Supporting Information

A pyfluor mediated deoxyfluorination of 4-hydroxymethyloxazoles to 4-fluoromethyloxazoles under mild reaction conditions

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I. General Information

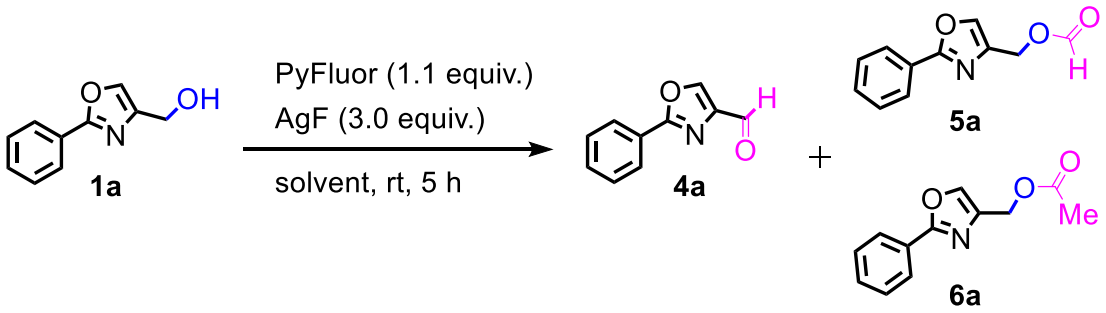
Reagents and solvents were purchased from various commercial sources and used directly without any further purification unless otherwise stated. Acetonitrile (ACN) extrapure, 99% (SRL 49967; CAS: 75-05-8) was purchased from Sisco Research Laboratories (SRL) Pvt. Ltd, India. Progress of the reactions was monitored by thin layer chromatography on silica gel 60 F254 plates. Flash column chromatography was performed on silica gel (60-120 mesh) using ethyl acetate and hexane as an eluent. Freshly distilled ethyl acetate and hexane used for column chromatography. ^{1}H, ^{13}C, ^{19}F nuclear magnetic resonance (NMR) spectra in $CDCl_3$ or DMSO-d_6 were recorded on Bruker Avance III 400 spectrometer at ambient temperature. ^{19}F-NMR yields were determined using 4-fluoro benzonitrile (376 MHz, $CDCl_3$: δ -102.00-102.63 ppm) as an internal standard. Quantitative ^{19}F-NMR analyses were carried out with D1 = 1s; Number of Scans= 16 and yields (±5%) are the average of at least two runs. Chemical shifts are reported in parts per million (ppm) and referenced to the residual solvent resonance ($CDCl_3$: δ H 7.26 ppm and δ C 77.16 ppm and DMSO-d_6: δ H 2.50 ppm and δ C 39.52 ppm), and coupling constant (*J*) are reported in hertz (Hz). Standard abbreviations indicating multiplicity were used as follows: s = singlet, d = doublet, t = triplet, dd = double of doublet, q = quartet, m = multiplet, brs = broad singlet. Mass spectra were recorded on a LCQ Advantage mass spectrometer and data are reported as the mass / charge (*m/z*) ratio with the percent relative abundance. High-resolution mass spectra (HRMS) were recorded on Agilent 6520 quadrupole time-of-flight (Q-TOF) mass spectrometer. Melting points were recorded using a capillary melting point apparatus and are uncorrected.

II. Method for ^{19}F-NMR analyses:[1] All the reactions were carried out with 4-hydroxymethyl oxazoles on a 1.0 mmol scale to determine ^{19}F-NMR yields. 1 After completion of the reaction, the solvent was evaporated on a rotary evaporator under reduced pressure; the obtained crude reaction mixture was dissolved in 1.0 mL of $CDCl_3$, then 1.0 mmol of 4-fluoro benzonitrile was added to this crude mixture as an internal standard, and mixed homogeneously. 0.2 mL of the crude compound was taken into an NMR tube and diluted with 0.2 mL $CDCl_3$, then ^{19}F-NMR was recorded.

III. Optimization of reaction conditions in polar aprotic solvents

Next, we investigated this deoxyfluorination reaction in polar aprotic solvent under standard reaction conditions (Table S1, entries 1-4). When we conducted a reaction in DMSO solvent, the reaction produced unexpected oxazole aldehyde **4a** in 58% yield (Table S1, entry 1).[2] The reaction yielded the *O*-formylated product **5a** in 55% yield when we performed the reaction in DMF solvent (Table S1, entry 2).[3] *O*-acetylated product **6a** was observed in 40% yield in DMA solvent (Table S1, entry 3).[4] The reaction didn't occur in the NMP solvent (Table S1, entry 4).

Table S1. Screening of polar aprotic solvents



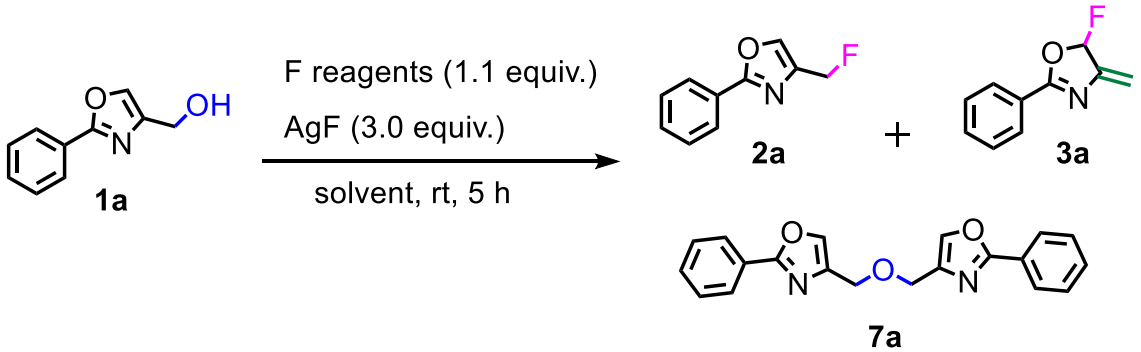
entry	solvent	yield of 4a (%)[a]	yield of 5a (%)[a]	yield of 6a (%)[a]
1	DMSO	58	0	0
2	DMF	0	55	0
3	DMA	0	0	40
4[b]	NMP	0	0	0

Reaction conditions: **1a** (1.0 mmol), PyFluor (1.1 equiv.), AgF (3.0 equiv.), rt, Solvent (6.0 mL), 5 h. [a]Isolated yields. [b] SM recovered.

IV. Optimization of reaction conditions with deoxyfluorinating reagents

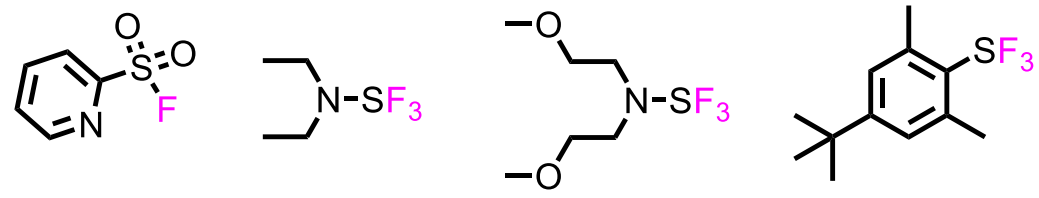
Next, we investigated the various deoxyfluorinating reagents under the standard reaction condition (Table S2, entries 1-3). The reaction didn't yield the desired product **2a** in the presence of DAST in ACN solvent, decomposition of the starting material was observed (Table S2, entry 1). The reaction produced desired product **2a** in 10% yield and side product **3a** in 45% yield when we conducted the reaction in the presence of DAST in DCM solvent (Table S2, entry 1). In the presence of Deoxofluor,[5] the reaction yielded ether product **7a** in 35% yield and recovered unreacted starting material (Table S2, entry 2). In the presence of Fluolead,[6] we observed an unidentified side product (Table S2, entry 3).

Table S2. Screening of deoxyfluorinating reagents



entry	F reagent	solvent	yield of 2a (%)[d]	yield of 3a (%)[d]	yield of 7a (%)[d]
1[a]	DAST	ACN	0	0	0
		DCM	10	45	0
2[b]	Deoxofluor	ACN	0	0	35
3[c]	Fluolead	ACN	0	0	0

Reaction conditions: **1a** (1.0 mmol), F reagent (1.1 equiv.), AgF (3.0 equiv.), rt, Solvent (6.0 mL), 5 h. [a] Starting material was decomposed in ACN. [b] Some of the starting material was recovered and some other unidentified spots were detected on TLC. [c] Unidentified side product was observed. [d] Isolated yields are reported.



Deoxyfluorinating reagents (F reagents)

V. General procedure for the synthesis of 1a-1ae.[7]

Corresponding benzamides (4.0 mmol, 1.0 equiv.) and 1,3-dichloroacetone (8.0 mmol, 2.0 equiv.) were charged in round bottom flask. The reaction mixture was stirred at 130 °C for 3 h. The reaction mixture was cooled down to room temperature (formation of the corresponding intermediate was monitored by TLC). Then, 40 mL of DMSO/Water (35:20 v/v) was added to the above mixture sequentially and kept stirring at 100°C. Then, the reaction was stopped and cooled down to room temperature (either completion or no further progress of the reaction was monitored by TLC), it was diluted with water (30 mL) and extracted with ethyl acetate (2 x 50 mL), the combined organic extracts were washed with brine solution (2 x 25 mL), dried over anhydrous Na_2SO_4, filtered and evaporated under reduced pressure to give the crude product. The obtained crude product was purified by flash column chromatography on silica gel using ethyl acetate and hexane as an eluent to yield the corresponding products (**1a-1ae**).

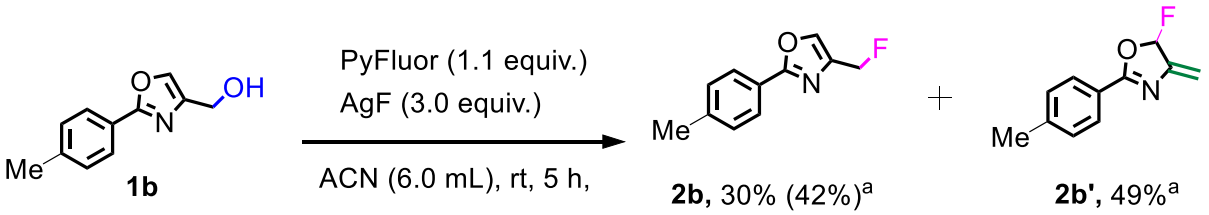
VI. General procedure for the synthesis of 2a-2ae.

Corresponding alcohols **1a-1ae** (1.0 mmol, 1.0 equiv.), PyFluor (1.1 equiv.) and AgF (3.0 equiv.) were added in a 25 mL sealed tube and dissolved in ACN. The reaction mixture stirred at room temperature until the completion of the reaction. Then, the reaction was stopped and diluted with water (10 mL) and extracted with ethyl acetate (2 x 25 mL), the combined organic extracts were washed with brine solution (2 x 25 mL), dried over anhydrous Na_2SO_4, filtered and evaporated under reduced pressure to give the crude product. The obtained crude product was purified by column chromatography on silica gel using ethyl acetate and hexane as an eluent to yield the corresponding products (**2a-2ae**).

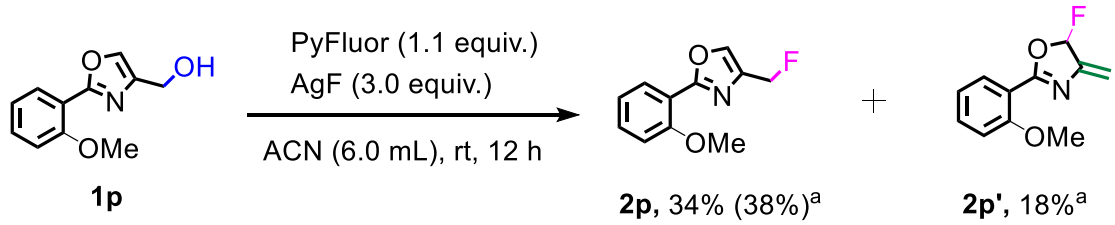
Note: Most of the cases trace amount of the side product was detected on TLC. When substrate bearing electron donating groups present at *para* and *ortho* position (*para*-Me and *ortho*-OMe), noticeable amount of the side product formation took place and merged with desired products. Therefore, few cases we reported crude ^{19}F-NMR yields for side product. However, all the cases we have successfully isolated desired products by column chromatography.

VII. Reaction schemes for formation of 2b+2b' and 2p+2p'

Reaction Scheme 1.



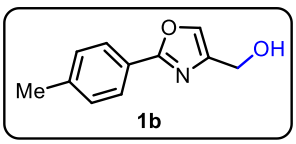
Reaction Scheme 2.



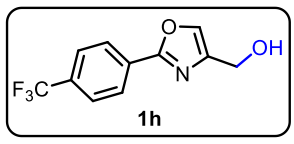
Note: [a] Crude ^{19}F-NMR yields were determined by using 4-fluorobenzonitrile as an internal standard.

VIII. Physical and spectral data

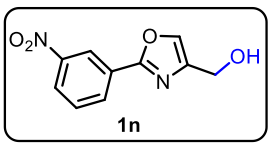
(2-(*p*-tolyl)oxazol-4-yl)methanol (1b). White solid, yield: 60% (454 mg), mp: 130-131 °C. Eluent: 50% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.90 (d, J = 8.0 Hz, 2H), 7.61 (s, 1H), 7.25 (d, J = 8.2 Hz, 2H), 4.67 (s, 2H), 2.39 (s, 3H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 162.6, 141.5, 141.0, 134.9, 129.6, 126.5, 124.6, 56.7, 21.6. **MS** (ES+) *m/z* (relative intensity) 190 (MH^+, 100), 172 (50). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_{11}NO_2$ 190.0868; found 190.0857.



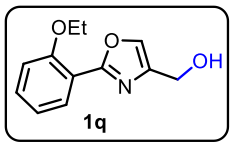
(2-(4-(trifluoromethyl)phenyl)oxazol-4-yl)methanol (1h). Brown solid, yield: 50% (486 mg), mp: 154-155 °C. Eluent: 50% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.15-8.13 (m, 2H), 7.72-7.70 (m, 3H), 4.70 (s, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 160.9, 142.1, 136.0, 132.3 (q, J = 33.0 Hz), 130.4, 126.8, 126.0-125.9 (m), 124.6 (q, J = 271.1 Hz), 56.9. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -62.9. **MS** (ES+) *m/z* (relative intensity) 316 (30), 244 (MH^+, 100), 226 (55). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_8F_3NO_2$ 244.0585; found 244.0587.



