Formal [4+3] Epoxide Cascade Reactions via a Complementary Ambiphilic Pairing Strategy

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Experimental Section

General procedures: All air and moisture sensitive reactions were carried out in flame- or oven-dried glassware under argon atmosphere using standard gas tight syringes, cannula, and septa. Microwave reactions were carried out using Biotage Initiator using 0.5-2.0 mL, 2.0-5.0 mL, and 10-20 mL Vials. THF, CH_2Cl_2, CH_3CN was purified by passage through the Solv-Tek purification system employing activated Al_2O_3 (Grubbs, R. H.; Rosen, R. K.; Timmers, F. J. *Organometallics* **1996**, *15*, 1518-1520). Et_3N was purified by passage over basic alumina and stored over KOH. Flash column chromatography was performed with SiO_2 from Sorbent Technology (30930M-25, Silica Gel 60A, 40-63 um). Thin layer chromatography was performed on silica gel 60F254 plates (EM-5717, Merck). Deuterated solvents were purchased from Cambridge Isotope laboratories. ^1H and ^{13}C NMR spectra were recorded on a Bruker DRX-400 NMR spectrometer operating at 400 MHz and 100 MHz respectively; or a Bruker Avance operating at 500 MHz and 125 MHz respectively. High-resolution mass spectrometry (HRMS) were obtained on a VG Instrument ZAB double-focusing mass spectrometer.

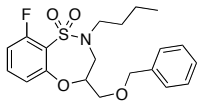
General Procedure A for the synthesis of α-fluorobenzenesulfonamides. To a vigorously stirred solution of amine (8 mmol, 1.2 equiv.) in CH_2Cl_2 (33.0 mL, 0.2 M) in a round bottom flask was added Et_3N (3 equiv.). A solution of α-fluorobenzenesulfonamides (6.66 mmol, 1.0 equiv.) was added dropwise, and the reaction was stirred for 4-8 hours. Upon disappearance of sulfonyl chloride, 10% HCl (10 mL) was added and the reaction was stirred for 10 minutes. The organic layer was separated and the aqueous layer extracted with CH_2Cl_2 (3 x 15 mL). The combined organic layers were washed with brine (20 mL), dried ($MgSO_4$) and concentrated under reduced pressure. The resulting crude product was purified by flash chromatography (3:1, hexane:EtOAc) to afford the desired α-fluorobenzene sulfonamide.

General procedure B for the synthesis of 1,2-benzoxathiazepine-1,1-dioxides **1-9** from α-fluorobenzene sulfonamides: Into a microwave vial (0.5-2.0 mL) was added α-fluorobenzene sulfonamide (0.5 mmol), anhydrous Cs_2CO_3 (1.5 mmol), $BnEt_3NCl$ (0.05 mmol), epoxide (0.5 mmol) and dry dioxane/DMF (1:1, 1M). The microwave vial was heated at 110 ºC for 20 minutes, after such time the reaction was purified (directly loading of crude reaction mixture) by flash chromatography (8:2 hexane/EtOAc) to afford the desired sultam.

General Procedure C for the synthesis of 1,2-benzoxathiazepine-1,1-dioxides **12-16** from (*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methanol **11**. A solution of sultam **11** (50 mg, 0.174 mmol, 1 equiv.), acid (0.174 mmol, 1 equiv.) and DMAP (2.1mg, 17.4 µmol, 0.1 equiv.) in dry CH_2Cl_2 (0.87 mL) was added to a stirring solution of $OACC_{50}$ (3.2 mmol/g, 81 mg, 0.26 mmol, 1.5 equiv.) in dry CH_2Cl_2 (0.87 mL) at 0 ºC. The reaction was stirred for 10 minutes at 0 ºC, and an additional 6 hours at RT. After complete of reaction (TLC monitoring), the crude reaction mixture was diluted with EtOAc (1 mL) and the resulting slurry was added to silica SPE. The silica SPE was flushed with eluent (hexane:EtOac, 4 x 5 mL) and the resulting mother liquor was concentrated to yield the desired sultam.

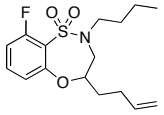
General procedure D for the synthesis of 1,4,5-oxathiazepine-4,4-dioxidess **17-24** from vinylsulfonamides: Into a microwave vial (0.5-2.0 mL) was added vinylsulfonamide (0.5 mmol), anhydrous Cs_2CO_3 (1.5 mmol), $BnEt_3NCl$ (0.05 mmol), epoxide (0.5 mmol) and dry dioxane/THF (1:1, 1M). The microwave vial was heated at 110ºC for 20 minutes, after such time the reaction was purified (directly loading of crude reaction mixture) by flash chromatography (7:3 to 1:1 hexane/EtOAc) to afford the desired sultam.

4-(Benzyloxymethyl)-2-butyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide (1).



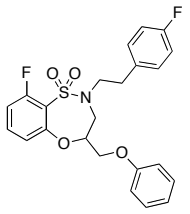
Using general procedure **B**, sultam **1** was produced in 73% (143 mg, 0.36 mmol) as a colorless liquid. FTIR (neat): 2956, 1604, 1461, 1350, 1161 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$) δ 7.39 – 7.33 (m, 5H), 7.32 – 7.28 (m, 1H), 6.94 (d, J = 8.3 Hz, 1H), 6.90 (ddd, J = 9.4, 6.4, 1.0 Hz, 1H), 4.68 (dt, J = 9.6, 4.6 Hz, 1H), 4.61 (q, J = 12.1 Hz, 2H), 3.72 – 3.63 (m, 2H), 3.62 – 3.50 (m, 2H), 3.29 (dt, J = 14.5, 7.4 Hz, 1H), 3.21 – 3.15 (m, 1H), 1.64 – 1.54 (m, 2H), 1.39 – 1.31 (m, 2H), 0.92 (t, J = 7.4 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 158.2 (d, $^1J_{C\text{-}F}$ = 337.1 Hz), 154.3 (d, $^3J_{C\text{-}F}$ = 2.5 Hz), 135.3, 130.99, 126.2, 125.5, 125.3, 115.6, 110.0, 109.7, 79.0, 71.2, 67.6, 48.0, 47.2, 28.3, 17.3, 11.6; HRMS calculated for $C_{20}H_{24}FNO_4SNa$ $(M+Na)^+$ 416.1308; found 416.1303 (FAB).

4-(But-3-enyl)-2-butyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide (2).



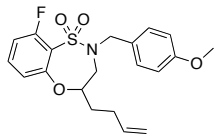
Using general procedure **B**, sultam **2** was produced in 71% (114 mg, 0.35 mmol) as a colorless liquid. FTIR (neat): 2952, 1604, 1453, 1351, 1160 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$) δ 7.38 – 7.32 (m, 1H), 6.92 – 6.84 (m, 2H), 5.81 – 5.71 (m, 1H), 5.02 – 4.94 (m, 2H), 4.52 – 4.45 (m, 1H), 3.57 (dd, J = 14.2, 3.6 Hz, 1H), 3.34 – 3.26 (m, 2H), 3.15 (ddd, J = 13.9, 7.8, 6.1 Hz, 1H), 2.38 – 2.29 (m, 1H), 2.18 (ddt, J = 14.4, 8.3, 7.2 Hz, 1H), 1.87 – 1.78 (m, 1H), 1.67 – 1.60 (m, 1H), 1.60 – 1.51 (m, 2H), 1.38 – 1.29 (m, 2H), 0.90 (t, J = 7.4 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 160.0 (d, $^1J_{C\text{-}F}$ = 250.1 Hz), 157.0 (d, $^3J_{C\text{-}F}$ = 2.5 Hz), 137.0, 133.2, 122.73, 117.4, 112.0, 111.8, 82.0, 53.5, 50.5, 32.8, 31.0, 29.4, 19.6, 13.4; HRMS calculated for $C_{16}H_{22}FNO_3SNa$ $(M+Na)^+$ 350.1202; found 350.1198 (FAB).

9-Fluoro-2-(4-fluorophenethyl)-4-(phenoxymethyl)-1,2-benzoxathiazepine-1,1-dioxide (3).



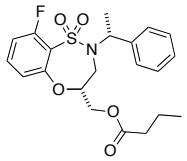
Using general procedure **B**, sultam **3** was produced in 71% (156 mg, 0.35 mmol) as a colorless liquid. FTIR (neat): 2943, 1568, 1464, 1358, 1168 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$) δ 7.39 – 7.34 (m, 2H), 7.34 – 7.30 (m, 2H), 7.21 – 7.17 (m, 2H), 7.03 – 6.94 (m, 4H), 6.93 – 6.89 (m, 2H), 4.83 (ddd, J = 11.1, 9.2, 4.1 Hz, 1H), 4.19 – 4.14 (m, 1H), 4.10 (dd, J = 10.5, 4.0 Hz, 1H), 3.64 (dd, J = 14.3, 3.9 Hz, 1H), 3.58 (dt, J = 14.5, 7.3 Hz, 1H), 3.49 (dd, J = 14.6, 11.8 Hz, 1H), 3.42 (dd, J = 14.4, 7.3 Hz, 1H), 2.95 (t, J = 7.4, 2H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 162.2 (d, $^1J_{C\text{-}F}$ = 171.0 Hz), 160.1 (d, $^1J_{C\text{-}F}$ = 256.6 Hz), 158.1, 156.4 (d, $^3J_{C\text{-}F}$ = 2.5 Hz), 133.5, 130.4, 129.6, 121.7, 117.8, 115.5, 115.3, 114.6, 112.6, 112.4, 80.7, 67.8, 53.0, 50.8, 35.3; HRMS calculated for $C_{23}H_{21}F_2NO_4SNa$ $(M+Na)^+$ 468.1057; found 468.1052 (FAB).

4-(But-3-enyl)-9-fluoro-2-(4-methoxybenzyl)-1,2-benzoxathiazepine-1,1-dioxide (4).



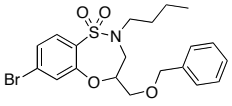
Using general procedure **B**, sultam **4** was produced in 69% (133 mg, 0.34 mmol) as a clear oil. FTIR (neat) 2955, 1465, 1352, 1254, 1160 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.40 (dd, *J* = 8.5, 5.4 Hz, 1H), 7.30 – 7.26 (m, 2H), 6.97 – 6.92 (m, 2H), 6.91 – 6.87 (m, 2H), 5.79 – 5.70 (m, 1H), 5.01 – 4.97 (m, 1H), 4.97 – 4.95 (m, 1H), 4.58 – 4.49 (m, 2H), 4.20 (d, *J* =14.2 Hz, 1H), 3.81 (s, 3H), 3.39 (dd, *J* = 14.4, 3.6 Hz, 1H), 3.22 (dd, *J* = 14.3, 11.5 Hz, 1H), 2.36 – 2.27 (m, 1H), 2.17 (dqd, *J* = 14.5, 7.1, 1.1 Hz, 1H), 1.79 (dtd, *J* = 14.2, 8.8, 5.4 Hz, 1H), 1.60 – 1.52 (m, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 160.3 (d, $^1J_{C\text{-}F}$ = 257.8 Hz), 159.5, 157.1 (d, $^3J_{C\text{-}F}$ = 2.4 Hz),, 136.8, 133.5 (d, $^3J_{C\text{-}F}$ = 10.6 Hz),, 129.89, 127.32, 117.6, 115.97, 114.16, 112.2 (d, $^2J_{C\text{-}F}$ = 22.9 Hz), 82.3, 55.3, 53.7, 51.5, 32.8, 29.6; HRMS calculated for $C_{20}H_{22}FNO_4SNa$ (M + Na^+) 414.1152; found 414.1152 (TOF MS ES^+).

((*R*)-9-Fluoro-2-((*R*)-1-phenylethyl)-1,2-benzoxathiazepine-1,1-dioxide)methyl butyrate (5).



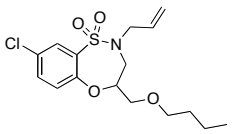
Using general procedure **B**, sultam **5** was produced in 76% (160 mg, 0.38 mmol) as a clear oil. FTIR (neat) 2949, 1746, 1463, 1250, 1168 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.39 – 7.32 (m, 5H), 7.31 – 7.27 (m, 1H), 6.94 (ddd, *J* = 9.5, 6.0, 1.1 Hz, 1H), 6.88 – 6.85 (m, 1H), 5.49 (q, *J* = 7.0 Hz, 1H), 4.57 – 4.49 (m, 1H), 4.19 – 4.12 (m, 2H), 3.26 (dd, *J* = 14.0, 4.0 Hz, 1H), 3.19 (dd, *J* = 13.9, 11.6, 1H), 2.30 (dd, J = 7.7, 7.2 Hz, 2H), 1.68 – 1.60 (m, 2H), 1.51 (d, *J* = 7.0 Hz, 3H), 0.93 (t, *J* = 6.9 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 172.94, 169.1 (d, $^1J_{C\text{-}F}$ = 260.5 Hz), 156.5, 139.2, 133.1 (d, $^2J_{C\text{-}F}$ = 11.4 Hz), 128.7, 128.1, 127.5, 124.5, 124.3 (d, $^3J_{C\text{-}F}$ = 15.2 Hz), 117.3, 112.1 (d, $^2J_{C\text{-}F}$ = 22.8 Hz), 79.3, 63.3, 56.9, 44.9, 35.9, 18.3, 16.2, 13.7; HRMS calculated for $C_{21}H_{24}FNO_5SNa$ (M + Na^+) 444.1257; found 444.1260 (TOF MS ES^+); $[\alpha]^{25}_D$ = -8.3 (c = 2.0, $CHCl_3$). $[\alpha]_D^{20}$ + 35.0 (*c* = 0.60, $CHCl_3$)

4-(Benzyloxymethyl)-7-bromo-2-butyl-1,2-benzoxathiazepine-1,1-dioxide (6).



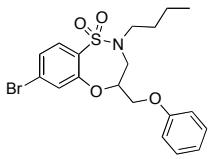
Using general procedure **B**, sultam **6** was produced in 65% (145 mg, 0.32 mmol) as a colorless liquid. FTIR (neat): 2933, 1604, 1465, 1365, 1161 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$) δ 7.31 – 7.25 (m, 1H), 7.25 – 7.20 (m, 2H), 6.94 – 6.89 (m, 1H), 6.87 – 6.82 (m, 4H), 4.77 (dt, *J* = 9.5, 4.1 Hz, 2H), 4.15 – 4.10 (m, 1H), 4.05 (dd, *J* = 10.5, 4.0 Hz, 1H), 3.66 – 3.60 (m, 2H), 3.60 – 3.53 (m, 1H), 3.28 – 3.21 (m, 1H), 3.18 – 3.12 (m, 1H), 1.58 – 1.50 (m, 2H), 1.33 – 1.25 (m, 2H), 0.85 (t, *J* = 7.4 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ 155.4, 137.4, 133.3, 130.3, 128.6, 128.0, 127.7, 127.5, 127.5, 126.7, 78.2, 74.03, 70.4, 50.77, 48.30, 31.0, 19.9, 13.9; HRMS calculated for $C_{20}H_{24}BrNO_4SNa$ $(M+Na)^+$ 476.0507; found 476.0502 (FAB).

2-Allyl-4-(butoxymethyl)-8-chloro-1,2-benzoxathiazepine-1,1-dioxide (7).



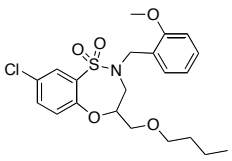
Using general procedure **B**, sultam **7** was produced in 74% (133 mg, 0.37 mmol) as a clear oil. FTIR (neat) 2956, 1465, 1346, 1255, 1168 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.77 (d, *J* = 2.6 Hz, 1H), 7.42 – 7.39 (dd, *J* = 8.5, 2.7 Hz, 1H), 7.11 (d, *J* = 8.6 Hz, 1H), 5.77 (dddd, *J* = 17.2, 10.1, 7.2, 5.1 Hz, 1H), 5.28 – 5.21 (m, 2H), 4.17 – 4.10 (m, 1H), 3.98 – 3.93 (m, 1H), 3.89 (ddd, *J* = 15.2, 10.7, 0.8 Hz, 1H), 3.68 (dd, *J* = 10.4, 5.7 Hz, 1H), 3.53 (dd, J = 10.4, 5.6 Hz, 1H), 3.48 (ddd, *J* = 6.5, 4.0, 2.4 Hz, 2H), 3.40 (ddd, J = 14.2, 9.8, 4.5 Hz, 2H), 1.55 (ddt, *J* = 13.0, 8.5, 3.6 Hz, 2H), 1.36 (dp, *J* = 9.2, 7.4 Hz, 2H), 0.91 (t, *J* = 7.4 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 153.6, 135.5, 133.9, 132.2, 129.7, 128.5, 124.9, 119.5, 77.9, 71.6, 70.7, 50.9, 49.6, 31.6, 19.2, 13.9; HRMS calculated for $C_{16}H_{22}ClNO_4SNa$ ($M + Na^+$) 382.0856; found 382.0857 (TOF MS ES^+).

7-Bromo-2-butyl-4-(phenoxymethyl)-1,2-benzoxathiazepine-1,1-dioxide (8).



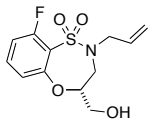
Using general procedure **B**, sultam **8** was produced in 78% (171 mg, 0.39 mmol) as an clear oil. FTIR (neat) 2958, 1577, 1496, 1454, 1344, 1168 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.70 – 7.67 (m, 1H), 7.37 (dd, *J* = 7.6, 1.6 Hz, 2H), 7.34 – 7.30 (m, 2H), 7.03 – 6.99 (m, 1H), 6.94 (dt, *J* = 9.2, 1.7 Hz, 2H), 4.40 (ddd, *J* = 10.6, 5.5, 4.2 Hz, 1H), 4.32 – 4.25 (m, 1H), 4.12 – 4.02 (m, 2H), 3.50 (dd, *J* = 15.2, 1.7 Hz, 1H), 3.29 – 3.21 (m, 1H), 2.85 – 2.75 (m, 1H), 1.64 – 1.55 (m, 2H), 1.41 – 1.31 (m, 2H), 0.93 (t, *J* = 7.4 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 158.1, 155.3, 133.4, 130.1, 129.7, 127.8, 127.6, 126.8, 121.7, 114.7, 67.8, 50.3, 48.0, 30.7, 19.6, 13.7; HRMS calculated for $C_{19}H_{23}BrNO_4S$ ($M + H^+$) 440.0531; found 440.0534 (TOF MS ES^+).

4-(Butoxymethyl)-8-chloro-2-(2-methoxybenzyl)-1,2-benzoxathiazepine-1,1-dioxide (9).



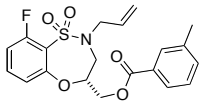
Using general procedure **B**, sultam **9** was produced in 74% (162mg, 0.37 mmol) as an clear oil. FTIR (neat) 2956, 1463, 1346, 1253, 1166 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.85 (d, *J* = 2.6 Hz, 1H), 7.44 – 7.39 (m, 2H), 7.30 – 7.26 (m, 1H), 7.13 (d, *J* = 8.6 Hz, 1H), 6.96 (td, *J* = 7.5, 1.0 Hz, 1H), 6.86 – 6.82 (m, 1H), 4.40 (d, *J* = 14.7 Hz, 1H), 4.16 (dd, *J* = 5.3, 12.3 Hz, 2H), 3.91 (ddt, *J* = 19.5, 10.0, 5.0 Hz, 1H), 3.75 (s, 3H), 3.65 (dt, *J* = 12.8, 6.4 Hz, 1H), 3.47 (m, 3H), 3.32 – 3.26 (m, 1H), 1.54 (dq, *J* = 12.2, 6.7 Hz, 2H), 1.40 – 1.28 (m, 2H), 0.91 (t, *J* = 7.4 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 157.3, 153.8, 135.9, 133.9, 130.4, 129.6, 129.4, 128.7, 124.9, 123.3, 120.8, 110.3, 77.5, 71.6, 70.9, 55.2, 50.2, 45.8, 31.7, 19.2, 13.9; HRMS calculated for $C_{21}H_{26}ClNO_5SNa$ ($M + Na^+$) 462.1118; found 462.1106 (TOF MS ES^+).

(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methanol (11).



