Analytical characterization of *N*,*N*-diallyltryptamine (DALT) and 16 ring-substituted derivatives

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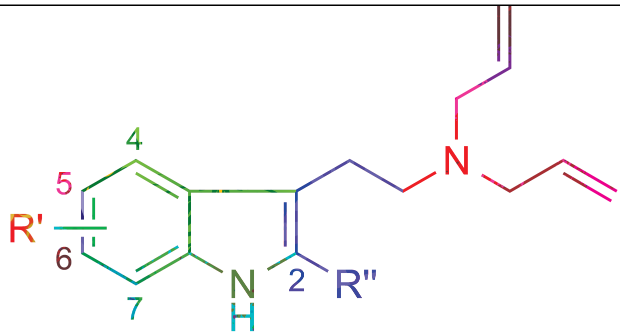
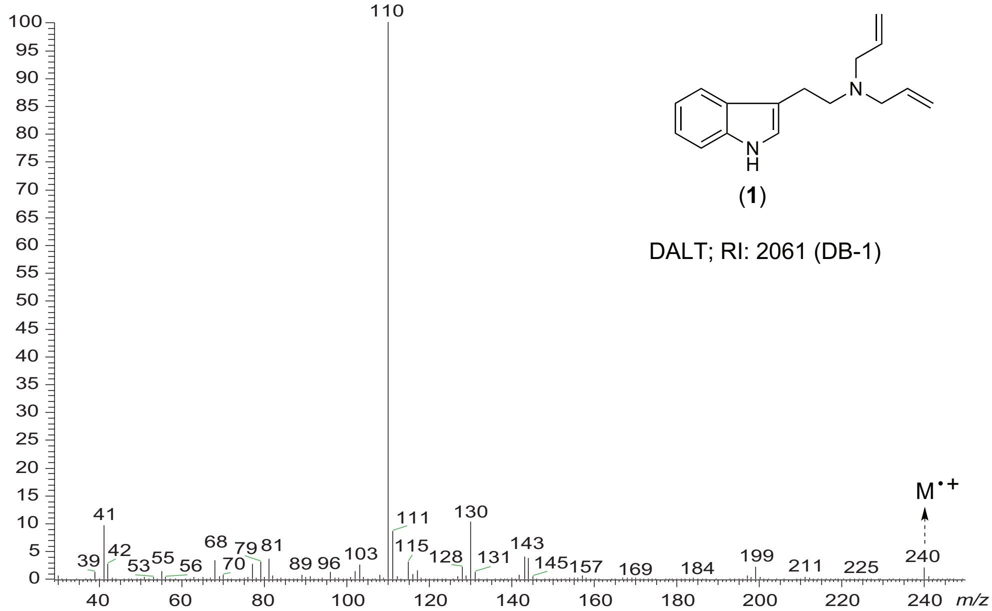


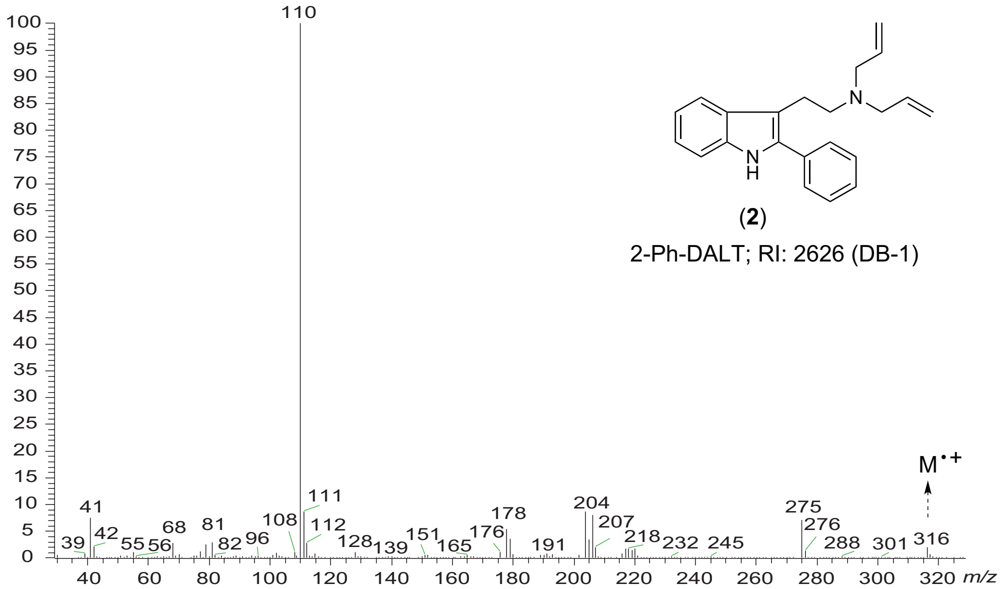
No.	R’	R’’	Abbreviation
1	H	H	DALT
2	H	C_6H_5	2-Ph-DALT
3	4-AcO	H	4-AcO-DALT
4	4-OH	H	4-OH-DALT
5	ED [a]	H	ED-DALT
6	5-CH_3	H	5-Me-DALT
7	5-OCH_3	H	5-MeO-DALT
8	5-OCH_3	CH_3	5-MeO-2-Me-DALT
9	5-OC_2H_5	H	5-EtO-DALT
10	5-F	H	5-F-DALT
11	5-F	CH_3	5-F-2-Me-DALT
12	5-Cl	H	5-Cl-DALT
13	5-Br	H	5-Br-DALT
14	MD [b]	H	MD-DALT
15	6-F	H	6-F-DALT
16	7-CH_3	H	7-Me-DALT
17	7-C_2H_5	H	7-Et-DALT

[a] 4,5-(OCH_2CH_2O): 4,5-Ethylenedioxy
[b] 5,6-(OCH_2O): 5,6-Methylenedioxy



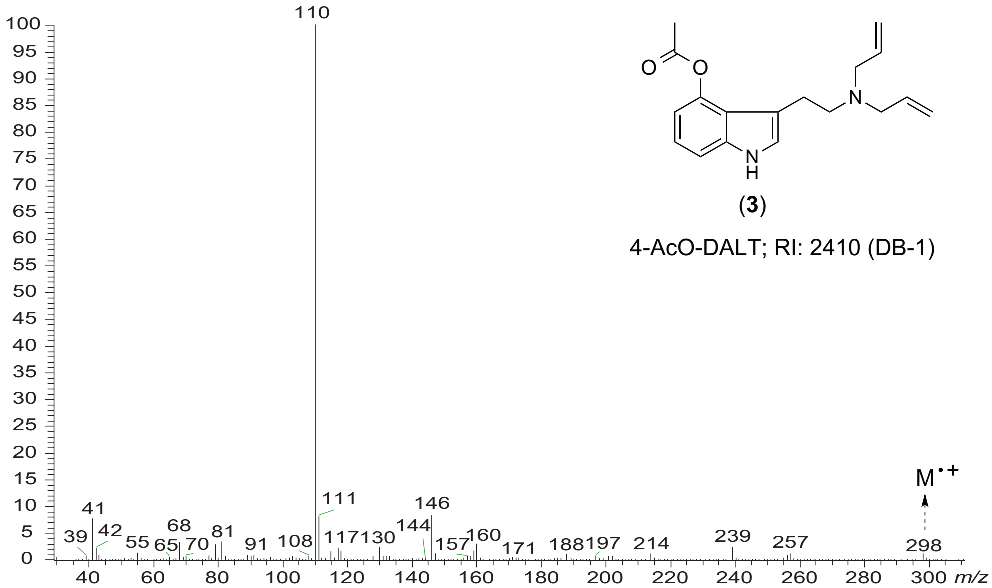
(**1**)

DALT; RI: 2061 (DB-1)



(**2**)

2-Ph-DALT; RI: 2626 (DB-1)



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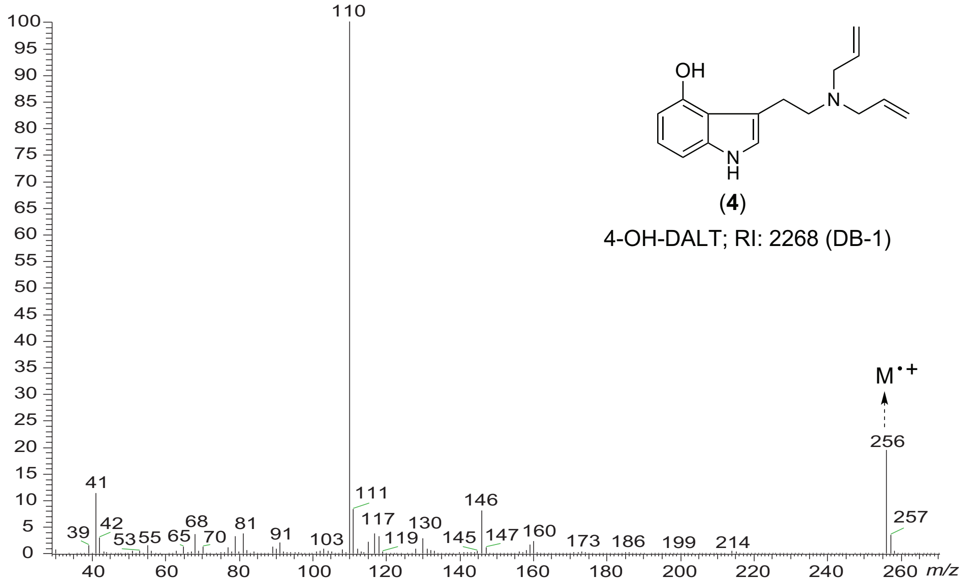
4-AcO-DALT; RI: 2410 (DB-1)



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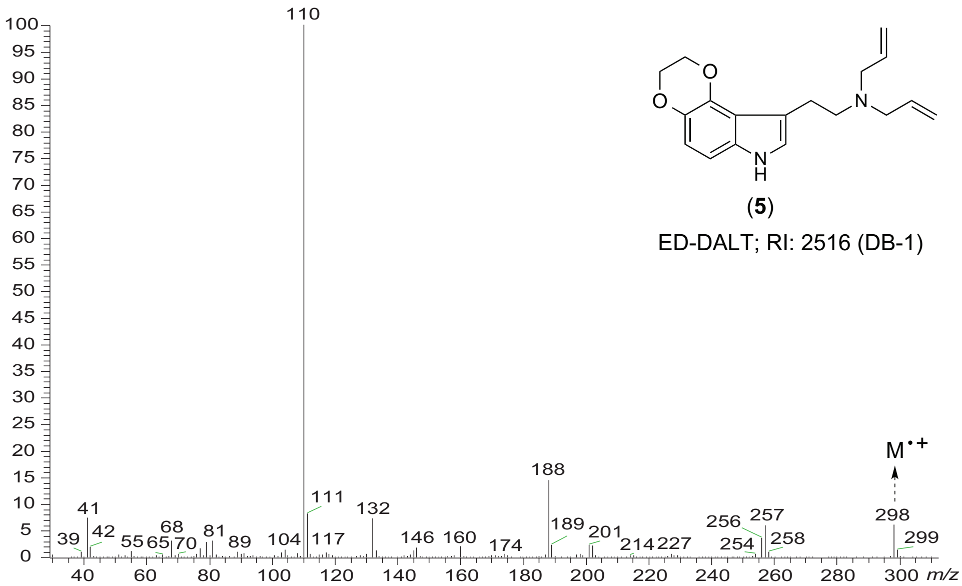
4-OH-DALT; RI: 2268 (DB-1)



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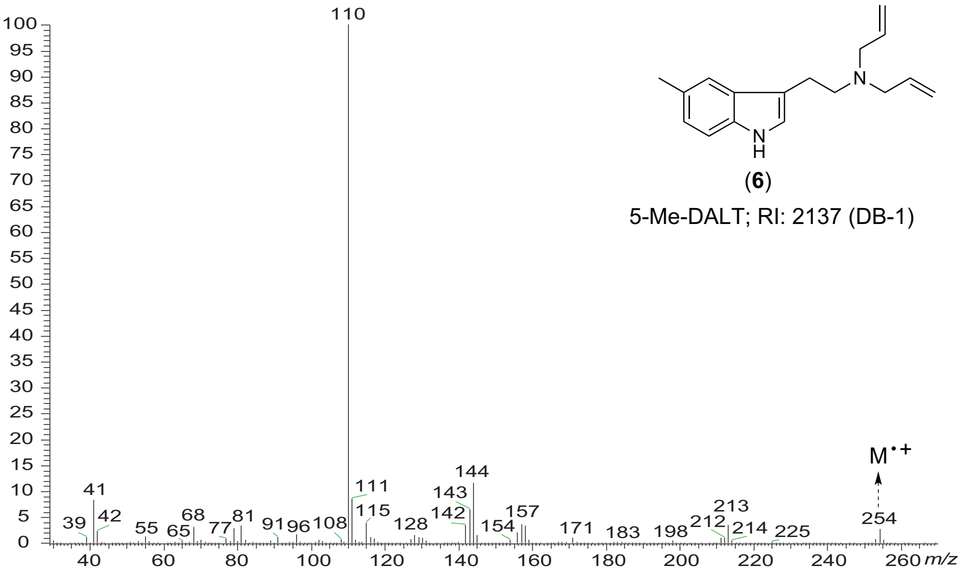
ED-DALT; RI: 2516 (DB-1)



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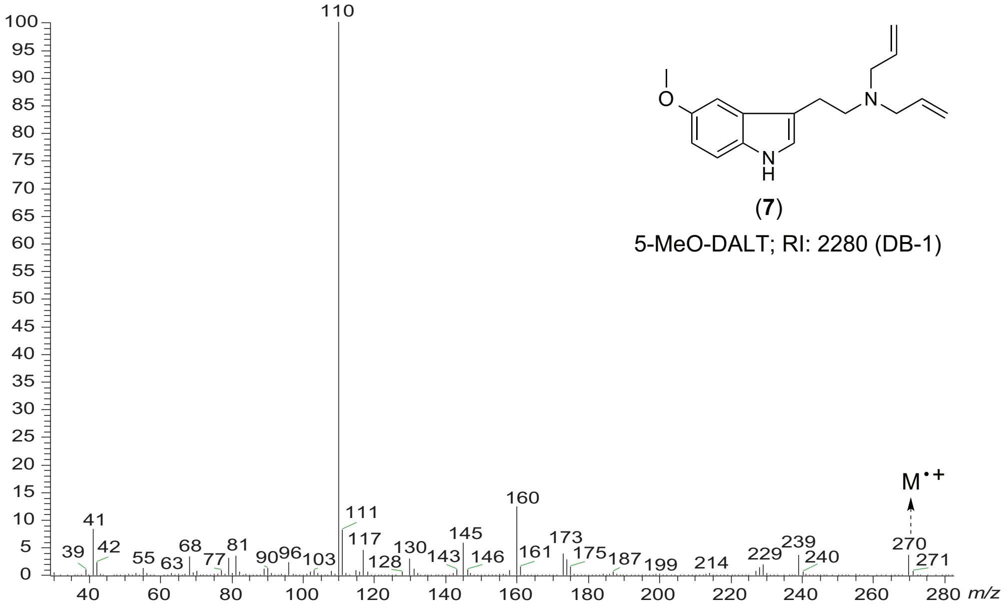
5-Me-DALT; RI: 2137 (DB-1)



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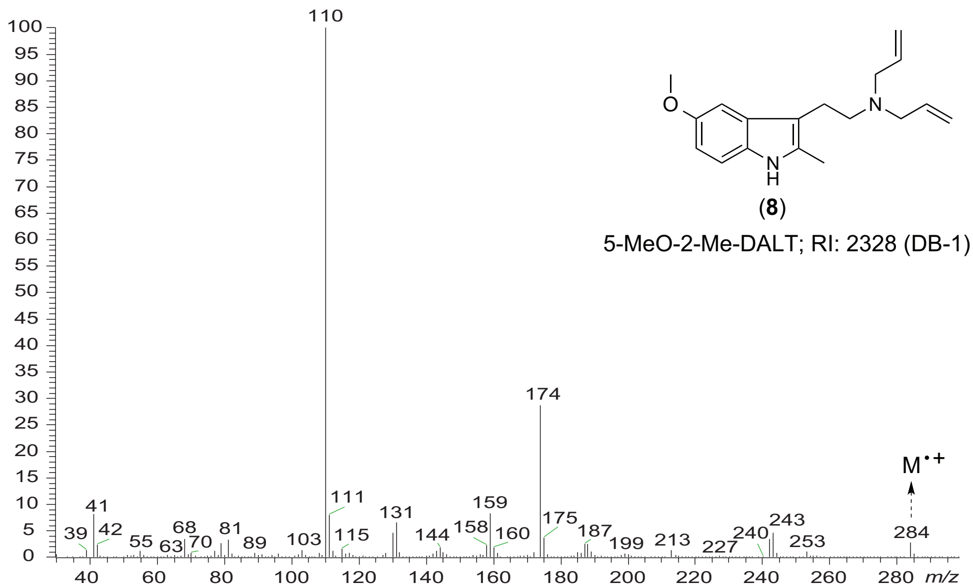
5-MeO-DALT; RI: 2280 (DB-1)



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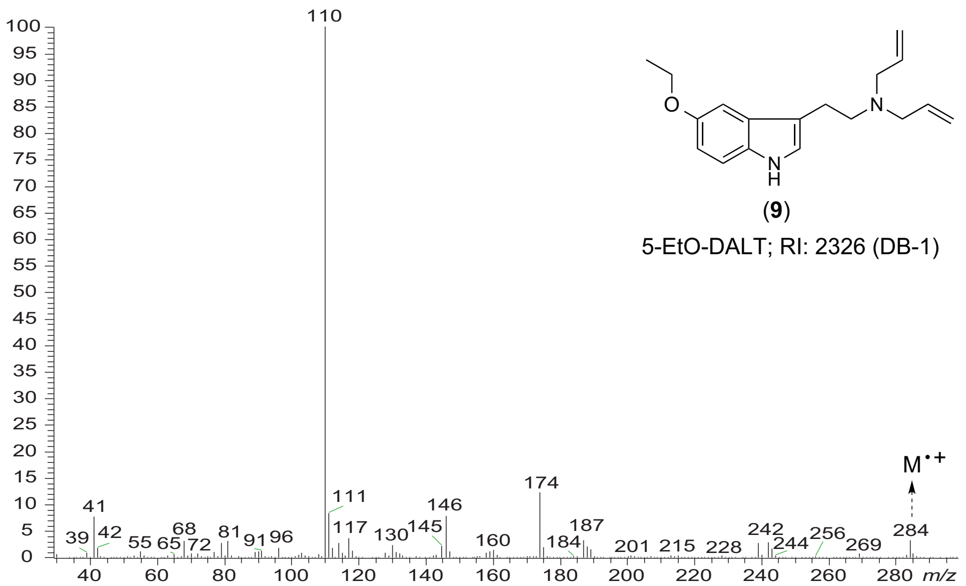
5-MeO-2-Me-DALT; RI: 2328 (DB-1)



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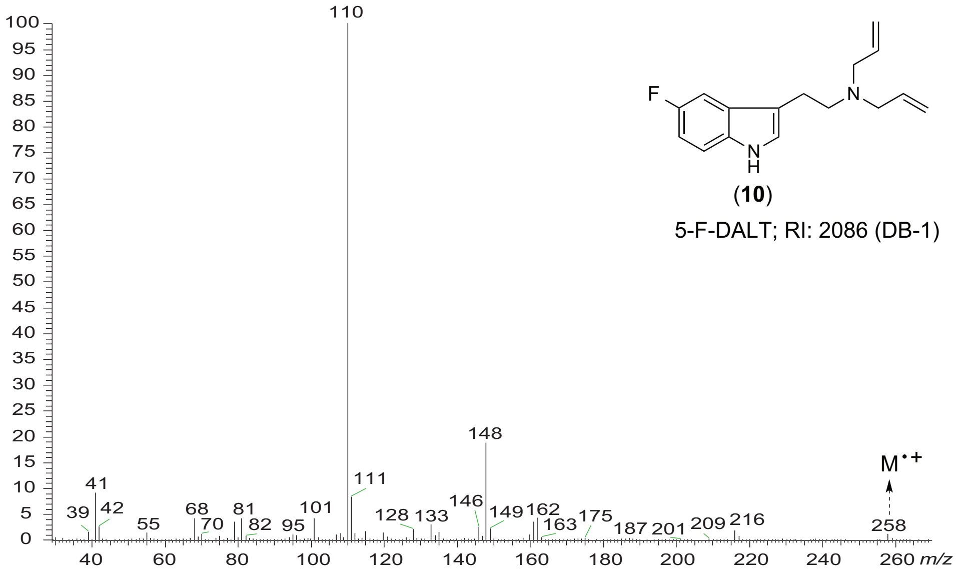

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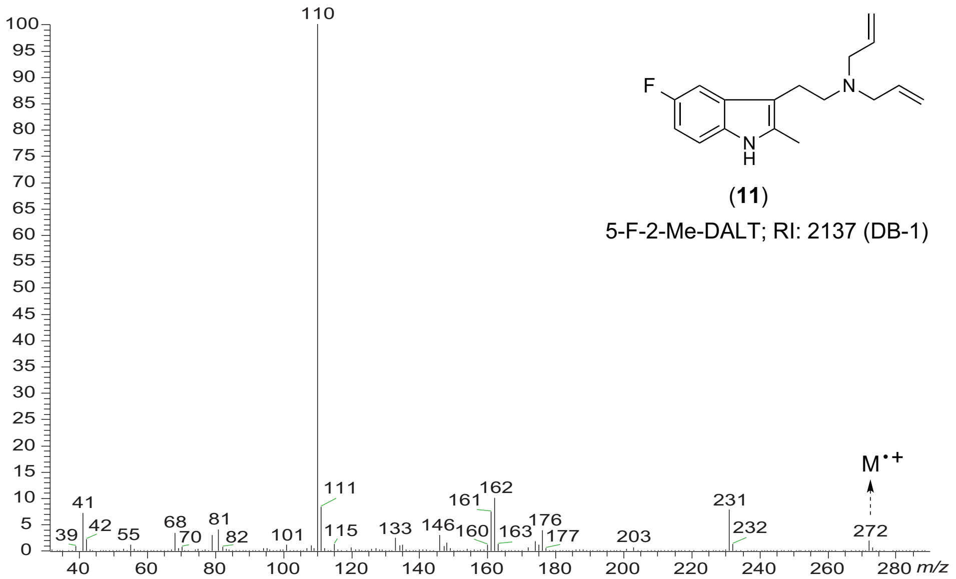

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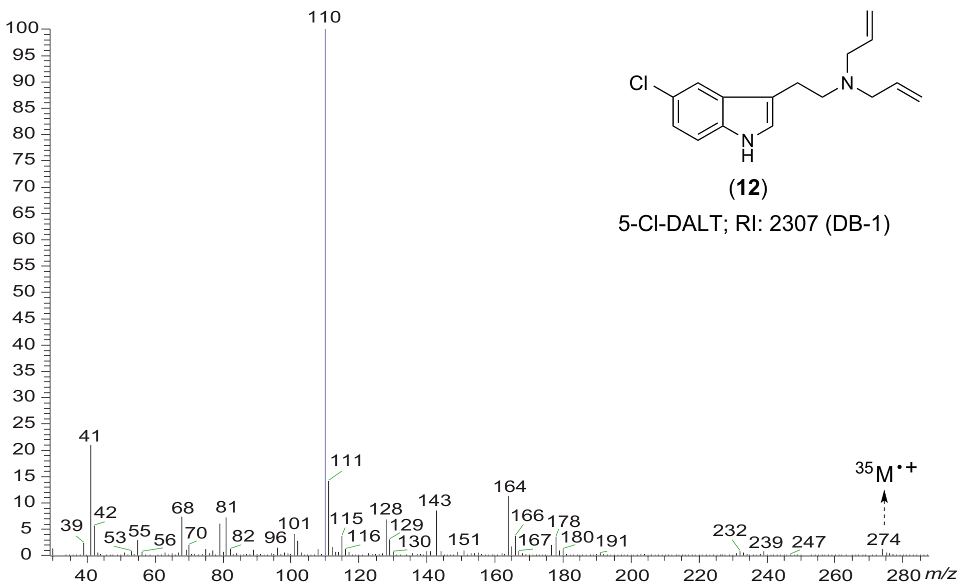

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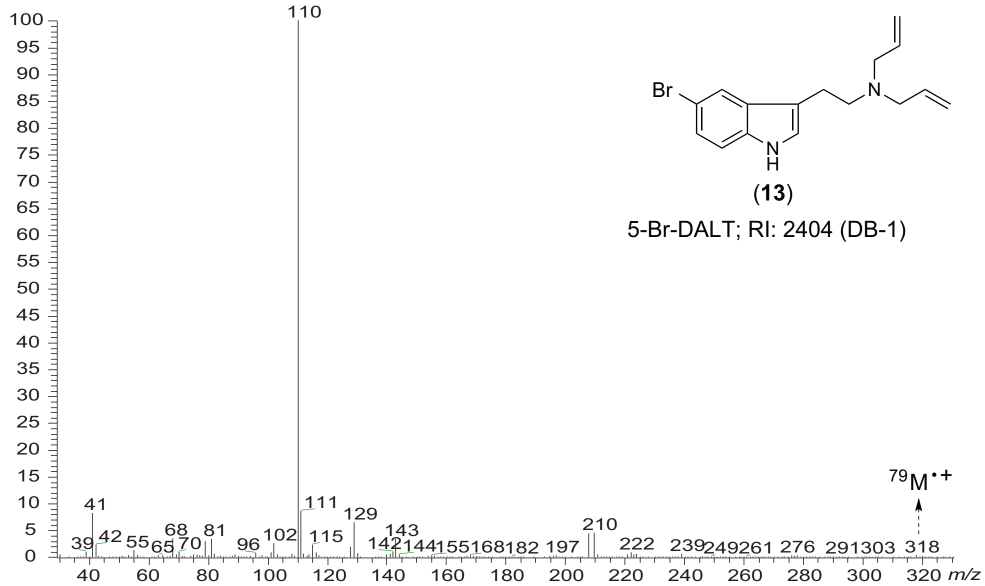
5-Cl-DALT; RI: 2307 (DB-1)



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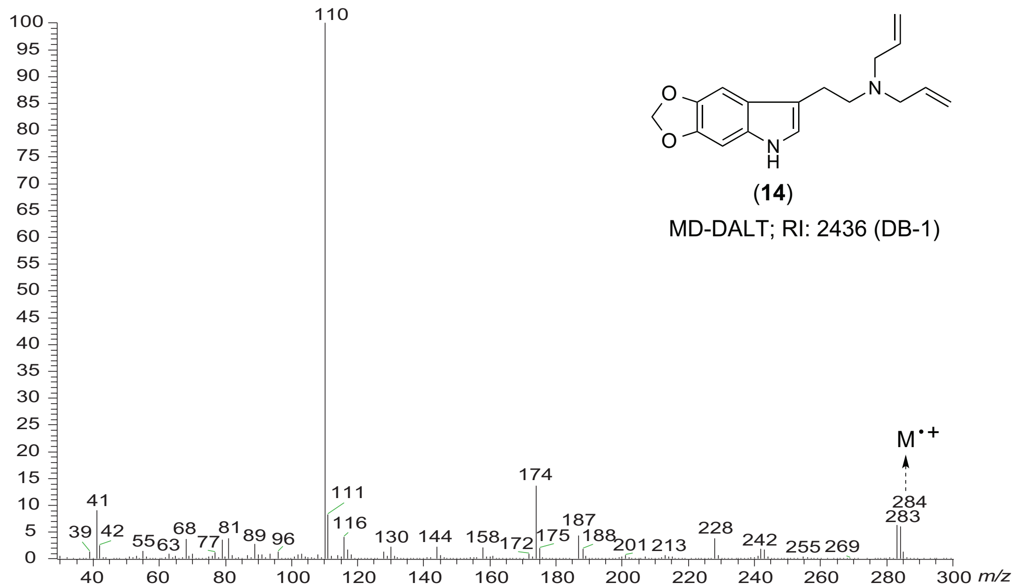

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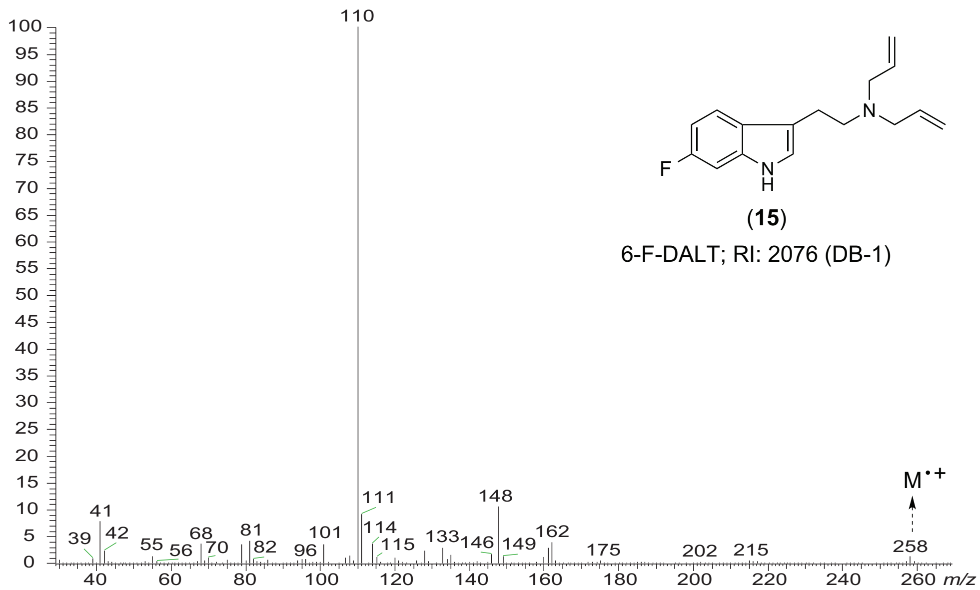
MD-DALT; RI: 2436 (DB-1)