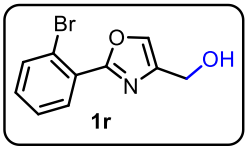
(2-(3-nitrophenyl)oxazol-4-yl)methanol (1n). Yellow solid, yield: 45% (297 mg), mp: 120-121 °C. Eluent: 50% EtOAc in hexane. **^{1}H NMR** (400 MHz, DMSO-d_6): δ 8.64 (s, 1H), 8.36 (s, 2H), 8.14 (s, 1H), 7.86-7.84 (m, 1H), 5.32 (brs, 1H), 4.47 (s, 2H). **^{13}C NMR** (125 MHz, DMSO-d_6): δ 158.5, 148.2, 143.3, 137.1, 131.7, 131.0, 128.2, 124.8, 120.2, 55.6. **MS** (ES+) *m/z* (relative



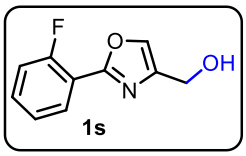
intensity) 203 (100), 221 (MH^+, 98). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_8N_2O_4$ 221.0562; found 221.0563.

(2-(2-ethoxyphenyl)oxazol-4-yl)methanol (1q). Brown oil, yield: 60% (525 mg). Eluent: 50% EtOAc in hexane. 

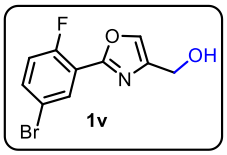
^{1}H NMR (400 MHz, $CDCl_3$): δ 7.89-7.87 (m, 1H), 7.65 (s, 1H), 7.41-7.37 (m, 1H), 7.03-6.99 (m, 2H), 4.66 (s, 2H), 4.16 (q, J = 7.0 Hz, 2H), 1.45 (t, J = 6.9 Hz, 3H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 161.1, 157.1, 141.1, 135.0, 131.9, 130.6, 120.7, 116.9, 113.4, 64.7, 56.8, 14.8. **MS** (ES+) *m/z* (relative intensity) 242 (100), 220 (MH^+, 95), 202 (75), 131 (30). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{12}H_{13}NO_3$ 220.0974; found 220.0973.

(2-(2-bromophenyl)oxazol-4-yl)methanol (1r). white solid, yield: 58% (585 mg), mp: 122-123 °C. Eluent: 50% EtOAc in hexane. 

^{1}H NMR (400 MHz, $CDCl_3$): δ 7.89 (dd, J = 7.8 Hz, J = 1.7 Hz, 1H), 7.73 (s, 1H), 7.70 (dd, J = 8.0 Hz, J = 1.0 Hz, 1H), 7.42-7.38 (m, 1H), 7.32-7.28 (m, 1H), 4.70 (s, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 160.8, 141.5, 135.7, 134.5, 131.6, 131.5, 128.5, 127.5, 121.2, 57.1. **MS** (ES+) *m/z* (relative intensity) 256 (MH^+ +2, 30), 254 (MH^+, 30), 236 (100), 208 (40), 183 (30). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_8{}^{79}BrNO_2$ 253.9817; found 253.9817. **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_8{}^{81}BrNO_2$ 255.9796; found 255.9795.

(2-(2-fluorophenyl)oxazol-4-yl)methanol (1s). White solid, yield: 43% (332 mg), mp: 109-110 °C. Eluent: 50% EtOAc in hexane. 

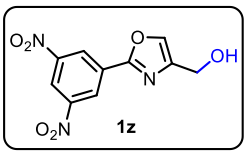
^{1}H NMR (400 MHz, $CDCl_3$): δ 8.02-7.98 (m, 1H), 7.69 (s, 1H), 7.45-7.40 (m, 1H), 7.24-7.16 (m, 2H), 4.69 (s, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 160.1 (d, J = 255.0 Hz), 158.6 (d, J = 5.0 Hz), 141.7, 135.5, 132.3 (d, J = 8.7 Hz), 129.6 (d, J = 1.2 Hz), 124.5 (d, J = 3.7 Hz), 116.9 (d, J = 21.2 Hz), 115.6 (d, J = 11.2 Hz), 56.8. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -112.1. **MS** (ES+) *m/z* (relative intensity) 194 (MH^+, 20), 176 (100), 148 (55), 121 (45). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_8FNO_2$ 194.0617; found 194.0619.

(2-(5-bromo-2-fluorophenyl)oxazol-4-yl)methanol (1v). Brown solid, yield: 51% (551 mg), mp: 115-116 °C. Eluent: 50% EtOAc in hexane. 

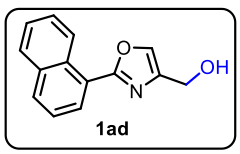
^{1}H NMR (400 MHz, $CDCl_3$): δ 8.17 (dd, J = 6.4 Hz, J = 2.5 Hz, 1H), 7.72-7.21 (m, 1H), 7.55-7.51 (m, 1H), 7.11-7.07 (m, 1H), 4.70 (d, J = 0.6 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 159.0 (d, J = 256.2 Hz), 157.2 (d, J = 5.0 Hz), 142.0, 136.0, 135.0 (d, J = 7.5 Hz), 132.2, 118.8 (d, J = 22.5 Hz), 117.3 (d, J = 12.5 Hz), 117.0 (d, J = 2.5 Hz), 57.0. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -114.2. **MS** (ES+) *m/z* (relative intensity) 371 (20), 274 (MH^+ +2, 25), 272 (MH^+, 25), 254 (100), 228 (25), 199 (20), 149 (20). **HRMS** (ESI+) *m/z* $[M+H]^+$

calcd for $C_{10}H_7{}^{79}BrFNO_2$ 271.9722; found 271.9721. **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7{}^{81}BrFNO_2$ 273.9702; found 273.9702.

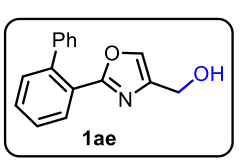
(2-(3,5-dinitrophenyl)oxazol-4-yl)methanol (1z). Yellow solid, yield: 50% (530 mg), mp: 169-170 °C. Eluent: 50% EtOAc in hexane. **^{1}H NMR** (400 MHz, DMSO-d_6): δ 8.94-8.93 (m, 2H), 8.91-8.90 (m, 1H), 8.24 (s, 1H), 5.37 (t, J = 5.6 Hz, 1H), 4.50 (d, J = 5.2 Hz, 2H). **^{13}C NMR** (100 MHz, DMSO-d_6): δ 157.1, 148.7, 143.8, 138.1, 129.3, 125.4, 119.5, 55.5. **MS** (ES+) *m/z* (relative intensity) 338 (45), 289 (30), 266 (MH^+, 100), 248 (60), 140 (75), 124 (100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7N_3O_6$ 266.0413; found 266.0411.



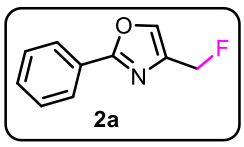
(2-(naphthalen-1-yl)oxazol-4-yl)methanol (1ad). White semi solid, yield: 62% (558 mg). Eluent: 50% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 9.18-9.16 (m, 1H), 8.16 (dd, J = 7.2 Hz, J = 1.1 Hz, 1H), 7.95 (d, J = 8.2 Hz, 1H), 7.90-7.88 (m, 1H), 7.73 (s, 1H), 7.64-7.60 (m, 1H), 7.56-7.51 (m, 2H), 4.75 (s, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 162.2, 141.6, 134.9, 134.0, 131.4, 130.2, 128.6, 128.1, 127.6, 126.4, 126.1, 125.0, 123.9, 57.2. **MS** (ES+) *m/z* (relative intensity) 226 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{14}H_{11}NO_2$ 226.0868; found 226.0870.



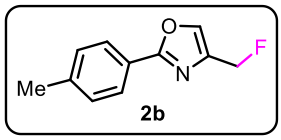
(2-([1,1'-biphenyl]-2-yl)oxazol-4-yl)methanol (1ae). Brown oil, yield: 54% (542 mg). Eluent: 50% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.93-7.91 (m, 1H), 7.53-7.49 (m, 1H), 7.46-7.44 (m, 1H), 7.43-7.41 (m,1H), 7.37 (s, 1H), 7.35-7.31 (m, 3H), 7.23-7.20 (m, 2H), 4.58 (d, J = 4.9 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 162.8, 141.7, 141.2, 141.1, 135.2, 137.1, 130.5, 130.3, 128.9, 128.2, 127.6, 127.2, 126.3, 56.9. **MS** (ES+) *m/z* (relative intensity) 252 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{16}H_{13}NO_2$ 252.1025; found 252.1027.



4-(fluoromethyl)-2-phenyloxazole (2a). Brown oil, yield: 68% (121 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.06-8.04 (m, 2H), 7.77 (d, J = 4.7 Hz, 1H), 7.48-7.45 (m, 3H), 5.37 (dd, J = 47.8 Hz, J = 0.6 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 162.6, 137.6 (d, J = 20.0 Hz), 137.4 (d, J = 8.0 Hz), 130.8, 128.9, 127.1, 126.6, 76.4 (d, J = 164.0 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.6. **MS** (ES+) *m/z* (relative intensity) 178 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_8FNO$ 178.0688; found 178.0688.

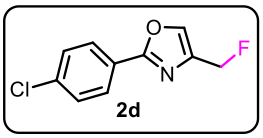


4-(fluoromethyl)-2-(*p*-tolyl)oxazole (2b). Brown oil, yield: 30% (57 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.94-7.92 (m, 2H), 7.74 (d, J = 4.7 Hz, 1H), 7.27-7.25 (m, 2H), 5.36 (dd, J = 47.8 Hz, J = 0.6 Hz, 2H), 2.40 (s, 3H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 162.8, 142.2, 137.4 (d, J = 19.7 Hz), 137.1 (d, J = 8.4 Hz), 129.6, 126.6, 124.4, 76.4 (d, J = 164.5 Hz), 21.6. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.4. **MS** (ES+) *m/z* (relative intensity) 192 (MH^+, 100), 177 (20), 172 (20). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_{10}FNO$ 192.0825; found 192.0827.



2b

4-(fluoromethyl)-2-(4-methoxyphenyl)oxazole (2c). Yellow solid, yield: 46% (95 mg), mp: 99-100 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.98-7.97 (m, 2H), 7.73-7.72 (m, 1H), 6.98-6.95 (m, 2H), 5.35 (d, J = 47.9 Hz, 2H), 3.86 (s, 3H). **^{13}C NMR** (100 MHz, DMSO-d_6): δ 161.4, 161.3, 138.8 (d, J = 9.0 Hz), 136.7 (d, J = 18.0 Hz), 127.8, 119.1, 114.6, 75.8 (d, J = 159.0 Hz), 55.3. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.2. **MS** (ES+) *m/z* (relative intensity) 208 (MH^+, 100), 133 (20), 74 (25), 60 (20). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_{10}FNO_2$ 208.0774; found 208.0773.

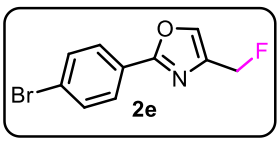


2c

2-(4-chlorophenyl)-4-(fluoromethyl)oxazole (2d). White solid, yield: 67% (141 mg), mp: 139-140 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.99-7.96 (m, 2H), 7.78-7.76 (m, 1H), 7.45-7.42 (m, 2H), 5.36 (dd, J = 47.7 Hz, J = 0.6 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 161.7, 137.8 (d, J = 8.0 Hz), 137.6 (d, J = 8.1 Hz), 137.0, 129.3, 127.9, 125.6, 76.3 (d, J = 164.7 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.9. **MS** (ES+) *m/z* (relative intensity) 414 (25), 413 (100), 247 (20), 225 (30), 212 (MH^+, 20), 149 (20). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7ClFNO$ 212.0278; found 212.0277.

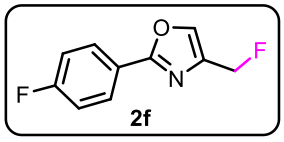
2d

2-(4-bromophenyl)-4-(fluoromethyl)oxazole (2e). White solid, yield: 53% (135 mg), mp: 145-146 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.93-7.89 (m, 2H), 7.78-7.77 (m, 1H), 7.62-7.58 (m, 2H), 5.36 (dd, J = 47.8 Hz, J = 0.6 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 161.7, 137.8 (d, J = 20.0 Hz), 137.6 (d, J = 8.1 Hz), 132.2, 128.1, 126.0, 125.4, 76.3 (d, J = 163.7 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.9. **MS** (ES+) *m/z* (relative intensity) 413 (50), 393 (25), 358 (40), 337 (30), 301 (90), 295 (35), 258 (MH^+ +2, 100), 256 (MH^+, 100), 242 (85), 181 (58), 149 (45), 129 (50), 114 (40). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7{}^{79}BrFNO$ 255.9773; found 255.9774. **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7{}^{81}BrFNO$ 257.9753; found 257.9755.

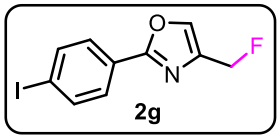


2e

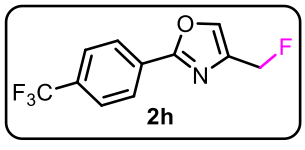
4-(fluoromethyl)-2-(4-fluorophenyl)oxazole (2f). White solid, yield: 69% (135 mg), mp: 109-110 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.07-8.02 (m, 2H), 7.76 (d, J = 4.7 Hz, 1H), 7.17-7.13 (m, 2H), 5.36 (dd, J = 47.8 Hz, J = 0.5 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 164.4 (d, J = 250.0 Hz), 161.8, 137.6 (d, J = 19.9 Hz), 137.4 (d, J = 8.1 Hz), 128.8 (d, J = 8.7 Hz), 123.5 (d, J = 3.2 Hz), 116.1 (d, J = 22.0 Hz), 76.3 (d, J = 164.5 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -108.8, -211.7. **MS** (ES+) *m/z* (relative intensity) 441 (20), 434 (20), 413 (75), 393 (30), 301 (100), 295 (30), 197 (20), 196 (MH^+, 100), 181 (55), 158 (30), 149 (45), 130 (35), 129 (50), 114 (35). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7F_2NO$ 196.0574; found 196.0574.



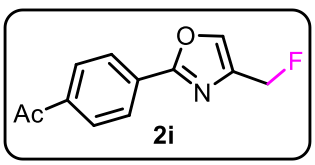
4-(fluoromethyl)-2-(4-iodophenyl)oxazole (2g). White solid, yield: 39% (118 mg), mp: 151-152 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.82-7.80 (m, 2H), 7.77-7.75 (m, 3H), 5.36 (d, J = 47.8 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 161.8, 138.2, 137.8 (d, J = 19.7 Hz), 137.6 (d, J = 8.1 Hz), 128.1, 126.6, 97.5, 76.3 (d, J = 165.1 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -212.0. **MS** (ES+) *m/z* (relative intensity) 413 (30), 338 (30), 337 (75), 331 (40), 313 (50), 304 (MH^+, 100), 301 (55), 183 (70), 149 (40), 130 (40), 129 (30). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7FINO$ 303.9635; found 303.9635.



