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

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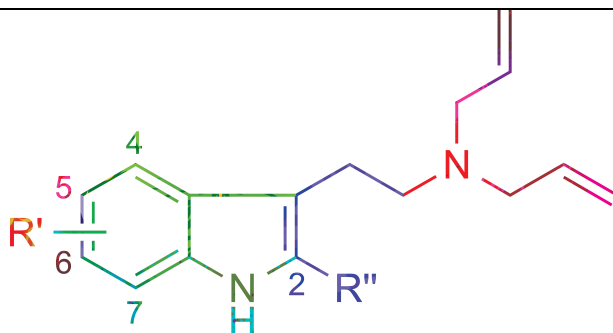
^e *State Bureau of Criminal Investigation Schleswig-Holstein, Section Narcotics/Toxicology, D-24116 Kiel, Germany*

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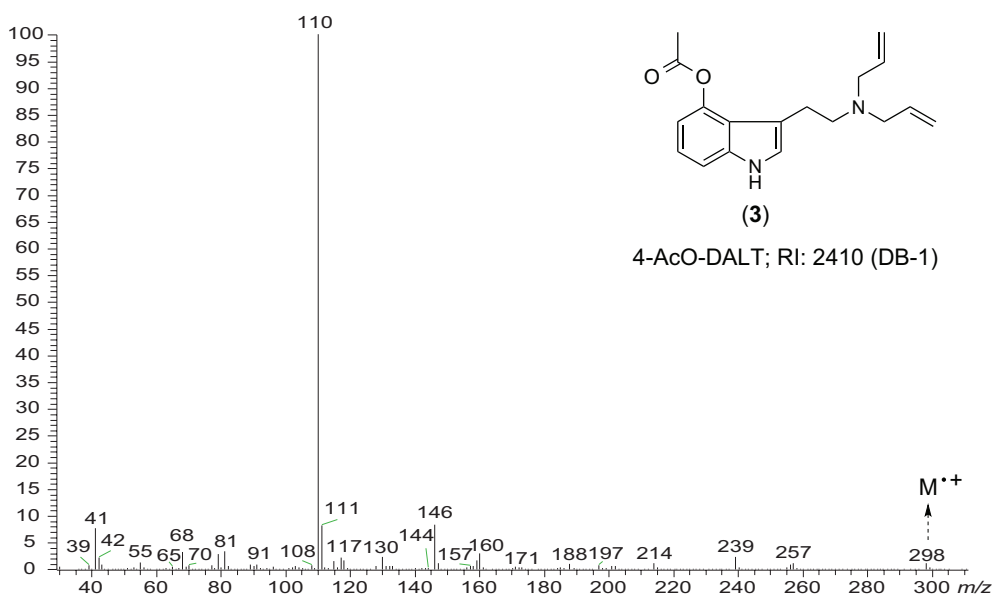
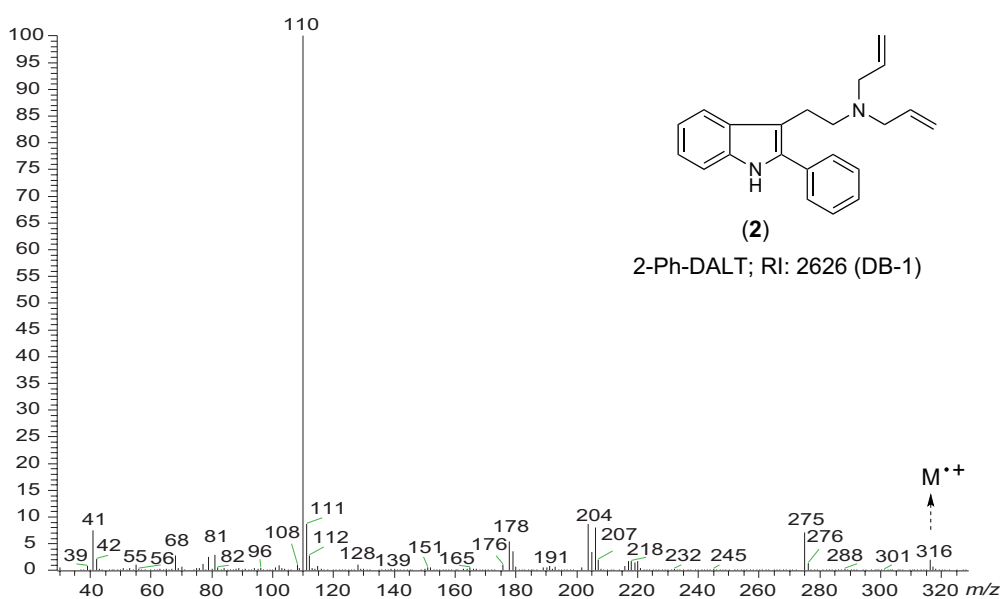
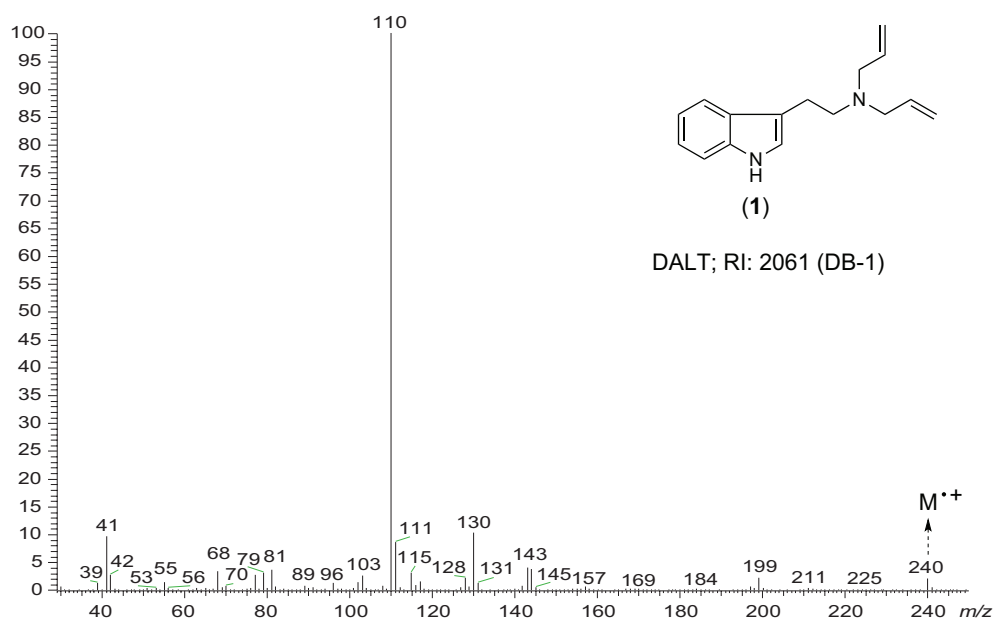


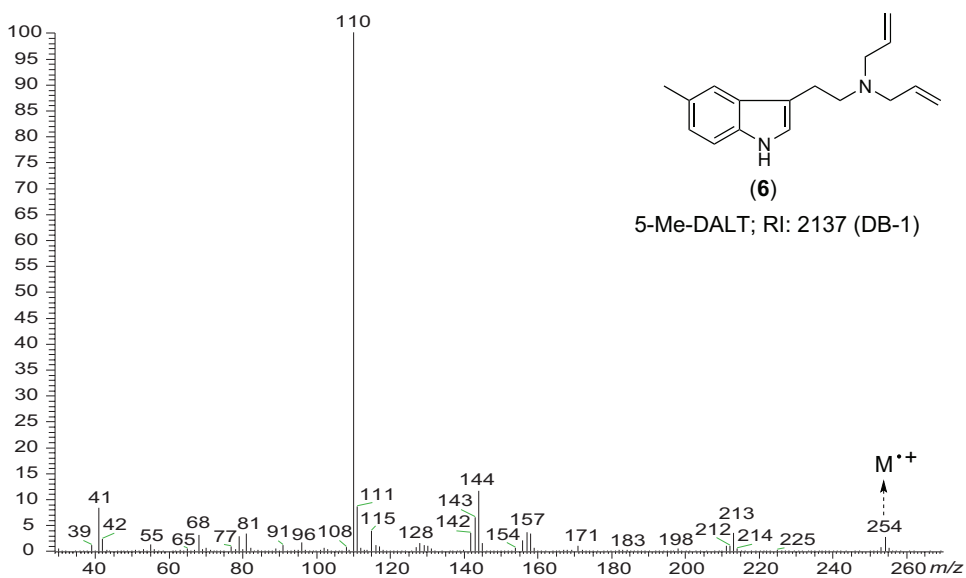
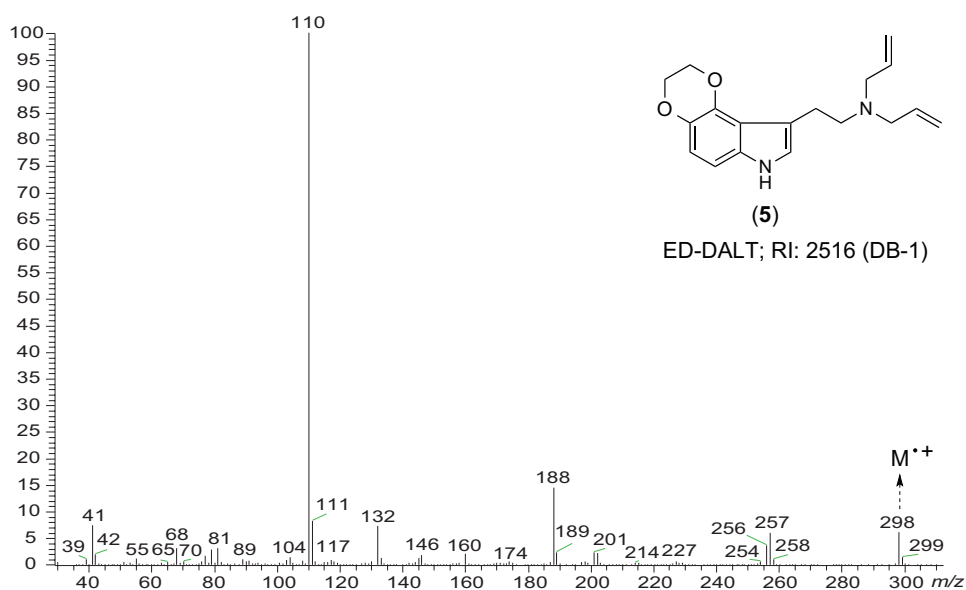
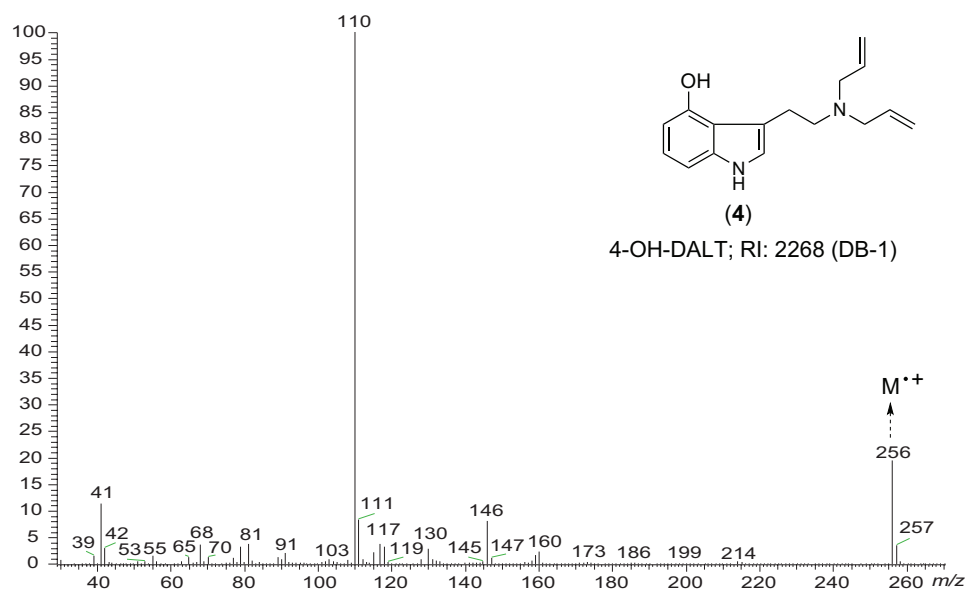
No.	R'	R''	Abbreviation
1	H	H	DALT
2	H	C ₆ H ₅	2-Ph-DALT
3	4-AcO	H	4-AcO-DALT
4	4-OH	H	4-OH-DALT
5	ED ^a	H	ED-DALT
6	5-CH ₃	H	5-Me-DALT
7	5-OCH ₃	H	5-MeO-DALT
8	5-OCH ₃	CH ₃	5-MeO-2-Me-DALT
9	5-OC ₂ H ₅	H	5-EtO-DALT
10	5-F	H	5-F-DALT
11	5-F	CH ₃	5-F-2-Me-DALT
12	5-Cl	H	5-Cl-DALT
13	5-Br	H	5-Br-DALT
14	MD ^b	H	MD-DALT
15	6-F	H	6-F-DALT
16	7-CH ₃	H	7-Me-DALT
17	7-C ₂ H ₅	H	7-Et-DALT

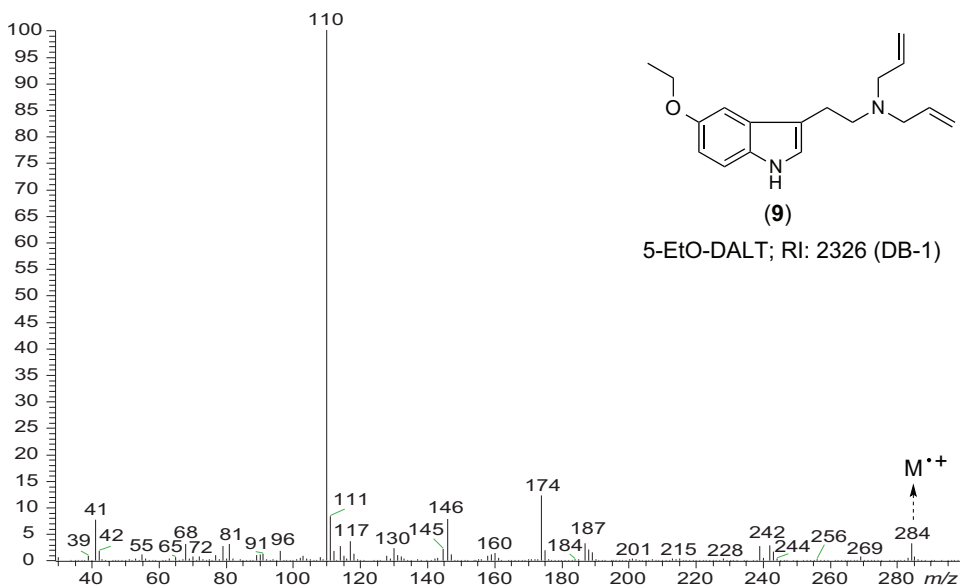
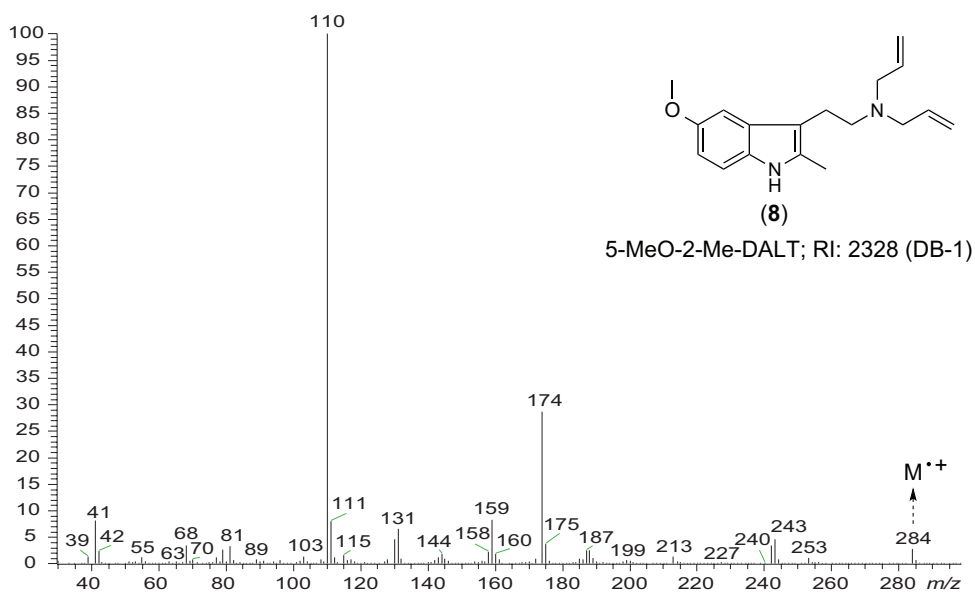
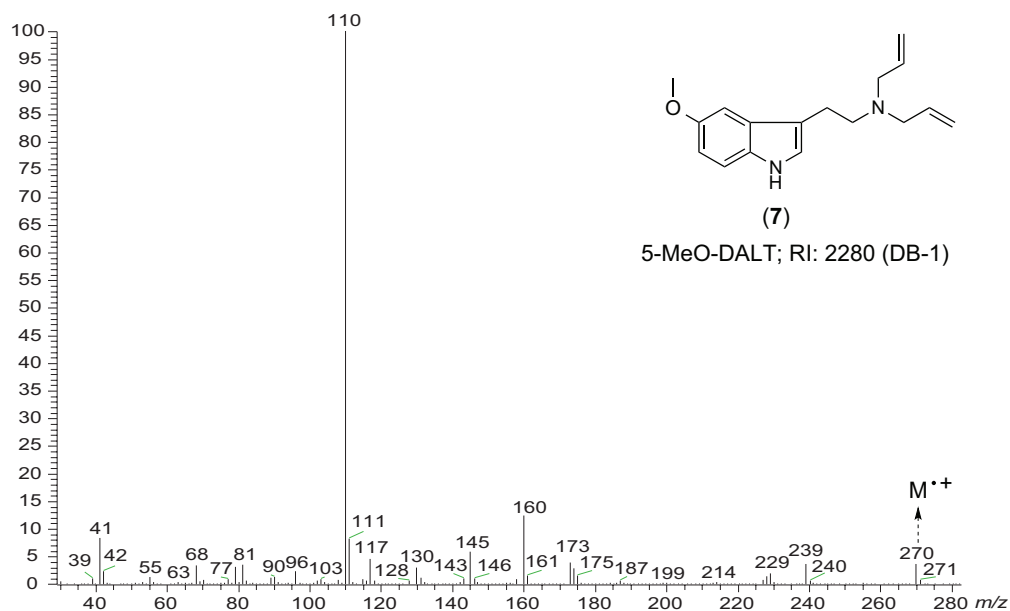
^a 4,5-(OCH₂CH₂O): 4,5-Ethylenedioxy

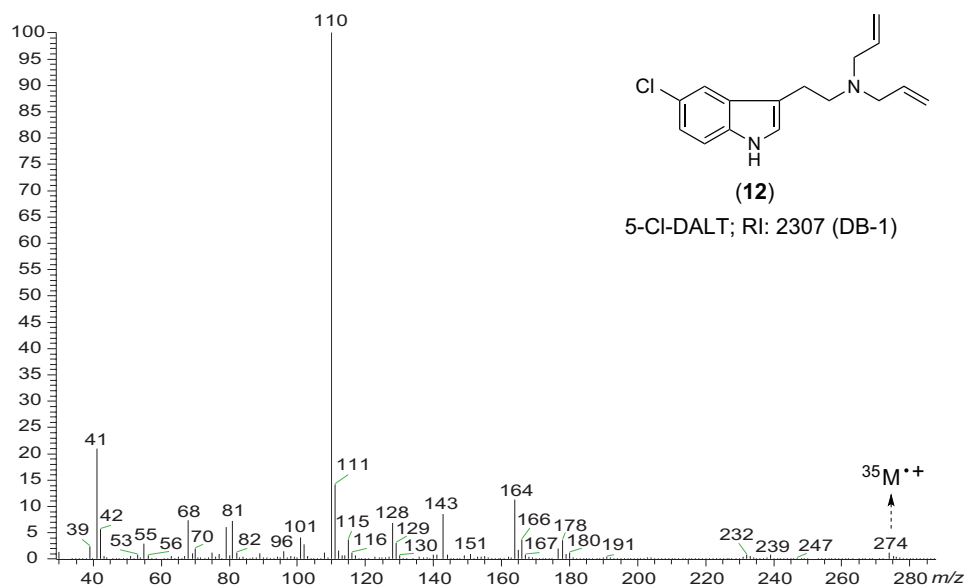
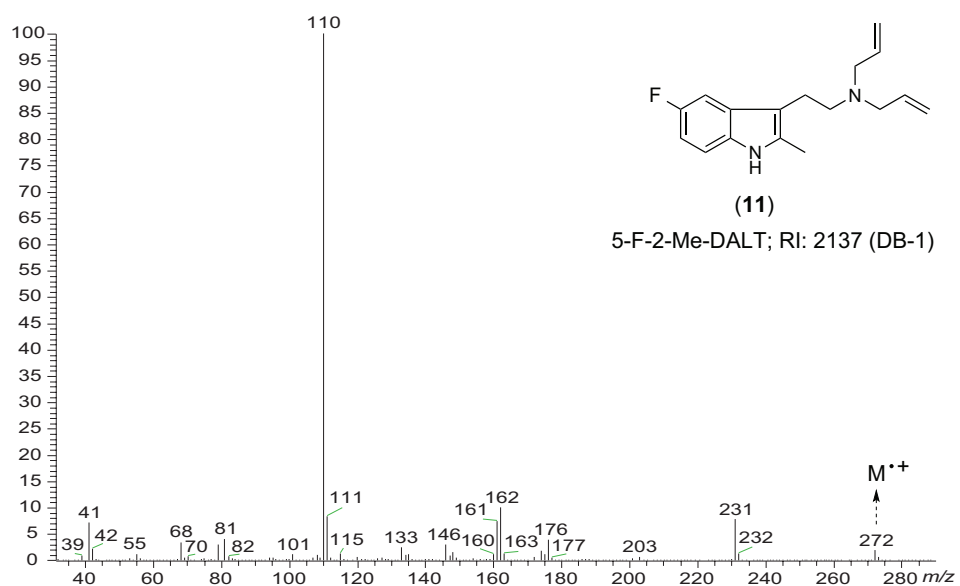
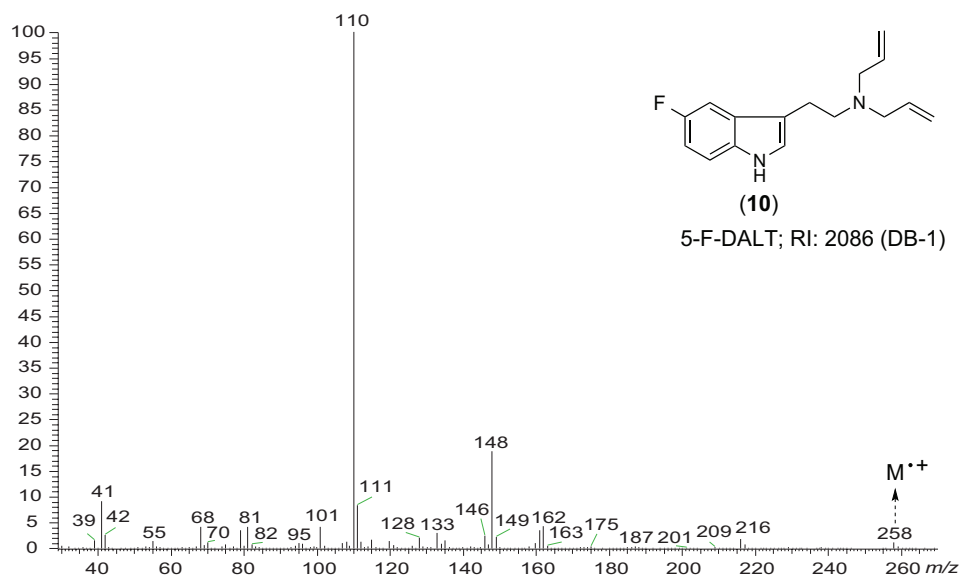
^b 5,6-(OCH₂O): 5,6-Methylenedioxy