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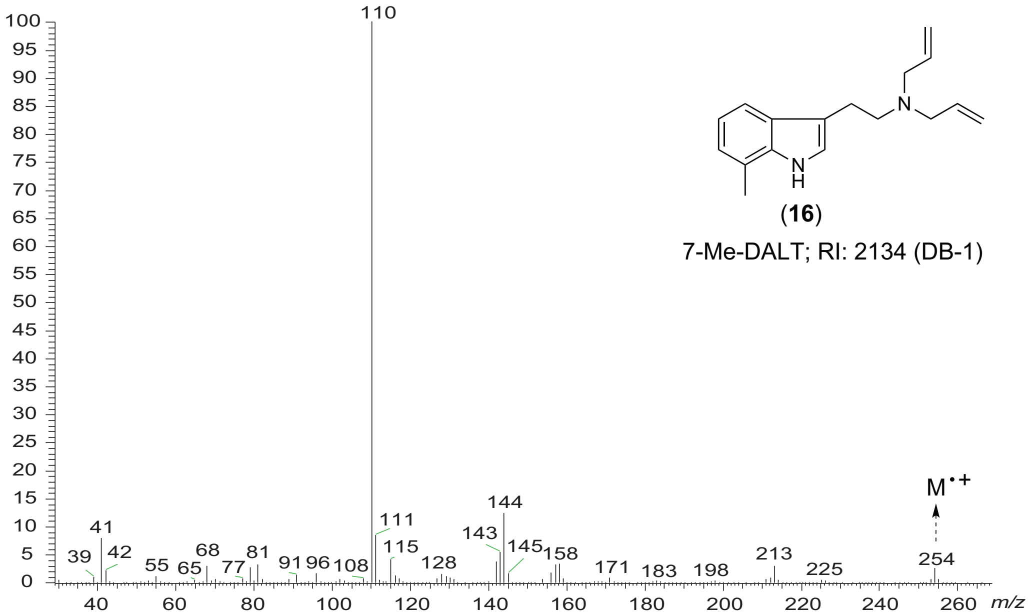
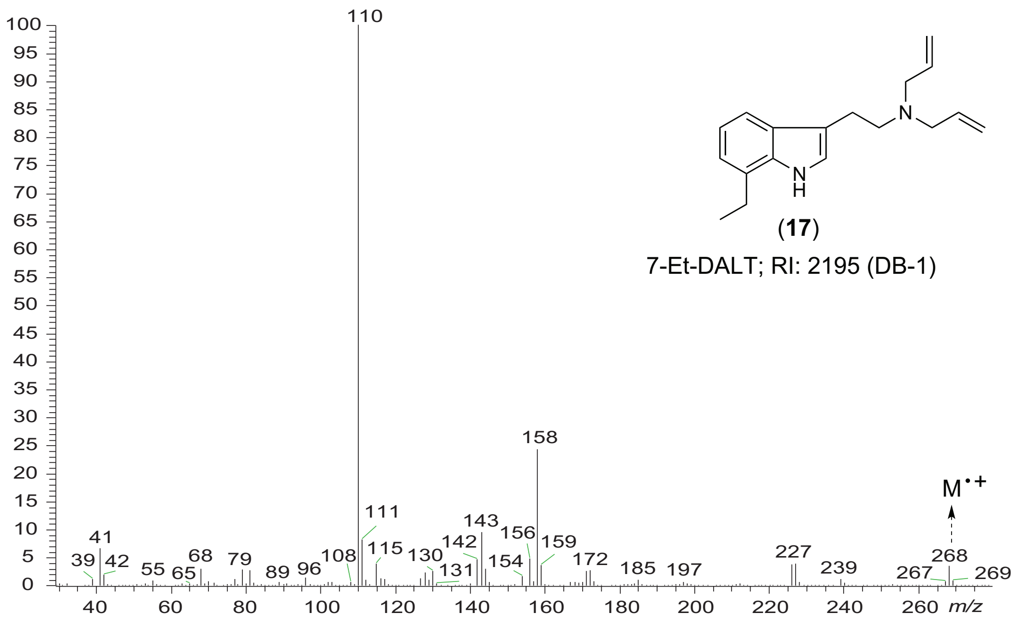
6-F-DALT; RI: 2076 (DB-1)

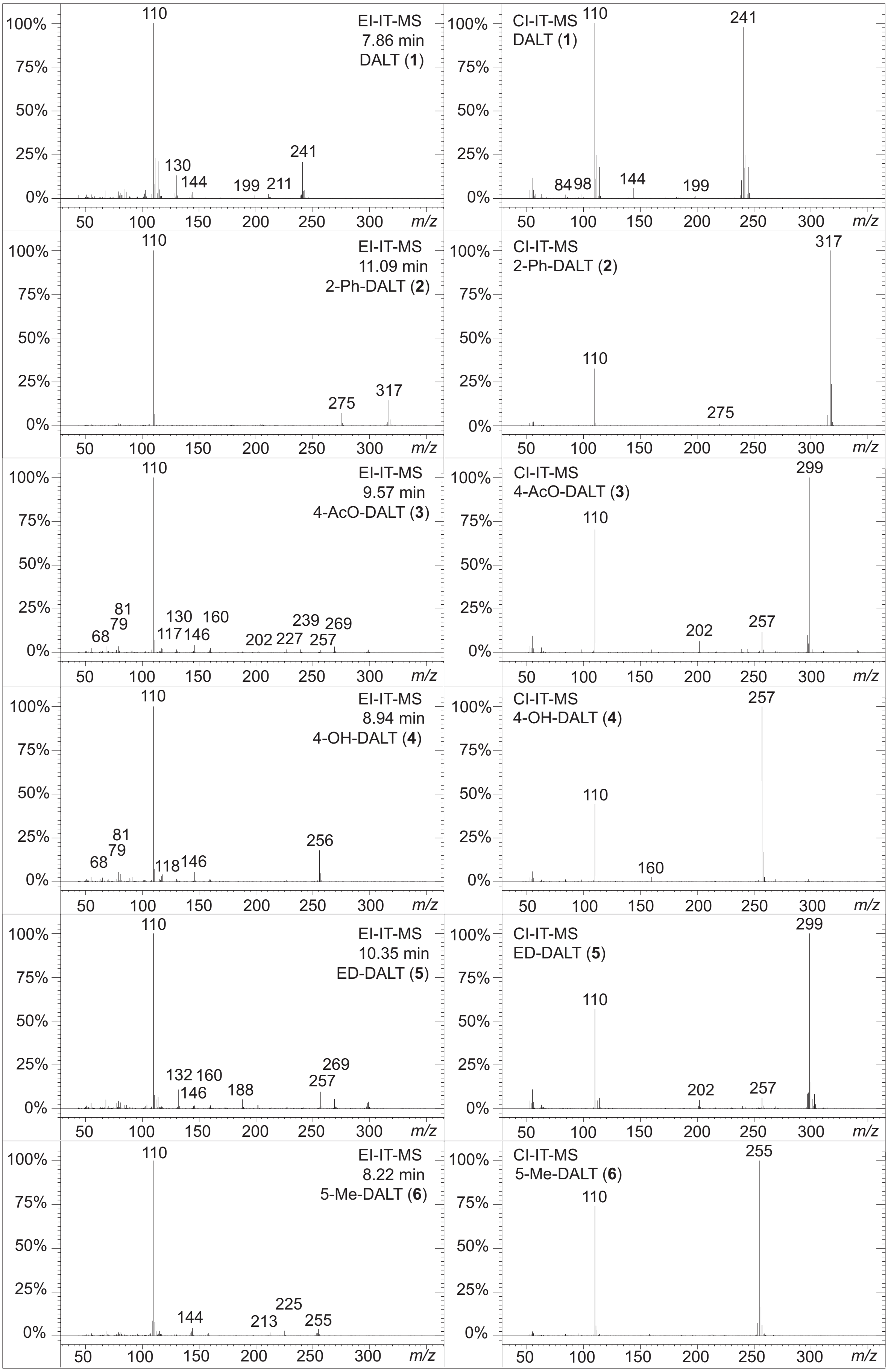




Gas chromatography ion trap mass spectrometry (next page)

Spectra (0.5 mg/mL in methanol) were recorded in electron (EI) and chemical ionization (CI) mode using HPLC grade methanol as the liquid CI reagent. A Varian 450-GC gas chromatograph coupled to a Varian 220-MS ion trap mass spectrometer and a Varian 8400 autosampler was employed with a Varian CP-1177 injector (300 ºC) in split mode (1:50) (Walnut Creek, CA, USA). The Varian MS Data Review function of the Workstation software, version 6.91, was used for data acquisition. Transfer line, manifold and ion trap temperatures were set at 310, 80 and 220 ºC, respectively. The carrier gas was helium at a flow rate of 1 mL/min using the EFC constant flow mode. The default settings for CI ionization parameters (0.4 s/scan) were used: CI storage level *m/z* 19.0; ejection amplitude *m/z* 15.0; background mass *m/z* 55; maximum ionization time 2000 µs; maximum reaction time 40 ms; target TIC 5000 counts. An Agilent J&W VF-5ms GC column (30 m × 0.25 mm, 0.25 µm) was employed for separation. The starting temperature was set at 130 ºC and held for 1 min. The temperature then increased at 20 ºC/min to 280 ºC and held constant for 11.50 min to give a total run time of 20.00 min.

GC ion trap mass spectrometry



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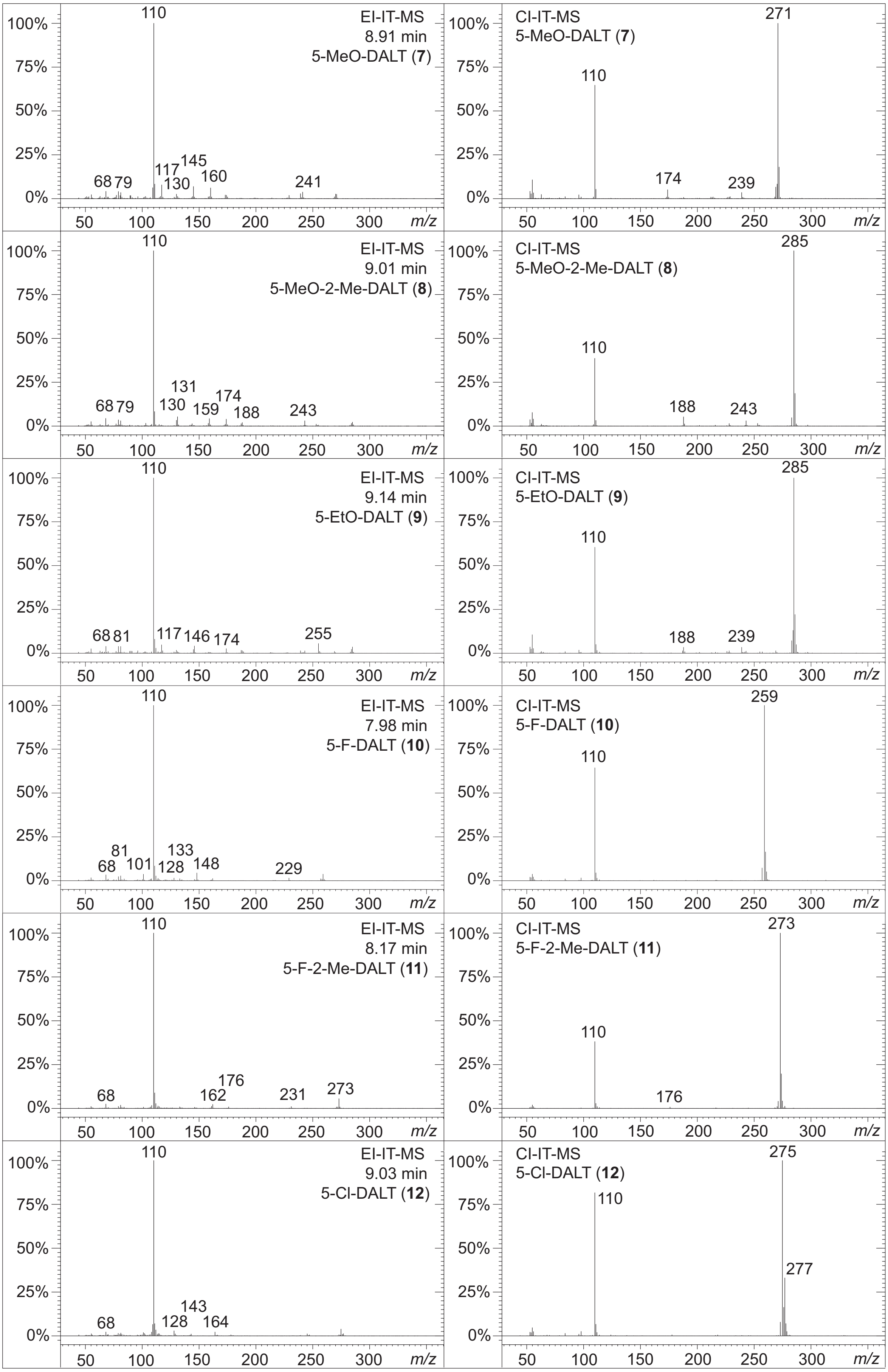

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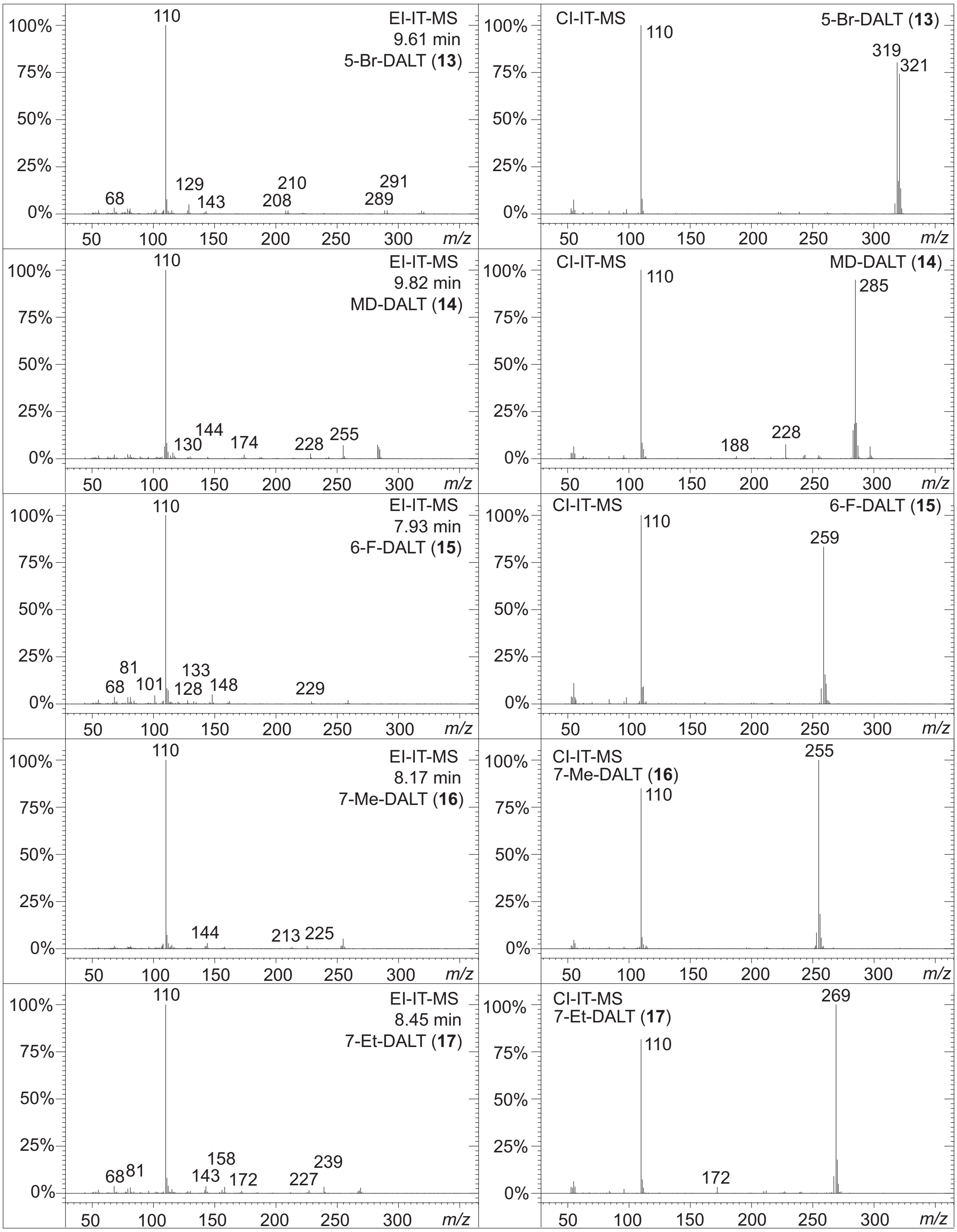

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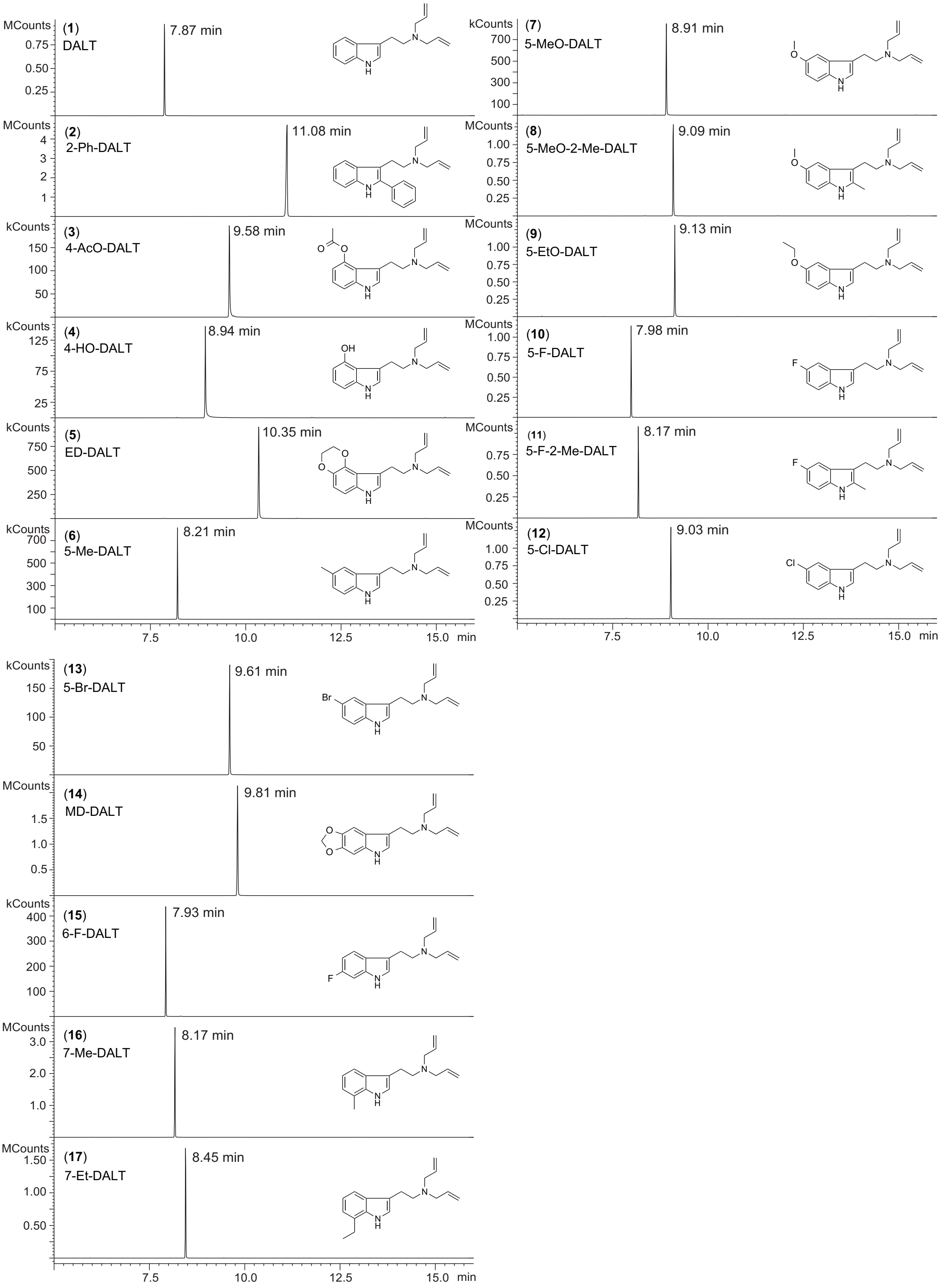
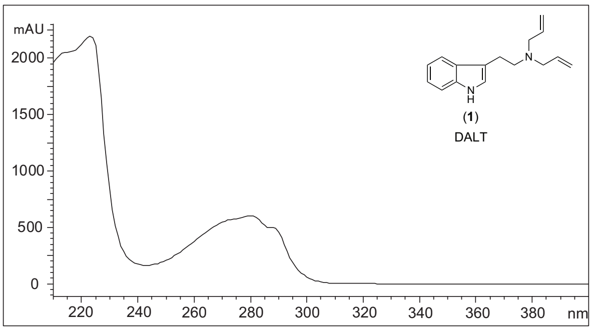
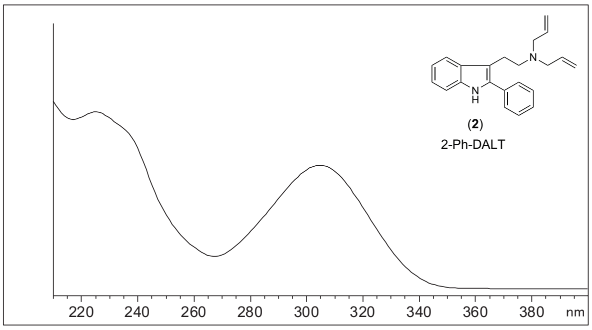
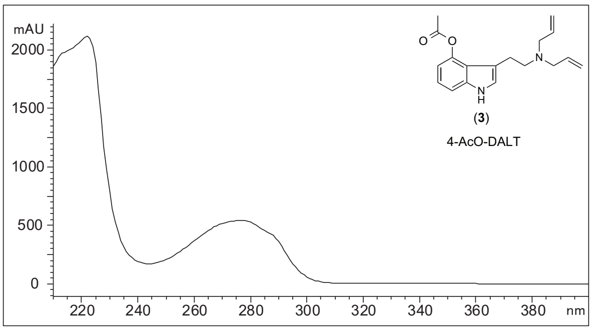
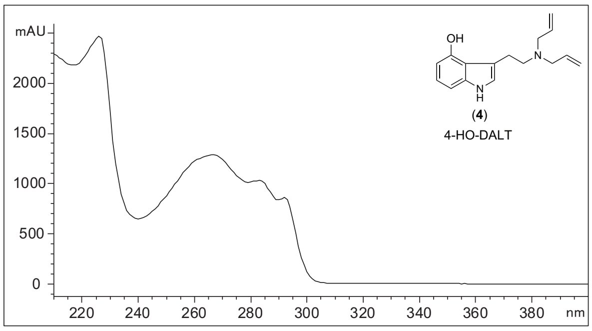


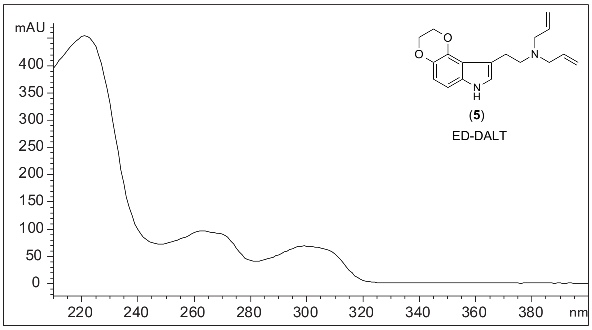
Photodiode array detection

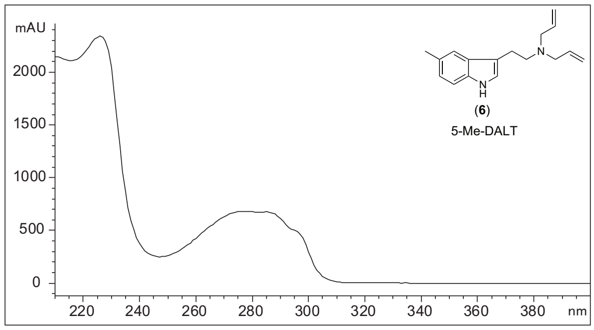


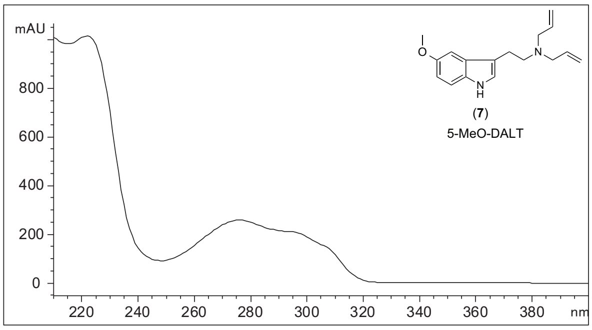


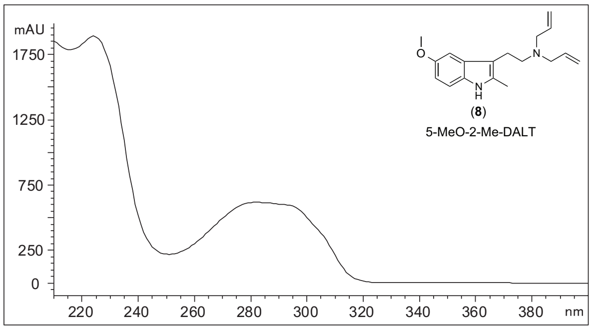


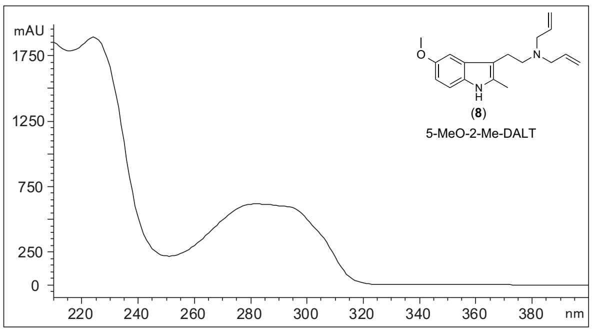


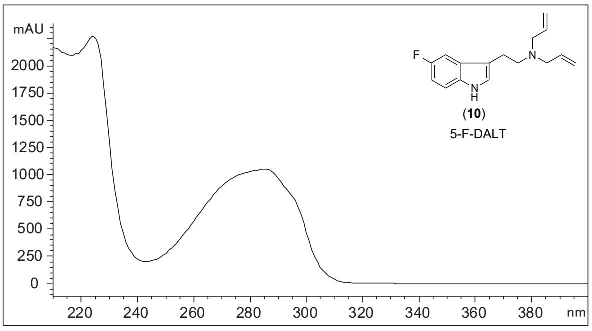












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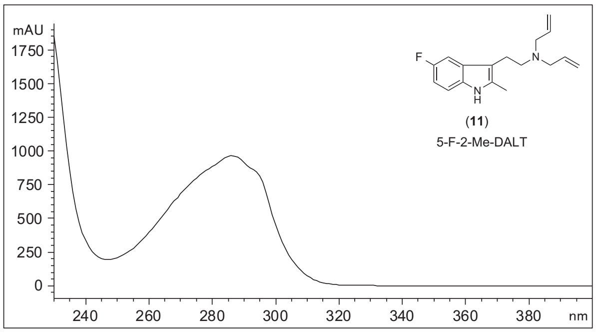
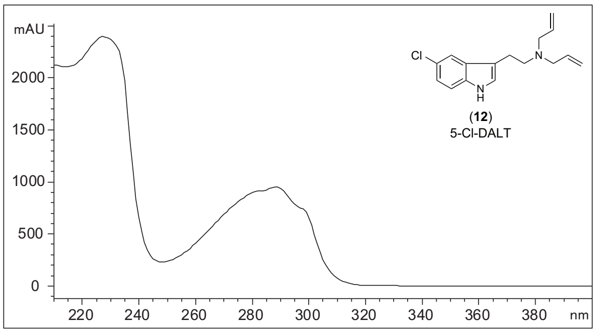
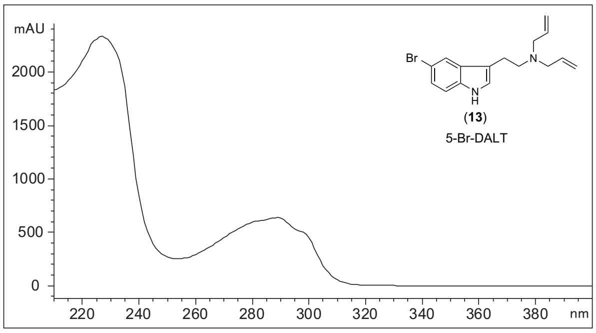
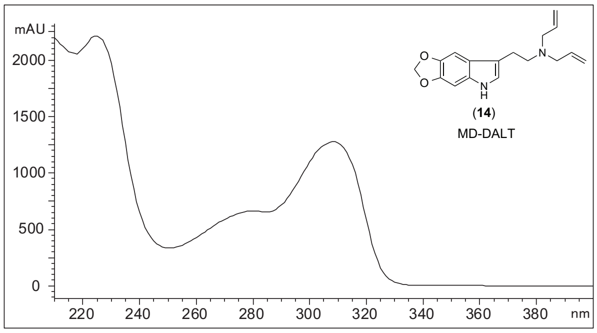
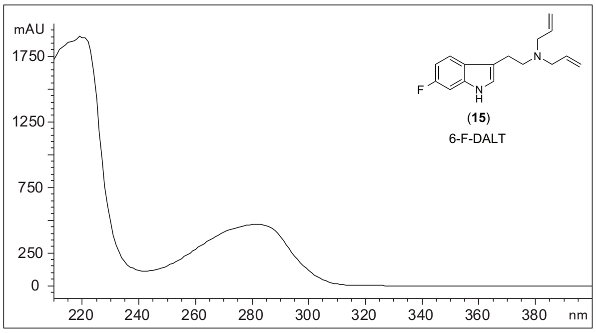
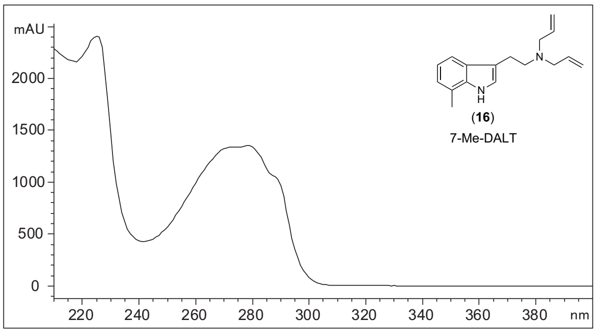


