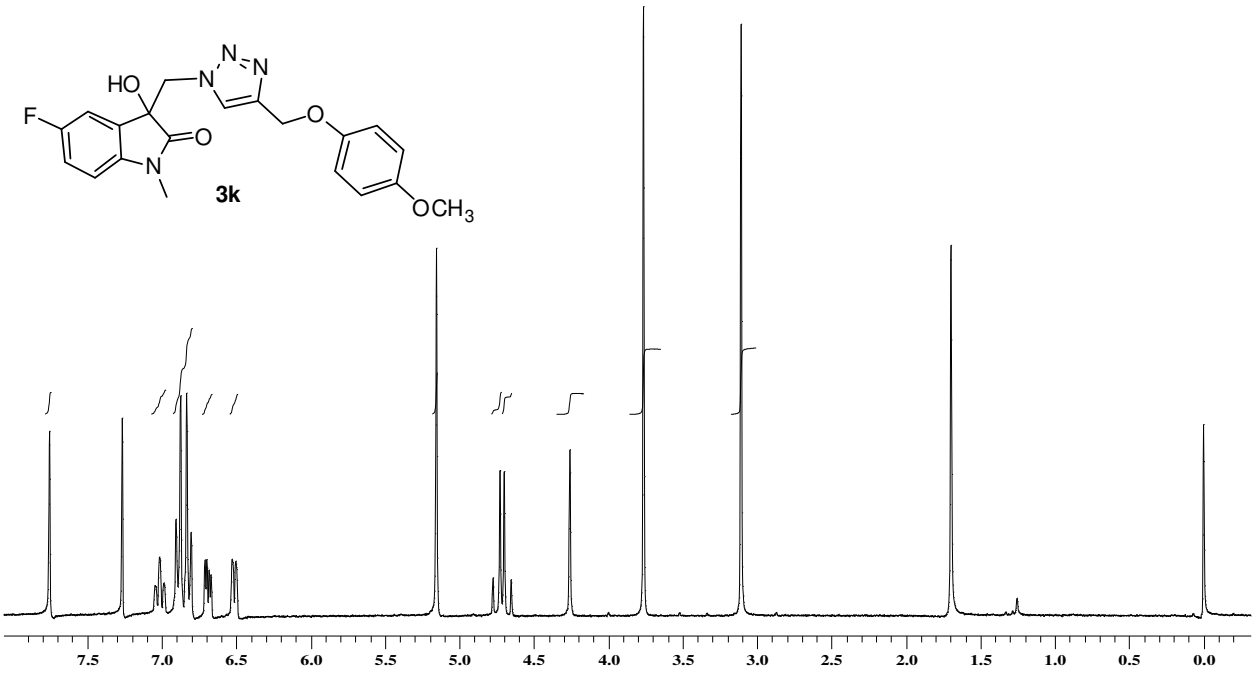
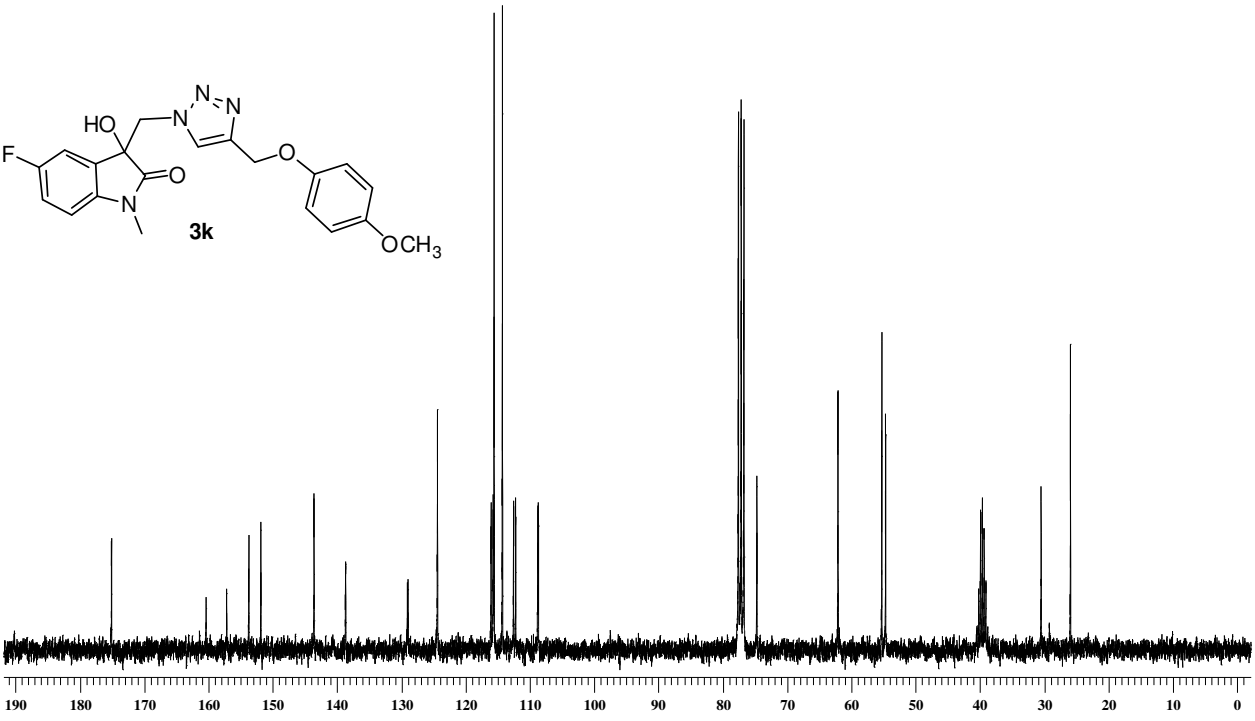
60
50
40
30
20
10
0

3j


HO
F
O
N
N
N
O
N
OCH3
3k
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


HO
F
O
N
N
N
O
N
OCH3
3k
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
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10
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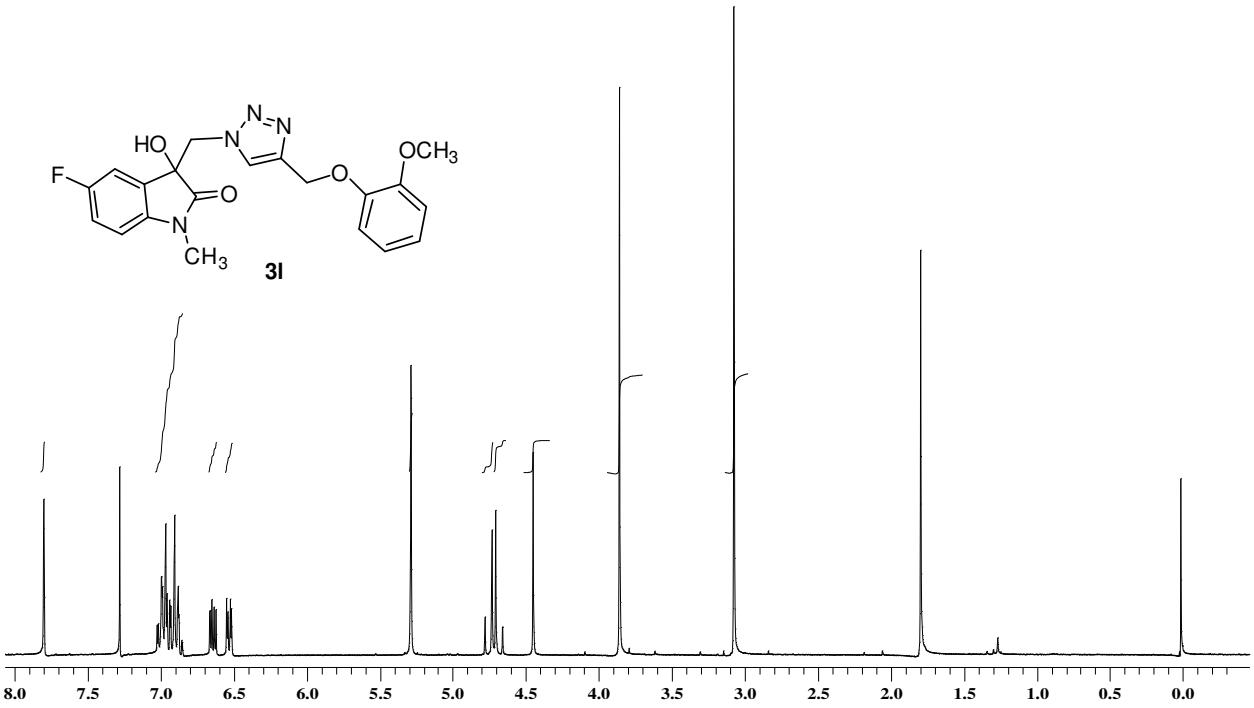
HO
N
N
N
OCH3
F
O
O
N
CH3
3l
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
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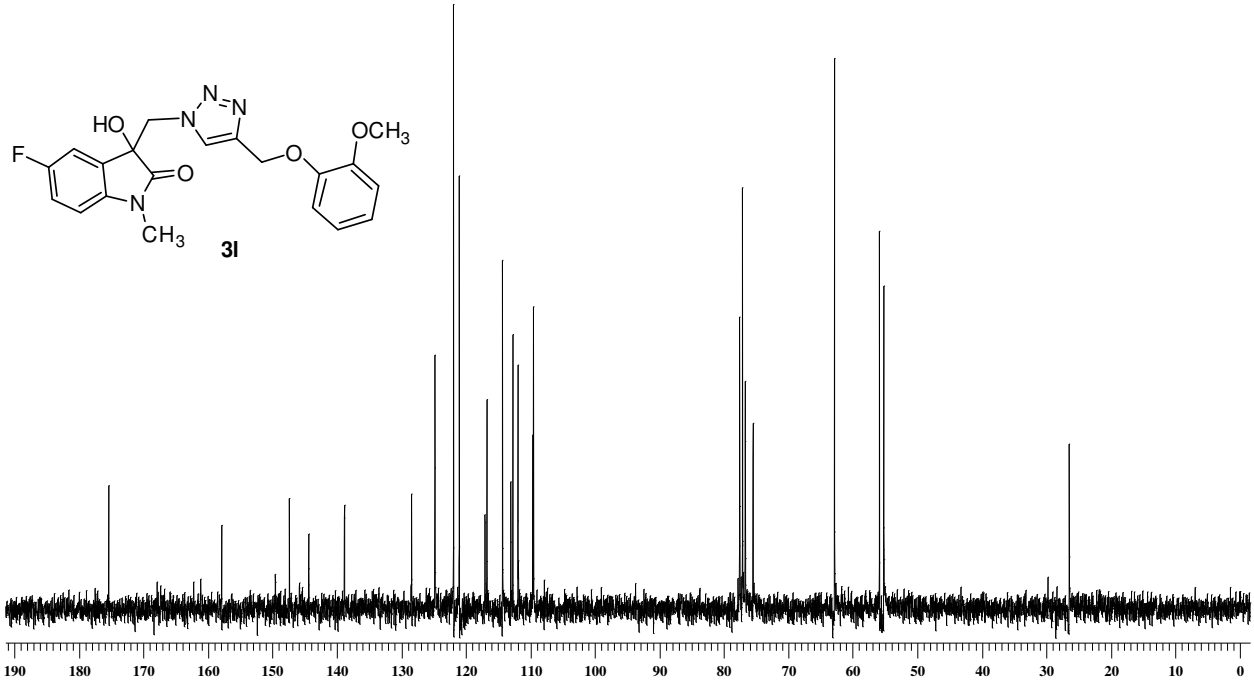
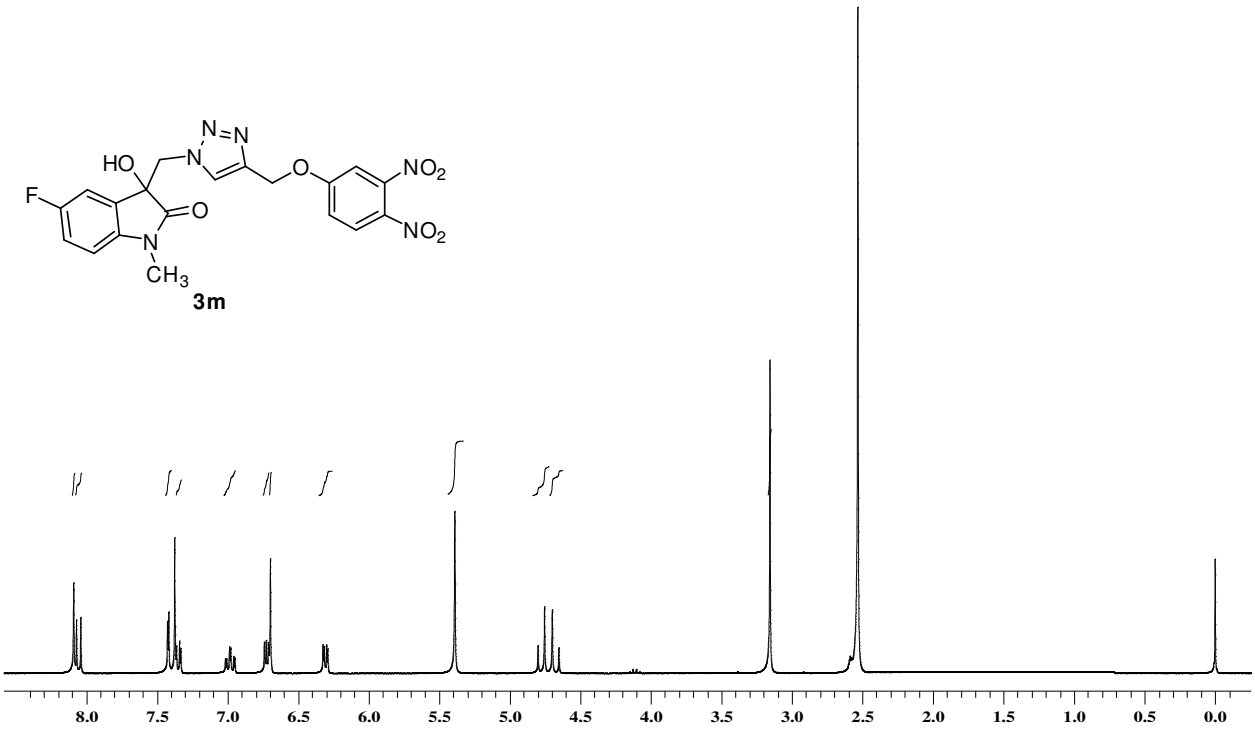
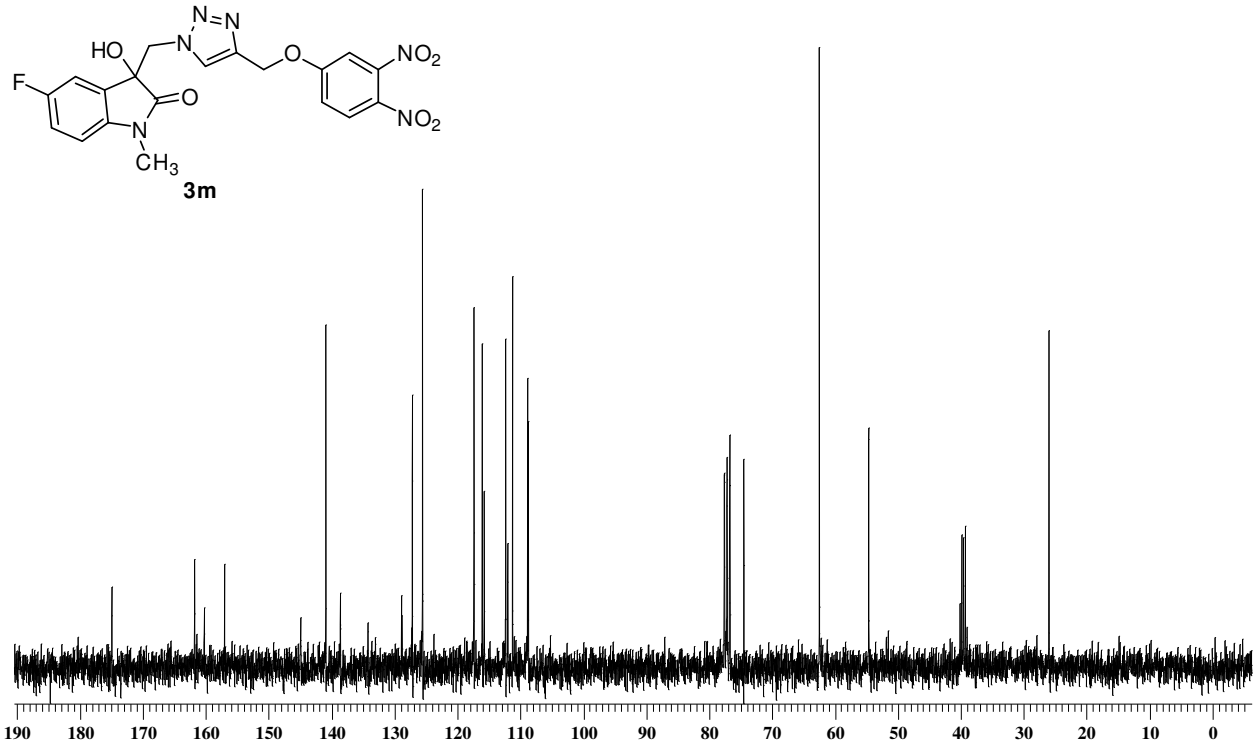
0.0


HO
N
N
N
OCH3
F
O
O
N
CH3
3l
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


HO
F
O
N
CH3
N=N
O
NO2
NO2
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

3m


HO
F
O
N
CH3
N=N
O
NO2
NO2
190
180
170
160
150
140
130
120
110
100
90
80
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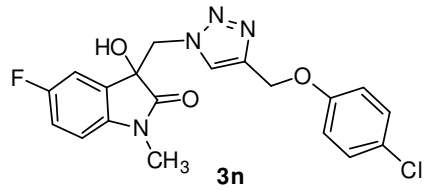
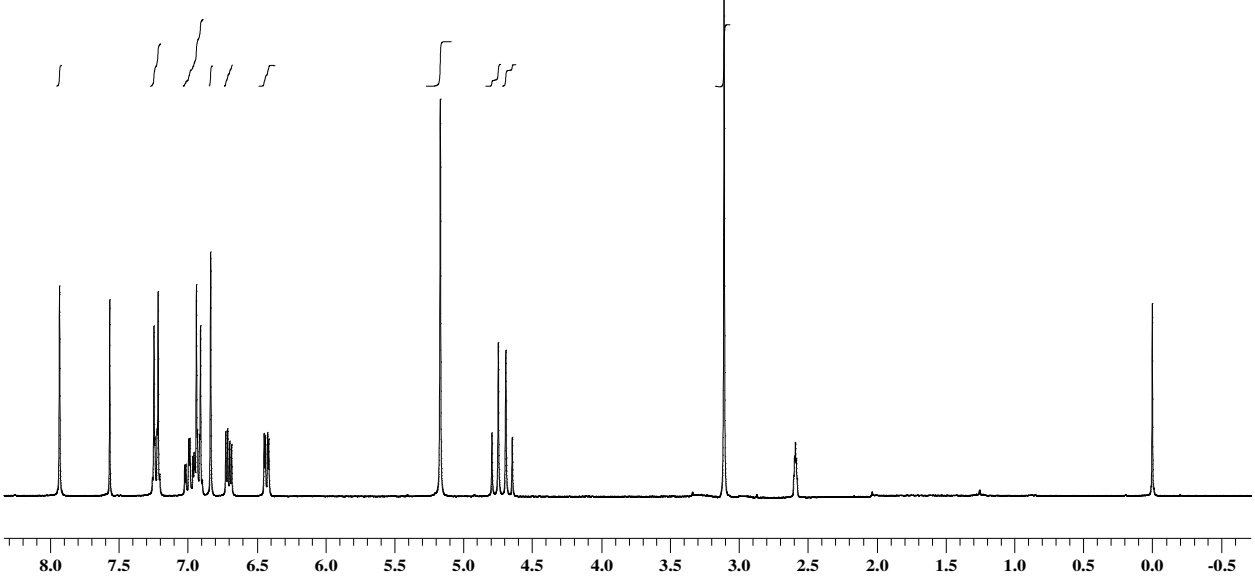
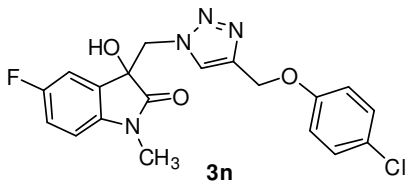
60
50
40
30
20
10
0