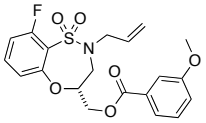
Using general procedure **B**, sultam **11** was produced in 70% (100mg, 0.35 mmol) as a clear oil. FTIR (neat) 3280, 1720, 1602, 1450, 1163 cm^{-1}: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.38 (td, *J* = 8.3, 6.0 Hz, 1H), 6.93 (dd, *J* = 13.0, 4.7 Hz, 2H), 5.80 (dddd, *J* = 17.0, 10.1, 6.8, 5.4 Hz, 1H), 5.27 (dddd, *J* = 19.0, 10.1, 2.6, 1.3 Hz, 2H), 4.60 (ddt, *J* = 11.2, 5.2, 3.9 Hz, 1H), 3.97 (dd, *J* = 15.1, 5.3 Hz, 1H), 3.83 (ddd, *J* = 12.3, 6.0, 3.3 Hz, 1H), 3.78 (dd, *J* = 15.1, 6.8 Hz, 1H), 3.73 (dt, J = 12.1, 5.9 Hz, 1H), 3.55 (ddd, *J* = 18.5, 14.4, 7.7 Hz, 2H), 2.19 (t, *J* = 6.3 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 160.3 (d, $^{1}J_{C\text{-}F}$ = 260.2 Hz), 156.3, 133.5 (d, $^{2}J_{C\text{-}F}$ = 15.5 Hz), 132.41, 122.0 (d, $^{2}J_{C\text{-}F}$ = 15.0 Hz), 119.43, 117.7, 112.5 (d, $^{2}J_{C\text{-}F}$ = 23.2 Hz), 82.8, 62.8, 53.1, 47.9; HRMS calculated for $C_{12}H_{15}FNO_4SNa$ ($M + H^+$) 288.0706; found 288.0703 (TOF MS ES^+); $[\alpha]^{25}_D$ = -19.0 (c = 1.2, $CHCl_3$)

(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 3-methylbenzoate (12).



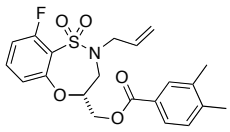
Using general procedure **C**, sultam **12** was produced in 94% (114 mg, 0.28 mmol) as a clear oil. FTIR (neat) 1722, 1461, 1355, 1276, 1163 $cm^{-1}$$^{1}H$ NMR (500 MHz, $CDCl_3$) δ 7.64 – 7.61 (m, 1H), 7.55 (dd, *J* = 2.6, 1.5 Hz 1H), 7.39 – 7.35 (m, 2H), 7.14 (ddd, *J* = 8.3, 2.7, 1.0 Hz, 1H), 6.98 – 6.91 (m, 2H), 5.84 (dddd, *J* = 17.1, 10.1, 7.0, 5.4 Hz, 1H), 5.32 (ddd, *J* = 17.1, 2.7, 1.3 Hz, 1H), 5.28 (dd, *J* = 10.1, 1.2 Hz, 1H), 4.89 (ddt, *J* = 7.6, 6.3, 3.8 Hz, 1H), 4.50 (ddd, *J* = 15.8, 12.1, 5.0 Hz, 2H), 4.04 (dd, *J* = 14.9, 5.3 Hz, 1H), 3.85 (s, 3H), 3.86 – 3.80 (m, 1H), 3.70 – 3.55 (m, 2H); ^{13}C NMR (126 MHz, CDCl3) δ 165.8, 160.3 (d, $^{1}J_{C\text{-}F}$ = 257.9 Hz), 159.66, 156.19, 133.7 (d, $^{3}J_{C\text{-}F}$ = 13.2 Hz), 132.4, 130.6, 129.6, 122.8 (d, $^{3}J_{C\text{-}F}$ = 14.4 Hz), 121.9, 119.8, 117.8, 114.3, 112.7 (d, $^{2}J_{C\text{-}F}$ = 23.8 Hz), 80.2, 64.1, 55.4, 53.3, 48.1. HRMS calculated for $C_{20}H_{20}FNO_6SNa$ ($M + Na^+$) 444.0893; found 444.0883 (TOF MS ES^+); $[\alpha]^{25}_D$ = -6.8 (c = 1.5, $CHCl_3$)

(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 3-methoxybenzoate (13).



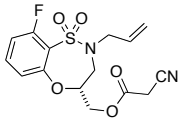
Using general procedure **C**, sultam **13** was produced in 94% (118mg, 0.28 mmol) as a clear oil. FTIR (neat) 1724, 1602, 1463, 1276, 1163 cm^{-1}: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.83 (dd, *J* = 6.3, 5.2 Hz, 2H), 7.42 – 7.32 (m, 3H), 6.99 – 6.90 (m, 2H), 5.84 (dddd, *J* = 17.1, 10.1, 7.1, 5.4 Hz, 1H), 5.34 – 5.25 (m, 2H), 4.89 (ddt, *J* = 7.8, 6.1, 3.9 Hz, 1H), 4.54 – 4.45 (ddd, *J* = 18.8, 12.2, 6.7 Hz, 2H), 4.05 (dd, *J* = 15.1, 5.6 Hz, 1H), 3.84 (dd, *J* = 14.4, 7.1 Hz, 1H), 3.68 (dd, *J* = 14.4, 4.0 Hz, 1H), 3.59 (dd, *J* = 14.4, 11.4 Hz, 1H), 2.41 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 166.16, 160.4 (d, $^{1}J_{C\text{-}F}$ = 254.4 Hz), 156.2, 138.4, 134.3, 133.71 (d, $^{3}J_{C\text{-}F}$ = 10.7 Hz), 132.48, 130.21, 129.22, 128.45, 126.80, 122.8 (d, $^{2}J_{C\text{-}F}$ = 15.9 Hz), 119.71, 117.8, 112.7 (d, $^{2}J_{C\text{-}F}$ = 20.4 Hz), 80.26, 63.96, 53.29, 48.06, 21.28; HRMS calculated for $C_{20}H_{20}FNO_6SNa$ ($M + Na^+$) 444.0893; found 444.0895 (TOF MS ES^+);$[\alpha]^{25}_D$ = -11.8 (c = 1.6, $CHCl_3$)

(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 3,4-dimethylbenzoate (14).



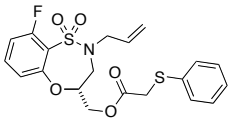
Using general procedure **C**, sultam **14** was produced in 96% (117 mg, 0.28 mmol) as a clear oil. FTIR (neat) 1718, 1610, 1460, 1248, 1159 cm^{-1}: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.79 (s, 1H), 7.75 (dd, *J* = 7.8, 1.7 Hz, 1H), 7.37 (td, *J* = 8.3, 5.9 Hz, 1H), 7.21 (d, *J* = 7.9 Hz, 1H), 6.98 – 6.91 (m, 2H), 5.84 (dddd, *J* = 17.1, 10.1, 7.0, 5.4 Hz, 1H), 5.30 (dddd, *J* = 16.6, 11.2, 2.5, 1.2 Hz, 2H), 4.92 – 4.84 (m, 1H), 4.48 (ddd, *J* = 15.8, 12.0, 5.0 Hz, 2H), 4.04 (dd, *J* = 14.9, 5.3 Hz, 1H), 3.83 (dd, *J* = 14.9, 7.1 Hz, 1H), 3.63 (ddd, *J* = 25.8, 14.4, 7.7 Hz, 2H), 2.32 (d, *J* = 4.4 Hz, 3H), 2.31 (s, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 166.23, 160.6 (d, $^{1}J_{C\text{-}F}$ = 259.8 Hz), 156.23 143.0, 136.9, 133.6 (d, $^{3}J_{C\text{-}F}$ = 12.8 Hz), 132.48, 130.71, 129.83, 127.25, 126.83, 122.72 (d, $^{2}J_{C\text{-}F}$ = 12.8 Hz), 119.71, 117.9, 112.7 (d, $^{2}J_{C\text{-}F}$ = 25.6 Hz), 80.3, 63.8, 53.3, 48.1, 20.1, 19.7; HRMS calculated for $C_{21}H_{22}FNO_5SNa$ ($M + Na^+$) 442.1101; found 442.1108 (TOF MS ES^+); $[\alpha]^{25}_D$ = -4.8 (c = 1.9, $CHCl_3$).

(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 2-cyanoacetate (15).



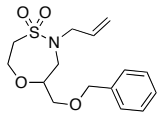
Using general procedure **C**, sultam **15** was produced in 89% (92.1 mg, 0.26 mmol) as a clear oil. FTIR (neat) 2258, 1746, 1602, 1464, 1160 cm^{-1}: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.41 (td, *J* = 8.3, 5.9 Hz, 1H), 6.99 – 6.95 (m, 2H), 5.81 (dddd, *J* = 17.2, 10.2, 6.9, 5.4 Hz, 1H), 5.31 (dddd, *J* = 17.9, 10.1, 2.6, 1.3 Hz, 2H), 4.77 (ddd, *J* = 14.8, 6.9, 3.6 Hz, 1H), 4.38 (qd, *J* = 12.1, 4.9 Hz, 2H), 4.01 (dd, *J* = 15.0, 5.3 Hz, 1H), 3.79 (dd, *J* = 15.0, 7.0 Hz, 1H), 3.59 (dd, *J* = 14.3, 4.0 Hz, 1H), 3.54 (s, 2H), 3.49 (dd, *J* = 14.3, 11.5 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 162.47, 160.0 (d, $^{2}J_{C\text{-}F}$ = 258.6 Hz), 155.8 (d, $^{3}J_{C\text{-}F}$ = 3.3 Hz), 133.8 (d, $^{2}J_{C\text{-}F}$ = 9.4 Hz), 132.24, 122.7 (d, $^{2}J_{C\text{-}F}$ = 14.7 Hz), 119.83, 117.8 (d, $^{3}J_{C\text{-}F}$ = 4.3 Hz), 112.9 (d, $^{2}J_{C\text{-}F}$ = 21.0 Hz), 112.5, 79.4, 65.5, 53.2, 47.8, 24.6; HRMS calculated for $C_{15}H_{15}FN_2O_5SNa$ ($M + Na^+$) 377.0583; found 377.0572 (TOF MS ES^+); $[\alpha]^{25}_D$ = -19.0 (c = 1.4, $CHCl_3$).

(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl-2-(phenylthio)acetate (16).



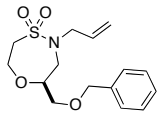
Using general procedure **C**, sultam **16** was produced in 98% (126mg, 0.29 mmol) as a clear oil. FTIR (neat) 1738, 1618, 1463, 1163 cm^{-1}: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.38 (ddd, *J* = 3.5, 2.9, 1.2 Hz, 2H), 7.37 – 7.32 (m, 1H), 7.30 – 7.26 (m, 2H), 7.24 – 7.20 (m, 1H), 6.95 (ddd, *J* = 9.5, 6.1, 1.1 Hz, 1H), 6.87 – 6.84 (m, 1H), 5.79 (dddd, *J* = 17.1, 10.1, 7.0, 5.3 Hz, 1H), 5.32 – 5.24 (m, 2H), 4.68 (ddt, *J* = 11.4, 5.5, 4.1 Hz, 1H), 4.27 (dd, *J* = 4.9, 2.3 Hz, 2H), 3.98 (dd, *J* = 15.0, 5.2 Hz, 1H), 3.77 – 3.71 (m, 1H), 3.67 (s, 2H), 3.52 (dd, *J* = 14.3, 4.0 Hz, 1H), 3.41 (dd, *J* = 14.3, 11.5 Hz, 1H); ^{13}C NMR (126 MHz, CDCl3) δ = 169.3, 160.9 (d, $^{2}J_{C\text{-}F}$ = 259.4 Hz), 156.0, 134.50, 133.6 (d, $^{2}J_{C\text{-}F}$ = 11.3 Hz), 132.35, 130.08, 129.19, 127.31, 122.7 (d, $^{2}J_{C\text{-}F}$ = 13.5 Hz), 119.60, 117.8 (d, $^{3}J_{C\text{-}F}$ = 4.5 Hz), 112.7 (d, $^{2}J_{C\text{-}F}$ = 24.5 Hz), 79.9, 64.4, 53.2, 48.1, 36.5; HRMS calculated for $C_{20}H_{20}FNO_5S_2Na$ ($M + Na^+$) 460.0665; found 460.0677 (TOF MS ES^+); $[\alpha]^{25}_D$ = -6.9 (c = 2.2, $CHCl_3$).

2-Allyl-4-(benzyloxymethyl)-1,4-oxathiazepine-1,1-dioxide (17).



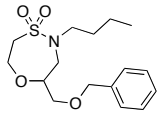
Using general procedure **D**, sultam **17** was produced in 65% (99 mg, 0.32 mmol) as a clear oil. FTIR (neat) 1508, 1334, 1232, 1130, 1033 cm^{-1}: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.37 – 7.27 (m, 5H), 5.85 – 5.75 (dddd, *J* = 16.2, 10.2, 6.1, 6.1 Hz, 1H), 5.27 (dddd, *J* = 17.1, 1.5, 1.5, 1.4 Hz, 1H), 5.23 (dddd, *J* = 10.2, 1.4, 1.3, 1.2 Hz, 1H), 4.54 (dd, *J* = 12.5, 4.6 Hz, 2H), 4.26 – 4.18 (m, 2H), 3.96 – 3.85 (m, 2H), 3.81 (ddd, *J* = 13.7, 8.7, 3.0 Hz, 1H), 3.47 – 3.45 (m, 2H), 3.38 – 3.25 (m, 4H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 137.6, 133.0, 128.5, 127.9, 127.7, 118.9, 78.9, 73.5, 70.7, 63.4, 55.3, 51.7, 45.6; HRMS calculated for $C_{15}H_{21}NO_4SNa$ ($M + Na^+$) 334.1089; found 334.1100 (TOF MS ES^+).

(*S*)-2-Allyl-4-(benzyloxymethyl)-1,4-oxathiazepine-1,1-dioxide (18).



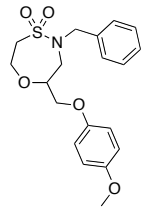
Using general procedure **D**, sultam **18** was produced in 63% (96 mg, 0.31 mmol) as a clear oil. FTIR (neat) 1334, 1143, 1112 cm^{-1}: ^{1}H NMR (400 MHz, $CDCl_3$) δ = 7.39 – 7.29 (m, 5H), 5.86 – 5.74 (m, 1H), 5.31 – 5.22 (m, 2H), 4.55 (dd, J = 15.6, 12.2 Hz, 2H), 4.28 – 4.18 (m, 2H), 3.92 (dd, *J* = 9.1, 4.1 Hz, 2H), 3.86-3.78 (m, 1H), 3.47 (d, *J* = 4.9 Hz, 1H), 3.39 – 3.25 (m, 5H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 137.6, 133.0, 128.5, 127.9, 127.7, 119.0, 78.9, 73.5, 70.7, 63.4, 55.3, 51.8, 45.6; HRMS calculated for $C_{15}H_{21}NO_4SNa$ ($M + Na^+$) 334.1089; found 334.1090 (TOF MS ES^+); $[\alpha]^{25}_D$ = + 11.8 (c = 1.8, $CHCl_3$).

2**-Butyl-4-(benzyloxymethyl)-1,4-oxathiazepine-1,1-dioxide (19).**



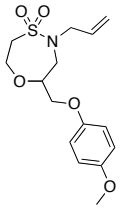
Using general procedure **D**, sultam **19** was produced in 58% (90 mg, 0.29 mmol) as an clear oil. FTIR (neat) 1340, 1138, 1120 cm^{-1}: ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.37 – 7.27 (m, 5H), 4.58 – 4.52 (dd, *J* = 12.6, 5.3 Hz, 2H), 4.24 – 4.18 (m, 2H), 3.78 (dddd, *J* = 12.7, 9.3, 3.2, 3.0 Hz, 1H), 3.48 (dd, *J* = 0.9, 4.8, 2H), 3.36 - 3.31 (m, 2H), 3.28-3.21 (m, 3H), 1.57 – 1.50 (m, 3H), 1.38 – 1.29 (m, 2H), 0.92 (t, *J* = 7.4, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 137.7, 128.5, 127.7, 78.9, 73.5, 70.8, 63.6, 55.0, 48.8, 46.1, 30.4, 19.6, 13.7; HRMS calculated for $C_{16}H_{25}NOSNa$ ($M + Na^+$) 350.1402; found 350.1408 (TOF MS ES^+).

2-Benzyl-4-((4-methoxyphenoxy)methyl)-1,4-oxathiazepine-1,1-dioxide (20).



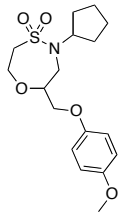
Using general procedure **D**, sultam **20** was produced in 62% (117 mg, 0.31 mmol) as a clear oil. FTIR (neat) 1508, 1336, 1230, 1145 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.40 – 7.29 (m, 5H), 6.80 (d, *J* = 2.8 Hz, 4H), 4.52 (dd, *J* = 14.5, 2.6 Hz, 2H), 4.40 (td, *J* = 9.9, 5.0 Hz, 1H), 4.33 (ddd, *J* = 13.7, 5.3, 3.6 Hz, 1H), 3.94 – 3.88 (m, 1H), 3.87 (dd, *J* = 4.6, 2.1 Hz, 2H), 3.75 (s, 3H), 3.46 (ddd, *J* = 14.4, 8.7, 3.6 Hz, 1H), 3.43 – 3.37 (m, 2H), 3.23 (dd, *J* =15.1, 5 .3 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 154.2, 152.4, 135.7, 128.8, 128.3, 128.1, 115.6, 114.7, 78.3, 69.4, 63.6, 55.7, 55.3, 52.6, 45.3; HRMS calculated for $C_{19}H_{24}NO_5S$ ($M + H^+$) 378.1375; found 378.1376 (TOF MS ES^+).

2-Allyl-4-((4-methoxyphenoxy)methyl)-1,4-oxathiazepine-1,1-dioxide (21).



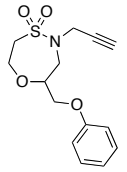
Using general procedure **D**, sultam **21** was produced in 57% (92 mg, 0.28 mmol) as a clear oil. FTIR (neat) 1508, 1334, 1232, 1143, 1116 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 6.85 – 6.78 (m, 4H), 5.87 – 5.77 (m, 1H), 5.31 (ddd, *J* = 17.1, 1.4, 1.3 Hz, 1H), 5.24 (ddd, *J* = 10.1, 1.4, 1.3 Hz, 1H), 4.36 (td, *J* = 9.9, 5.1 Hz, 1H), 4.31 – 4.23 (m, 1H), 3.96 – 3.89 (m, 4H), 3.85 (ddd, J=2.9, 8.8, 13.7, 1H), 3.74 (s, 3H), 3.47 – 3.36 (m, 2H), 3.36 – 3.27 (m, 2H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 154.3, 152.5, 132.9, 119.1, 115.6, 114.7, 78.3, 69.4, 63.6, 55.7, 55.3, 51.8, 45.6; HRMS calculated for $C_{15}H_{22}NO_5S$ ($M + H^+$) 328.1219; found 328.1228 (TOF MS ES^+).

2-Cyclopentyl-4-((4-methoxyphenoxy)methyl)-1,4-oxathiazepine-1,1-dioxide (22).



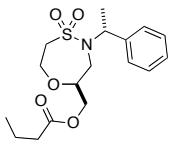
Using general procedure **D**, sultam **22** was produced in 55% (96 mg, 0.27 mmol) as a clear oil. FTIR (neat) 1508, 1336, 1232, 1141 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 6.85 – 6.81 (s, 4H), 4.38 – 4.30 (m, 2H), 4.27 (ddd, *J* = 13.3, 4.4, 3.0 Hz, 1H), 3.95 (qd, *J* = 10.1, 4.5 Hz, 2H), 3.83 (ddd, *J* = 13.5, 10.0, 3.8 Hz, 1H), 3.76 (s, 3H), 3.34 – 3.26 (m, 3H), 3.17 (dd, *J* = 14.2, 10.5 Hz, 1H), 2.02 – 1.92 (m, 1H), 1.91 – 1.82 (m, 1H), 1.74 – 1.62 (m, 3H), 1.62 – 1.47 (m, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 154.2, 152.6, 115.5, 114.7, 80.1, 69.5, 66.3, 59.5, 55.9, 55.7, 42.8, 30.7, 28.7, 24.1, 23.5; HRMS calculated for $C_{17}H_{26}NO_5S$ ($M + H^+$) 356.1532; found 356.1539 (TOF MS ES^+).