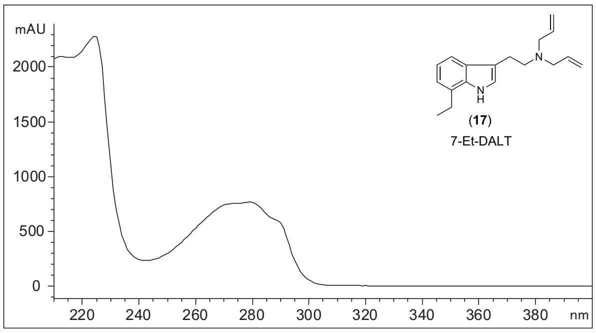




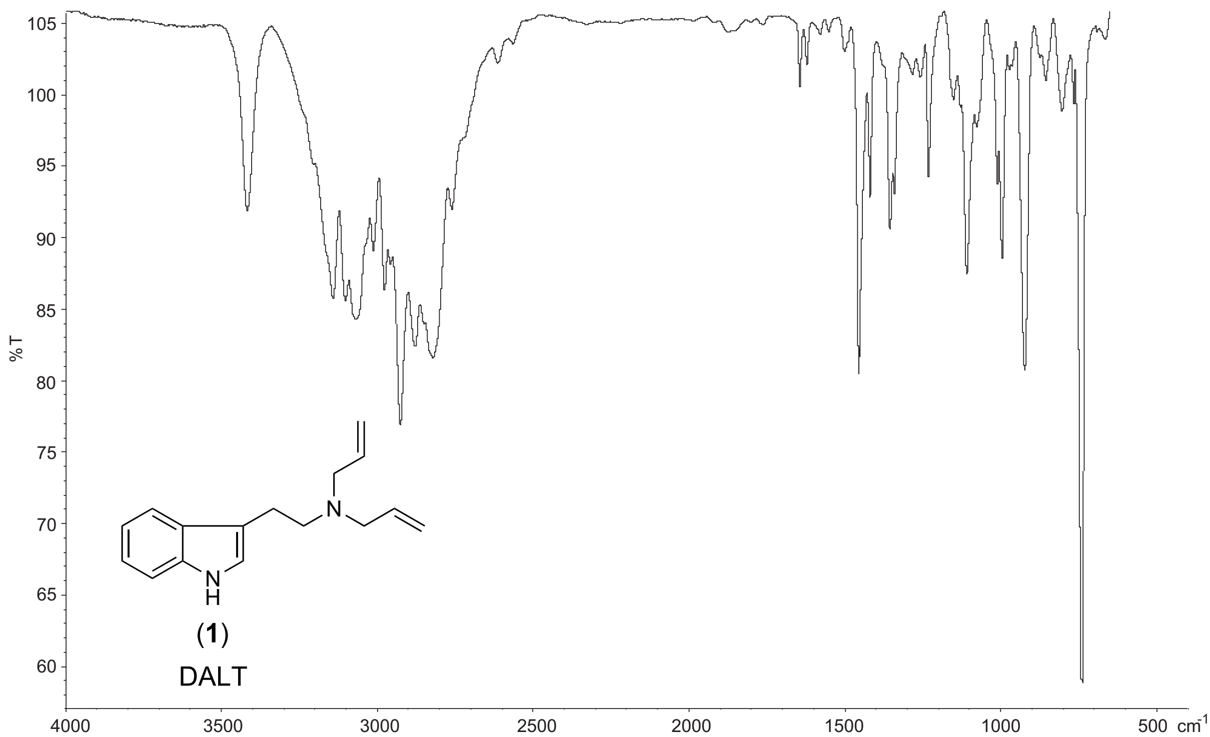


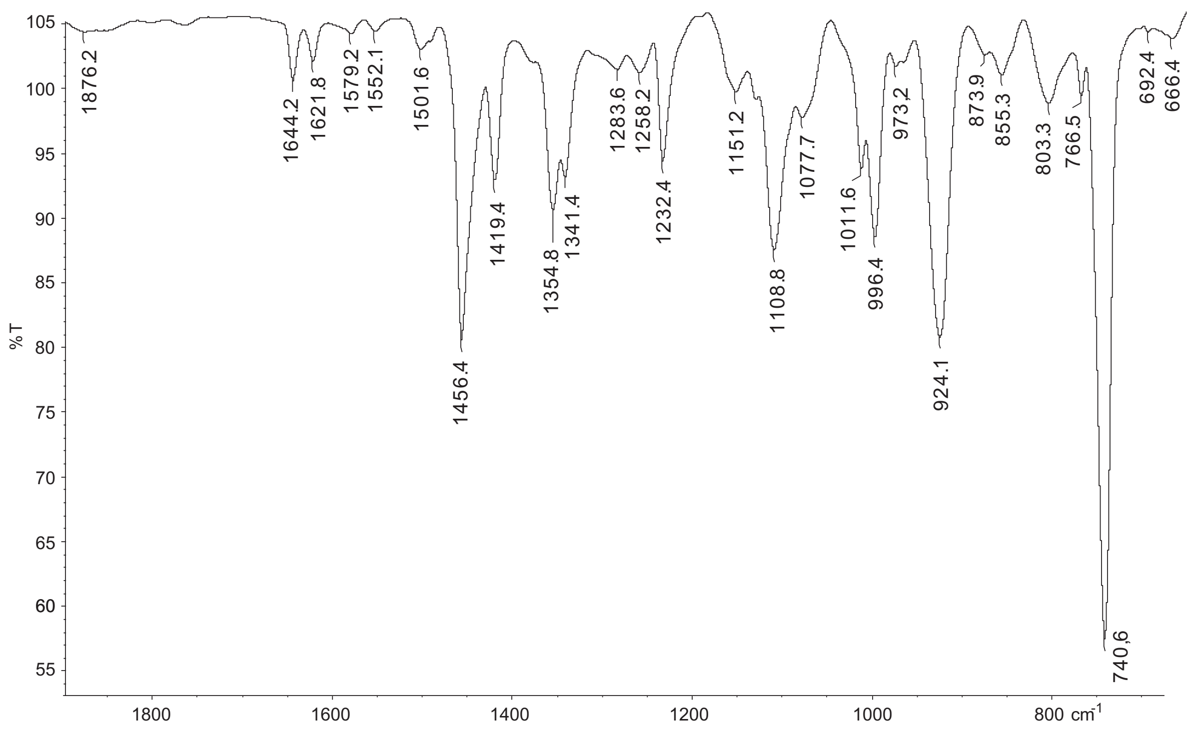






GC solid-state IR





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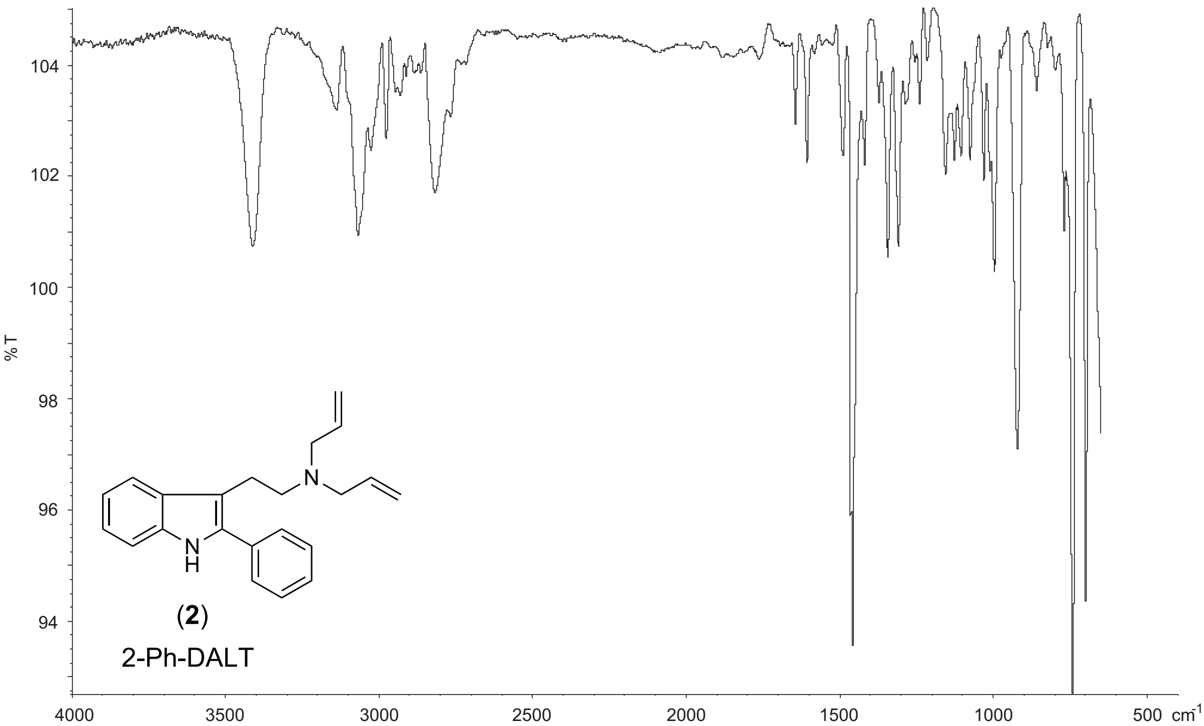

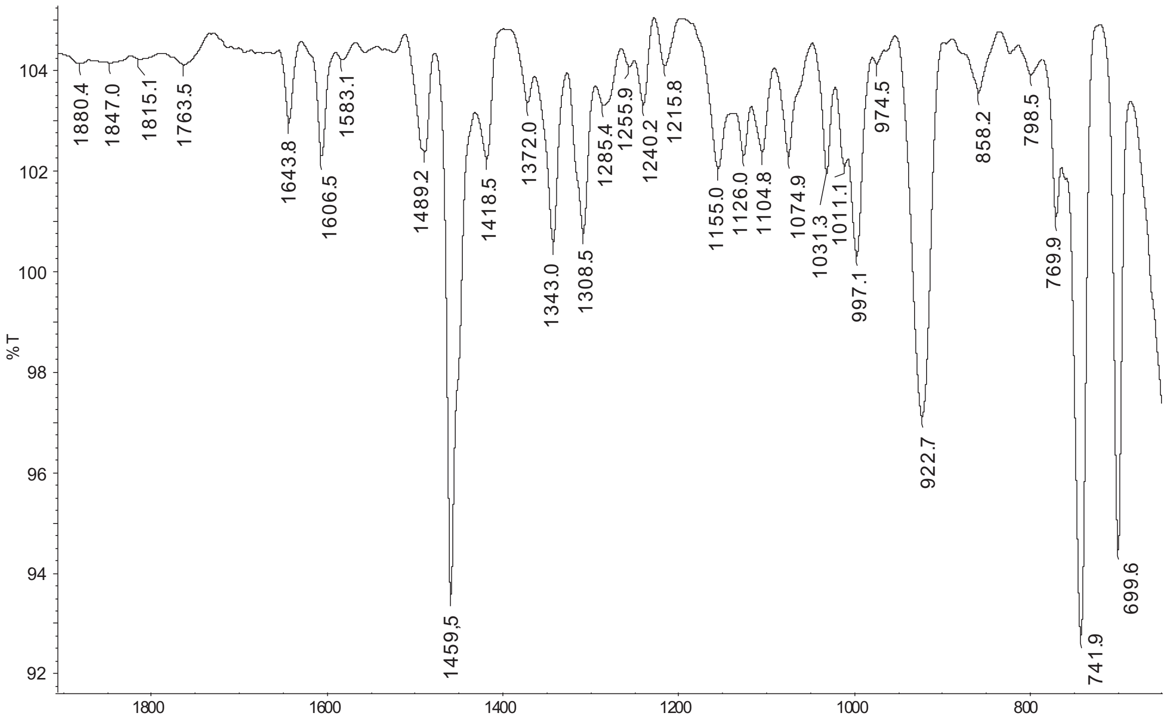

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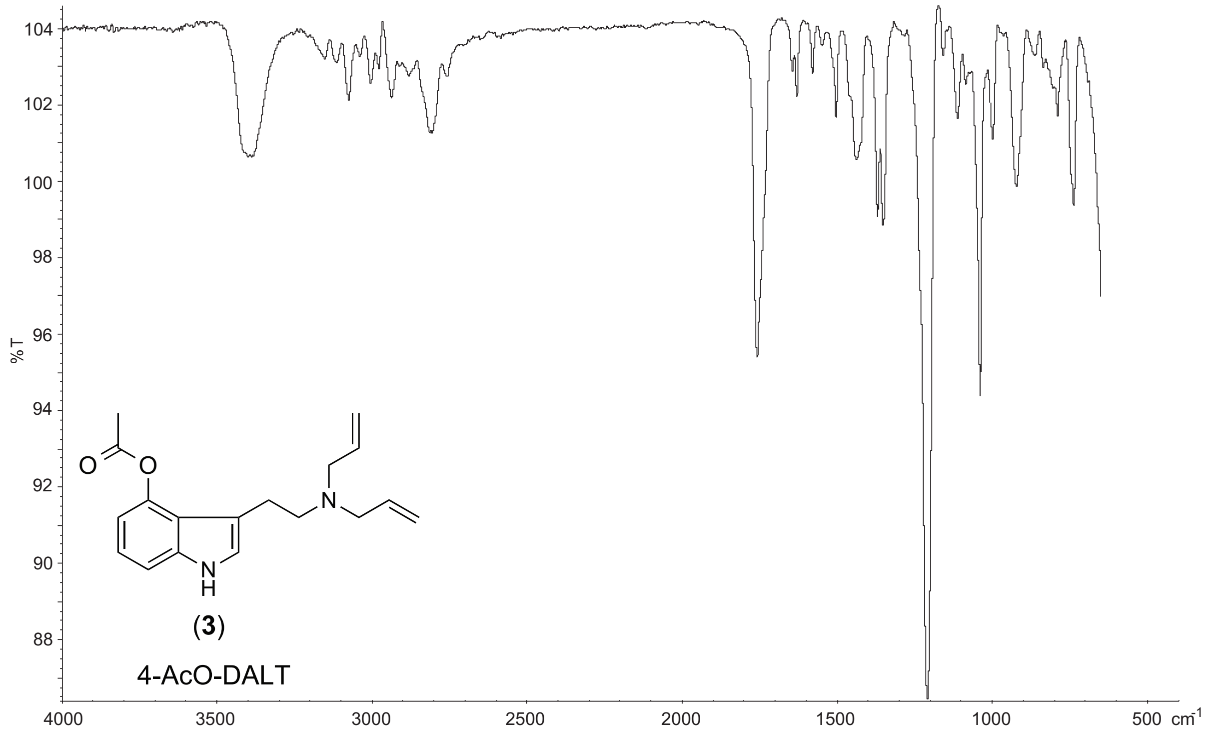

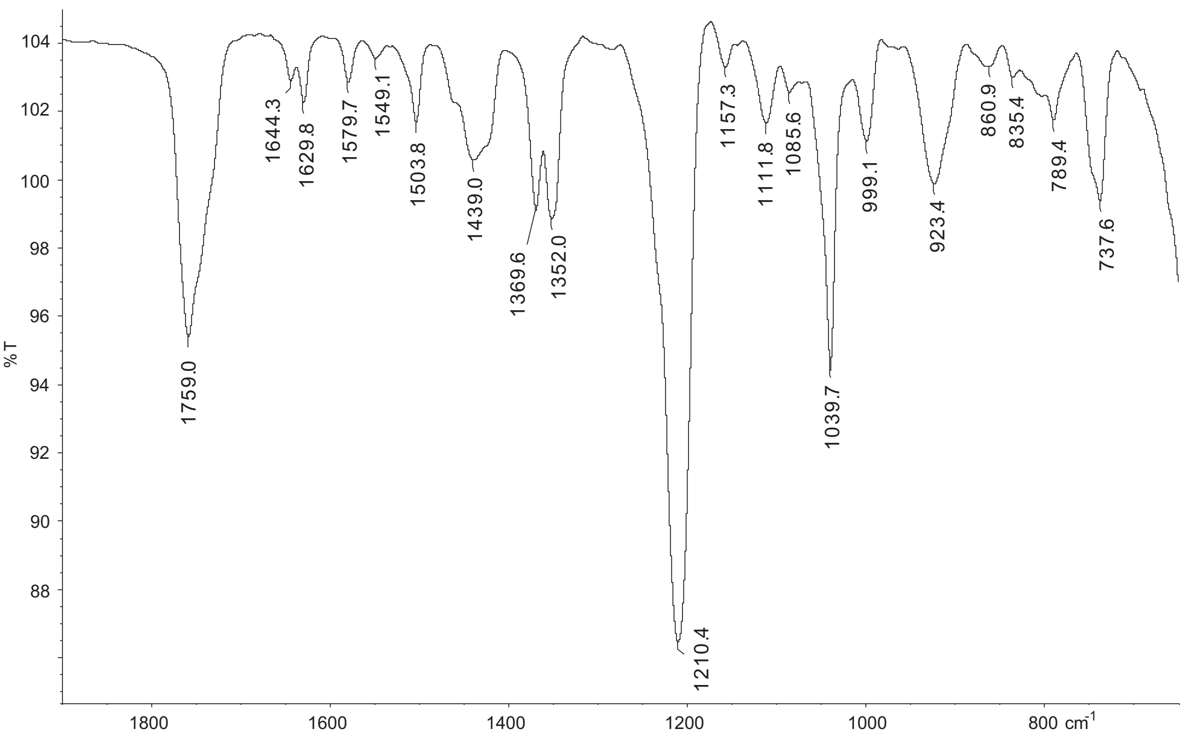

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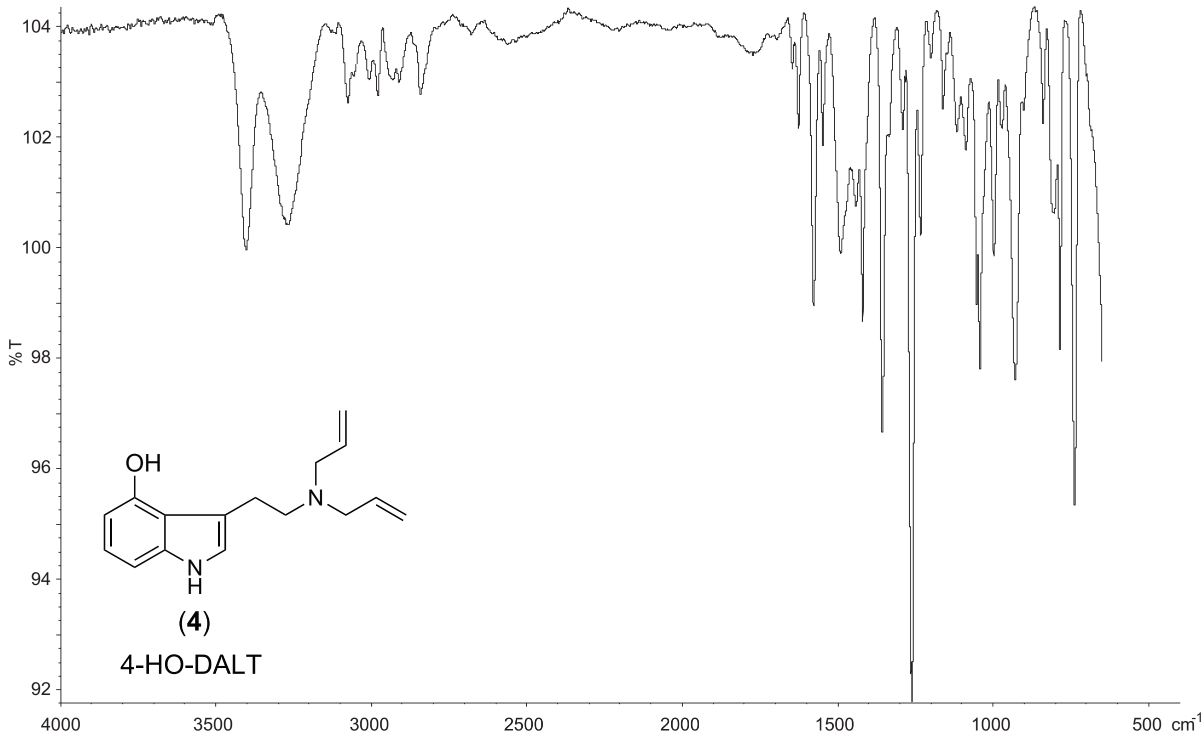

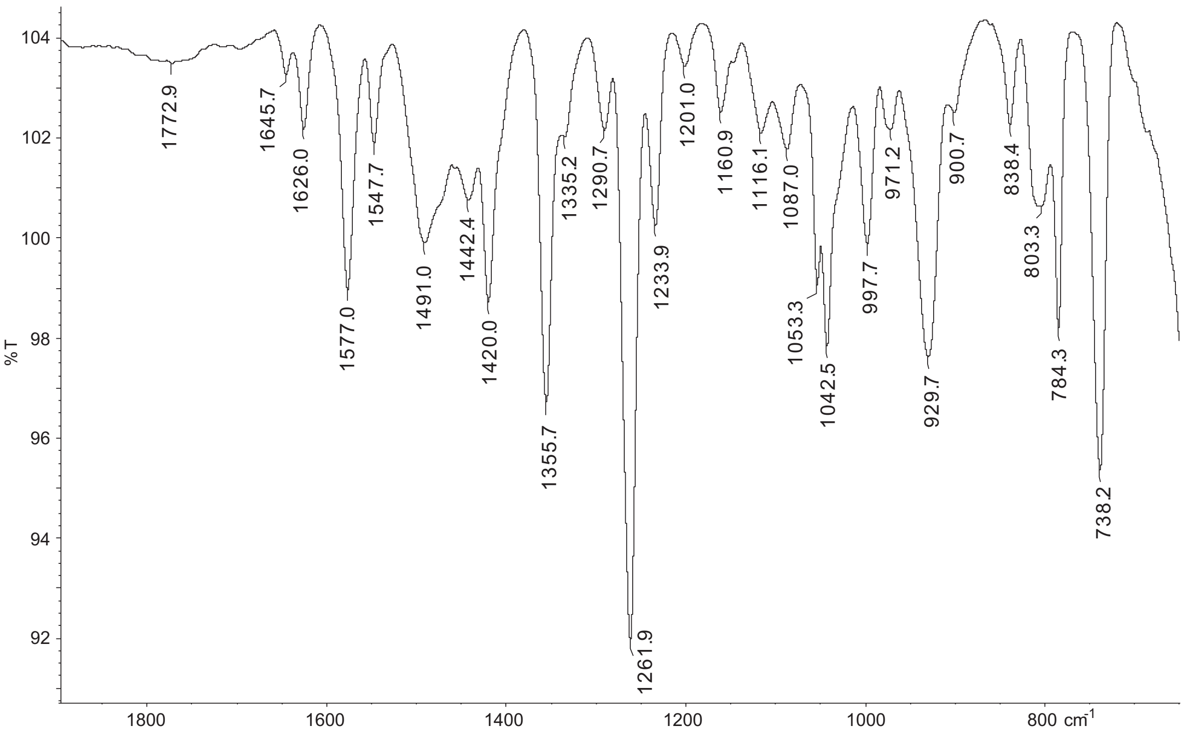

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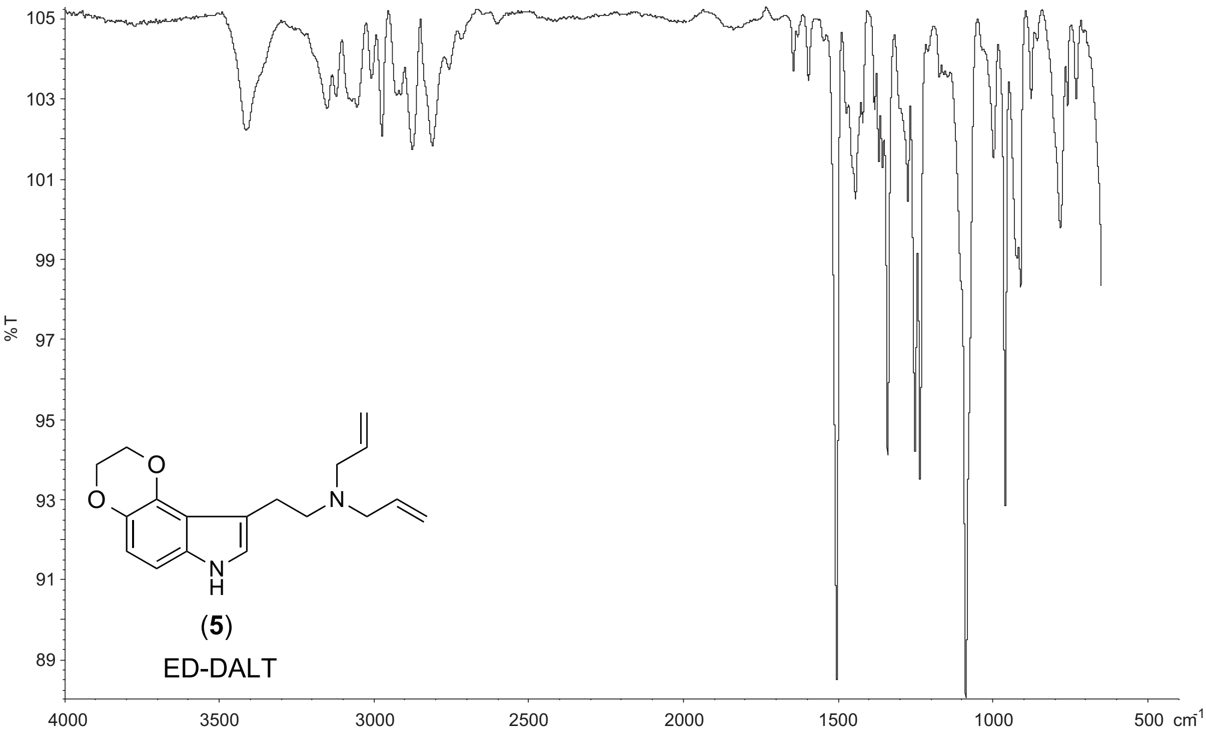