3m


HO
N
N
N
F
O
O
N
CH3
Cl

3n


8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5


HO
N
N
N
F
O
O
N
CH3
Cl

3n

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170
160
150
140
130
120
110
100
90
80
70
60
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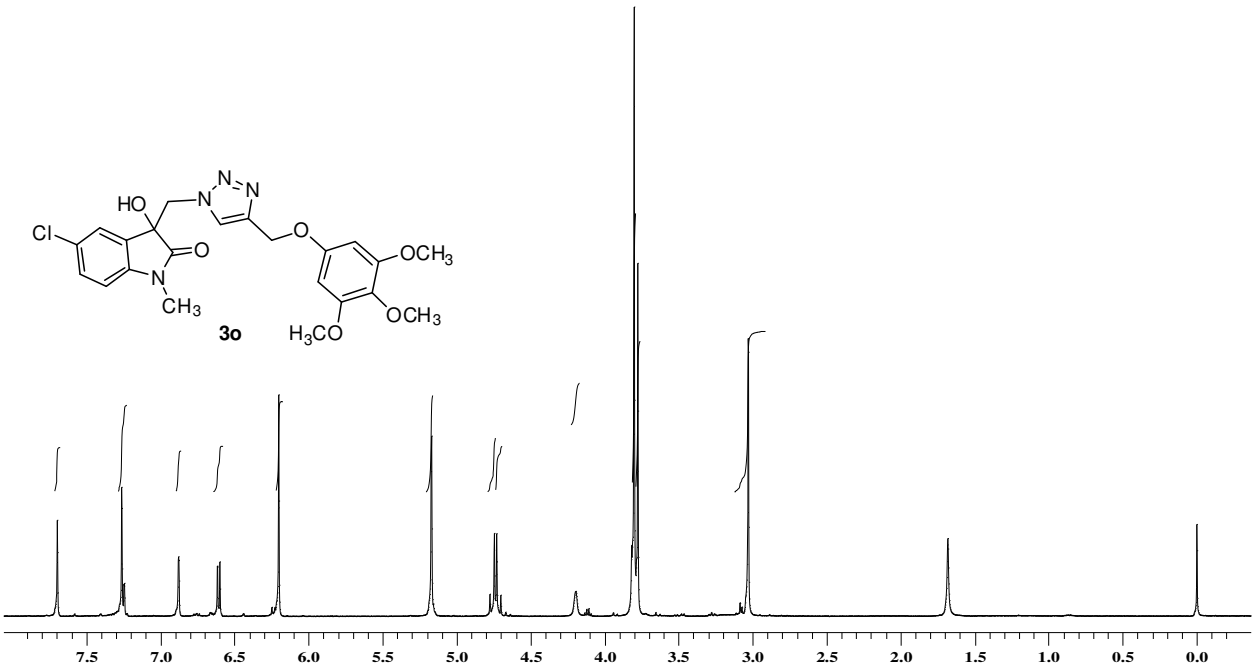
40
30
20
10
0


HO
Cl
O
N
CH3
N
N
N
O
OCH3
OCH3
H3CO
3o
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
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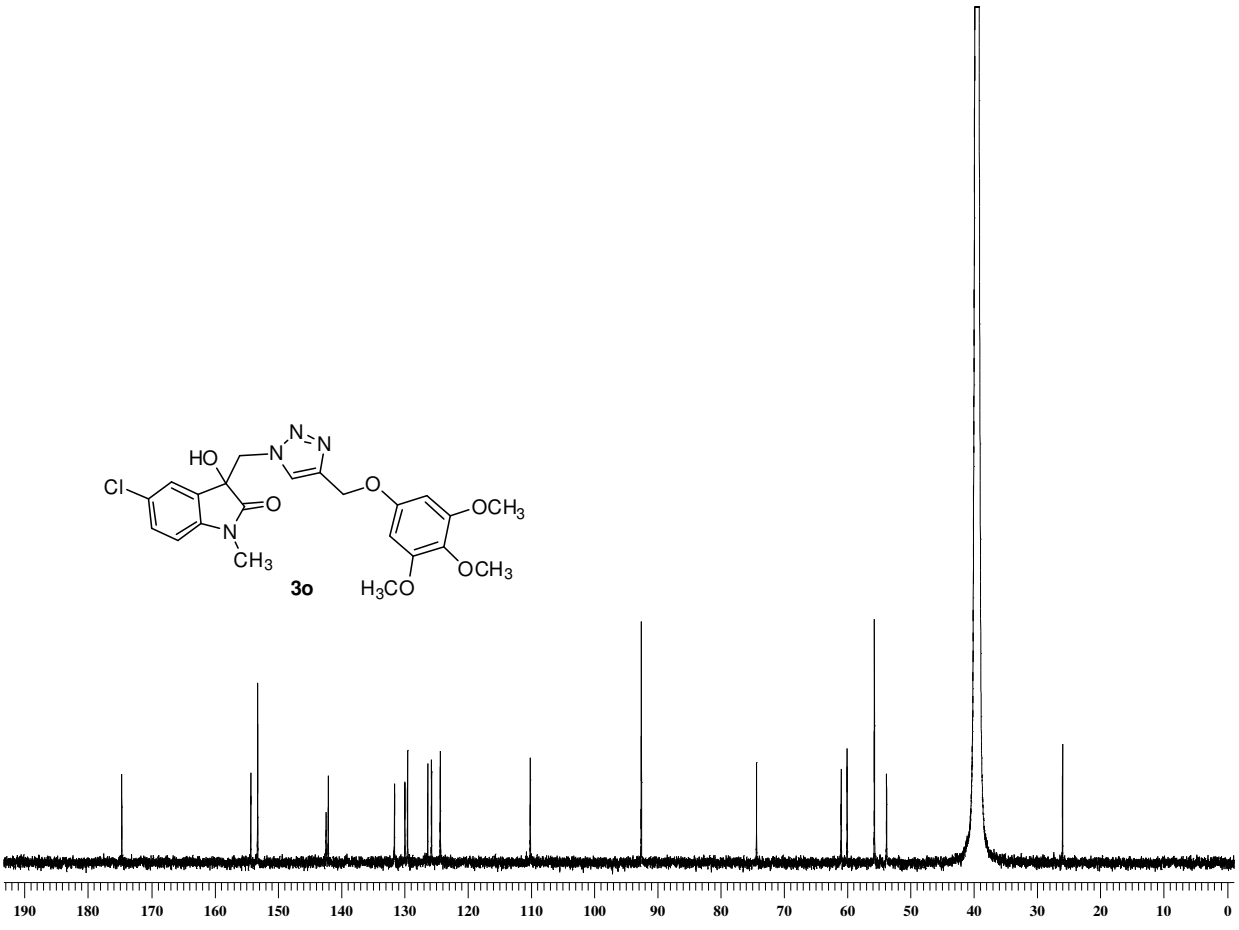
0.0


HO
Cl
O
N
CH3
N
N
N
O
OCH3
OCH3
H3CO
3o
190
180
170
160
150
140
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120
110
100
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70
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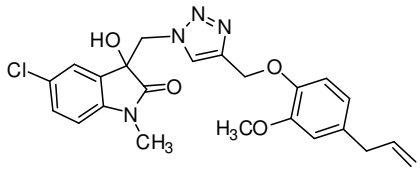
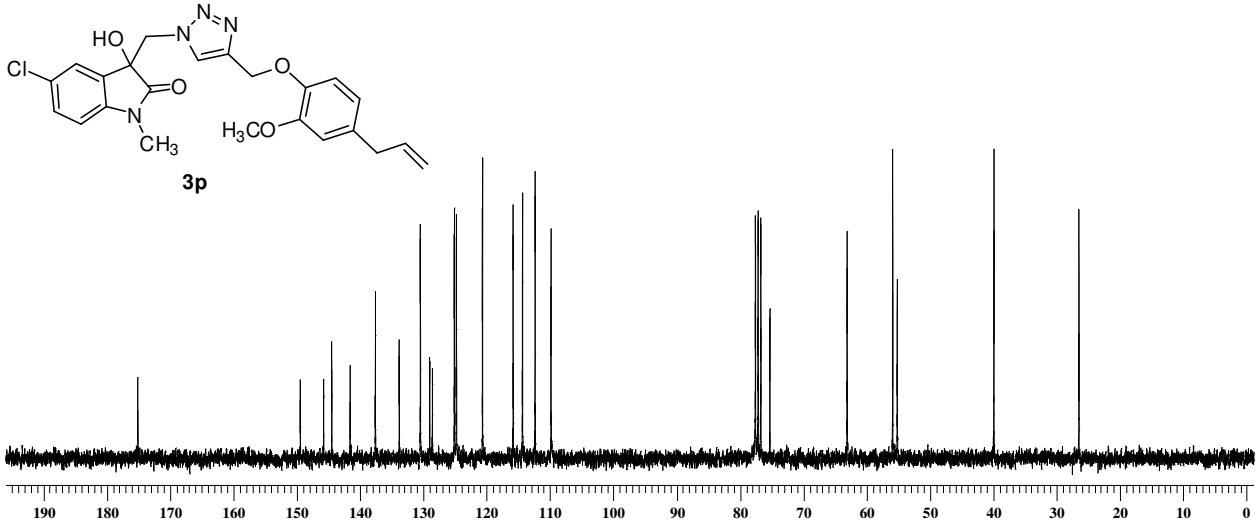
30
20
10
0


HO
N
N
N
Cl
O
O
N
CH3
H3CO

3p


7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

HO
N
N
N
Cl
O
O
N
CH3
H3CO

3p

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180
170
160
150
140
130
120
110
100
90
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70
60
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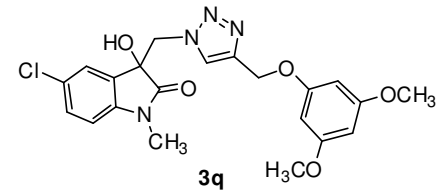
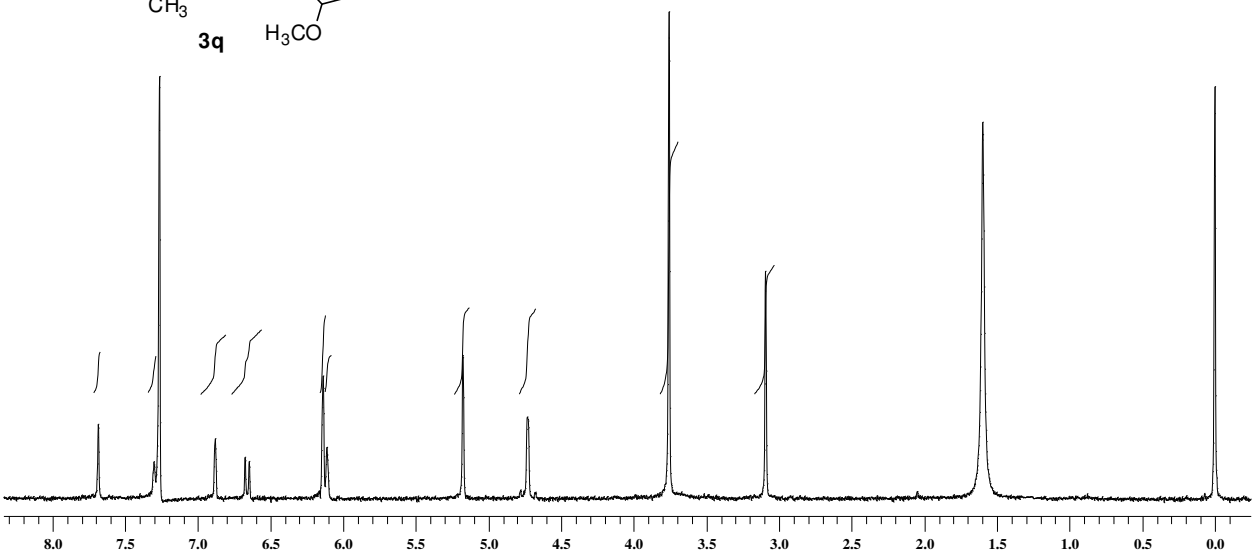
30
20
10
0


HO
N
N
N
Cl
O
O
N
CH3
OCH3
H3CO

3q


8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
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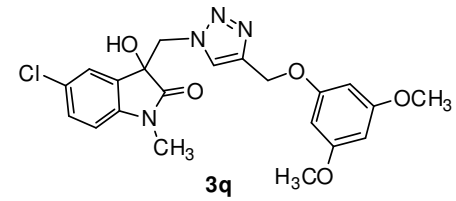
0.0


HO
N
N
N
Cl
O
O
N
CH3
OCH3
H3CO

3q

190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
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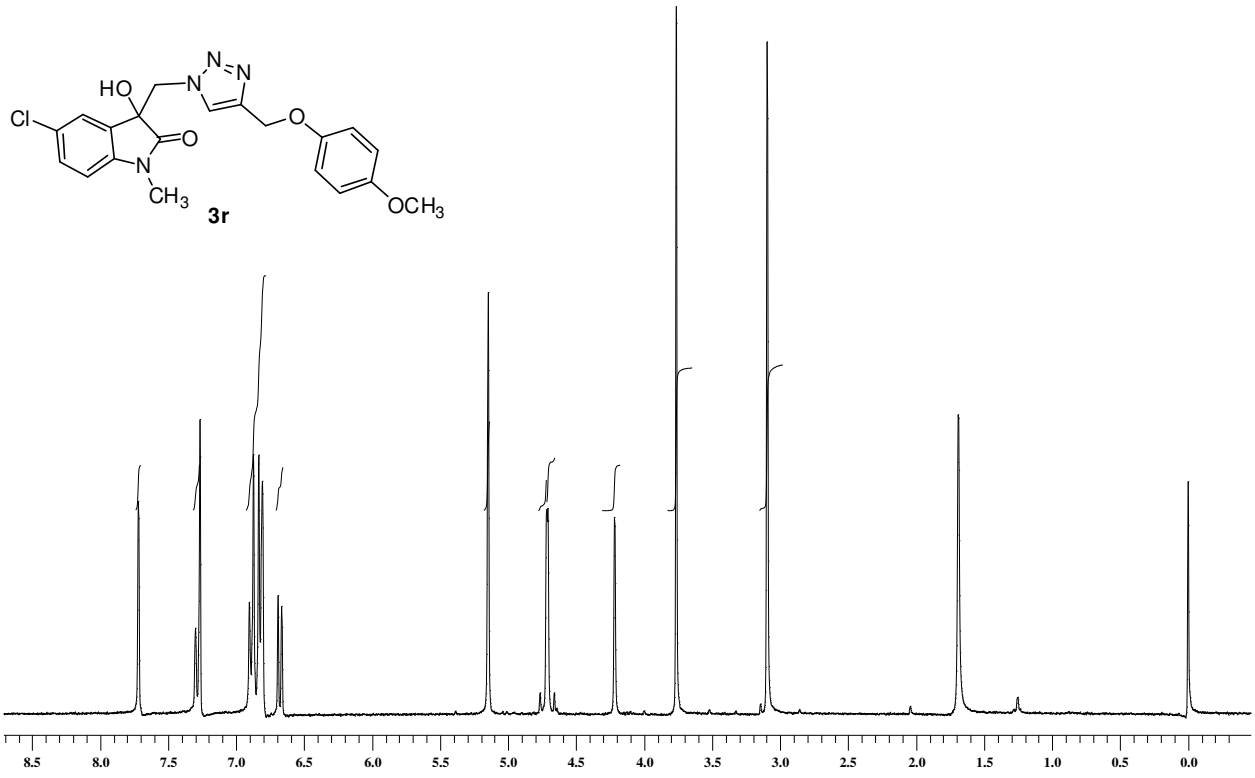
30
20
10
0


HO
N
N
N
Cl
O
N
CH3
O
OCH3
3r
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
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3.0
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2.0
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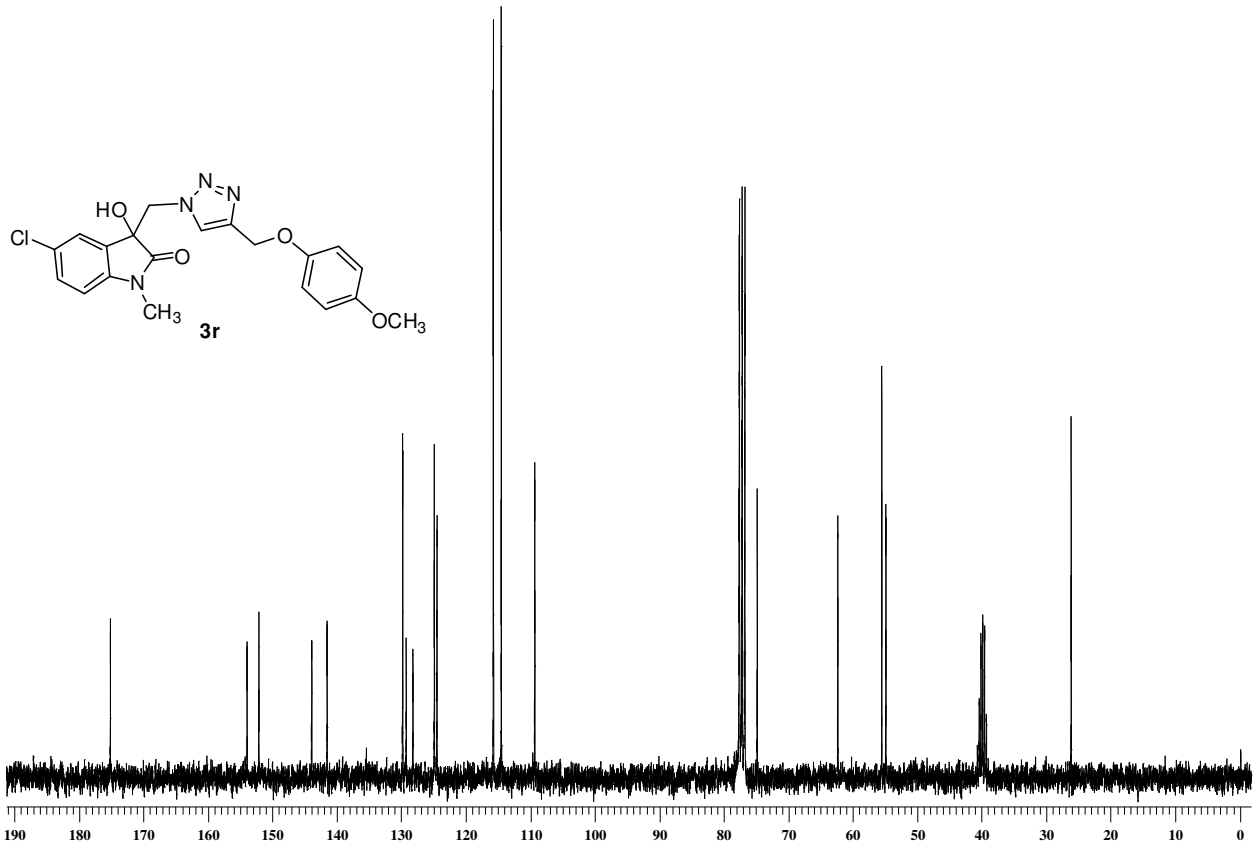
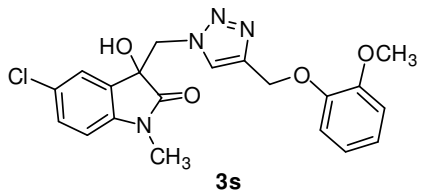
0.0