4-(Phenoxymethyl)-2-(prop-2-ynyl)-1,4-oxathiazepine-1,1-dioxide (23).



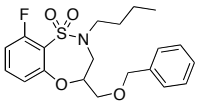
Using general procedure **D**, sultam **23** was produced in 53% (77 mg, 0.26 mmol) as a clear oil. FTIR (neat) 2358, 1598, 1494, 1336, 1244, 1147 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.32 – 7.27 (m, 2H), 7.00 – 6.96 (m, 1H), 6.93 – 6.90 (m, 2H), 4.50 (m, 1H), 4.31 (ddd, *J* = 13.7, 5.0, 3.7 Hz, 1H), 4.24 (dd, *J* = 17.6, 2.5 Hz, 1H), 4.19 (dd, 17.6, 2.5 Hz, 1H), 4.06 – 4.00 (m, 2H), 3.92 (ddd, *J* = 13.7, 9.1, 2.7 Hz, 1H), 3.67 – 3.57 (m, 2H), 3.44 (ddd, *J* = 14.3, 9.1, 3.7 Hz, 1H), 3.36 (ddd, *J* = 14.4, 5.1, 2.7 Hz, 1H), 2.38 (t, *J* = 2.5 Hz, 1H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 158.3, 129.6, 121.4, 114.5, 77.9, 77.5, 74.2, 68.7, 63.6, 55.9, 46.9, 39.2; HRMS calculated for $C_{14}H_{17}NO_4SNa$ ($M + Na^+$) 318.0776; found 318.0778 (TOF MS ES^+).

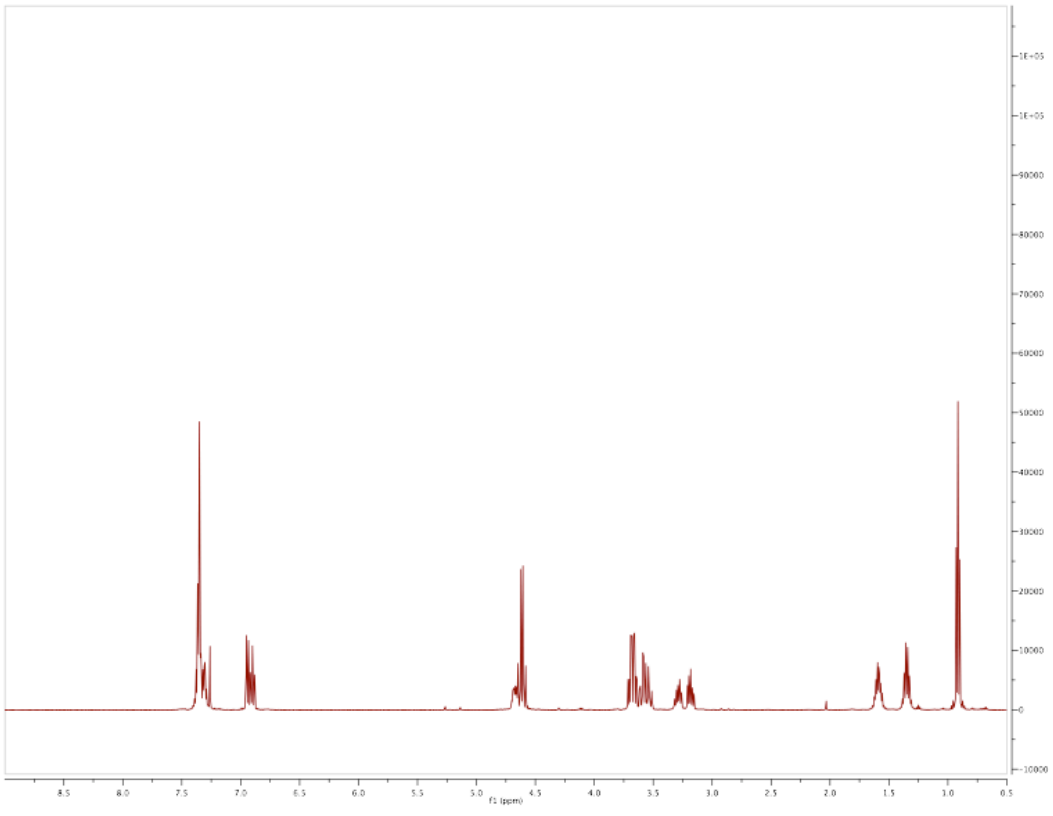
((*S*)-5-Oxo-2-((*R*)-1-phenylethyl)-1,4-oxathiazepine-4-yl)methyl butyrate-1,1-dioxide (24).

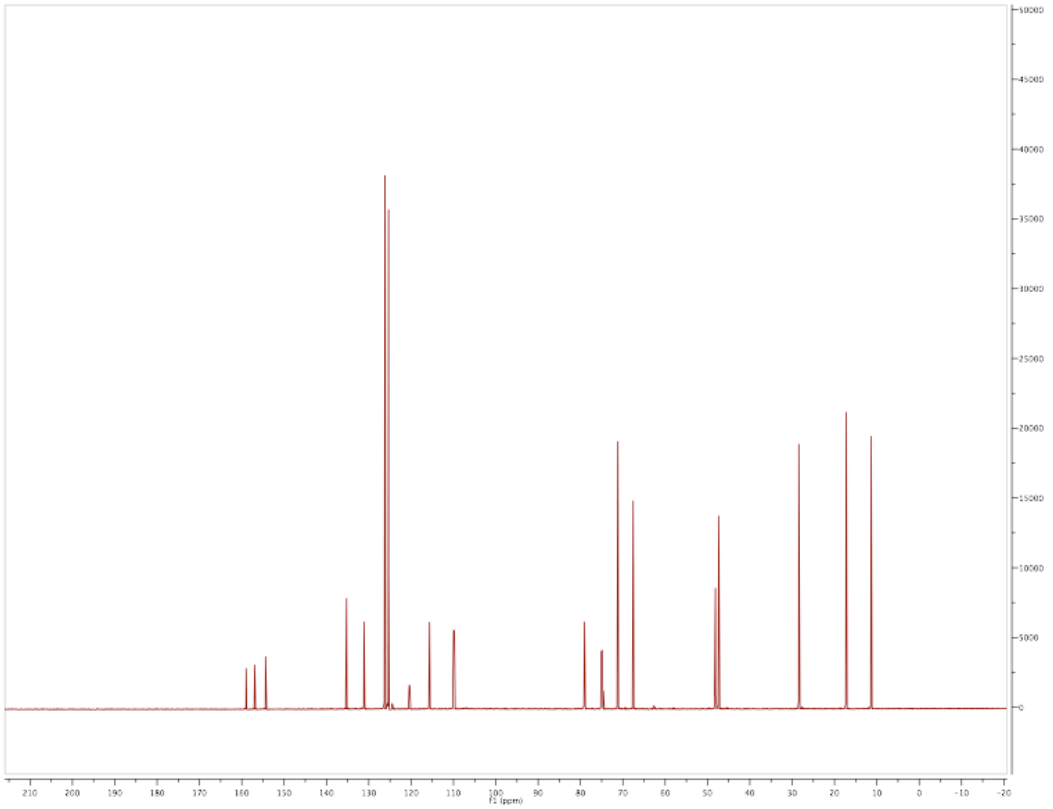


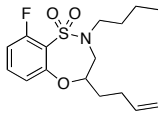
Using general procedure **D**, sultam **24** was produced in 60% (106 mg, 0.3 mmol) as a clear oil. FTIR (neat) 1735, 1334, 1170, 1116 cm^{-1}: ^1H NMR (500 MHz, $CDCl_3$) δ = 7.42 – 7.38 (m, 2H), 7.38 – 7.33 (m, 2H), 7.31 – 7.27 (m, 1H), 5.36 (q, *J* = 7.0 Hz, 1H), 4.27 (dt, *J* = 13.4, 3.8 Hz, 1H), 4.01 – 3.91 (m, 3H), 3.82 – 3.75 (m, 1H), 3.39 – 3.35 (m, 2H), 2.97 – 2.91 (m, 1H), 2.75 (ddd, *J* = 9.2, 6.4, 5.8 Hz, 1H), 2.28 (t, *J* = 7.4 Hz, 2H), 1.62 (q, *J* =7.2 Hz, 2H), 1.58 (d, *J* = 6.7 Hz, 3H), 0.93 (t, *J* = 7.2 Hz, 3H); ^{13}C NMR (126 MHz, $CDCl_3$) δ = 173.2, 139.9, 128.6, 127.8, 127.4, 79.3, 66.3, 64.4, 56.9, 55.8, 42.8, 35.9, 18.3, 16.6, 13.6; HRMS calculated for $C_{17}H_{25}NO_5SNa$ ($M + Na^+$) 378.1351; found 378.1342 (TOF MS ES^+); $[\alpha]^{25}_D$ = +12.9 (c = 2.2, $CHCl_3$).

4-(Benzyloxymethyl)-2-butyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide **1**

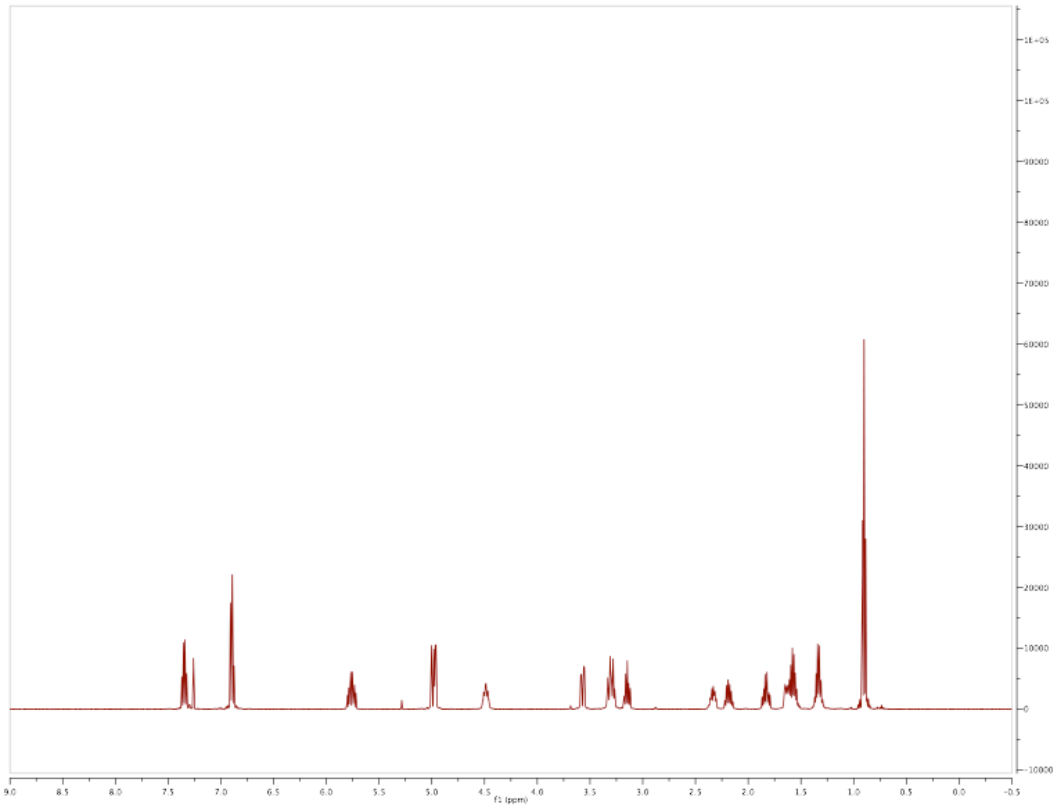


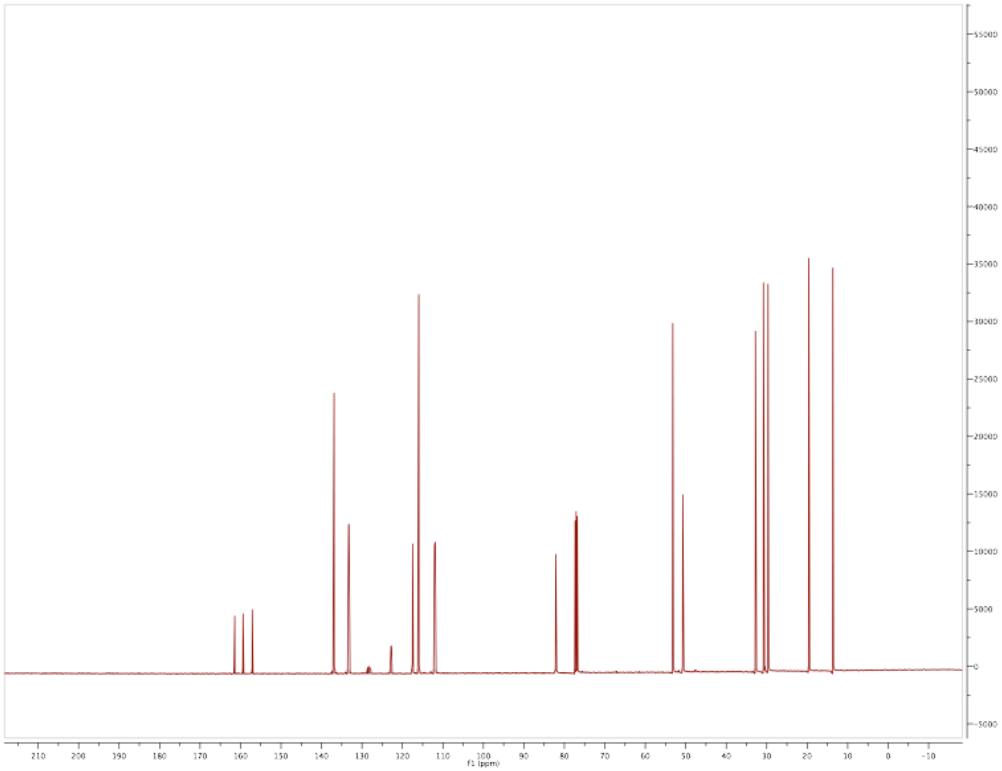


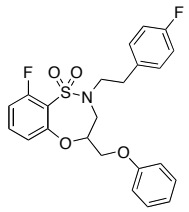




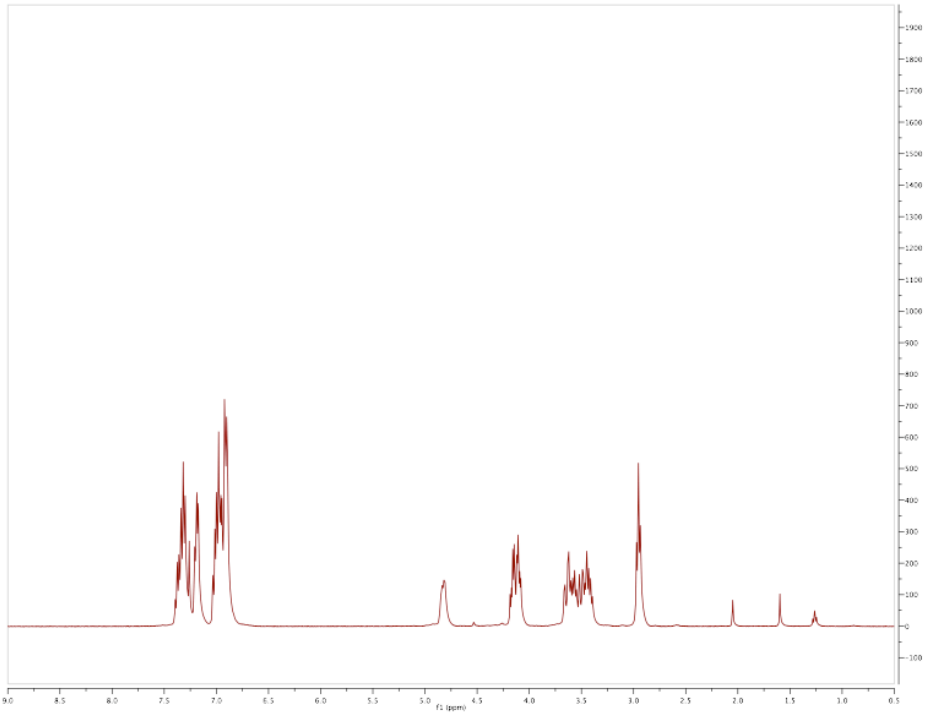
4-(But-3-enyl)-2-butyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide **2**

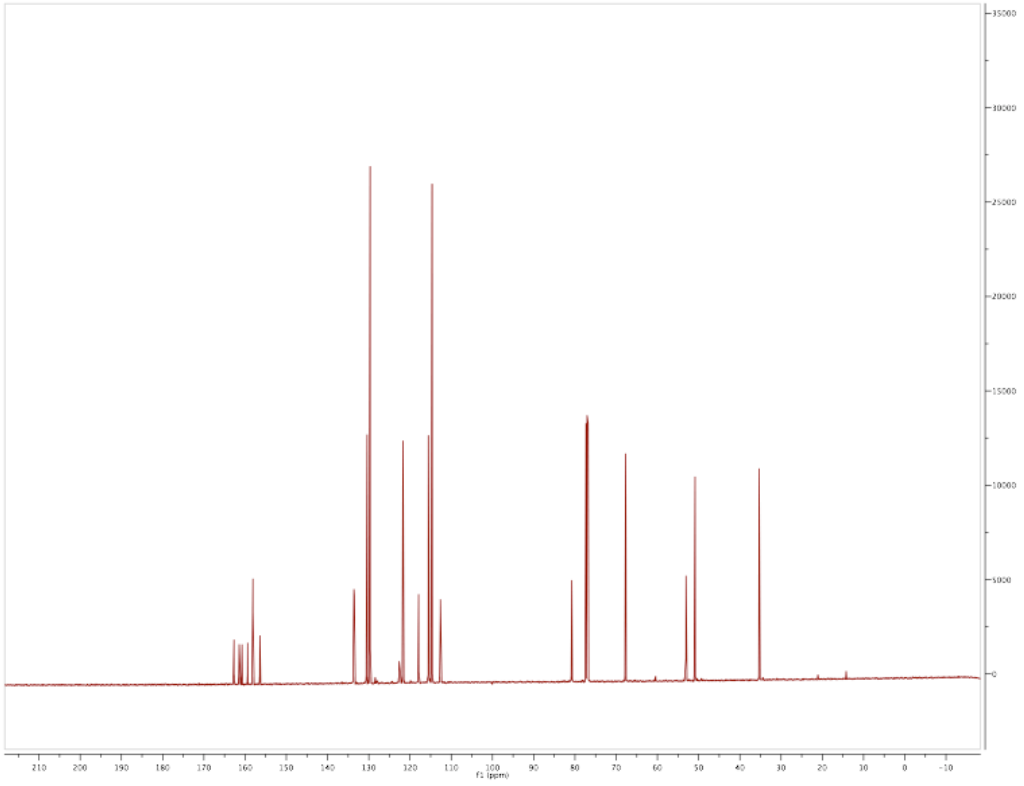


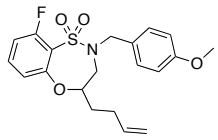




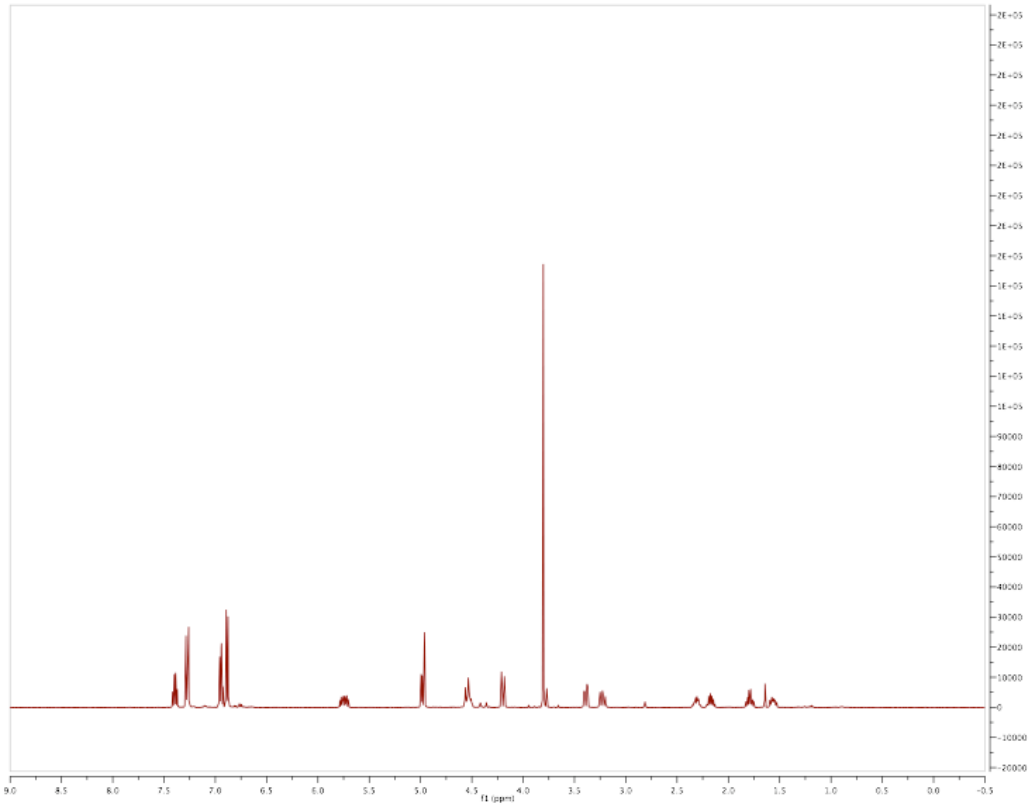
9-Fluoro-2-(4-fluorophenethyl)-4-(phenoxymethyl)-1,2-benzoxathiazepine-1,1-dioxide **3**