4-(fluoromethyl)-2-(4-(trifluoromethyl)phenyl)oxazole (2h). White solid**,** yield: 29% (42 mg), mp: 78-79 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.17 (d, J = 8.15 Hz, 2H), 7.83 (d, J = 4.4 Hz, 1H), 7.73 (d, J = 8.2 Hz, 2H), 5.39 (dd, J = 47.6 Hz, J = 0.6 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 161.9, 138.2-138.0 (m), 132.4 (q, J = 32.3 Hz), 130.3, 130.2, 126.0-125.9 (m), 123.9 (q, J = 270.6 Hz), 76.2 (d, J = 164.1 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -62.9, -212.3. **MS** (ES+) *m/z* (relative intensity) 246 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_7F_4NO$ 246.0542; found 246.0543.

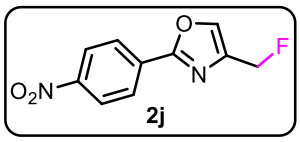


1-(4-(4-(fluoromethyl)oxazol-2-yl)phenyl)ethan-1-one (2i). White fluffy solid, yield: 61% (134 mg), mp: 138-139 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.16-8.14 (m, 2H), 8.06-8.03 (m, 2H), 7.84-7.83 (m, 1H), 5.39 (dd, J = 47.7 Hz, J = 0.6 Hz, 2H), 2.64 (s, 3H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 197.4, 161.5, 138.5, 138.1 (d, J = 19.9 Hz), 138.2 (d, J = 7.8 Hz), 130.9, 128.9, 126.7, 76.2 (d, J = 164.3 Hz), 26.8. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -212.2. **MS** (ES+) *m/z* (relative intensity) 221 (20), 220 (MH^+,

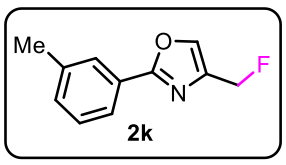


100), 129 (20), 123 (40), 102 (38). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{12}H_{10}FNO_2$ 220.0774; found 220.0773.

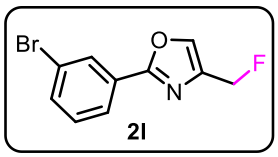
4-(fluoromethyl)-2-(4-nitrophenyl)oxazole (2j). White solid, yield: 82% (180 mg), mp: 106-107 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.34-8.31 (m, 2H), 8.23-8.20 (m, 2H), 7.88-7.86 (m, 1H), 5.39 (dd, *J* = 47.6 Hz, *J* = 0.7 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 160.4, 149.0, 138.7 (d, *J* = 7.6 Hz), 138.6 (d, *J* = 20.4 Hz), 132.5, 127.4, 124.4, 124.3, 76.2 (d, *J* = 165.4 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -212.8. **MS** (ES+) *m/z* (relative intensity) 223 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7FN_2O_3$ 223.0519; found 223.0518.



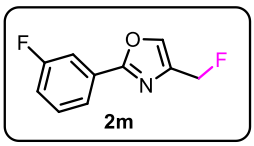
4-(fluoromethyl)-2-(*m*-tolyl)oxazole (2k). Yellow oil, yield: 68% (130 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.89 (s, 1H), 7.83 (d, *J* = 7.6 Hz, 1H), 7.76 (d, *J* = 4.7 Hz, 1H), 7.36-7.33 (m, 1H), 7.28-7.26 (m, 1H), 5.37 (dd, *J* = 47.8 Hz, *J* = 0.7 Hz, 2H), 2.41 (s, 3H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 162.8, 138.7, 137.5 (d, *J* = 20.0 Hz), 137.3 (d, *J* = 8.0 Hz), 131.7, 128.8, 127.2, 127.0, 123.7, 76.4 (d, *J* = 164.0 Hz), 21.4. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.5. **MS** (ES+) *m/z* (relative intensity) 192 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_{10}FNO$ 192.0825; found 192.0823.



2-(3-bromophenyl)-4-(fluoromethyl)oxazole (2l). White solid, yield: 56% (142 mg), mp: 125-126 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.22-8.21 (m, 1H), 7.99-7.96 (m, 1H), 7.79-7.78 (m, 1H), 7.60-7.58 (m, 1H), 7.35-7.32 (m, 1H), 5.37 (dd, *J* = 47.7 Hz, *J* = 0.5 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 161.1, 138.0 (d, *J* = 15.4 Hz), 137.9 (d, *J* = 6.2 Hz), 133.8, 130.5, 129.6, 128.9, 125.1, 123.0, 76.3 (d, *J* = 164.7 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -212.1. **MS** (ES+) *m/z* (relative intensity) 258 (MH^+ +2, 60), 256 (MH^+, 60), 204 (30), 133 (25). **HRMS** (ESI) *m/z* $[M+H]^+$ calcd for $C_{10}H_7{}^{79}BrFNO$ 255.9773; found 255.9775. **HRMS** (ESI) *m/z* $[M+H]^+$ calcd for $C_{10}H_7{}^{81}BrFNO$ 257.9753; found 257.9755.

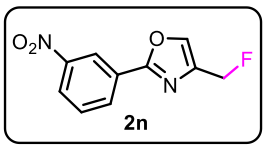


(2-(3-fluorophenyl)oxazol-4-yl)methanol (2m). White semi-solid, yield: 75% (146 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.85-7.83 (m, 1H), 7.79-7.78 (m, 1H), 7.76-7.72 (m, 1H), 7.46-7.41 (m, 1H), 7.19-7.14 (m, 1H), 5.12 (dd, *J* = 47.7 Hz, *J* = 0.6 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 163.0 (d, *J* = 245.0 Hz), 161.4 (d, *J* = 4.0 Hz), 137.8 (d, *J* = 20.0 Hz), 137.7 (d, *J* = 8.0 Hz), 130.7 (d, *J* = 8.0 Hz), 129.1 (d, *J* = 8.0 Hz), 122.3 (d, *J* = 3.0 Hz),

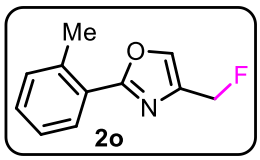


117.8 (d, *J* = 22.0 Hz), 113.7 (d, *J* = 24.0 Hz), 76.4 (d, *J* = 185.5 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): *δ* -111.9, -212.1. **MS** (ES+) *m/z* (relative intensity) 421 (30), 420 (100), 301 (30), 209 (55), 196 (MH^+, 55), 176 (25). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7F_2NO$ 196.0574; found 196.0573.

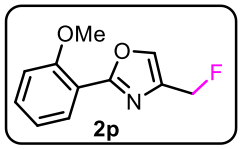
4-(fluoromethyl)-2-(3-nitrophenyl)oxazole (2n). White solid, yield: 70% (155 mg), mp: 116-117 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): *δ* 8.29-8.88 (m, 1H), 8.39-8.37 (m, 1H), 8.33-8.30 (m, 1H), 7.86-7.85 (m, 1H), 7.69-7.65 (m, 1H), 5.39 (d, *J* = 47.6 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): *δ* 160.2, 148.8, 138.3 (d, *J* = 7.7 Hz), 138.1, 132.1, 130.2, 128.7, 125.2, 121.6, 76.2 (d, *J* = 165.4 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): *δ* -212.6. **MS** (ES+) *m/z* (relative intensity) 297 (20), 295 (30), 287 (45), 225 (20), 223 (MH^+, 58), 199 (28), 149 (40), 133 (100), 102 (100). **HRMS** (ESI) *m/z* $[M+H]^+$ calcd for $C_{10}H_7FN_2O_3$ 223.0519; found 223.0520.



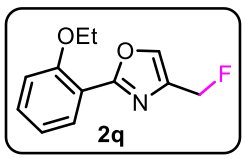
4-(fluoromethyl)-2-(*o*-tolyl)oxazole (2o). Yellow oil, yield: 46% (88 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): *δ* 7.98-7.95 (m, 1H), 7.80-7.79 (m, 1H), 7.37-7.33 (m, 1H), 7.30 (s, 1H), 7.28-7.26 (m, 1H), 5.39 (dd, *J* = 47.9 Hz, *J* = 0.7 Hz, 2H), 2.68 (s, 3H). **^{13}C NMR** (100 MHz, $CDCl_3$): *δ* 163.0, 137.8, 137.3 (d, *J* = 19.0 Hz), 137.1 (d, *J* = 8.0 Hz), 131.7, 130.4, 129.1, 126.2, 126.1, 76.5 (d, *J* = 164.0 Hz), 21.9. **^{19}F NMR** (376 MHz, $CDCl_3$): *δ* -211.1. **MS** (ES+) *m/z* (relative intensity) 192 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_{10}FNO$ 192.0825; found 192.0826.



4-(fluoromethyl)-2-(2-methoxyphenyl)oxazole (2p). Brown oil, yield: 34% (70 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): *δ* 7.95-7.93 (m, 1H), 7.81-7.80 (m, 1H), 7.46-7.42 (m, 1H), 7.06-7.02 (m, 2H), 5.40 (dd, *J* = 47.8 Hz, *J* = 0.5 Hz, 2H), 3.95 (s, 3H). **^{13}C NMR** (100 MHz, $CDCl_3$): *δ* 161.1, 157.7, 137.4, 137.2 (d, *J* = 8.0 Hz), 132.2, 130.6, 120.8, 116.3, 112.1, 76.6 (d, *J* = 164.0 Hz), 56.1. **^{19}F NMR** (376 MHz, $CDCl_3$): *δ* -211.4. **MS** (ES+) *m/z* (relative intensity) 208 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_{10}FNO_2$ 208.0774; found 208.0775.

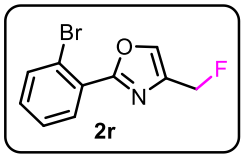


2-(2-ethoxyphenyl)-4-(fluoromethyl)oxazole (2q). Brown oil, yield: 42% (93 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): *δ* 7.94-7.92 (m, 1H), 7.81-7.79 (m, 1H), 7.43-7.38 (m, 1H), 7.04-7.00 (m, 2H), 5.38 (dd, *J* = 47.9 Hz, *J* = 0.7 Hz, 2H), 4.16 (q, *J* = 7.0 Hz, 2H), 1.46 (t, *J* = 7.0 Hz,

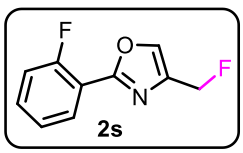


3H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 161.5, 157.2, 137.3 (d, J = 8.7 Hz), 137.1 (d, J = 20.0 Hz), 132.1, 130.8, 120.7, 116.8, 113.5, 76.6 (d, J = 163.7 Hz), 64.8, 14.8. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.1. **MS** (ES+) *m/z* (relative intensity) 223 (15), 222 (MH^+, 100), 194 (35). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{12}H_{12}FNO_2$ 222.0930; found 222.0932.

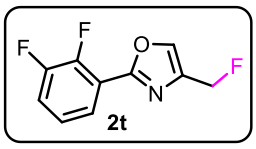
2-(2-bromophenyl)-4-(fluoromethyl)oxazole (2r). Colourless oil, yield: 40% (102 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.91 (dd, J = 7.7 Hz, J = 1.7 Hz, 1H), 7.86-7.85 (m, 1H), 7.70 (dd, J = 8.0 Hz, J = 1.1 Hz, 1H), 7.41-7.37 (m, 1H), 7.32-7.27 (m, 1H), 5.40 (dd, J = 47.7 Hz, J = 0.7 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 161.0, 137.9 (d, J = 7.5 Hz), 137.4 (d, J = 20.0 Hz), 134.5, 131.7, 131.6, 128.2, 127.5, 121.2, 76.3 (d, J = 163.7 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.9. **MS** (ES+) *m/z* (relative intensity) 301 (20), 258 (MH^+ +2, 100), 256 (MH^+, 100), 153 (30), 149 (20). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7{}^{79}BrFNO$ 255.9773; found 255.9774. **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7{}^{81}BrFNO$ 257.9753; found 257.9755.

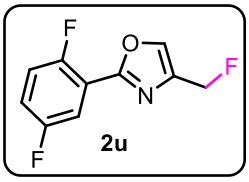


4-(fluoromethyl)-2-(2-fluorophenyl)oxazole (2s). White solid, yield: 50% (98 mg), mp: 75-76 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.07-8.03 (m, 1H), 7.84 (d, J = 4.4 Hz, 1H), 7.48-7.42 (m, 1H), 7.27-7.18 (m, 2H), 5.40 (dd, J = 47.5 Hz, J = 0.5 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 160.2 (d, J = 255.0 Hz), 159.0 (d, J = 5.0 Hz), 137.7 (dd, J = 8.0 Hz, J = 2.0 Hz), 137.6 (d, J = 20.0 Hz), 132.5 (d, J = 8.0 Hz), 129.8 (d, J = 2.0 Hz), 124.4 (d, J = 4.0 Hz), 117.0 (d, J = 21.0 Hz), 115.4 (d, J = 11.0 Hz), 76.3 (d, J = 163.0 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -112.0, -212.0. **MS** (ES+) *m/z* (relative intensity) 364 (25), 360 (40), 196 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7F_2NO$ 196.0574; found 196.0571.

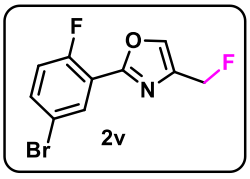


2-(2,3-difluorophenyl)-4-(fluoromethyl)oxazole (2t). Yellow solid, yield: 42% (89 mg), mp: 88-89 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.86-7.85 (m, 1H), 7.83-7.79 (m, 1H), 7.32-7.25 (m, 1H), 7.21-7.16 (m, 1H), 5.40 (dd, J = 47.6 Hz, J = 0.5 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): 158.1-158.0 (m), 151.4 (dd, J = 209.0 Hz, J = 12.5 Hz), 148.7 (dd, J = 258.5 Hz, J = 14.6 Hz), 138.1 (d, J = 7.7 Hz), 137.8 (d, J = 20.2 Hz), 124.5 (d, J = 5.8 Hz), 124.4 (d, J = 3.9 Hz), 119.4 (d, J = 17.2 Hz), 117.4 (d, J = 7.8 Hz), 76.3 (d, J = 165.0 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -136.6 (d, J = 19.5 Hz), -137.7 (d, J = 19.0 Hz), -212.5. **MS** (ES+) *m/z* (relative intensity) 214 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_6F_3NO$ 214.0480; found 214.0481.

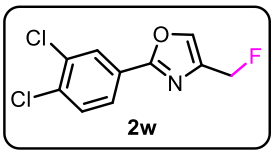


2-(2,5-difluorophenyl)-4-(fluoromethyl)oxazole (2u). White solid, yield: 38% (81 mg), mp: 110-111 °C. Eluent: 5% EtOAc in hexane. 