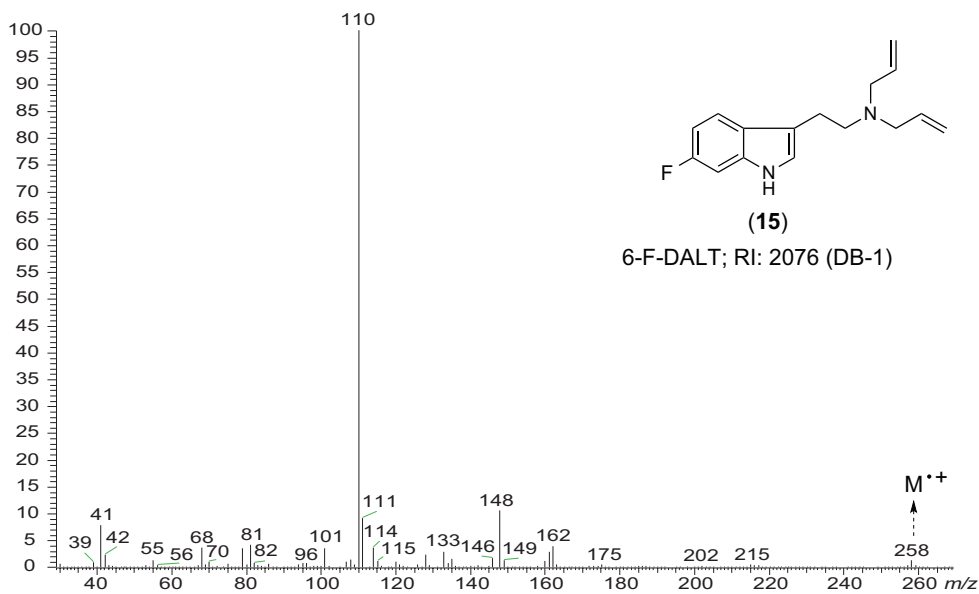
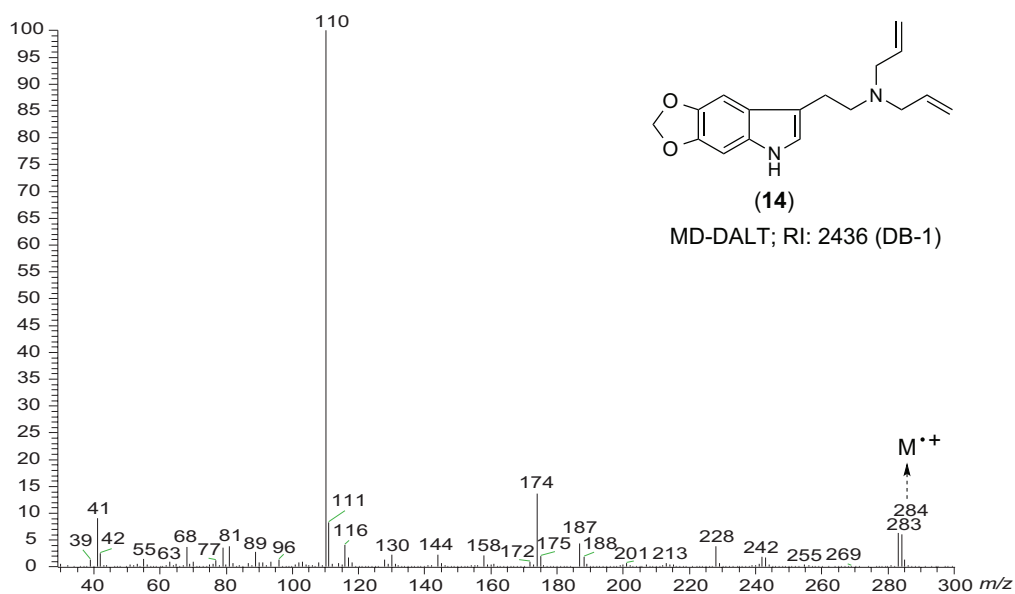
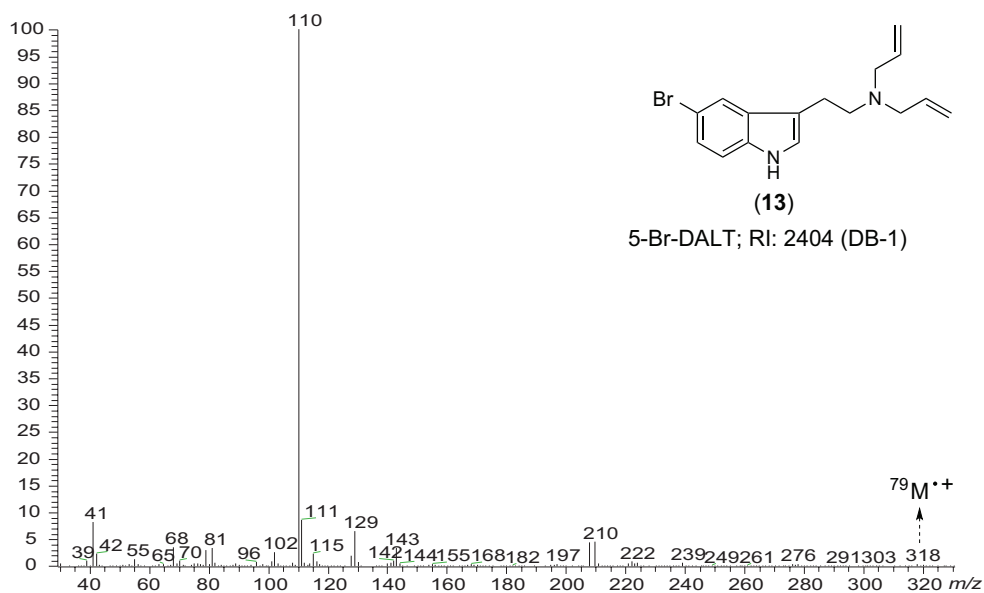
Content	Page
GC EI quadrupole MS data of (1) – (17)	S3 – S8
GC EI/CI ion trap MS data of (1) – (17)	S9 – S12
PDA data of (1) – (17)	S13 – S14
GC solid state IR data of (1) – (17)	S15 – S31
High-resolution ESI Orbitrap MS/MS data of (1) – (17)	S32 – S34
LC quadrupole MS in-source CID spectra of (1) – (17)	S35 – S36
NMR data for glyoxalylamide precursors (1a) – (17a)	S37 – S43
NMR data for tryptamines (1) – (17)	S44 – S51

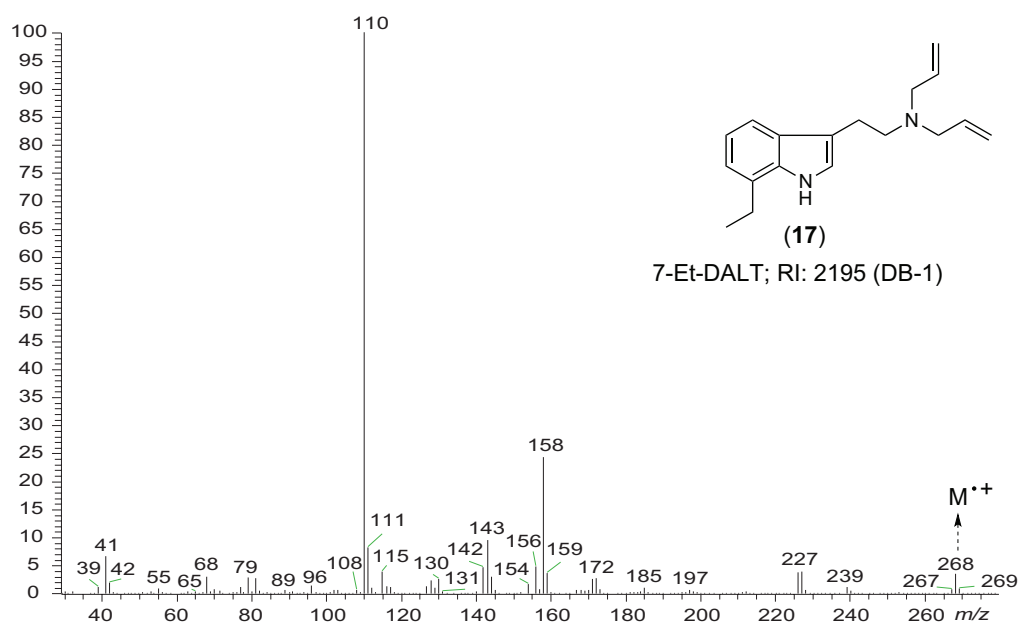
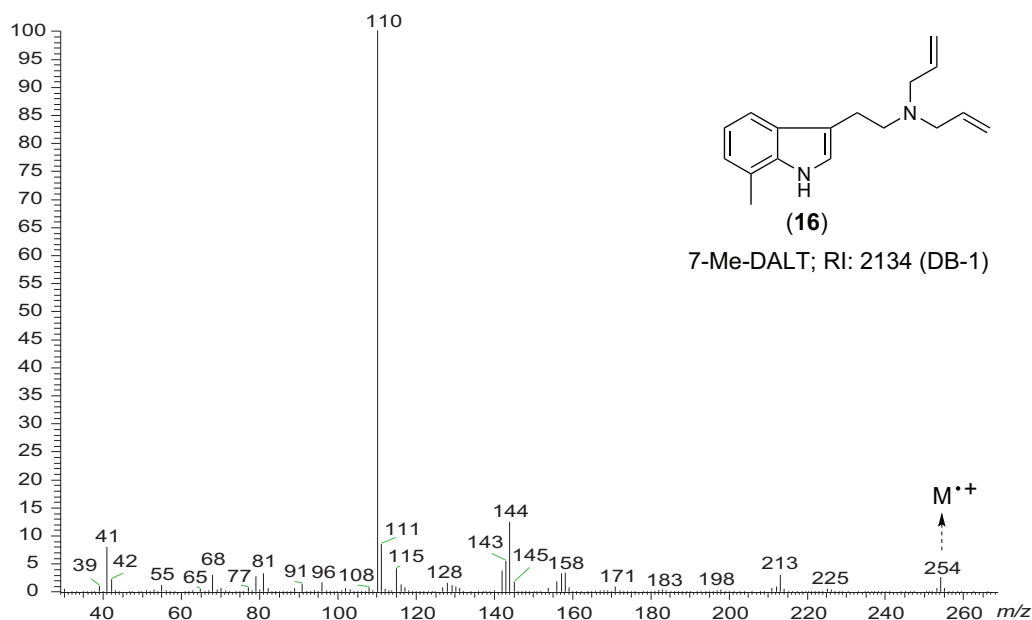








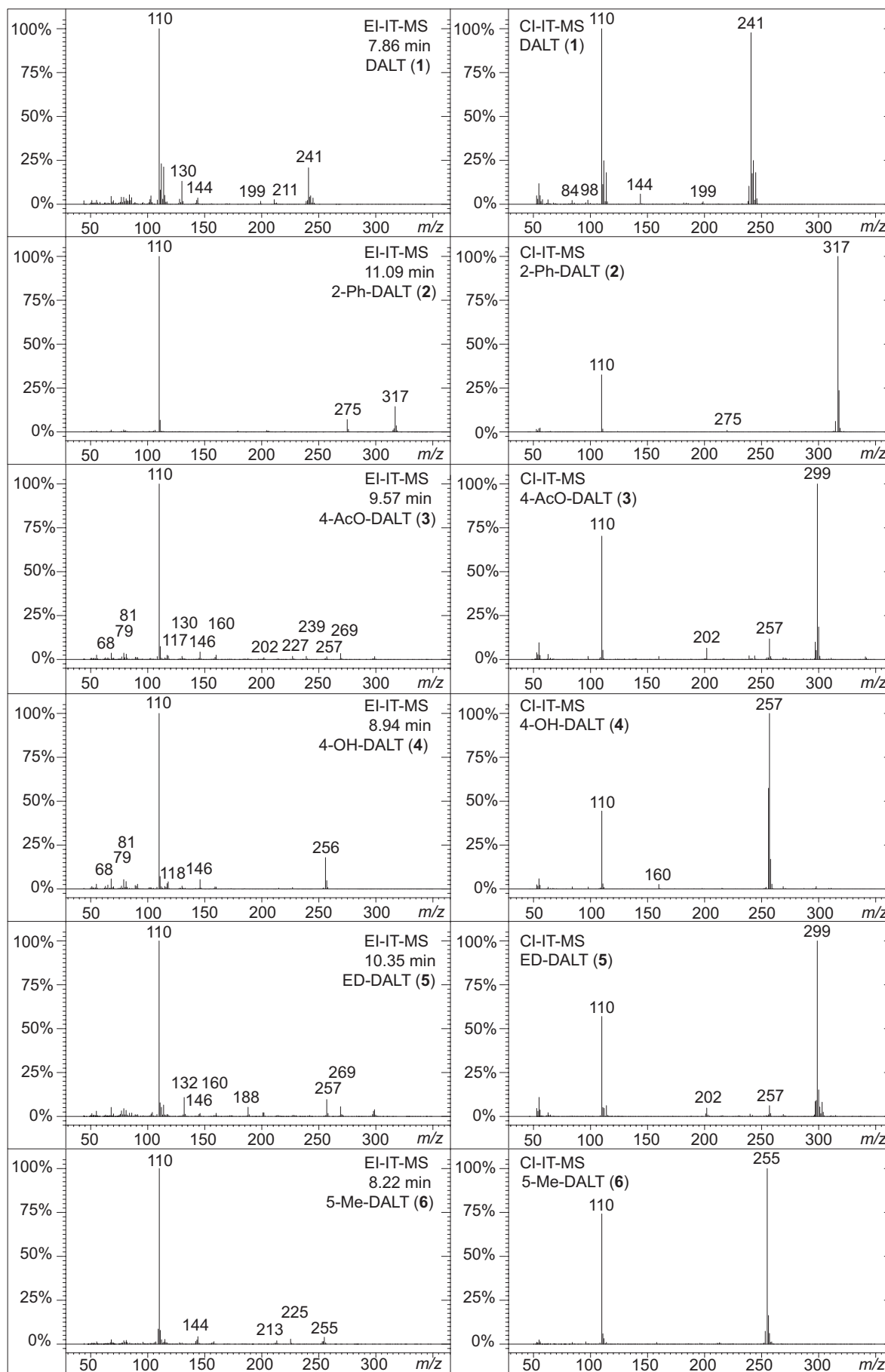




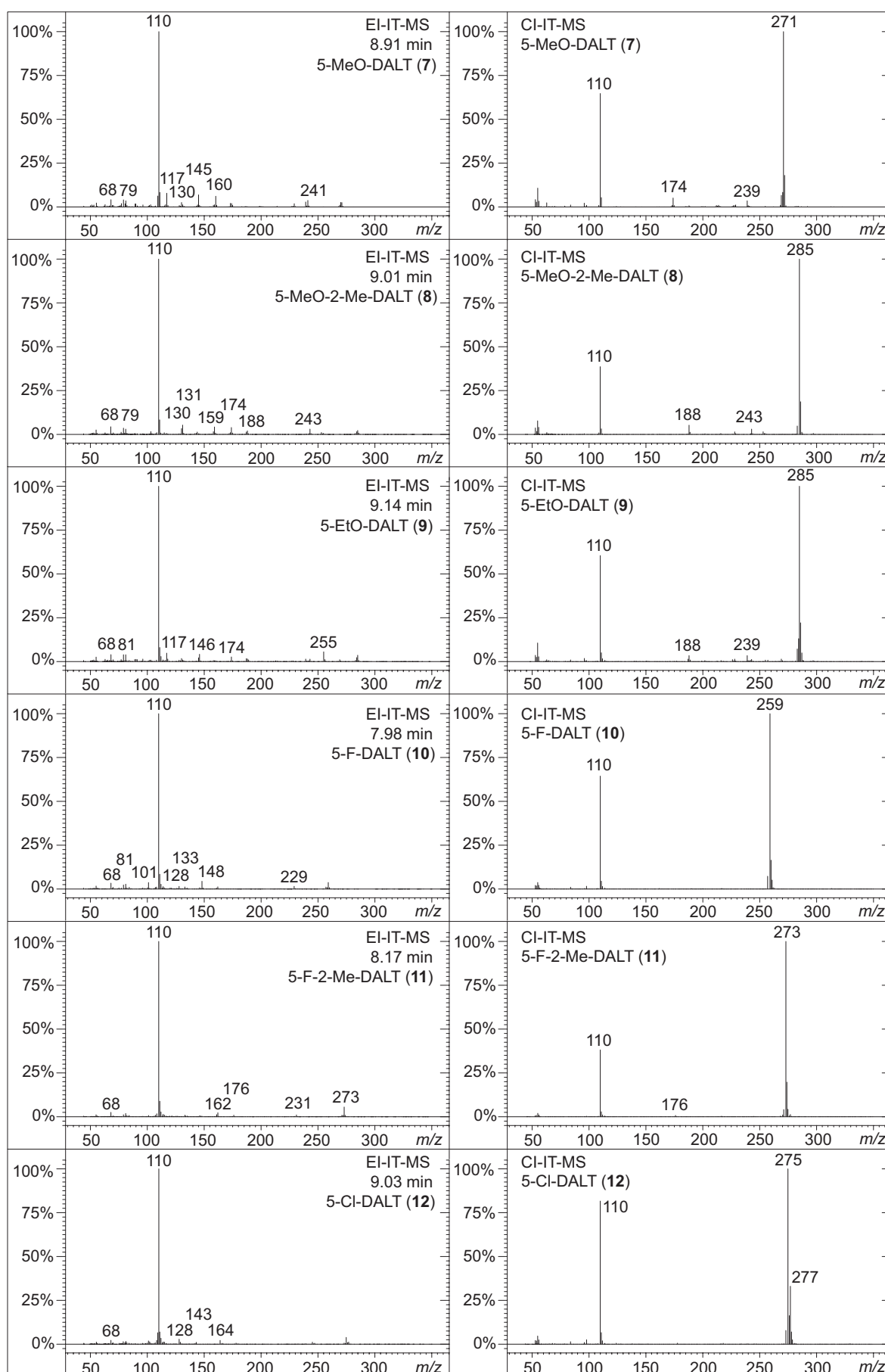
Gas chromatography ion trap mass spectrometry (next page)

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 °C) 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 °C, 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 μ s; maximum reaction time 40 ms; target TIC 5000 counts. An Agilent J&W VF-5ms GC column (30 m $\times$ 0.25 mm, 0.25 μ m) was employed for separation. The starting temperature was set at 130 °C and held for 1 min. The temperature then increased at 20 °C/min to 280 °C and held constant for 11.50 min to give a total run time of 20.00 min.

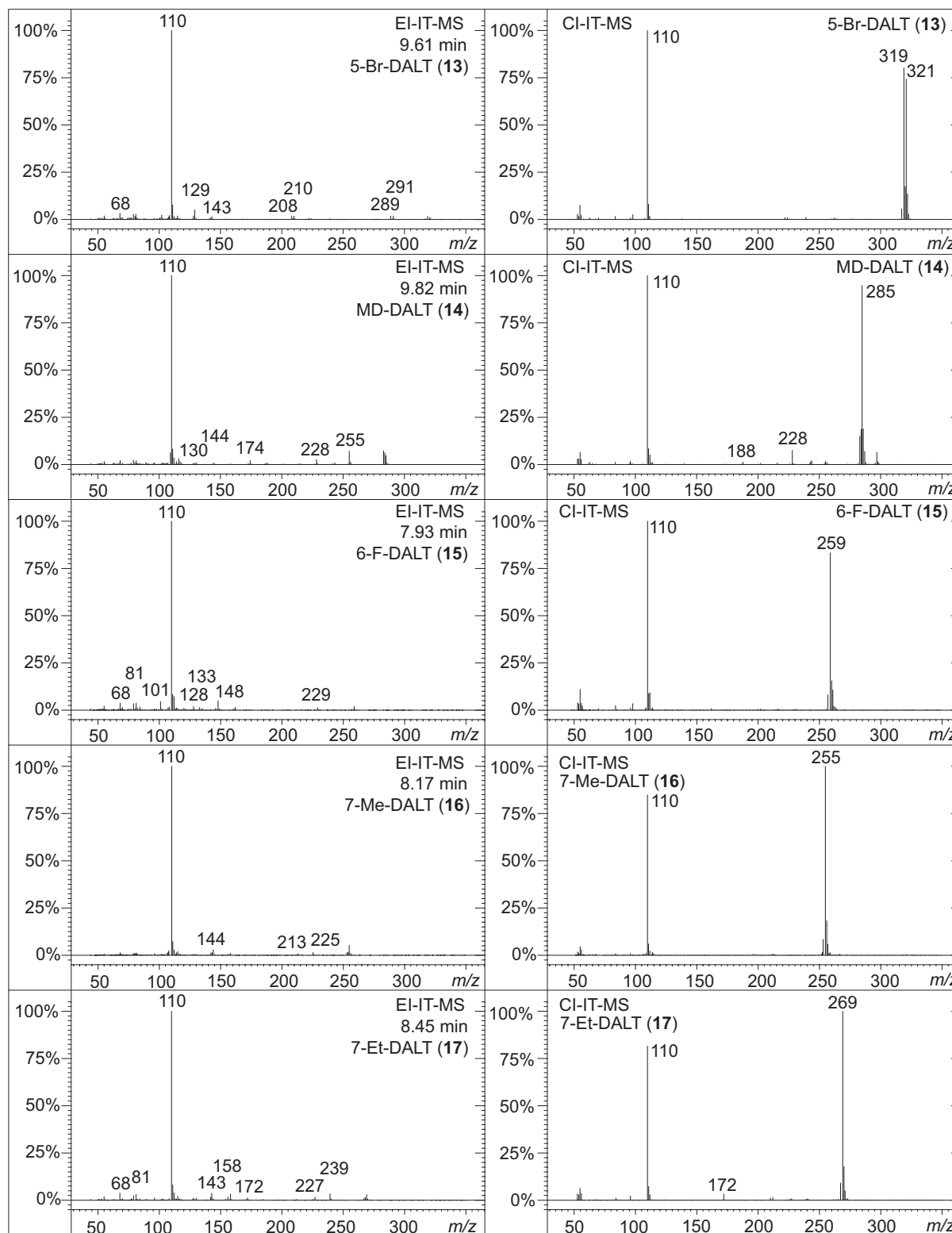
GC ion trap mass spectrometry



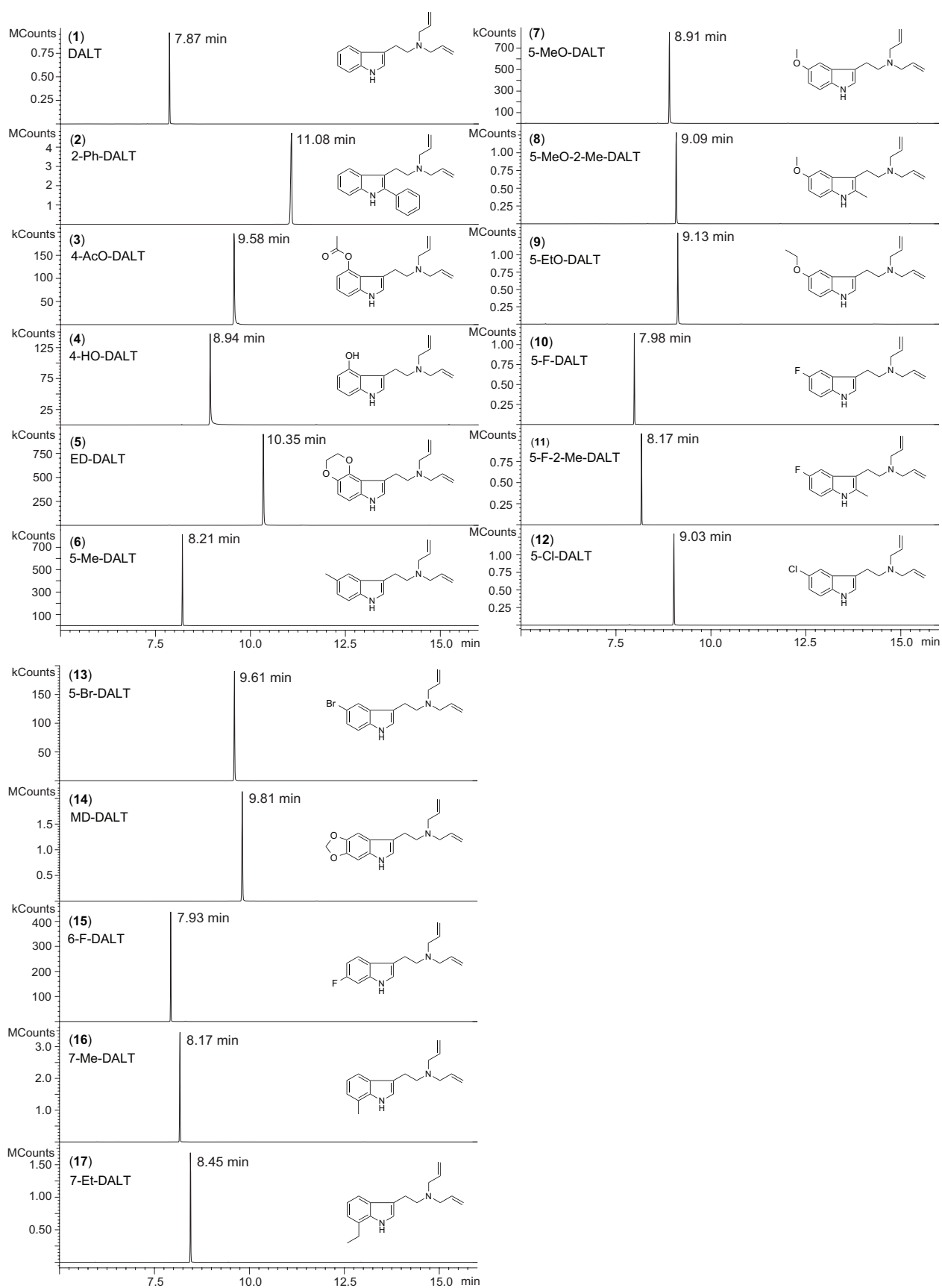
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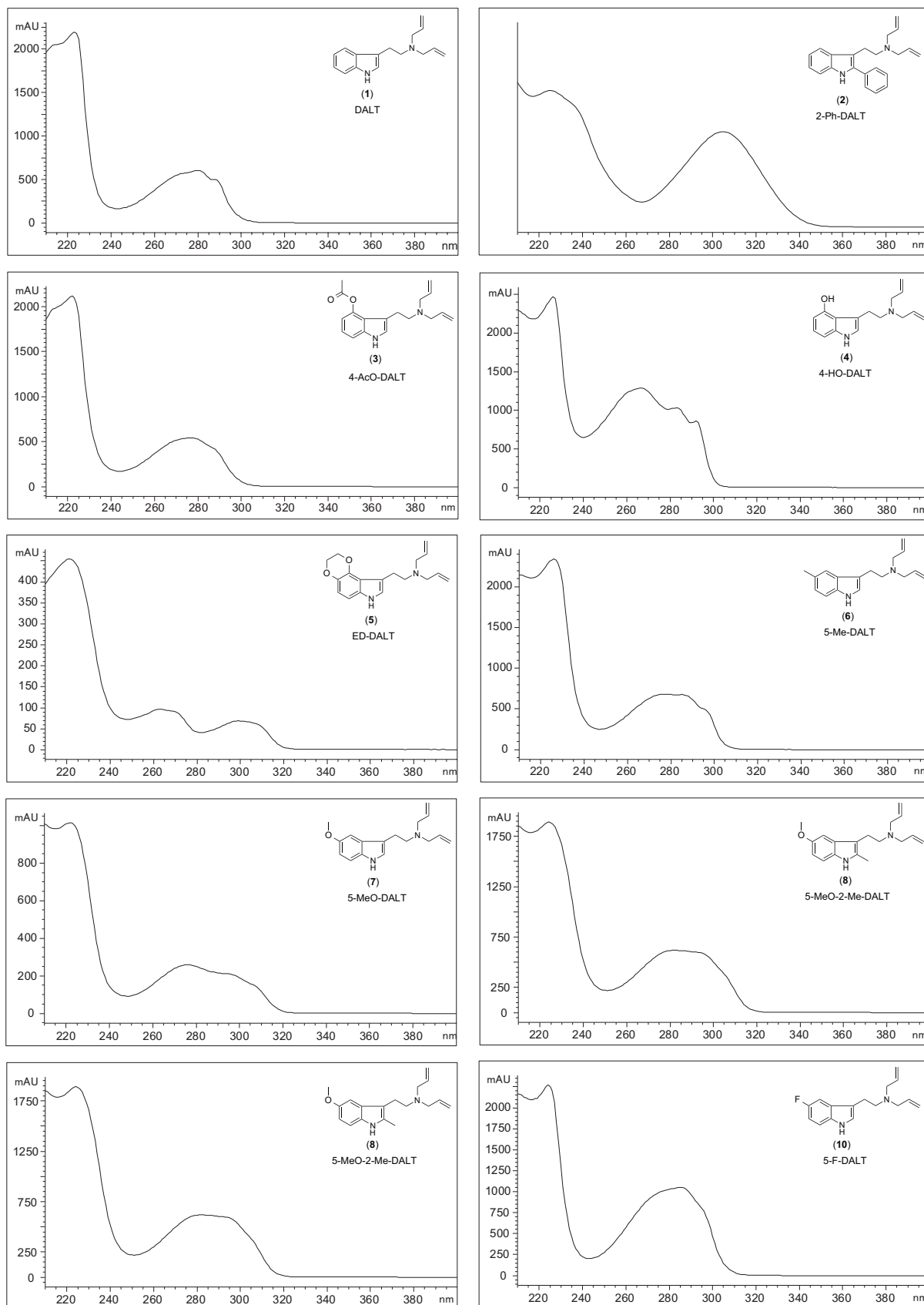
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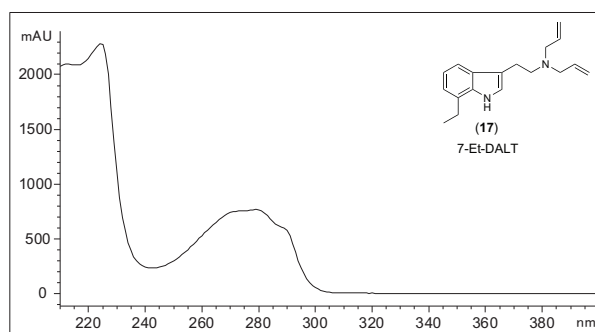
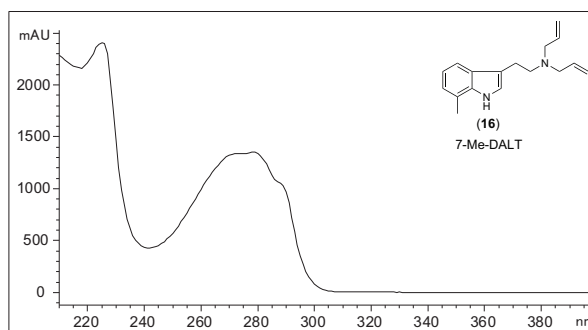
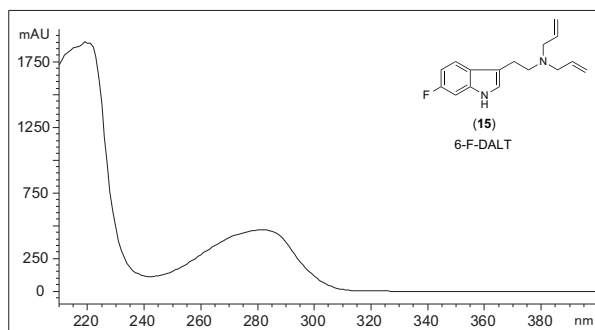
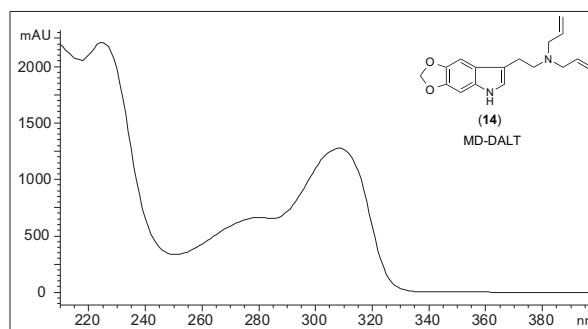
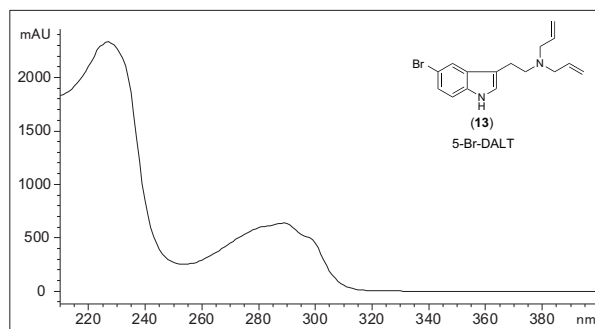
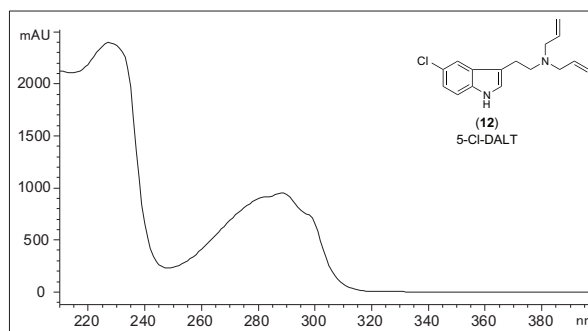
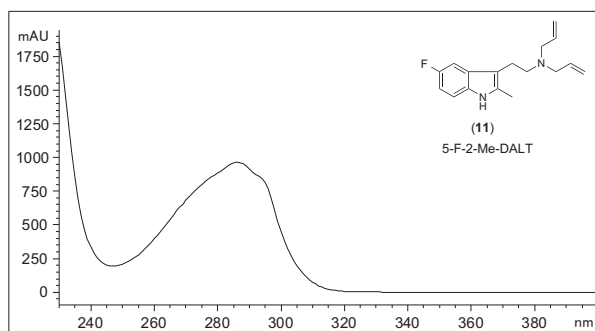
GC ion trap mass spectrometry