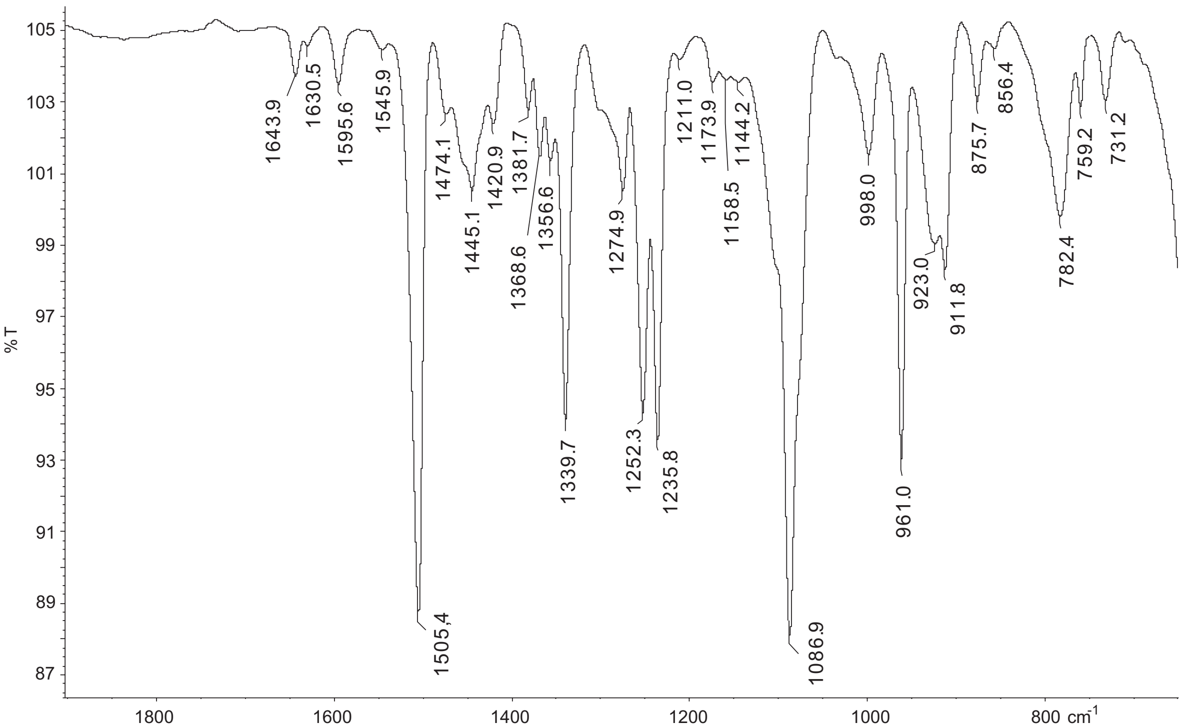

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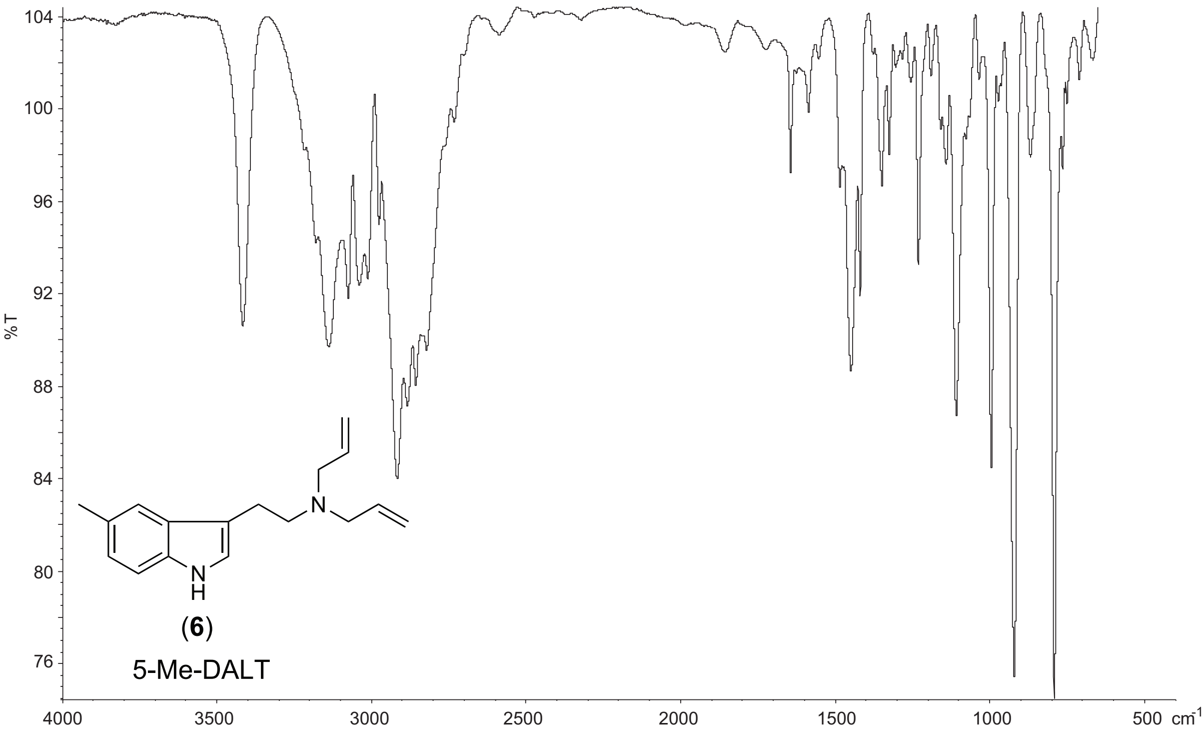

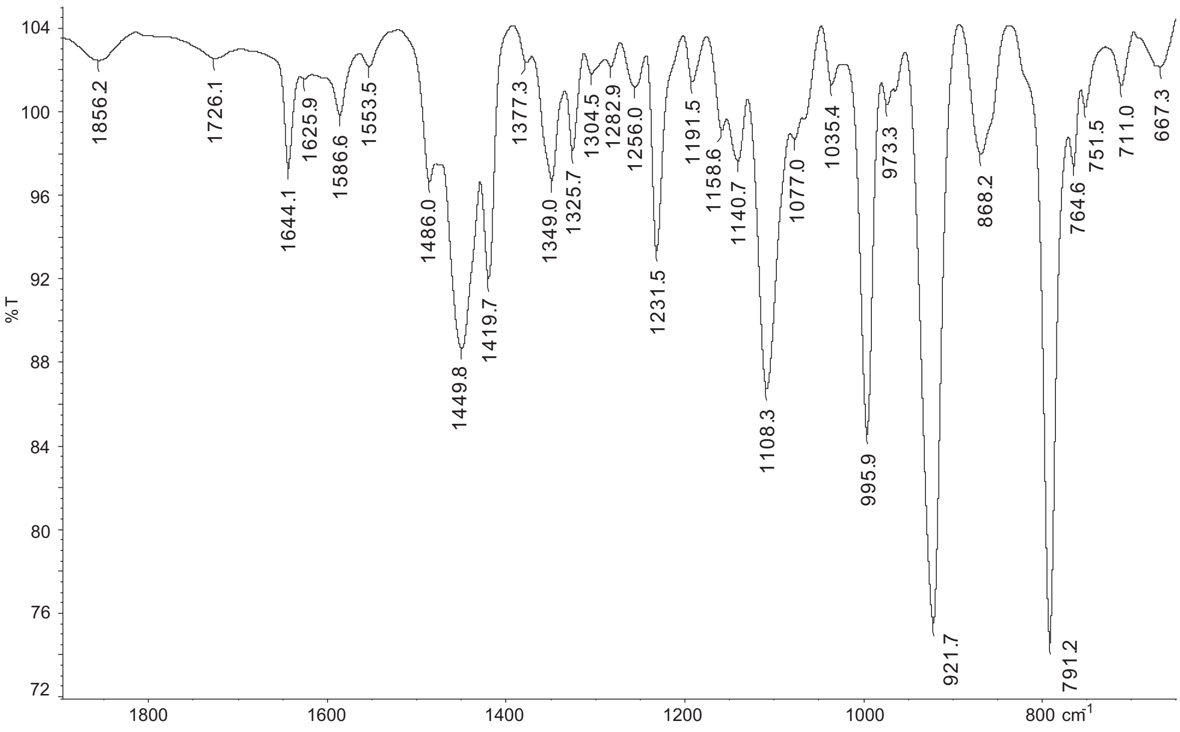

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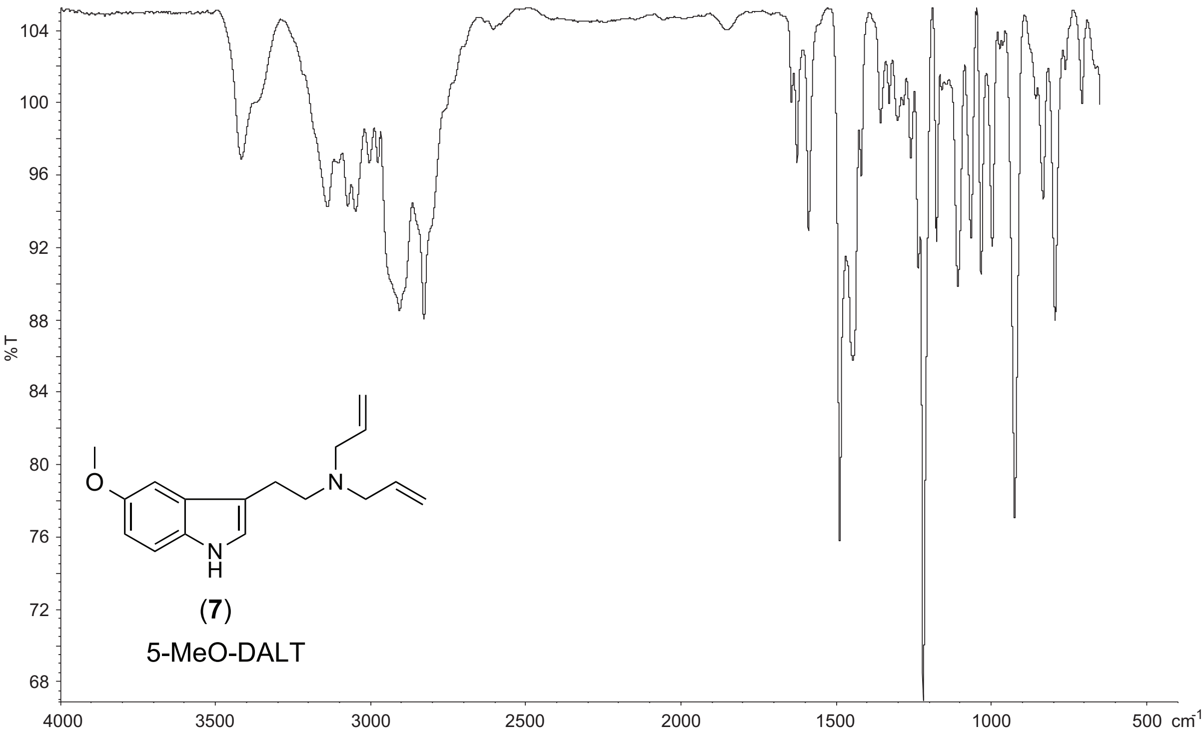

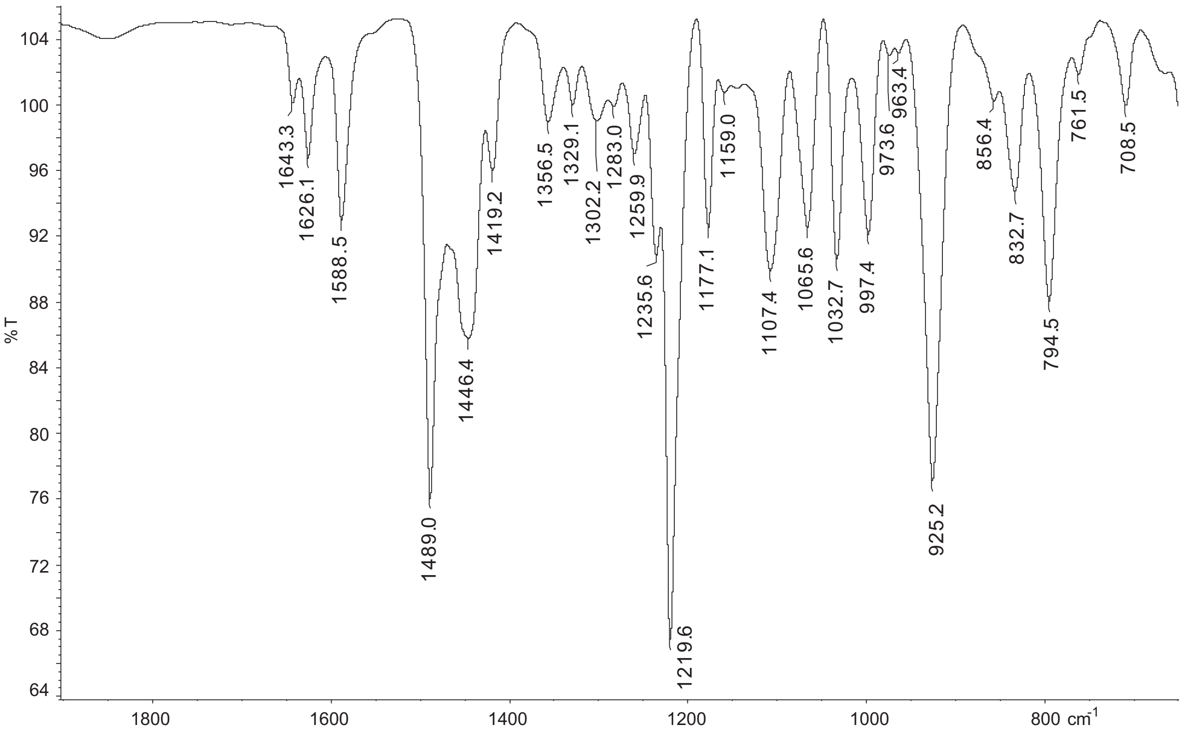

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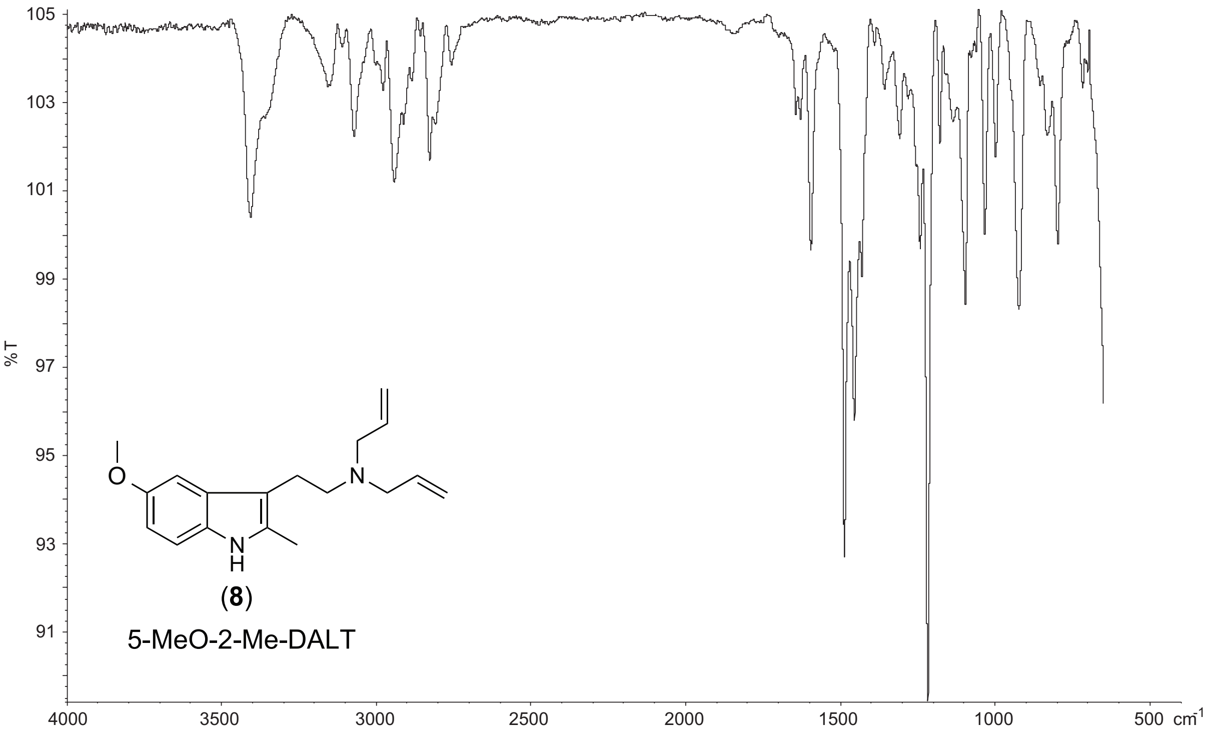

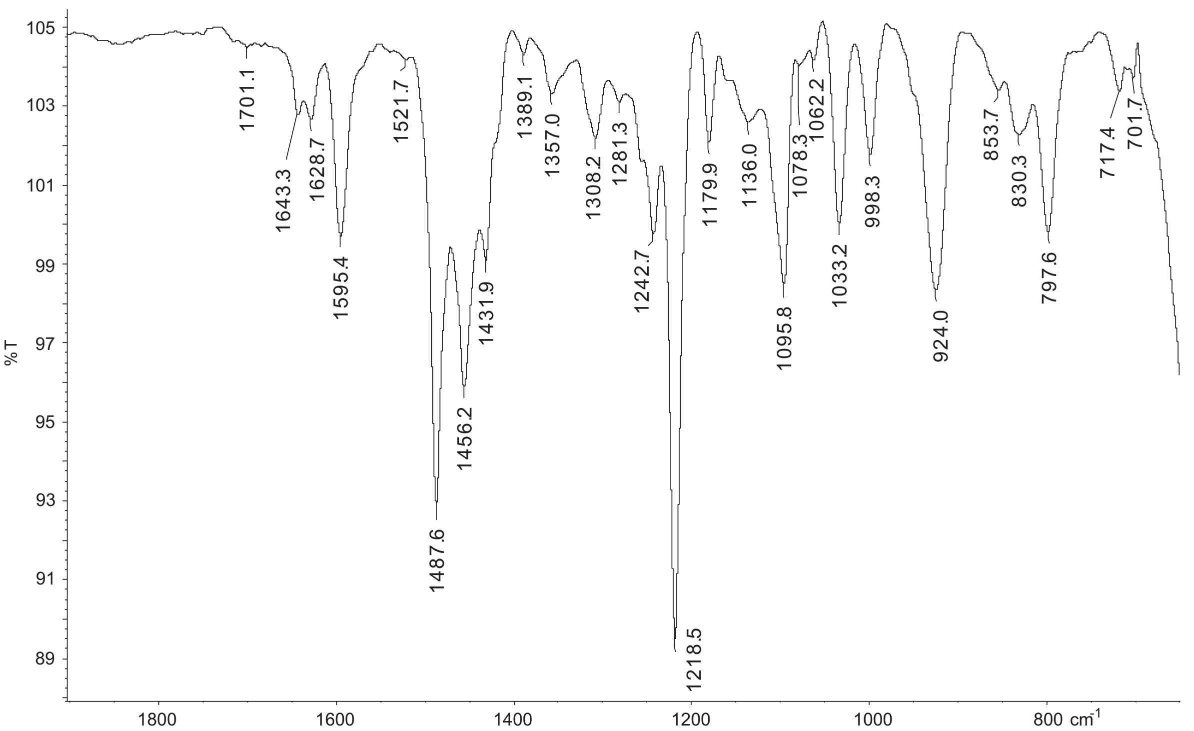

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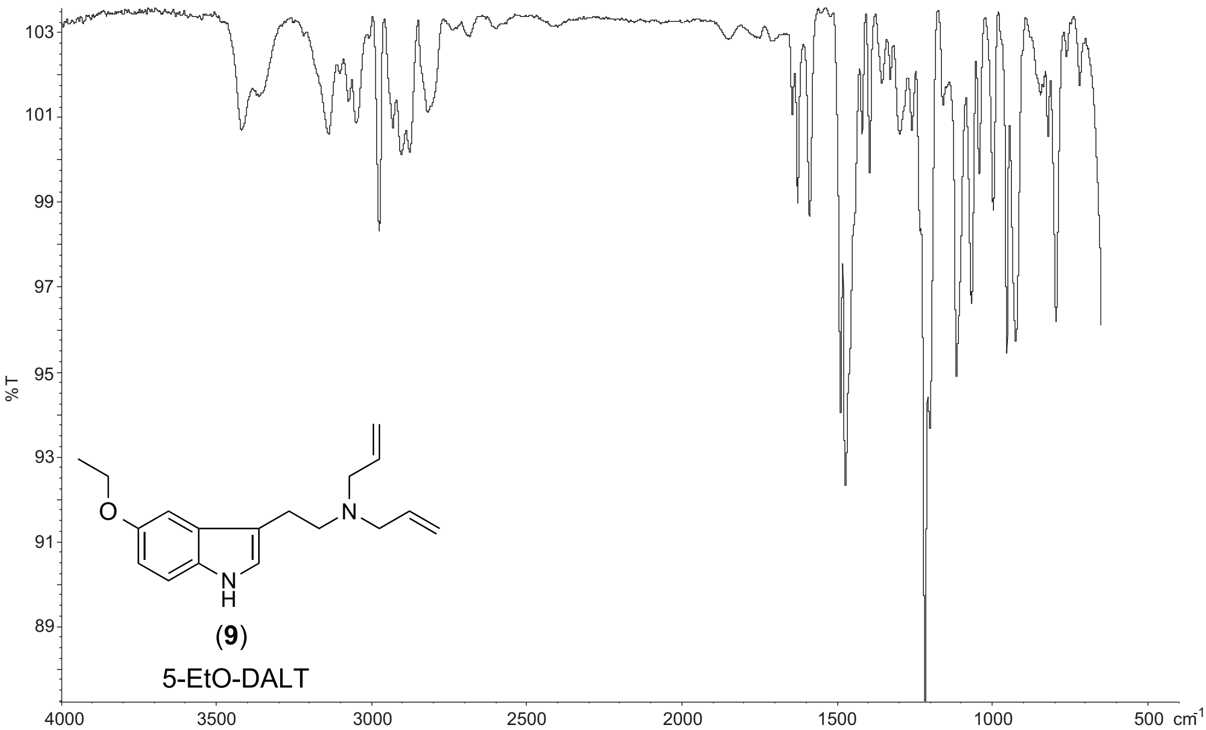

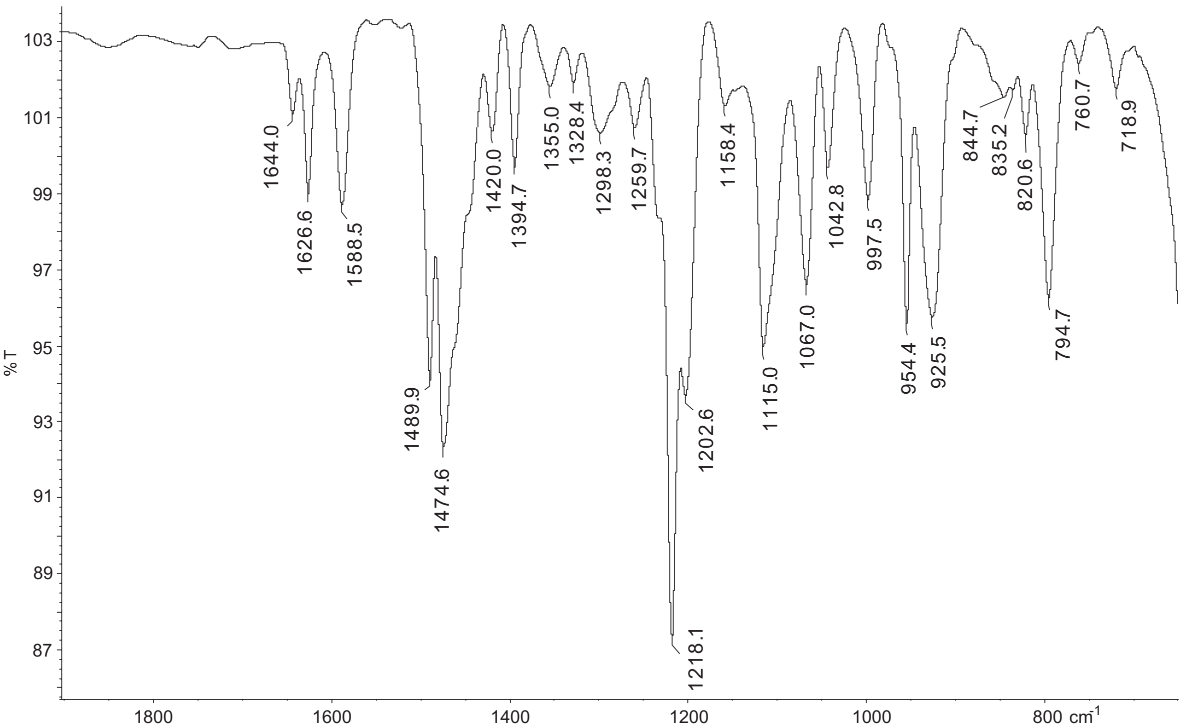

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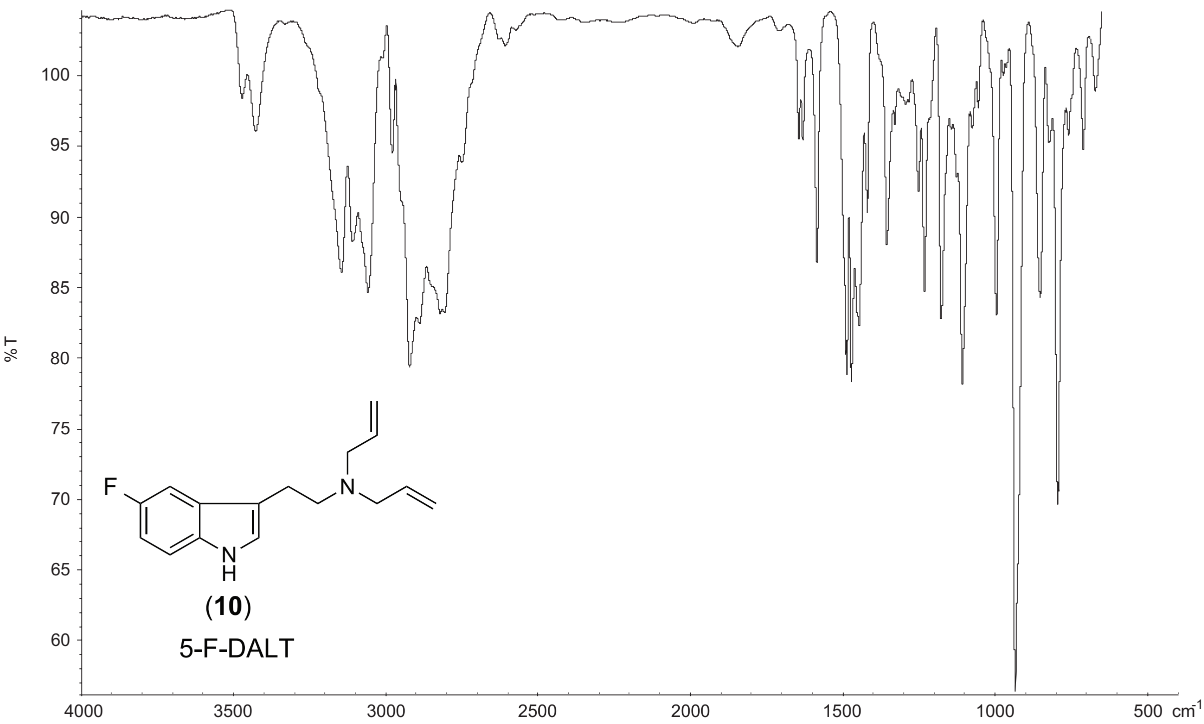