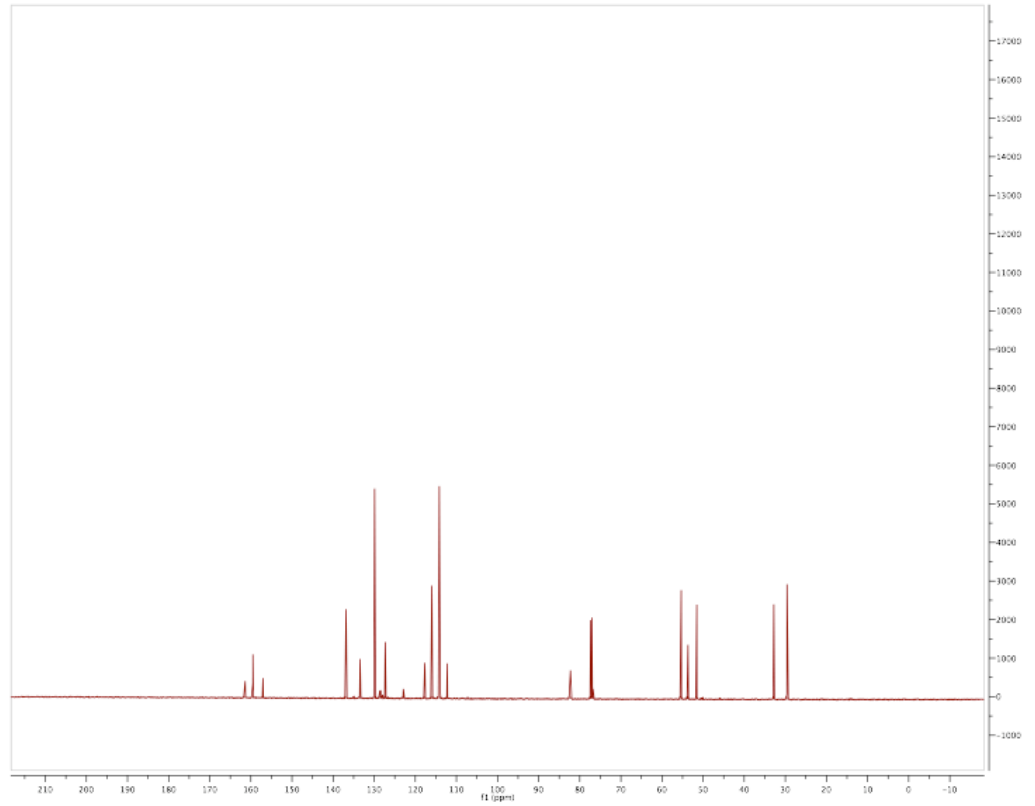


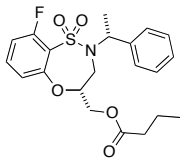




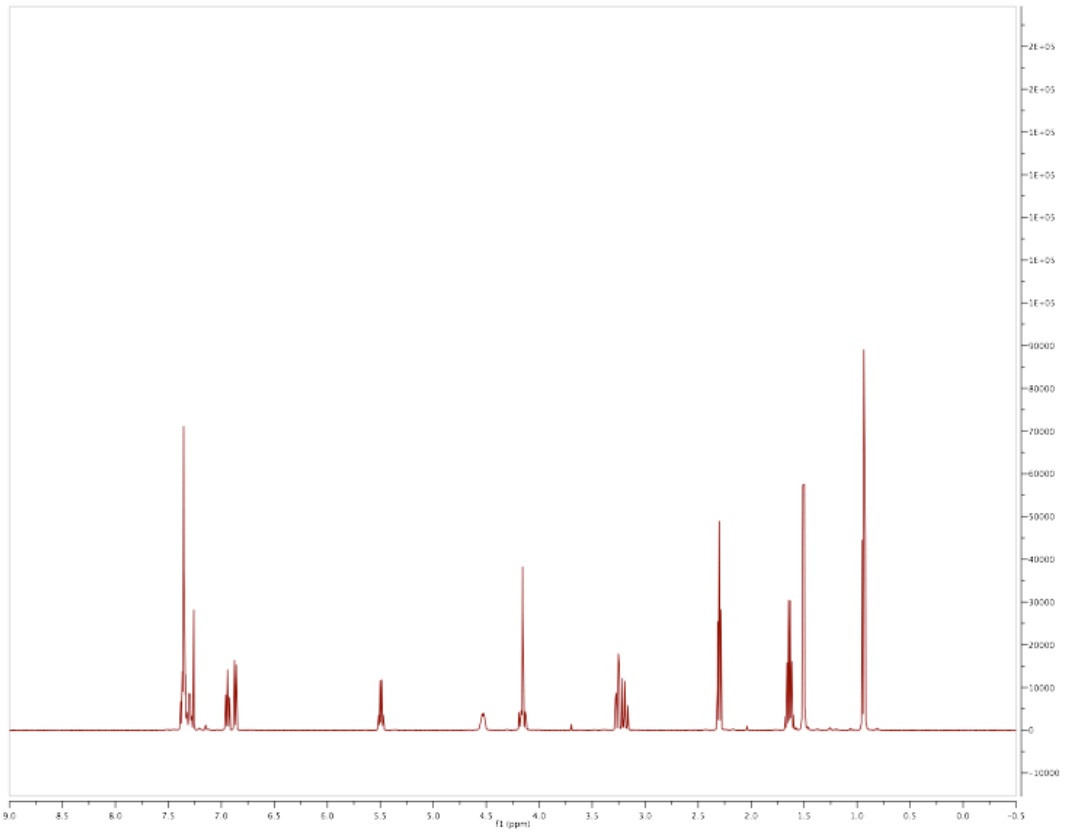
4-(But-3-enyl)-9-fluoro-2-(4-methoxybenzyl)-1,2-benzoxathiazepine-1,1-dioxide **4**

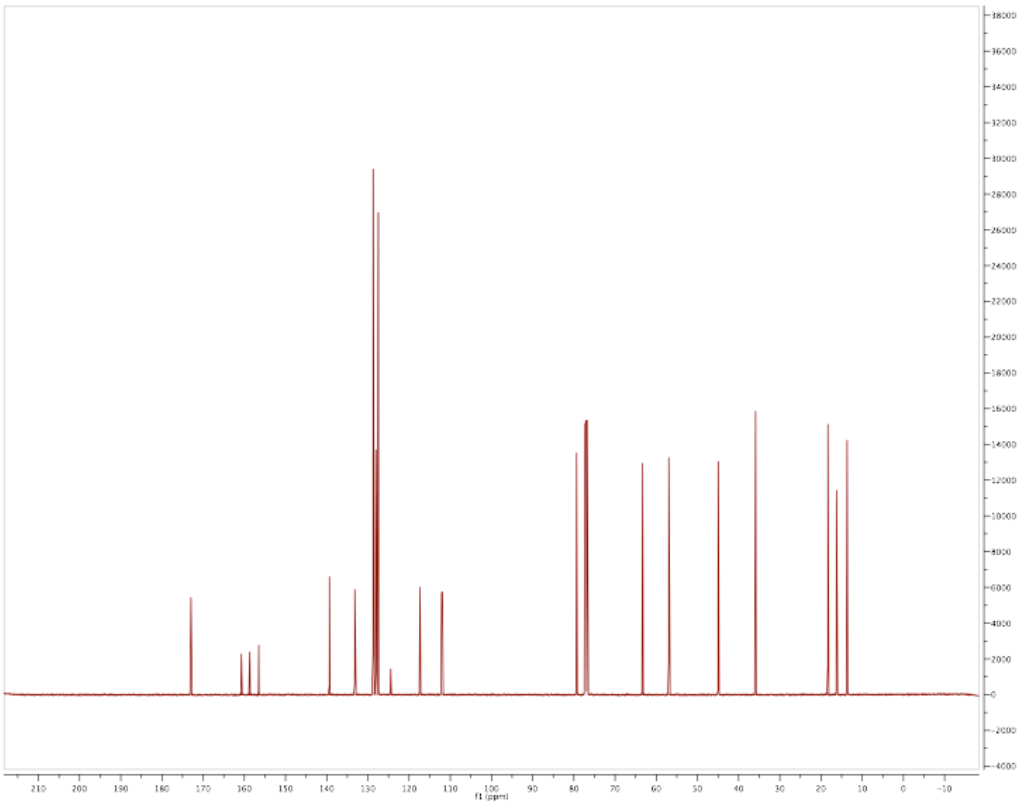




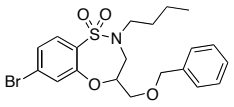


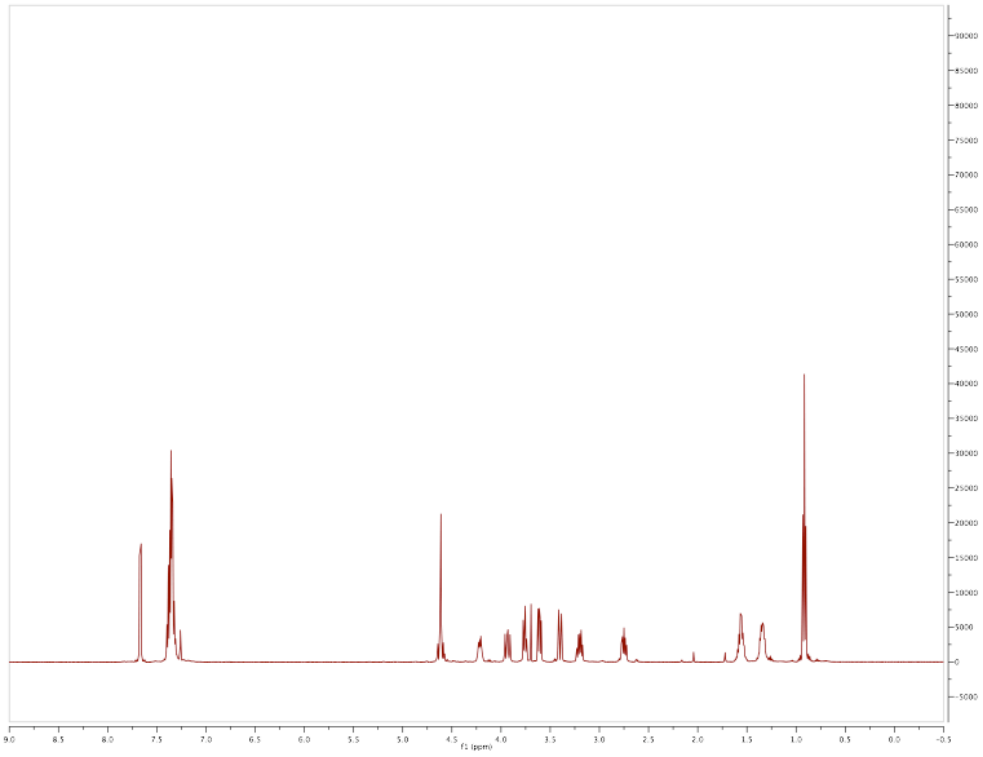
((*R*)-9-Fluoro-2-((*R*)-1-phenylethyl)-1,2-benzoxathiazepine-1,1-dioxide)methyl butyrate **5**

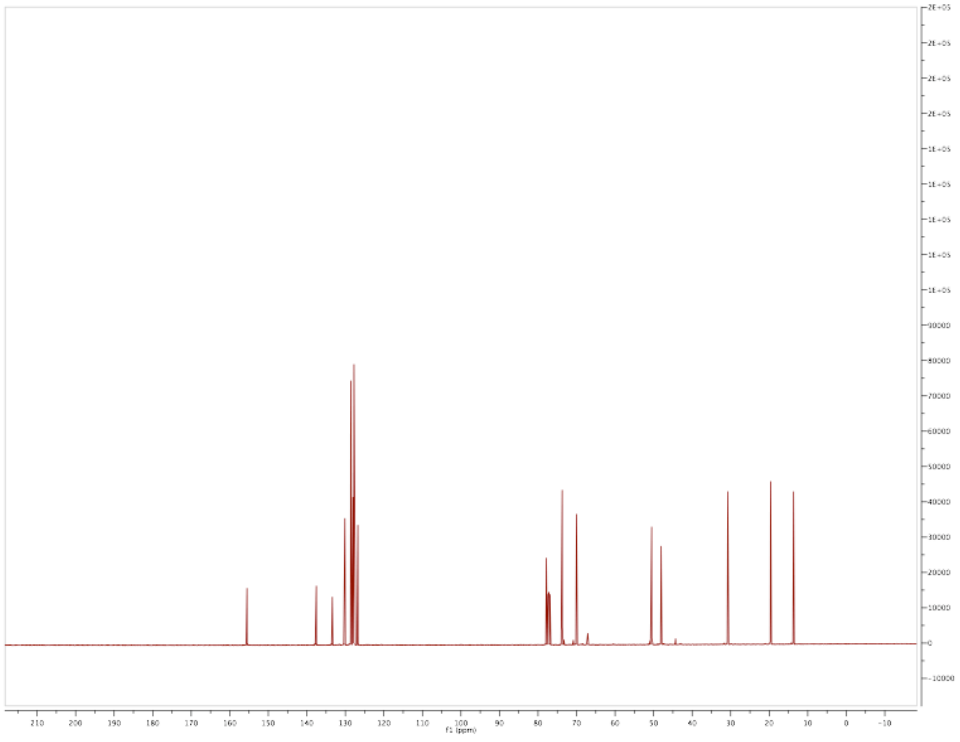


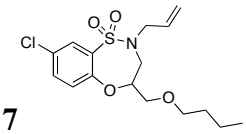


4-(Benzyloxymethyl)-7-bromo-2-butyl-1,2-benzoxathiazepine-1,1-dioxide **6**

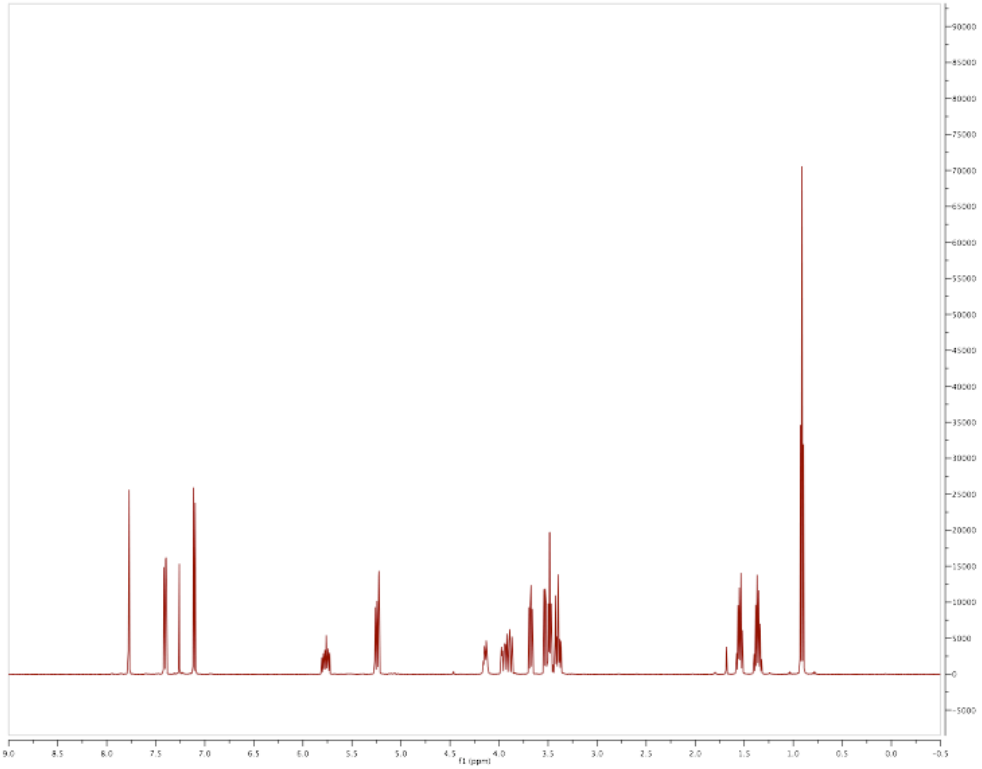


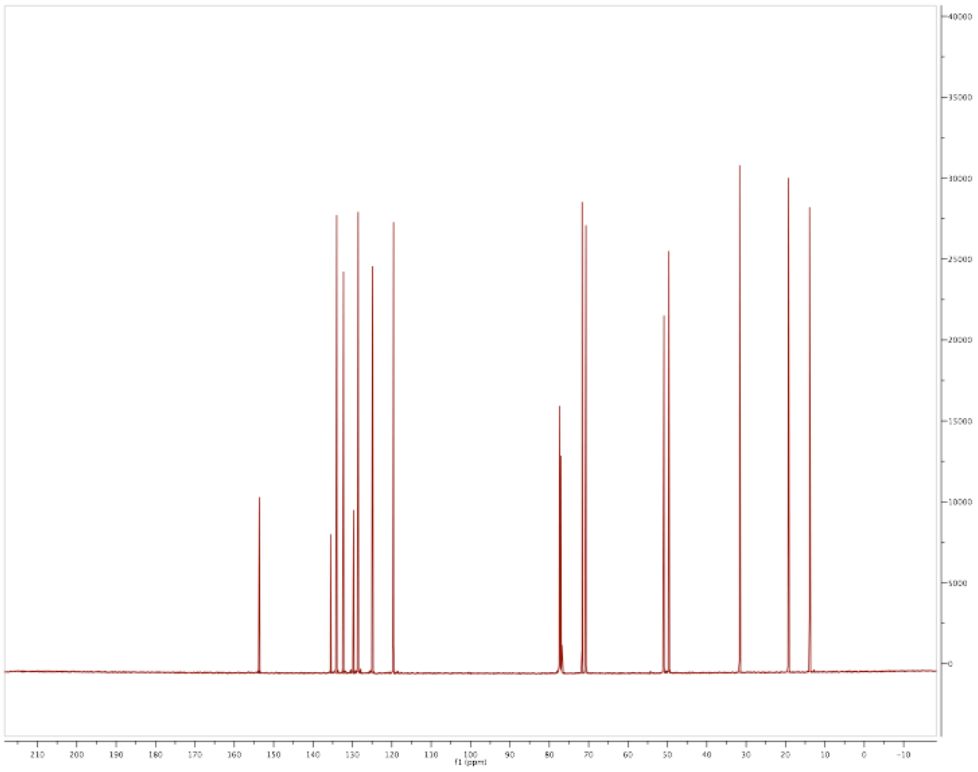


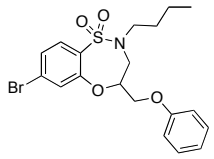




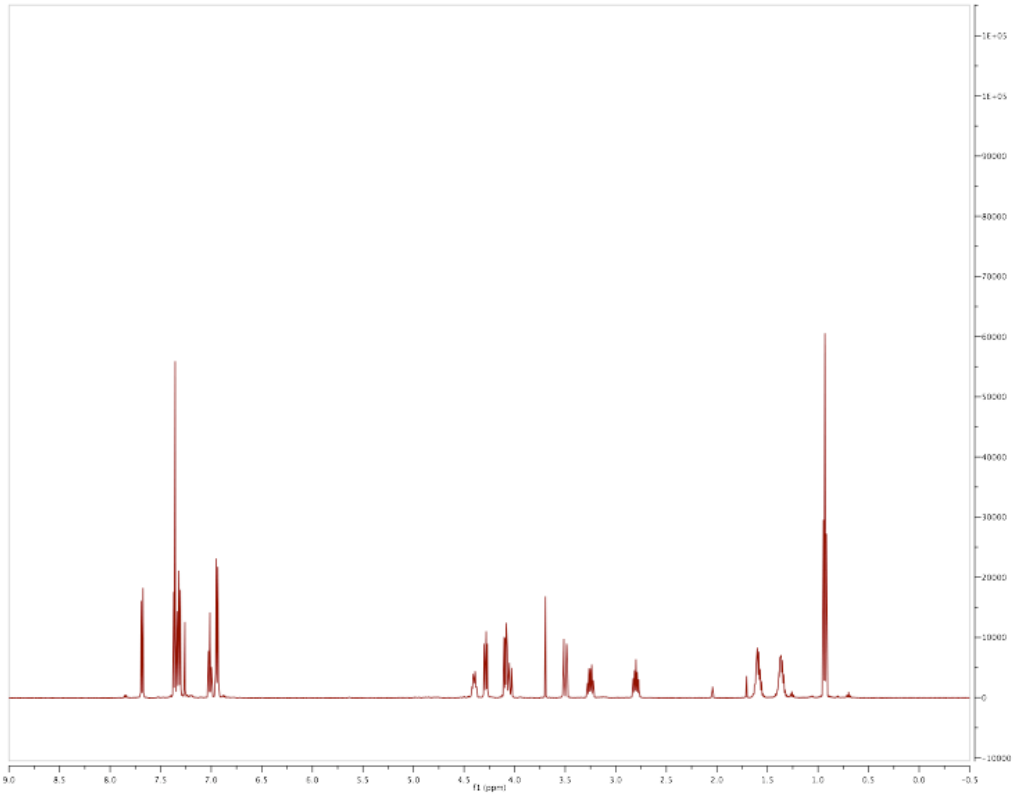
2-Allyl-4-(butoxymethyl)-8-chloro-1,2-benzoxathiazepine-1,1-dioxide **7**