^{1}H NMR (400 MHz, $CDCl_3$): δ 7.85-7.84 (m, 1H), 7.77-7.72 (m, 1H), 7.21-7.12 (m, 2H), 5.40 (d, J = 47.6 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 158.6 (dd, J = 229.7 Hz, J = 3.9 Hz), 158.0-157.9 (m), 156.1 (dd, J = 240.3 Hz, J = 3.8 Hz), 138.0 (dd, J = 8.0 Hz, J = 1.1 Hz), 137.8, 119.1 (dd, J = 21.8 Hz, J = 10.8 Hz), 118.4 (dd, J = 23.2 Hz, J = 9.4 Hz), 116.4 (dd, J = 13.2 Hz, J = 8.9 Hz), 115.9 (dd, J = 22.7 Hz, J = 5.9 Hz), 76.3 (d, J = 164.3 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -117.7 (d, J = 17.7 Hz), -117.8 (d, J = 17.7 Hz), -212.6. **MS** (ES+) *m/z* (relative intensity) 393 (20), 326 (20), 325 (80), 301 (40), 245 (28), 214 (MH^+, 100), 149 (40), 130 (30), 102 (28). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_6F_3NO$ 214.0480; found 214.0480.

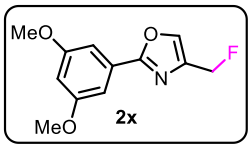
2-(5-bromo-2-fluorophenyl)-4-(fluoromethyl)oxazole (2v). Yellow solid, yield: 45% (122 mg), mp: 112-113 °C. Eluent: 5% EtOAc in hexane. 

^{1}H NMR (400 MHz, $CDCl_3$): δ 8.21-8.19 (m, 1H), 7.85-7.84 (m, 1H), 7.57-7.53 (m, 1H), 7.13-7.08 (m, 1H), 5.40 (d, J = 47.6 Hz, 2H). **^{13}C NMR** (100 MHz, DMSO-d_6): δ 158.3 (d, J = 255.0 Hz), 156.2 (d, J = 5.0 Hz), 140.3 (d, J = 9.1 Hz), 137.0 (d, J = 19.0 Hz), 135.5 (d, J = 8.0 Hz), 131.0, 119.5 (d, J = 23.0 Hz), 116.6 (d, J = 6.0 Hz), 116.5 (d, J = 3.0 Hz), 75.6 (d, J = 160.0 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -114.1, -212.6. **MS** (ES+) *m/z* (relative intensity) 274 (MH^+ +2, 100), 276 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_6{}^{79}BrF_2NO$ 273.9679; found 273.9680. **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_6{}^{81}BrF_2NO$ 275.9659; found 275.9659.

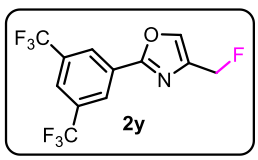
(2-(3,4-dichlorophenyl)oxazol-4-yl)methanol (2w). White solid, yield: 72% (176 mg), mp: 114-115 °C. Eluent: 5% EtOAc in hexane. 

^{1}H NMR (400 MHz, $CDCl_3$): δ 8.14 (d, J = 1.9 Hz, 1H), 7.87 (dd, J = 8.3 Hz, J = 2.0 Hz, 1H), 7.79 (d, J = 4.5 Hz, 1H), 7.54 (d, J = 8.3 Hz, 1H), 5.36 (dd, J = 47.7 Hz, J = 0.7 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 160.5, 138.0 (d, J = 19.3 Hz), 137.9, (d, J = 7.9 Hz), 135.2, 133.5, 131.1, 128.4, 126.9, 125.6, 76.2 (d, J = 165.1 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -212.4. **MS** (ES+) *m/z* (relative intensity) 301 (100), 281 (25), 248 (30), 246 (MH^+, 48), 149 (80), 102 (90). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_6Cl_2FNO$ 245.9889; found 245.9888.

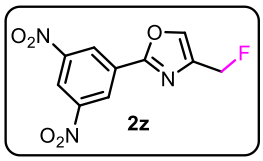
2-(3,5-dimethoxyphenyl)-4-(fluoromethyl)oxazole (2x). Light Yellow fluffy solid, yield: 53% (126 mg), mp 120-121 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.76 (d, J = 4.7 Hz, 1H), 7.20 (d, J = 2.3 Hz, 2H), 6.57-6.56 (m, 1H), 5.12 (dd, J = 47.8 Hz, J = 0.6 Hz, 2H), 3.85 (s, 6H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 162.5, 161.2, 137.6, 137.4 (d, J = 8.2 Hz), 128.7, 104.4, 103.8, 76.3 (d, J = 164.9 Hz), 55.7. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.5. **MS** (ES+) *m/z* (relative intensity) 239 (15), 238 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{12}H_{12}FNO_3$ 238.0879; found 238.0880.



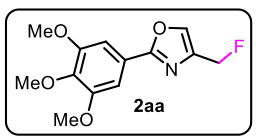
2-(3,5-bis(trifluoromethyl)phenyl)-4-(fluoromethyl)oxazole (2y). White solid, yield: 54% (169 mg), mp: 89-90 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.51 (s, 2H), 7.96 (s, 1H), 7.88-7.87 (m, 1H), 5.40 (dd, J = 47.6 Hz, J = 0.6 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 159.6, 138.3 (d, J = 7.7 Hz), 138.2 132.6 (q, J = 33.7 Hz), 128.9, 126.5 (d, J = 2.9 Hz), 124.0-123.9 (m), 122.8 (d, J = 272.9 Hz), 75.9 (d, J = 165.6 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -63.1, -213.1. **MS** (ES+) *m/z* (relative intensity) 333 (40), 331 (MNH_4^+, 100), 313 (40), 173 (38), 144 (45), 130 (30), 102 (30). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{12}H_6F_7NO$ 314.0416; found 314.0418.



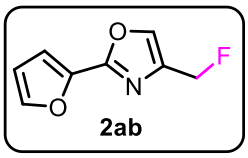
2-(3,5-dinitrophenyl)-4-(fluoromethyl)oxazole (2z). White solid, yield: 66% (176 mg), mp: 126-127 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 9.19 (d, J = 1.2 Hz, 2H), 9.11 (s, 1H), 7.95 (d, J = 3.7 Hz, 1H), 5.42 (d, J = 47.4 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 158.3, 149.2, 139.2 (d, J = 7.5 Hz), 139.0 (d, J = 21.9 Hz), 130.4, 126.2, 120.0, 76.0 (d, J = 165.0 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -213.7. **MS** (ES+) *m/z* (relative intensity) 268 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_6FN_3O_5$ 268.0370; found 268.0369.



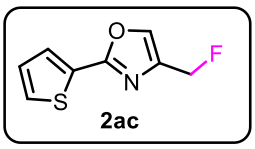
4-(fluoromethyl)-2-(3,4,5-trimethoxyphenyl)oxazole (2aa). Brown solid, yield: 43% (115 mg), mp: 78-79 °C. Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.77-7.75 (m, 1H), 7.29 (s, 2H), 5.37 (d, J = 47.8 Hz, 2H), 3.94 (s, 6H), 3.90 (s, 3H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 162.5, 153.6, 140.5, 137.6 (d, J = 19.3 Hz), 137.3 (d, J = 8.2 Hz), 132.4, 103.9, 76.3 (d, J = 164.6 Hz). 61.1, 56.4. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.5. **MS** (ES+) *m/z* (relative intensity) 269 (20), 268 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{13}H_{14}FNO_4$ 268.0985; found 268.0985.



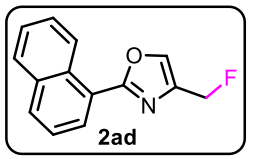
4-(fluoromethyl)-2-(furan-2-yl)oxazole (2ab). Brown oil, yield: 60% (100 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.72-7.70 (m, 1H), 7.55-7.54 (m, 1H), 7.04-7.03 (m, 1H), 6.53-6.51 (m, 1H), 5.34 (dd, J = 47.6 Hz, J = 0.7 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.1, 144.8, 142.5, 137.5 (d, J = 20.0 Hz), 136.7 (d, J = 8.0 Hz), 112.2, 112.0, 76.2 (d, J = 164.0 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -212.8. **MS** (ES+) *m/z* (relative intensity) 233 (20), 168 (MH^+, 100), 120 (20). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_8H_6FNO_2$ 168.0461; found 168.0457.



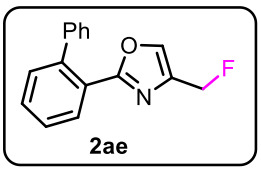
(2-(thiophen-2-yl)oxazol-4-yl)methanol (2ac). Brown oil, yield: 52% (95 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.70-7.68 (m, 2H), 7.45-7.43 (m, 1H), 7.12-7.10 (m, 1H), 5.32 (d, J = 47.7 Hz, 2H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 158.7, 137.5 (d, J = 20.0 Hz), 136.8 (d, J = 9.0 Hz), 129.4, 128.9, 128.4, 128.1, 76.2 (d, J = 164.0 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -212.0. **MS** (ES+) *m/z* (relative intensity) 184 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for C_8H_6FNOS 184.0232; found 184.0231.



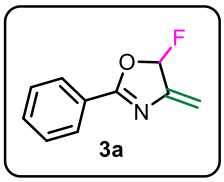
4-(fluoromethyl)-2-(naphthalen-1-yl)oxazole (2ad). Yellow oil, yield: 45% (102 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 9.27-9.25 (m, 1H), 8.21-8.19 (m, 1H), 7.98-7.96 (m, 1H), 7.92-7.89 (m, 1H), 7.88-7.87 (m, 1H), 7.68-7.64 (m, 1H), 7.58-7.53 (m, 2H), 5.47 (dd, J = 47.9 Hz, J = 0.7 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 162.3, 137.5 (d, J = 20.0 Hz), 137.2 (d, J = 8.7 Hz), 134.0, 131.6, 130.2, 128.6, 128.1, 127.7, 126.4, 126.1, 125.0, 123.6, 76.5 (d, J = 163.7 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.1. **MS** (ES+) *m/z* (relative intensity) 228 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{14}H_{10}FNO$ 228.0825; found 228.0825.



(2-([1,1'-biphenyl]-2-yl)oxazol-4-yl)methanol (2ae). Yellow oil, yield: 47% (119 mg). Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.97-7.95 (m, 1H), 7.55-7.51 (m, 1H), 7.50-7.49 (m, 1H), 7.48-7.45 (m,1H), 7.44-7.42 (m, 1H), 7.37-7.32 (m, 3H), 7.24-7.21 (m, 2H), 5.31 (dd, J = 47.8 Hz, J = 0.6 Hz, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 163.1, 141.8, 141.0, 137.6 (d, J = 8.7 Hz), 137.0 (d, J = 20.0 Hz), 131.1, 130.6, 130.5, 128.8, 128.2, 127.6, 127.3, 126.2, 76.4 (d, J = 162.5 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -211.2. **MS** (ES+) *m/z* (relative intensity) 254 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{16}H_{12}FNO$ 254.0981; found 254.0982.

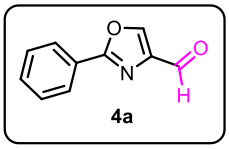


5-fluoro-4-methylene-2-phenyl-4,5-dihydrooxazole (3a). Brown oil, yield: 40% (71 mg).



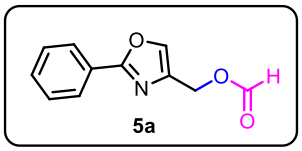
Eluent: 5% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.07-8.05 (m, 2H), 7.58-7.54 (m, 1H), 7.49-7.45 (m, 2H), 6.64-6.48 (m, 1H), 5.66-5.63 (m, 1H), 5.29-5.27 (m, 1H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 167.5 (d, J = 6.2 Hz), 154.3 (d, J = 12.5 Hz), 133.0, 128.9, 128.8, 125.9 (d, J = 1.25 Hz), 107.3 (d, J = 11.2 Hz), 107.0 (d, J = 232.5 Hz). **^{19}F NMR** (376 MHz, $CDCl_3$): δ -111.3. **MS** (ES+) *m/z* (relative intensity) 178 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_8FNO$ 178.0668; found 178.0668.

2-phenyloxazole-4-carbaldehyde (4a). White solid, yield: 58% (100 mg), mp: 95-96 ^{o}C



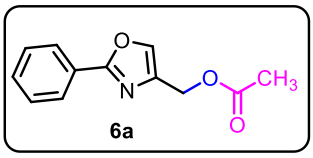
Eluent: 10% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 10.01 (s, 1H), 8.32 (s, 1H), 8.12-8.10 (m, 2H), 7.52-7.49 (m, 3H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 184.2, 163.1, 144.4, 142.0, 131.6, 129.1, 127.1, 126.3. **MS** (ES+) *m/z* (relative intensity) 174 (MH^+, 100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{10}H_7NO_2$ 174.0555; found 174.0556.

(2-phenyloxazol-4-yl)methyl formate (5a). Brown oil, yield: 55% (112 mg). Eluent: 10%



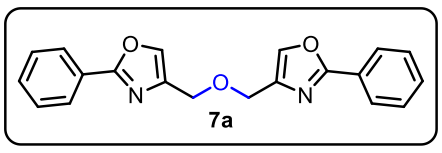
EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.13 (s, 1H), 8.05-8.02 (m, 2H), 7.73 (s, 1H), 7.46-7.45 (m, 3H), 5.19 (s, 2H). **^{13}C NMR** (125 MHz, $CDCl_3$): δ 162.5, 160.7, 137.4, 136.6, 130.8, 128.9, 127.1, 126.6, 57.6. **MS** (ES+) *m/z* (relative intensity) 331 (20), 204 (MH^+, 15), 158 (100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{11}H_9NO_3$ 204.0661; found 204.0661.

(2-phenyloxazol-4-yl)methyl acetate (6a). Brown oil, yield: 40% (87 mg). Eluent: 10%



EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.05-8.03 (m, 2H), 7.72 (s, 1H), 7.46-7.45 (m, 3H), 5.09 (d, J = 0.5 Hz, 2H), 2.11 (s, 3H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 170.9, 162.2, 137.3, 137.1, 137.7, 128.9, 127.2, 126.6, 58.2, 21.0. **MS** (ES+) *m/z* (relative intensity) 240 (MNa^+, 20), 218 (MH^+, 10), 158 (100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{12}H_{11}NO_3$ 218.0817; found 218.0817.

4,4'-(oxybis(methylene))bis(2-phenyloxazole) (7a). Brown oil, yield: 35% (116 mg).



Eluent: 10% EtOAc in hexane. **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.03-8.00 (m, 4H), 7.74 (s, 2H), 7.46-7.43 (m, 6H), 5.09 (d, J = 0.4 Hz, 4H). **^{13}C NMR** (100 MHz, $CDCl_3$): δ 162.5, 137.4, 136.9, 130.8, 128.9, 127.1, 126.6, 56.2. **MS** (ES+) *m/z* (relative intensity) 355 (MNa^+, 80), 419 (100). **HRMS** (ESI+) *m/z* $[M+H]^+$ calcd for $C_{20}H_{16}N_2O_3$ 333.1239; found 333.1244.