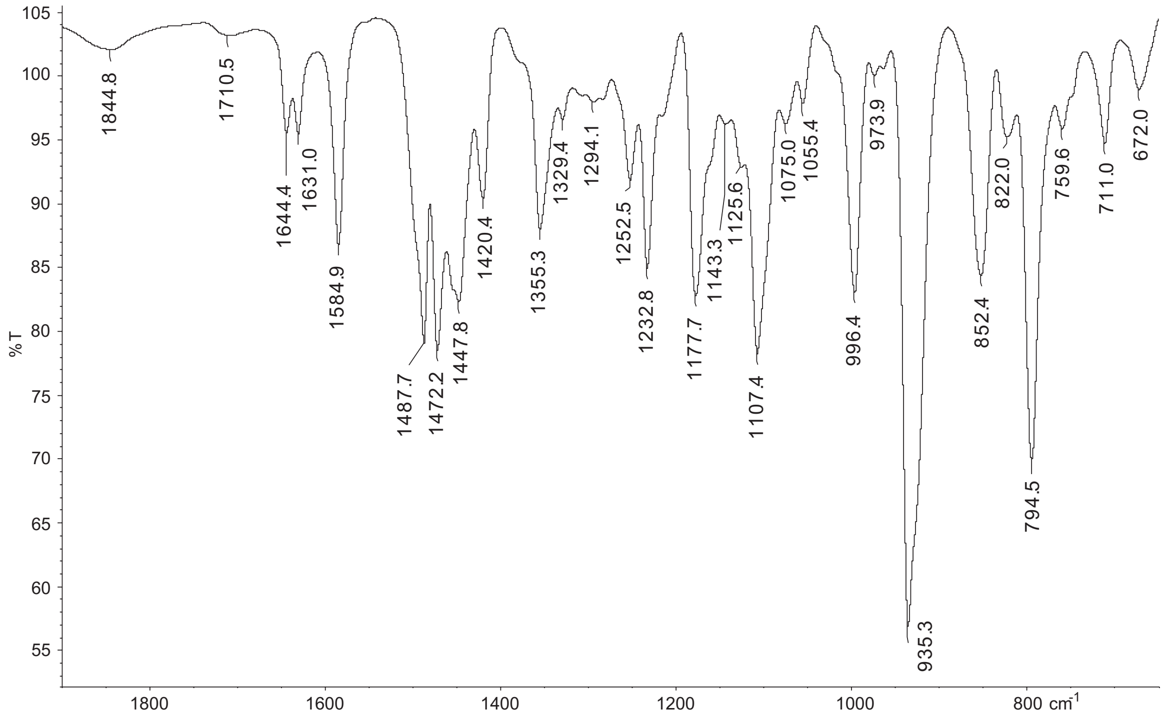

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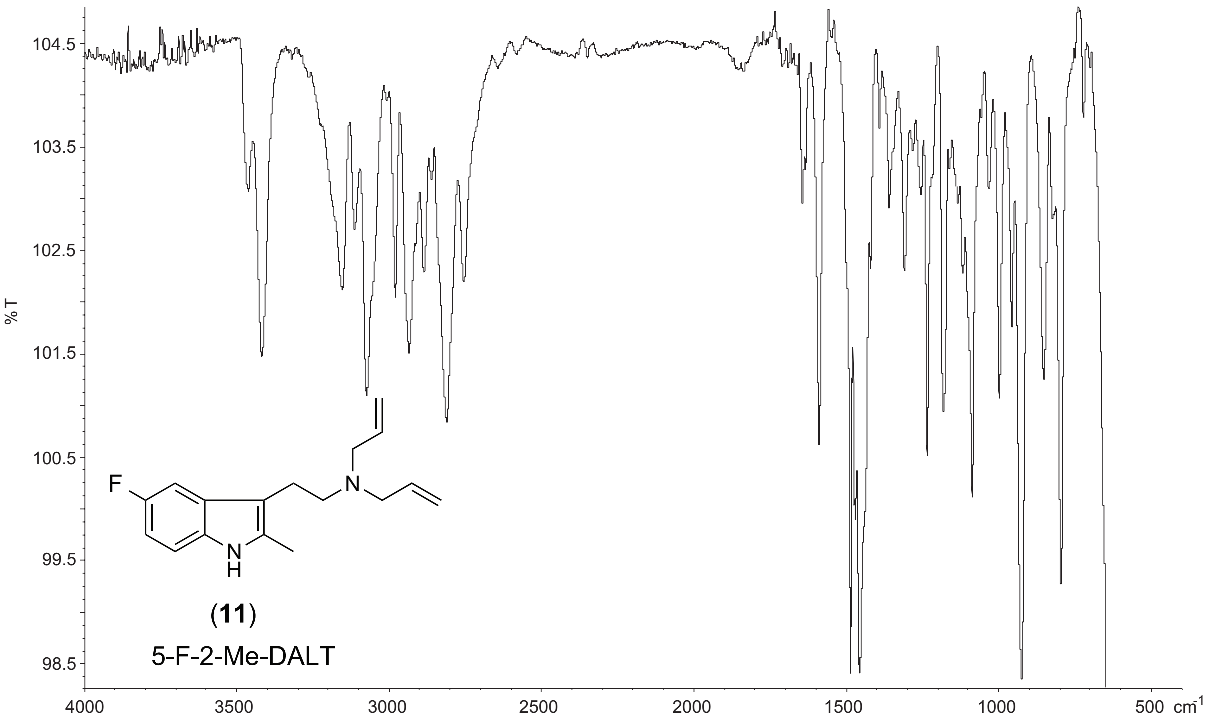

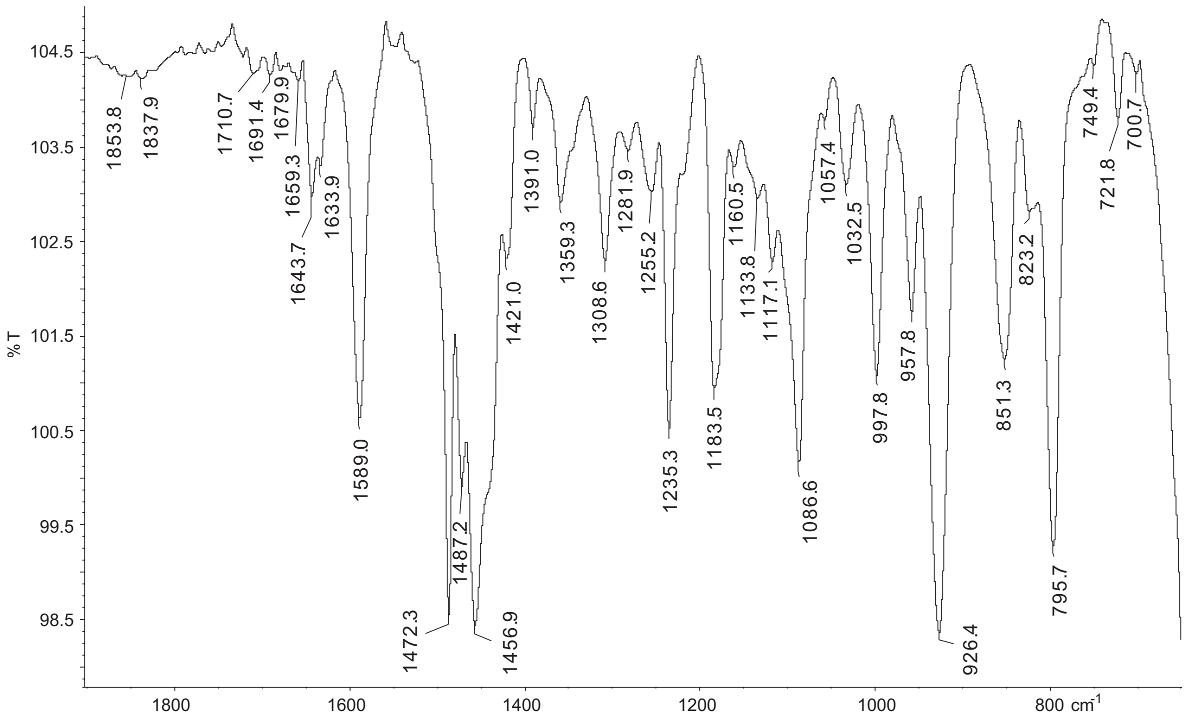

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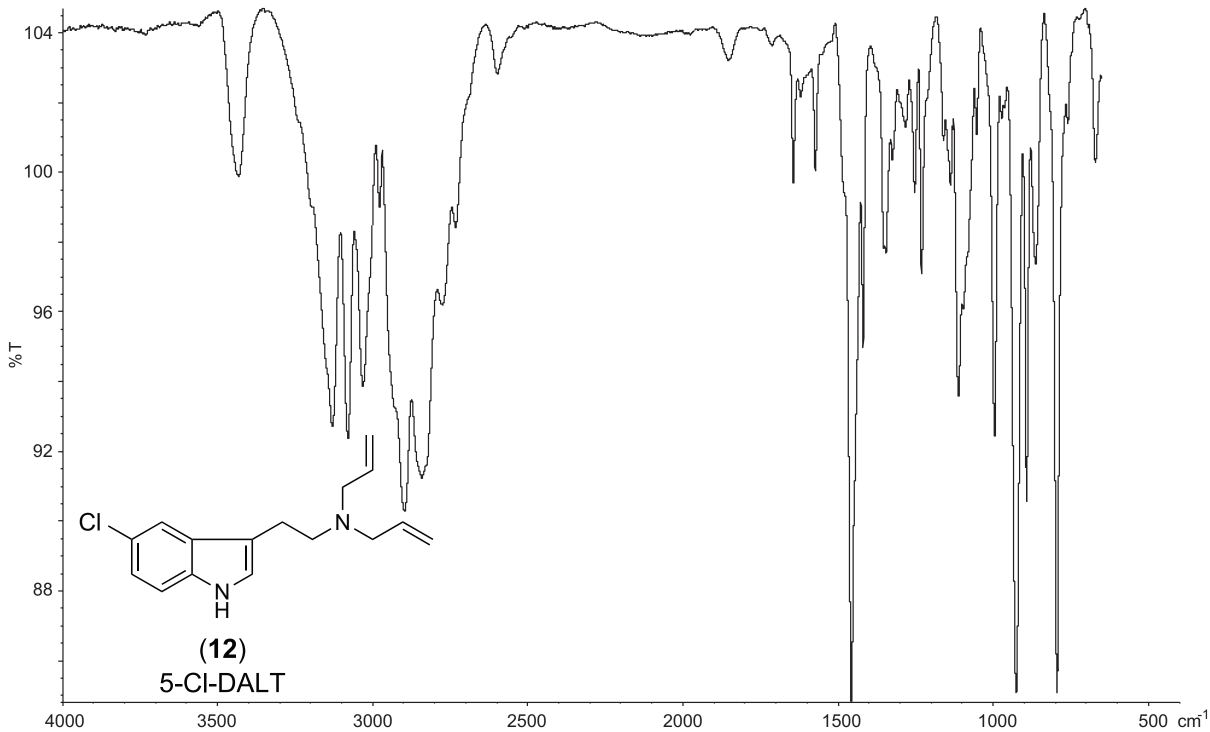
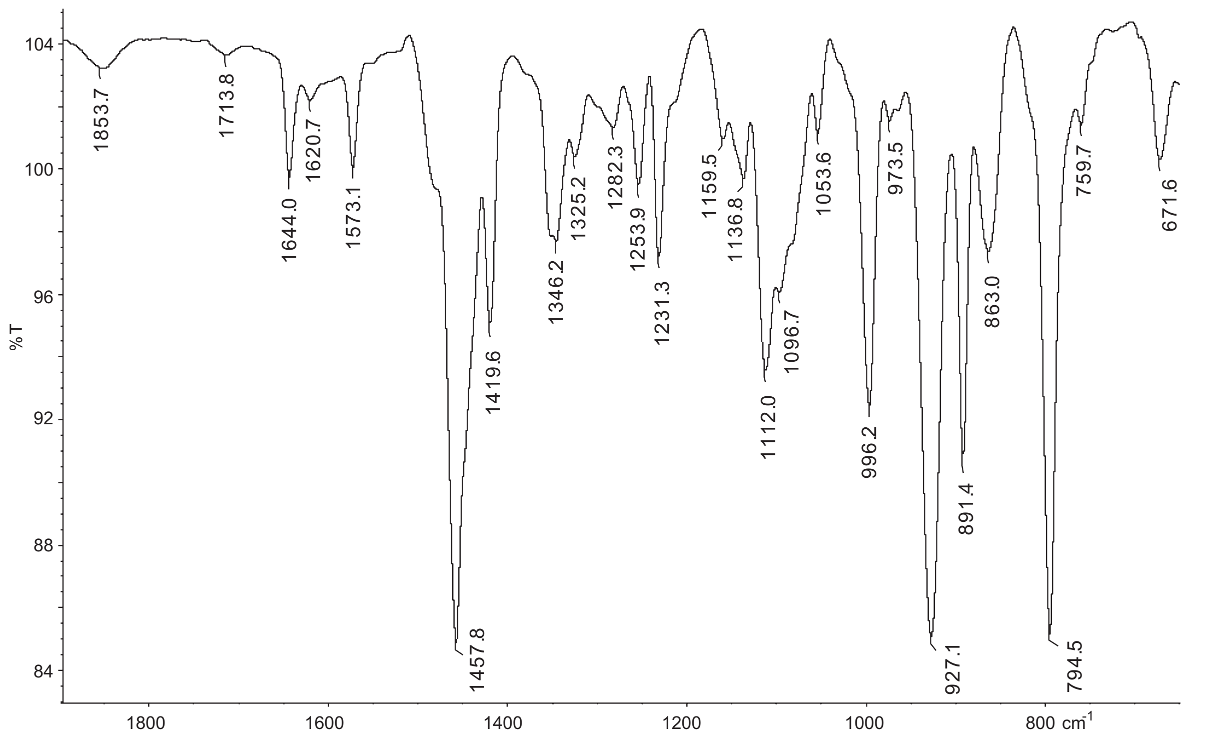
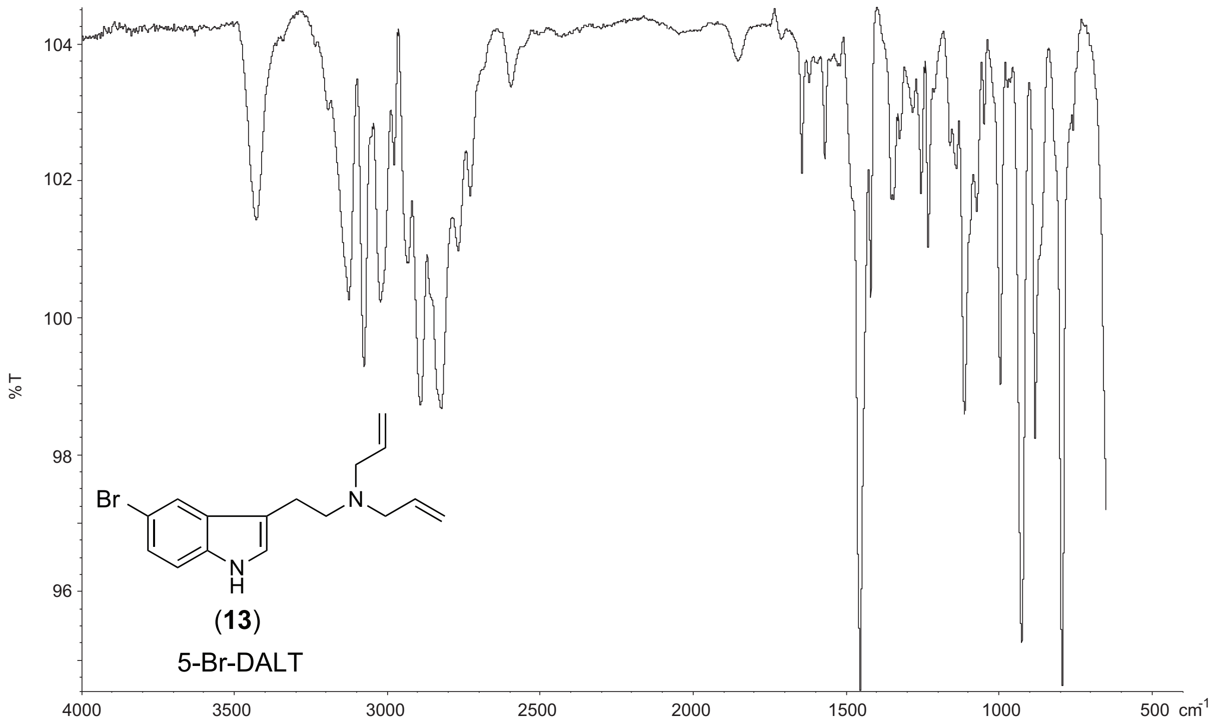
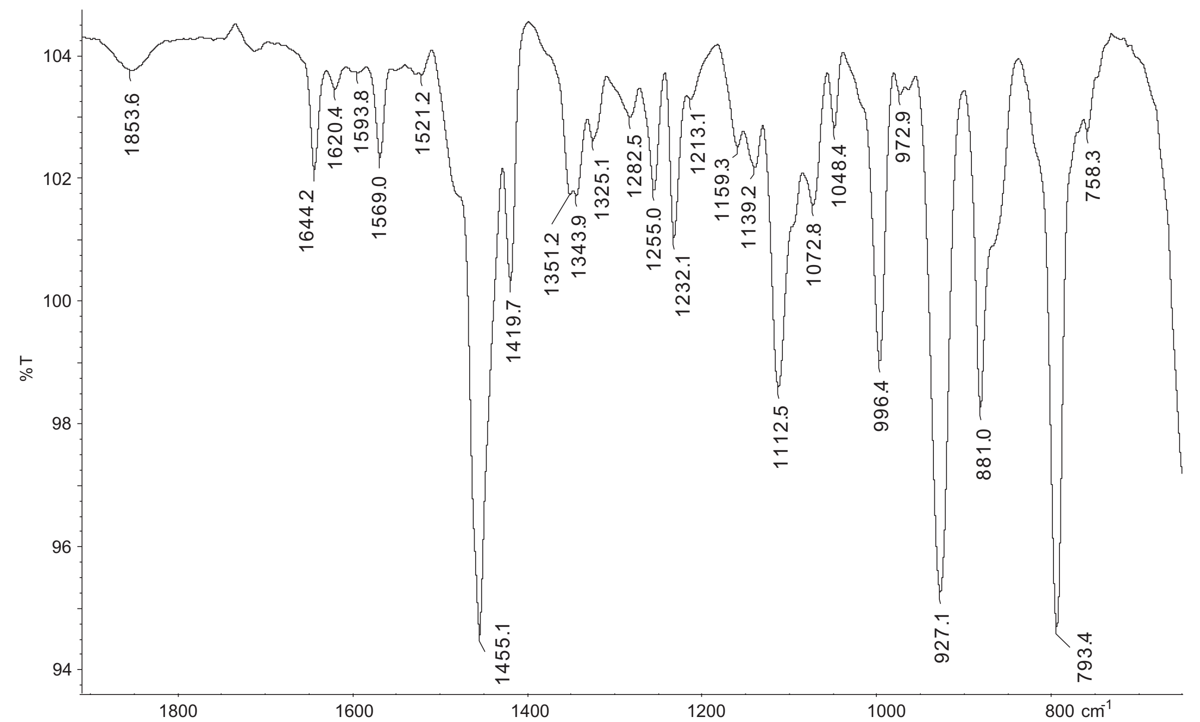




GC solid-state IR





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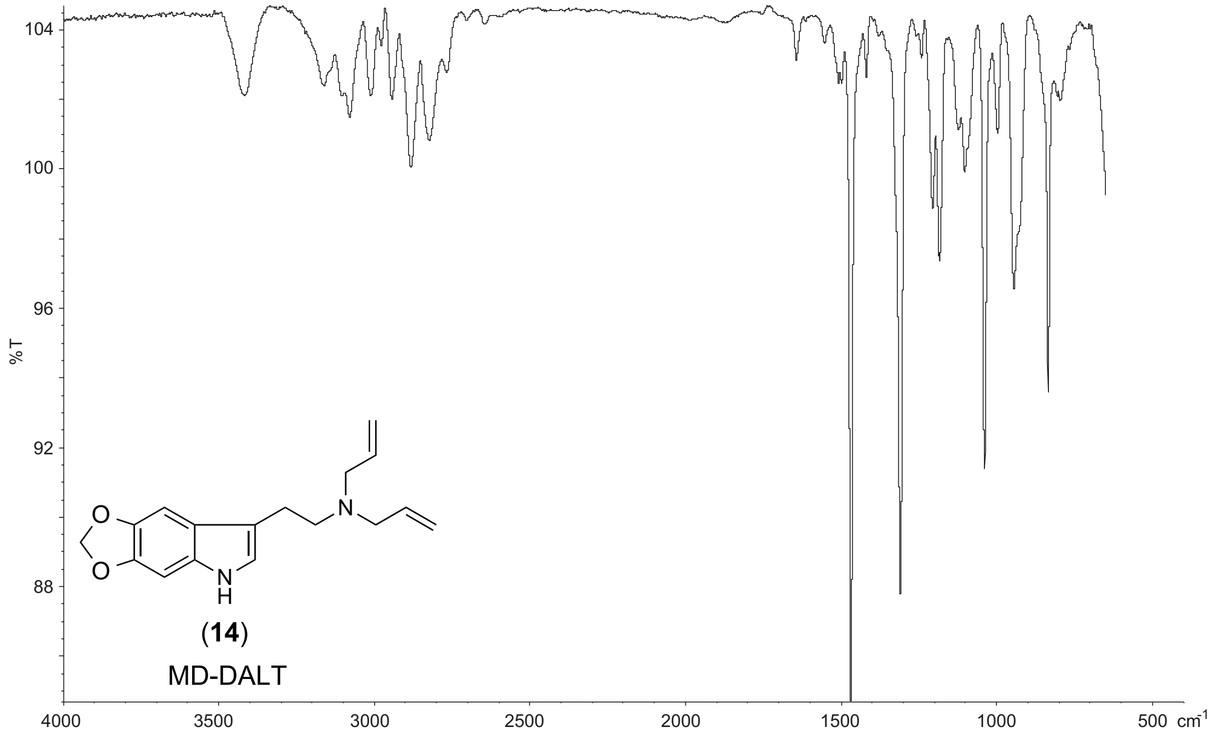

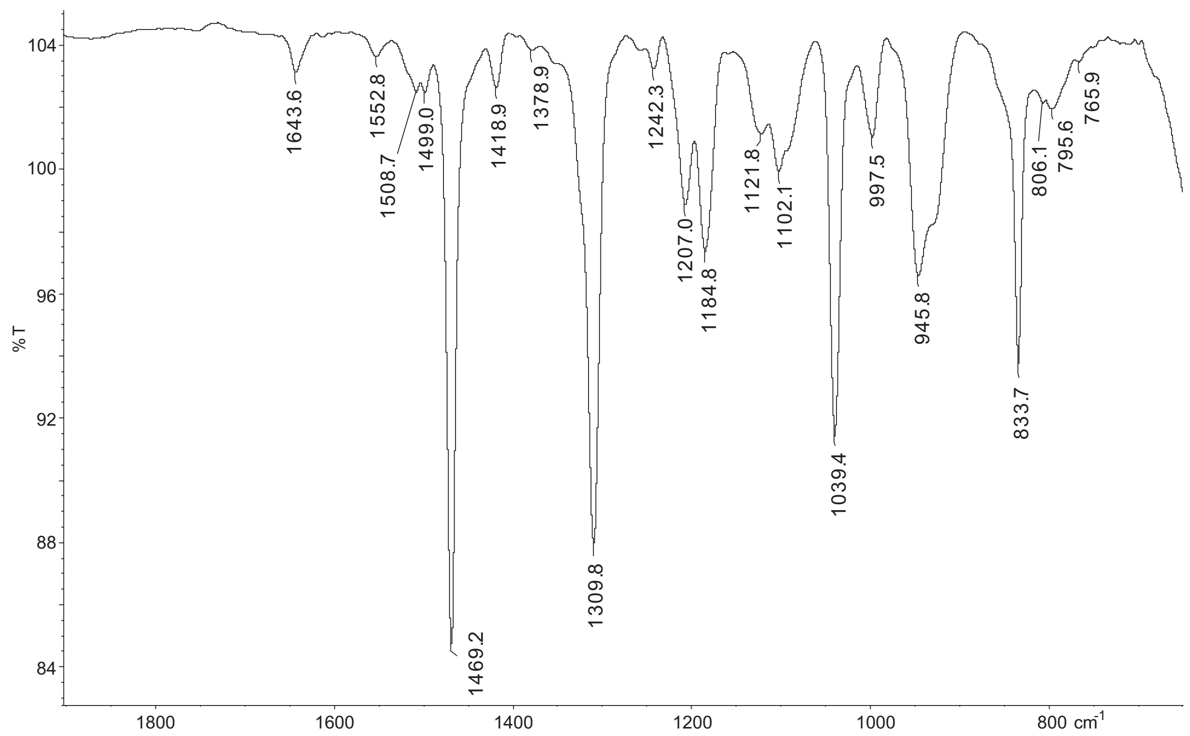

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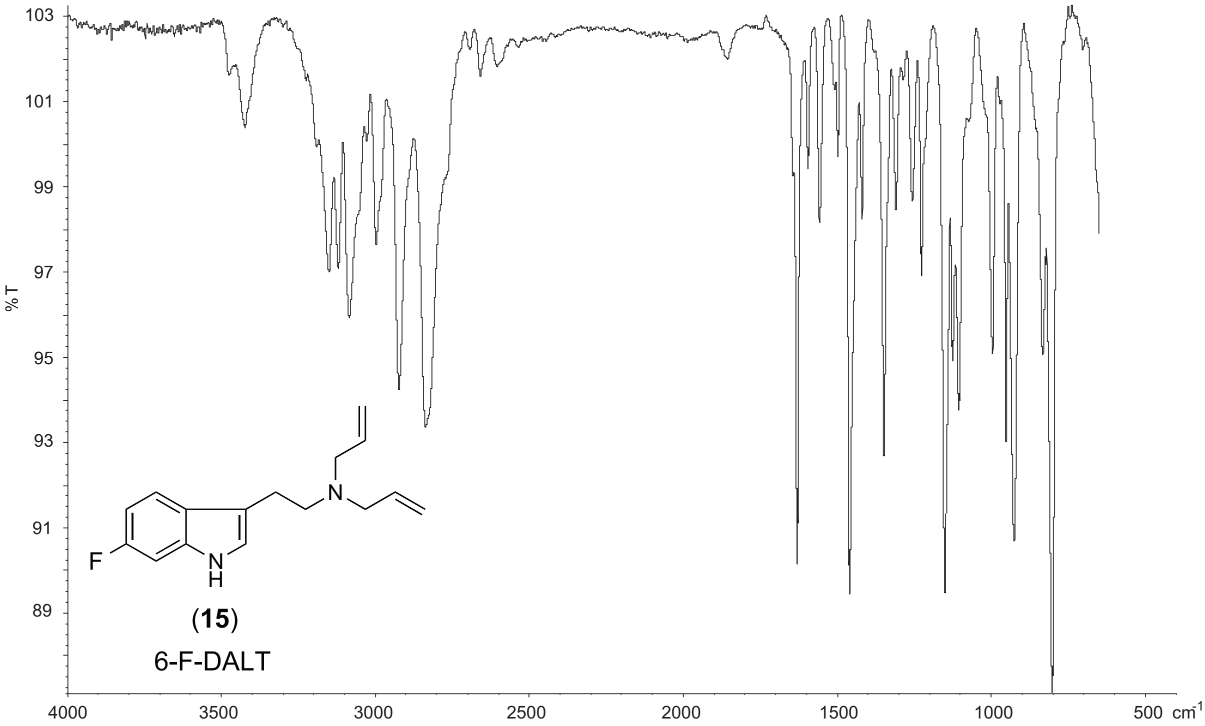

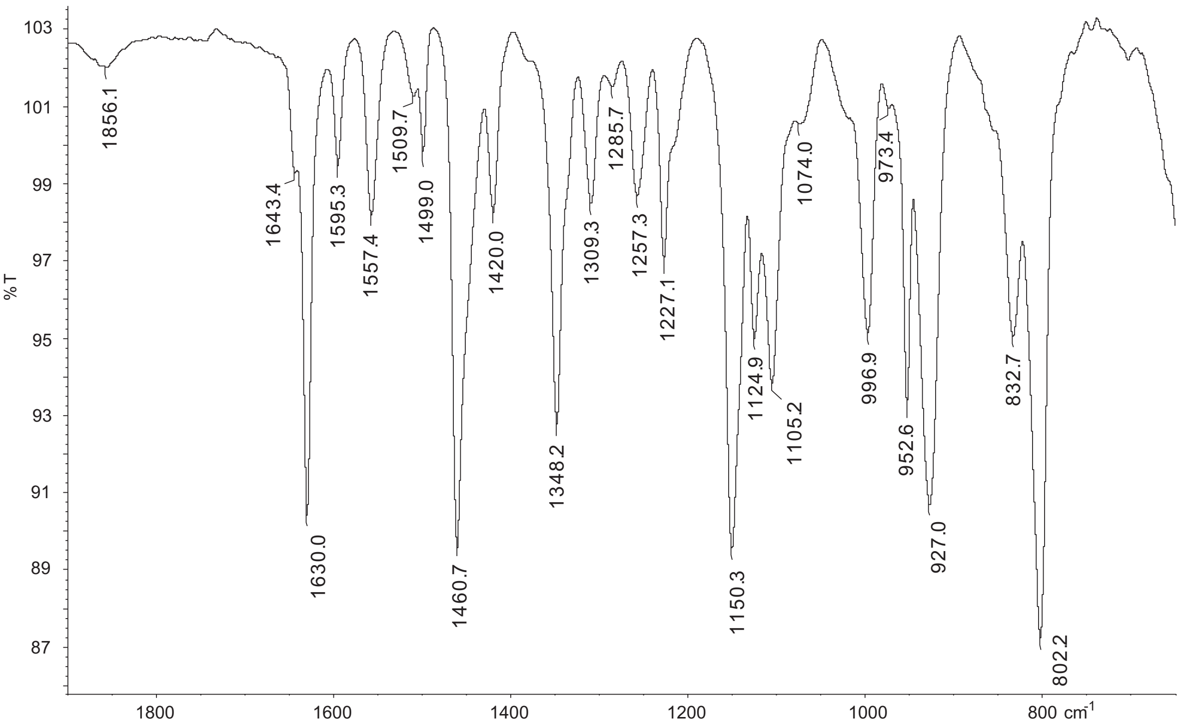

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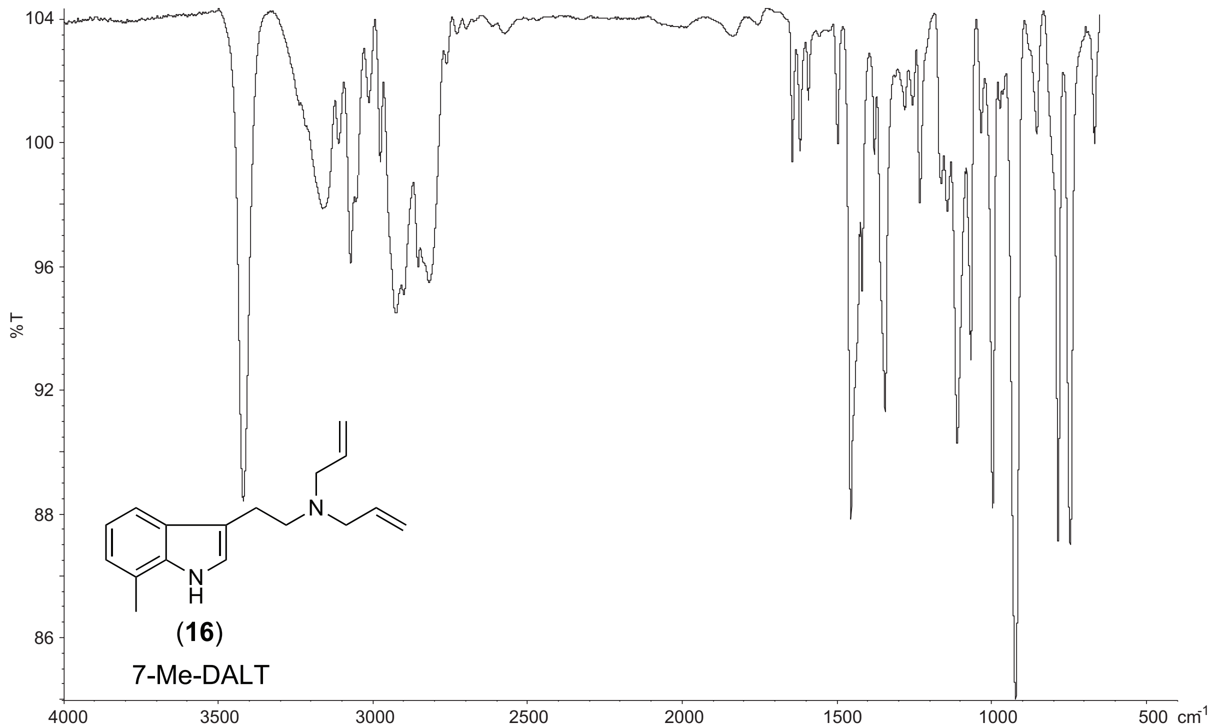