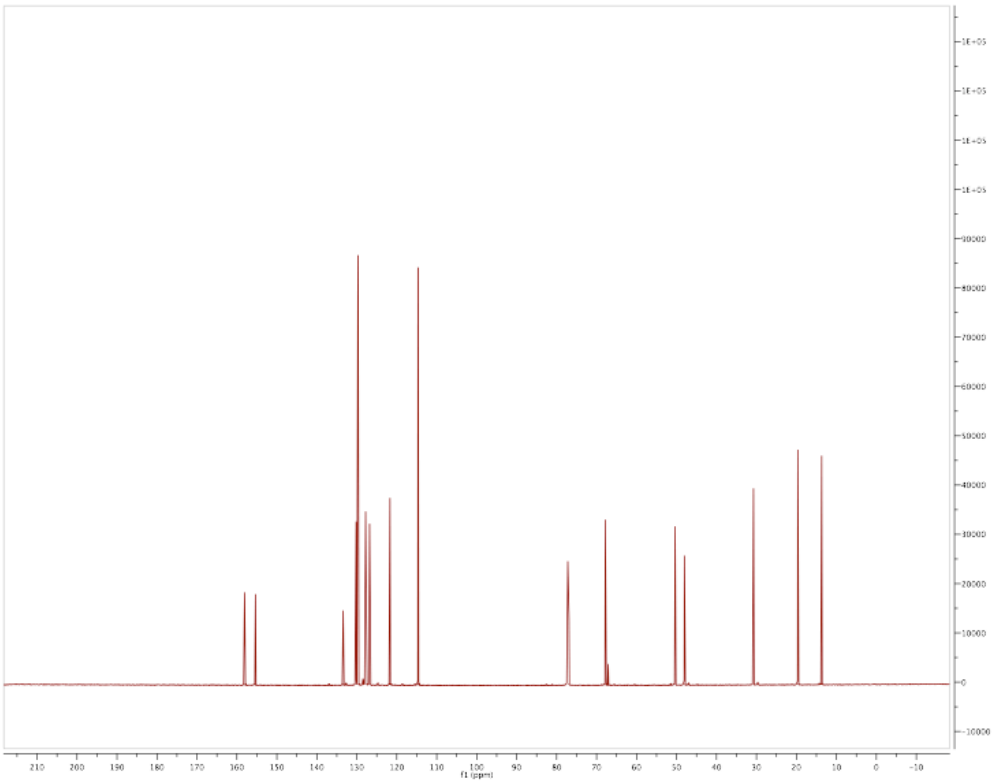


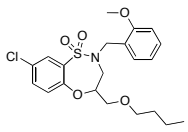




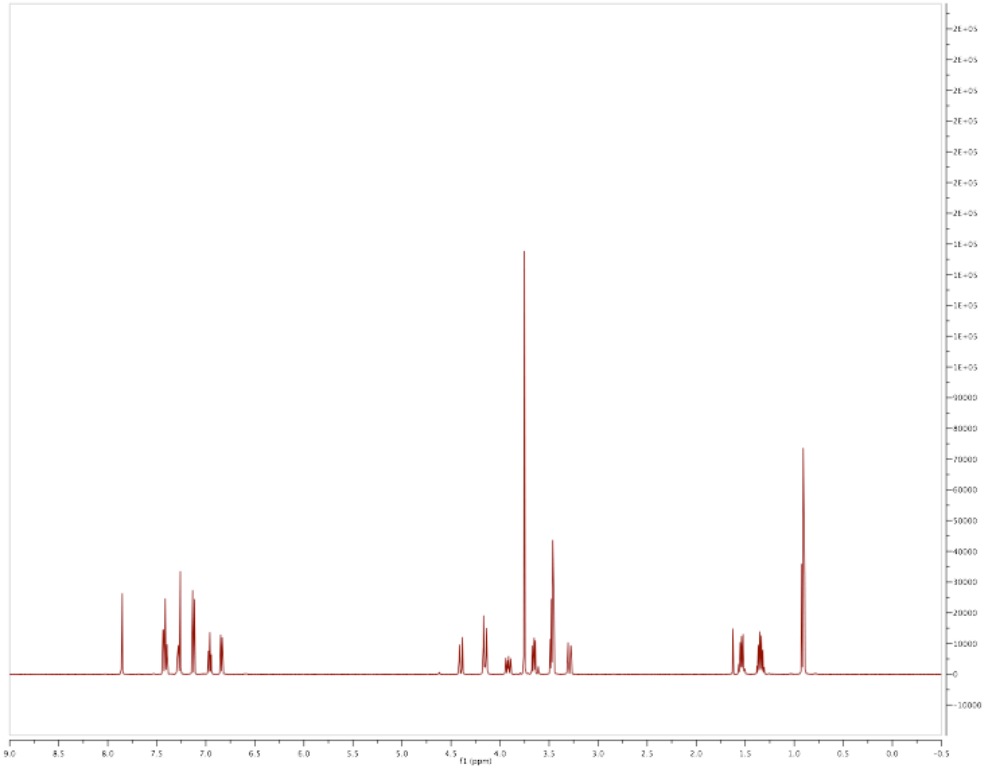
7-Bromo-2-butyl-4-(phenoxymethyl)-1,2-benzoxathiazepine-1,1-dioxide **8**

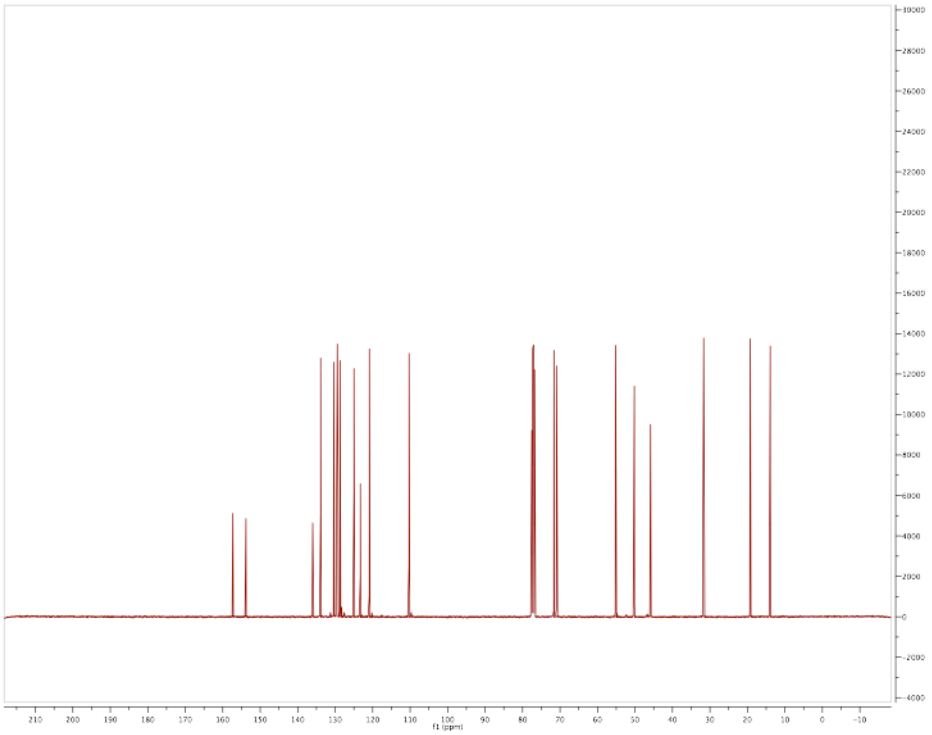




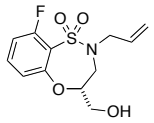


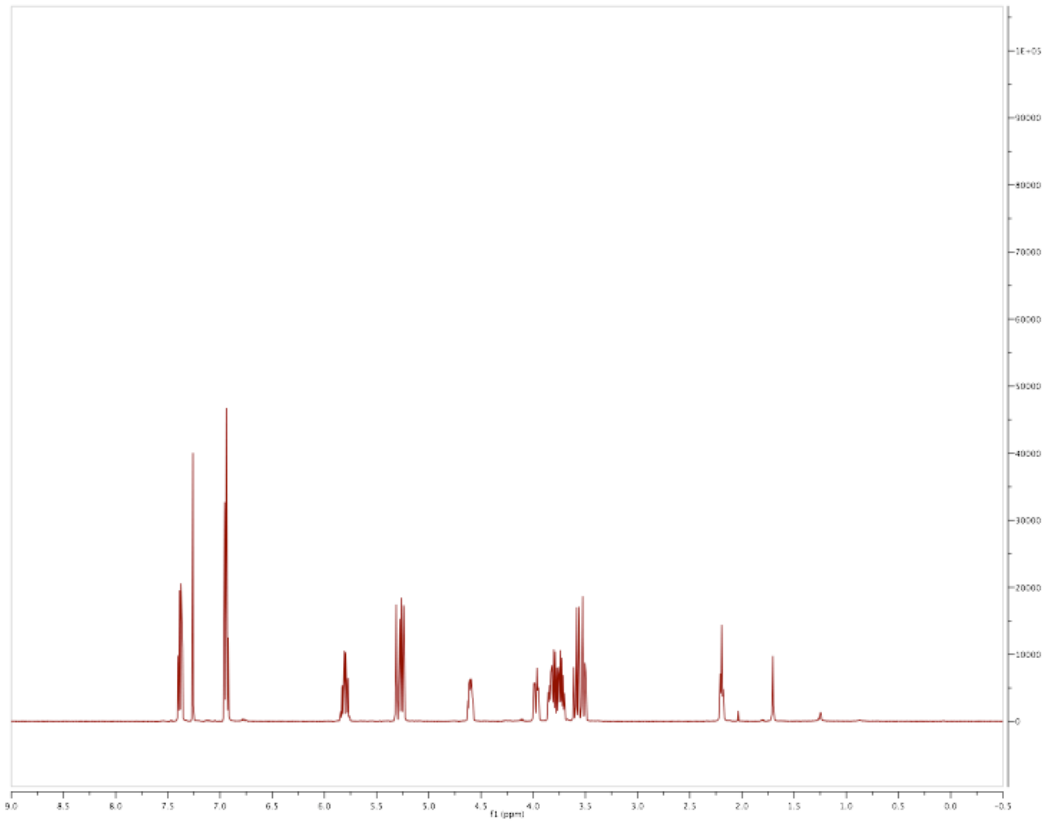
4-(Butoxymethyl)-8-chloro-2-(2-methoxybenzyl)-1,2-benzoxathiazepine-1,1-dioxide **9**