HO
N
N
N
Cl
O
N
CH3
O
OCH3
3r
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


HO
N
N
N
OCH3
Cl
O
O
N
CH3

3s

8.0
7.5
7.0
6.5
6.0
5.5
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4.5
4.0
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3.0
2.5
2.0
1.5
1.0
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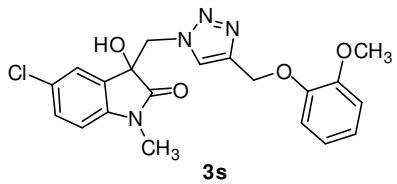
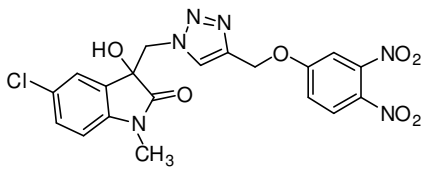
0.0


HO
N
N
N
OCH3
Cl
O
O
N
CH3

3s

190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


HO
Cl
O
N
CH3
N=N
O
NO2
NO2

3t

8.5
8.0
7.5
7.0
6.5
6.0
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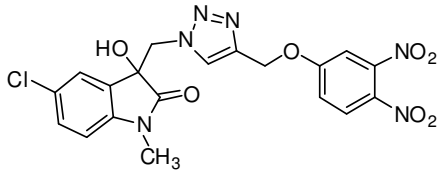
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


HO
Cl
O
N
CH3
N=N
O
NO2
NO2

3t

190
180
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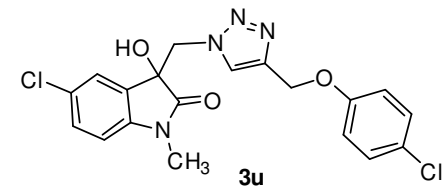
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


HO
N
N
N
Cl
O
N
CH3
O
Cl

3u

8.5
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7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
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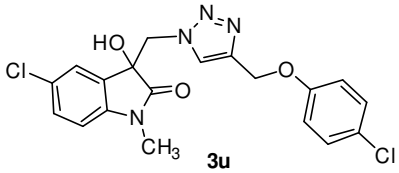
0.0


HO
N
N
N
Cl
O
N
CH3
O
Cl

3u

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150
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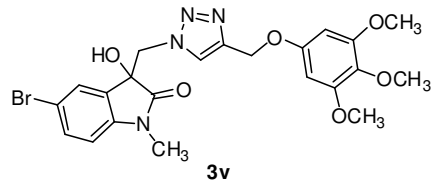
N=N
N
HO
O
OCH3
OCH3
OCH3
Br
O
N
CH3

3v

8.5
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7.0
6.5
6.0
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4.0
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2.0
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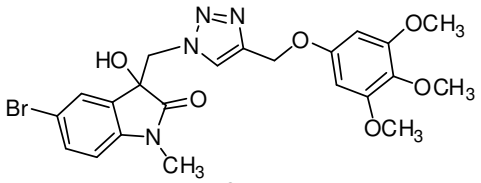
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N
HO
O
OCH3
OCH3
OCH3
Br
O
N
CH3

3v

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150
140
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110
100
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70
60
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30
20
10
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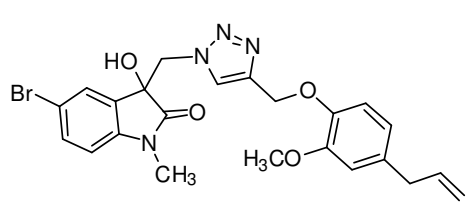
HO
Br
O
N
CH3
N
N
N
O
H3CO

3w

8.5
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7.5
7.0
6.5
6.0
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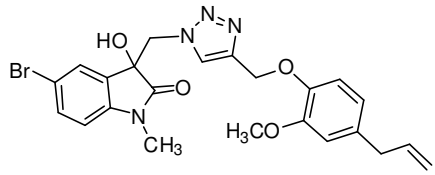
HO
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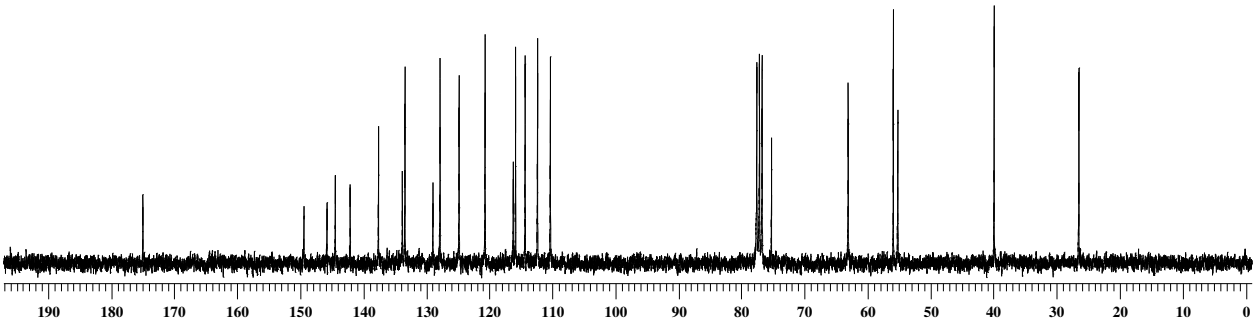
O
N
CH3
N
N
N
O
H3CO

3w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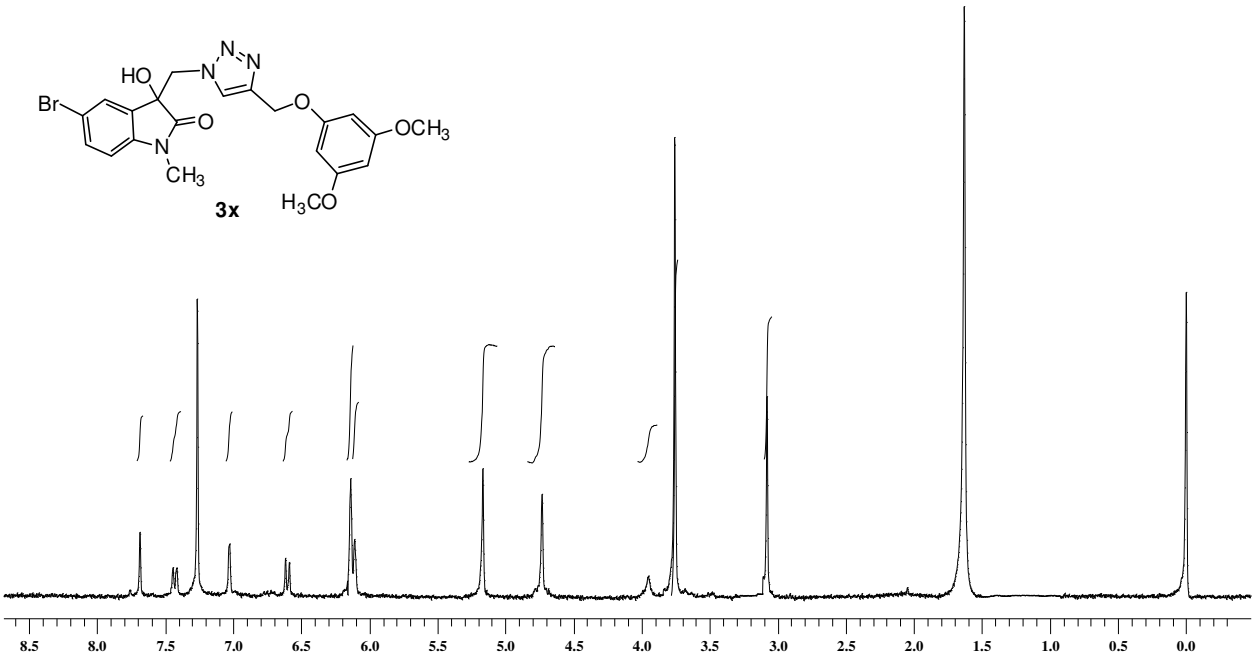
HO
Br
O
N
CH3
N
N
N
O
OCH3
H3CO
3x
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
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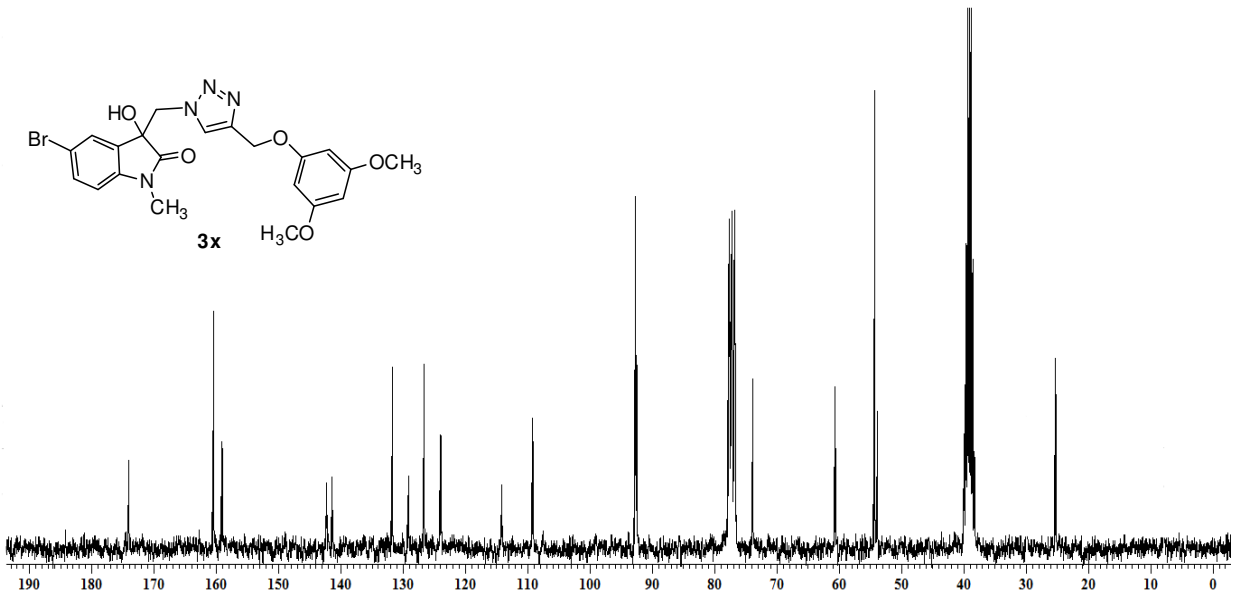
0.0


HO
Br
O
N
CH3
N
N
N
O
OCH3
H3CO
3x
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30
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10
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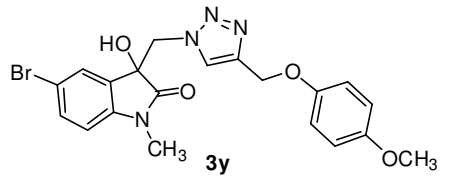
HO
Br
O
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CH3
N
N
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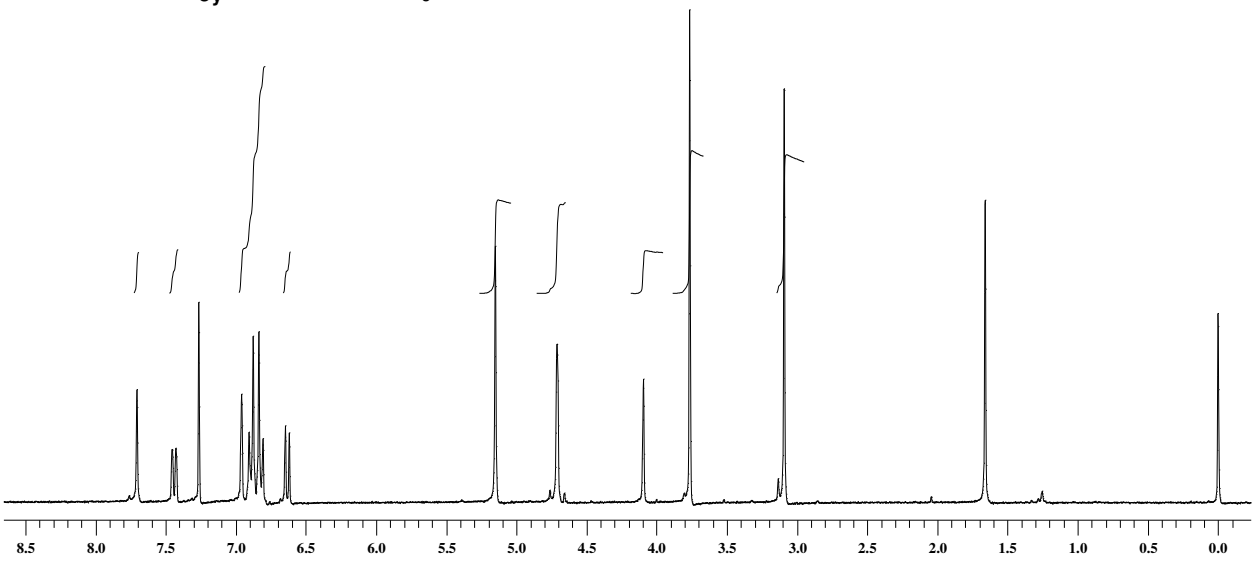
O
OCH3

3y


8.5
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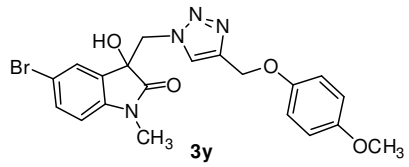
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


HO
Br
O
N
CH3
N
N
N
O
OCH3

3y

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180
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160
150
140
130
120
110
100
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70
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30
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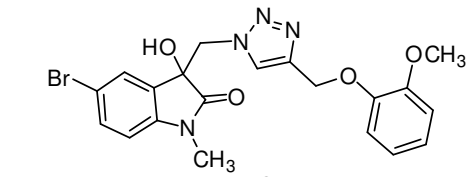
HO
N
N
N
OCH3
Br
O
O
N
CH3

3z

8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
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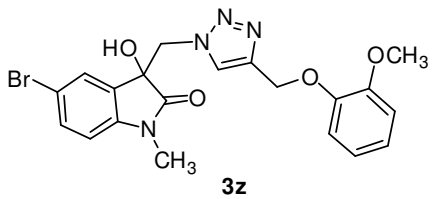
0.0


HO
N
N
N
OCH3
Br
O
O
N
CH3

3z

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180
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160
150
140
130
120
110
100
90
80
70
60
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30
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10
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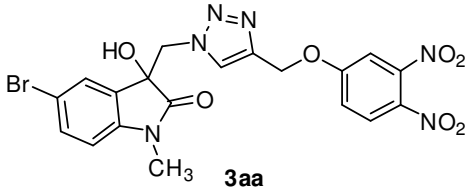
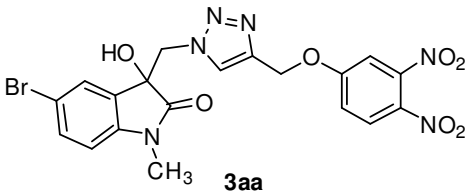

HO
N
N=N
O
Br
O
N
CH3
NO2
NO2

3aa

8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5


HO
N
N=N
O
Br
O
N
CH3
NO2
NO2

3aa

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180
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160
150
140
130
120
110
100
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70
60
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30
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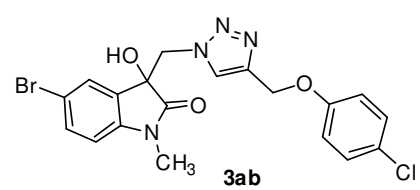
10
0


HO
N
N
N
Br
O
O
N
CH3
Cl

3ab

8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
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3.0
2.5
2.0
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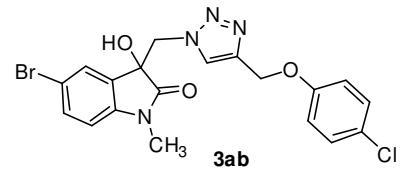
HO
N
N
N
Br
O
O
N
CH3
Cl

3ab

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180
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160
150
140
130
120
110
100
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70
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30
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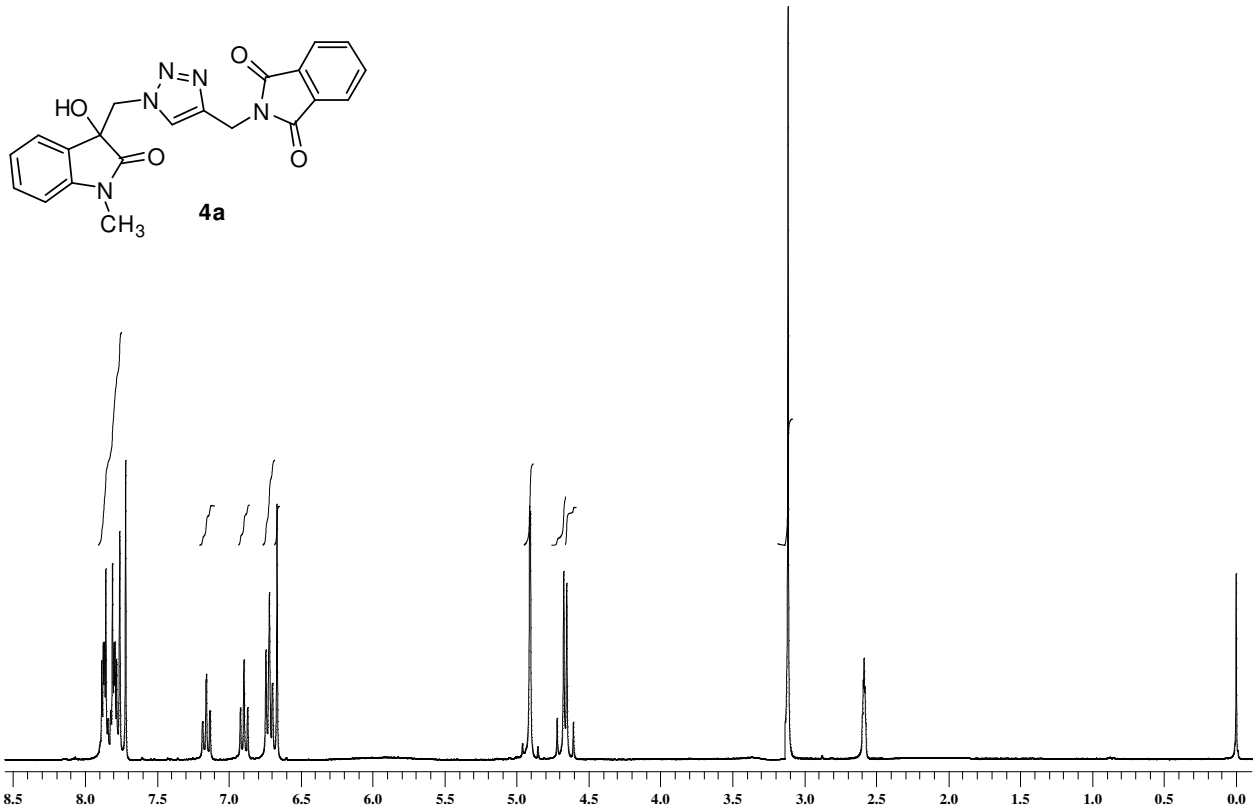
10
0