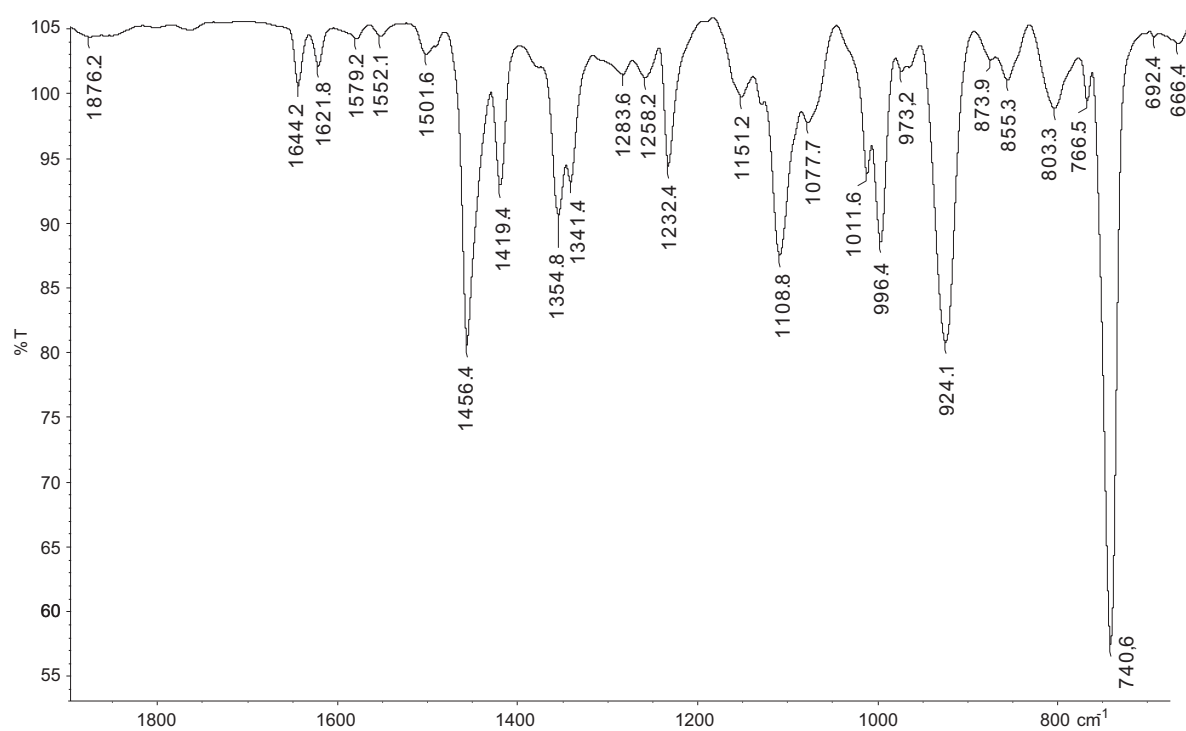
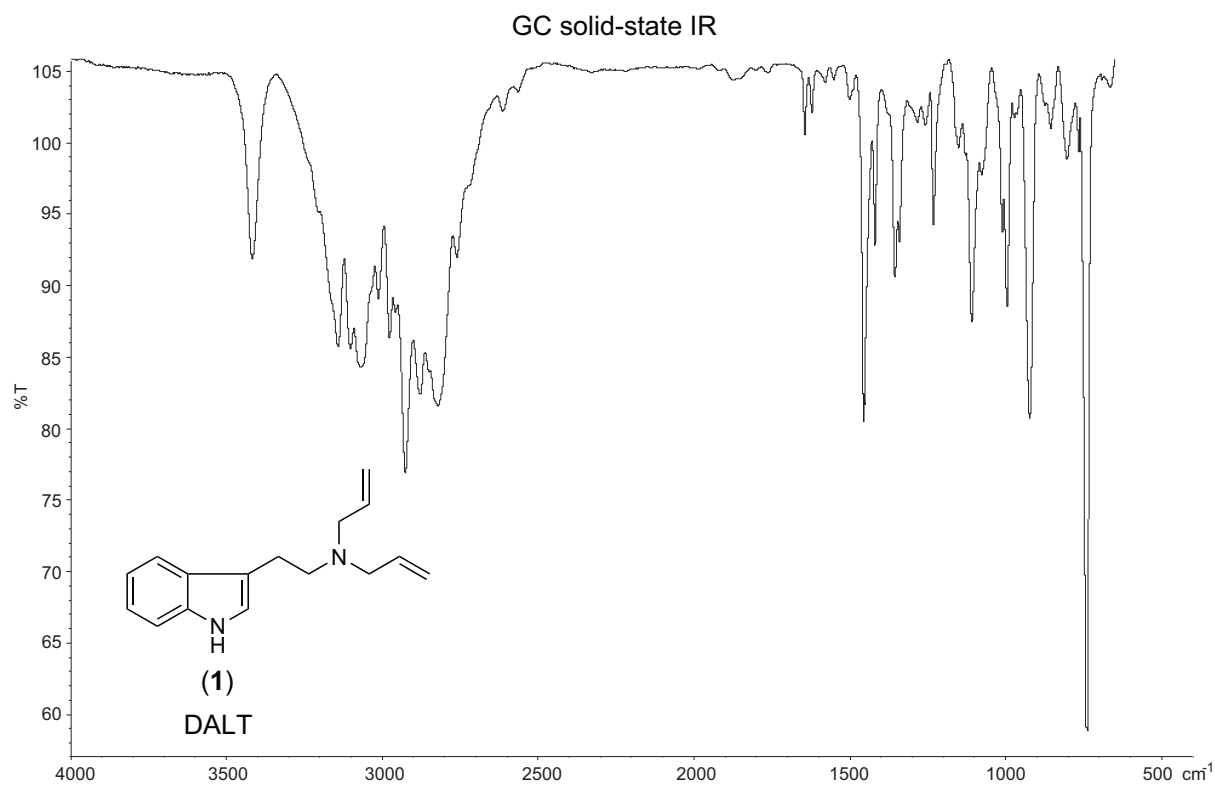


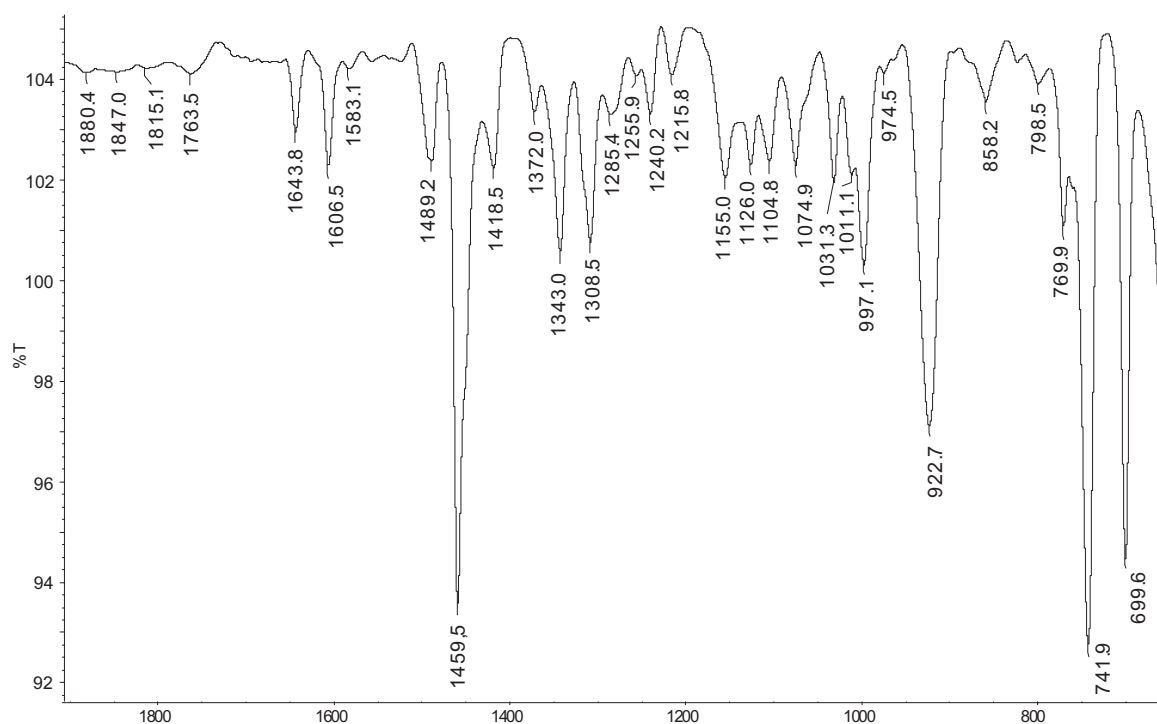
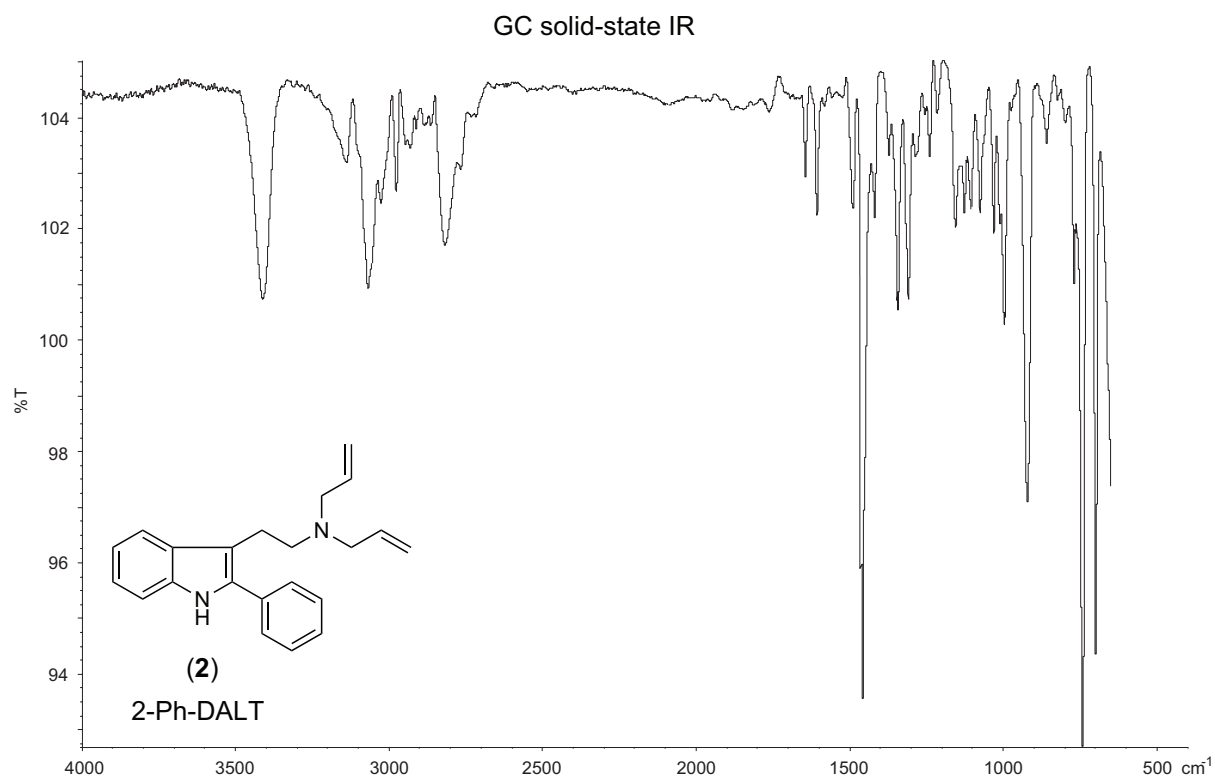
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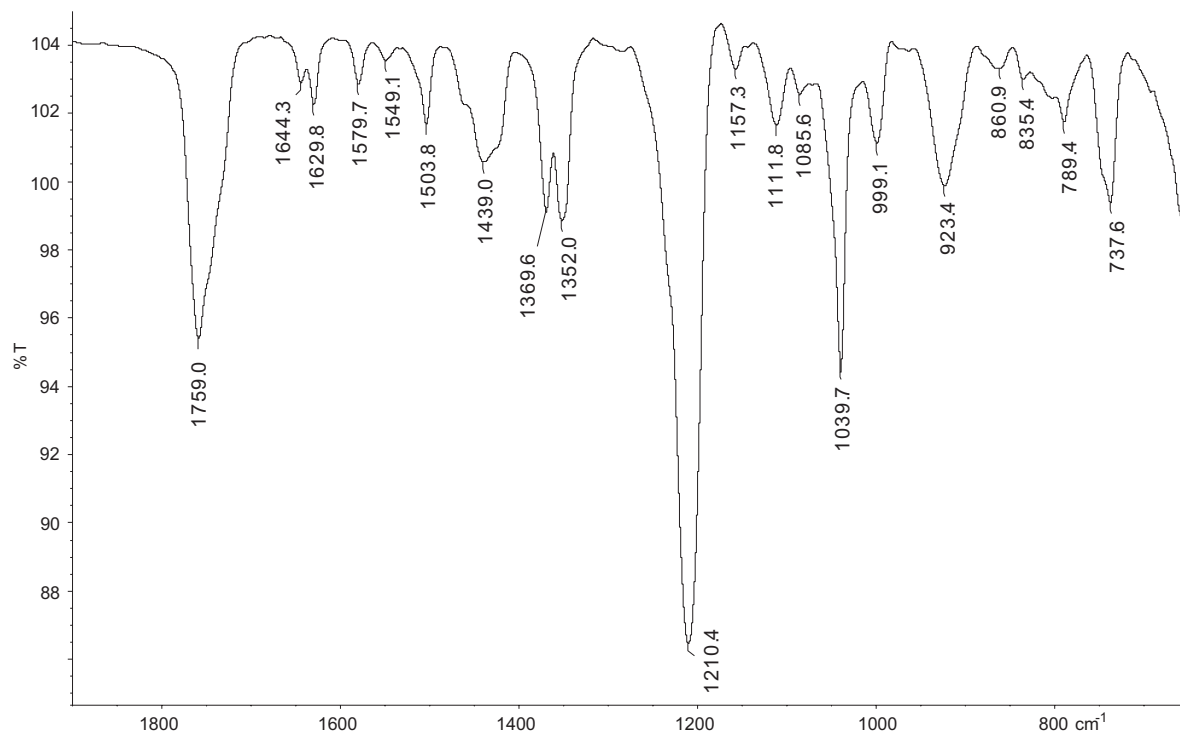
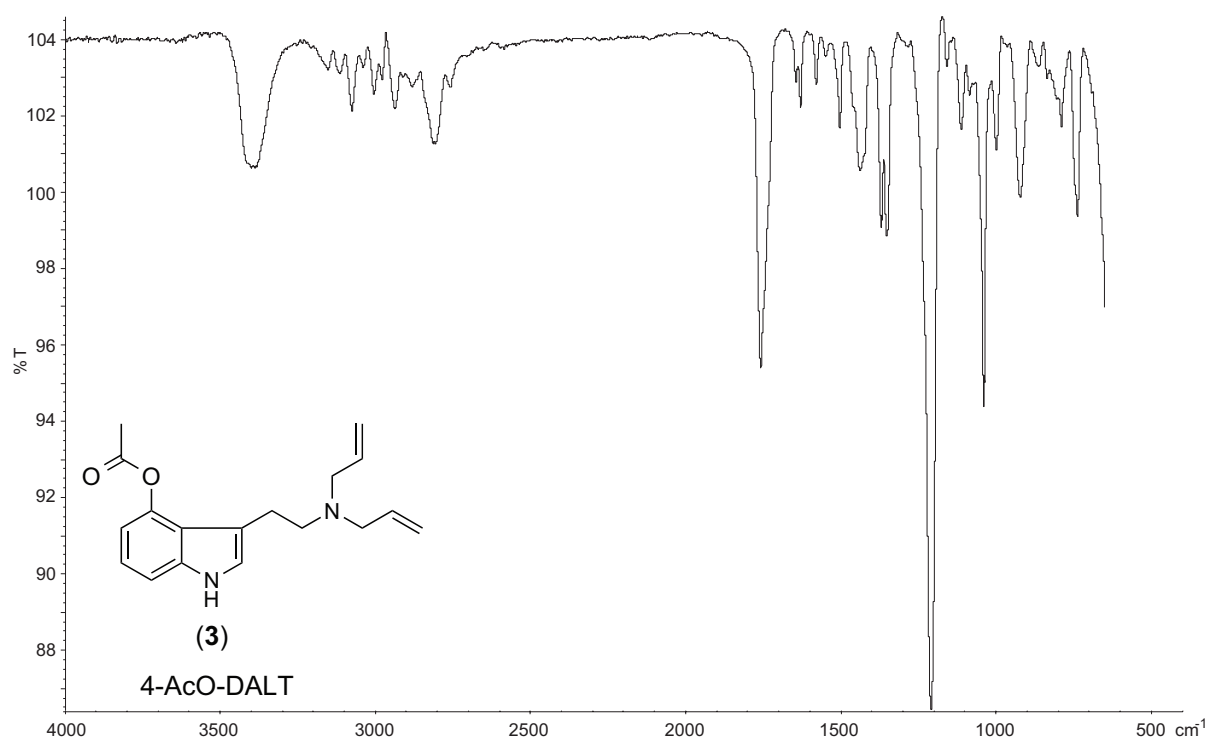
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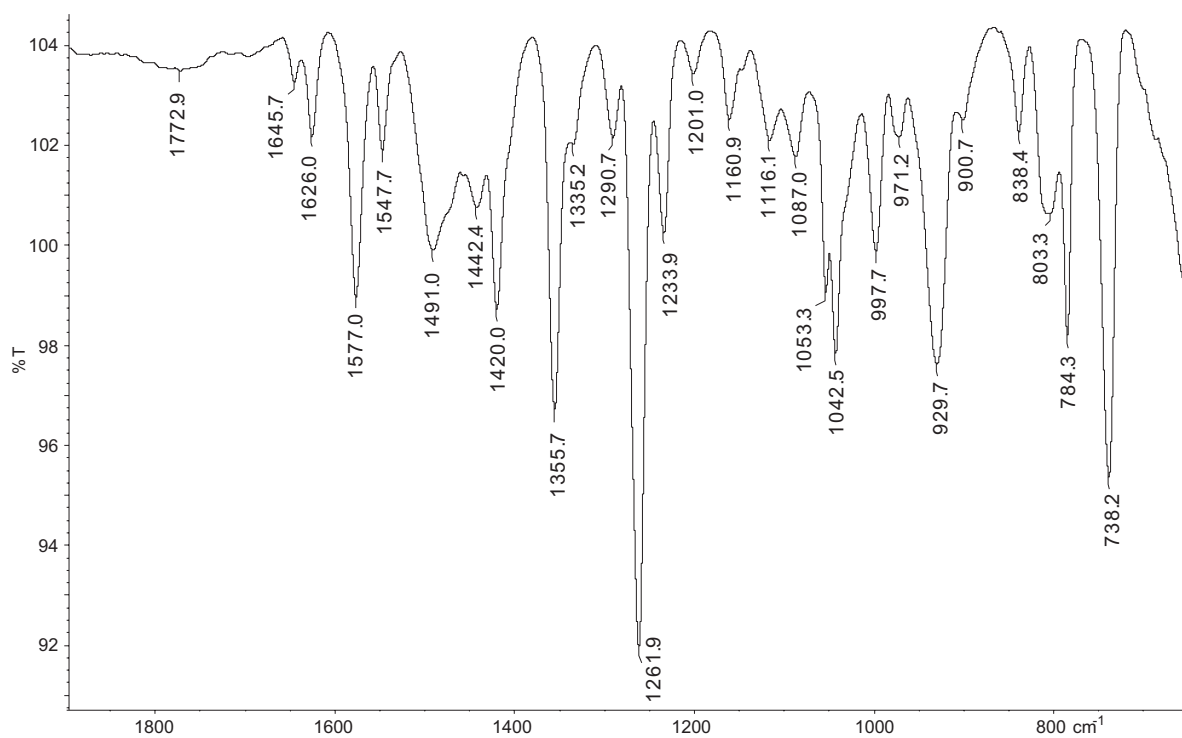
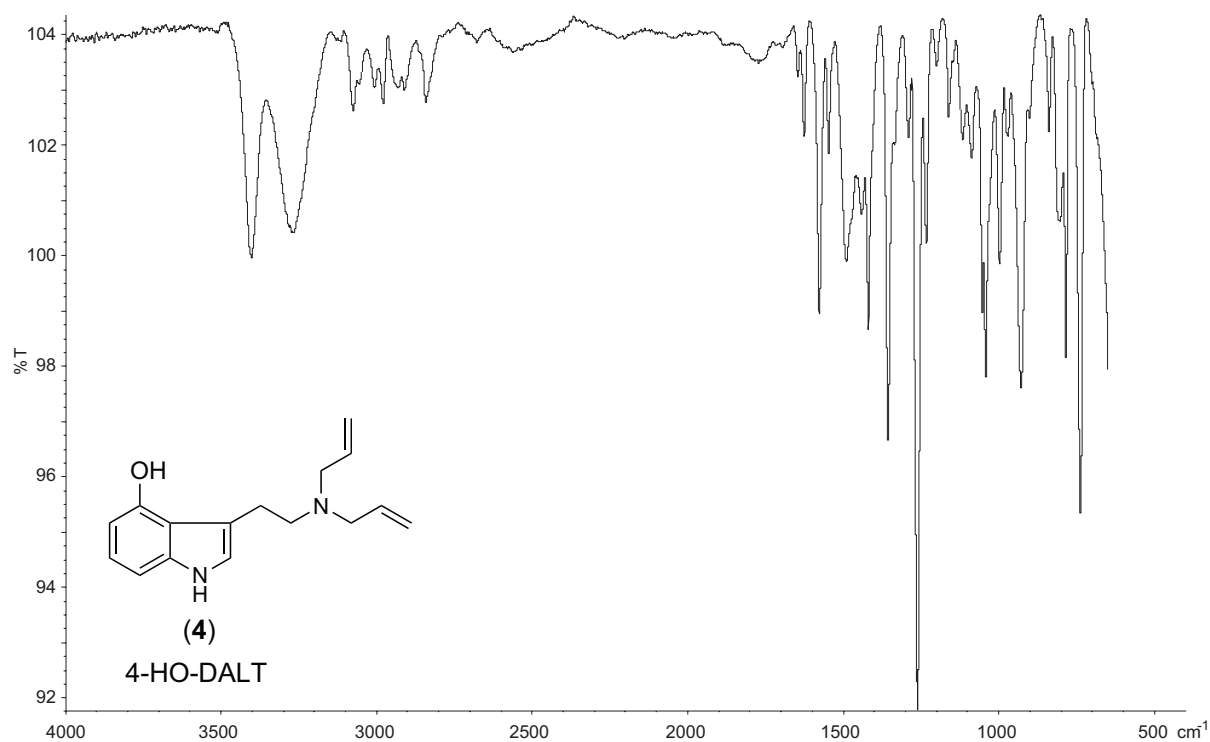