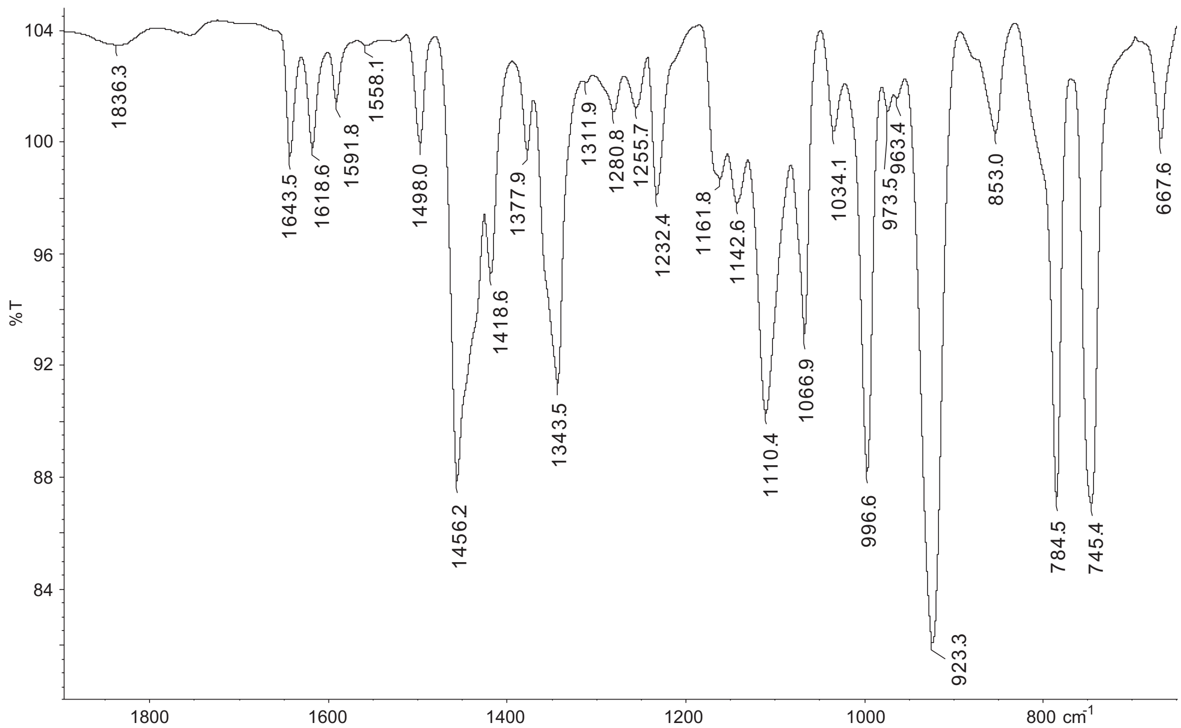

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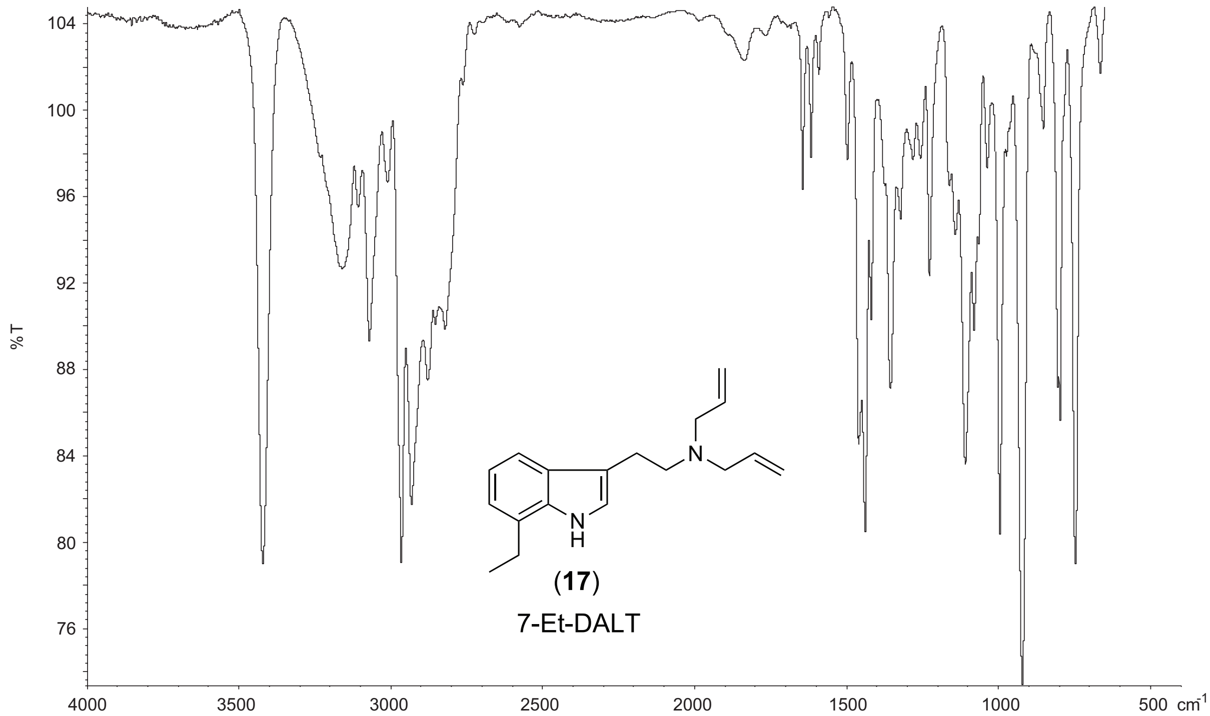
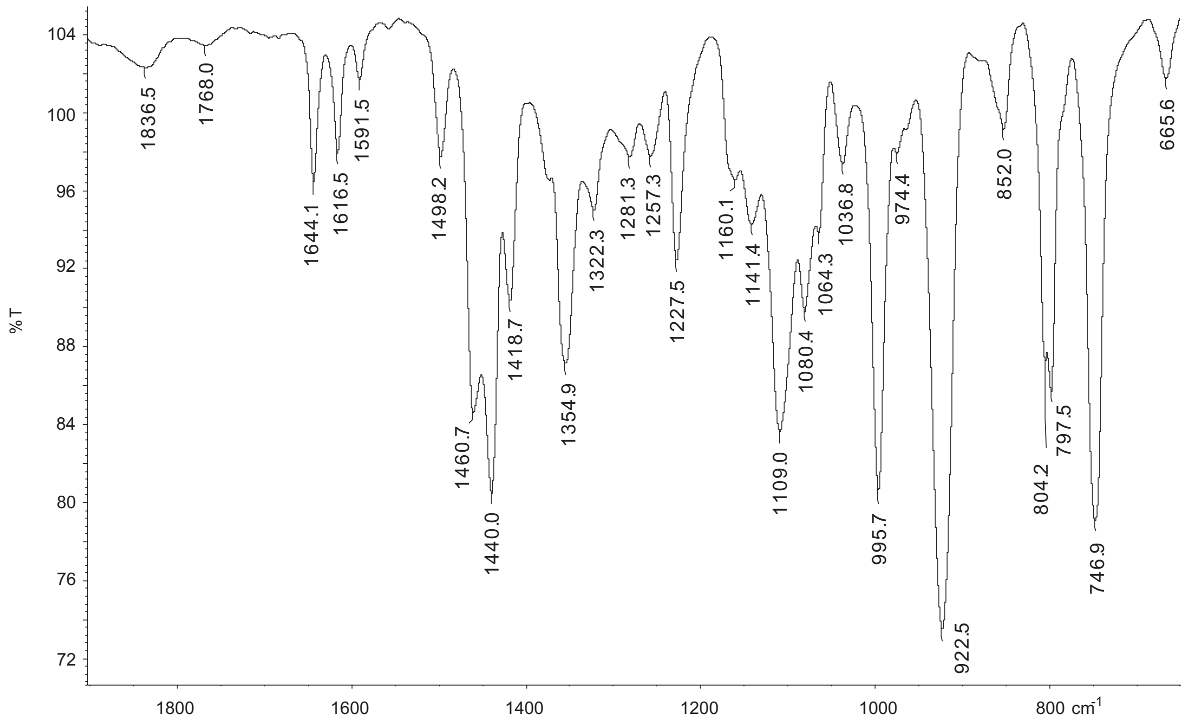
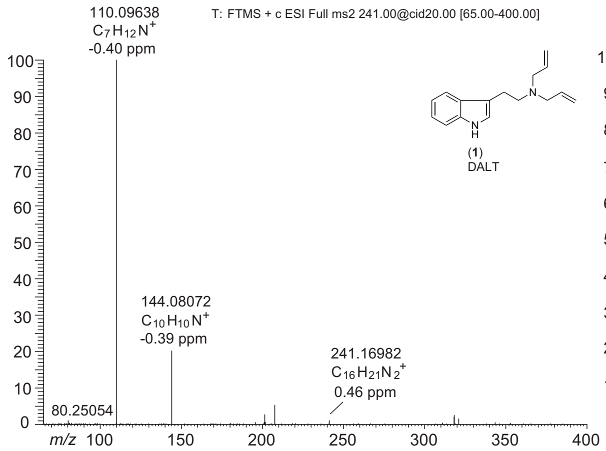
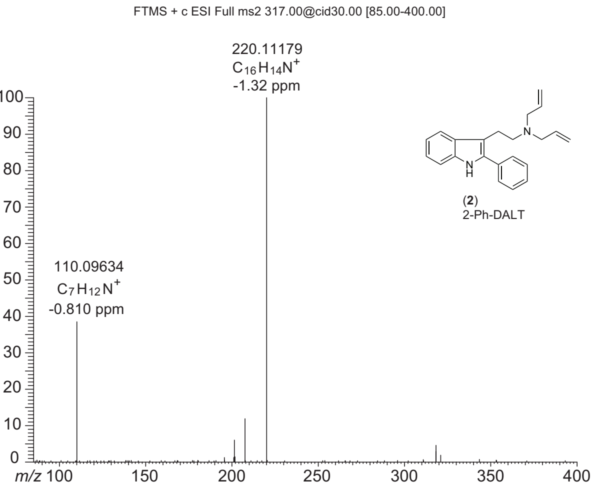
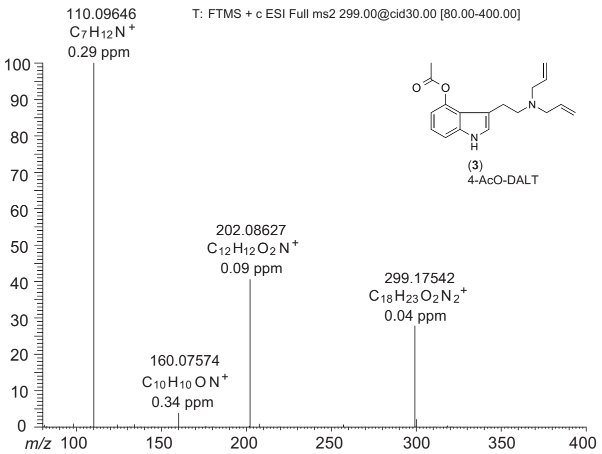


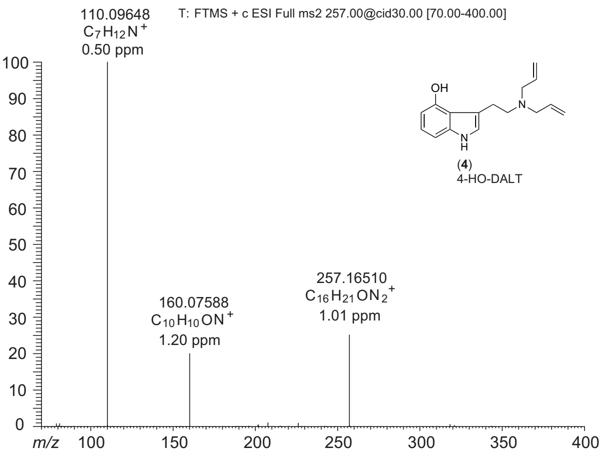


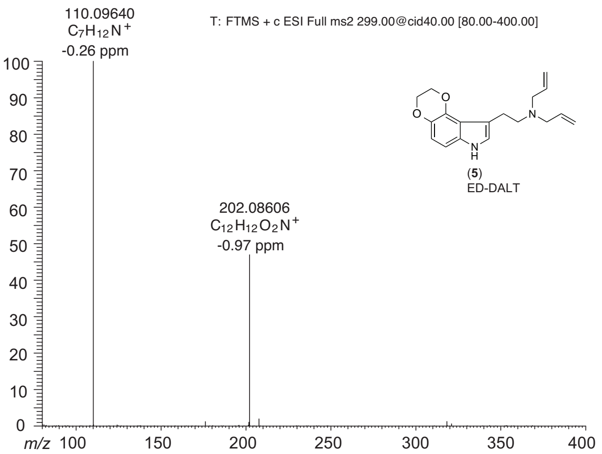
High-resolution tandem mass spectrometry

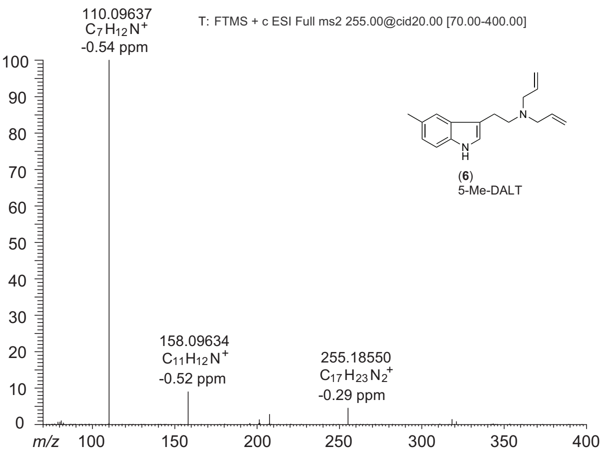




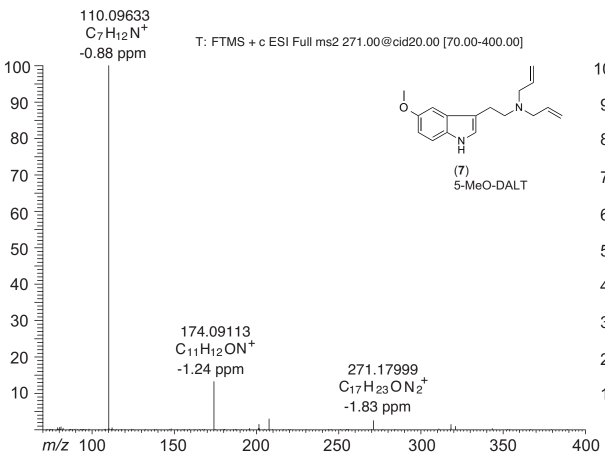


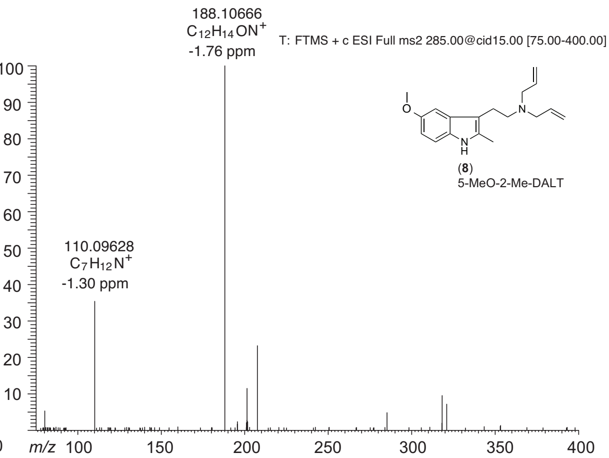


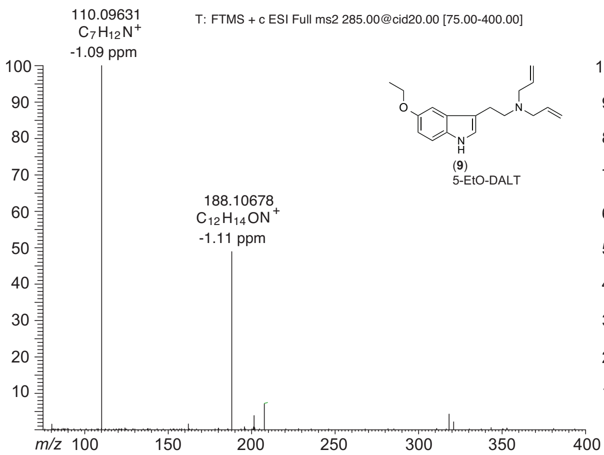


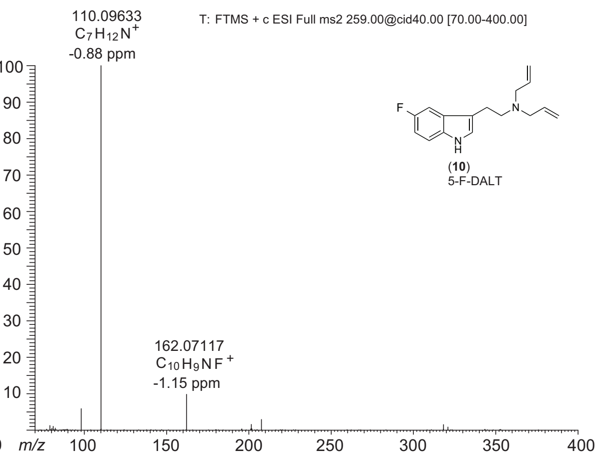


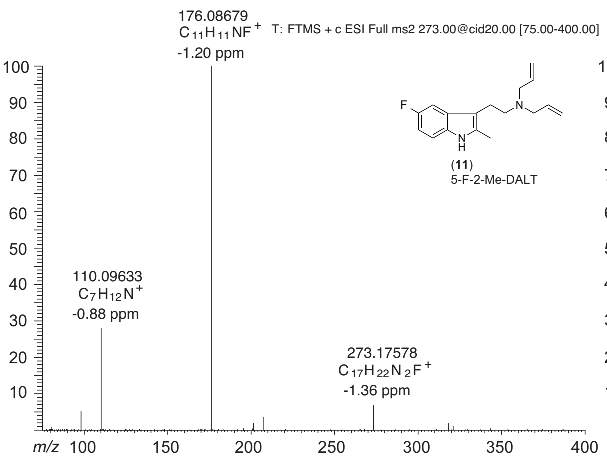
High-resolution tandem mass spectrometry

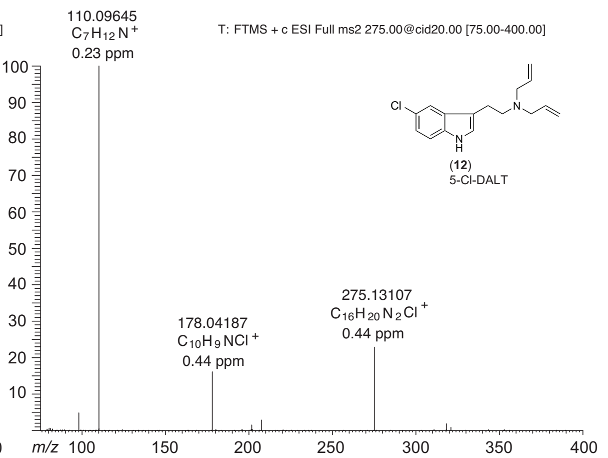




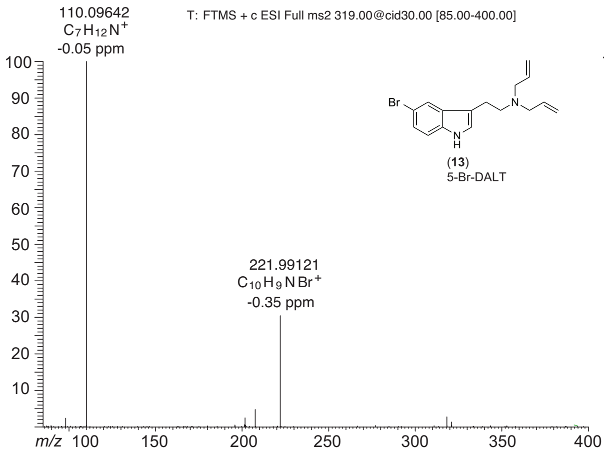


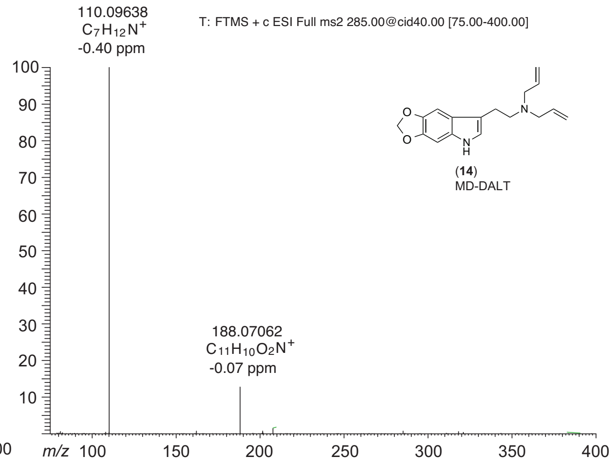


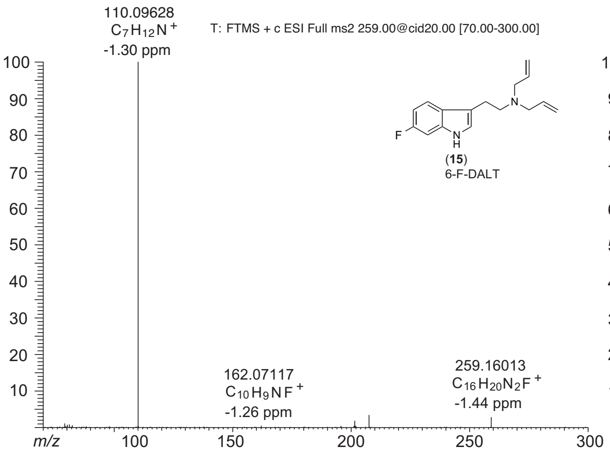


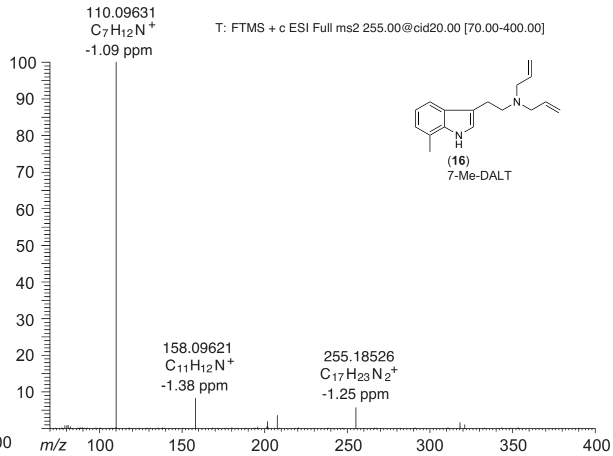


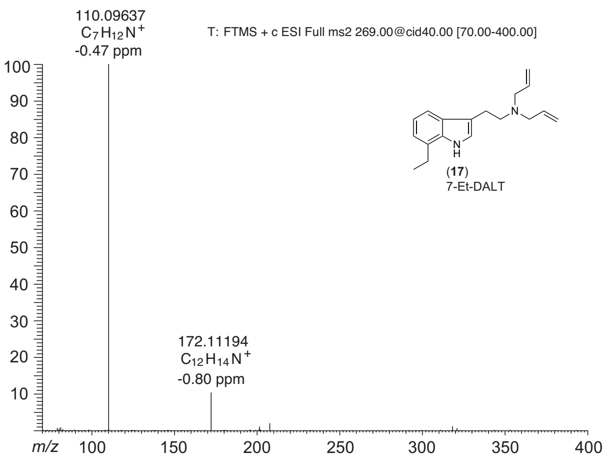
High-resolution tandem mass spectrometry



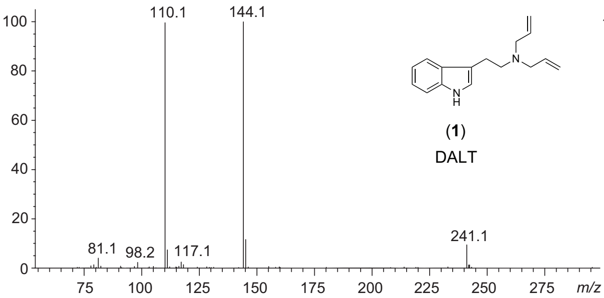


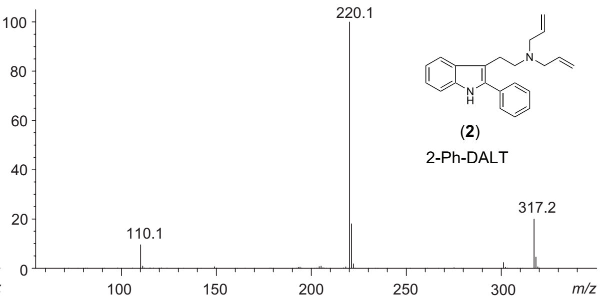


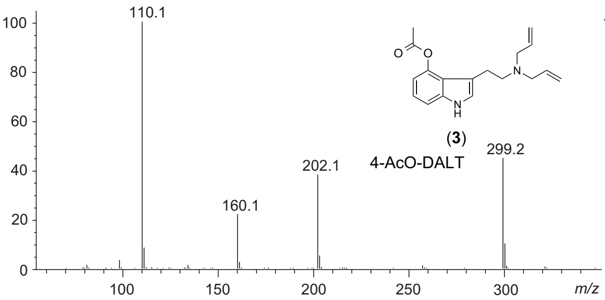


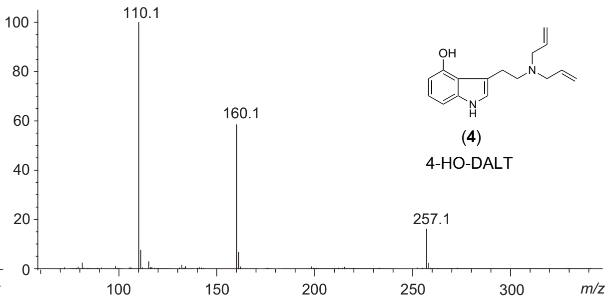


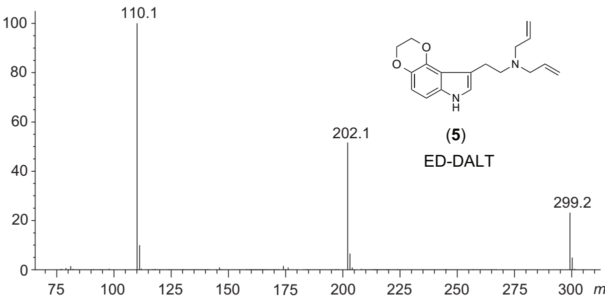
LC-Q-MS, in-source CID, fragmentor voltage 110 V