HO
N
N
N
O
O
N
O
O
N
CH3
4a
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
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3.0
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2.0
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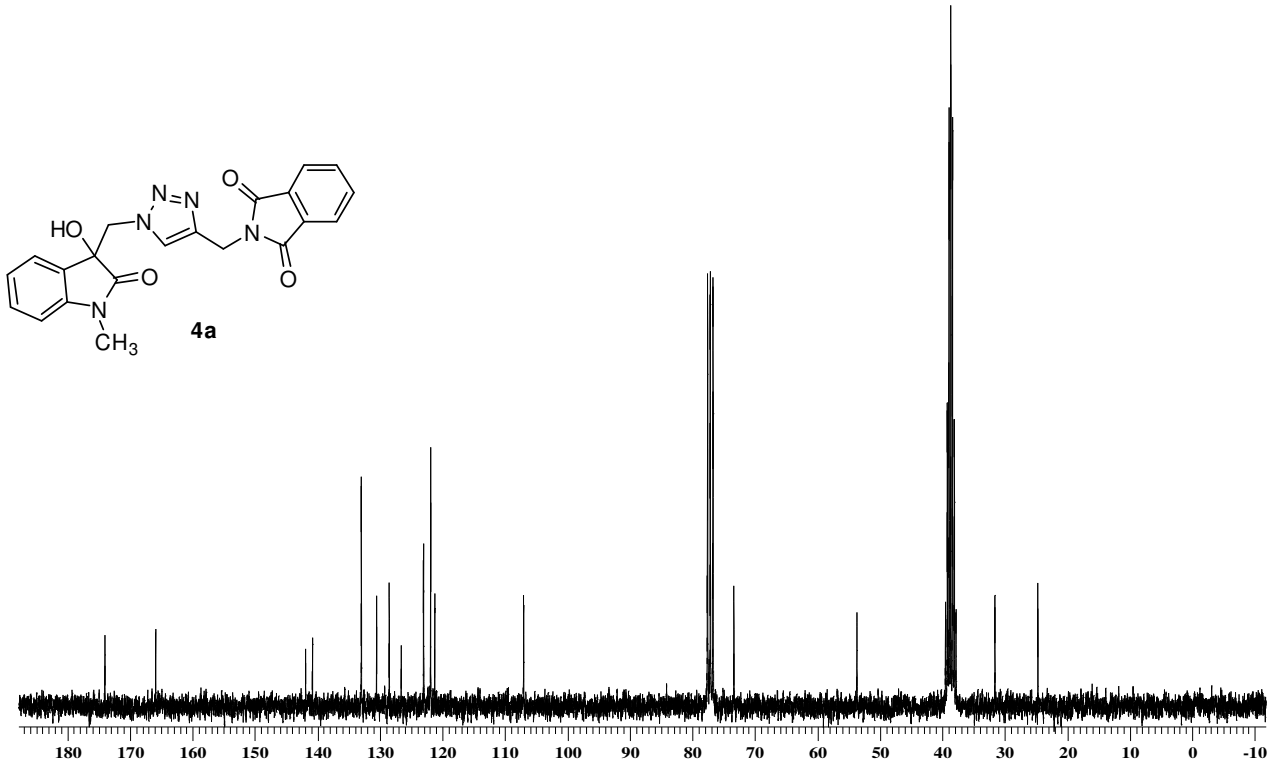
HO
N
N
N
O
O
N
O
O
N
CH3
4a
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170
160
150
140
130
120
110
100
90
80
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60
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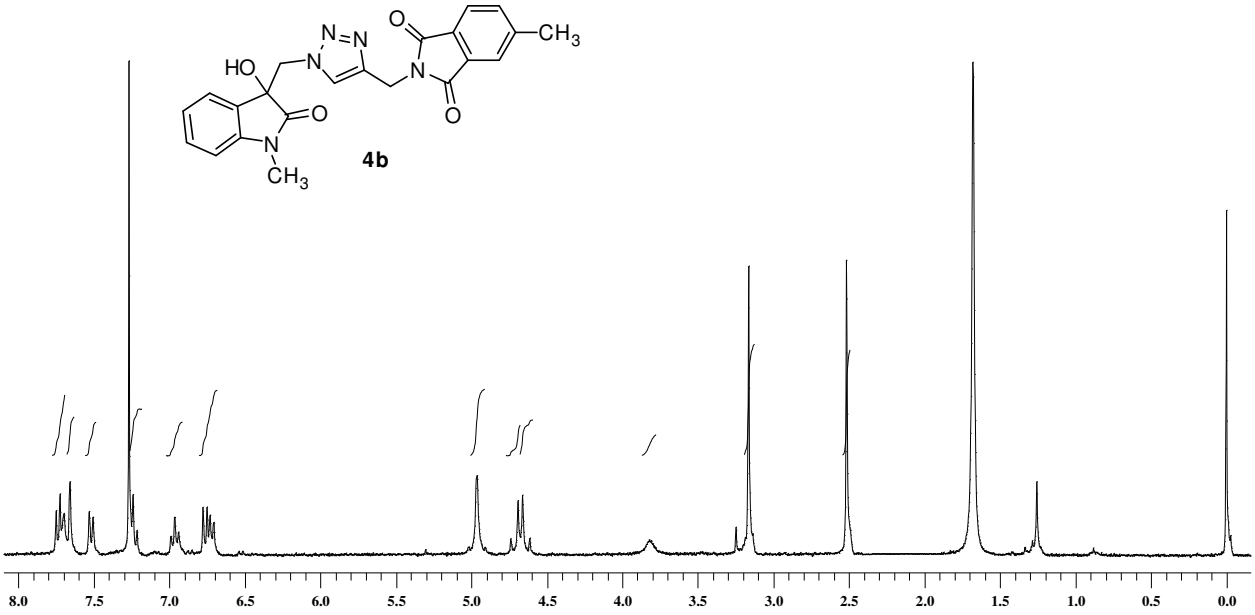
-10


HO
N
N
N
O
O
N
O
CH3
O
N
CH3
4b
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
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1.0
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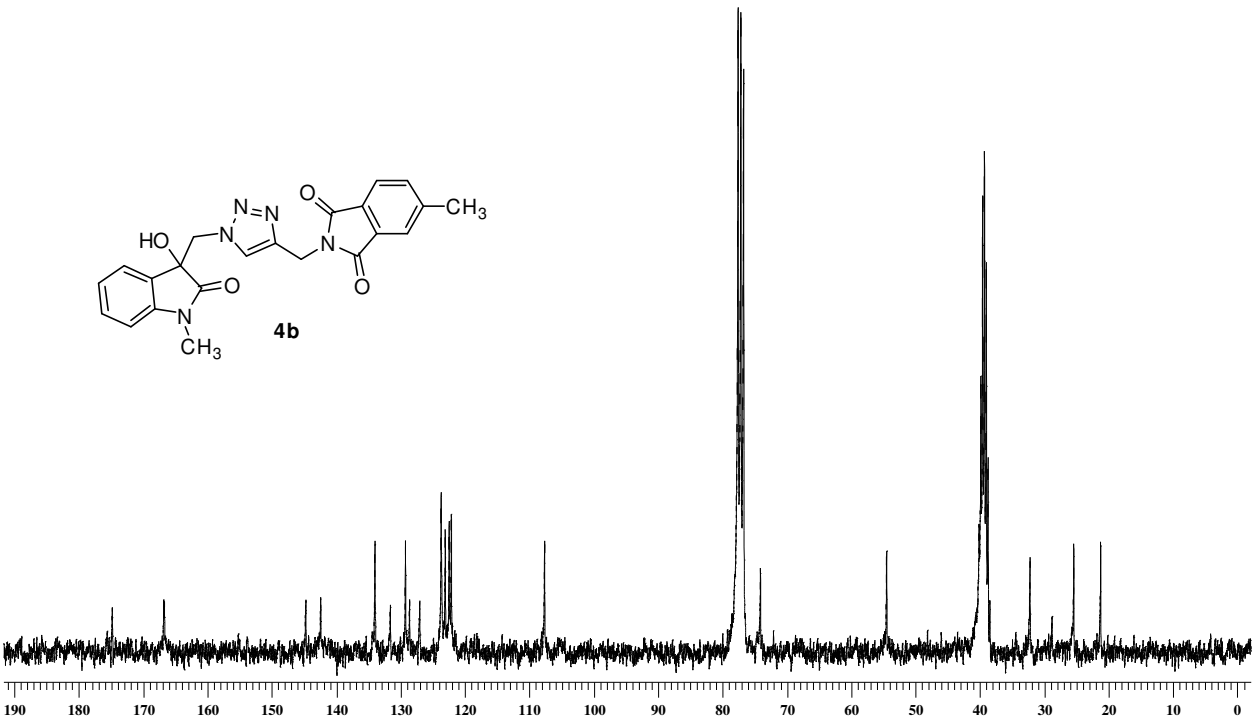
HO
N
N
N
O
O
N
O
CH3
O
N
CH3
4b
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140
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120
110
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70
60
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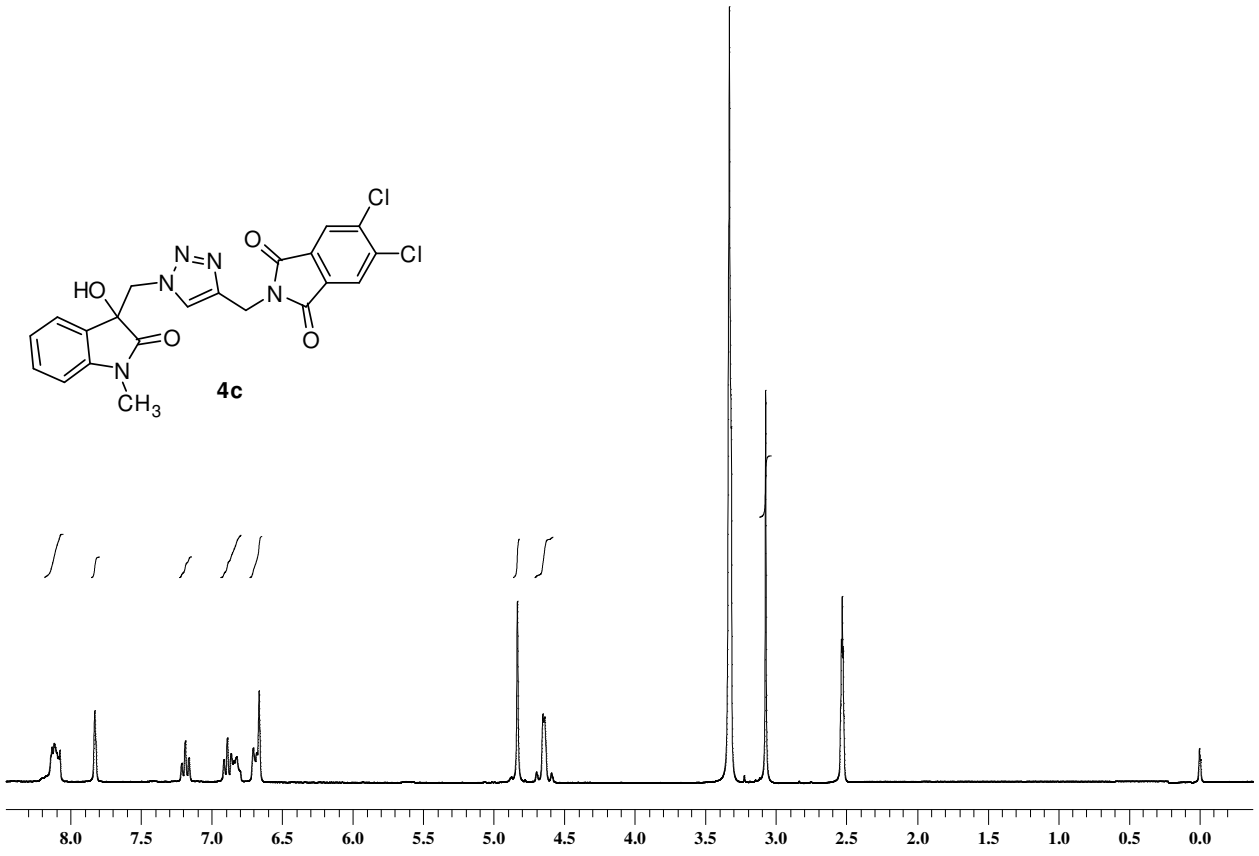
30
20
10
0


Cl
Cl
O
N=N
N
HO
O
N
O
O
N
CH3
8.0
7.5
7.0
6.5
6.0
5.5
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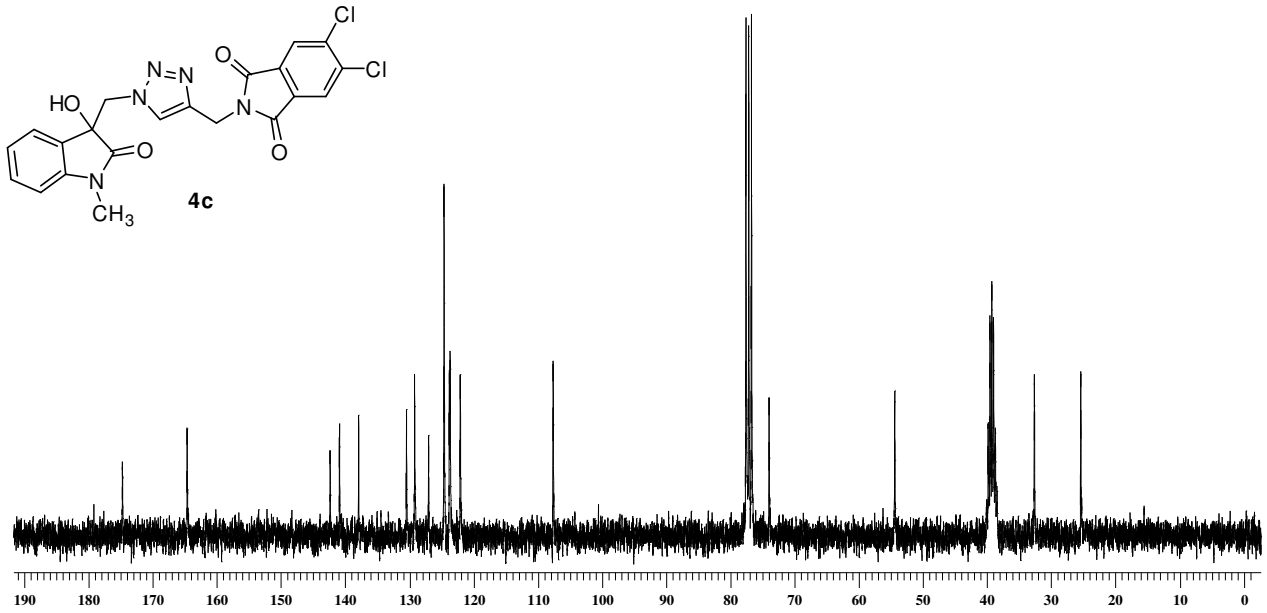
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

4c


Cl
Cl
O
N=N
N
HO
O
N
O
O
N
CH3
190
180
170
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140
130
120
110
100
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80
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60
50
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30
20
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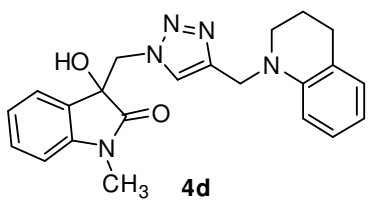
0

4c


HO
N=N
N
N
O
N
CH3

4d

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7.0
6.5
6.0
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4.0
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2.0
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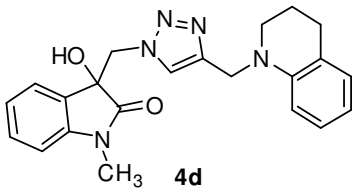
HO
N=N
N
N
O
N
CH3

4d

190
180
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150
140
130
120
110
100
90
80
70
60
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30
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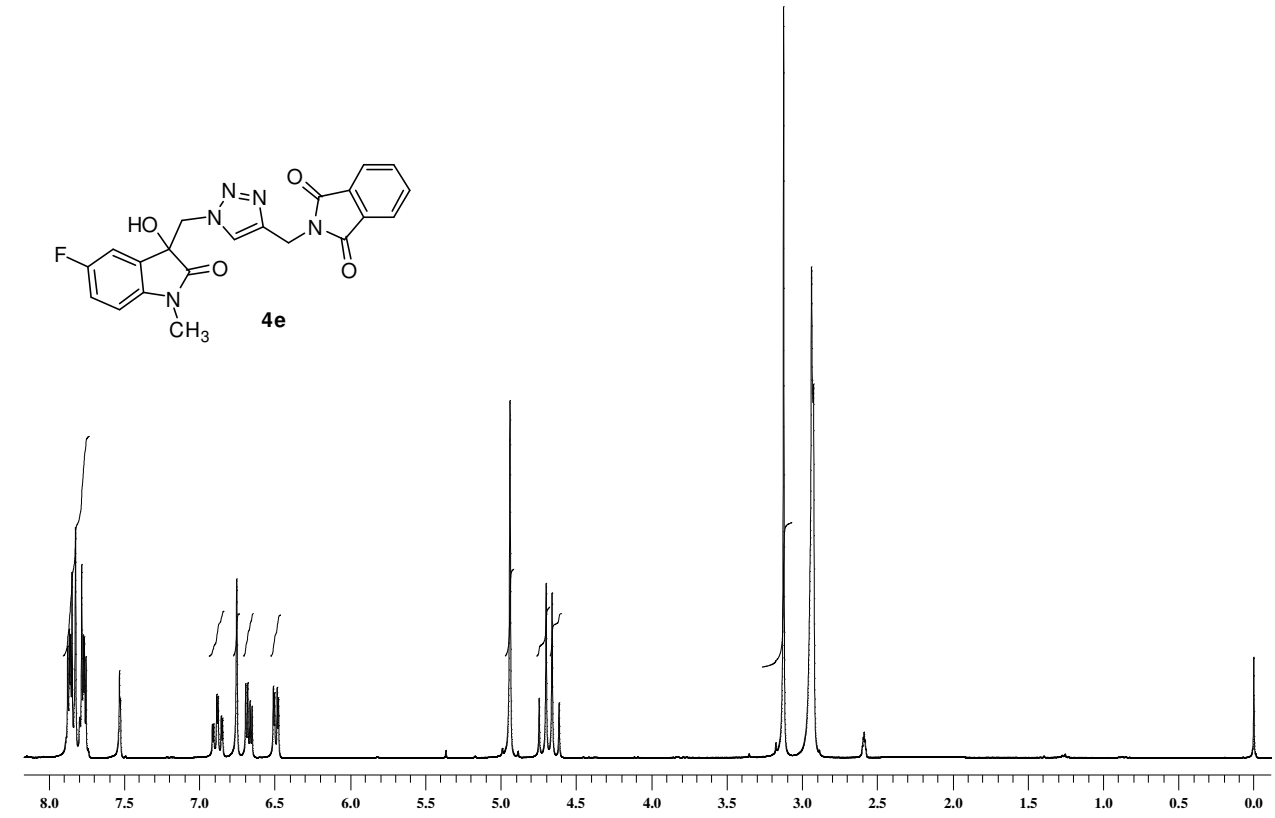
10
0