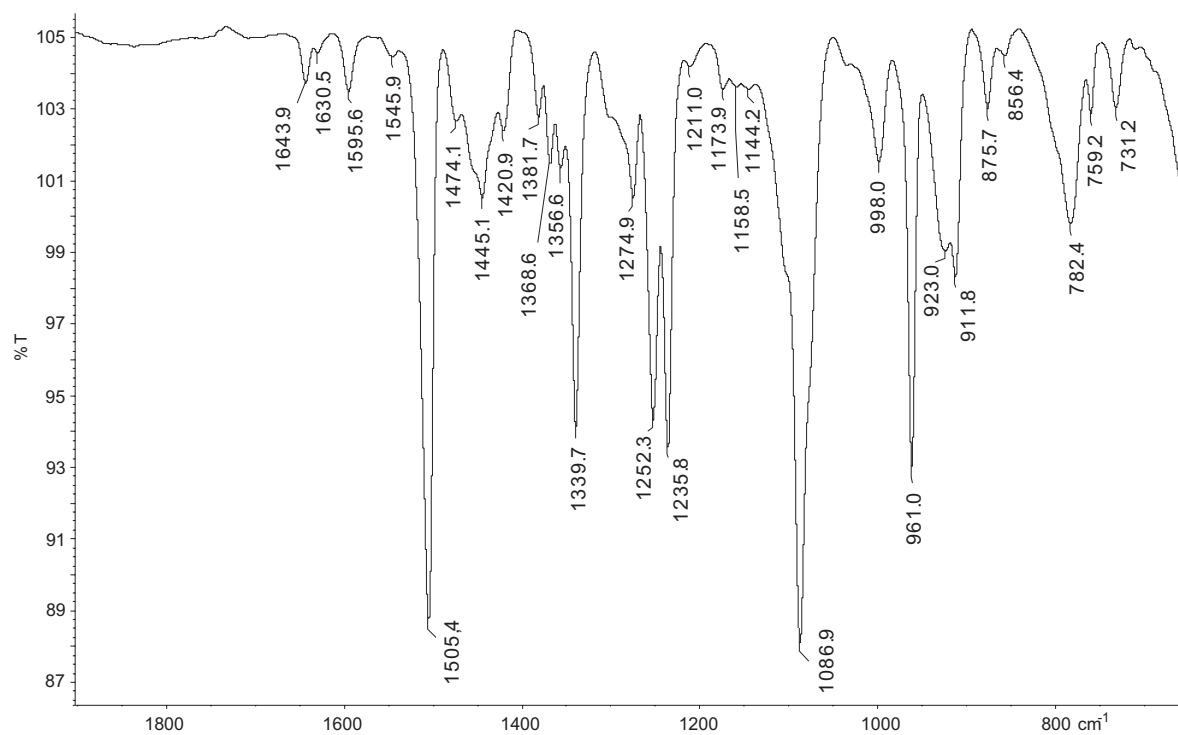
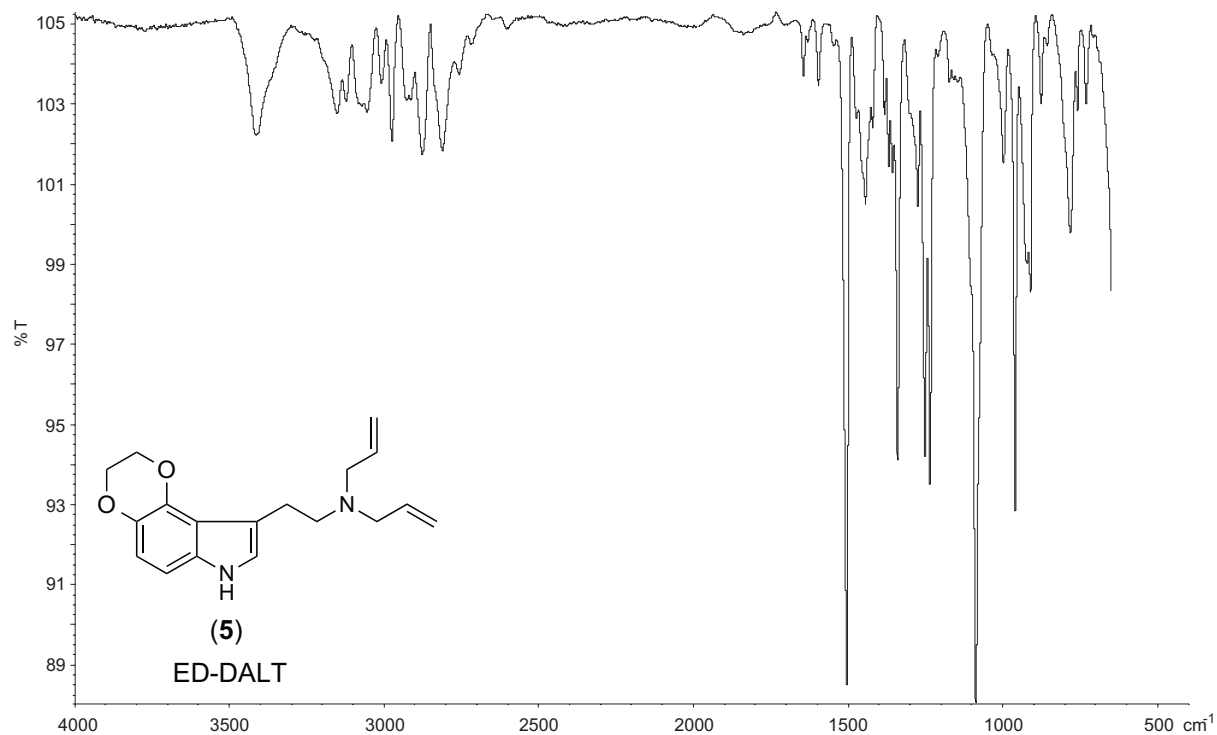
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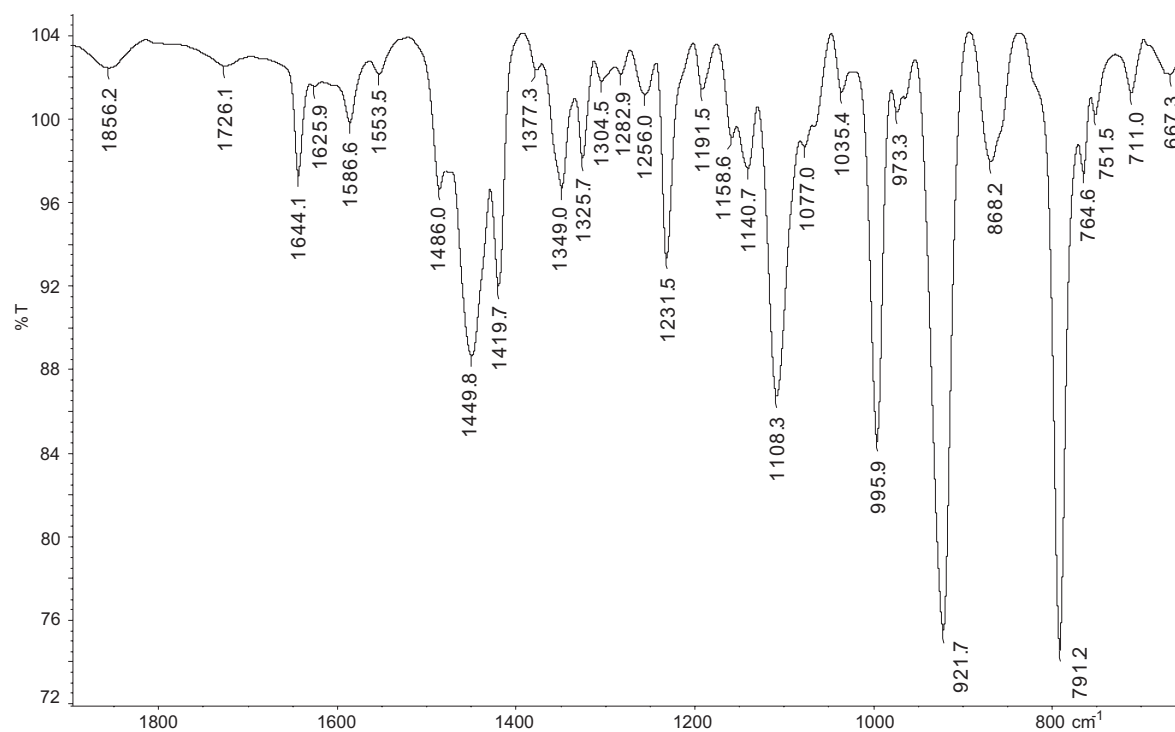
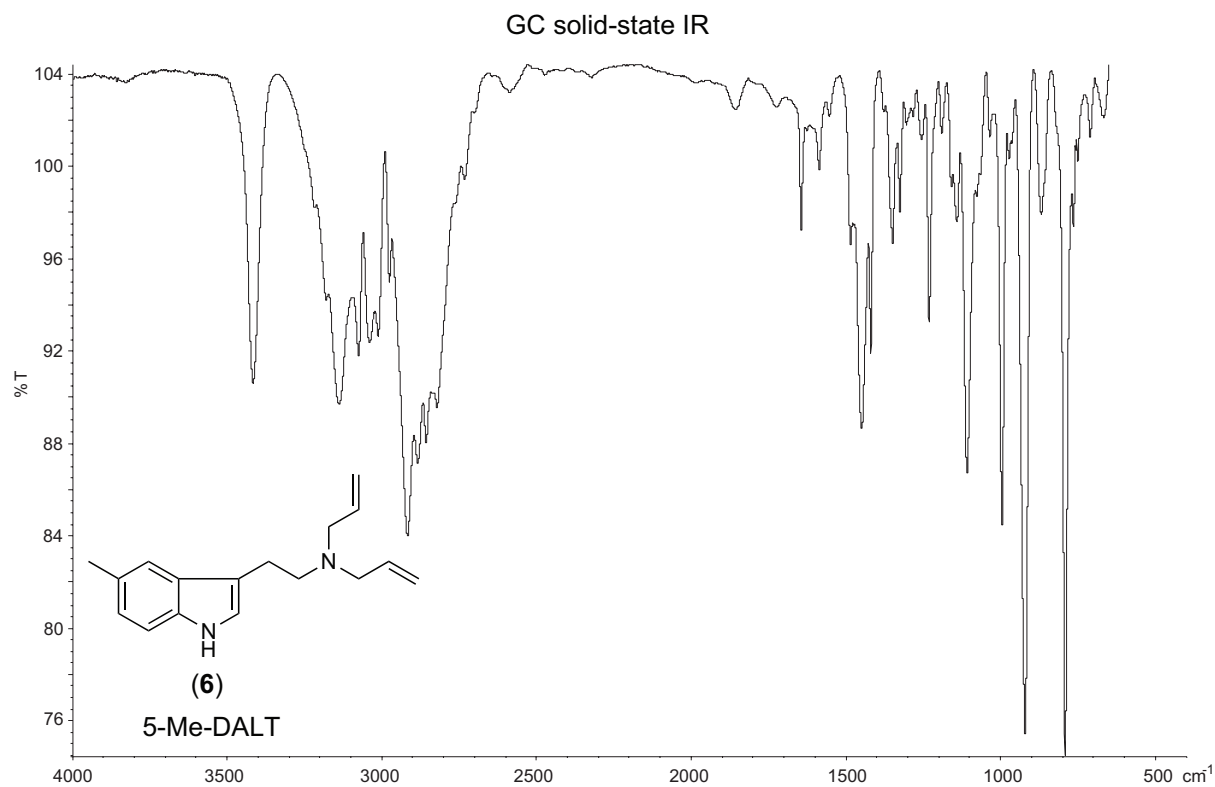


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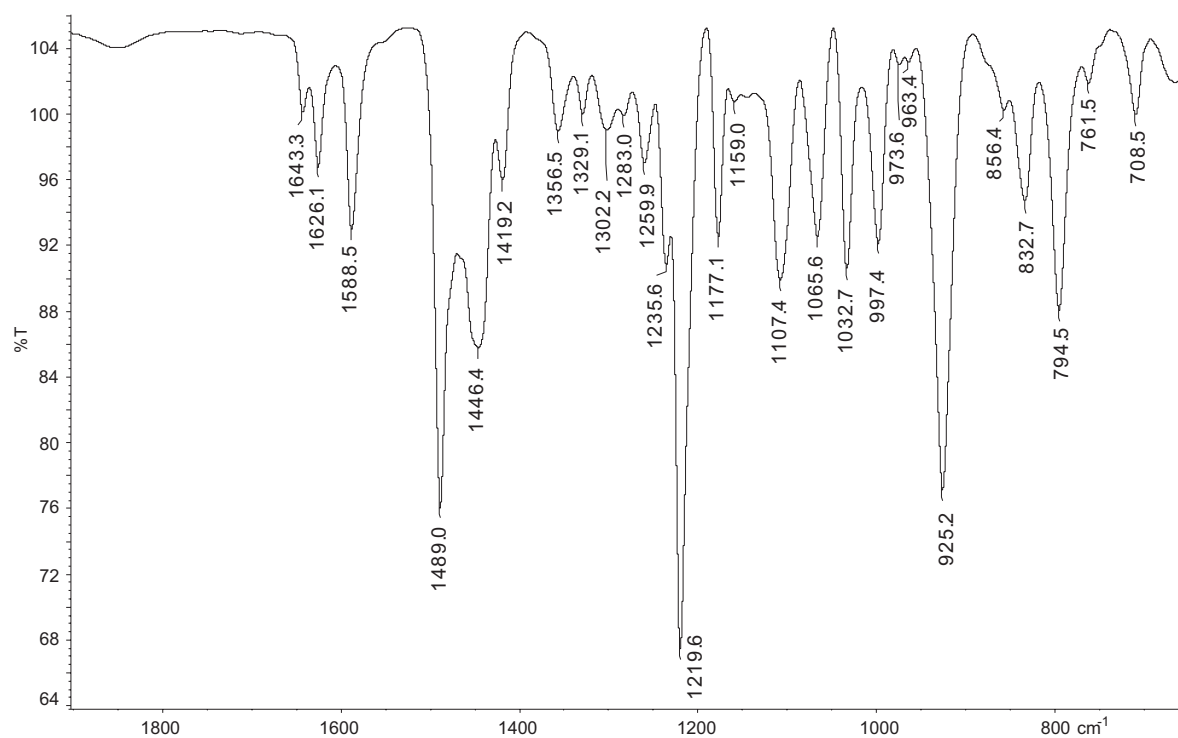
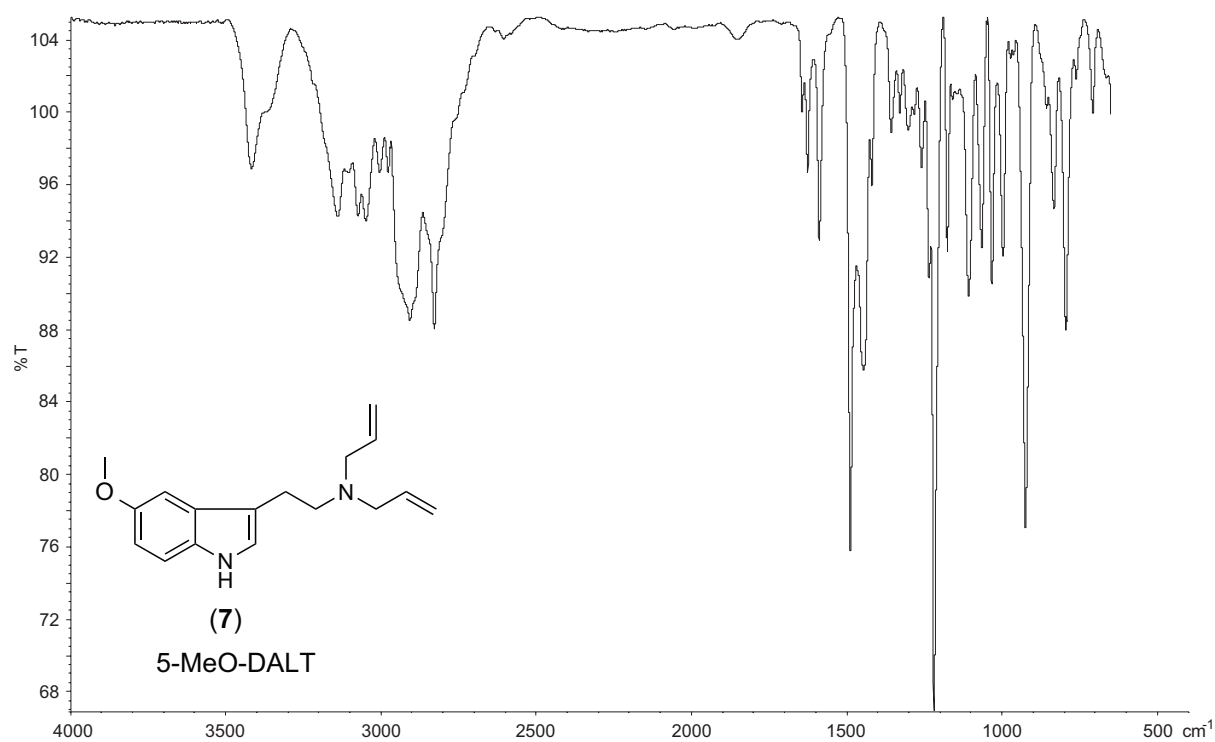


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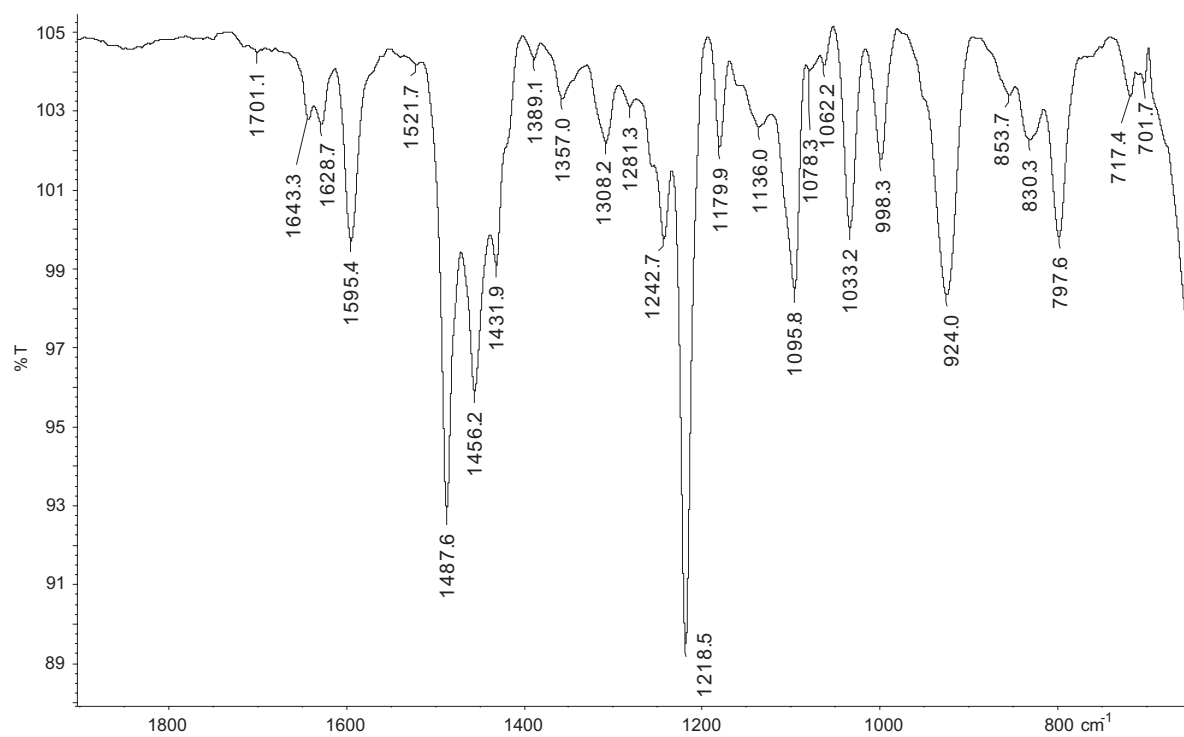
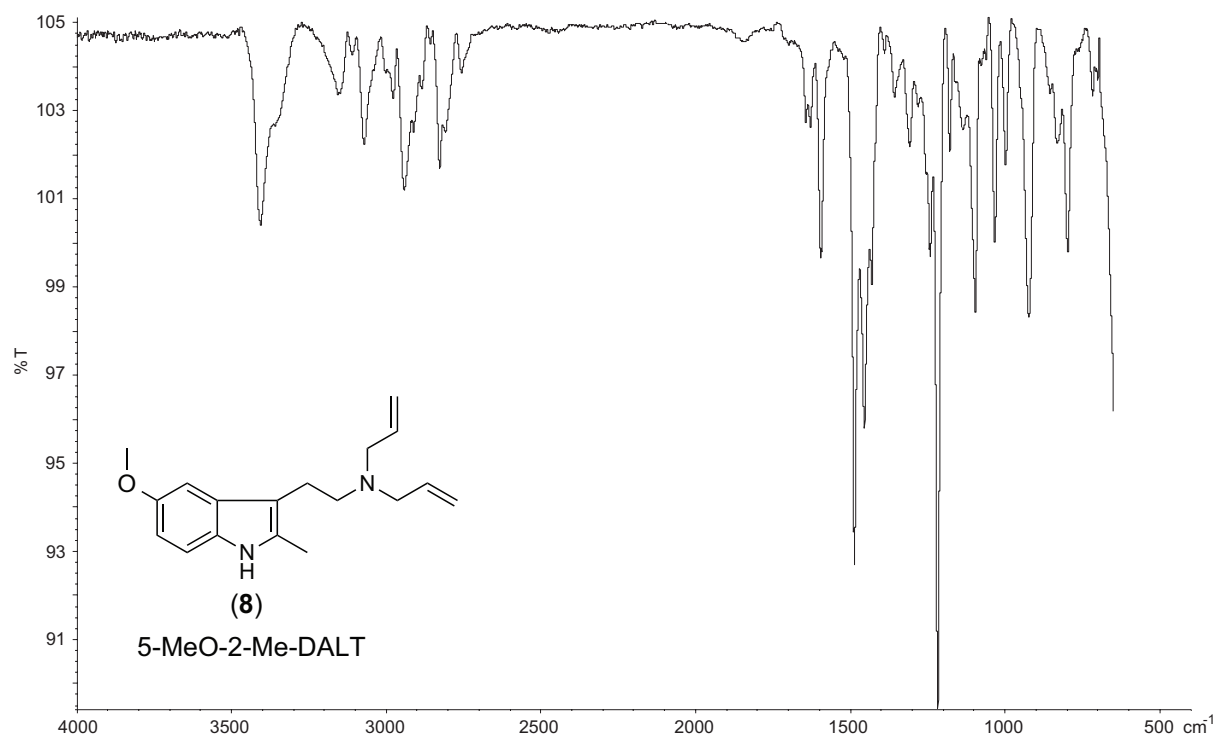


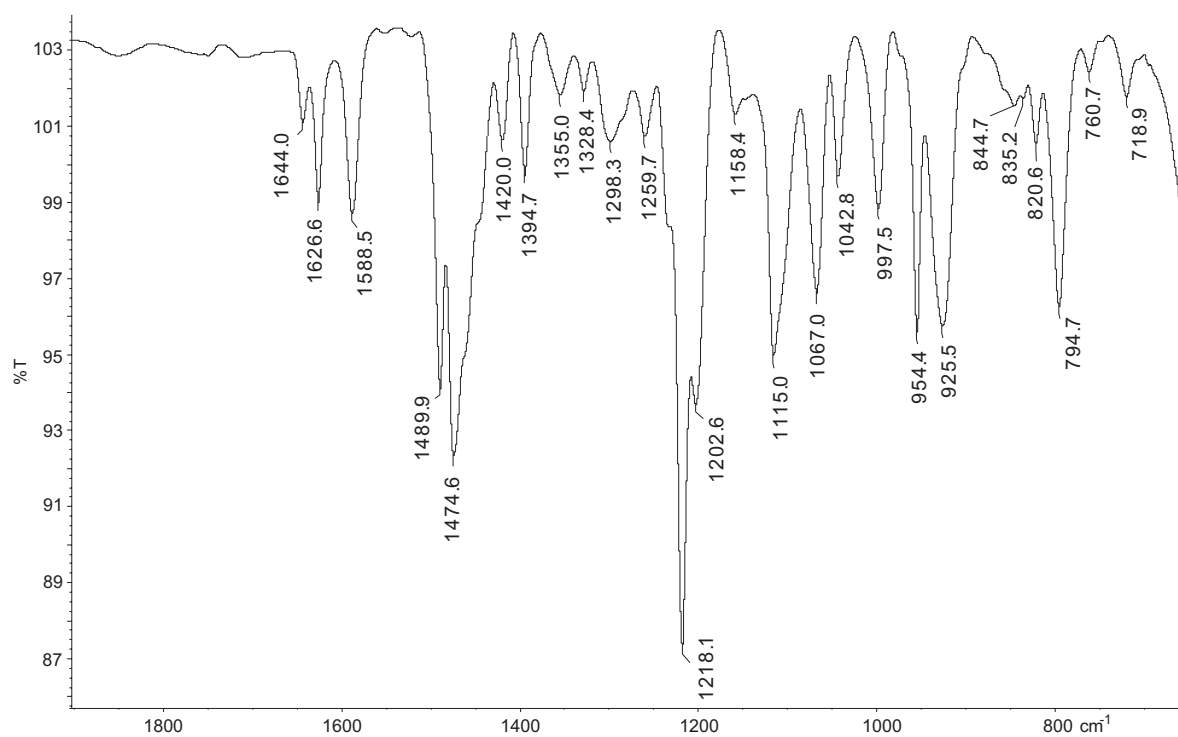
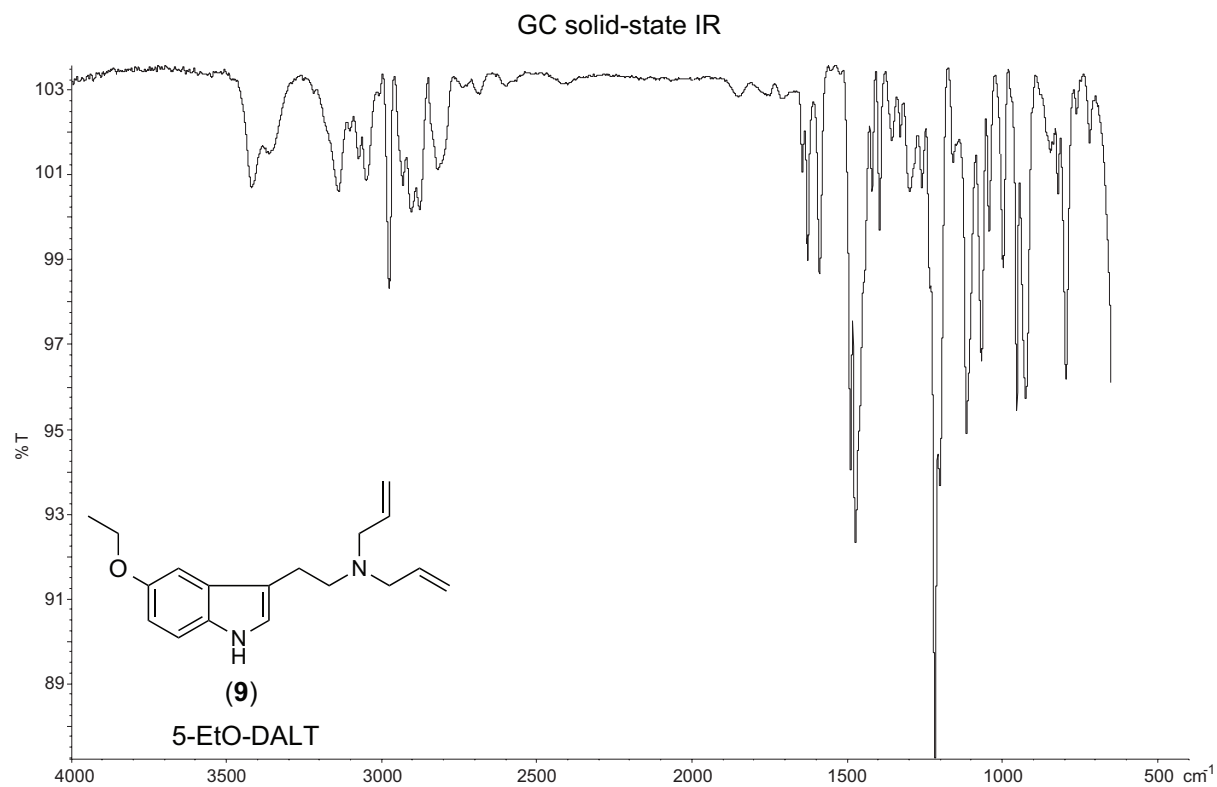