IX. References

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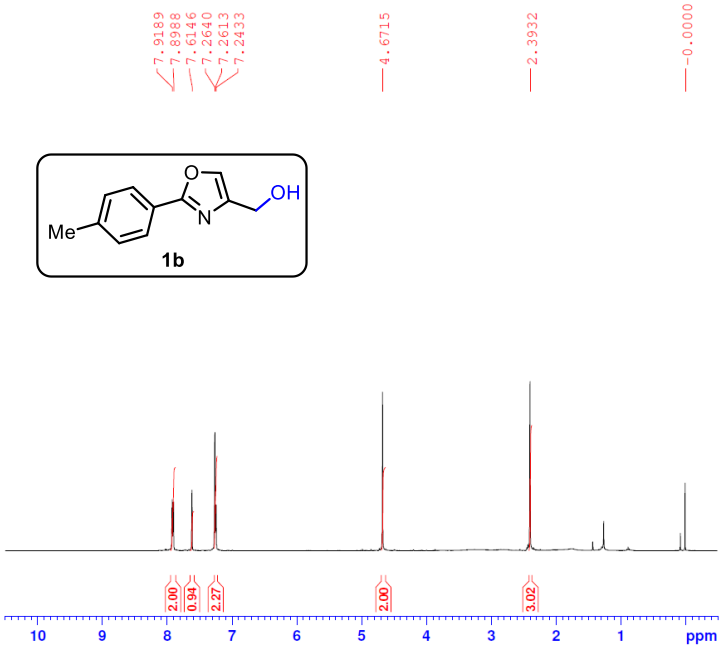
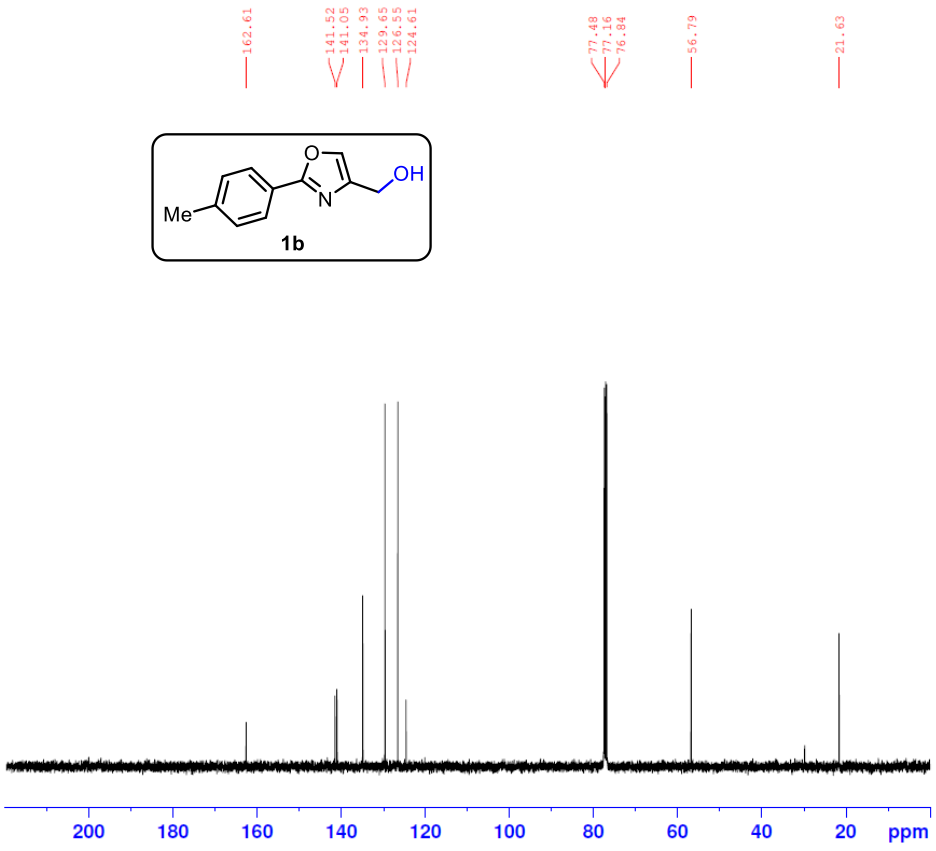
X. Copies of NMR spectra

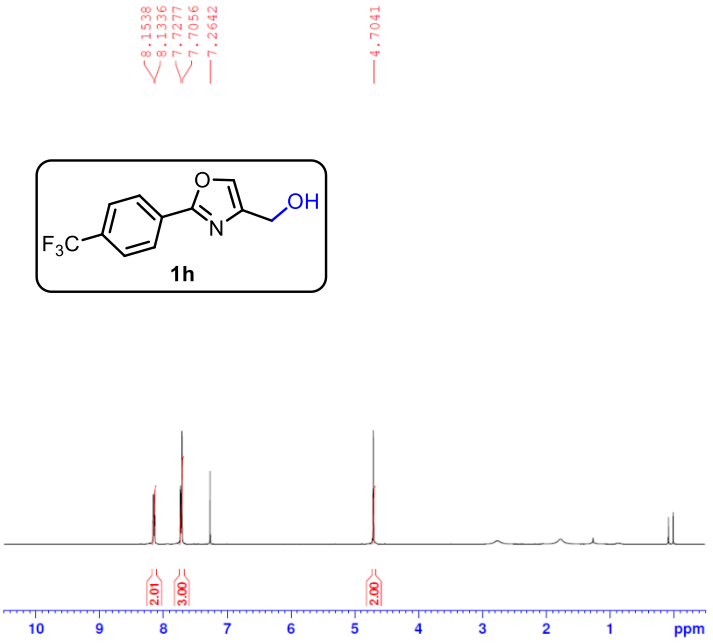
(2-(*p*-tolyl)oxazol-4-yl)methanol (1b). **^{1}H NMR** (400 MHz, $CDCl_3$)



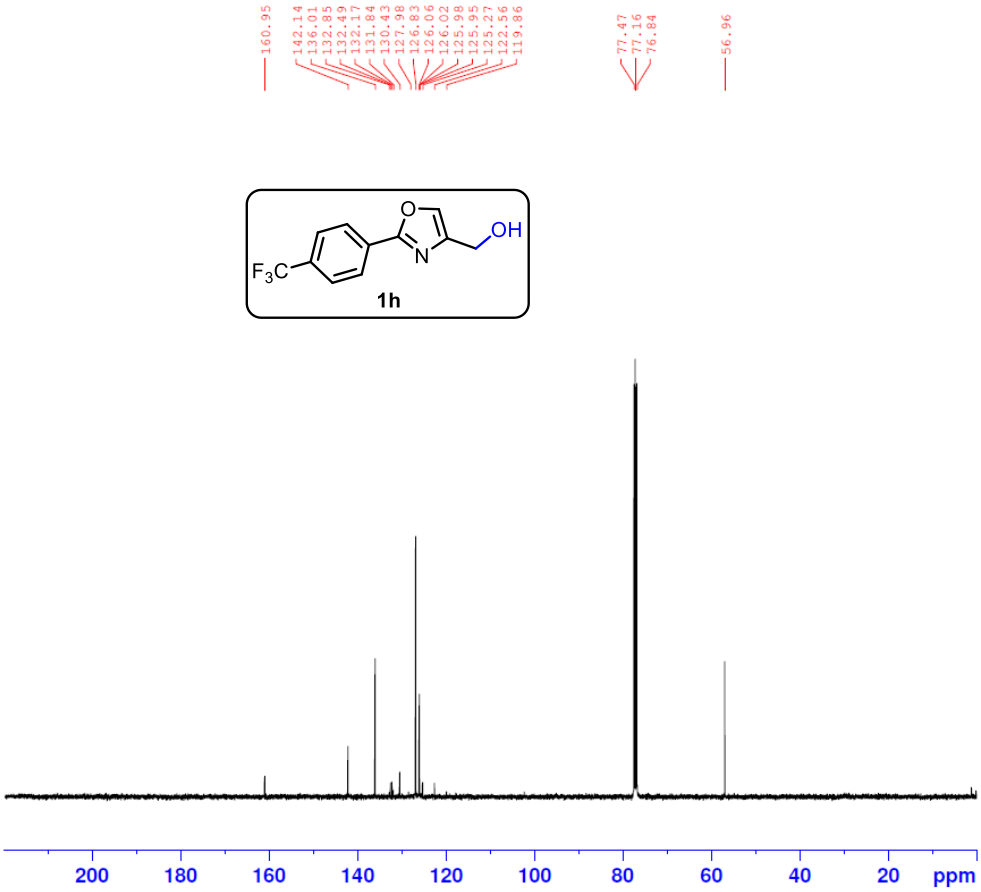
(2-(*p*-tolyl)oxazol-4-yl)methanol (1b). **^{13}C NMR** (100 MHz, $CDCl_3$)



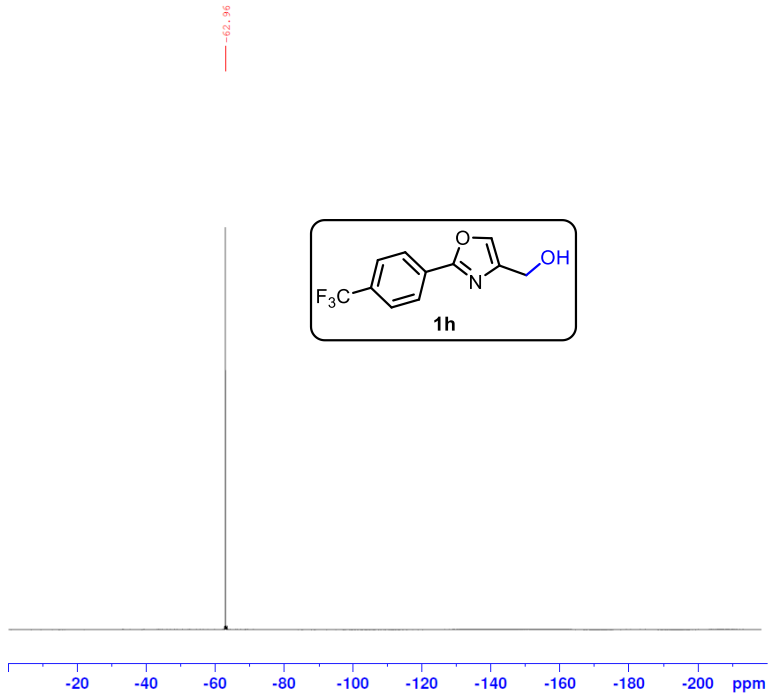
(2-(4-(trifluoromethyl)phenyl)oxazol-4-yl)methanol (1h). ^{1}H NMR (400 MHz, $CDCl_3$)



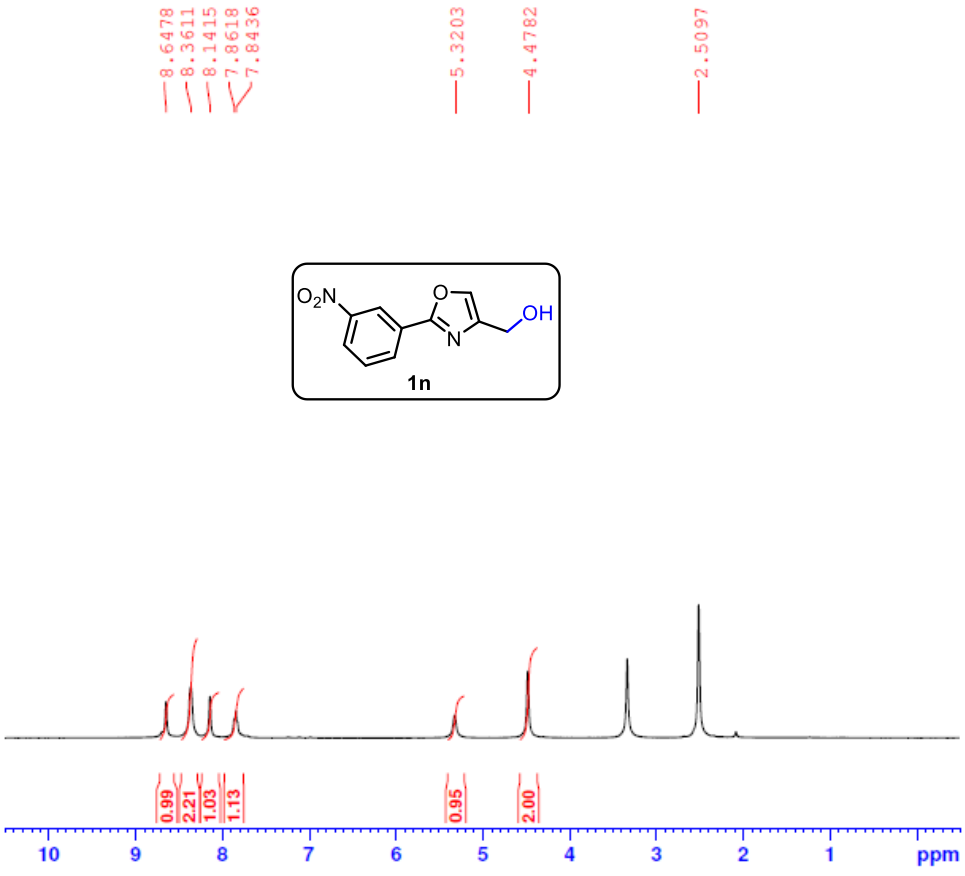
(2-(4-(trifluoromethyl)phenyl)oxazol-4-yl)methanol (1h). ^{13}C NMR (100 MHz, $CDCl_3$)



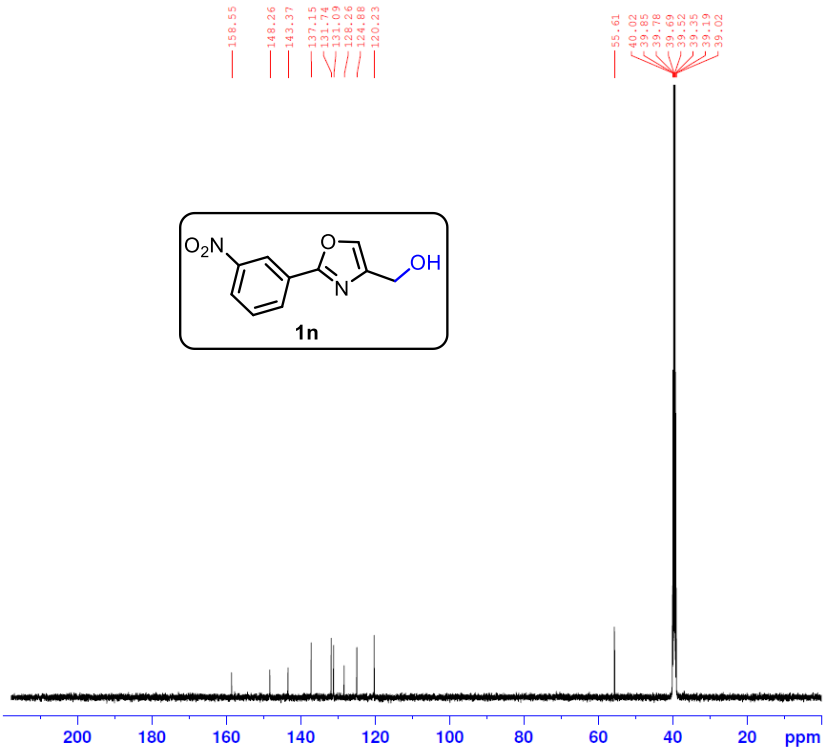
(2-(4-(trifluoromethyl)phenyl)oxazol-4-yl)methanol (1h). ^{19}F NMR (376 MHz, $CDCl_3$)