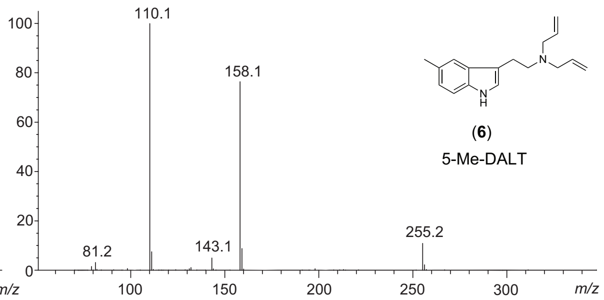


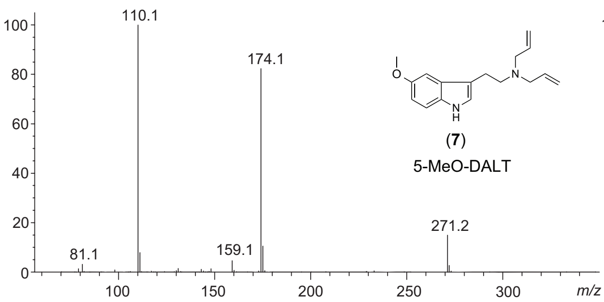


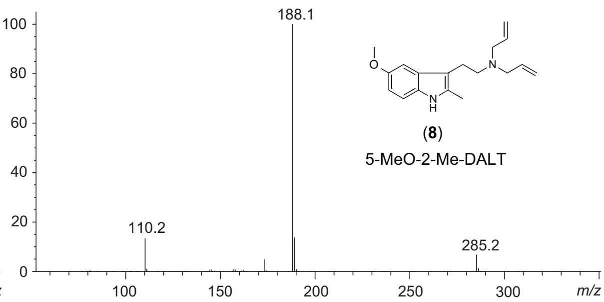


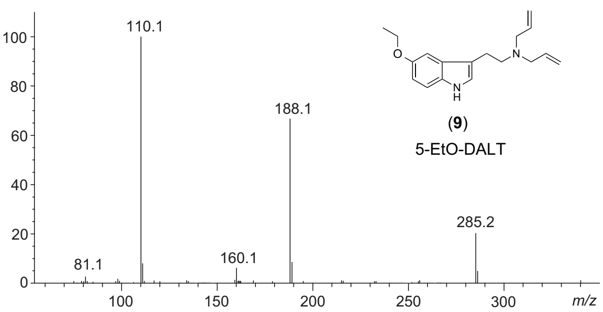


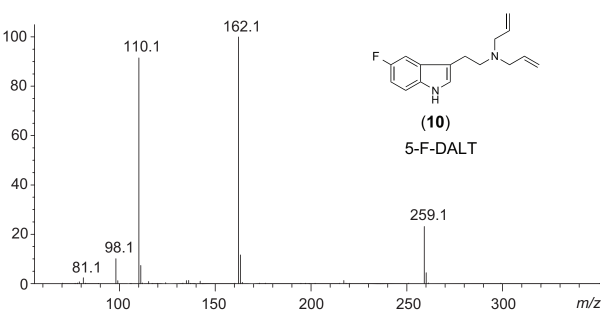




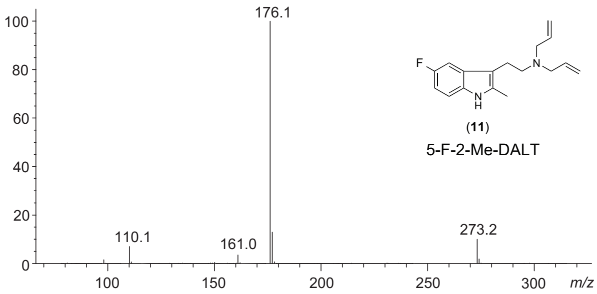


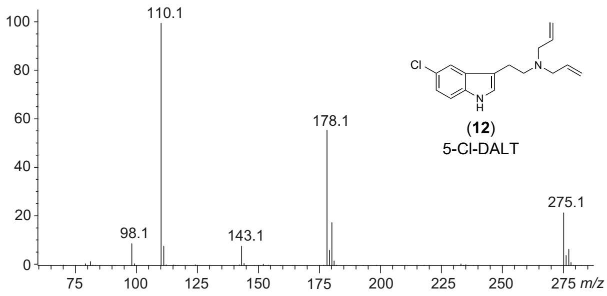


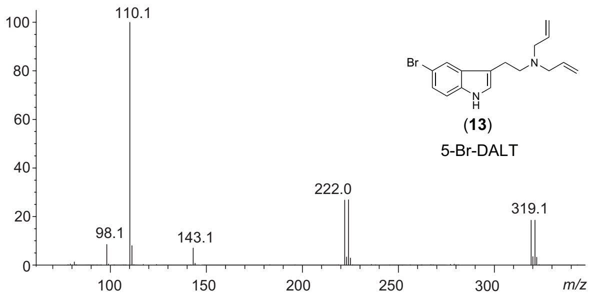


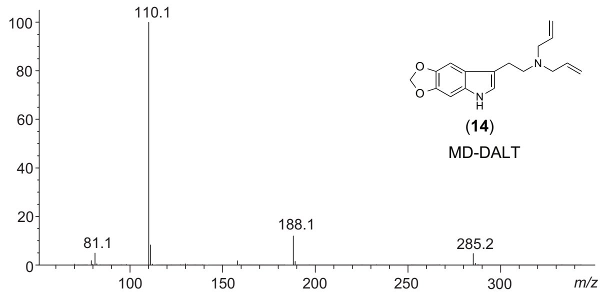


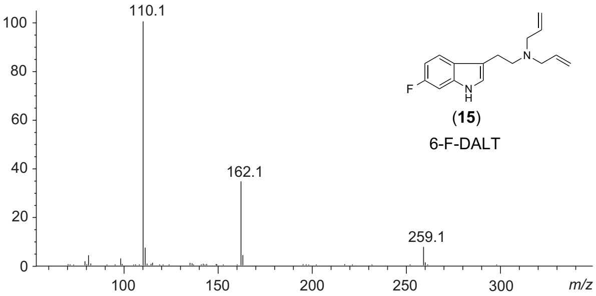
LC-Q-MS, in-source CID, fragmentor voltage 110 V

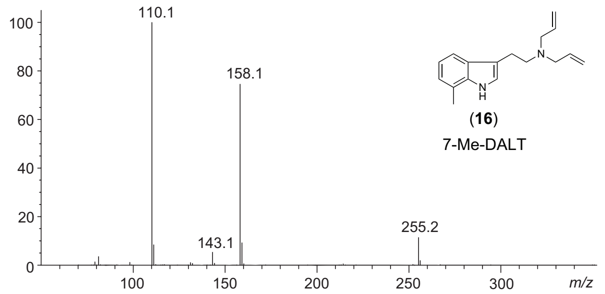


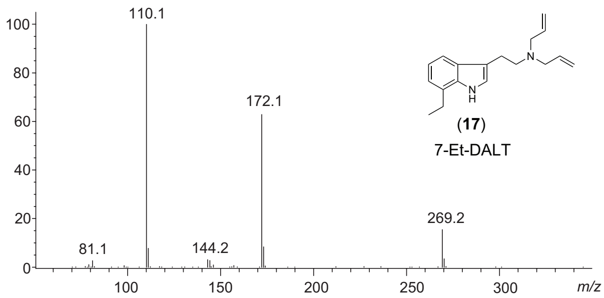




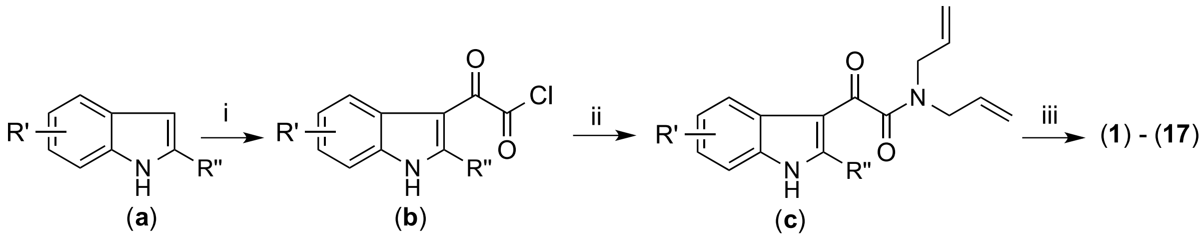








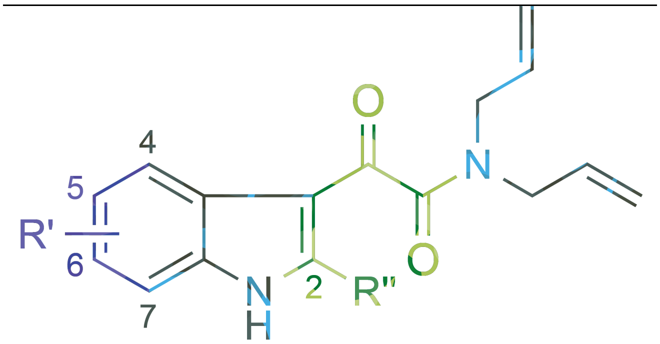
Nuclear magnetic resonance spectroscopy data for glyoxalylamide intermediates (**1a**) – (**17a**)



(**1a**) - (**17a**)

i: Et_2O, $(COCl)_2$, stirred on ice; ii: Et_2O, *N*,*N*-diallylamine, stirred on ice; iii: THF, microwave at 150 °C. Adapted from established procedures reported in detail previously.[1-3] Yields of (**c**) stated below were based on 3 mmol of intermediate (**b**).

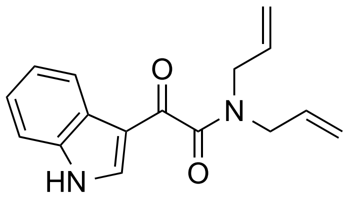
NMR spectra were recorded in d_6-DMSO using a Bruker Avance 300 spectrometer (^{1}H at 300.1 MHz; ^{13}C DEPTQ at 75 MHz). Internal chemical shift references were based on residual solvent peaks and TMS.



No.	R’	R’’
1a	H	H
2a	H	C_6H_5
3a	4-AcO [a]	H
4a	4-OH [a]	H
5a	4,5-ED [b]	H
6a	5-CH_3	H
7a	5-OCH_3	H
8a	5-OCH_3	CH_3
9a	5-OC_2H_5	H
10a	5-F	H
11a	5-F	CH_3
12a	5-Cl	H
13a	5-Br	H
14a	5,6-MD [c]	H
15a	6-F	H
16a	7-CH_3	H
17a	7-C_2H_5	H

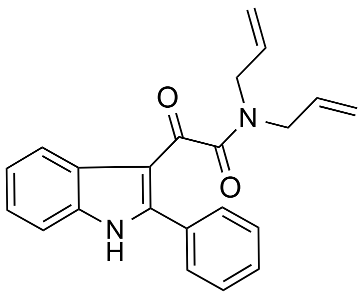
[a] Preparation not required
[b] 4,5-(OCH_2CH_2O): 4,5-ethylenedioxy
[c] 5,6-(OCH_2O): 5,6-methylenedioxy

(**1a**) 2-(1*H*-Indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



Available from work published previously.[1]

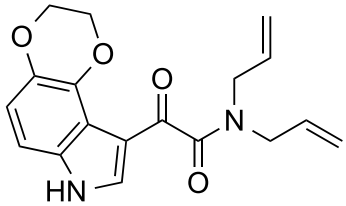
(**2a**) 2-Oxo-2-(2-phenyl-1*H*-indol-3-yl)-*N*,*N*-di(prop-2-en-1-yl)acetamide



Yield: 828 mg (2.4 mmol, 80 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.52 (s, NH, 1H), 8.15 – 8.08 (m, Ar-H, 1H), 7.65 – 7.57 (m, 2 x Ar-H, 2H), 7.57 – 7.46 (m, 4 x Ar-H, 4H), 7.34 – 7.22 (m, 2 x Ar-H, 2H), 5.65 (ddt, *J* = 17.9, 9.5, 6.1 Hz, C*H*=CH$_2$, 1H), 5.35 – 5.20 (m, C*H*=CH$_2$, 1H), 5.18 – 4.98 (m, 2 x CH=C*H*$_2$, 4H), 3.74 (d, *J* = 6.1 Hz, N-CH$_2$, 2H), 3.60 (d, *J* = 6.1 Hz, N-CH$_2$, 2H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 186.69 (CO), 167.12 (CO), 147.61 (Ar-Cq), 135.73 (Ar-Cq), 132.83 (*C*H=CH$_2$), 132.39 (*C*H=CH$_2$), 130.73 (Ar-Cq), 129.97 (2 x Ar-CH), 129.56 (Ar-CH), 127.96 (2 x Ar-CH), 126.73 (Ar-Cq), 123.48 (Ar-CH), 122.52 (Ar-CH), 120.93 (Ar-CH), 118.84 (CH=*C*H$_2$), 118.15 (CH=*C*H$_2$), 112.08 (Ar-CH), 109.62 (Ar-Cq), 49.45 (N-CH$_2$), 45.40 (N-CH$_2$).

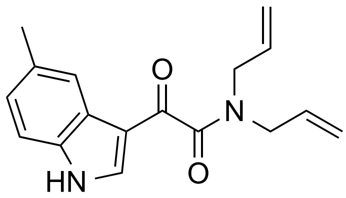
Preparation of (**3a**) and (**4a**) were not required. 4-AcO-DALT (**3**) and 4-OH-DALT (**4**) were commercially available for characterization.

(**5a**) 2-(2,3-Dihydro-7*H*-[1,4]dioxino[2,3-*e*]indol-9-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



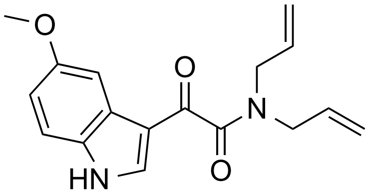
Yield: 653 mg (2.0 mmol, 67 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.15 (s, NH, 1H), 7.97 (s, Ar-H, 1H), 6.97 (d, *J* = 8.6 Hz, Ar-H, 1H), 6.80 (d, *J* = 8.6 Hz, Ar-H, 1H), 5.95 – 5.79 (m, C*H*=CH$_2$, 1H), 5.79 – 5.64 (m, C*H*=CH$_2$, 1H), 5.32 – 5.09 (m, 2 x CH=C*H*$_2$, 4H), 4.31 – 4.18 (m, O(CH$_2$)$_2$O, 4H), 3.99 (d, *J* = 5.5 Hz, N-CH$_2$, 2H), 3.84 (d, *J* = 5.7 Hz, N-CH$_2$, 2H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.02 (CO), 168.29 (CO), 137.97 (Ar-Cq), 136.60 (Ar-Cq), 136.50 (Ar-CH), 133.27 (Ar-Cq), 133.21 (*C*H=CH$_2$), 132.89 (*C*H=CH$_2$), 118.58 (CH=*C*H$_2$), 117.62 (CH=*C*H$_2$), 114.50 (Ar-CH), 113.55 (Ar-Cq), 105.15 (Ar-CH), 64.14 (OCH$_2$), 63.63 (OCH$_2$), 49.46 (N-CH$_2$), 45.44 (N-CH$_2$).

(**6a**) 2-(5-Methyl-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



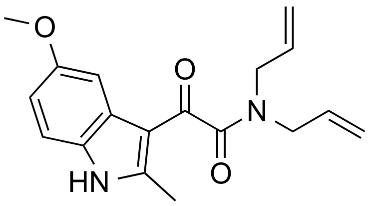
Yield: 706 mg (2.5 mmol, 84 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.16 (s, NH, 1H), 8.03 (s, Ar-H, 1H), 7.92 (s, Ar-H, 1H), 7.41 (d, *J* = 8.3 Hz, Ar-H, 1H), 7.10 (dd, *J* = 8.3, 1.5 Hz, Ar-H, 1H), 5.89 (ddt, *J* = 16.7, 9.7, 5.8 Hz, C*H*=CH_2, 1H), 5.73 (ddt, *J* = 17.1, 10.2, 5.7 Hz, C*H*=CH_2, 1H), 5.31 – 5.09 (m, 2 x CH=CH_2, 4H), 4.02 (d, *J* = 5.8 Hz, N-CH_2, 2H), 3.84 (d, *J* = 5.8 Hz, N-CH_2, 2H), 2.42 (s, CH_3, 3H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.84 (CO), 167.36 (CO), 136.96 (Ar-CH), 135.15 (Ar-Cq), 133.12 (*C*H=CH_2), 132.66 (*C*H=CH_2), 131.52 (Ar-Cq), 125.21 (Ar-Cq), 124.96 (Ar-CH), 120.66 (Ar-CH), 118.28 (CH=*C*H_2), 117.67 (CH=*C*H_2), 112.58 (Ar-Cq), 112.26 (Ar-CH), 49.20 (N-CH_2), 45.57 (N-CH_2), 21.20 (CH_3).

(**7a**) 2-(5-Methoxy-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



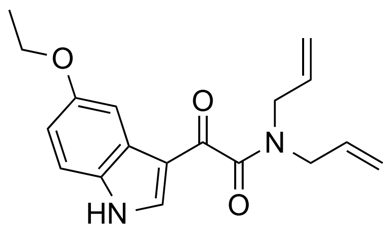
Available from work published previously.[1]

(**8a**) 2-(5-Methoxy-2-methyl-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



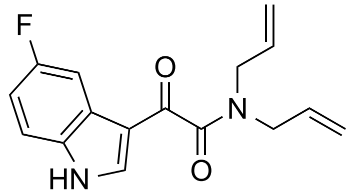
Available from work published previously.[3]

(**9a**) 2-(5-Ethoxy-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



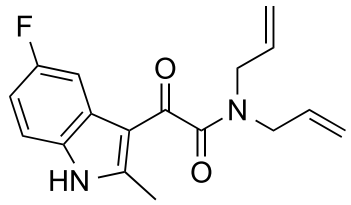
Available from work published previously.[2]

(**10a**) 2-(5-Fluoro-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



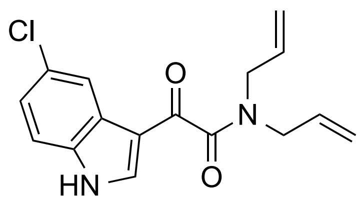
Yield: 544 mg (1.9 mmol, 63 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.43 (s, NH, 1H), 8.17 (s, Ar-H, 1H), 7.78 (dd, *J* = 9.6, 2.4 Hz, Ar-H, 1H), 7.56 (dd, *J* = 8.9, 4.6 Hz, Ar-H, 1H), 7.14 (td, *J* = 9.2, 2.6 Hz, Ar-H, 1H), 5.88 (ddt, *J* = 16.4, 11.2, 5.7 Hz, C*H*=CH$_2$, 1H), 5.73 (ddt, *J* = 10.7, 5.7 Hz, C*H*=CH$_2$, 1H), 5.32 – 5.05 (m, 2 x CH=C*H*$_2$, 4H), 4.03 (d, *J* = 5.7 Hz, N-CH$_2$, 2H), 3.85 (d, *J* = 5.6 Hz, N-CH$_2$, 2H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.70 (CO), 167.05 (CO), 158.90 (d, *J* = 235.9 Hz, Ar-Cq), 138.40 (Ar-CH), 133.43 (Ar-Cq), 133.10 (*C*H=CH$_2$), 132.59 (*C*H=CH$_2$), 125.59 (d, *J* = 11.1 Hz, Ar-Cq), 118.28 (CH=*C*H$_2$), 117.70 (CH=*C*H$_2$), 114.03 (d, *J* = 9.9 Hz, Ar-CH), 113.01 (d, *J* = 4.4 Hz, Ar-Cq), 111.69 (d, *J* = 26.0 Hz, Ar-CH), 105.85 (d, *J* = 24.7 Hz, Ar-CH), 49.21 (N-CH$_2$), 45.68 (N-CH$_2$).

(**11a**) 2-(5-Fluoro-2-methyl-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



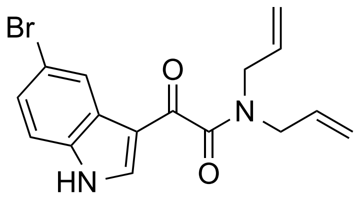
Yield: 595 mg (1.98 mmol, 66 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.35 (s, NH, 1H), 7.61 (d, *J* = 9.4 Hz, Ar-H, 1H), 7.43 (dd, *J* = 8.8, 4.6 Hz, Ar-H, 1H), 7.04 (td, *J* = 9.3, 2.6 Hz, Ar-H, 1H), 5.87 (ddt, *J* = 16.2, 10.1, 6.1 Hz, C*H*=CH$_2$, 1H), 5.71 (ddt, *J* = 15.9, 9.8, 6.1 Hz, C*H*=CH$_2$, 1H), 5.36 – 5.08 (m, 2 x CH=C*H*$_2$, 4H), 4.04 (d, *J* = 6.1 Hz, N-CH$_2$, 2H), 3.82 (d, *J* = 6.1 Hz, N-CH$_2$, 2H), 2.58 (s, CH$_3$, 3H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.71 (CO), 167.97 (CO), 158.72 (d, *J* = 234.8 Hz, Ar-Cq), 148.66 (Ar-Cq), 132.59 (*C*H=CH$_2$), 132.09 (*C*H=CH$_2$), 131.68 (Ar-Cq), 127.17 (d, *J* = 10.9 Hz, Ar-Cq), 118.92 (CH=*C*H$_2$), 118.51 (CH=*C*H$_2$), 112.78 (d, *J* = 9.9 Hz, Ar-CH), 110.51 (d, *J* = 25.7 Hz, Ar-CH), 109.58 (d, *J* = 4.1 Hz, Ar-Cq), 105.30 (d, *J* = 25.2 Hz, Ar-CH), 49.21 (N-CH$_2$), 45.34 (N-CH$_2$), 13.69 (CH$_3$).

(**12a**) 2-(5-Chloro-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



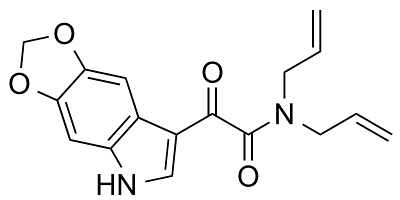
Yield: 699 mg (2.3 mmol, 77 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.45 (s, NH, 1H), 8.19 (s, Ar-H, 1H), 8.08 (d, *J* = 1.9 Hz, Ar-H, 1H), 7.57 (d, *J* = 8.7 Hz, Ar-H, 1H), 7.31 (dd, *J* = 8.7, 2.1 Hz, Ar-H, 1H), 5.97 – 5.81 (m, C*H*=CH_2, 1H), 5.81 – 5.65 (m, C*H*=CH_2, 1H), 5.32 – 5.08 (m, 2 x CH=CH_2, 4H), 4.03 (d, *J* = 5.8 Hz, N-CH_2, 2H), 3.85 (d, *J* = 5.7 Hz, N-CH_2, 2H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm δ 185.74 (CO), 166.95 (CO), 138.27 (Ar-CH), 135.35 (Ar-Cq), 133.08 (*C*H=CH_2), 132.57 (*C*H=CH_2), 127.22 (Ar-Cq), 126.10 (Ar-Cq), 123.59 (Ar-CH), 119.99 (Ar-CH), 118.30 (CH=*C*H_2), 117.77 (CH=*C*H_2), 114.35 (Ar-CH), 112.51 (Ar-Cq), 49.21 (N-CH_2), 45.73 (N-CH_2).

(**13a**) 2-(5-Bromo-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



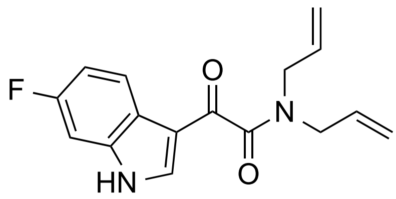
Yield: 677 mg (1.95 mmol, 65 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.29 (bs, NH, 1H, very low intensity), 8.25 (d, *J* = 1.7 Hz, Ar-H, 1H), 8.18 (s, Ar-H, 1H), 7.52 (dd, *J* = 8.6, 0.4 Hz, Ar-H, 1H), 7.42 (dd, *J* = 8.6, 2.0 Hz, Ar-H, 1H), 5.88 (ddt, *J* = 15.3, 10.6, 5.8 Hz, C*H*=CH_2, 1H), 5.73 (ddt, *J* = 17.1, 10.2, 5.7 Hz, C*H*=CH_2, 1H), 5.30 – 5.08 (m, 2 x CH=CH_2, 4H), 4.03 (d, *J* = 5.8 Hz, N-CH_2, 2H), 3.85 (d, *J* = 5.7 Hz, N-CH_2, 2H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.73 (CO), 166.94 (CO), 138.09 (Ar-CH), 135.63 (Ar-Cq), 133.07 (*C*H=CH_2), 132.54 (*C*H=CH_2), 126.71 (Ar-Cq), 126.15 (Ar-CH), 123.03 (Ar-CH), 118.29 (CH=*C*H_2), 117.77 (CH=*C*H_2), 115.28 (Ar-Cq), 114.75 (Ar-CH), 112.42 (Ar-Cq), 49.21 (N-CH_2), 45.73 (N-CH_2).

(**14a**) 2-(5*H*-[1,3]Dioxolo[4,5-*f*]indol-7-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



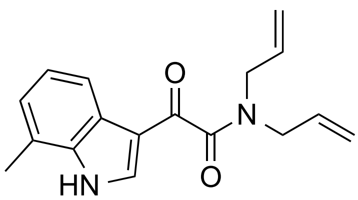
Yield: 572 mg (1.8 mmol, 61 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.08 (s, NH, 1H), 7.89 (s, Ar-H, 1H), 7.49 (s, Ar-H, 1H), 7.05 (s, Ar-H, 1H), 6.03 (s, OCH_2O, 2H), 5.87 (ddt, *J* = 17.5, 9.9, 5.7 Hz, C*H*=CH_2, 1H), 5.72 (ddt, *J* = 15.9, 10.3, 5.7 Hz, C*H*=CH_2, 1H), 5.31 – 5.07 (m, 2 x CH=CH_2, 4H), 4.01 (d, *J* = 5.7 Hz, N-CH_2, 2H), 3.83 (d, *J* = 5.7 Hz, N-CH_2, 2H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.77 (CO), 167.23 (CO), 145.37 (Ar-Cq), 144.67 (Ar-Cq), 135.15 (Ar-CH), 133.12 (*C*H=CH_2), 132.64 (*C*H=CH_2), 131.66 (Ar-Cq), 118.93 (Ar-Cq), 118.33 (CH=*C*H_2), 117.64 (CH=*C*H_2), 113.25 (Ar-Cq), 100.90 (OCH_2O), 99.40 (Ar-CH), 93.37 (Ar-CH), 49.22 (N-CH_2), 45.56 (N-CH_2).

(**15a**) 2-(6-Fluoro-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



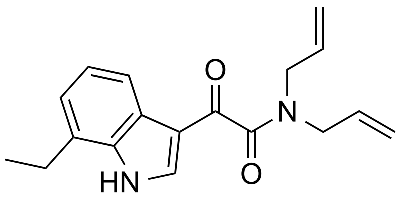
Yield: 515 mg (1.8 mmol, 60 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.32 (s, NH, 1H), 8.14 – 8.07 (m, Ar-H, 2H), 7.34 (dd, *J* = 9.6, 2.4 Hz, Ar-H, 1H), 7.12 (ddd, *J* = 9.8, 8.8, 2.4 Hz, Ar-H, 1H), 5.96 – 5.81 (m, C*H*=CH_2, 1H), 5.73 (ddt, *J* = 15.9, 10.3, 5.7 Hz, C*H*=CH_2, 1H), 5.31 – 5.06 (m, 2 x CH=CH_2, 4H), 4.03 (d, *J* = 5.8 Hz, N-CH_2, 2H), 3.85 (d, *J* = 5.7 Hz, N-CH_2, 2H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.82 (CO), 167.06 (CO), 159.55 (d, *J* = 237.8 Hz, Ar-Cq), 137.83 (d, *J* = 2.0 Hz, Ar-CH), 137.00 (d, *J* = 12.6 Hz, Ar-Cq), 133.07 (*C*H=CH_2), 132.60 (*C*H=CH_2), 122.07 (d, *J* = 10.0 Hz, Ar-CH), 121.56 (Ar-Cq), 118.29 (CH=*C*H_2), 117.69 (CH=*C*H_2), 112.90 (Ar-Cq), 110.84 (d, *J* = 24.0 Hz, Ar-CH), 99.02 (d, *J* = 25.9 Hz, Ar-CH), 49.21 (N-CH_2), 45.66 (N-CH_2).

(**16a**) 2-(7-Methyl-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide



Yield: 686 mg (2.4 mmol, 81 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.33 (s, NH 1H), 8.07 (s, Ar-H, 1H), 7.96 (d, *J* = 7.7 Hz, Ar-H, 1H), 7.16 (t, *J* = 7.5 Hz, Ar-H, 1H), 7.08 (d, *J* = 7.1 Hz, Ar-H, 1H), 5.89 (ddt, *J* = 16.5, 11.3, 5.7 Hz, C*H*=CH_2, 1H), 5.72 (ddt, *J* = 15.9, 10.7, 5.7 Hz, C*H*=CH_2, 1H), 5.35 – 5.04 (m, 2 x CH=CH_2, 4H), 4.04 (d, *J* = 5.7 Hz, N-CH_2, 2H), 3.85 (d, *J* = 5.5 Hz, N-CH_2, 2H), 2.52 (s, CH_3, 3H, overlapping with DMSO solvent). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.97 (CO), 167.33 (CO), 136.58 (Ar-CH), 136.29 (Ar-Cq), 133.12 (*C*H=CH_2), 132.68 (*C*H=CH_2), 124.73 (Ar-Cq), 124.14 (Ar-CH), 122.71 (Ar-CH), 122.03 (Ar-Cq), 118.44 (Ar-CH), 118.25 (CH=*C*H_2), 117.64 (CH=*C*H_2), 113.32 (Ar-Cq), 49.18 (N-CH_2), 45.60 (N-CH_2), 16.61 (CH_3).