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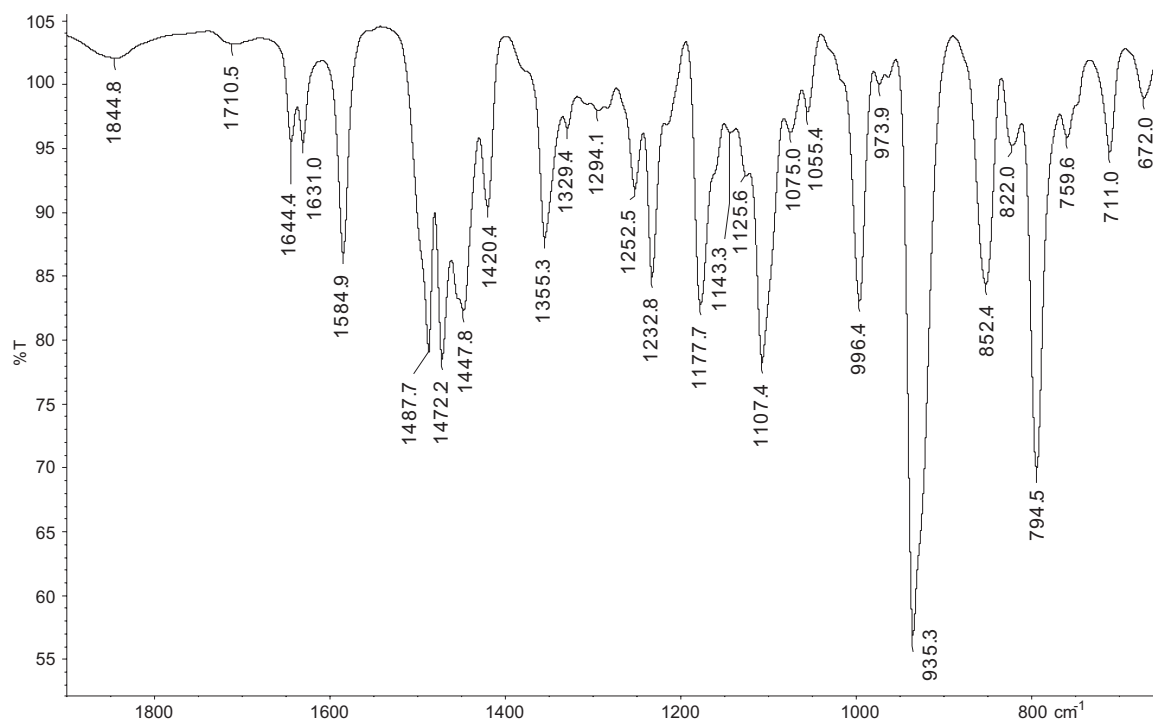
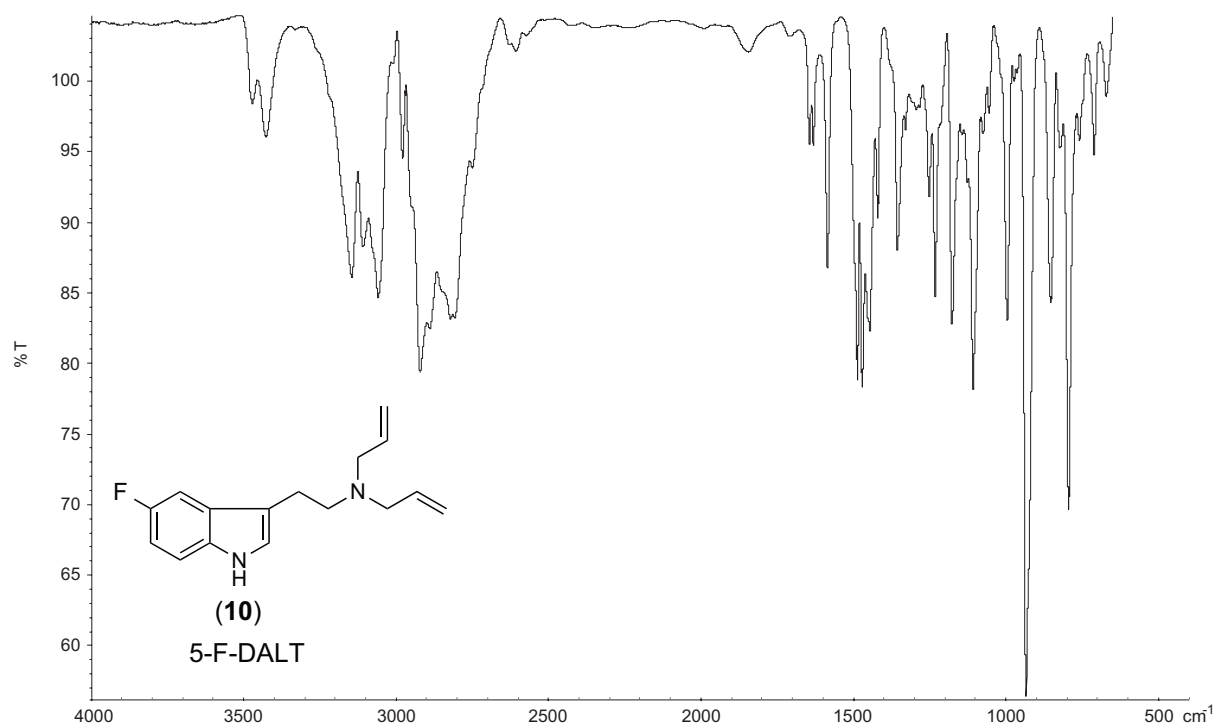


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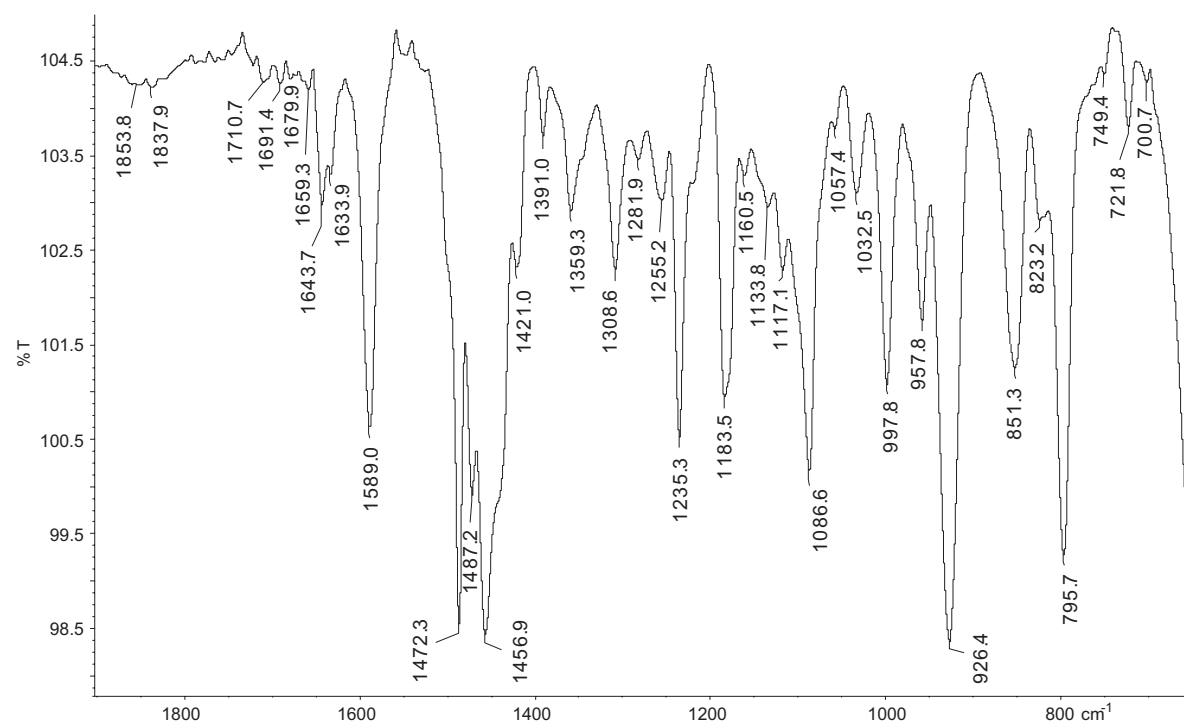
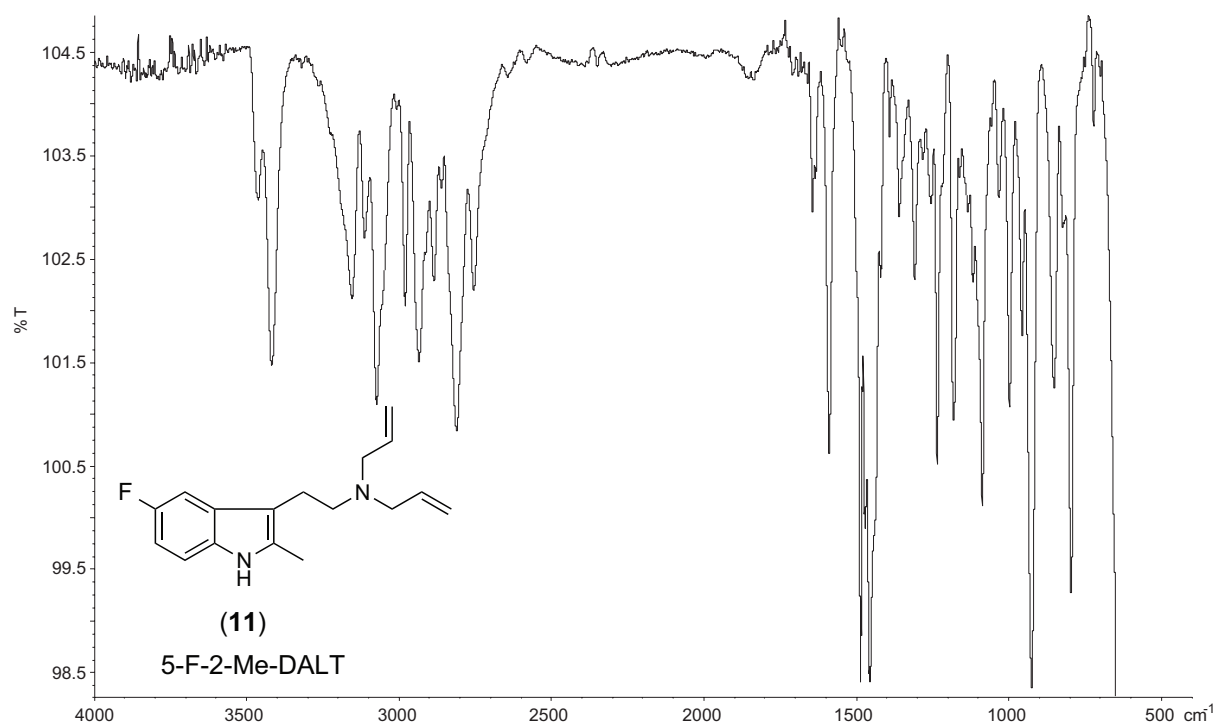




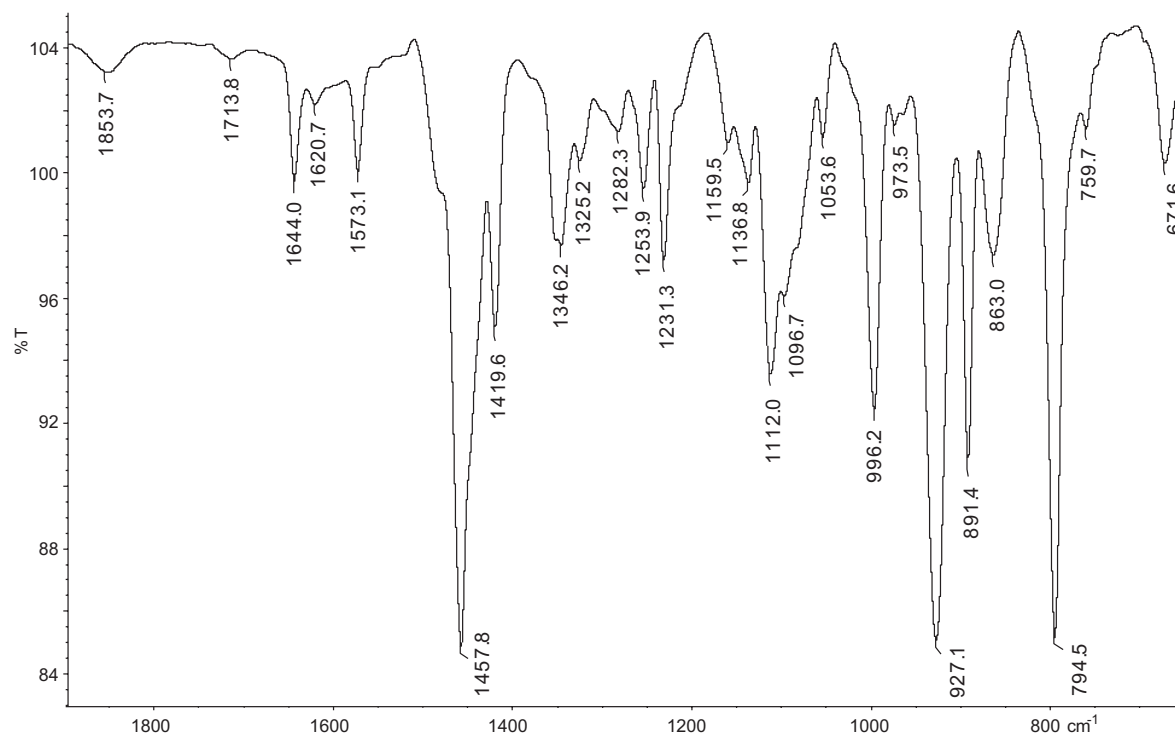
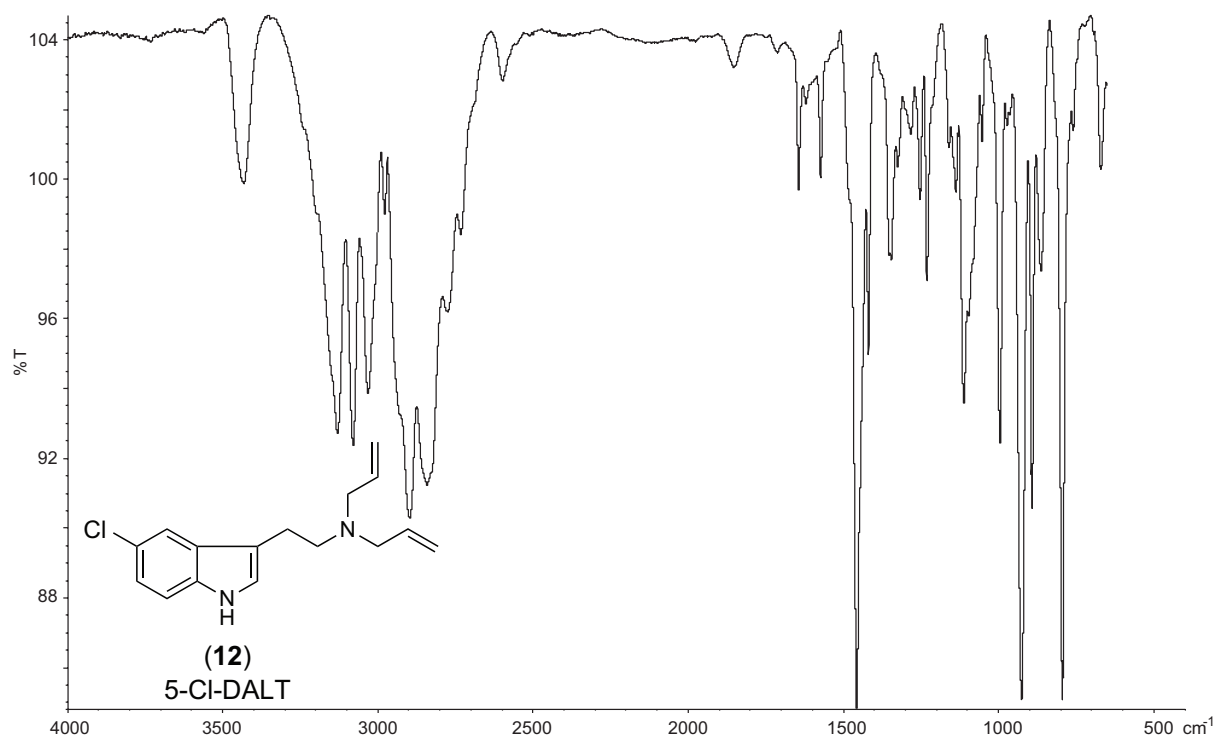
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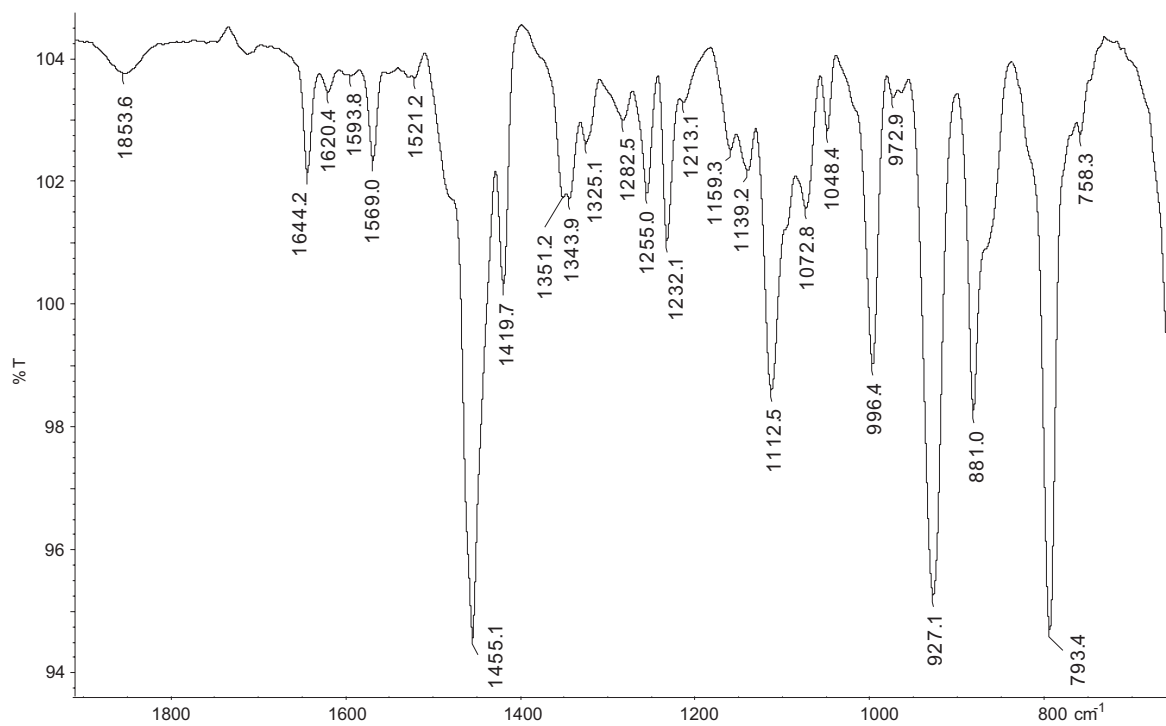
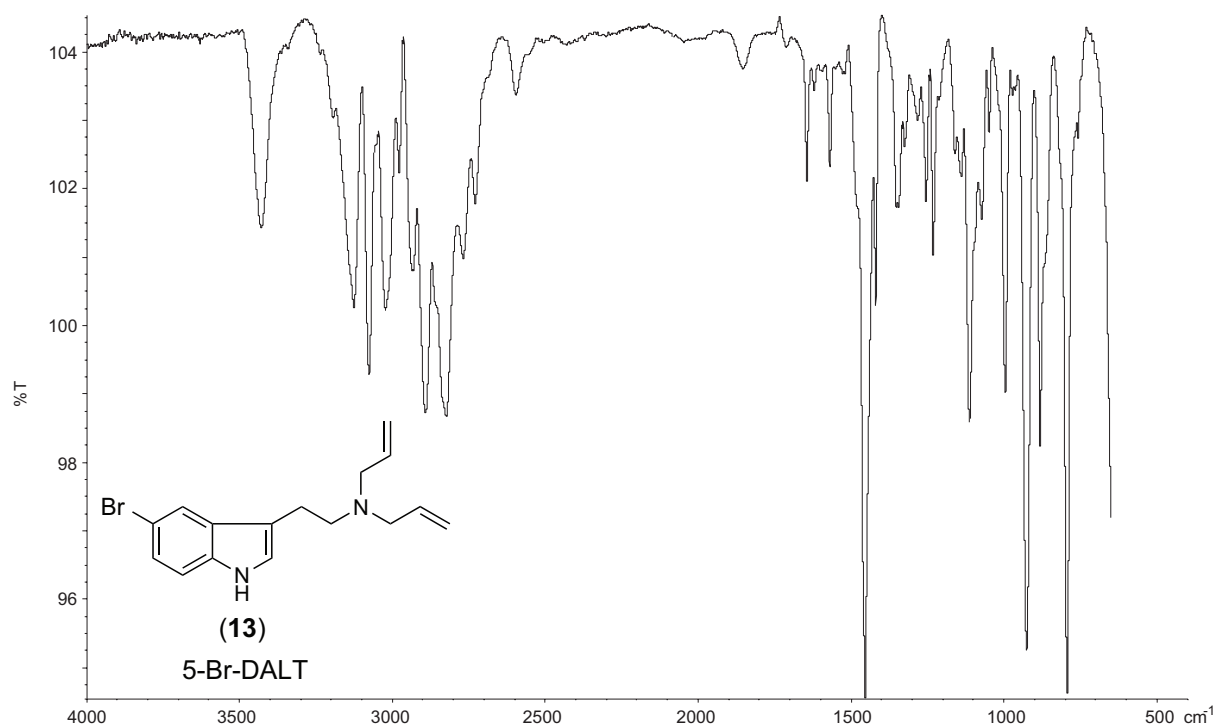
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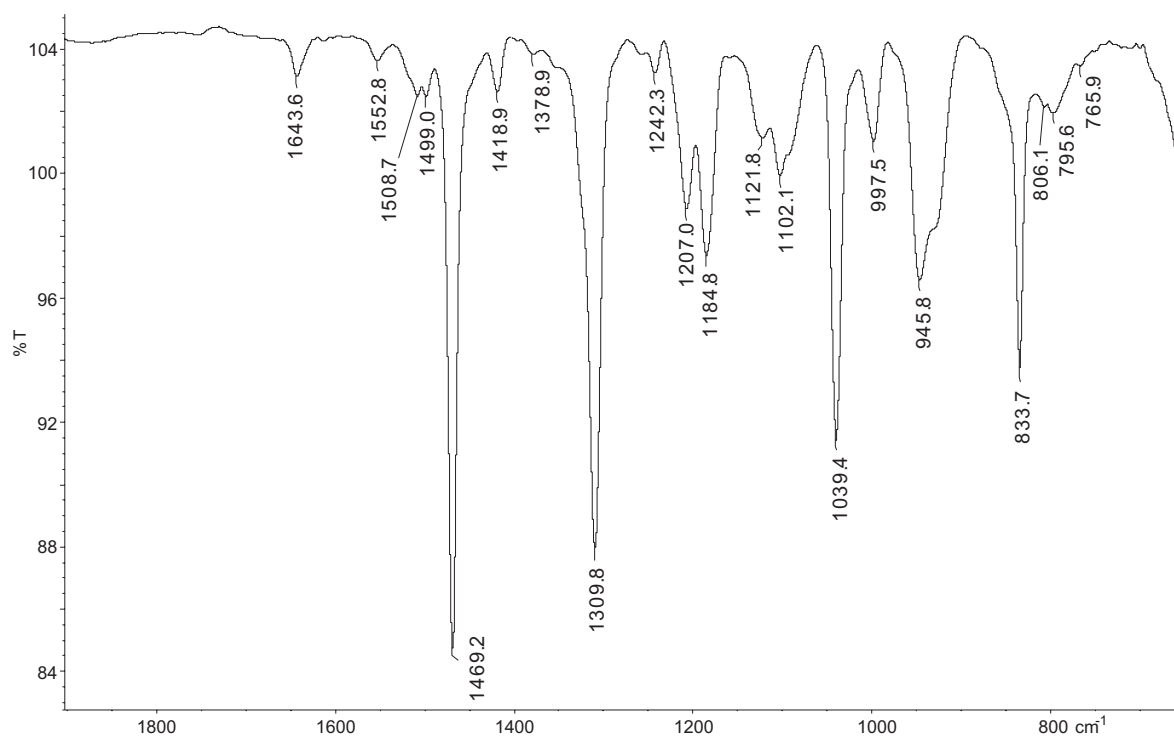
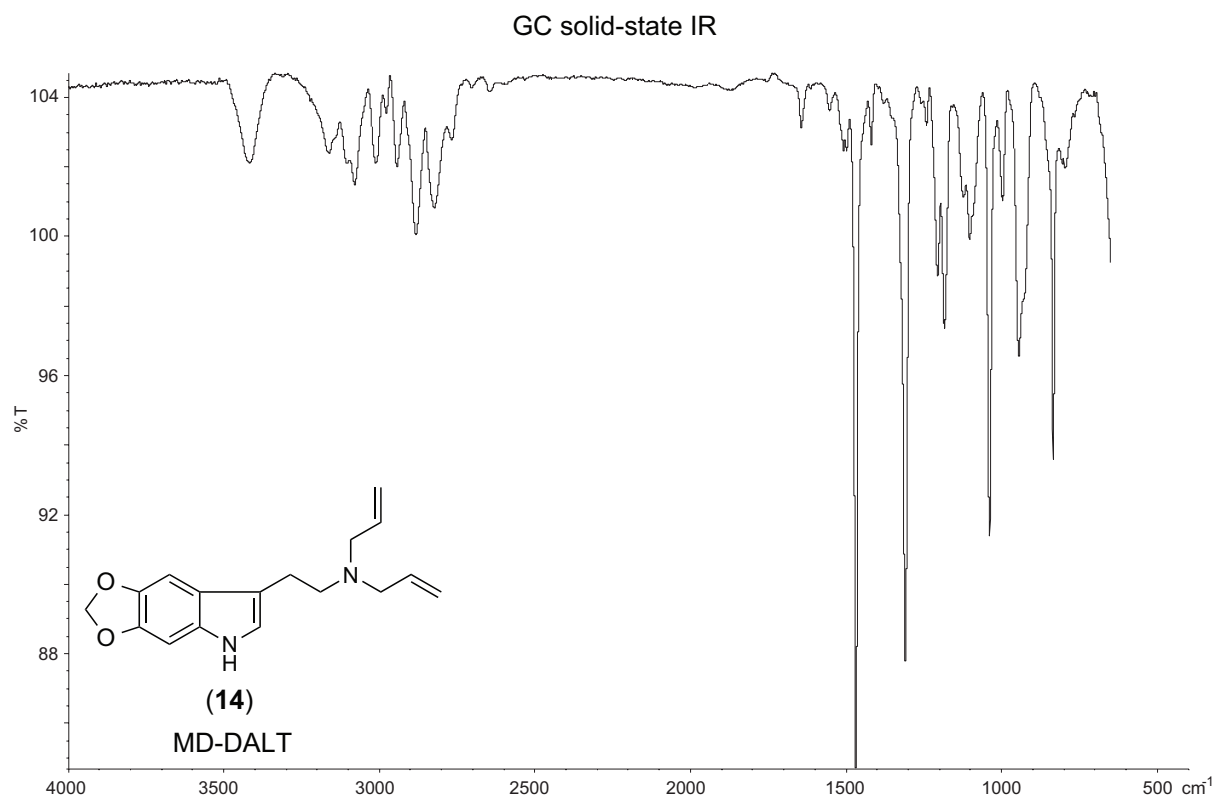