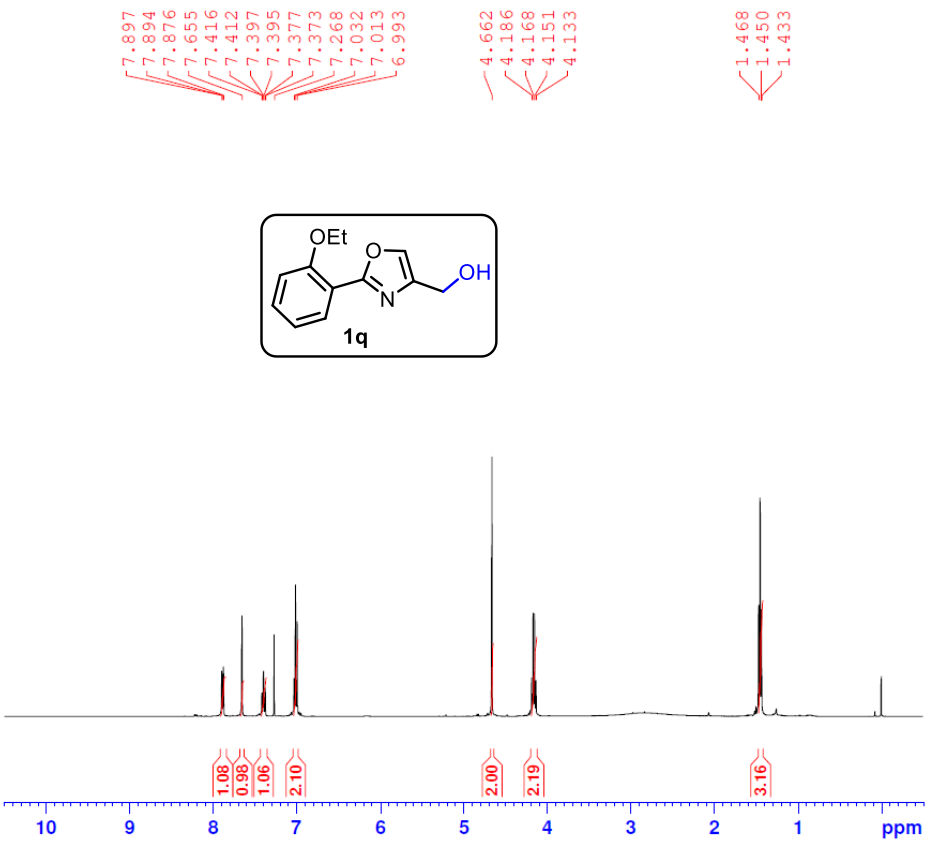
(2-(3-nitrophenyl)oxazol-4-yl)methanol (1n). ^{1}H NMR (400 MHz, DMSO-d_6)



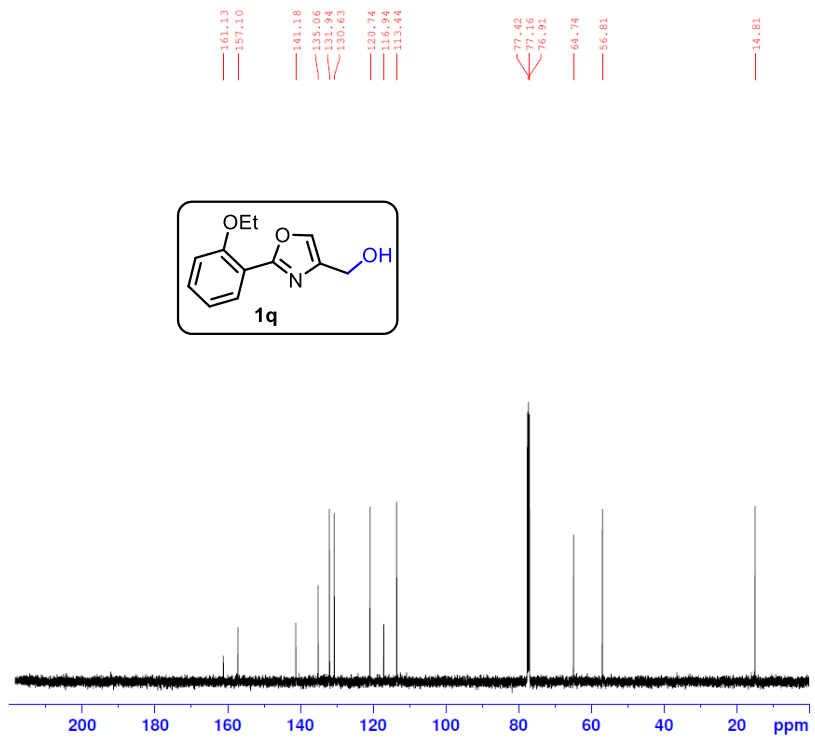
(2-(3-nitrophenyl)oxazol-4-yl)methanol (1n). ^{13}C NMR (125 MHz, DMSO-d_6)



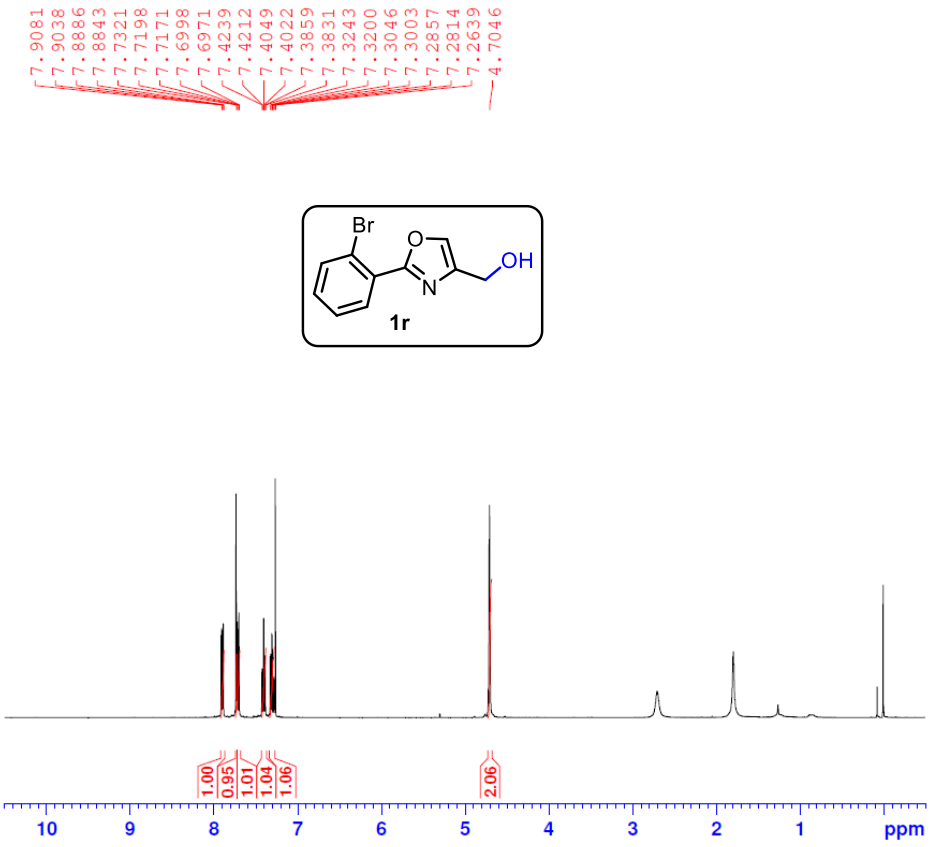
(2-(2-ethoxyphenyl)oxazol-4-yl)methanol (1q). ^{1}H NMR (400 MHz, $CDCl_3$)



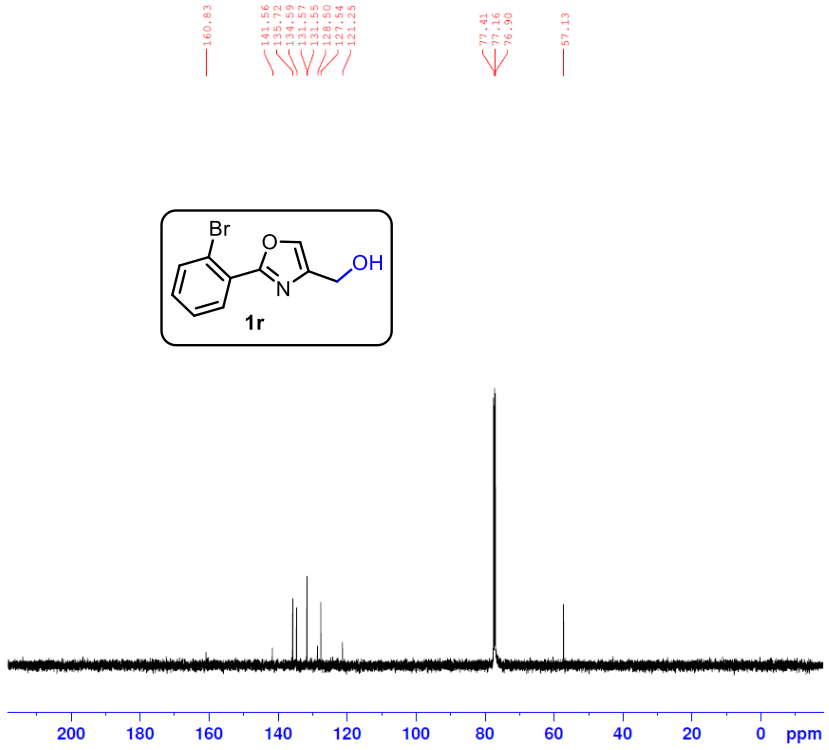
(2-(2-ethoxyphenyl)oxazol-4-yl)methanol (1q). ^{13}C NMR (125 MHz, $CDCl_3$)



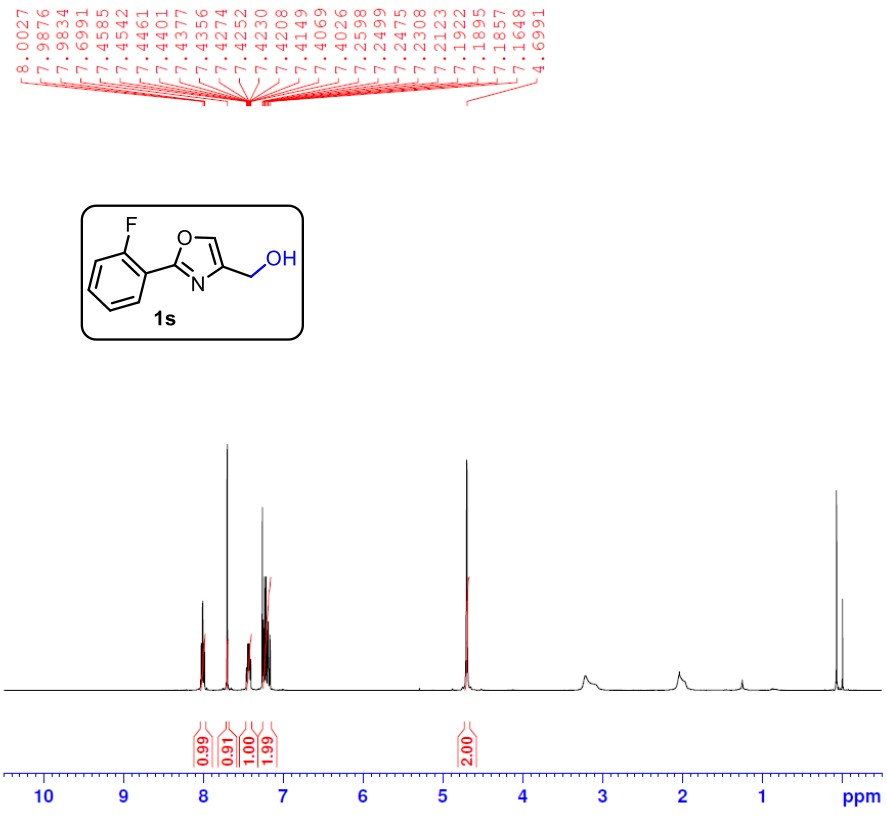
(2-(2-bromophenyl)oxazol-4-yl)methanol (1r). ^{1}H NMR (400 MHz, $CDCl_3$)



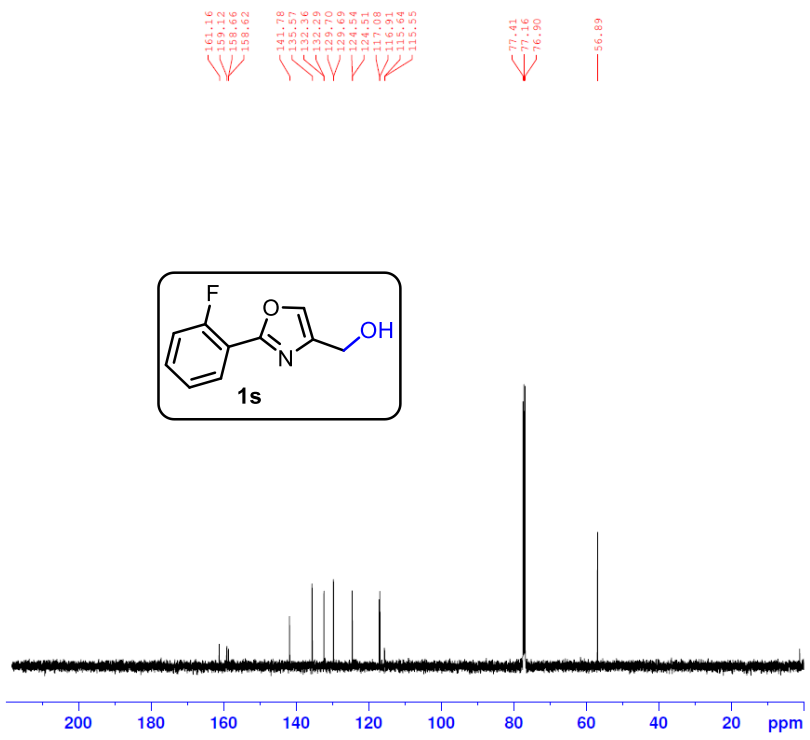
(2-(2-bromophenyl)oxazol-4-yl)methanol (1r). ^{13}C NMR (125 MHz, $CDCl_3$)