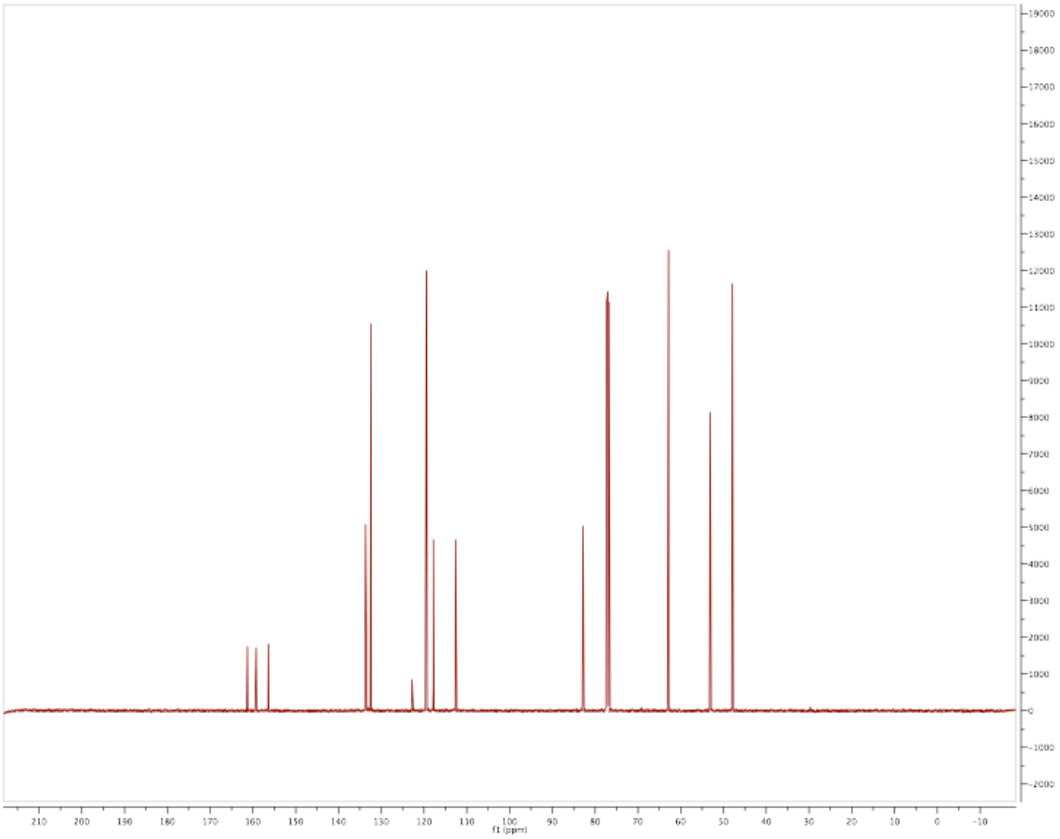


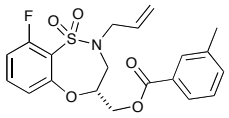


(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methanol **11**

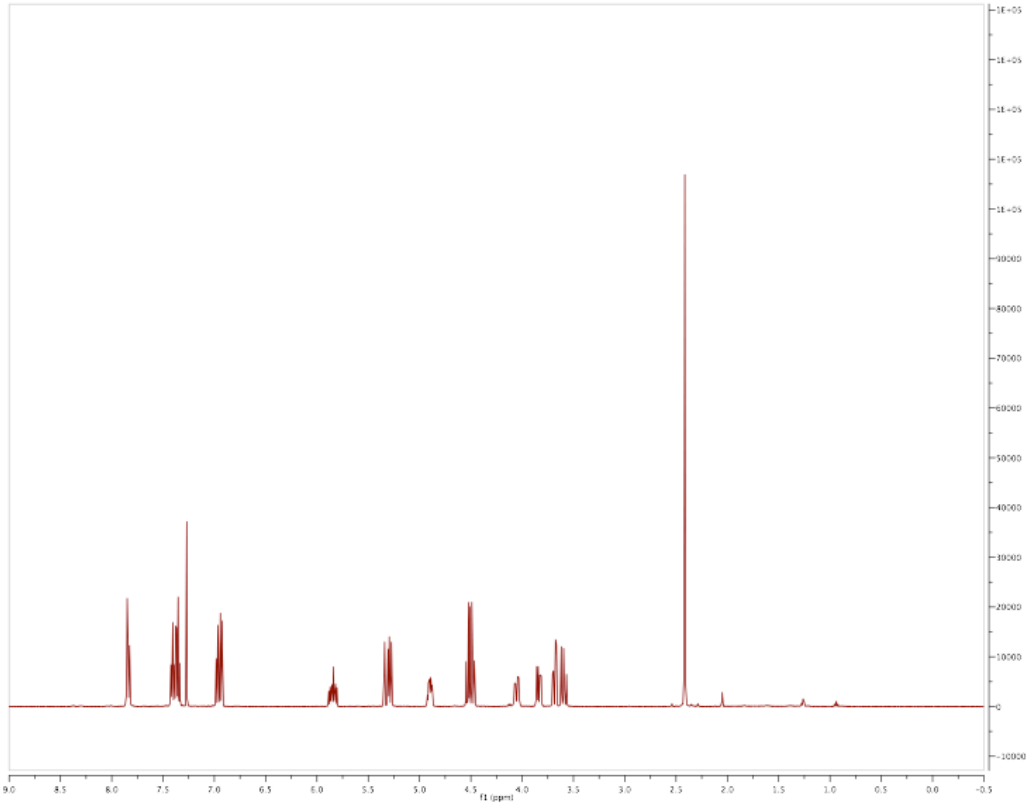


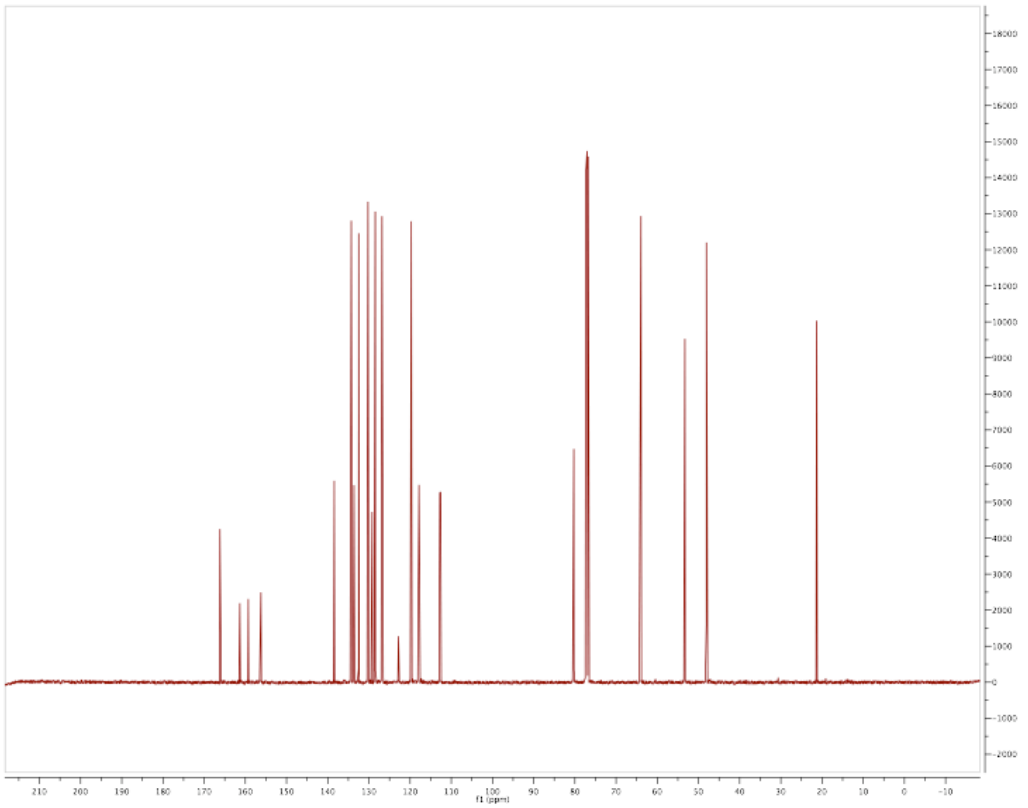




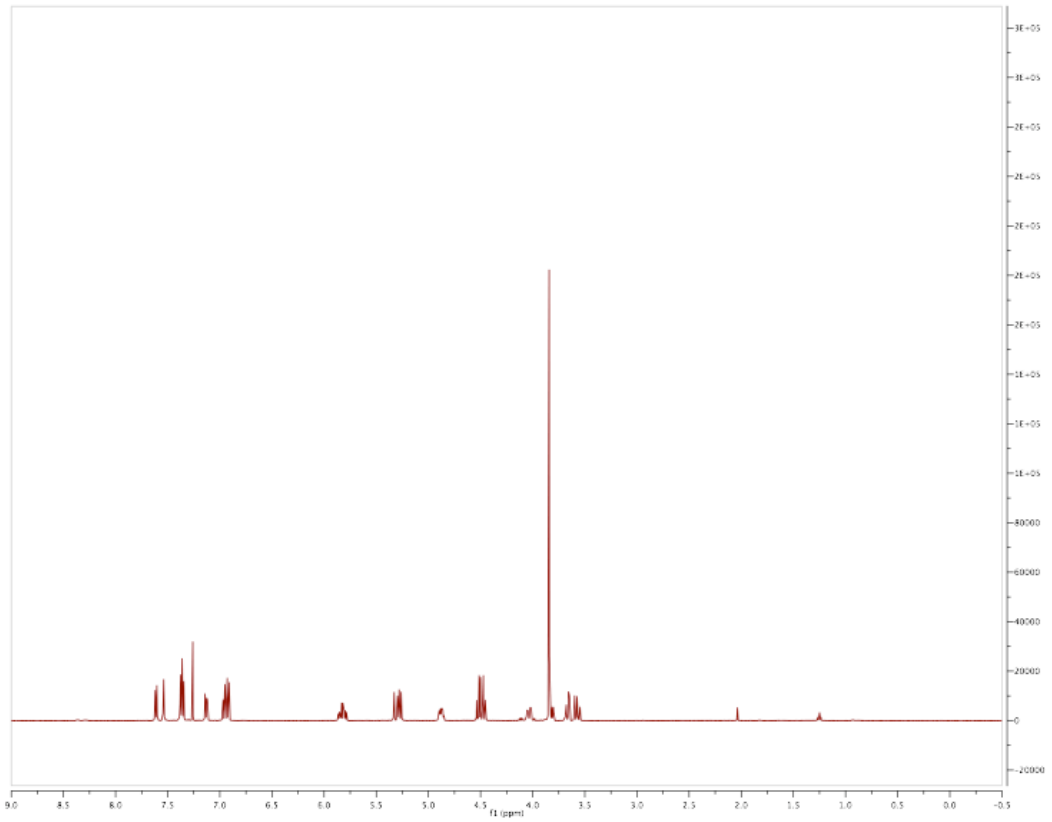


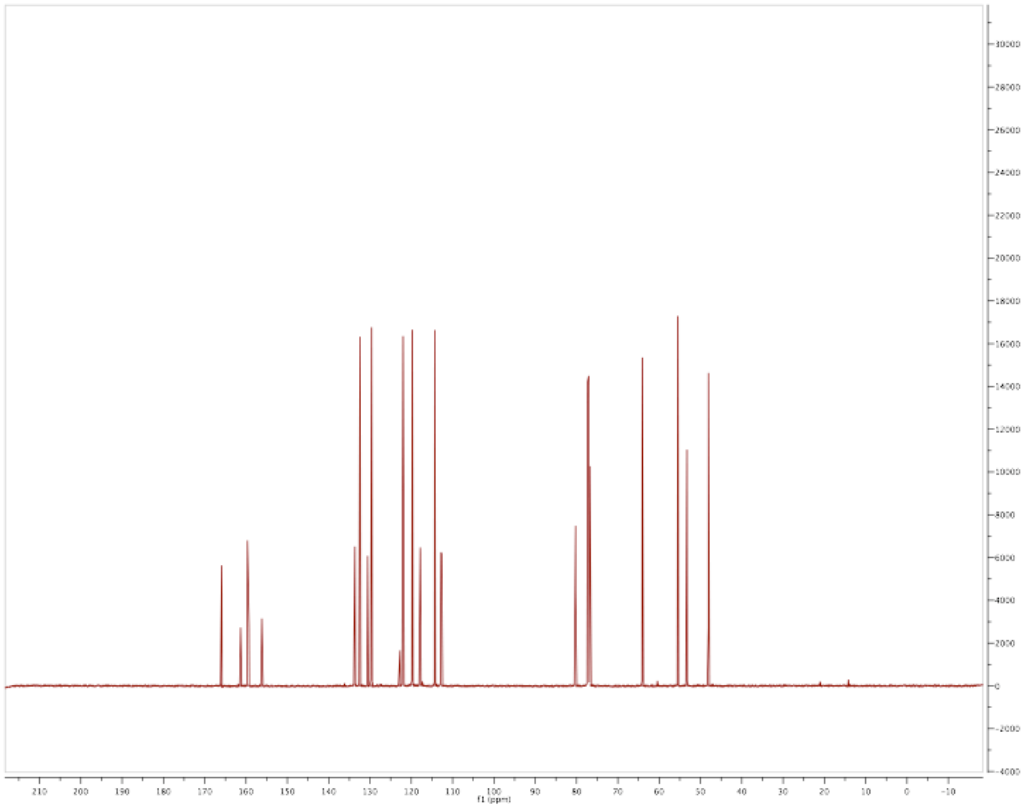
(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 3-methylbenzoate **12**

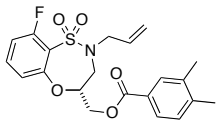




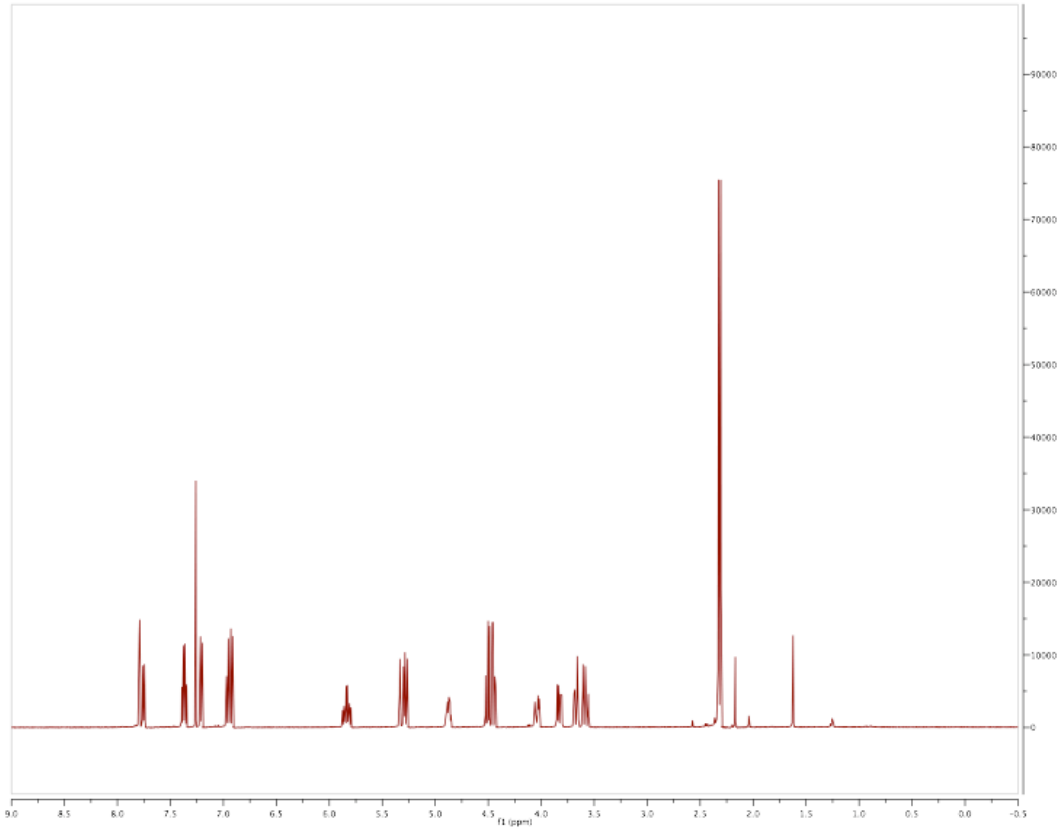
(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 3-methoxybenzoate **13**

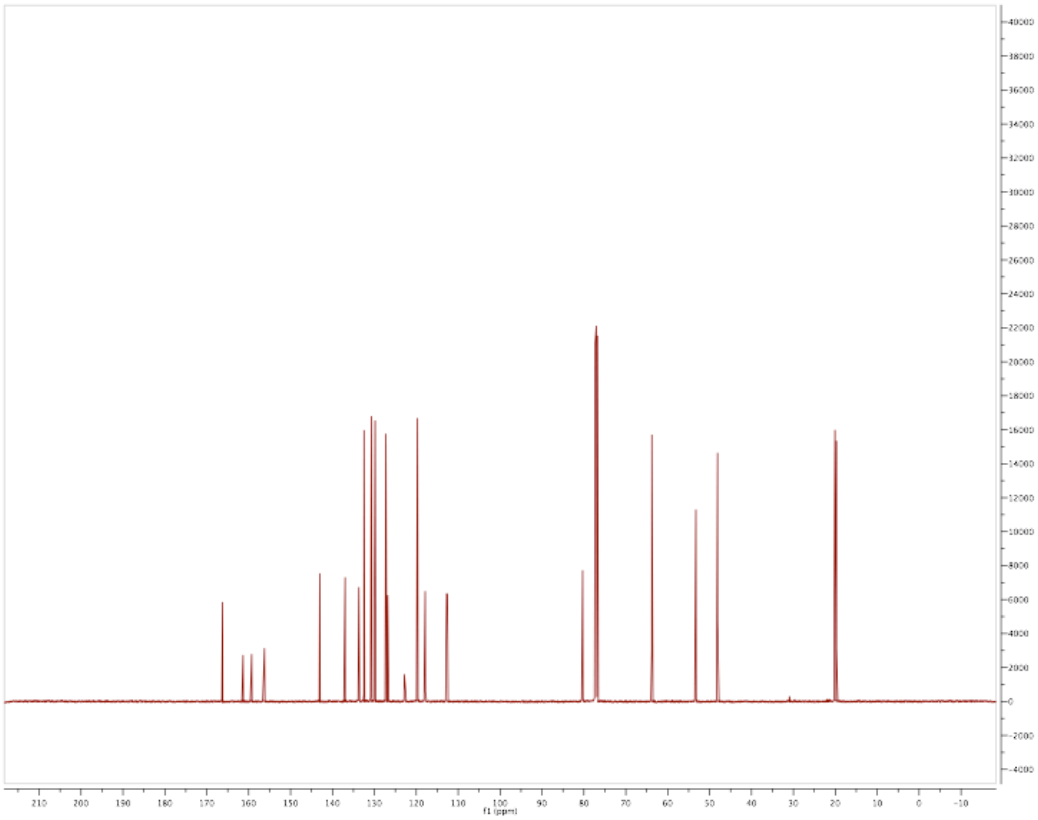




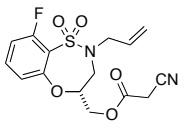


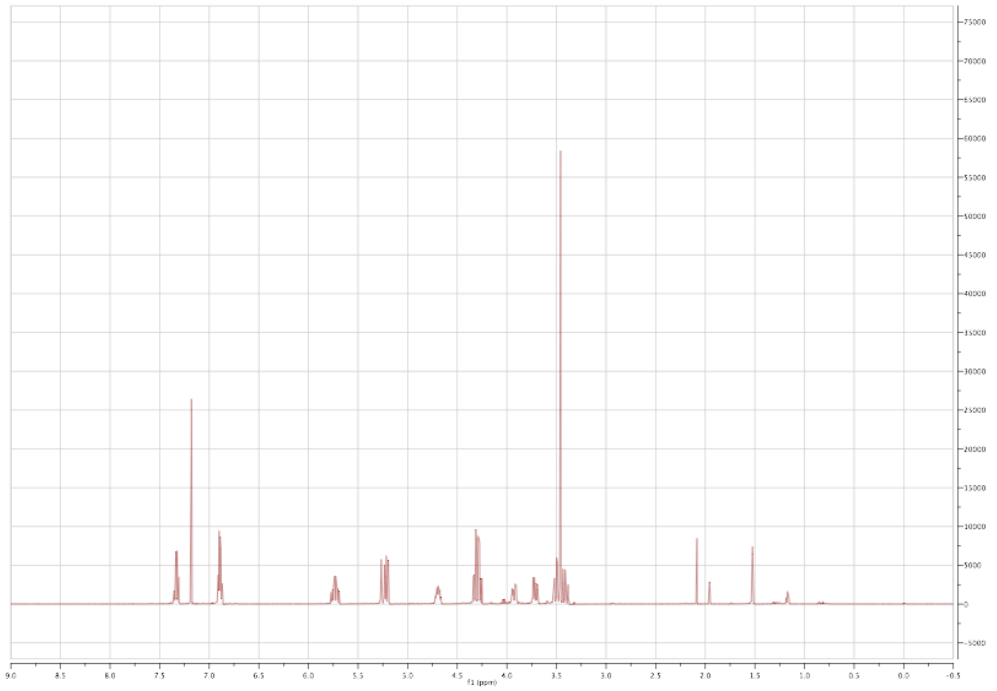
(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 3,4-dimethylbenzoate **14**