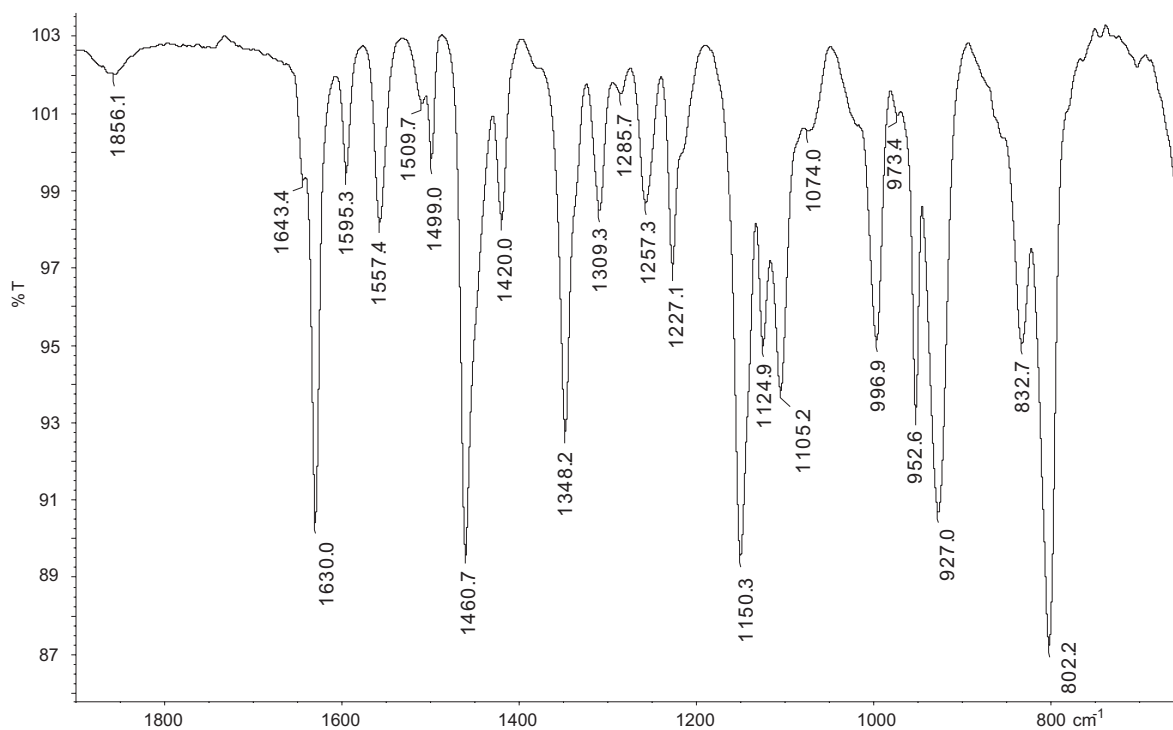
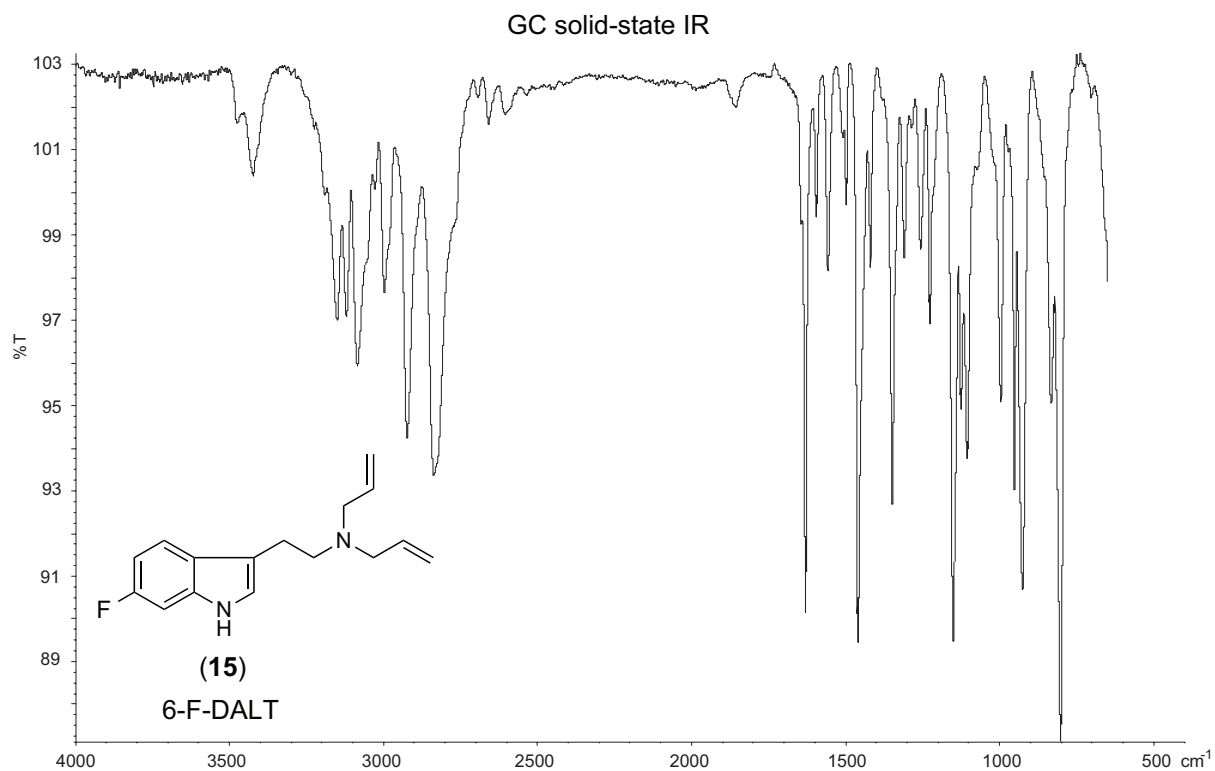
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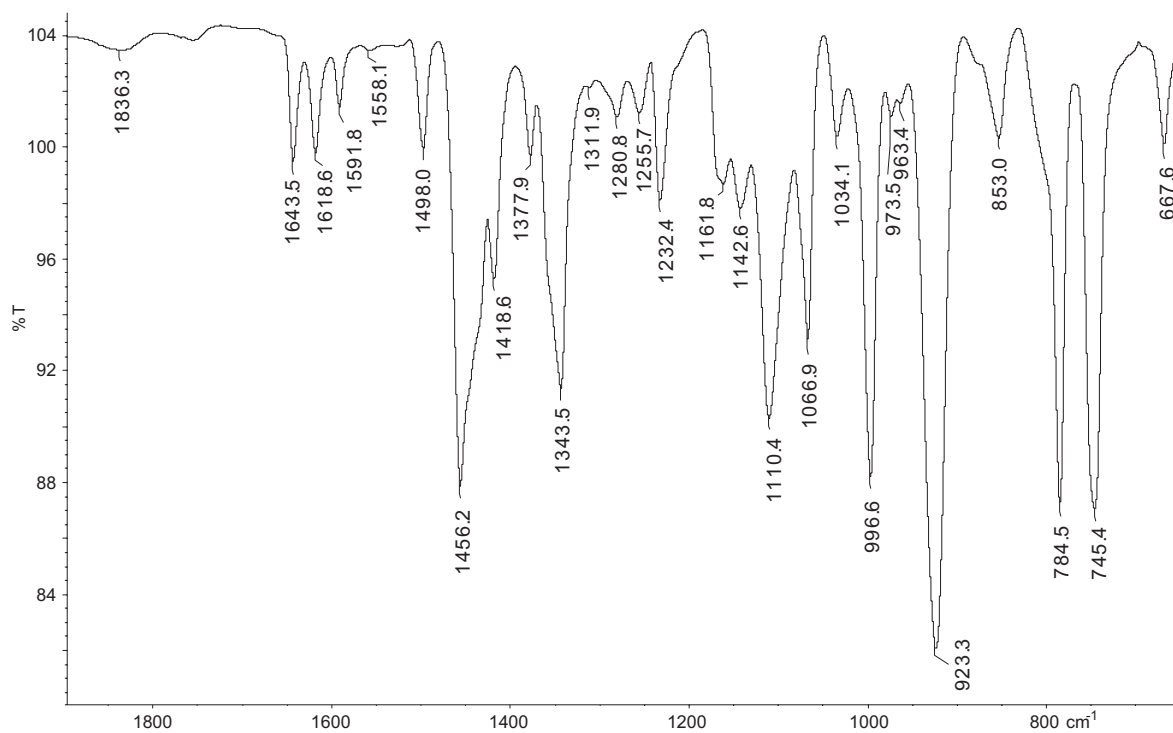
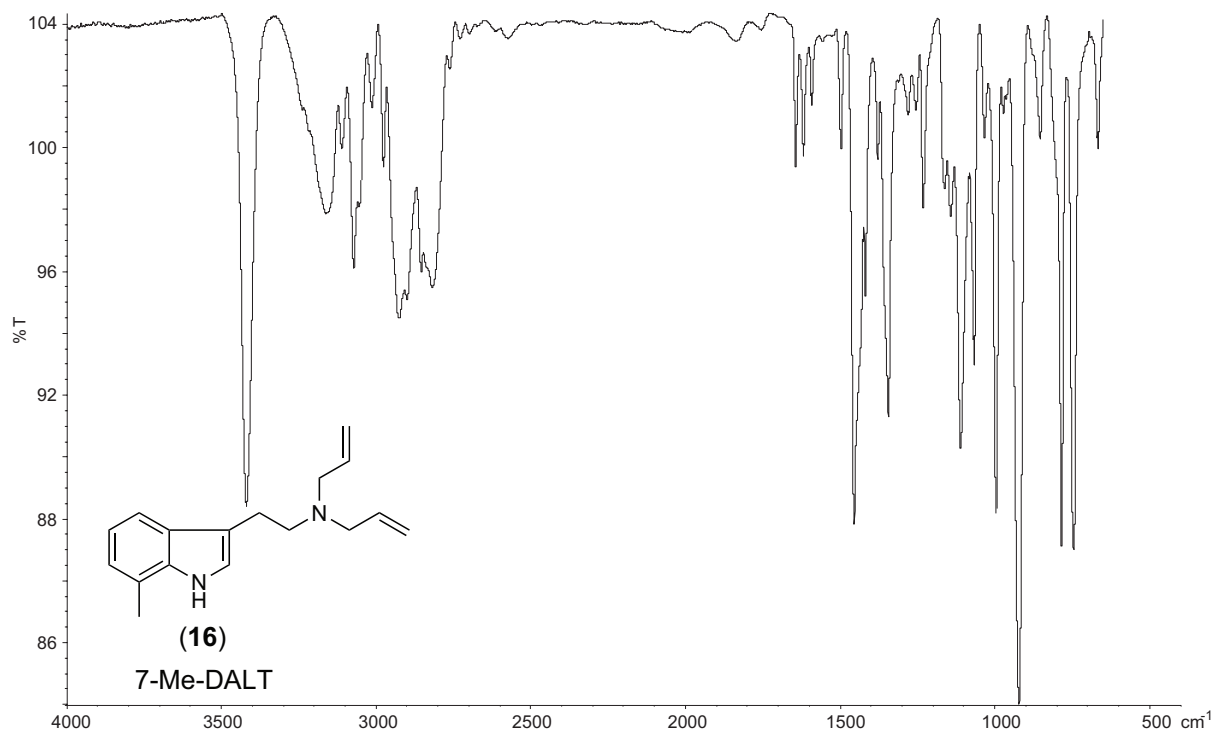
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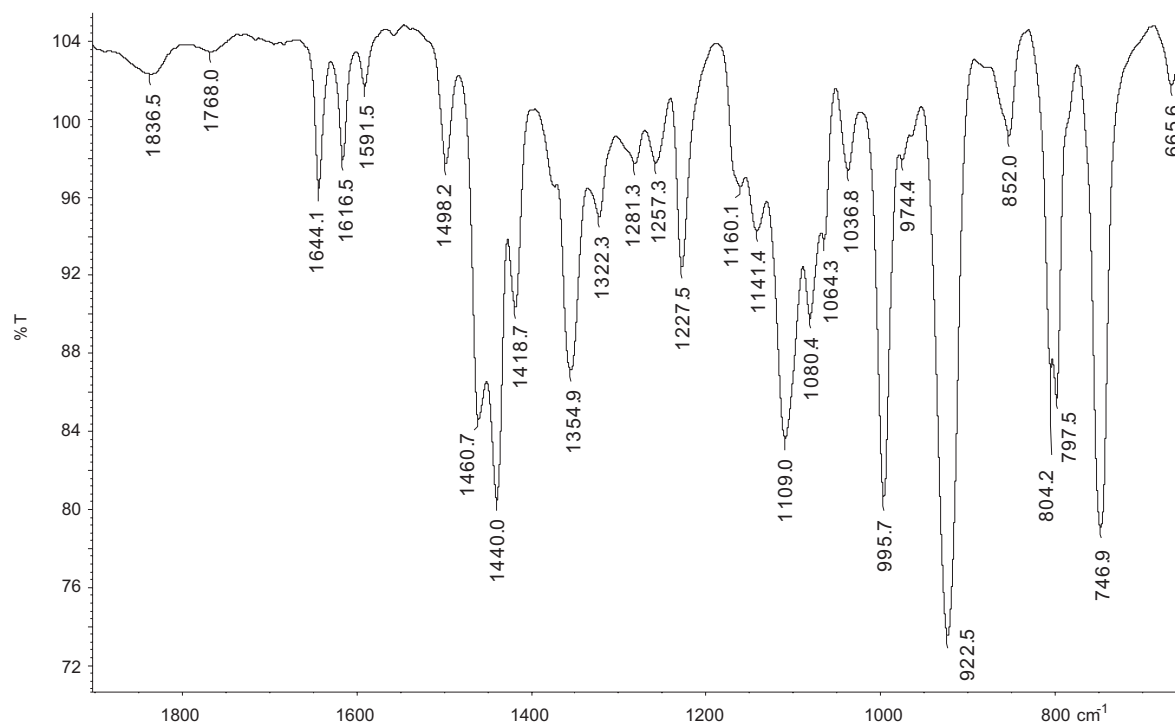
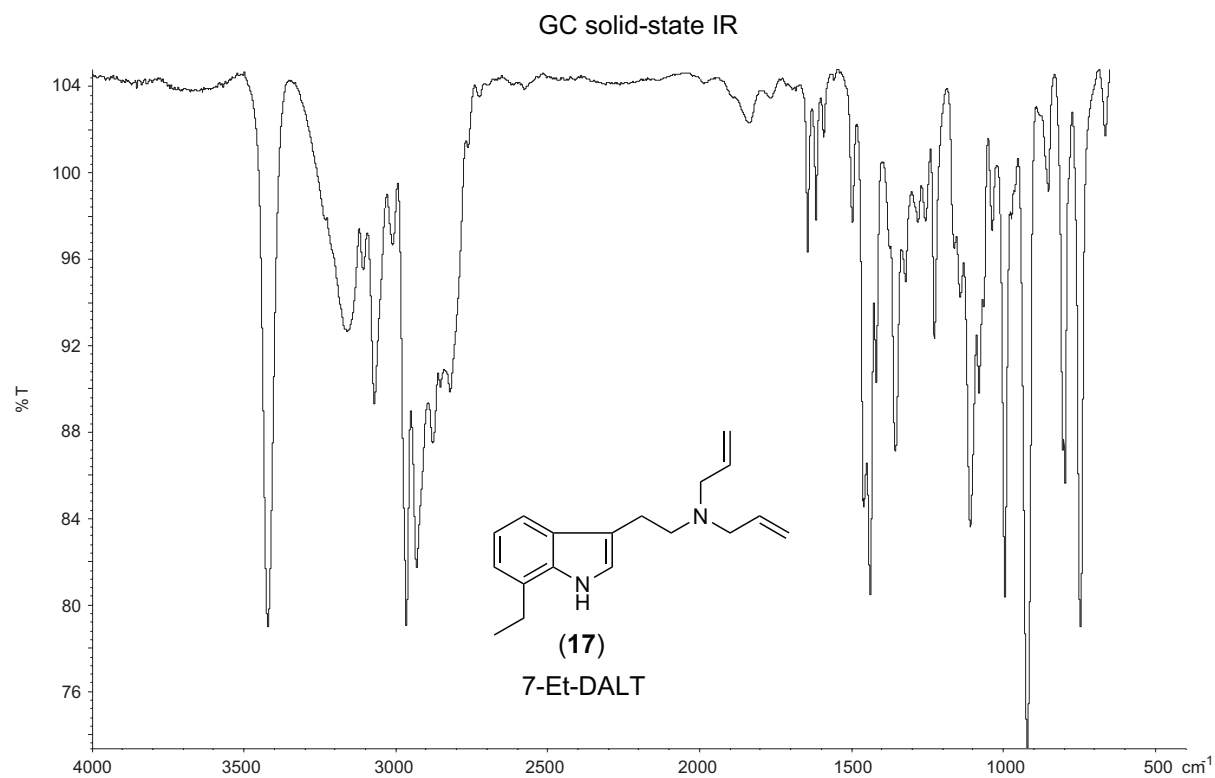




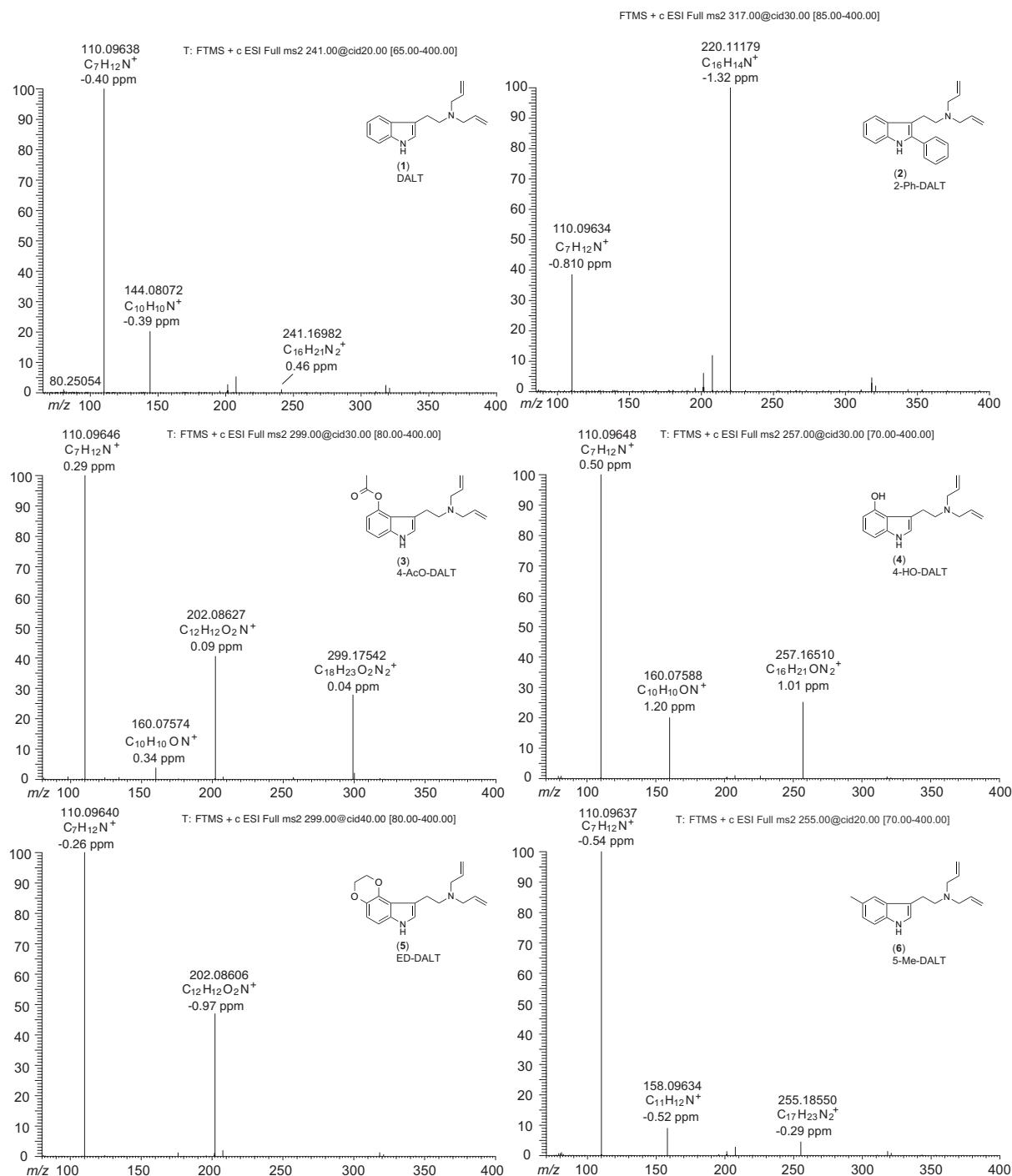


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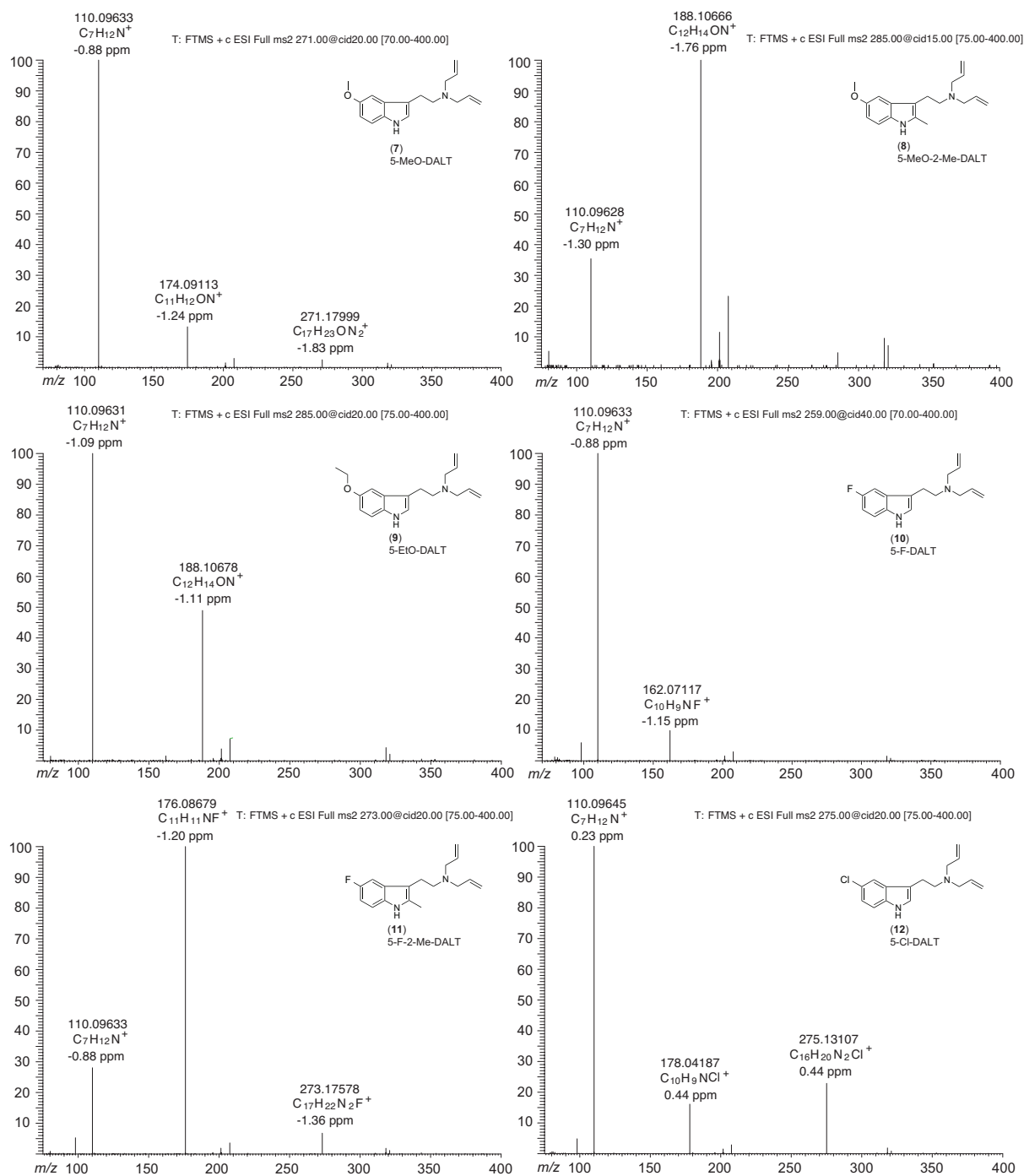