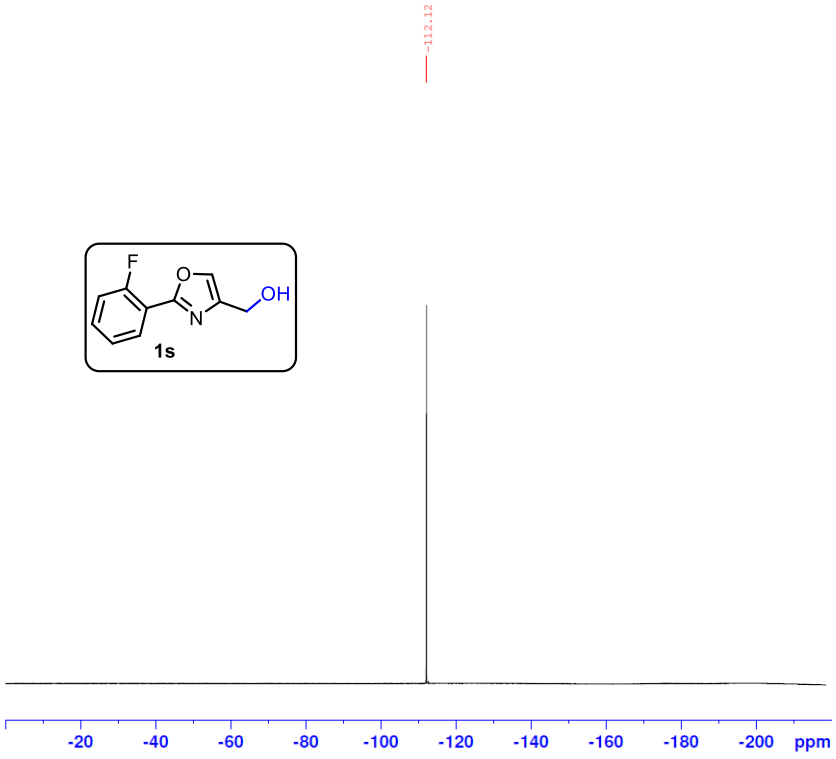
(2-(2-fluorophenyl)oxazol-4-yl)methanol (1s). ^{1}H NMR (400 MHz, $CDCl_3$)



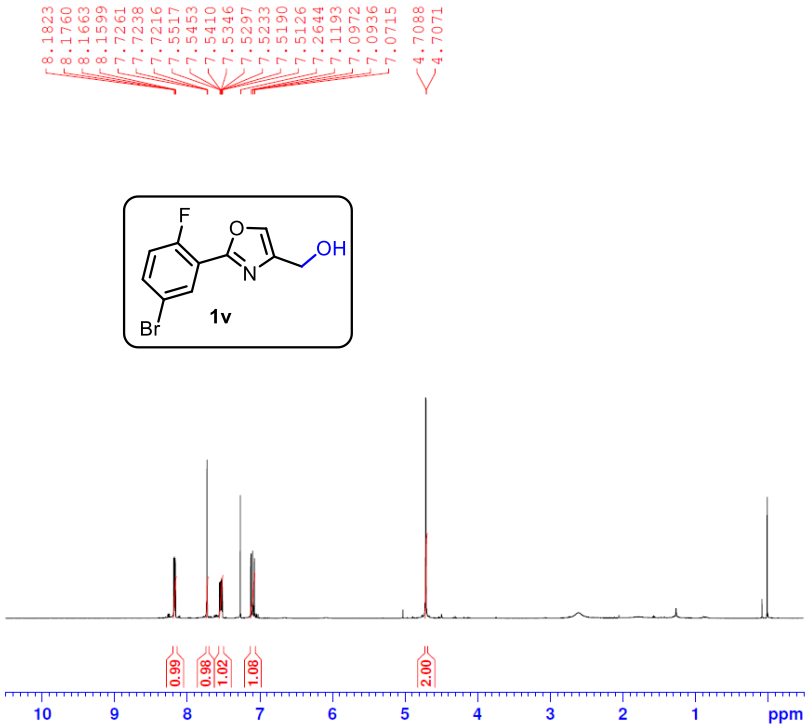
(2-(2-fluorophenyl)oxazol-4-yl)methanol (1s). ^{13}C NMR (125 MHz, $CDCl_3$)



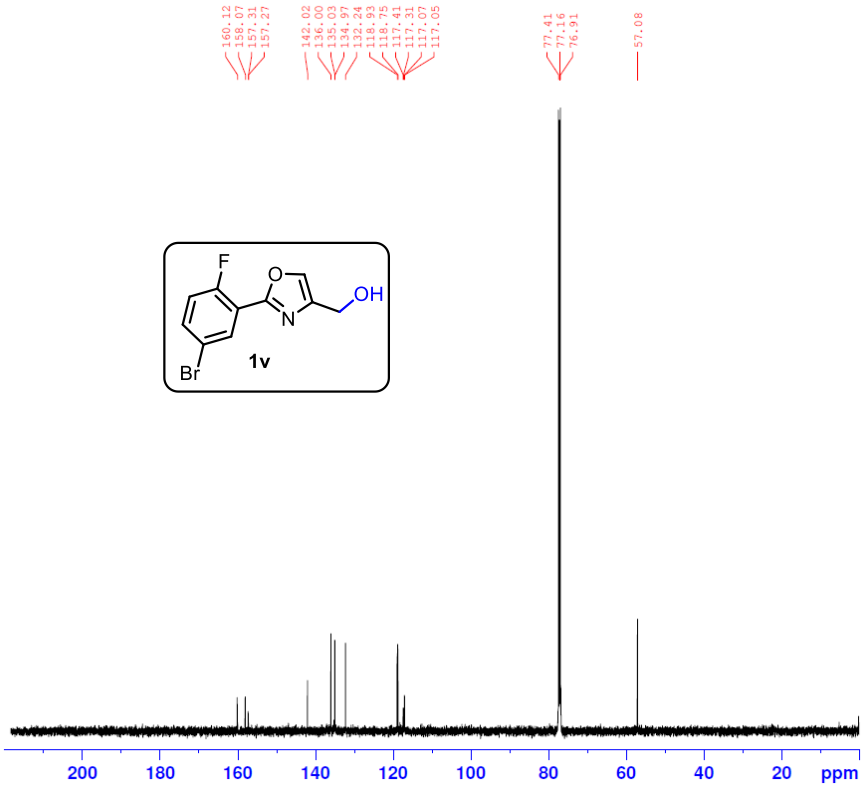
(2-(2-fluorophenyl)oxazol-4-yl)methanol (1s). ^{19}F NMR (376 MHz, $CDCl_3$)



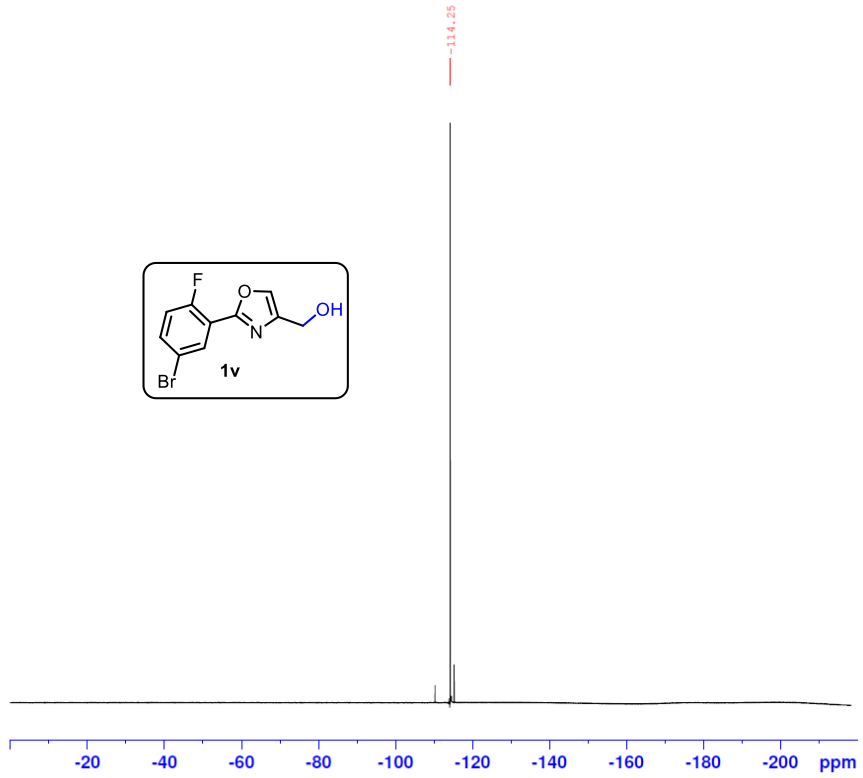
(2-(5-bromo-2-fluorophenyl)oxazol-4-yl)methanol (1v). ^{1}H NMR (400 MHz, $CDCl_3$)



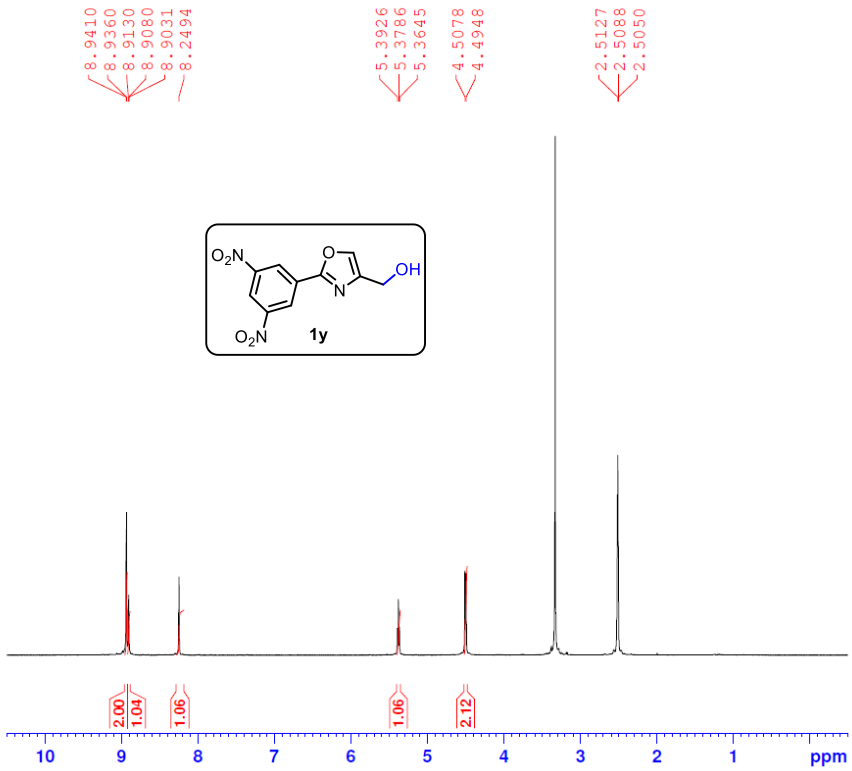
(2-(5-bromo-2-fluorophenyl)oxazol-4-yl)methanol (1v). ^{13}C NMR (125 MHz, $CDCl_3$)



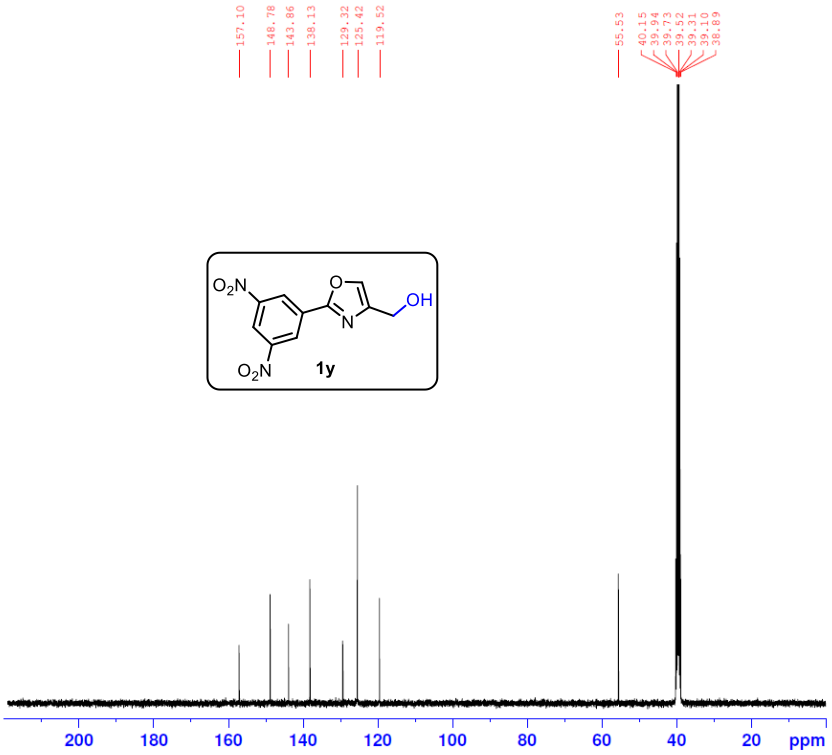
(2-(5-bromo-2-fluorophenyl)oxazol-4-yl)methanol (1v). ^{19}F NMR (376 MHz, $CDCl_3$)



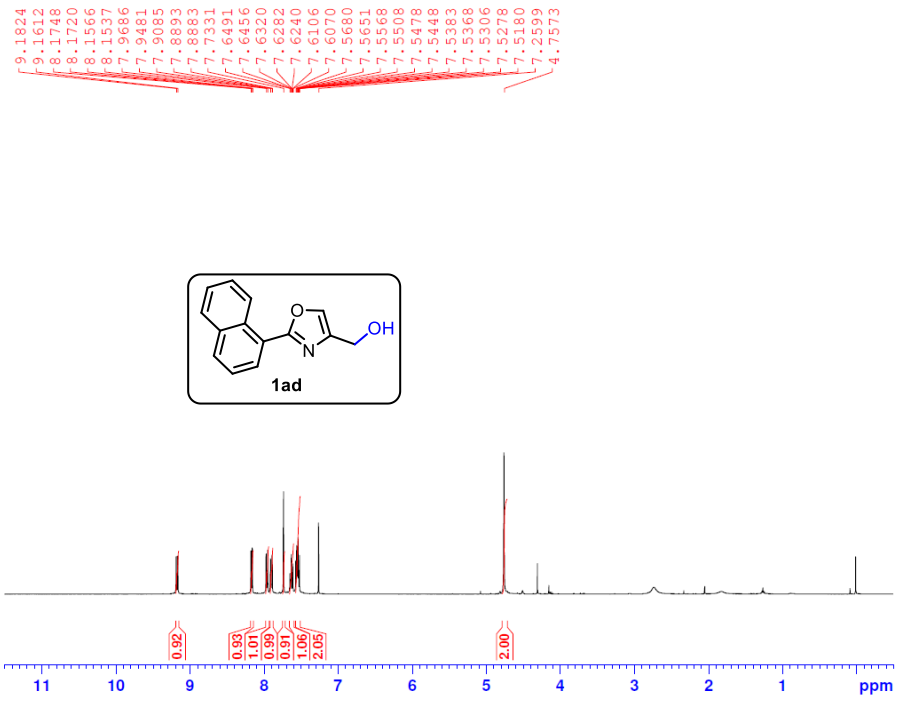
(2-(3,5-dinitrophenyl)oxazol-4-yl)methanol (1y). ^{1}H NMR (400 MHz, DMSO-d_6)