(**17a**) 2-(7-Ethyl-1*H*-indol-3-yl)-2-oxo-*N*,*N*-di(prop-2-en-1-yl)acetamide

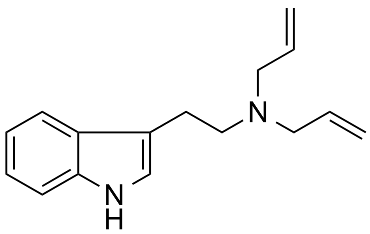


Yield: 631 mg (2.1 mmol, 71 %). ^{1}H-NMR (300 MHz, d_6-DMSO) δ ppm 12.34 (s, NH, 1H), 8.05 (d, *J* = 2.4 Hz, Ar-H, 1H), 7.97 (dd, *J* = 7.8, 0.9 Hz, Ar-H, 1H), 7.19 (t, *J* = 7.5 Hz, Ar-H, 1H), 7.10 (dd, *J* = 7.2, 1.0 Hz, Ar-H, 1H), 5.89 ddt, *J* = 16.6, 9.7, 5.8 Hz, C*H*=CH_2, 1H), 5.73 (ddt, *J* = 17.1, 10.2, 5.7 Hz, C*H*=CH_2, 1H), 5.31 – 5.08 (m, 2 x CH=CH_2, 4H), 4.04 (d, *J* = 5.8 Hz, N-CH_2, 2H), 3.85 (d, *J* = 5.7 Hz, N-CH_2, 2H), 2.91 (q, *J* = 7.5 Hz, C$H_2$$CH_3$, 2H), 1.26 (t, *J* = 7.5 Hz, CH_2CH_3, 3H). ^{13}C-NMR (75 MHz, d_6-DMSO) δ ppm 185.90 (CO), 167.32 (CO), 136.57 (Ar-CH), 135.51 (Ar-Cq), 133.15 (*C*H=CH_2), 132.68 (*C*H=CH_2), 128.33 (Ar-Cq), 124.93 (Ar-Cq), 122.85 (Ar-CH), 122.41 (Ar-CH), 118.53 (Ar-Cq), 118.26 (CH=*C*H_2), 117.63 (CH=*C*H_2), 113.32 (Ar-Cq), 49.20 (N-CH_2), 45.59 (N-CH_2), 23.47 (*C*$H_2$$CH_3$), 14.57 ($CH_2$*C*$H_3$).

Nuclear magnetic resonance spectroscopy data for tryptamines (**1**) – (**17**)

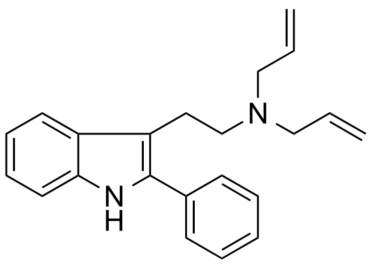
NMR spectra were recorded in CD_3OD using a Bruker Avance 300 spectrometer (^1H at 300.1 MHz; ^{13}C DEPTQ at 75 MHz). Internal chemical shift references were based on residual solvent peaks and TMS.

(**1**) *N*-[2-(1*H*-Indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (DALT)



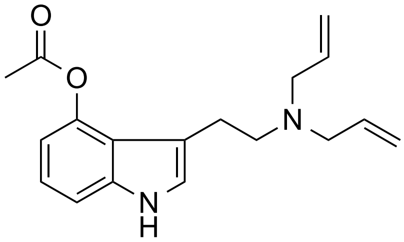
Yield: 58 mg (0.21 mmol, 70 %). ^1H-NMR (300 MHz, CD_3OD): δ ppm 7.61 (d, *J* = 7.9 Hz, Ar-H, 1H), 7.42 (d, *J* = 8.0 Hz, Ar-H, 1H), 7.25 (s, Ar-H, 1H), 7.17 (td, *J* = 7.3, 3.2 Hz, 1H, Ar-H), 7.09 (td, *J* = 7.6, 1.1 Hz, Ar-H, 1H), 6.05 (ddt, *J* = 17.1, 10.0, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.74 – 5.60 (m, 2 x CH=CH_2, 4H), 3.92 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.53 – 3.41 (m, CH_2, 2H), 3.33 – 3.24 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 138.30 (Ar-Cq), 127.99 (Ar-Cq), 127.51 (2 x *C*H=CH_2), 126.99 (2 x CH=*C*H_2), 124.36 (Ar-CH), 122.86 (Ar-CH), 120.16 (Ar-CH), 118.92 (Ar-CH), 112.64 (Ar-CH), 109.72 (Ar-Cq), 56.27 (2 x N-CH_2), 53.65 (CH_2), 21.39 (CH_2).

(**2**) *N*-[2-(2-Phenyl-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (2-Ph-DALT)



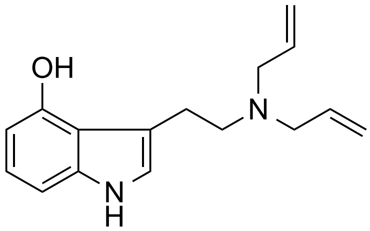
Yield: 81 mg (0.23 mmol, 77 %). ^1H-NMR (300 MHz, CD_3OD): δ ppm 7.65 – 7.60 (m, Ar-H, 3H), 7.56 – 7.46 (m, Ar-H, 2H), 7.47 – 7.36 (m, Ar-H, 2H), 7.16 (td, *J* = 7.7, 1.0 Hz, Ar-H, 1H), 7.08 (td, *J* = 7.5, 0.8 Hz, Ar-H, 1H), 5.91 (ddt, *J* = 17.4, 10.4, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.59 – 5.43 (m, 2 x CH=CH_2, 4H), 3.78 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.43 – 3.33 (m, CH_2, 2H), 3.33 – 3.22 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 136.37 (Ar-Cq), 135.86 (Ar-Cq), 132.65 (Ar-Cq), 128.64 (2 x Ar-2-Ph-CH), 128.00 (Ar-Cq), 127.95 (2 x Ar-2-Ph-CH), 127.65 (Ar-2-Ph-CH), 125.91 (2 x *C*H=CH_2), 125.41 (2 x CH=*C*H_2), 121.79 (Ar-CH), 119.12 (Ar-CH), 117.62 (Ar-CH), 111.00 (Ar-CH), 104.85 (Ar-Cq), 54.68 (2 x N-CH_2), 51.18 (CH_2), 19.07 (CH_2).

(**3**) 3-{2-[Di(prop-2-en-1-yl)amino]ethyl}-1*H*-indol-4-yl acetate fumarate (4-AcO-DALT)



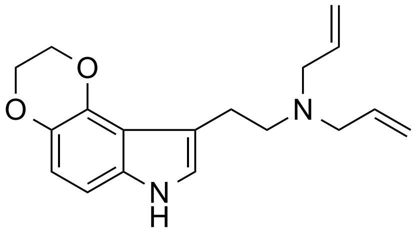
^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.27 (dd, *J* = 8.2, 0.7 Hz, Ar-H, 1H), 7.19 (s, Ar-H, 1H), 7.10 (t, *J* = 7.9 Hz, Ar-H, 1H), 6.76 (dd, J = 7.7, 0.7 Hz, Ar-H, 1H), 6.70 (s, fumarate, 1.7H), 6.06 – 5.86 (m, 2 x C*H*=CH_2, 2H), 5.58 – 5.46 (m, 2 x CH=CH_2, 4H), 3.74 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.41 – 3.33 (m, CH_2, 2H), 3.22 – 3.13 (m, CH_2, 2H), 2.38 (s, CH_3, 3H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 171.69 (fumarate), 171.11 (CO), 145.12 (Ar-Cq), 140.62 (Ar-Cq), 136.15 (fumarate), 128.44 (2 x *C*H=CH_2), 126.03 (2 x CH=*C*H_2), 125.32 (Ar-CH), 122.93 (Ar-CH), 120.47 (Ar-Cq), 113.15 (Ar-CH), 110.69 (Ar-CH), 109.19 (Ar-Cq), 56.63 (2 x N-CH_2), 54.44 (CH_2), 22.79 (CH_2), 21.27 (CH_3).

(**4**) 3-{2-[Di(prop-2-en-1-yl)amino]ethyl}-1*H*-indol-4-ol hemifumarate (4-OH-DALT)



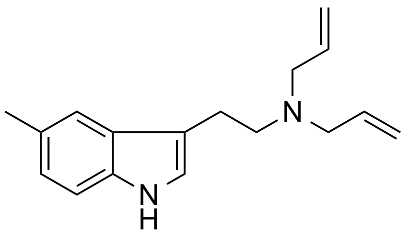
^{1}H-NMR (300 MHz, CD_3OD): δ ppm 6.95 (s, Ar-H, 1H), 6.92 – 6.80 (m, Ar-H, 2H), 6.69 (s, fumarate, 1H), 6.37 (d, *J* = 7.0 Hz, Ar-H, 1H), 6.04 – 5.82 (m, 2 x C*H*=CH_2, 2H), 5.52 – 5.39 (m, 2 x CH=CH_2, 4H), 3.63 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.35 – 3.25 (m, CH_2, 2H, overlapping with residual solvent peak), 3.24 – 3.14 (m, CH_2, 2H). Note: in d_6-DMSO, the exchangeable proton of the 4-OH group appeared as a singlet at 10.57 ppm. ^{13}C-NMR (75 MHz, MeOD) δ ppm 173.54 (fumarate), 152.35 (Ar-Cq), 140.60 (Ar-Cq), 136.87 (fumarate), 129.19 (2 x *C*H=CH_2), 125.16 (2 x CH=*C*H_2), 123.70 (Ar-CH), 122.94 (Ar-CH), 117.80 (Ar-Cq), 110.94 (Ar-Cq), 104.57 (Ar-CH), 104.45 (Ar-CH), 56.63 (2 x N-CH_2), 55.47 (CH_2), 23.59 (CH_2).

(**5**) *N*-[2-(2,3-Dihydro-7*H*-[1,4]dioxino[2,3-*e*]indol-9-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (ED-DALT)

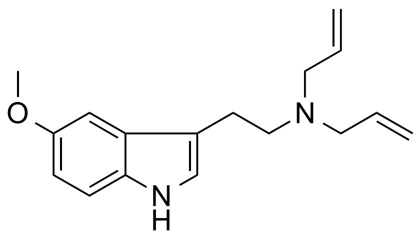


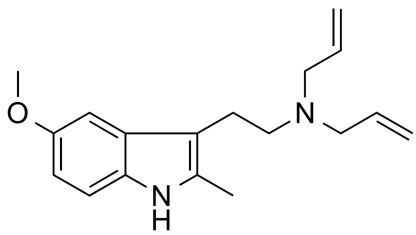
Yield: 60 mg (0.18 mmol, 60 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.05 (s, Ar-H, 1H), 6.83 (d, *J* = 8.7 Hz, Ar-H, 1H), 6.67 (d, *J* = 8.7 Hz, Ar-H, 1H), 6.08 – 5.90 (m, 2 x C*H*=CH_2, 2H), 5.66 – 5.54 (m, *J* = 10.3 Hz, 2 x CH=CH_2, 4H), 4.38 – 4.32 (m, OCH_2, 2H), 4.29 – 4.21 (m, OCH_2, 2H), 3.84 (d, *J* = 7.2 Hz, 2 x N-CH_2, 4H), 3.49 – 3.40 (m, CH_2, 2H), 3.29 – 3.20 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 135.68 (Ar-Cq), 135.53 (Ar-Cq), 133.50 (Ar-Cq), 126.16 (2 x *C*H=CH_2), 125.32 (2 x CH=*C*H_2), 123.11 (Ar-CH), 116.69 (Ar-Cq), 112.93 (Ar-CH), 107.59 (Ar-Cq), 104.15 (Ar-CH), 64.64 (OCH_2), 63.96 (OCH_2), 54.98 (2 x N-CH_2), 53.49 (CH_2), 21.61 (CH_2).

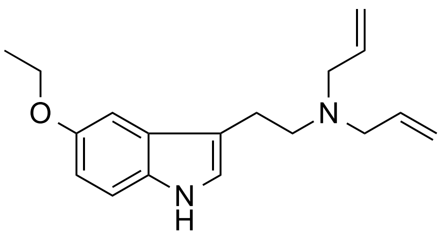
(**6**) *N*-[2-(5-Methyl-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-Me-DALT)



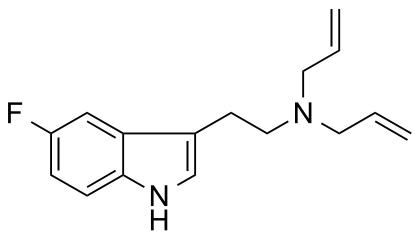
Yield: 64 mg (0.22 mmol, 73 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.34 (s, Ar-H, 1H), 7.26 (d, *J* = 8.3 Hz, Ar-H, 1H), 7.15 (s, Ar-H, 1H), 6.97 (dd, *J* = 8.3, 1.1 Hz, Ar-H, 1H), 6.00 (ddt, *J* = 17.1, 10.0, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.70 – 5.57 (m, 2 x CH=CH_2, 4H), 3.88 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.47 – 3.38 (m, CH_2, 2H), 3.26 – 3.16 (m, CH_2, 2H), 2.43 (s, CH_3, 3H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 136.68 (Ar-Cq), 129.33 (Ar-Cq), 128.22 (Ar-Cq), 127.57 (2 x *C*H=CH_2), 126.95 (2 x CH=*C*H_2), 124.51 (Ar-CH), 124.40 (Ar-CH), 118.51 (Ar-CH), 112.37 (Ar-CH), 109.16 (Ar-Cq), 56.30 (2 x N-CH_2), 53.67 (CH_2), 21.66 (CH_3), 21.43 (CH_2).

(**7**) *N*-[2-(5-Methoxy-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-MeO-DALT)
 Yield: 71 mg (0.23 mmol, 77 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.27 (d, *J* = 8.8 Hz, Ar-H, 1H), 7.17 (s, Ar-H, 1H), 7.04 (d, *J* = 2.3 Hz, Ar-H, 1H), 6.80 (dd, *J* = 8.8, 2.4 Hz, Ar-H, 1H), 6.01 (ddt, *J* = 17.2, 10.1, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.71 – 5.59 (m, 2 x CH=CH_2, 4H), 3.89 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.84 (s, OCH_3, 3H), 3.48 – 3.37 (m, CH_2, 2H), 3.26 – 3.15 (m, CH_2, 1H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 155.31 (Ar-Cq), 133.40 (Ar-Cq), 128.34 (Ar-Cq), 127.60 (2 x *C*H=CH_2), 126.84 (2 x CH=*C*H_2), 125.05 (Ar-CH), 113.36 (Ar-CH), 113.06 (Ar-CH), 109.55 (Ar-Cq), 101.05 (Ar-CH), 56.40 (OCH_3), 56.19 (2 x N-CH_2), 53.43 (CH_2), 21.34 (CH_2).

(**8**) *N*-[2-(5-methoxy-2-methyl-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-MeO-2-Me-DALT)
 Available from work published previously.[3]

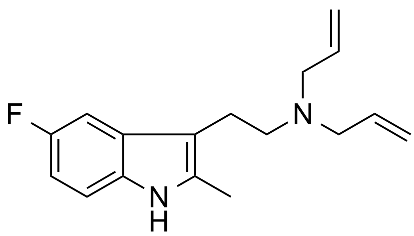
(**9**) *N*-[2-(5-Methoxy-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-EtO-DALT)
 Available from work published previously.[2]

(**10**) *N*-[2-(5-Fluoro-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-F-DALT)



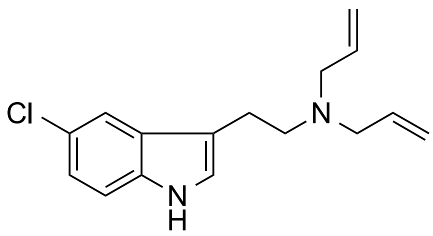
Yield: 58 mg (0.20 mmol, 66 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.34 (dd, *J* = 8.8, 4.4 Hz, Ar-H, 1H), 7.28 (s, Ar-H, 1H), 7.26 (dd, *J* = 9.9, 2.5 Hz, Ar-H, 1H), 6.90 (td, *J* = 9.2, 2.5 Hz, Ar-H, 1H), 6.02 (ddt, *J* = 17.2, 10.1, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.71 – 5.59 (m, 2 x CH=CH_2, 4H), 3.89 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.46 – 3.36 (m, CH_2, 2H), 3.26 – 3.17 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 159.06 (d, *J* = 233.0 Hz, Ar-Cq), 134.79 (Ar-Cq), 128.33 (d, *J* = 9.7 Hz, Ar-Cq), 127.52 (2 x *C*H=CH_2), 126.99 (2 x CH=*C*H_2), 126.39 (Ar-Cq), 113.49 (d, *J* = 9.7 Hz, Ar-CH), 110.97 (d, *J* = 26.5 Hz, Ar-CH), 110.04 (d, *J* = 4.8 Hz, Ar-Cq), 103.67 (d, *J* = 23.7 Hz, Ar-CH), 56.24 (2 x N-CH_2), 53.53 (CH_2), 21.26 (CH_2).

(**11**) *N*-[2-(5-Fluoro-2-methyl-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-F-2-Me-DALT)



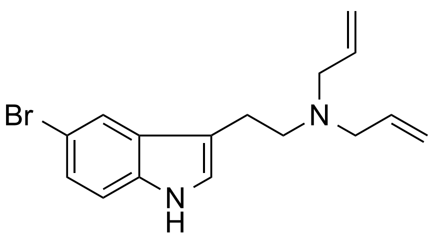
Yield: 56 mg (0.18 mmol, 59 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.21 (dd, *J* = 8.8, 4.4 Hz, Ar-H, 1H), 7.12 (dd, *J* = 9.8, 2.4 Hz, Ar-H, 1H), 6.80 (td, *J* = 9.2, 2.5 Hz, Ar-H, 1H), 6.04 (ddt, *J* = 17.2, 10.1, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.75 – 5.59 (m, 2 x CH=CH_2, 4H), 3.92 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.28 – 3.20 (m, CH_2, 2H), 3.19 – 3.07 (m, CH_2, 2H), 2.39 (s, CH_3, 3H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 159.09 (d, *J* = 234.0 Hz, Ar-Cq), 136.30 (Ar-Cq), 133.69 (Ar-Cq), 129.52 (d, *J* = 6.5 Hz, Ar-Cq), 127.61 (2 x *C*H=CH_2), 126.95 (2 x CH=*C*H_2), 112.39 (d, *J* = 9.7 Hz, Ar-CH), 109.61 (d, *J* = 26.2 Hz, Ar-CH), 105.66 (d, *J* = 3.8 Hz, Ar-Cq), 102.90 (d, *J* = 23.7 Hz, Ar-CH), 56.17 (2 x N-CH_2), 52.96 (CH_2), 20.10 (CH_2), 11.49 (CH_3).

(**12**) *N*-[2-(5-Chloro-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-Cl-DALT)



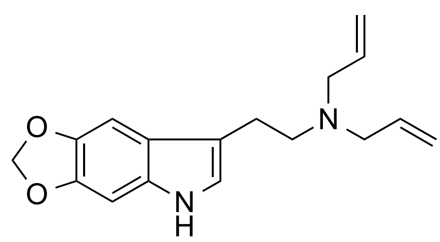
Yield: 57 mg (0.18 mmol, 60 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.58 (d, *J* = 1.9 Hz, Ar-H, 1H), 7.35 (d, *J* = 8.7 Hz, Ar-H, 1H), 7.27 (s, Ar-H, 1H), 7.10 (dd, *J* = 8.7, 1.9 Hz, Ar-H, 1H), 6.02 (ddt, *J* = 17.2, 10.1, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.71 – 5.57 (m, 2 x CH=CH_2, 4H), 3.89 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.46 – 3.35 (m, CH_2, 2H), 3.27 – 3.16 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 136.61 (Ar-Cq), 129.14 (Ar-Cq), 127.51 (2 x *C*H=CH_2), 127.01 (2 x CH=*C*H_2), 126.12 (Ar-CH), 125.94 (Ar-Cq), 123.00 (Ar-CH), 118.48 (Ar-CH), 113.87 (Ar-CH), 109.74 (Ar-Cq), 56.23 (2 x N-CH_2), 53.54 (CH_2), 21.13 (CH_2).

(**13**) *N*-[2-(5-Bromo-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (5-Br-DALT)



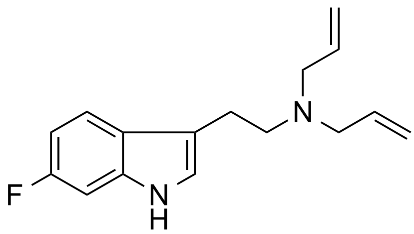
Yield: 68 mg (0.19 mmol, 63 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.74 (d, *J* = 1.6 Hz, Ar-H, 1H), 7.35 – 7.18 (m, 3 x Ar-H, 3H), 6.12 – 5.92 (m, 2 x C*H*=CH_2, 2H), 5.72 – 5.55 (m, 2 x CH=CH_2, 4H), 3.89 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.46 – 3.35 (m, CH_2, 2H), 3.27 – 3.14 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 136.86 (Ar-Cq), 129.83 (Ar-Cq), 127.52 (2 x *C*H=CH_2), 127.00 (2 x CH=*C*H_2), 125.96 (Ar-CH), 125.59 (Ar-CH), 121.64 (Ar-CH), 114.30 (Ar-CH), 113.31 (Ar-Cq), 109.67 (Ar-Cq), 56.24 (2 x N-CH_2), 53.52 (CH_2), 21.11 (CH_2).

(**14**) *N*-[2-(5*H*-[1,3]Dioxolo[4,5-*f*]indol-7-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (MD-DALT)



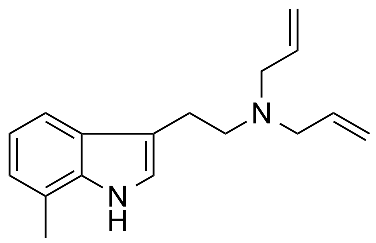
Yield: 55 mg (0.17 mmol, 57 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.05 (s, Ar-H, 1H), 6.95 (d, *J* = 0.4 Hz, Ar-H, 1H), 6.84 (d, *J* = 0.4 Hz, Ar-H, 1H), 5.99 (ddt, *J* = 17.1, 9.9, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.88 (s, OCH_2O, 2H), 5.70 – 5.56 (m, 2 x CH=CH_2, 4H), 3.87 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.45 – 3.33 (m, CH_2, 2H), 3.21 – 3.09 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 146.39 (Ar-Cq), 144.19 (Ar-Cq), 134.69 (Ar-Cq), 127.56 (2 x *C*H=CH_2), 126.97 (2 x CH=*C*H_2), 122.86 (Ar-CH), 121.91 (Ar-Cq), 109.99 (Ar-Cq), 101.76 (OCH_2O), 97.45 (Ar-CH), 93.26 (Ar-CH), 56.29 (2 x N-CH_2), 53.64 (CH_2), 21.51 (CH_2).

(**15**) *N*-[2-(6-Fluoro-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (6-F-DALT)



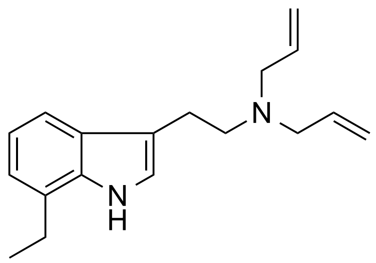
Yield: 44 mg (0.15 mmol, 50 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.53 (dd, *J* = 8.7, 5.2 Hz, Ar-H, 1H), 7.21 (s, Ar-H, 1H), 7.08 (dd, *J* = 9.9, 2.3 Hz, Ar-H, 1H), 6.84 (ddd, *J* = 9.7, 8.8, 2.3 Hz, Ar-H, 1H), 6.02 (ddt, *J* = 17.2, 10.1, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.69 – 5.57 (m, 2 x CH=CH_2, 4H), 3.89 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.47 – 3.37 (m, CH_2, 2H), 3.29 – 3.18 (m, CH_2, 2H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 161.34 (d, *J* = 235.8 Hz, Ar-Cq), 138.21 (d, *J* = 12.5 Hz, Ar-Cq), 127.50 (2 x *C*H=CH_2), 126.99 (2 x CH=*C*H_2), 124.87 (d, *J* = 3.4 Hz, Ar-CH), 124.75 (Ar-Cq), 119.92 (d, *J* = 10.3 Hz, Ar-Cq), 110.11 (Ar-Cq), 108.63 (d, *J* = 25.0 Hz, Ar-CH), 98.51 (d, *J* = 26.0 Hz, Ar-CH), 56.24 (2 x N-CH_2), 53.59 (CH_2), 21.27 (CH_2).

(**16**) *N*-[2-(7-Methyl-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (7-Me-DALT)



Yield: 62 mg (0.21 mmol, 71 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.39 (dd, *J* = 7.4, 1.0 Hz, Ar-H, 1H), 7.21 (s, Ar-H, 1H), 7.01 – 6.90 (m, 2 x Ar-H, 2H), 5.99 (ddt, *J* = 17.1, 10.0, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.70 – 5.54 (m, 2 x CH=CH_2, 4H), 3.88 (d, *J* = 7.1 Hz, 2 x N-CH_2, 4H), 3.48 – 3.39 (m, CH_2, 2H), 3.28 – 3.19 (m, CH_2, 2H), 2.48 (s, CH_3, 3H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 137.72 (Ar-Cq), 127.65 (Ar-Cq), 127.51 (2 x *C*H=CH_2), 127.00 (2 x CH=*C*H_2), 124.18 (Ar-CH), 123.36 (Ar-CH), 122.23 (Ar-Cq), 120.46 (Ar-CH), 116.60 (Ar-CH), 110.05 (Ar-Cq), 56.29 (2 x N-CH_2), 53.67 (CH_2), 21.54 (CH_2), 16.85 (CH_3).

(**17**) *N*-[2-(7-Ethyl-1*H*-indol-3-yl)ethyl]-*N*-(prop-2-en-1-yl)prop-2-en-1-amine HCl (7-Et-DALT)



Yield: 73 mg (0.24 mmol, 80 %). ^{1}H-NMR (300 MHz, CD_3OD): δ ppm 7.39 (dd, *J* = 7.4, 1.6 Hz, Ar-CH, 1H), 7.20 (s, Ar-CH, 1H), 7.04 – 6.93 (m, 2 x Ar-CH, 2H), 6.00 (ddt, *J* = 17.1, 10.0, 7.1 Hz, 2 x C*H*=CH_2, 2H), 5.69 – 5.57 (m, 2 x CH=CH_2, 4H), 3.88 (d, *J* = 7.2 Hz, 2 x N-CH_2, 4H), 3.49 – 3.37 (m, CH_2, 2H), 3.29 – 3.18 (m, CH_2, 2H), 2.88 (q, *J* = 7.6 Hz, C$H_2$$CH_3$, 2H), 1.31 (t, *J* = 7.6 Hz, CH_2CH_3, 3H). ^{13}C-NMR (75 MHz, CD_3OD): δ ppm 136.88 (Ar-Cq), 128.72 (Ar-Cq), 127.93 (Ar-Cq), 127.54 (2 x *C*H=CH_2), 126.96 (2 x CH=*C*H_2), 124.11 (Ar-CH), 121.60 (Ar-CH), 120.57 (Ar-CH), 116.65 (Ar-CH), 110.04 (Ar-Cq), 56.28 (2 x N-CH_2), 53.68 (CH_2), 25.18 (*C*$H_2$$CH_3$), 21.53 ($CH_2$), 14.75 ($CH_3$).

References

[1] S.D. Brandt, S.S. Tirunarayanapuram, S. Freeman, N. Dempster, S.A. Barker, P.F. Daley, N.V. Cozzi, C.P.B. Martins. Microwave-accelerated synthesis of psychoactive deuterated *N*,*N*-dialkylated-[α,α,β,β-D_4]-tryptamines. *J. Label. Compd. Radiopharm.* **2008**, *51*, 423.

[2] R. Tearavarich, V. Hahnvajanawong, N. Dempster, P.F. Daley, N.V. Cozzi, S.D. Brandt. Microwave-accelerated preparation and analytical characterization of 5-ethoxy-*N*,*N*-dialkyl-[α,α,β,β-H_4]- and [α,α,β,β-D_4]-tryptamines. *Drug Test. Anal.* **2011**, *3*, 597.

[3] S.D. Brandt, R. Tearavarich, N. Dempster, N.V. Cozzi, P.F. Daley. Synthesis and characterization of 5-methoxy-2-methyl-*N*,*N*-dialkylated tryptamines. *Drug Test. Anal.* **2012**, *4*, 24.