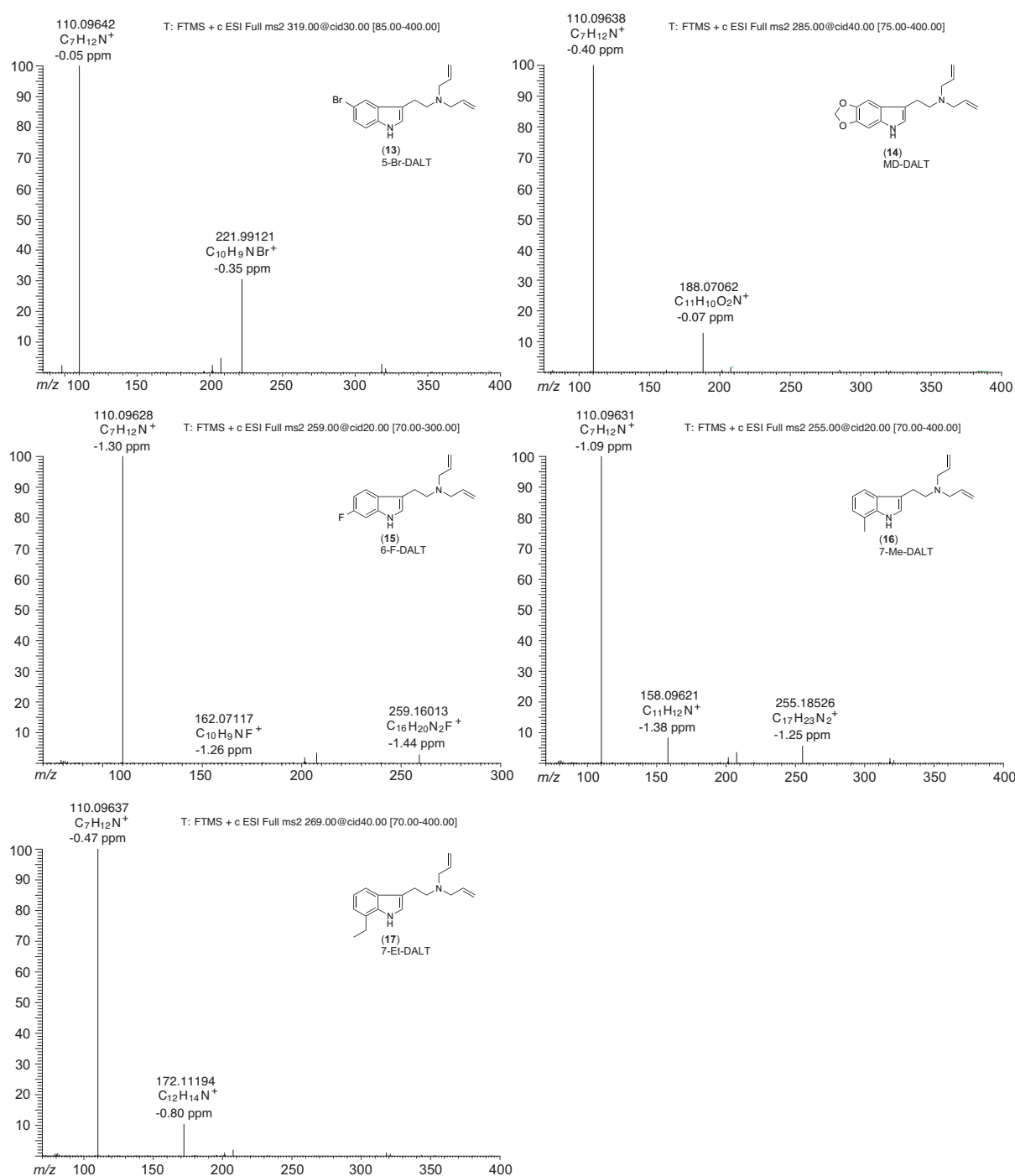
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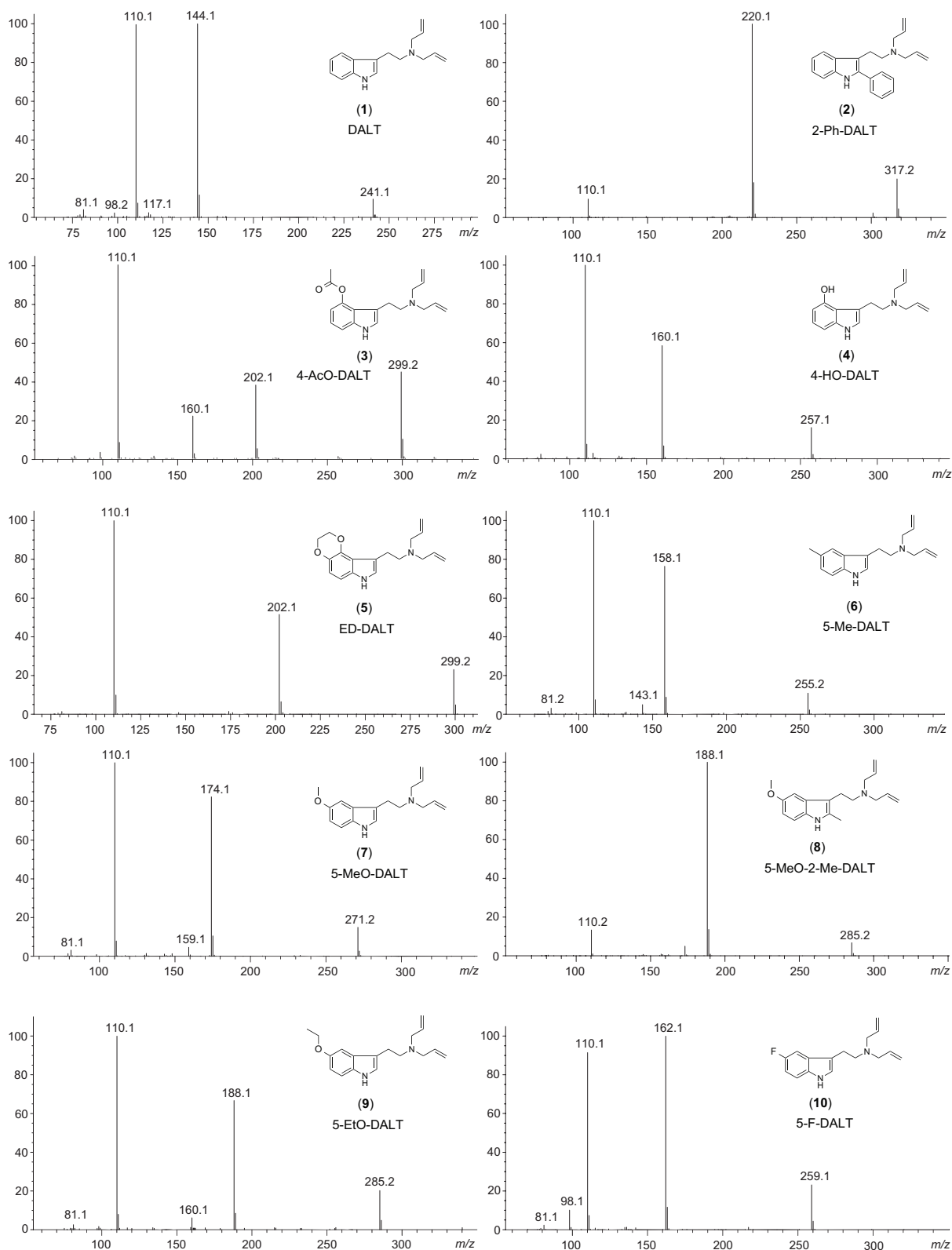
High-resolution tandem mass spectrometry



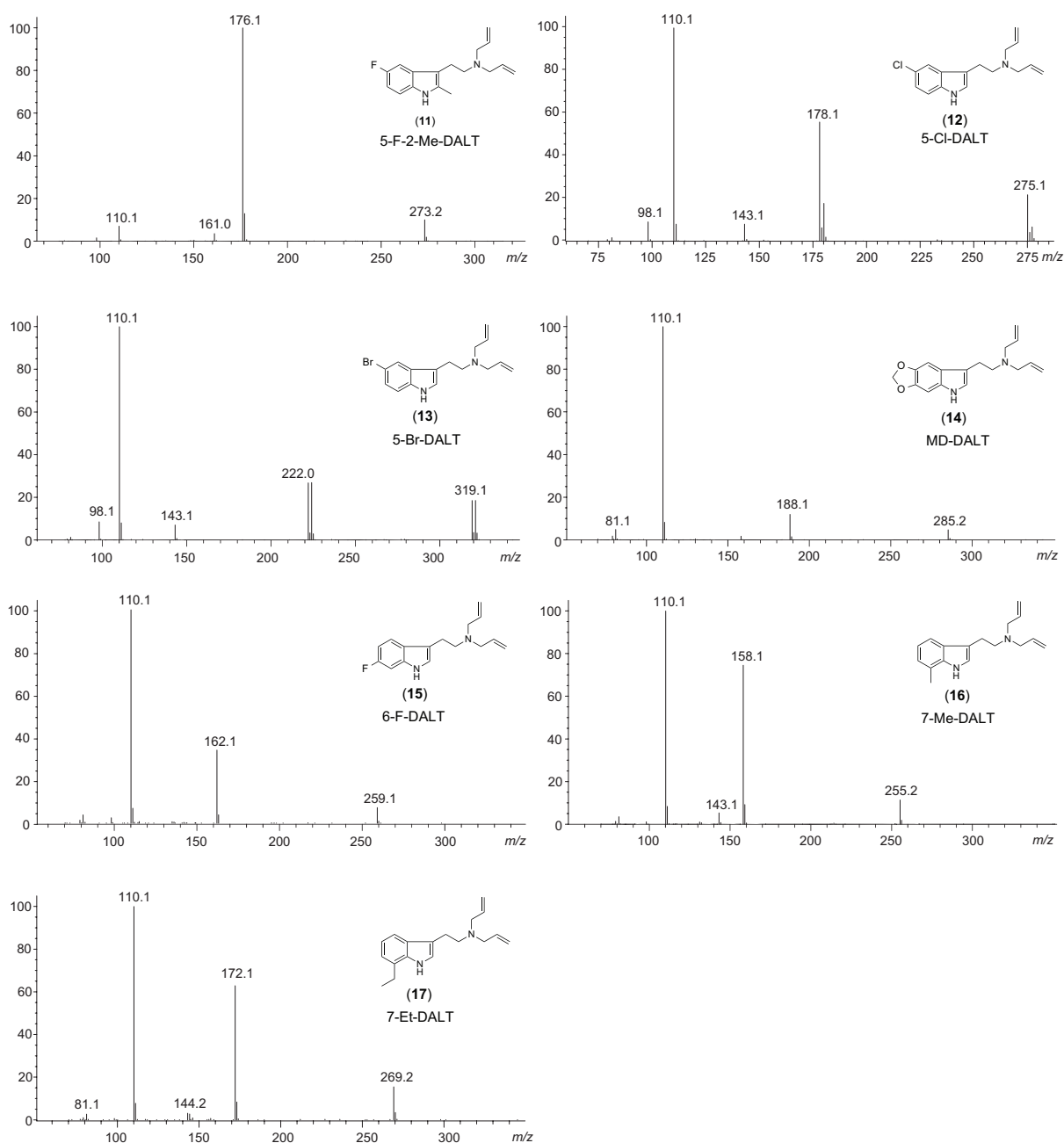
High-resolution tandem mass spectrometry

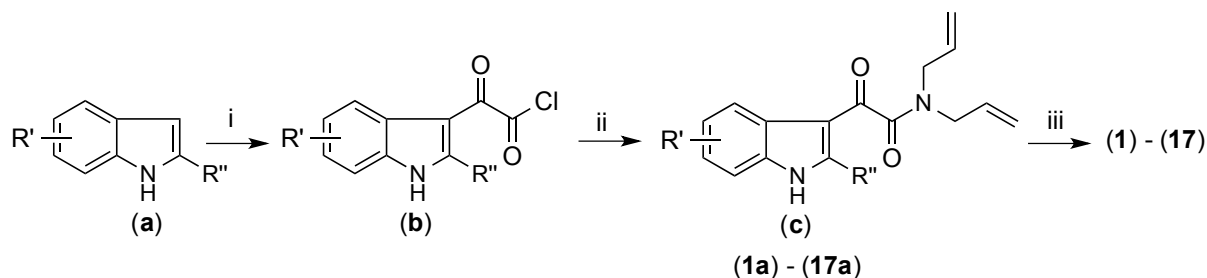


LC-Q-MS, in-source CID, fragmentor voltage 110 V



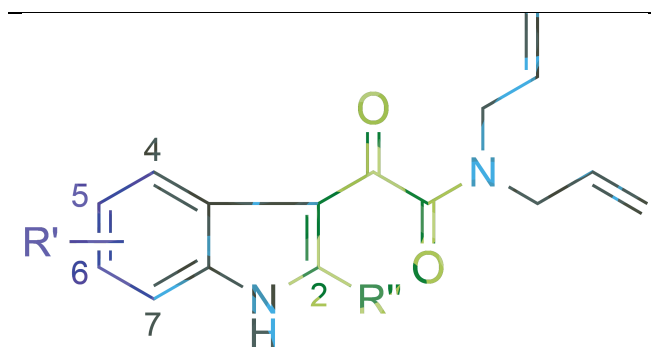
LC-Q-MS, in-source CID, fragmentor voltage 110 V



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

i: Et₂O, (COCl)₂, stirred on ice; ii: Et₂O, *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 d₆-DMSO using a Bruker Avance 300 spectrometer (¹H at 300.1 MHz; ¹³C DEPTQ at 75 MHz). Internal chemical shift references were based on residual solvent peaks and TMS.

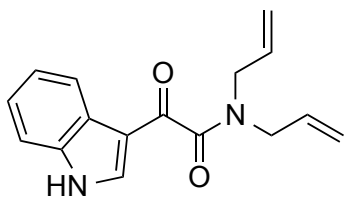
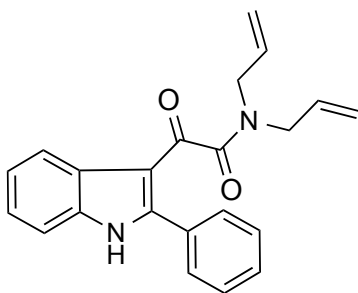


No.	R'	R''
1a	H	H
2a	H	C ₆ H ₅
3a	4-AcO ^a	H
4a	4-OH ^a	H
5a	4,5-ED ^b	H
6a	5-CH ₃	H
7a	5-OCH ₃	H
8a	5-OCH ₃	CH ₃
9a	5-OC ₂ H ₅	H
10a	5-F	H
11a	5-F	CH ₃
12a	5-Cl	H
13a	5-Br	H
14a	5,6-MD ^c	H
15a	6-F	H
16a	7-CH ₃	H
17a	7-C ₂ H ₅	H

^a Preparation not required

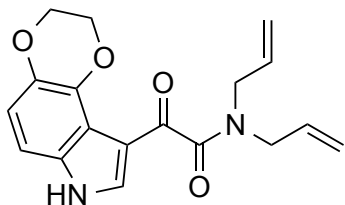
^b 4,5-(OCH₂CH₂O): 4,5-ethylenedioxy

^c 5,6-(OCH₂O): 5,6-methylenedioxy

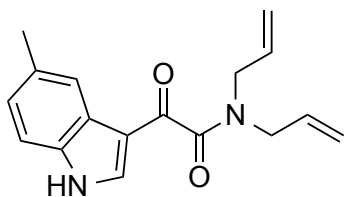
(1a) 2-(1*H*-Indol-3-yl)-2-oxo-*N,N*-di(prop-2-en-1-yl)acetamideAvailable from work published previously.^[1]**(2a)** 2-Oxo-2-(2-phenyl-1*H*-indol-3-yl)-*N,N*-di(prop-2-en-1-yl)acetamide

Yield: 828 mg (2.4 mmol, 80 %). ¹H-NMR (300 MHz, d₆-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, CH=CH₂, 1H), 5.35 – 5.20 (m, CH=CH₂, 1H), 5.18 – 4.98 (m, 2 x CH=CH₂, 4H), 3.74 (d, *J* = 6.1 Hz, N-CH₂, 2H), 3.60 (d, *J* = 6.1 Hz, N-CH₂, 2H). ¹³C-NMR (75 MHz, d₆-DMSO) δ ppm 186.69 (CO), 167.12 (CO), 147.61 (Ar-Cq), 135.73 (Ar-Cq), 132.83 (CH=CH₂), 132.39 (CH=CH₂), 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=CH₂), 118.15 (CH=CH₂), 112.08 (Ar-CH), 109.62 (Ar-Cq), 49.45 (N-CH₂), 45.40 (N-CH₂).

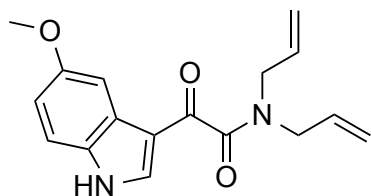
Preparation of **(3a)** and **(4a)** were not required. 4-AcO-DALT **(3)** and 4-OH-DALT **(4)** were commercially available for characterization.

(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

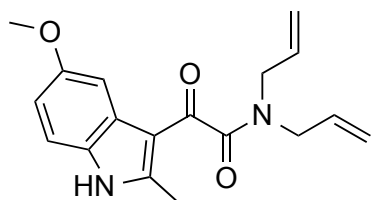
Yield: 653 mg (2.0 mmol, 67 %). ¹H-NMR (300 MHz, d₆-DMSO) δ ppm 12.15 (s, NH, 1H), 7.97 (s, Ar-H, 1H), 6.97 (d, *J* = 8.6 Hz, Ar-H, 1H), 6.80 (d, *J* = 8.6 Hz, Ar-H, 1H), 5.95 – 5.79 (m, CH=CH₂, 1H), 5.79 – 5.64 (m, CH=CH₂, 1H), 5.32 – 5.09 (m, 2 x CH=CH₂, 4H), 4.31 – 4.18 (m, O(CH₂)₂O, 4H), 3.99 (d, *J* = 5.5 Hz, N-CH₂, 2H), 3.84 (d, *J* = 5.7 Hz, N-CH₂, 2H). ¹³C-NMR (75 MHz, d₆-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 (CH=CH₂), 132.89 (CH=CH₂), 118.58 (CH=CH₂), 117.62 (CH=CH₂), 114.50 (Ar-CH), 113.55 (Ar-Cq), 105.15 (Ar-CH), 64.14 (OCH₂), 63.63 (OCH₂), 49.46 (N-CH₂), 45.44 (N-CH₂).

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

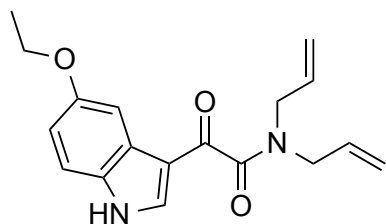
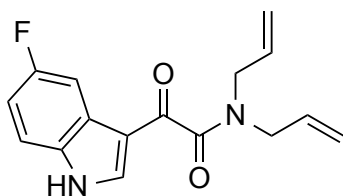
Yield: 706 mg (2.5 mmol, 84 %). $^1\text{H-NMR}$ (300 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 12.16 (s, NH, 1H), 8.03 (s, Ar-H, 1H), 7.92 (s, Ar-H, 1H), 7.41 (d, $J = 8.3$ Hz, Ar-H, 1H), 7.10 (dd, $J = 8.3, 1.5$ Hz, Ar-H, 1H), 5.89 (ddt, $J = 16.7, 9.7, 5.8$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.73 (ddt, $J = 17.1, 10.2, 5.7$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.31 – 5.09 (m, 2 x $\text{CH}=\text{CH}_2$, 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). $^{13}\text{C-NMR}$ (75 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 185.84 (CO), 167.36 (CO), 136.96 (Ar-CH), 135.15 (Ar-Cq), 133.12 ($\text{CH}=\text{CH}_2$), 132.66 ($\text{CH}=\text{CH}_2$), 131.52 (Ar-Cq), 125.21 (Ar-Cq), 124.96 (Ar-CH), 120.66 (Ar-CH), 118.28 ($\text{CH}=\text{CH}_2$), 117.67 ($\text{CH}=\text{CH}_2$), 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

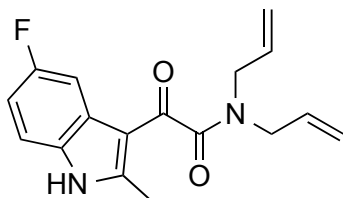
Available from work published previously.^[1]

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

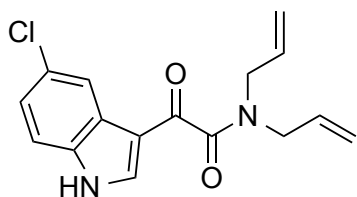
Available from work published previously.^[3]

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

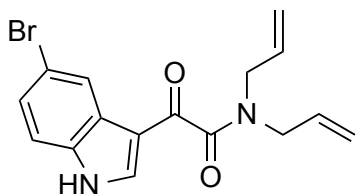
Yield: 544 mg (1.9 mmol, 63 %). ¹H-NMR (300 MHz, d₆-DMSO) δ ppm 12.43 (s, NH, 1H), 8.17 (s, Ar-H, 1H), 7.78 (dd, *J* = 9.6, 2.4 Hz, Ar-H, 1H), 7.56 (dd, *J* = 8.9, 4.6 Hz, Ar-H, 1H), 7.14 (td, *J* = 9.2, 2.6 Hz, Ar-H, 1H), 5.88 (ddt, *J* = 16.4, 11.2, 5.7 Hz, CH=CH₂, 1H), 5.73 (ddt, *J* = 10.7, 5.7 Hz, CH=CH₂, 1H), 5.32 – 5.05 (m, 2 x CH=CH₂, 4H), 4.03 (d, *J* = 5.7 Hz, N-CH₂, 2H), 3.85 (d, *J* = 5.6 Hz, N-CH₂, 2H). ¹³C-NMR (75 MHz, d₆-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 (CH=CH₂), 132.59 (CH=CH₂), 125.59 (d, *J* = 11.1 Hz, Ar-Cq), 118.28 (CH=CH₂), 117.70 (CH=CH₂), 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-CH₂), 45.68 (N-CH₂).

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

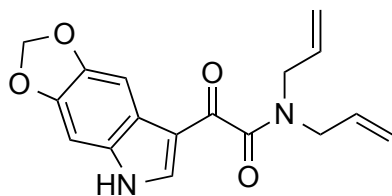
Yield: 595 mg (1.98 mmol, 66 %). ¹H-NMR (300 MHz, d₆-DMSO) δ ppm 12.35 (s, NH, 1H), 7.61 (d, *J* = 9.4 Hz, Ar-H, 1H), 7.43 (dd, *J* = 8.8, 4.6 Hz, Ar-H, 1H), 7.04 (td, *J* = 9.3, 2.6 Hz, Ar-H, 1H), 5.87 (ddt, *J* = 16.2, 10.1, 6.1 Hz, CH=CH₂, 1H), 5.71 (ddt, *J* = 15.9, 9.8, 6.1 Hz, CH=CH₂, 1H), 5.36 – 5.08 (m, 2 x CH=CH₂, 4H), 4.04 (d, *J* = 6.1 Hz, N-CH₂, 2H), 3.82 (d, *J* = 6.1 Hz, N-CH₂, 2H), 2.58 (s, CH₃, 3H). ¹³C-NMR (75 MHz, d₆-DMSO) δ ppm 185.71 (CO), 167.97 (CO), 158.72 (d, *J* = 234.8 Hz, Ar-Cq), 148.66 (Ar-Cq), 132.59 (CH=CH₂), 132.09 (CH=CH₂), 131.68 (Ar-Cq), 127.17 (d, *J* = 10.9 Hz, Ar-Cq), 118.92 (CH=CH₂), 118.51 (CH=CH₂), 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-CH₂), 45.34 (N-CH₂), 13.69 (CH₃).