HO
F
O
N
CH3
N=N
O
O
4e
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
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2.0
1.5
1.0
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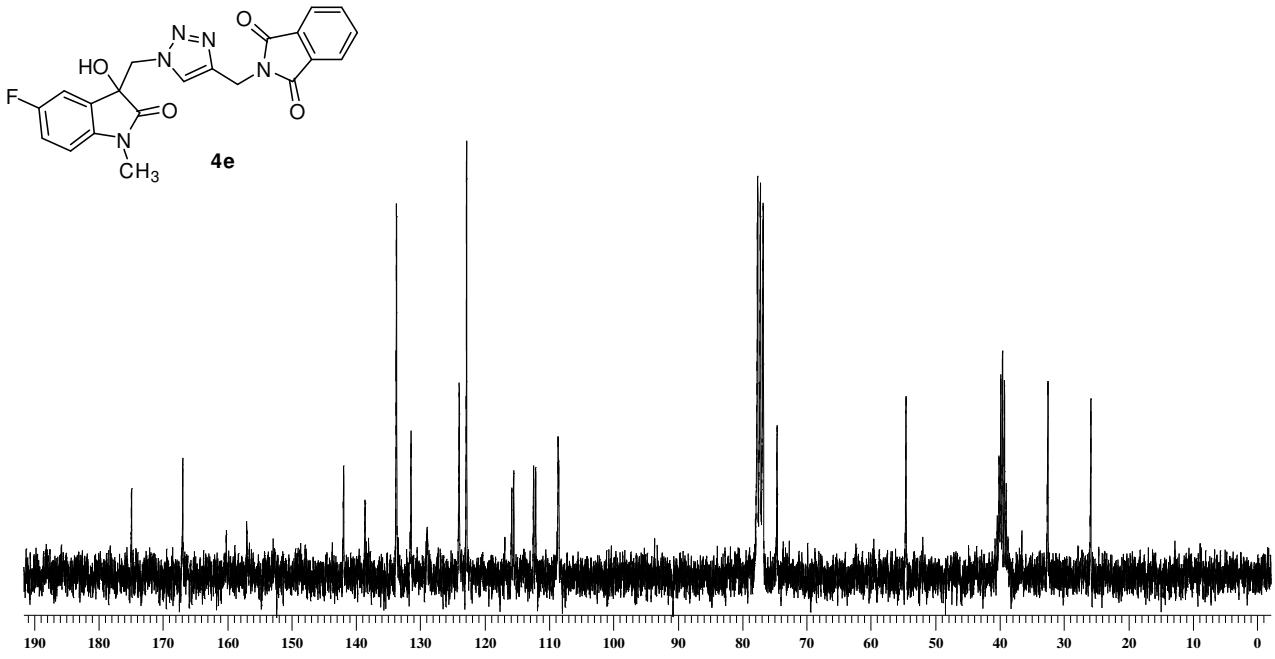
HO
F
O
N
CH3
N=N
O
O
4e
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160
150
140
130
120
110
100
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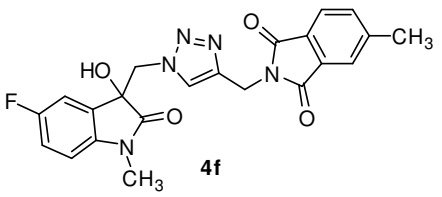
HO
F
O
N
CH3
N=N
N
O
N
O
CH3

4f

8.0
7.5
7.0
6.5
6.0
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4.5
4.0
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2.5
2.0
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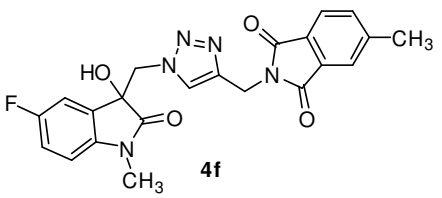
0.0


HO
F
O
N
CH3
N=N
N
O
N
O
CH3

4f

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150
140
130
120
110
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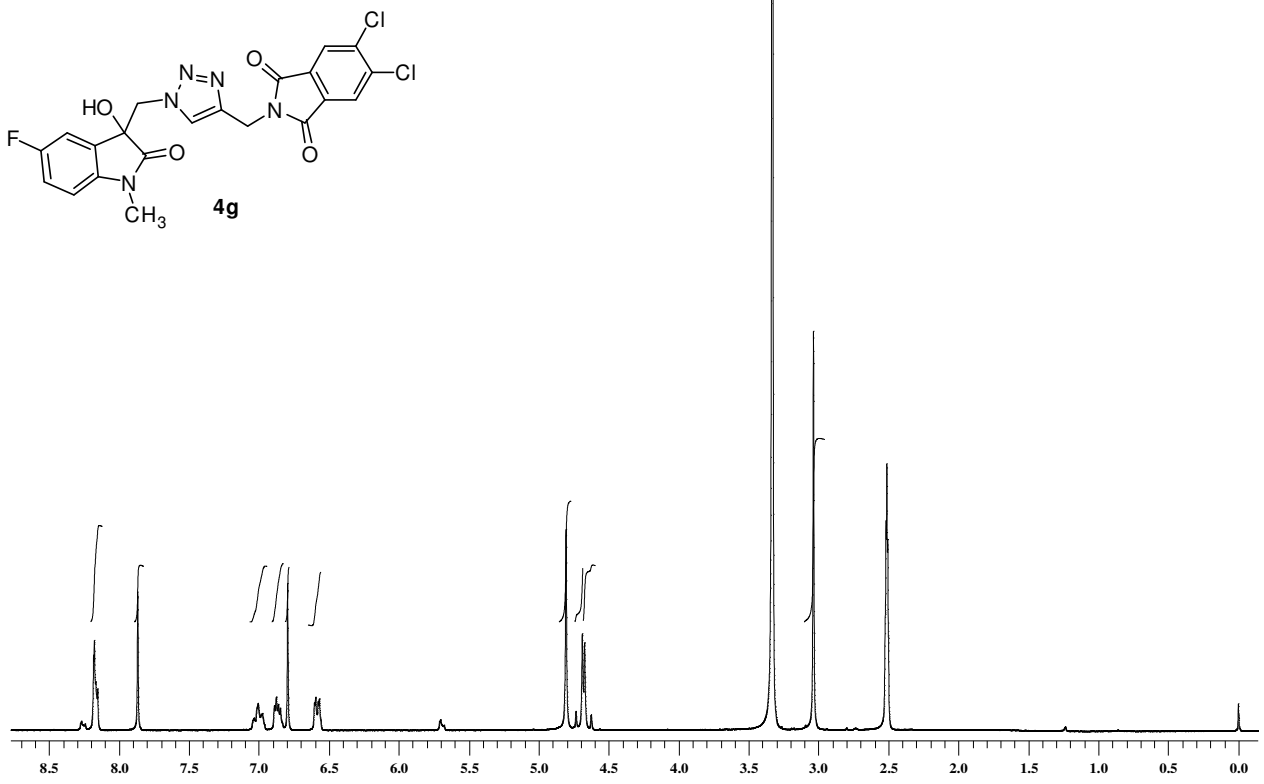
Cl
Cl
O
N=N
N
HO
F
O
N
O
N
CH3
8.5
8.0
7.5
7.0
6.5
6.0
5.5
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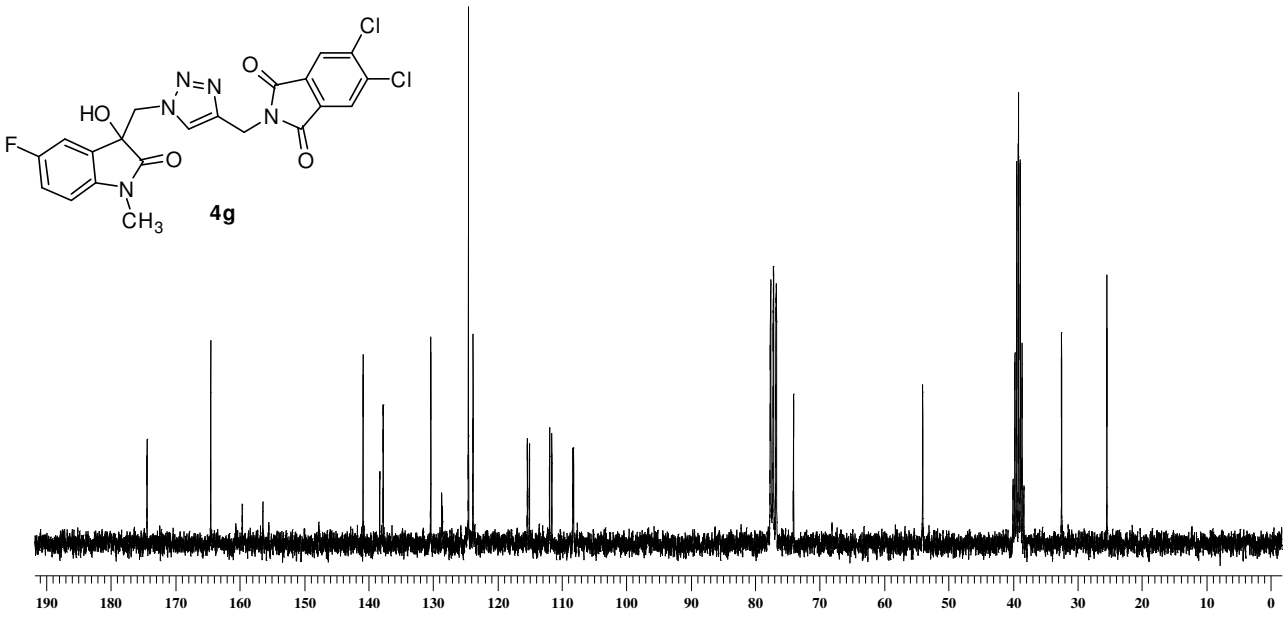
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

4g


Cl
Cl
O
N=N
N
HO
F
O
N
O
N
CH3
190
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140
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120
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100
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80
70
60
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40
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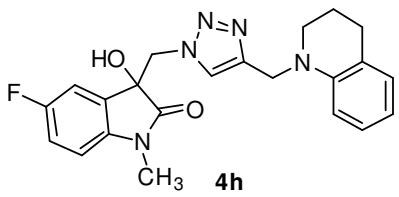
20
10
0

4g


HO
F
O
N
CH3

4h

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7.5
7.0
6.5
6.0
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4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
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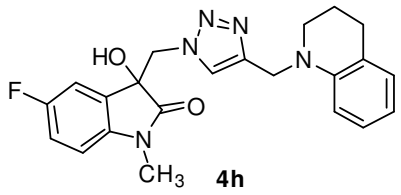
0.0


HO
F
O
N
CH3

4h

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180
170
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150
140
130
120
110
100
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70
60
50
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30
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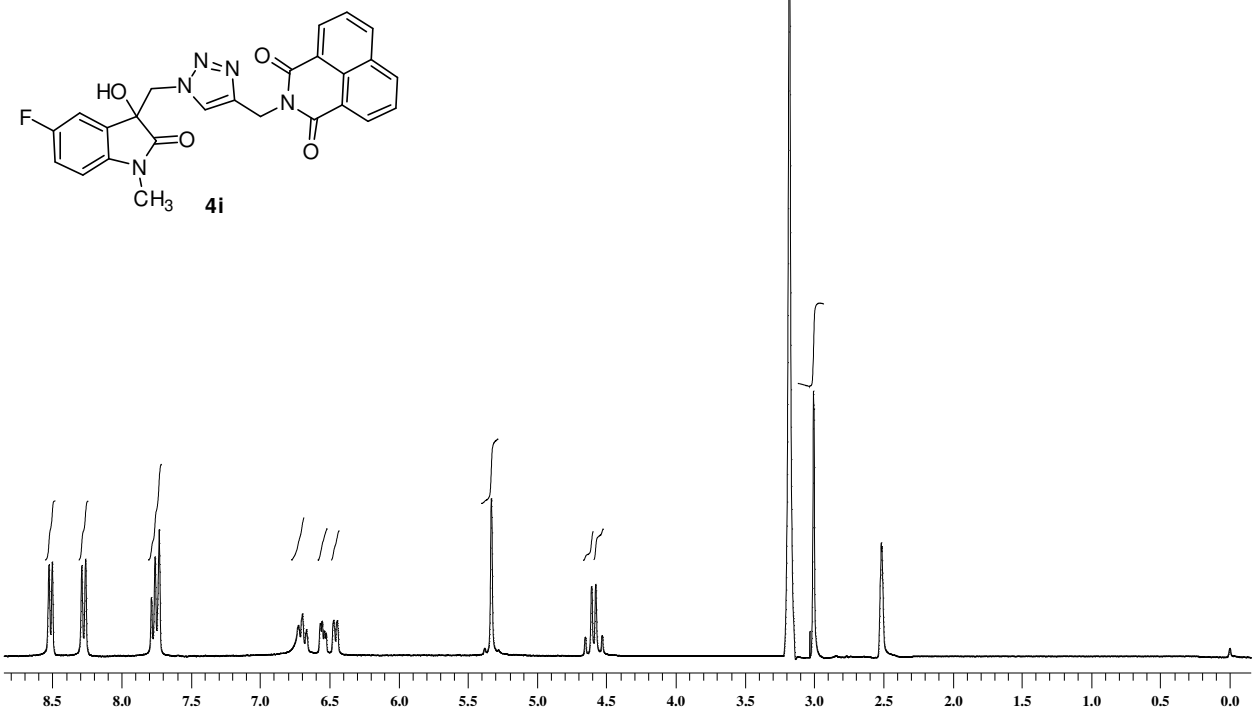
10
0


HO
F
O
N
CH3
N=N
O
N
O
8.5
8.0
7.5
7.0
6.5
6.0
5.5
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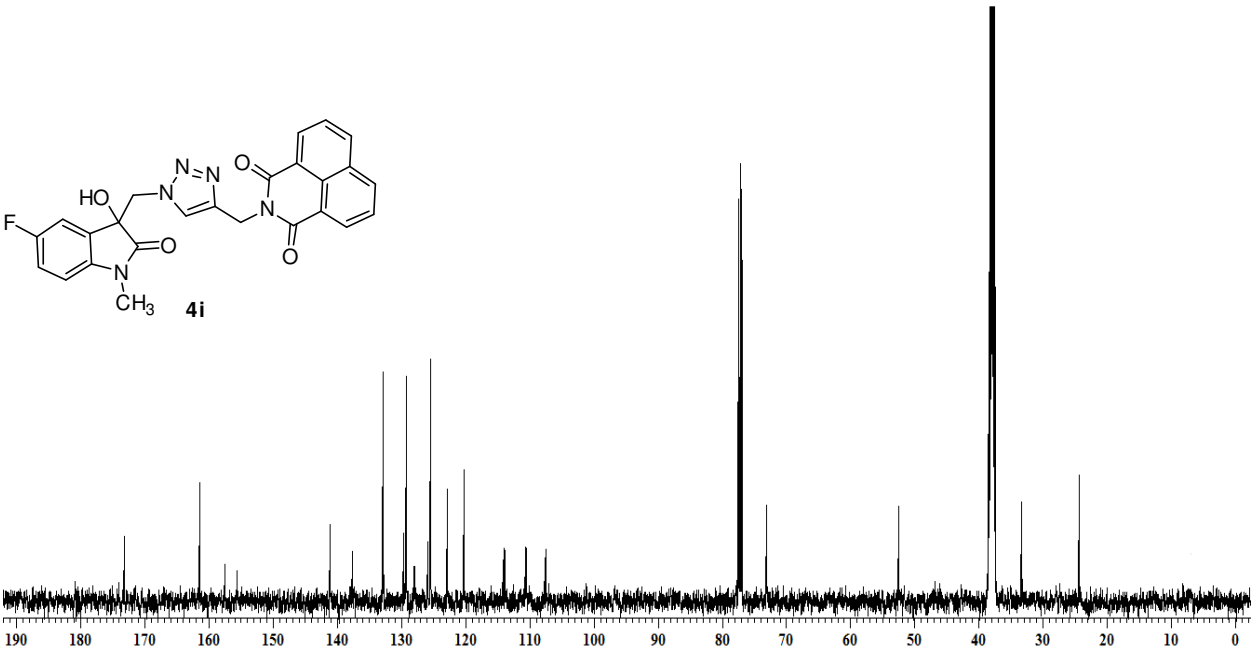
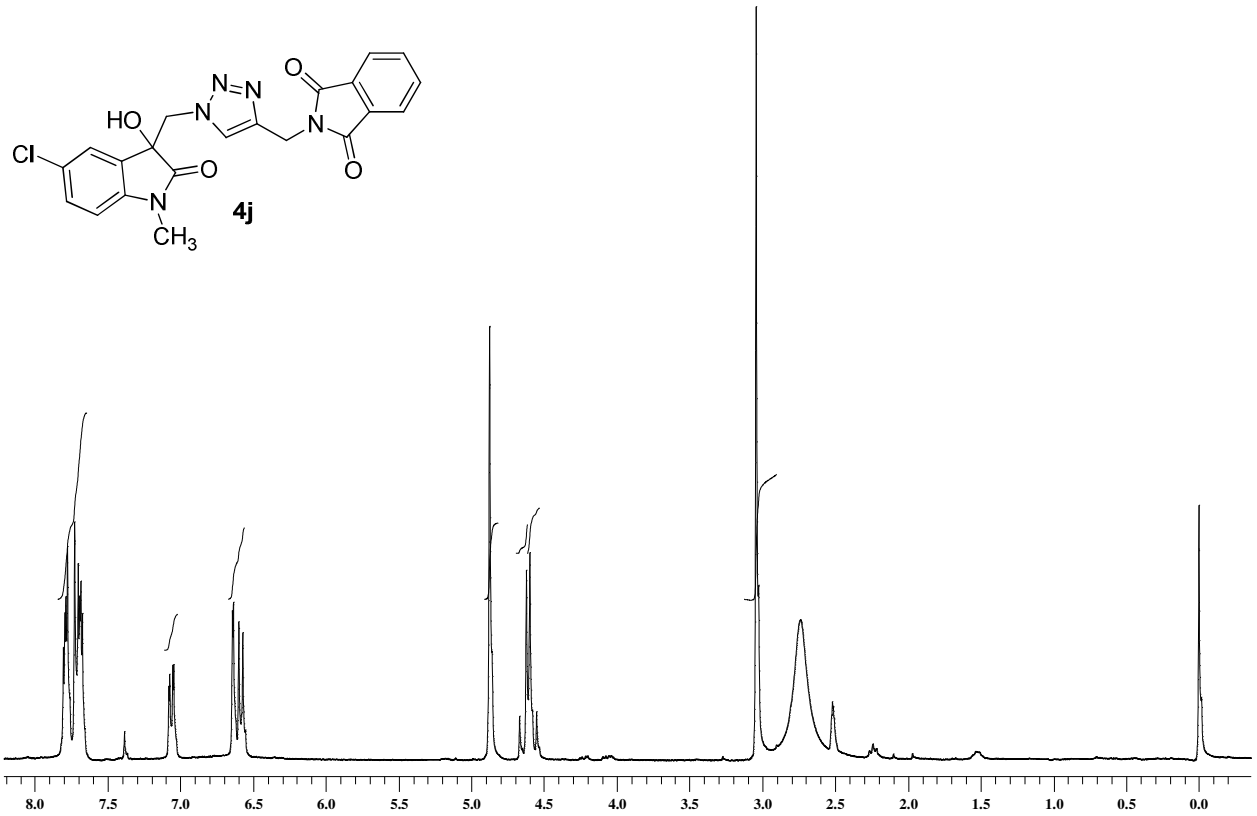
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