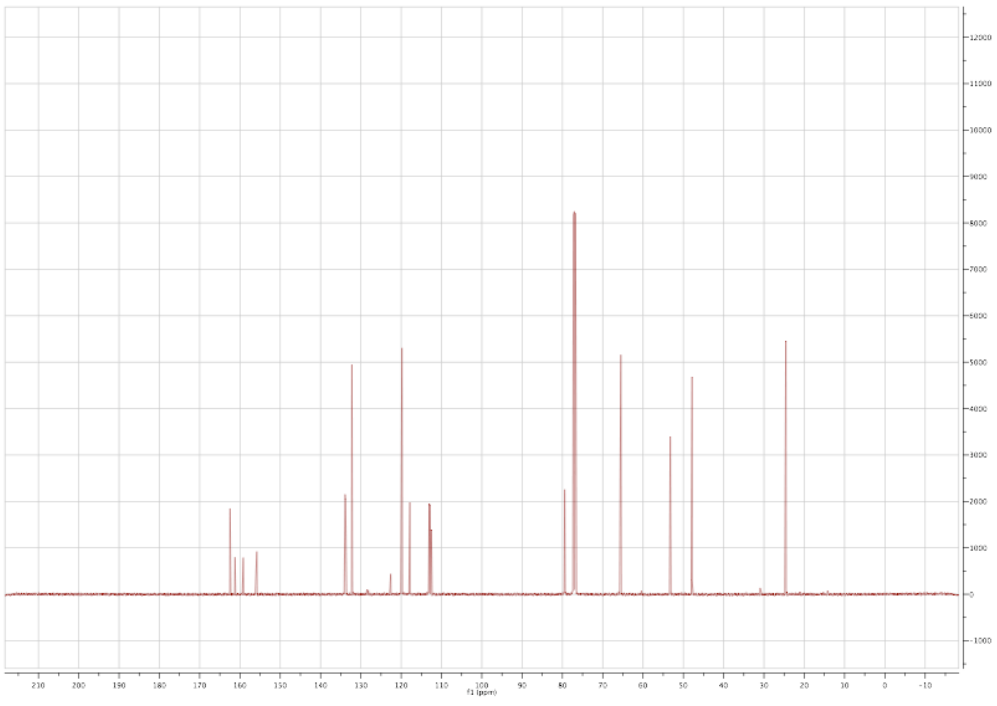


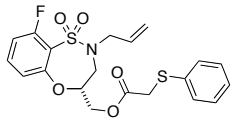


(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl 2-cyanoacetate **15**

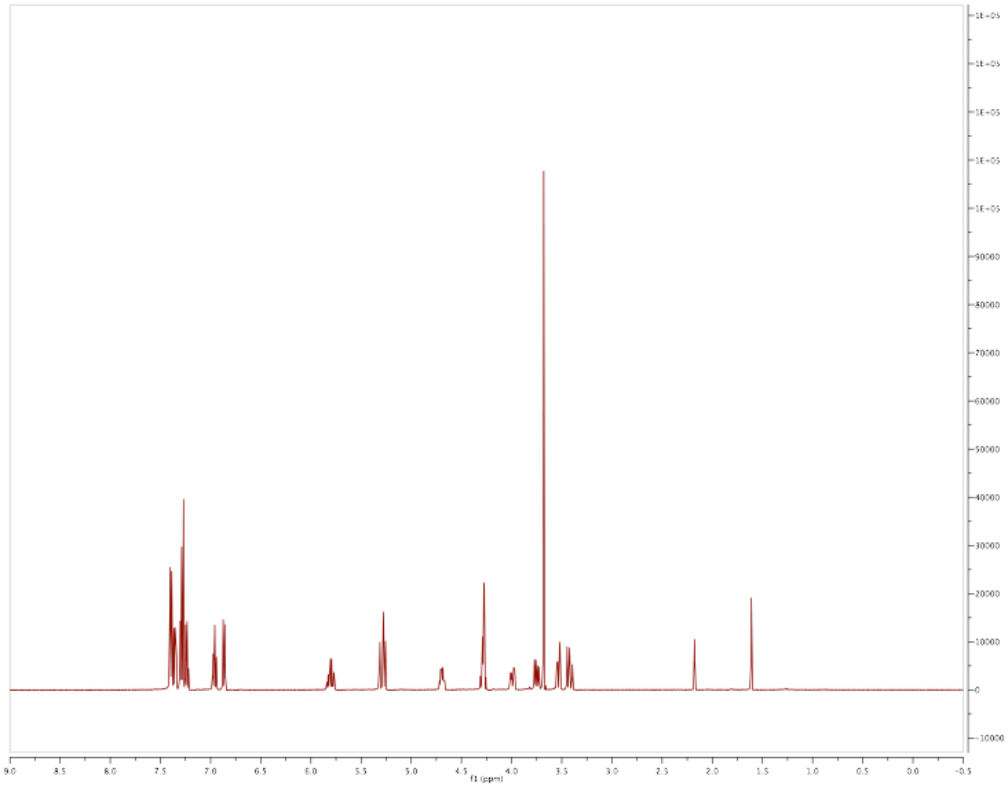


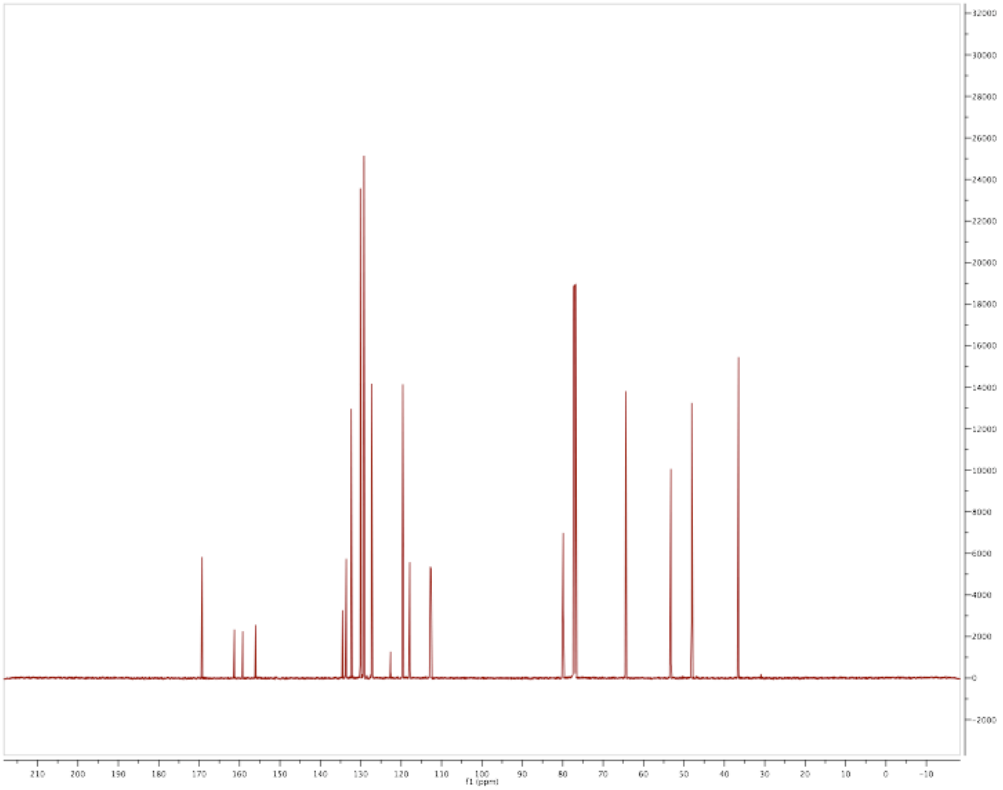




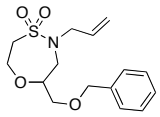


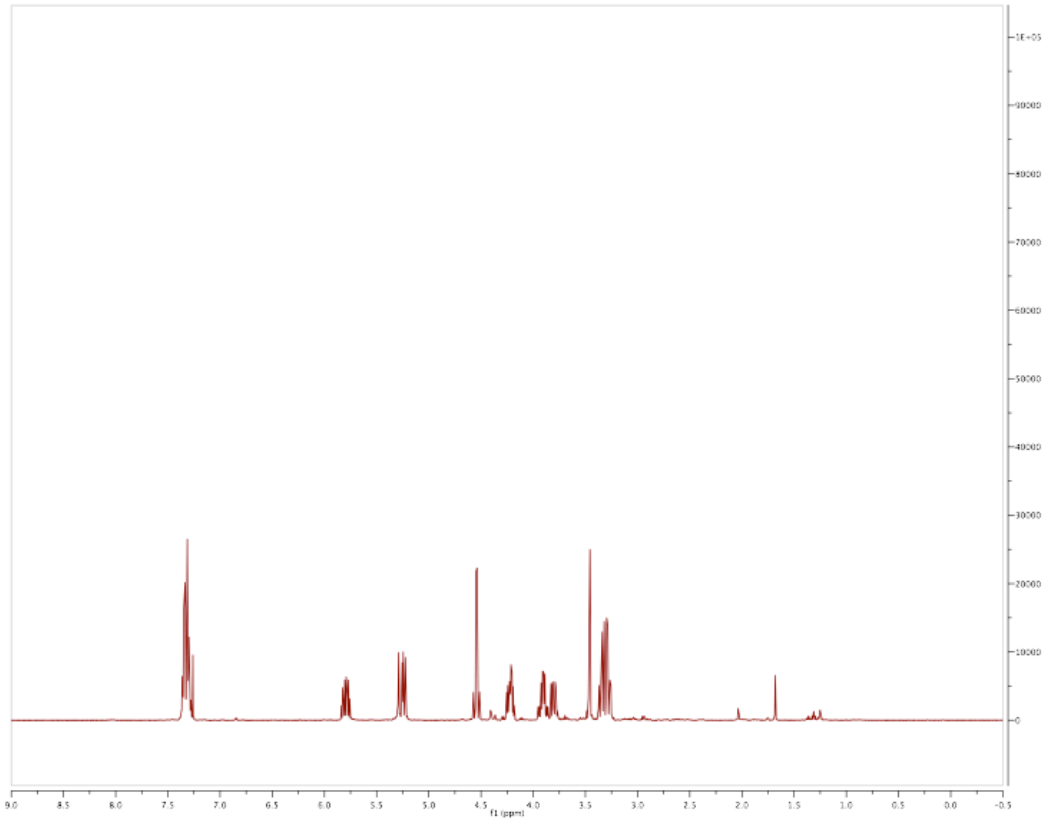
(*R*)-(2-Allyl-9-fluoro-1,2-benzoxathiazepine-1,1-dioxide)methyl-2-(phenylthio)acetate **16**

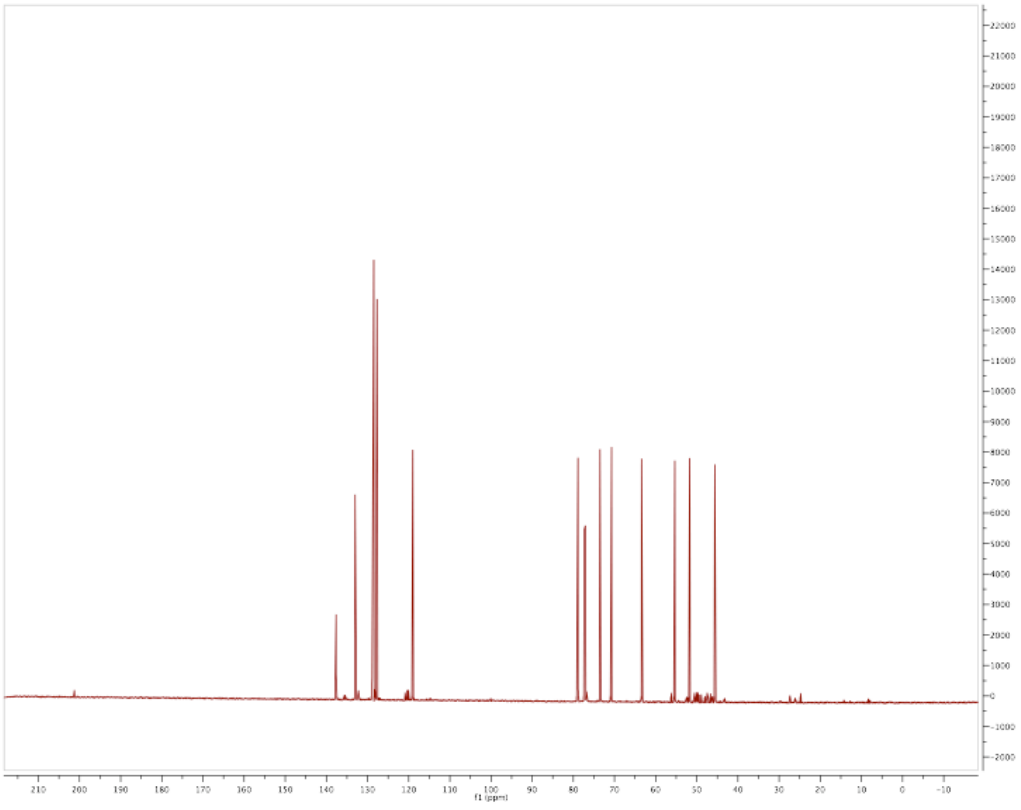




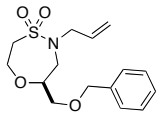
2-Allyl-4-(benzyloxymethyl)-1,4-oxathiazepine-1,1-dioxide **17**

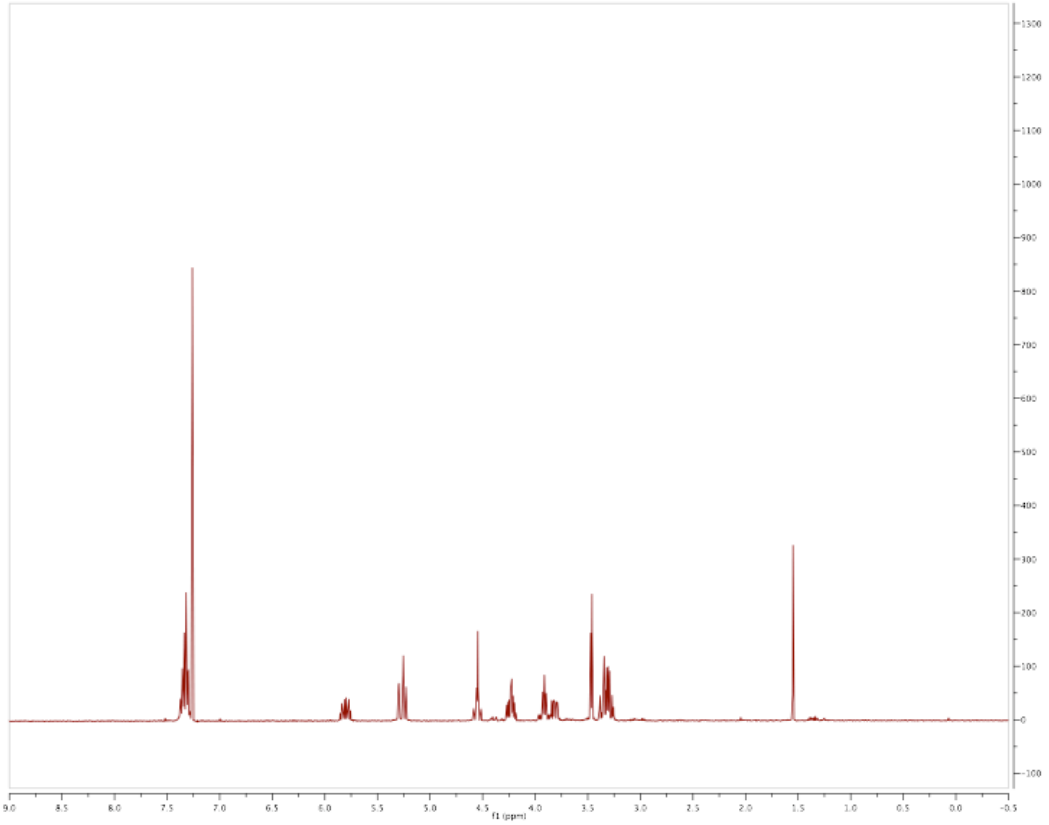


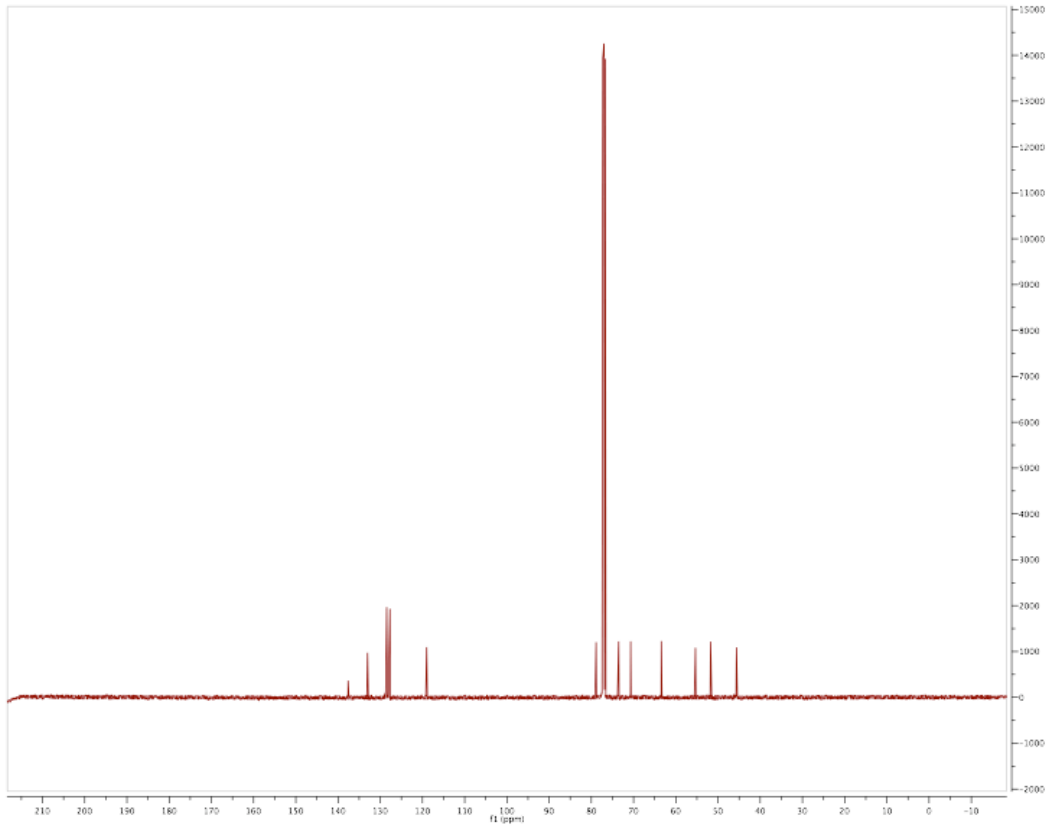




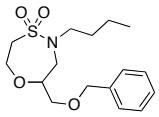
(*S*)-2-Allyl-4-(benzyloxymethyl)-1,4-oxathiazepine-1,1-dioxide **18**