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

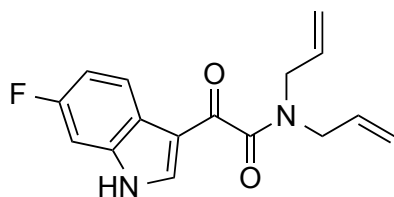
Yield: 699 mg (2.3 mmol, 77 %). $^1\text{H-NMR}$ (300 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 12.45 (s, NH, 1H), 8.19 (s, Ar-H, 1H), 8.08 (d, $J = 1.9$ Hz, Ar-H, 1H), 7.57 (d, $J = 8.7$ Hz, Ar-H, 1H), 7.31 (dd, $J = 8.7, 2.1$ Hz, Ar-H, 1H), 5.97 – 5.81 (m, $\text{CH}=\text{CH}_2$, 1H), 5.81 – 5.65 (m, $\text{CH}=\text{CH}_2$, 1H), 5.32 – 5.08 (m, 2 x $\text{CH}=\text{CH}_2$, 4H), 4.03 (d, $J = 5.8$ Hz, N- CH_2 , 2H), 3.85 (d, $J = 5.7$ Hz, N- CH_2 , 2H). $^{13}\text{C-NMR}$ (75 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 185.74 (CO), 166.95 (CO), 138.27 (Ar-CH), 135.35 (Ar-Cq), 133.08 ($\text{CH}=\text{CH}_2$), 132.57 ($\text{CH}=\text{CH}_2$), 127.22 (Ar-Cq), 126.10 (Ar-Cq), 123.59 (Ar-CH), 119.99 (Ar-CH), 118.30 ($\text{CH}=\text{CH}_2$), 117.77 ($\text{CH}=\text{CH}_2$), 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

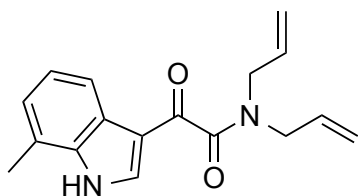
Yield: 677 mg (1.95 mmol, 65 %). $^1\text{H-NMR}$ (300 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 12.29 (bs, NH, 1H, very low intensity), 8.25 (d, $J = 1.7$ Hz, Ar-H, 1H), 8.18 (s, Ar-H, 1H), 7.52 (dd, $J = 8.6, 0.4$ Hz, Ar-H, 1H), 7.42 (dd, $J = 8.6, 2.0$ Hz, Ar-H, 1H), 5.88 (ddt, $J = 15.3, 10.6, 5.8$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.73 (ddt, $J = 17.1, 10.2, 5.7$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.30 – 5.08 (m, 2 x $\text{CH}=\text{CH}_2$, 4H), 4.03 (d, $J = 5.8$ Hz, N- CH_2 , 2H), 3.85 (d, $J = 5.7$ Hz, N- CH_2 , 2H). $^{13}\text{C-NMR}$ (75 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 185.73 (CO), 166.94 (CO), 138.09 (Ar-CH), 135.63 (Ar-Cq), 133.07 ($\text{CH}=\text{CH}_2$), 132.54 ($\text{CH}=\text{CH}_2$), 126.71 (Ar-Cq), 126.15 (Ar-CH), 123.03 (Ar-CH), 118.29 ($\text{CH}=\text{CH}_2$), 117.77 ($\text{CH}=\text{CH}_2$), 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

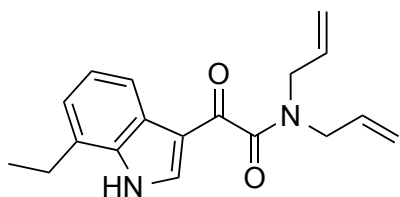
Yield: 572 mg (1.8 mmol, 61 %). $^1\text{H-NMR}$ (300 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 12.08 (s, NH, 1H), 7.89 (s, Ar-H, 1H), 7.49 (s, Ar-H, 1H), 7.05 (s, Ar-H, 1H), 6.03 (s, OCH_2O , 2H), 5.87 (ddt, $J = 17.5, 9.9, 5.7$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.72 (ddt, $J = 15.9, 10.3, 5.7$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.31 – 5.07 (m, 2 x $\text{CH}=\text{CH}_2$, 4H), 4.01 (d, $J = 5.7$ Hz, N- CH_2 , 2H), 3.83 (d, $J = 5.7$ Hz, N- CH_2 , 2H). $^{13}\text{C-NMR}$ (75 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 185.77 (CO), 167.23 (CO), 145.37 (Ar-Cq), 144.67 (Ar-Cq), 135.15 (Ar-CH), 133.12 ($\text{CH}=\text{CH}_2$), 132.64 ($\text{CH}=\text{CH}_2$), 131.66 (Ar-Cq), 118.93 (Ar-Cq), 118.33 ($\text{CH}=\text{CH}_2$), 117.64 ($\text{CH}=\text{CH}_2$), 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 %). $^1\text{H-NMR}$ (300 MHz, $\text{d}_6\text{-DMSO}$) 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, $\text{CH}=\text{CH}_2$, 1H), 5.73 (ddt, $J = 15.9, 10.3, 5.7$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.31 – 5.06 (m, 2 x $\text{CH}=\text{CH}_2$, 4H), 4.03 (d, $J = 5.8$ Hz, N- CH_2 , 2H), 3.85 (d, $J = 5.7$ Hz, N- CH_2 , 2H). $^{13}\text{C-NMR}$ (75 MHz, $\text{d}_6\text{-DMSO}$) 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 ($\text{CH}=\text{CH}_2$), 132.60 ($\text{CH}=\text{CH}_2$), 122.07 (d, $J = 10.0$ Hz, Ar-CH), 121.56 (Ar-Cq), 118.29 ($\text{CH}=\text{CH}_2$), 117.69 ($\text{CH}=\text{CH}_2$), 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

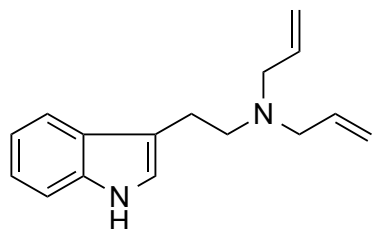
Yield: 686 mg (2.4 mmol, 81 %). $^1\text{H-NMR}$ (300 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 12.33 (s, NH 1H), 8.07 (s, Ar-H, 1H), 7.96 (d, $J = 7.7$ Hz, Ar-H, 1H), 7.16 (t, $J = 7.5$ Hz, Ar-H, 1H), 7.08 (d, $J = 7.1$ Hz, Ar-H, 1H), 5.89 (ddt, $J = 16.5, 11.3, 5.7$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.72 (ddt, $J = 15.9, 10.7, 5.7$ Hz, $\text{CH}=\text{CH}_2$, 1H), 5.35 – 5.04 (m, 2 x $\text{CH}=\text{CH}_2$, 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). $^{13}\text{C-NMR}$ (75 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 185.97 (CO), 167.33 (CO), 136.58 (Ar-CH), 136.29 (Ar-Cq), 133.12 ($\text{CH}=\text{CH}_2$), 132.68 ($\text{CH}=\text{CH}_2$), 124.73 (Ar-Cq), 124.14 (Ar-CH), 122.71 (Ar-CH), 122.03 (Ar-Cq), 118.44 (Ar-CH), 118.25 ($\text{CH}=\text{CH}_2$), 117.64 ($\text{CH}=\text{CH}_2$), 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

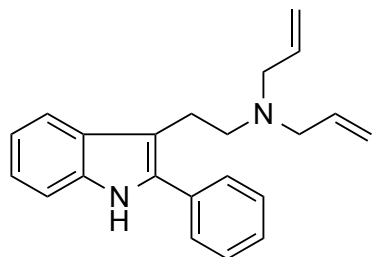
Yield: 631 mg (2.1 mmol, 71 %). $^1\text{H-NMR}$ (300 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 12.34 (s, NH, 1H), 8.05 (d, J = 2.4 Hz, Ar-H, 1H), 7.97 (dd, J = 7.8, 0.9 Hz, Ar-H, 1H), 7.19 (t, J = 7.5 Hz, Ar-H, 1H), 7.10 (dd, J = 7.2, 1.0 Hz, Ar-H, 1H), 5.89 ddt, J = 16.6, 9.7, 5.8 Hz, $\text{CH}=\text{CH}_2$, 1H), 5.73 (ddt, J = 17.1, 10.2, 5.7 Hz, $\text{CH}=\text{CH}_2$, 1H), 5.31 – 5.08 (m, 2 x $\text{CH}=\text{CH}_2$, 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, CH_2CH_3 , 2H), 1.26 (t, J = 7.5 Hz, CH_2CH_3 , 3H). $^{13}\text{C-NMR}$ (75 MHz, $\text{d}_6\text{-DMSO}$) δ ppm 185.90 (CO), 167.32 (CO), 136.57 (Ar-CH), 135.51 (Ar-Cq), 133.15 ($\text{CH}=\text{CH}_2$), 132.68 ($\text{CH}=\text{CH}_2$), 128.33 (Ar-Cq), 124.93 (Ar-Cq), 122.85 (Ar-CH), 122.41 (Ar-CH), 118.53 (Ar-Cq), 118.26 ($\text{CH}=\text{CH}_2$), 117.63 ($\text{CH}=\text{CH}_2$), 113.32 (Ar-Cq), 49.20 (N- CH_2), 45.59 (N- CH_2), 23.47 (CH_2CH_3), 14.57 (CH_2CH_3).

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

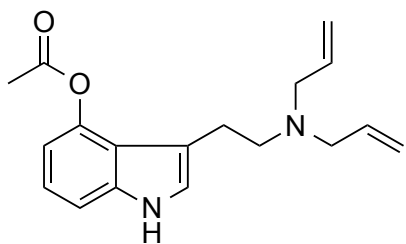
NMR spectra were recorded in CD₃OD using a Bruker Avance 300 spectrometer (¹H at 300.1 MHz; ¹³C DEPTQ at 75 MHz). Internal chemical shift references were based on residual solvent peaks and TMS.

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

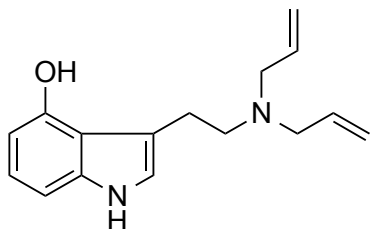
Yield: 58 mg (0.21 mmol, 70 %). ¹H-NMR (300 MHz, CD₃OD): δ ppm 7.61 (d, *J* = 7.9 Hz, Ar-H, 1H), 7.42 (d, *J* = 8.0 Hz, Ar-H, 1H), 7.25 (s, Ar-H, 1H), 7.17 (td, *J* = 7.3, 3.2 Hz, 1H, Ar-H), 7.09 (td, *J* = 7.6, 1.1 Hz, Ar-H, 1H), 6.05 (ddt, *J* = 17.1, 10.0, 7.1 Hz, 2 x CH=CH₂, 2H), 5.74 – 5.60 (m, 2 x CH=CH₂, 4H), 3.92 (d, *J* = 7.1 Hz, 2 x N-CH₂, 4H), 3.53 – 3.41 (m, CH₂, 2H), 3.33 – 3.24 (m, CH₂, 2H). ¹³C-NMR (75 MHz, CD₃OD): δ ppm 138.30 (Ar-Cq), 127.99 (Ar-Cq), 127.51 (2 x CH=CH₂), 126.99 (2 x CH=CH₂), 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-CH₂), 53.65 (CH₂), 21.39 (CH₂).

(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)

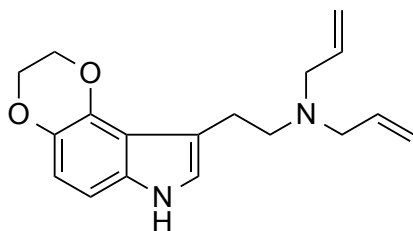
Yield: 81 mg (0.23 mmol, 77 %). ¹H-NMR (300 MHz, CD₃OD): δ ppm 7.65 – 7.60 (m, Ar-H, 3H), 7.56 – 7.46 (m, Ar-H, 2H), 7.47 – 7.36 (m, Ar-H, 2H), 7.16 (td, *J* = 7.7, 1.0 Hz, Ar-H, 1H), 7.08 (td, *J* = 7.5, 0.8 Hz, Ar-H, 1H), 5.91 (ddt, *J* = 17.4, 10.4, 7.1 Hz, 2 x CH=CH₂, 2H), 5.59 – 5.43 (m, 2 x CH=CH₂, 4H), 3.78 (d, *J* = 7.1 Hz, 2 x N-CH₂, 4H), 3.43 – 3.33 (m, CH₂, 2H), 3.33 – 3.22 (m, CH₂, 2H). ¹³C-NMR (75 MHz, CD₃OD): 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 CH=CH₂), 125.41 (2 x CH=CH₂), 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-CH₂), 51.18 (CH₂), 19.07 (CH₂).

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

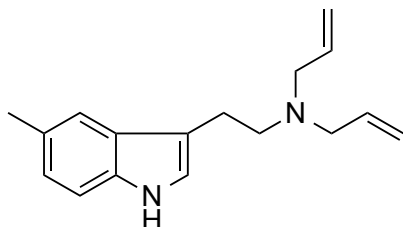
¹H-NMR (300 MHz, CD₃OD): δ ppm 7.27 (dd, *J* = 8.2, 0.7 Hz, Ar-H, 1H), 7.19 (s, Ar-H, 1H), 7.10 (t, *J* = 7.9 Hz, Ar-H, 1H), 6.76 (dd, *J* = 7.7, 0.7 Hz, Ar-H, 1H), 6.70 (s, fumarate, 1.7H), 6.06 – 5.86 (m, 2 x CH=CH₂, 2H), 5.58 – 5.46 (m, 2 x CH=CH₂, 4H), 3.74 (d, *J* = 7.1 Hz, 2 x N-CH₂, 4H), 3.41 – 3.33 (m, CH₂, 2H), 3.22 – 3.13 (m, CH₂, 2H), 2.38 (s, CH₃, 3H). ¹³C-NMR (75 MHz, CD₃OD): δ ppm 171.69 (fumarate), 171.11 (CO), 145.12 (Ar-Cq), 140.62 (Ar-Cq), 136.15 (fumarate), 128.44 (2 x CH=CH₂), 126.03 (2 x CH=CH₂), 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-CH₂), 54.44 (CH₂), 22.79 (CH₂), 21.27 (CH₃).

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

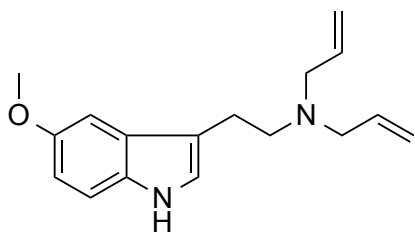
¹H-NMR (300 MHz, CD₃OD): δ ppm 6.95 (s, Ar-H, 1H), 6.92 – 6.80 (m, Ar-H, 2H), 6.69 (s, fumarate, 1H), 6.37 (d, *J* = 7.0 Hz, Ar-H, 1H), 6.04 – 5.82 (m, 2 x CH=CH₂, 2H), 5.52 – 5.39 (m, 2 x CH=CH₂, 4H), 3.63 (d, *J* = 7.1 Hz, 2 x N-CH₂, 4H), 3.35 – 3.25 (m, CH₂, 2H, overlapping with residual solvent peak), 3.24 – 3.14 (m, CH₂, 2H). Note: in d₆-DMSO, the exchangeable proton of the 4-OH group appeared as a singlet at 10.57 ppm. ¹³C-NMR (75 MHz, MeOD) δ ppm 173.54 (fumarate), 152.35 (Ar-Cq), 140.60 (Ar-Cq), 136.87 (fumarate), 129.19 (2 x CH=CH₂), 125.16 (2 x CH=CH₂), 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-CH₂), 55.47 (CH₂), 23.59 (CH₂).

(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)

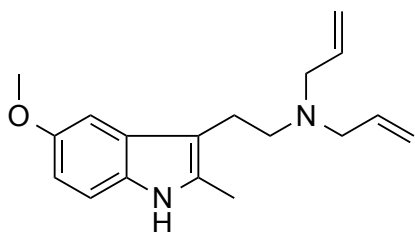
Yield: 60 mg (0.18 mmol, 60 %). $^1\text{H-NMR}$ (300 MHz, CD_3OD): δ ppm 7.05 (s, Ar-H, 1H), 6.83 (d, J = 8.7 Hz, Ar-H, 1H), 6.67 (d, J = 8.7 Hz, Ar-H, 1H), 6.08 – 5.90 (m, 2 x $\text{CH}=\text{CH}_2$, 2H), 5.66 – 5.54 (m, J = 10.3 Hz, 2 x $\text{CH}=\text{CH}_2$, 4H), 4.38 – 4.32 (m, OCH_2 , 2H), 4.29 – 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). $^{13}\text{C-NMR}$ (75 MHz, CD_3OD): δ ppm 135.68 (Ar-Cq), 135.53 (Ar-Cq), 133.50 (Ar-Cq), 126.16 (2 x $\text{CH}=\text{CH}_2$), 125.32 (2 x $\text{CH}=\text{CH}_2$), 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)

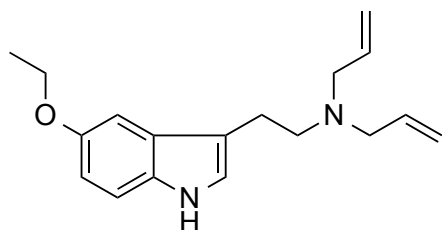
Yield: 64 mg (0.22 mmol, 73 %). $^1\text{H-NMR}$ (300 MHz, CD_3OD): δ ppm 7.34 (s, Ar-H, 1H), 7.26 (d, J = 8.3 Hz, Ar-H, 1H), 7.15 (s, Ar-H, 1H), 6.97 (dd, J = 8.3, 1.1 Hz, Ar-H, 1H), 6.00 (ddt, J = 17.1, 10.0, 7.1 Hz, 2 x $\text{CH}=\text{CH}_2$, 2H), 5.70 – 5.57 (m, 2 x $\text{CH}=\text{CH}_2$, 4H), 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). $^{13}\text{C-NMR}$ (75 MHz, CD_3OD): δ ppm 136.68 (Ar-Cq), 129.33 (Ar-Cq), 128.22 (Ar-Cq), 127.57 (2 x $\text{CH}=\text{CH}_2$), 126.95 (2 x $\text{CH}=\text{CH}_2$), 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)

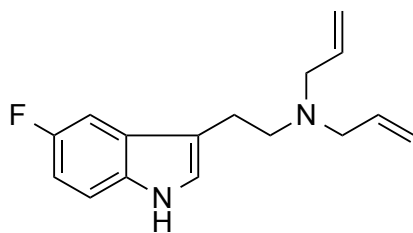
Yield: 71 mg (0.23 mmol, 77 %). $^1\text{H-NMR}$ (300 MHz, CD_3OD): δ ppm 7.27 (d, $J = 8.8$ Hz, Ar-H, 1H), 7.17 (s, Ar-H, 1H), 7.04 (d, $J = 2.3$ Hz, Ar-H, 1H), 6.80 (dd, $J = 8.8, 2.4$ Hz, Ar-H, 1H), 6.01 (ddt, $J = 17.2, 10.1, 7.1$ Hz, 2 x $\text{CH}=\text{CH}_2$, 2H), 5.71 – 5.59 (m, 2 x $\text{CH}=\text{CH}_2$, 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). $^{13}\text{C-NMR}$ (75 MHz, CD_3OD): δ ppm 155.31 (Ar-Cq), 133.40 (Ar-Cq), 128.34 (Ar-Cq), 127.60 (2 x $\text{CH}=\text{CH}_2$), 126.84 (2 x $\text{CH}=\text{CH}_2$), 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)

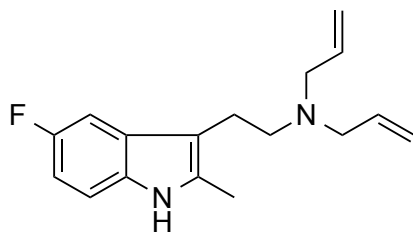
Available from work published previously.^[3]

(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)

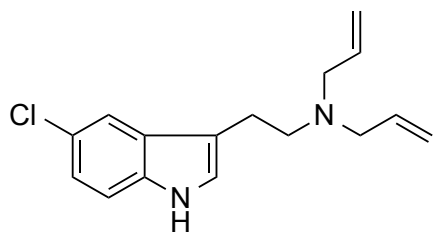
Available from work published previously.^[2]

(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)

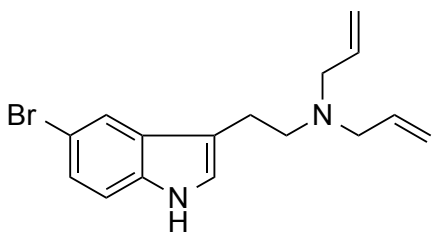
Yield: 58 mg (0.20 mmol, 66 %). $^1\text{H-NMR}$ (300 MHz, CD_3OD): δ ppm 7.34 (dd, $J = 8.8, 4.4$ Hz, Ar-H, 1H), 7.28 (s, Ar-H, 1H), 7.26 (dd, $J = 9.9, 2.5$ Hz, Ar-H, 1H), 6.90 (td, $J = 9.2, 2.5$ Hz, Ar-H, 1H), 6.02 (ddt, $J = 17.2, 10.1, 7.1$ Hz, 2 x $\text{CH}=\text{CH}_2$, 2H), 5.71 – 5.59 (m, 2 x $\text{CH}=\text{CH}_2$, 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). $^{13}\text{C-NMR}$ (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 $\text{CH}=\text{CH}_2$), 126.99 (2 x $\text{CH}=\text{CH}_2$), 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)

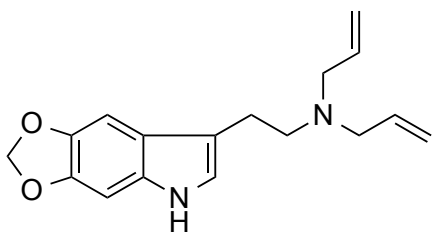
Yield: 56 mg (0.18 mmol, 59 %). $^1\text{H-NMR}$ (300 MHz, CD_3OD): δ ppm 7.21 (dd, $J = 8.8, 4.4$ Hz, Ar-H, 1H), 7.12 (dd, $J = 9.8, 2.4$ Hz, Ar-H, 1H), 6.80 (td, $J = 9.2, 2.5$ Hz, Ar-H, 1H), 6.04 (ddt, $J = 17.2, 10.1, 7.1$ Hz, 2 x $\text{CH}=\text{CH}_2$, 2H), 5.75 – 5.59 (m, 2 x $\text{CH}=\text{CH}_2$, 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). $^{13}\text{C-NMR}$ (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 $\text{CH}=\text{CH}_2$), 126.95 (2 x $\text{CH}=\text{CH}_2$), 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)

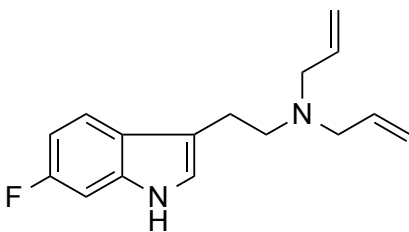
Yield: 57 mg (0.18 mmol, 60 %). $^1\text{H-NMR}$ (300 MHz, CD_3OD): δ ppm 7.58 (d, $J = 1.9$ Hz, Ar-H, 1H), 7.35 (d, $J = 8.7$ Hz, Ar-H, 1H), 7.27 (s, Ar-H, 1H), 7.10 (dd, $J = 8.7, 1.9$ Hz, Ar-H, 1H), 6.02 (ddt, $J = 17.2, 10.1, 7.1$ Hz, 2 x $\text{CH}=\text{CH}_2$, 2H), 5.71 – 5.57 (m, 2 x $\text{CH}=\text{CH}_2$, 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). $^{13}\text{C-NMR}$ (75 MHz, CD_3OD): δ ppm 136.61 (Ar-Cq), 129.14 (Ar-Cq), 127.51 (2 x $\text{CH}=\text{CH}_2$), 127.01 (2 x $\text{CH}=\text{CH}_2$), 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)

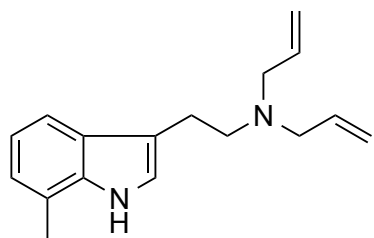
Yield: 68 mg (0.19 mmol, 63 %). $^1\text{H-NMR}$ (300 MHz, CD_3OD): δ ppm 7.74 (d, $J = 1.6$ Hz, Ar-H, 1H), 7.35 – 7.18 (m, 3 x Ar-H, 3H), 6.12 – 5.92 (m, 2 x $\text{CH}=\text{CH}_2$, 2H), 5.72 – 5.55 (m, 2 x $\text{CH}=\text{CH}_2$, 4H), 3.89 (d, $J = 7.1$ Hz, 2 x N- CH_2 , 4H), 3.46 – 3.35 (m, CH_2 , 2H), 3.27 – 3.14 (m, CH_2 , 2H). $^{13}\text{C-NMR}$ (75 MHz, CD_3OD): δ ppm 136.86 (Ar-Cq), 129.83 (Ar-Cq), 127.52 (2 x $\text{CH}=\text{CH}_2$), 127.00 (2 x $\text{CH}=\text{CH}_2$), 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)

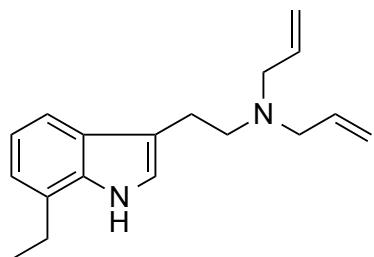
Yield: 55 mg (0.17 mmol, 57 %). ¹H-NMR (300 MHz, CD₃OD): δ ppm 7.05 (s, Ar-H, 1H), 6.95 (d, *J* = 0.4 Hz, Ar-H, 1H), 6.84 (d, *J* = 0.4 Hz, Ar-H, 1H), 5.99 (ddt, *J* = 17.1, 9.9, 7.1 Hz, 2 x CH=CH₂, 2H), 5.88 (s, OCH₂O, 2H), 5.70 – 5.56 (m, 2 x CH=CH₂, 4H), 3.87 (d, *J* = 7.1 Hz, 2 x N-CH₂, 4H), 3.45 – 3.33 (m, CH₂, 2H), 3.21 – 3.09 (m, CH₂, 2H). ¹³C-NMR (75 MHz, CD₃OD): δ ppm 146.39 (Ar-Cq), 144.19 (Ar-Cq), 134.69 (Ar-Cq), 127.56 (2 x CH=CH₂), 126.97 (2 x CH=CH₂), 122.86 (Ar-CH), 121.91 (Ar-Cq), 109.99 (Ar-Cq), 101.76 (OCH₂O), 97.45 (Ar-CH), 93.26 (Ar-CH), 56.29 (2 x N-CH₂), 53.64 (CH₂), 21.51 (CH₂).

(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 %). ¹H-NMR (300 MHz, CD₃OD): 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 CH=CH₂, 2H), 5.69 – 5.57 (m, 2 x CH=CH₂, 4H), 3.89 (d, *J* = 7.1 Hz, 2 x N-CH₂, 4H), 3.47 – 3.37 (m, CH₂, 2H), 3.29 – 3.18 (m, CH₂, 2H). ¹³C-NMR (75 MHz, CD₃OD): δ ppm 161.34 (d, *J* = 235.8 Hz, Ar-Cq), 138.21 (d, *J* = 12.5 Hz, Ar-Cq), 127.50 (2 x CH=CH₂), 126.99 (2 x CH=CH₂), 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-CH₂), 53.59 (CH₂), 21.27 (CH₂).

(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 %). $^1\text{H-NMR}$ (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 $\text{CH}=\text{CH}_2$, 2H), 5.70 – 5.54 (m, 2 x $\text{CH}=\text{CH}_2$, 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). $^{13}\text{C-NMR}$ (75 MHz, CD_3OD): δ ppm 137.72 (Ar-Cq), 127.65 (Ar-Cq), 127.51 (2 x $\text{CH}=\text{CH}_2$), 127.00 (2 x $\text{CH}=\text{CH}_2$), 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 %). $^1\text{H-NMR}$ (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 $\text{CH}=\text{CH}_2$, 2H), 5.69 – 5.57 (m, 2 x $\text{CH}=\text{CH}_2$, 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, CH_2CH_3 , 2H), 1.31 (t, $J = 7.6$ Hz, CH_2CH_3 , 3H). $^{13}\text{C-NMR}$ (75 MHz, CD_3OD): δ ppm 136.88 (Ar-Cq), 128.72 (Ar-Cq), 127.93 (Ar-Cq), 127.54 (2 x $\text{CH}=\text{CH}_2$), 126.96 (2 x $\text{CH}=\text{CH}_2$), 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 (CH_2CH_3), 21.53 (CH_2), 14.75 (CH_3).

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