4i


HO
F
O
N
CH3
N=N
O
N
O
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

4i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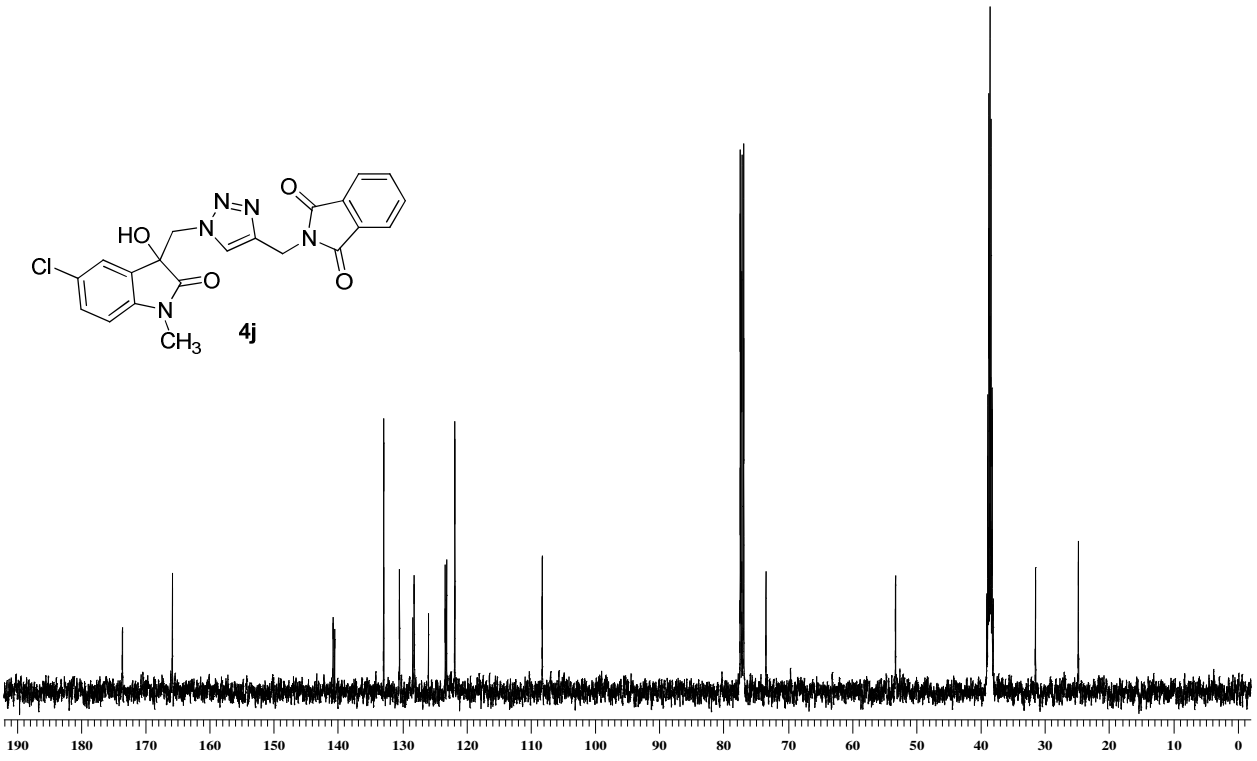
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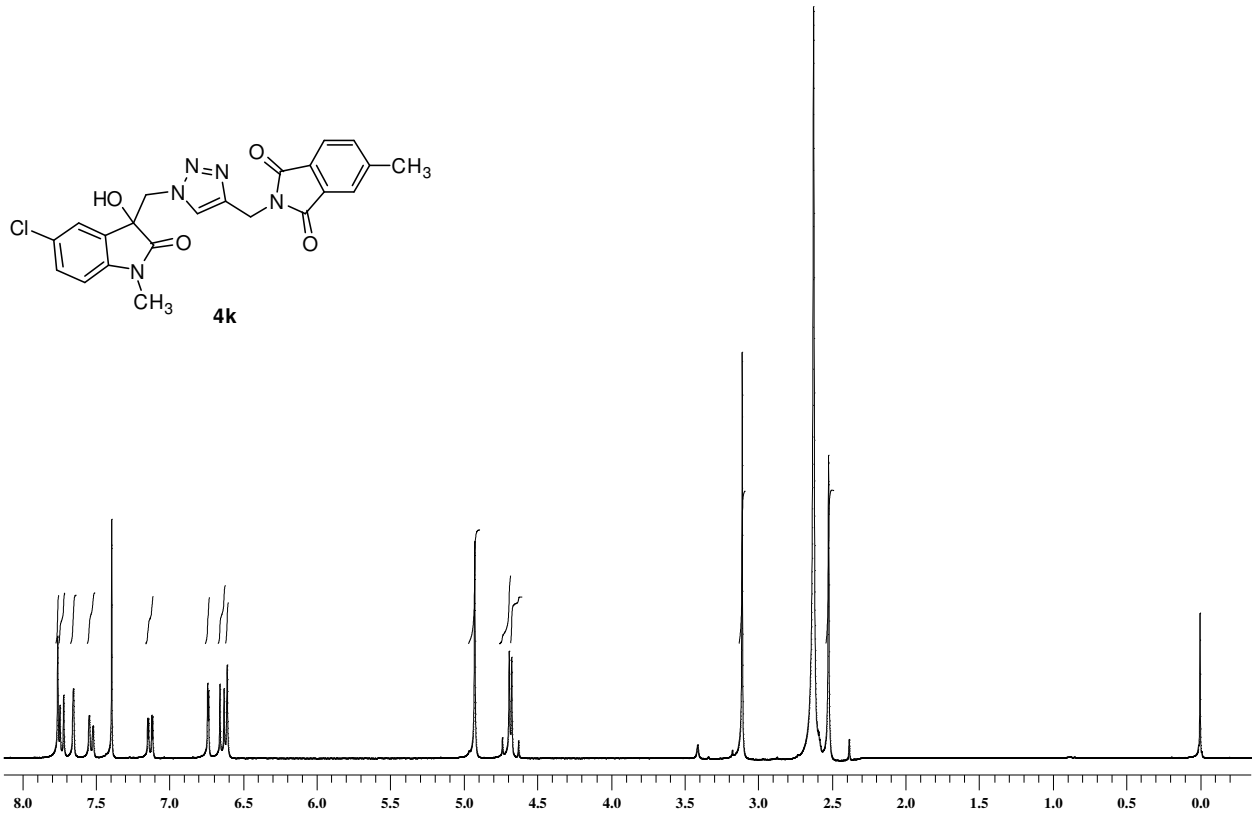
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CH3
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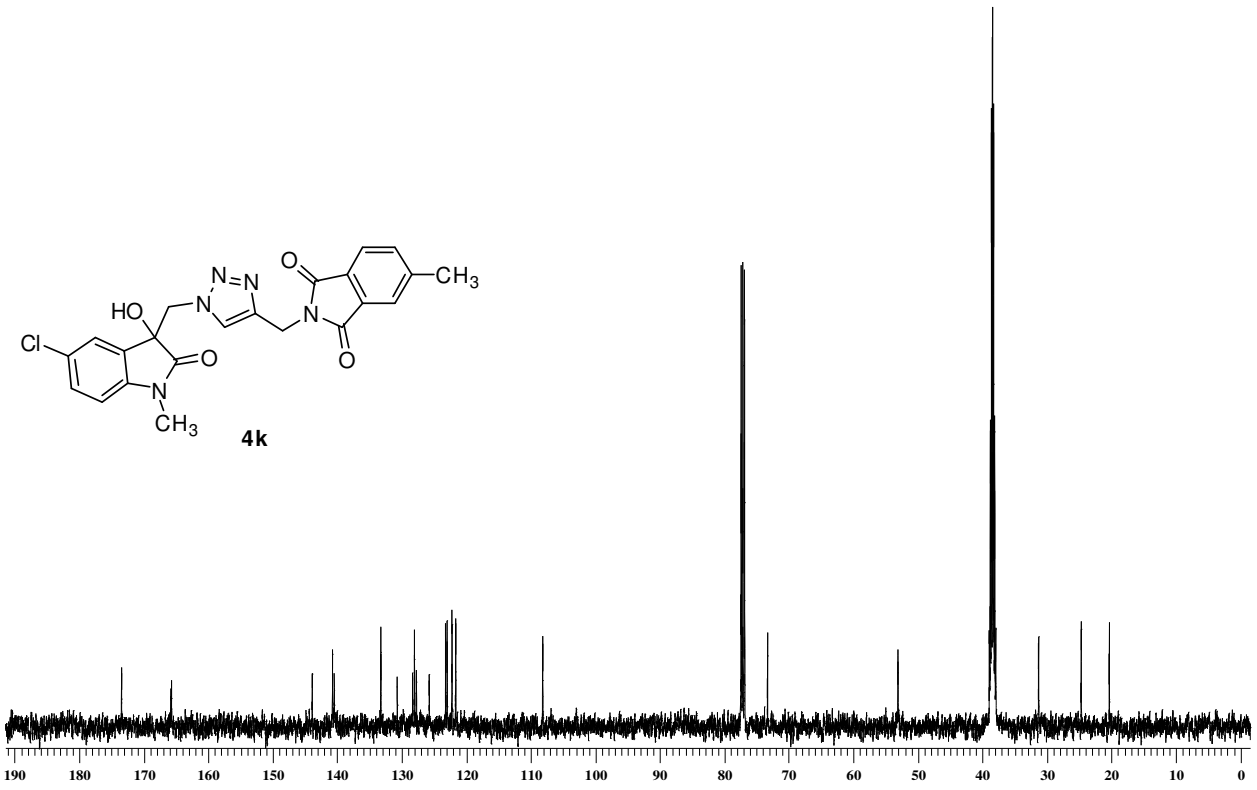
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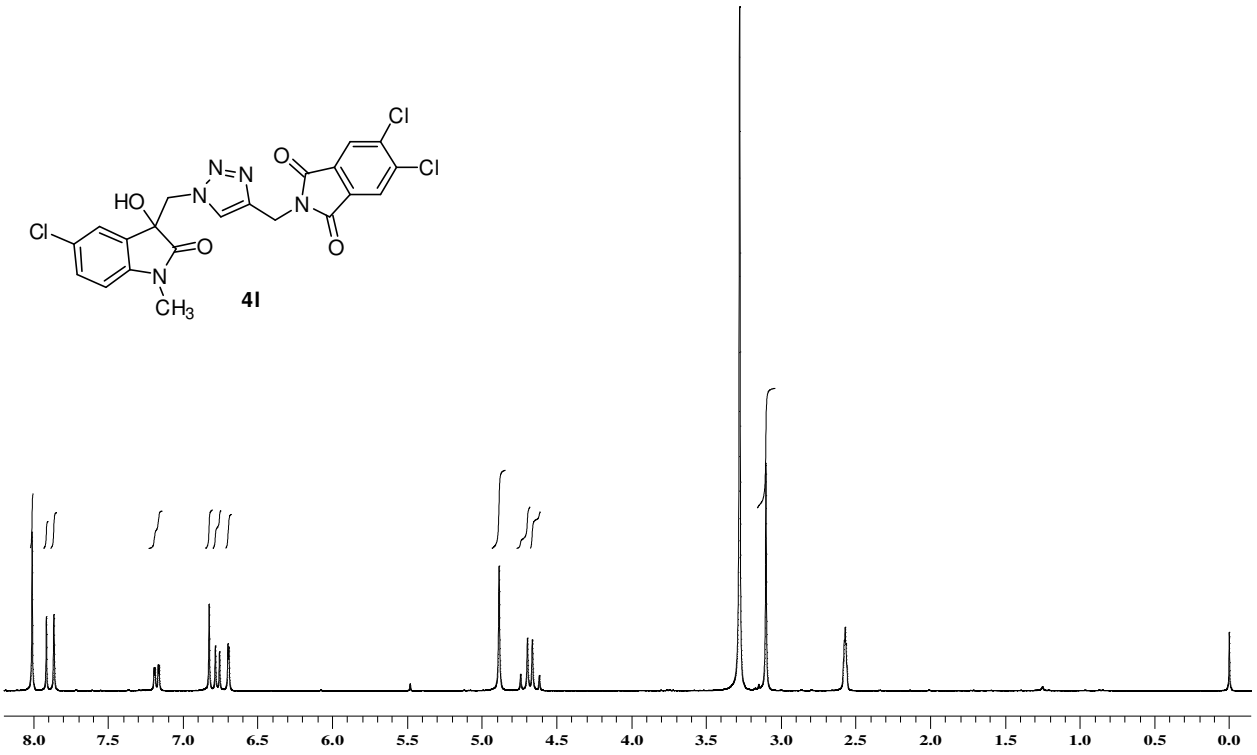
4k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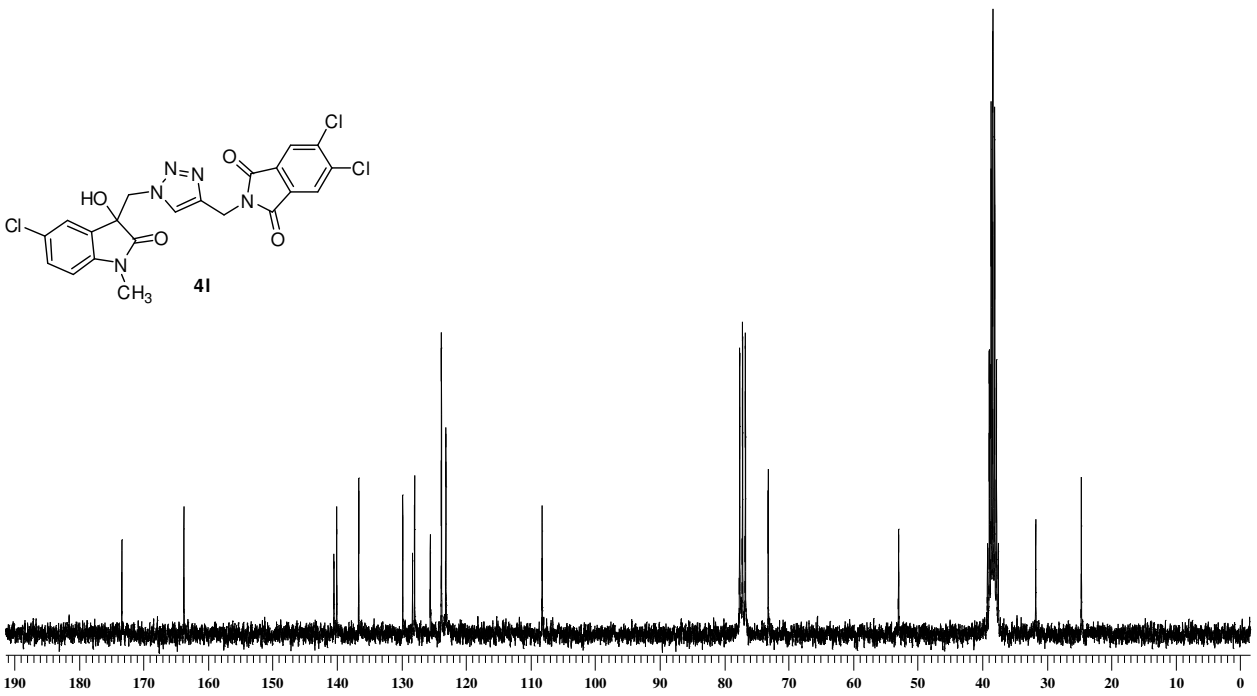
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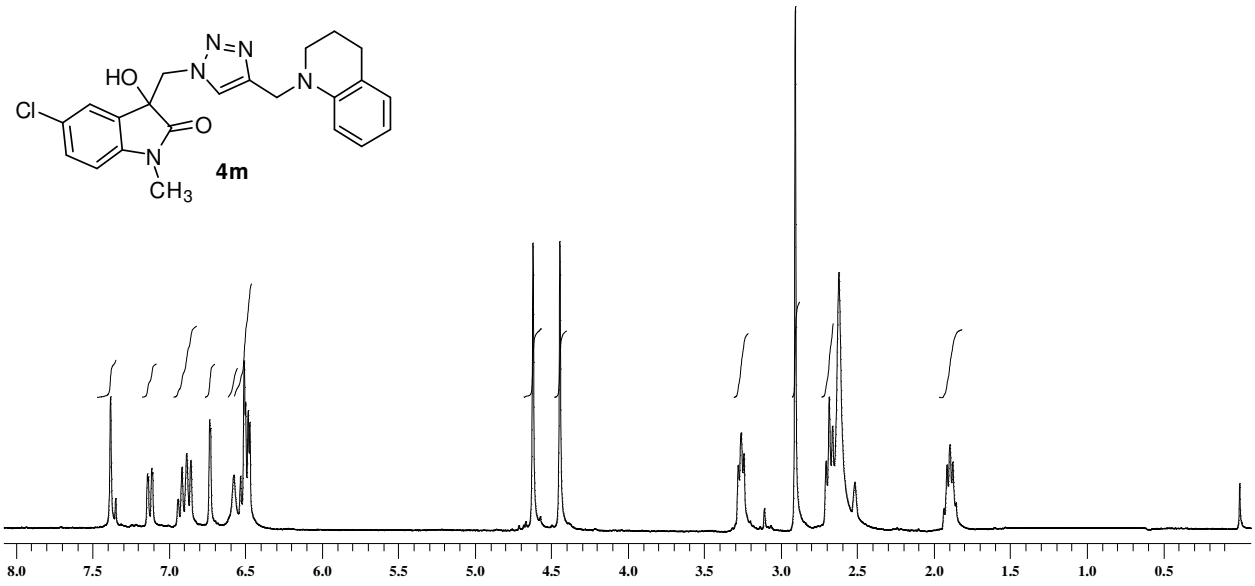
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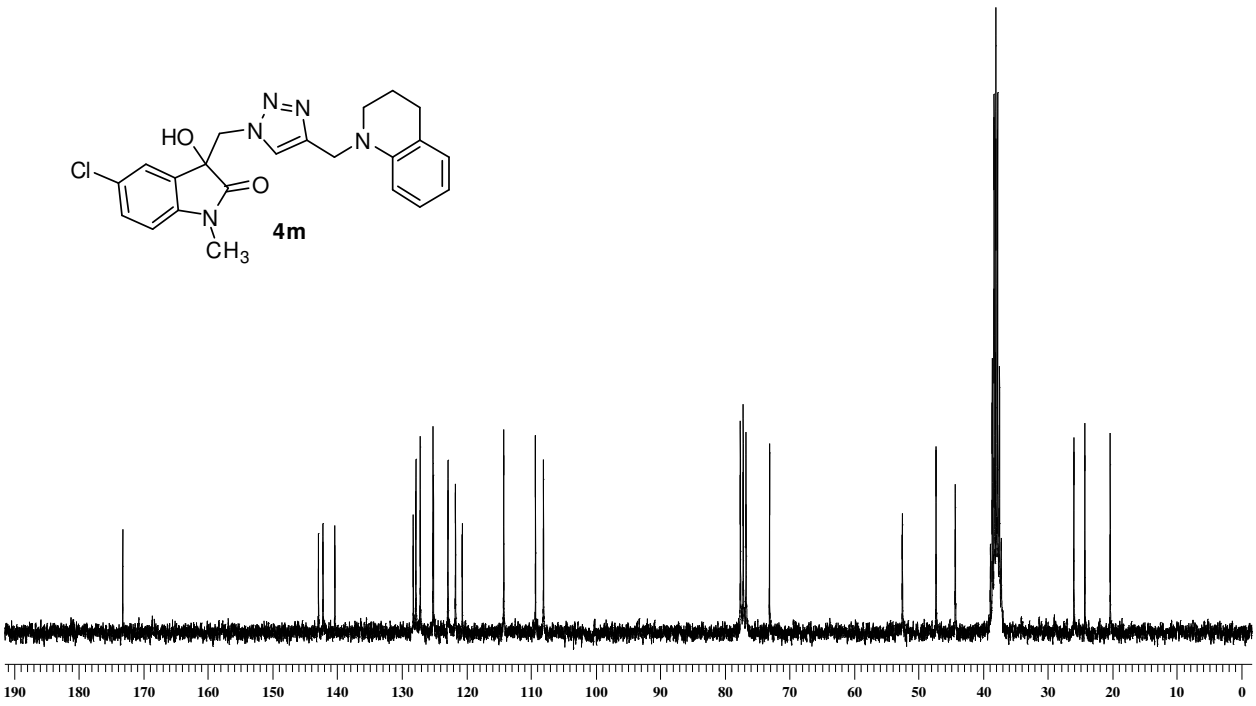
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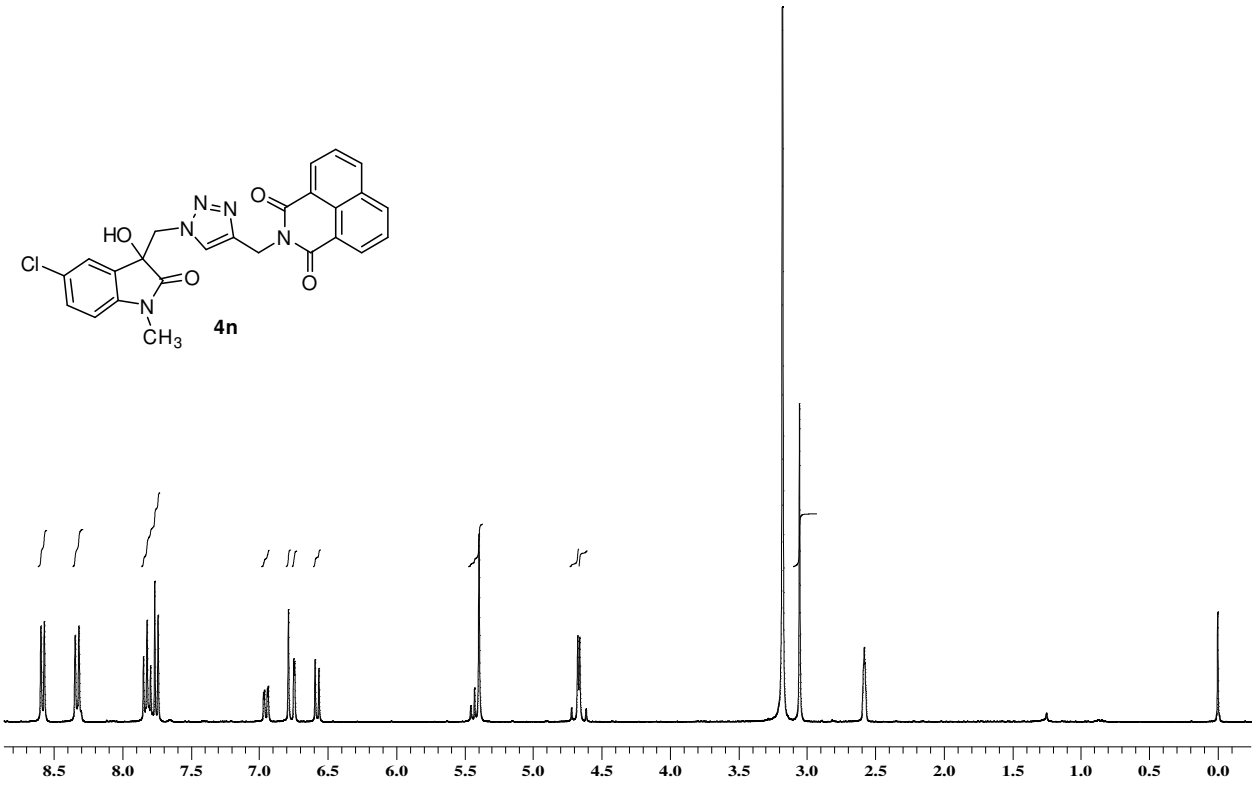
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0.0