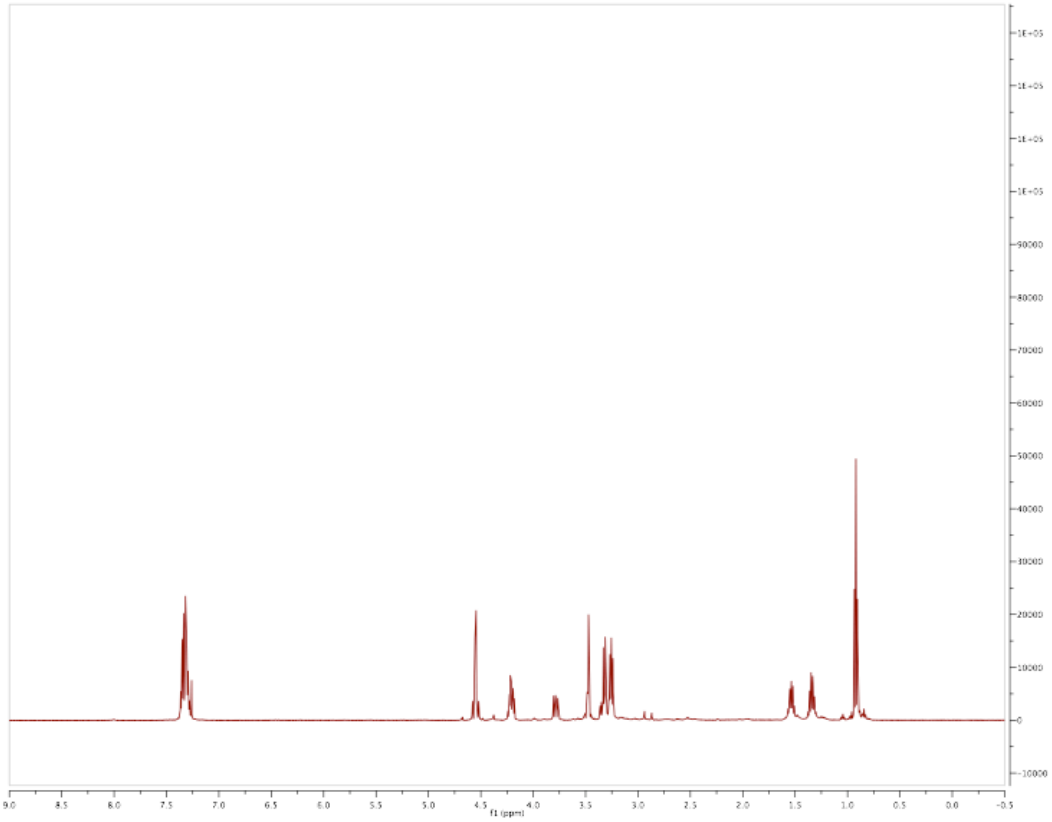


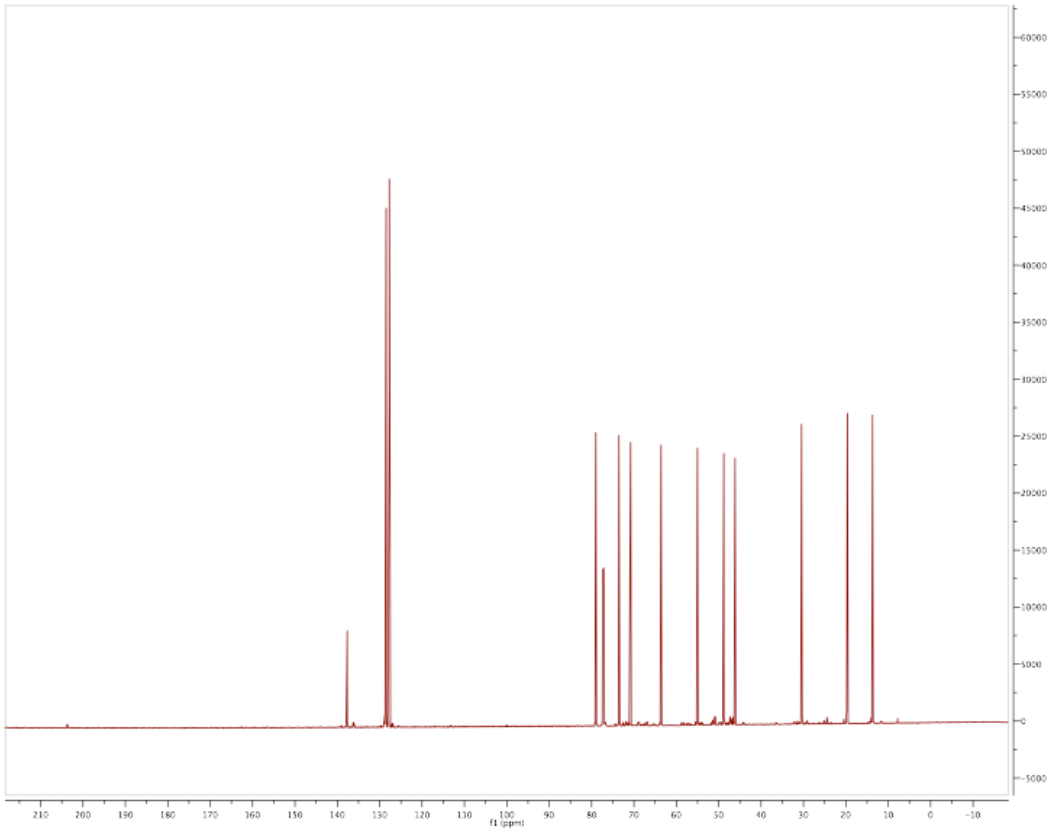


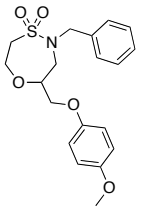


2-Butyl-4-(benzyloxymethyl)-1,4-oxathiazepine-1,1-dioxide **19**

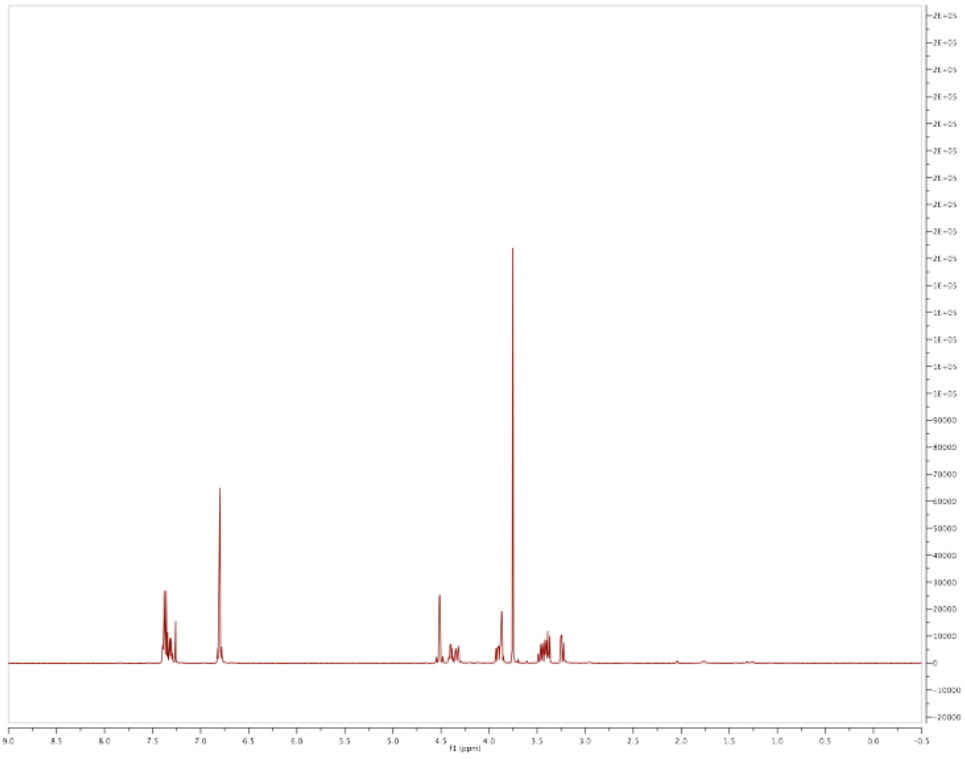


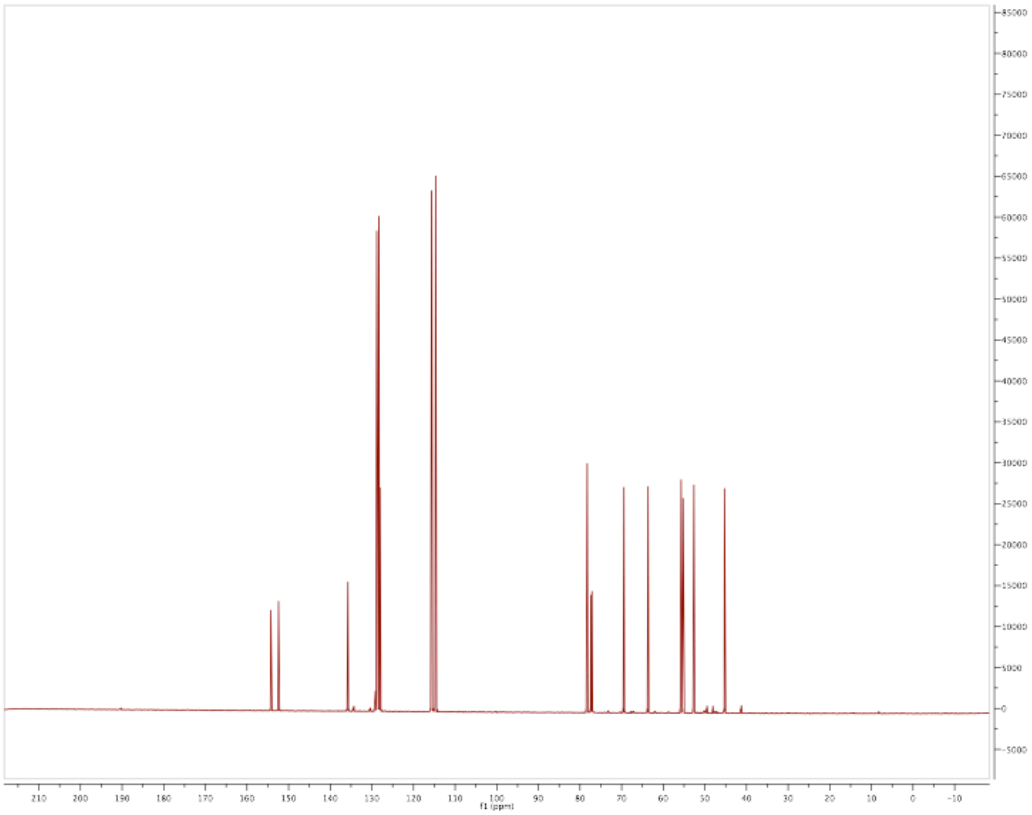


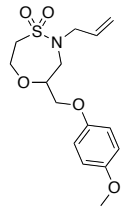




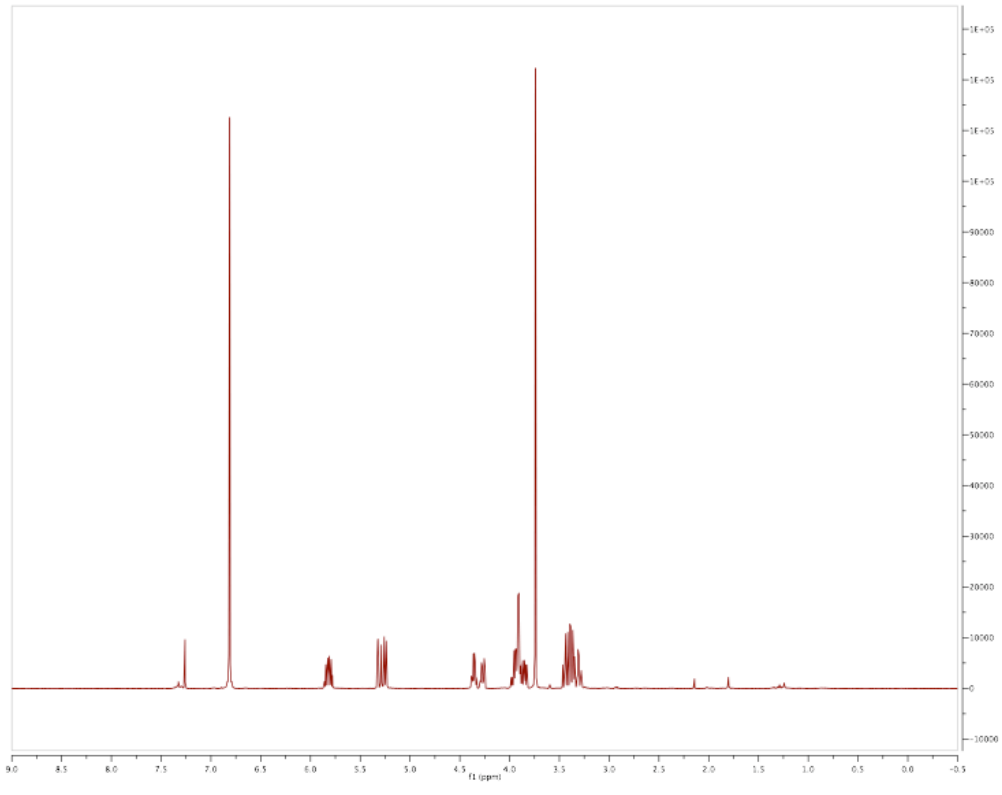
2-Benzyl-4-((4-methoxyphenoxy)methyl)-1,4-oxathiazepine-1,1-dioxide **20**

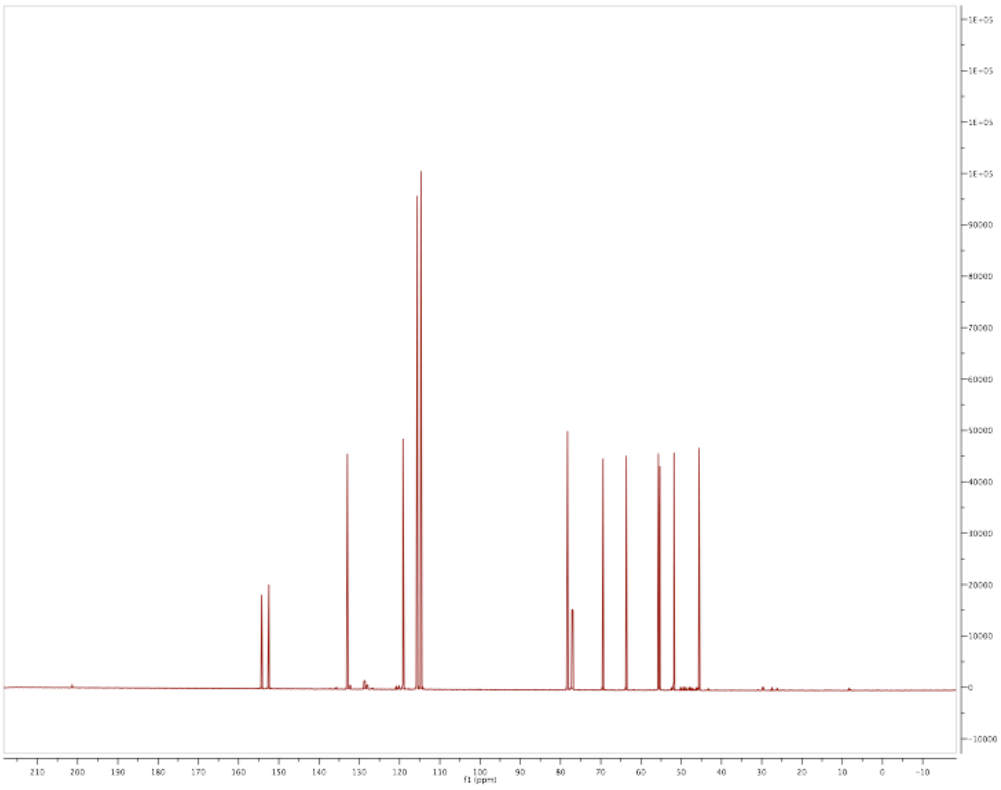


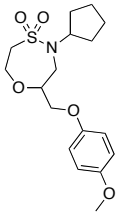




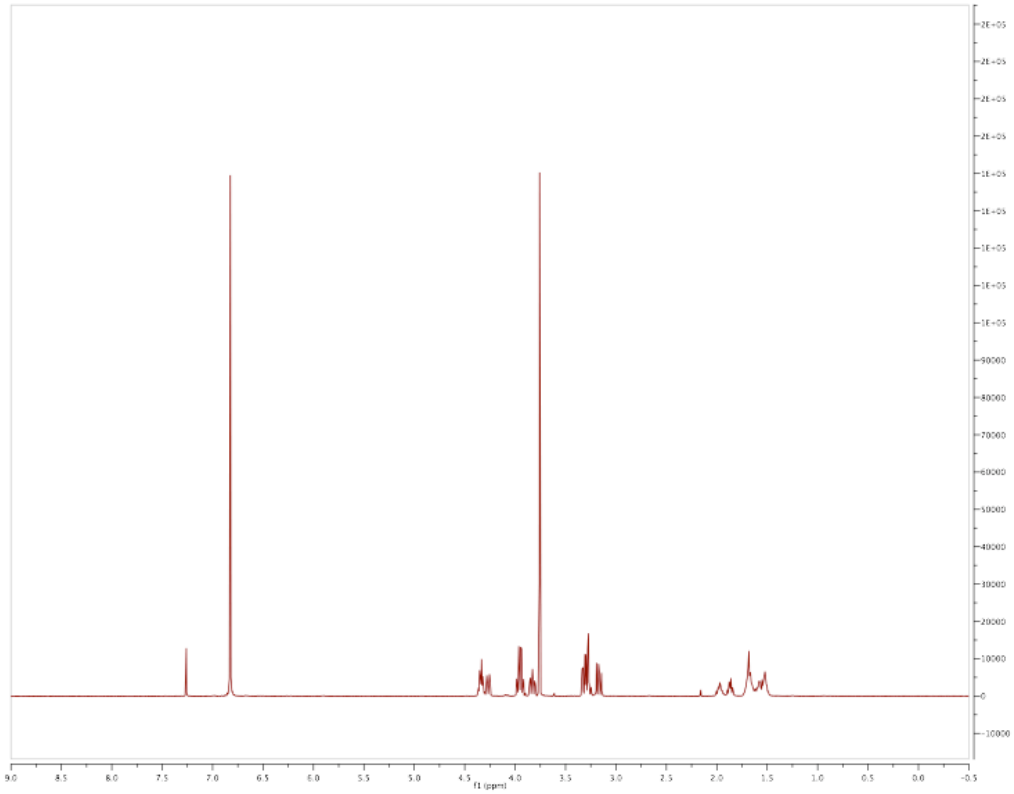
2-Allyl-4-((4-methoxyphenoxy)methyl)-1,4-oxathiazepine-1,1-dioxide **21**

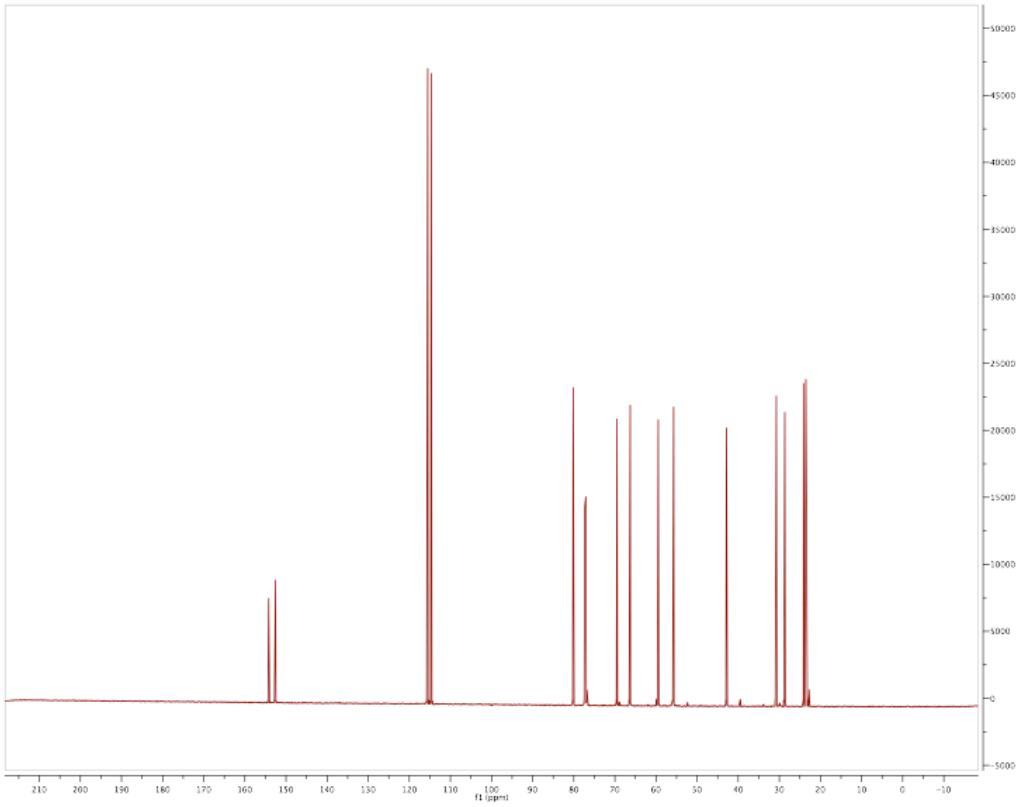


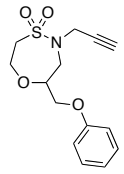




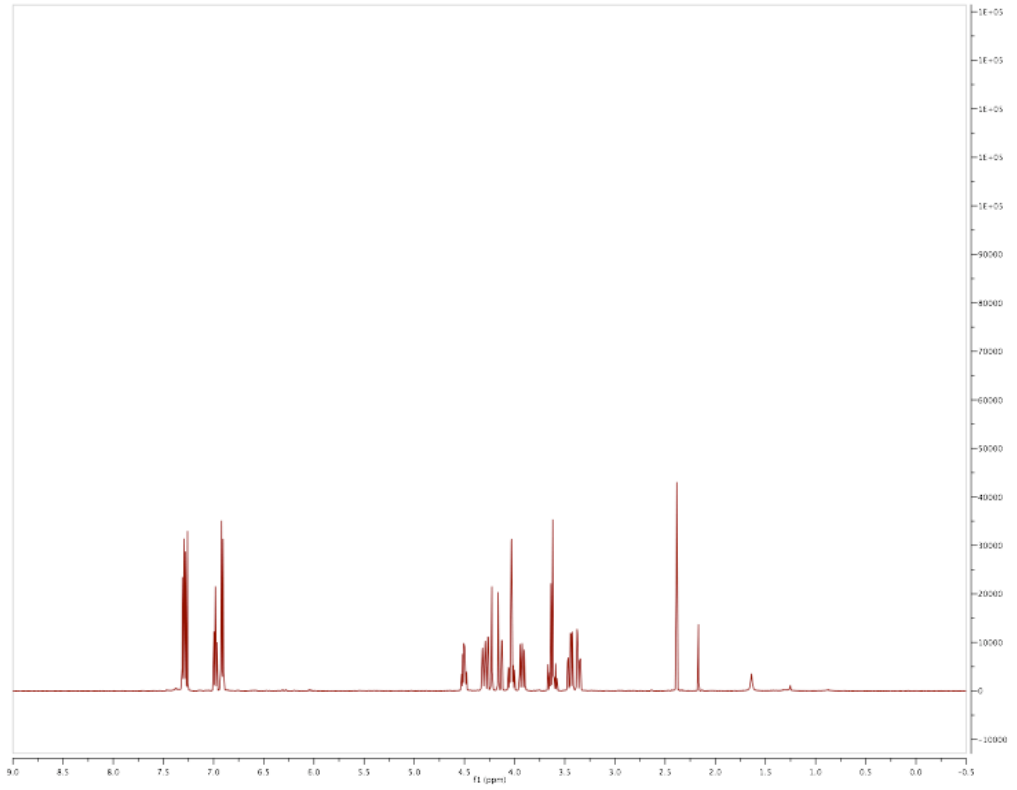
2-Cyclopentyl-4-((4-methoxyphenoxy)methyl)-1,4-oxathiazepine-1,1-dioxide **22**

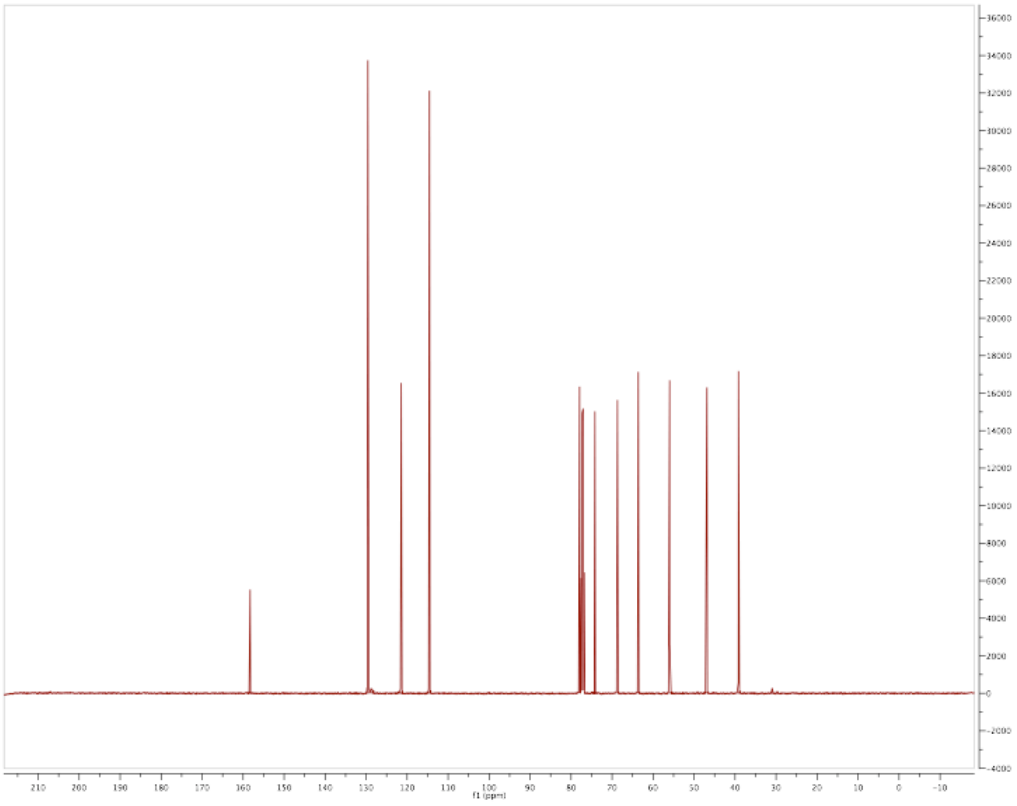






4-(Phenoxymethyl)-2-(prop-2-ynyl)-1,4-oxathiazepine-1,1-dioxide **23**





((*S*)-5-Oxo-2-((*R*)-1-phenylethyl)-1,4-oxathiazepine-4-yl)methyl butyrate-1,1-dioxide **24**