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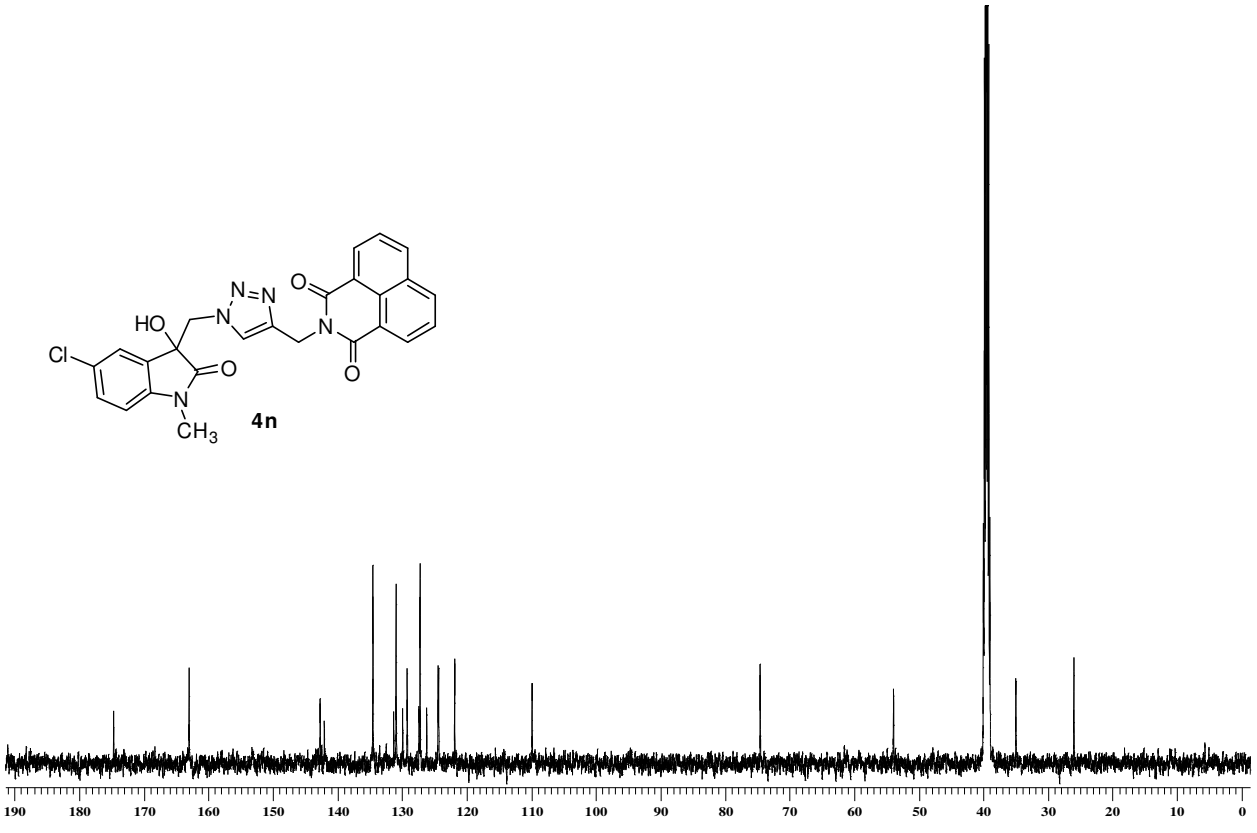
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CH3
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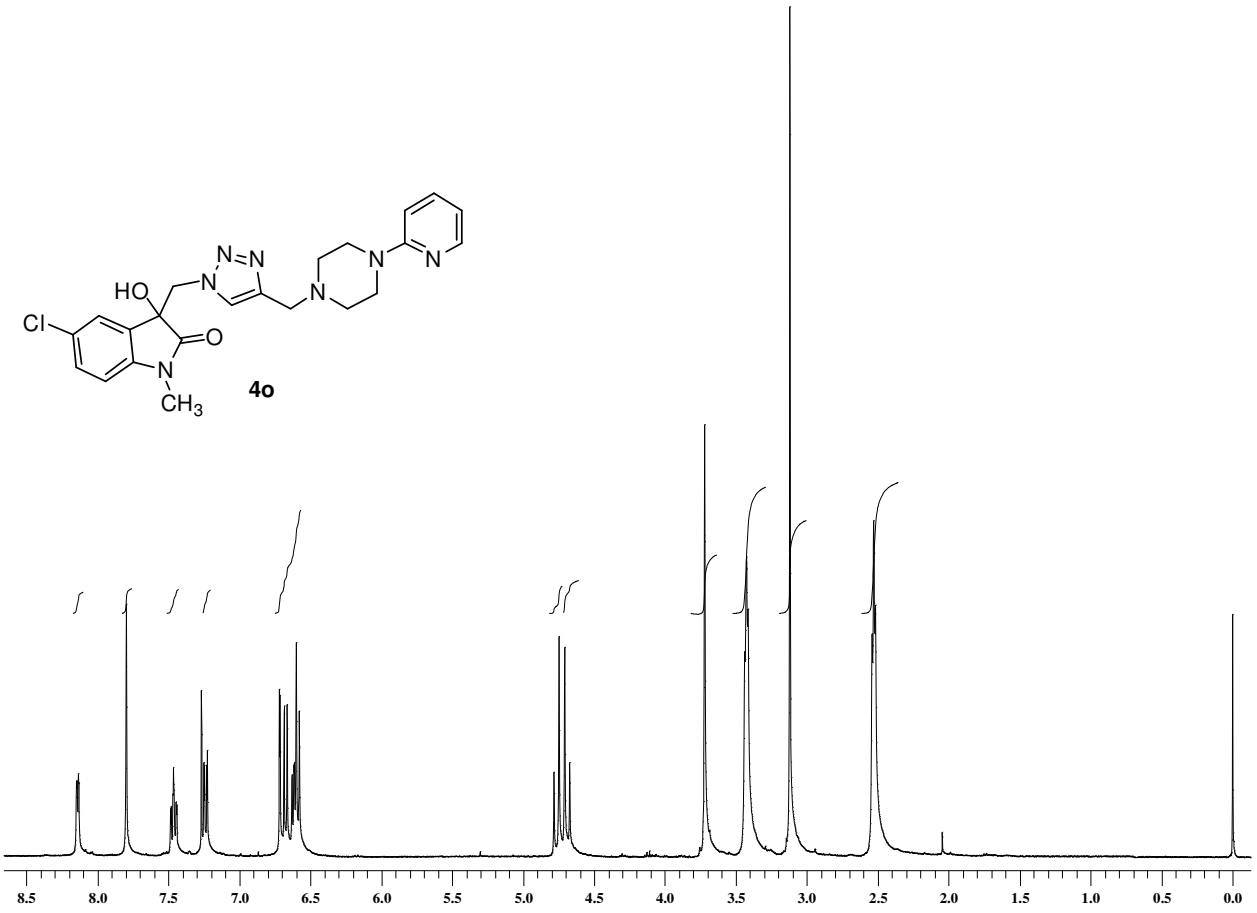
4n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CH3
4o
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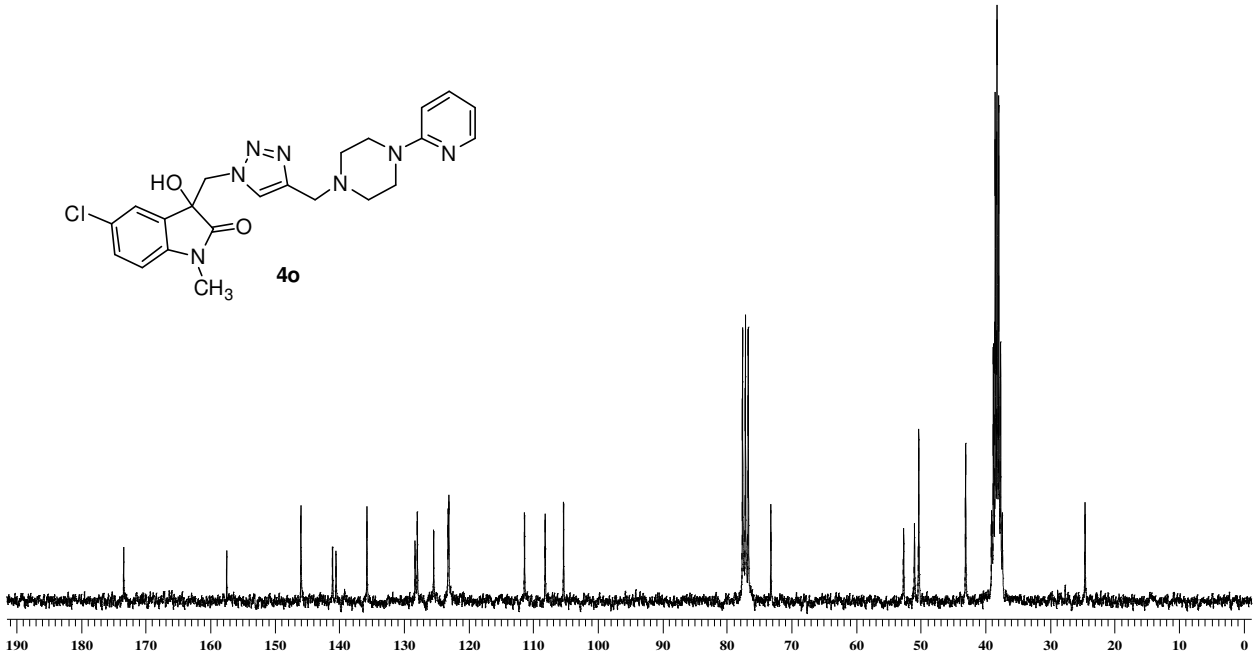
HO
Cl
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CH3
4o
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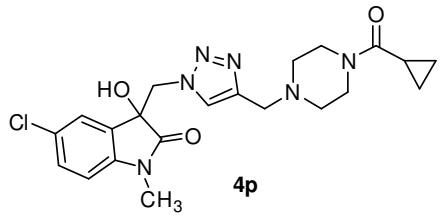
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N
CH3

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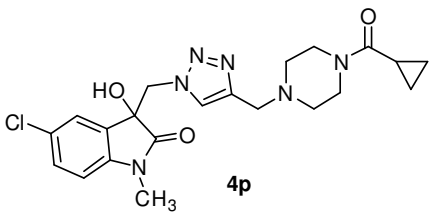
HO
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O
N
CH3

4p

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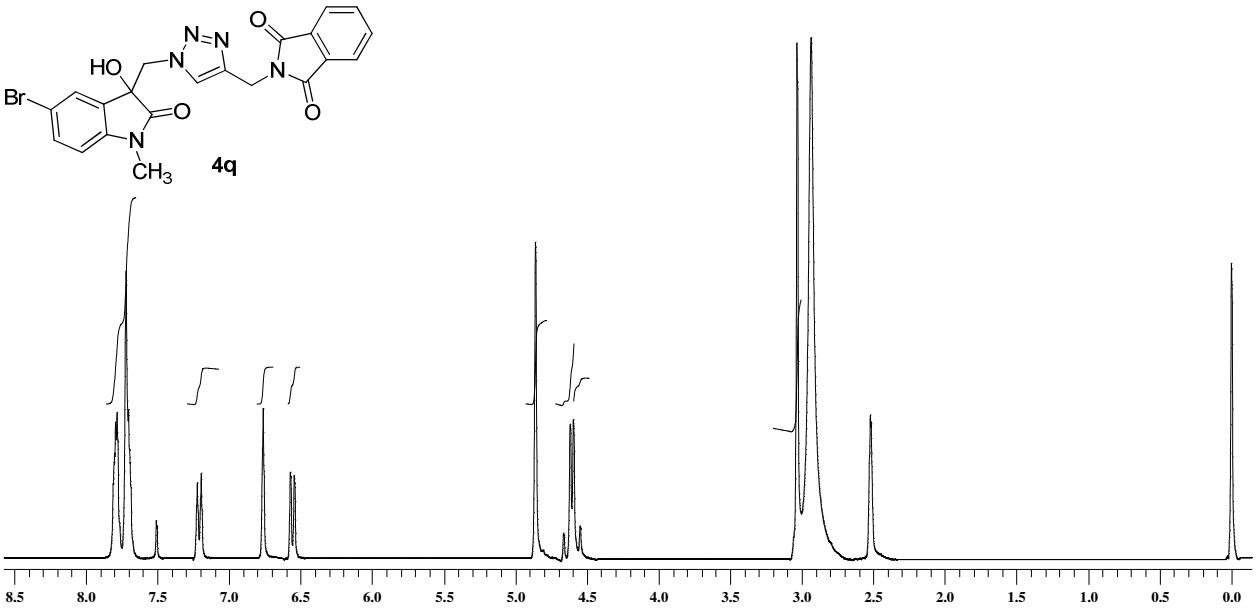
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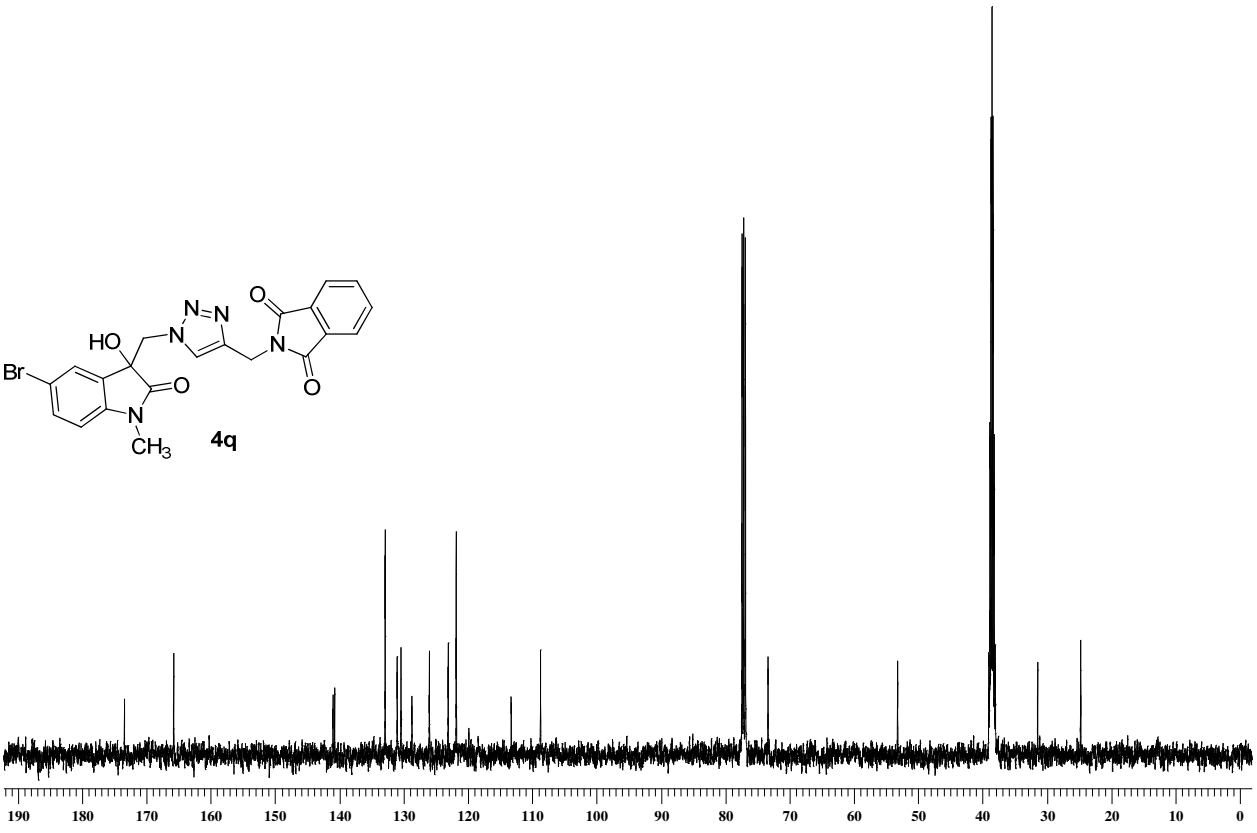
HO
Br
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N
CH3
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N
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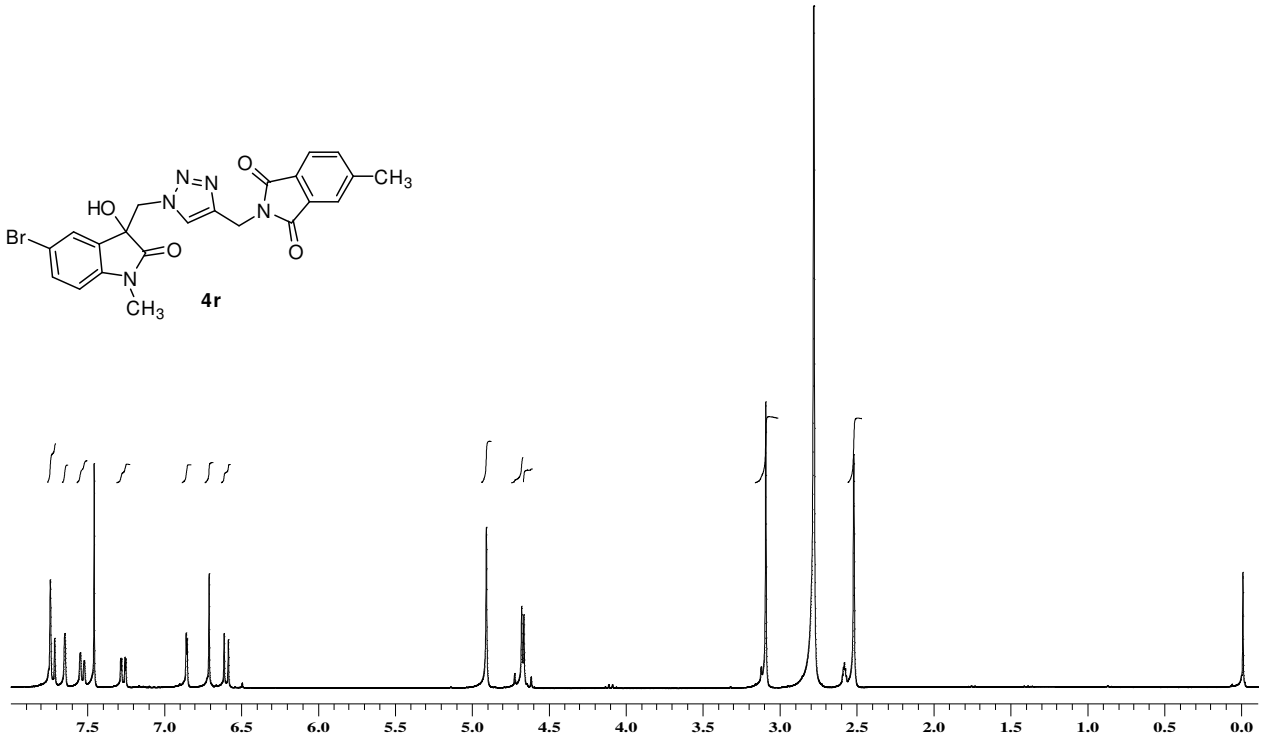
0

4q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Br
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N
CH3
N=N
O
CH3
4r
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6.5
6.0
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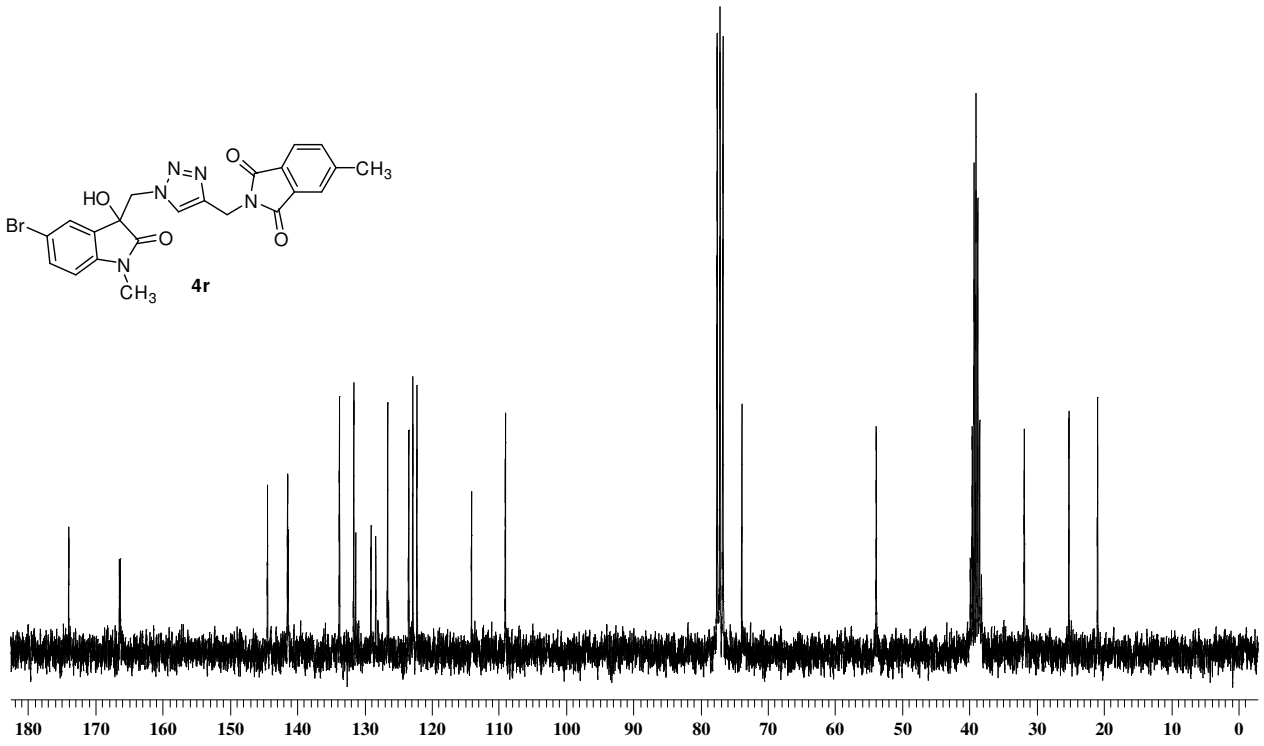
HO
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CH3
N=N
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CH3
4r
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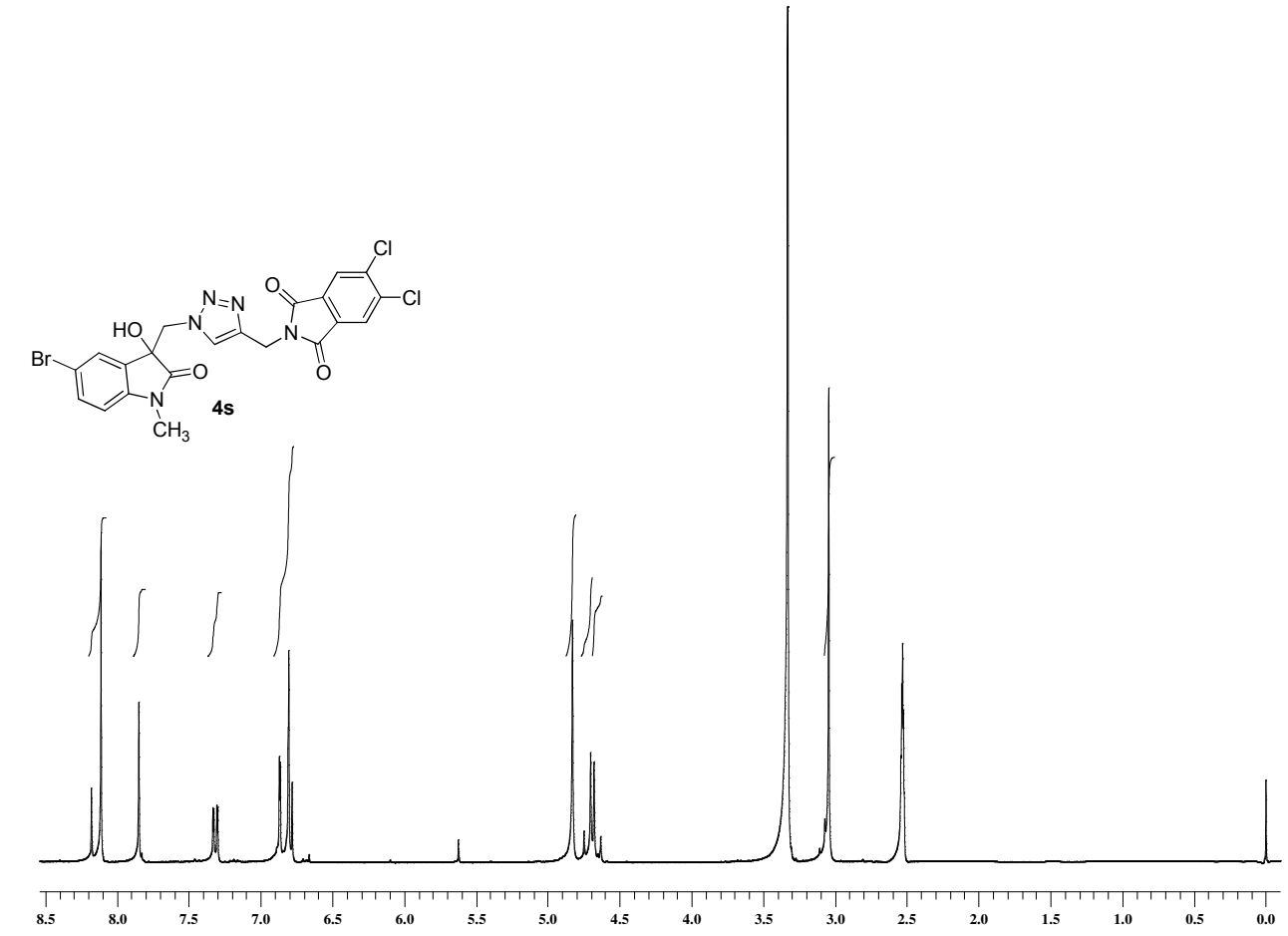
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CH3
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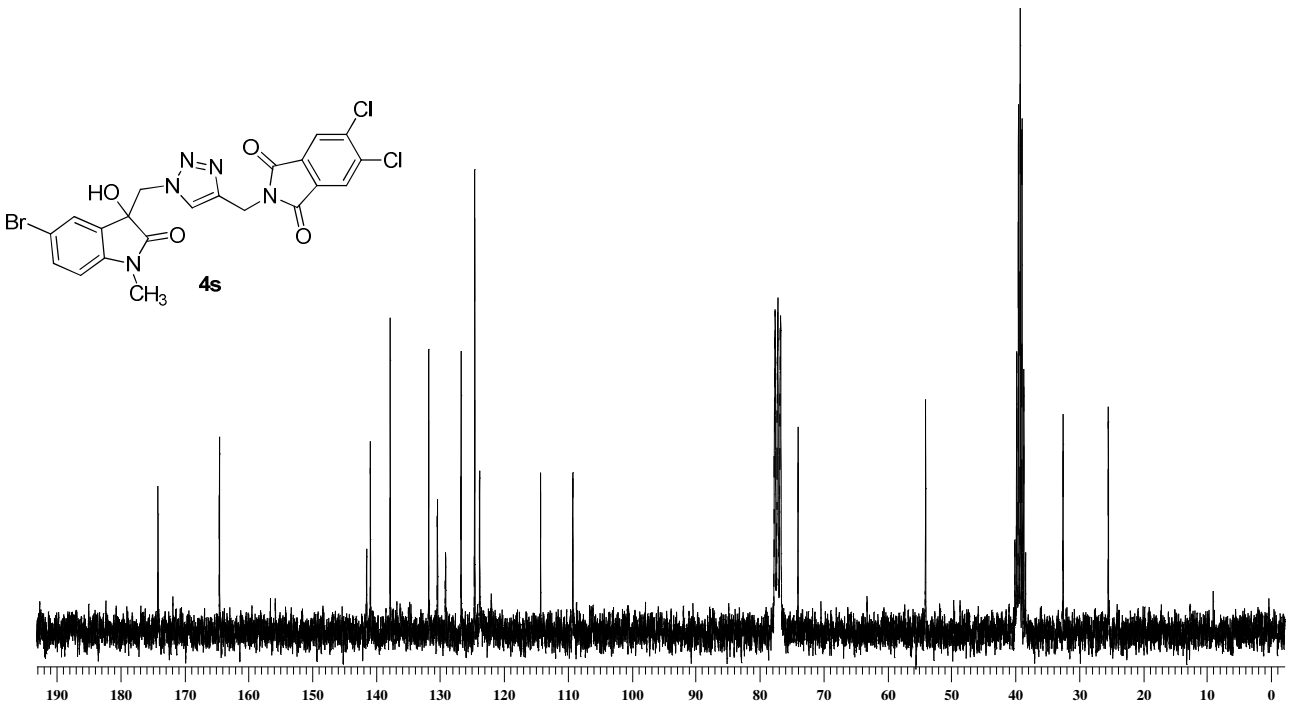
Cl
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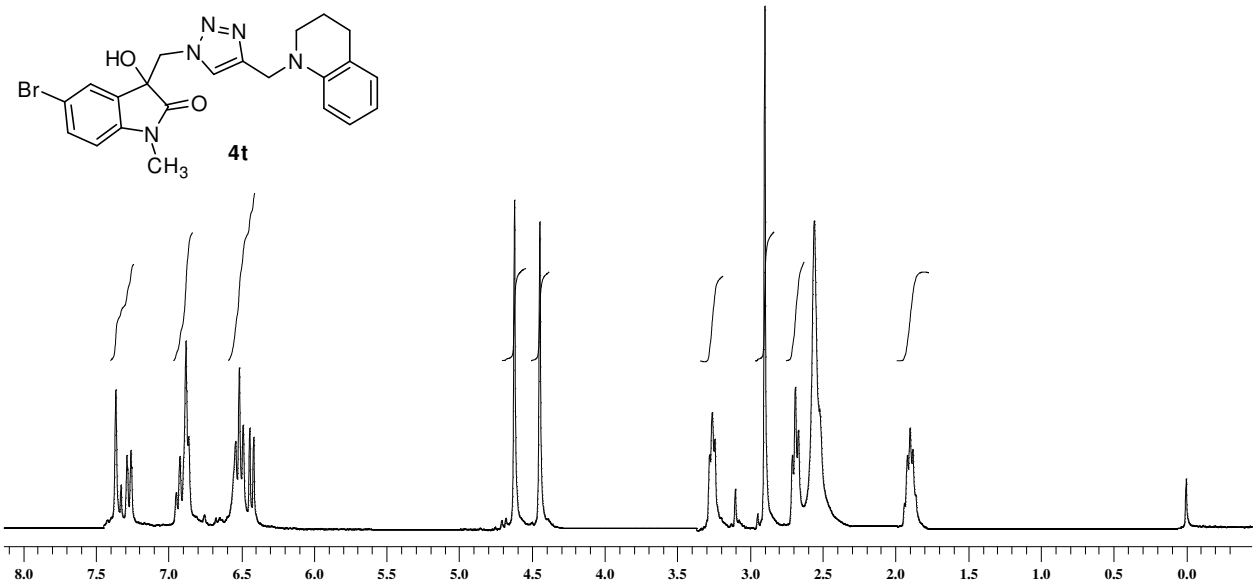
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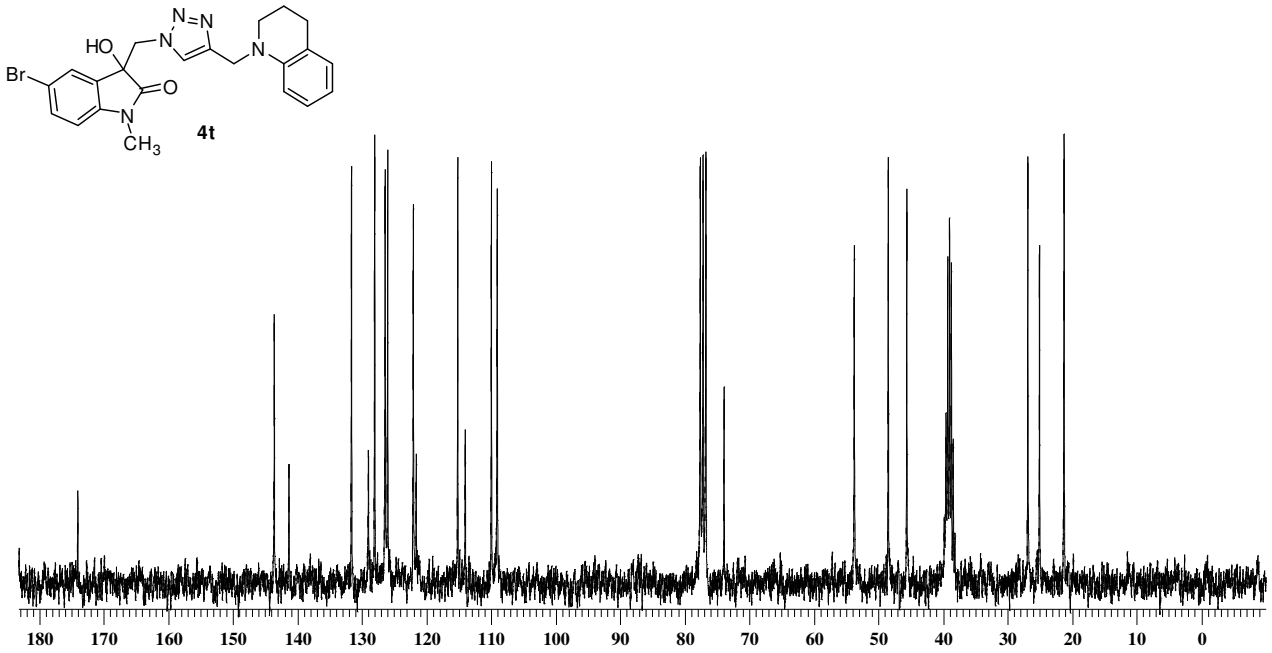
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