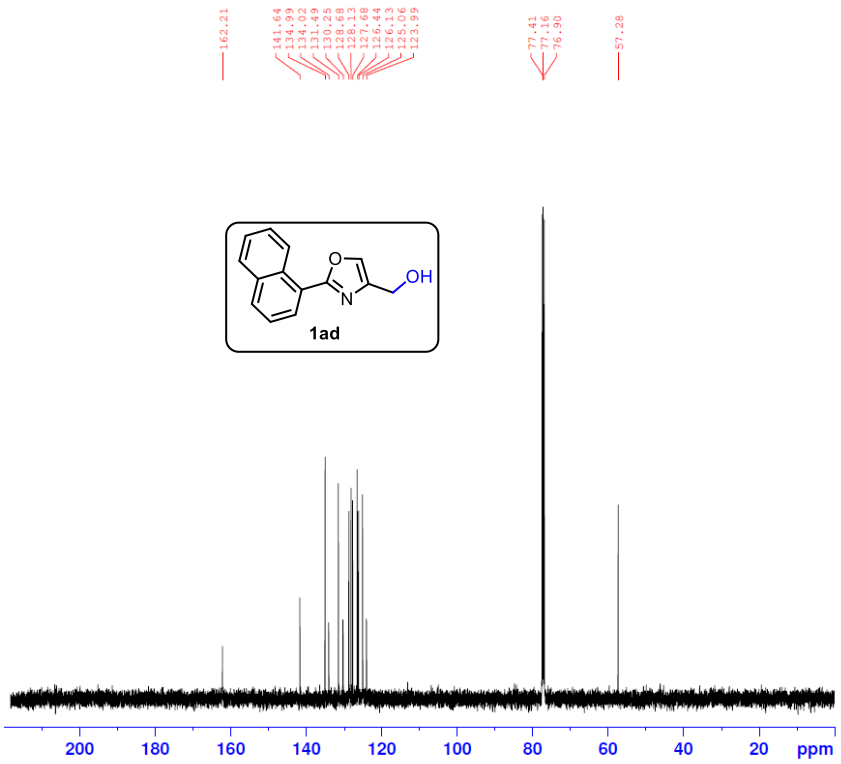
(2-(3,5-dinitrophenyl)oxazol-4-yl)methanol (1y). ^{13}C NMR (100 MHz, DMSO-d_6)



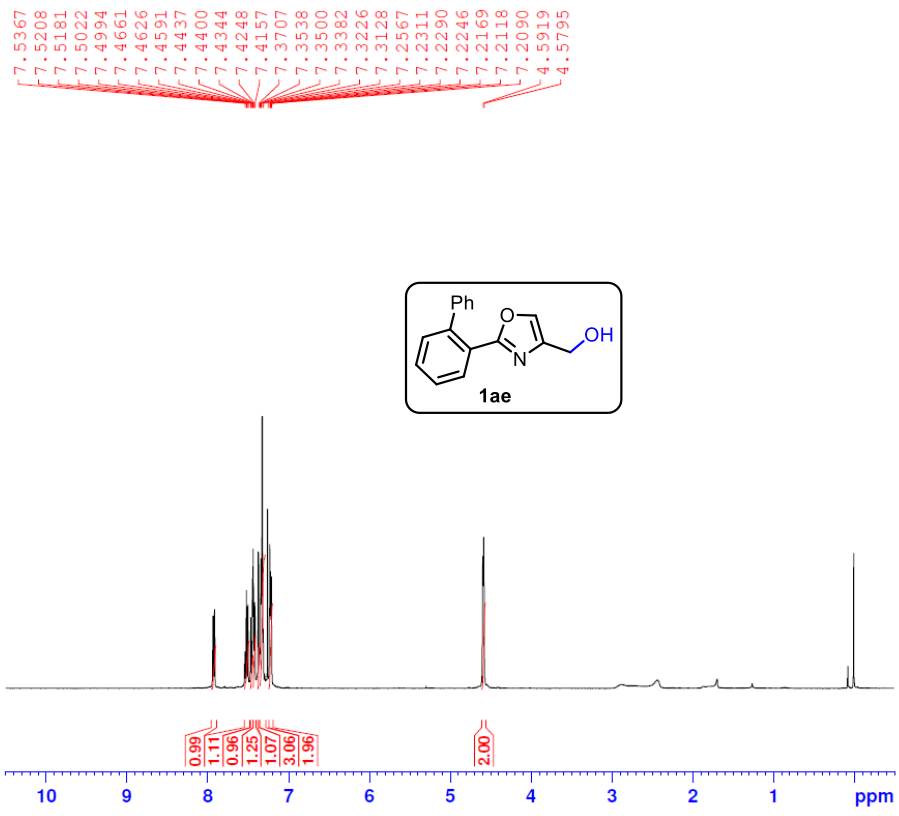
(2-(naphthalen-1-yl)oxazol-4-yl)methanol (1ad). ^{1}H NMR (400 MHz, $CDCl_3$)



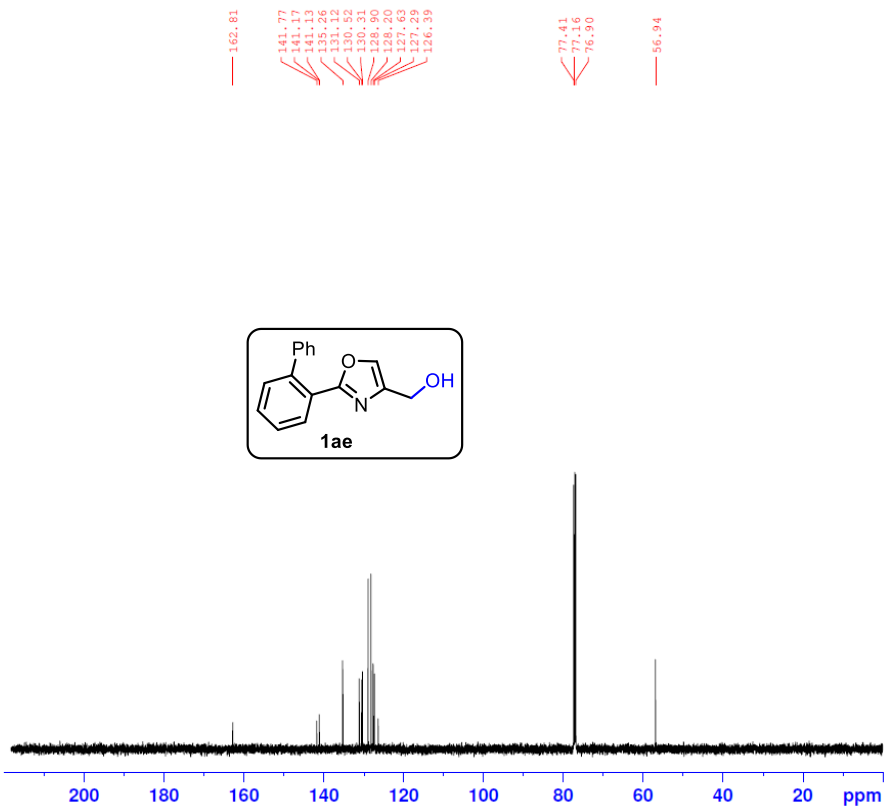
(2-(naphthalen-1-yl)oxazol-4-yl)methanol (1ad). ^{13}C NMR (125 MHz, $CDCl_3$)



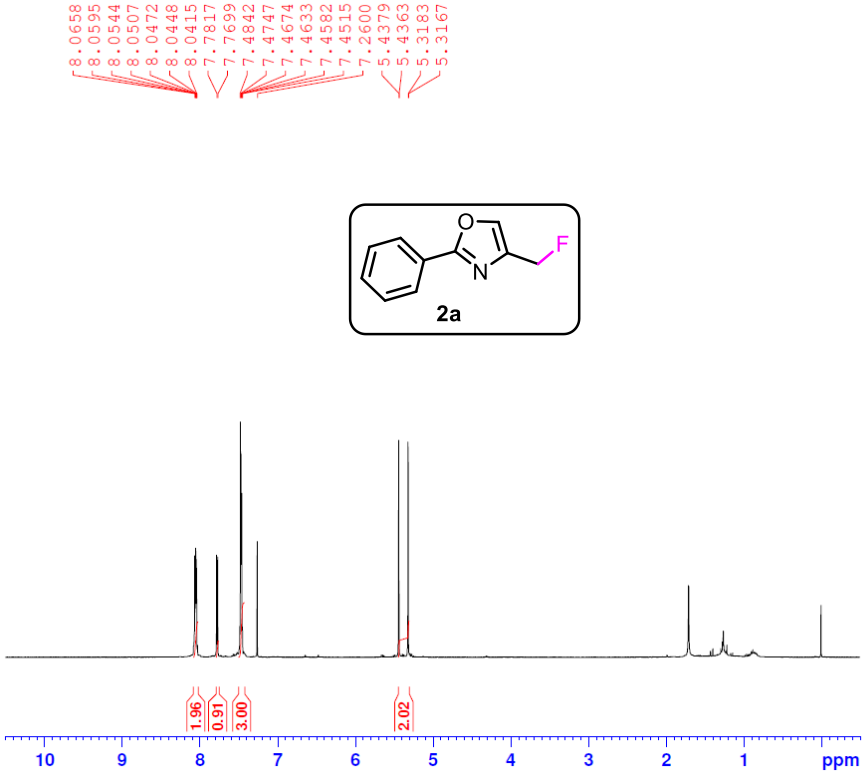
(2-([1,1'-biphenyl]-2-yl)oxazol-4-yl)methanol (1ae). ^{1}H NMR (400 MHz, $CDCl_3$)



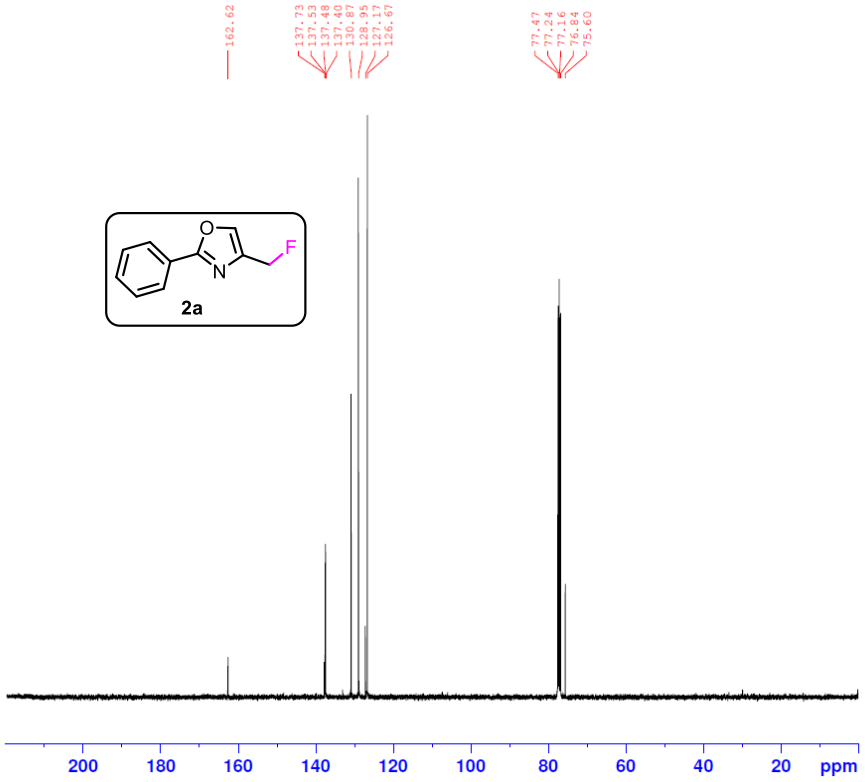
(2-([1,1'-biphenyl]-2-yl)oxazol-4-yl)methanol (1ae). ^{13}C NMR (125 MHz, $CDCl_3$)



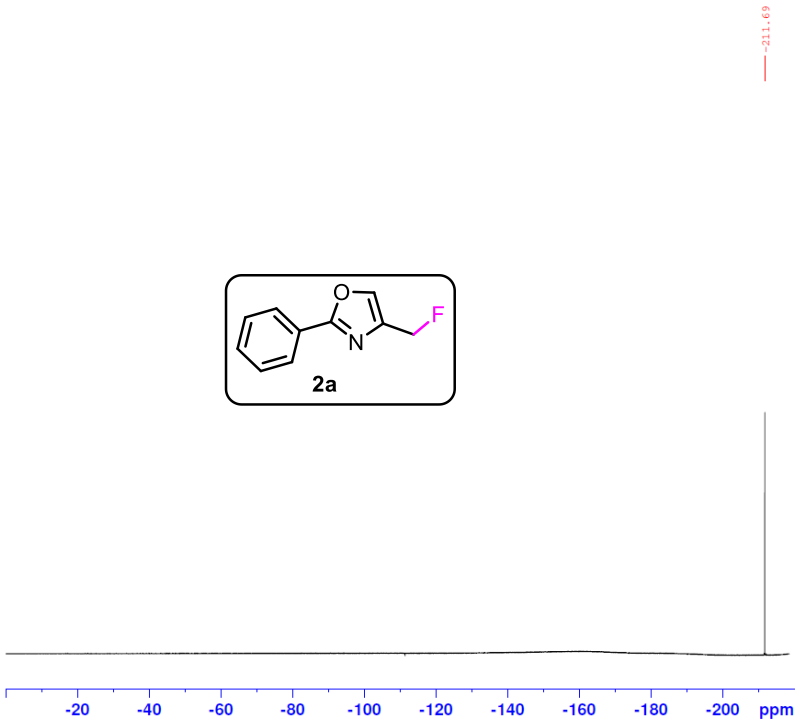
4-(fluoromethyl)-2-phenyloxazole (2a). ^{1}H NMR (400 MHz, $CDCl_3$)



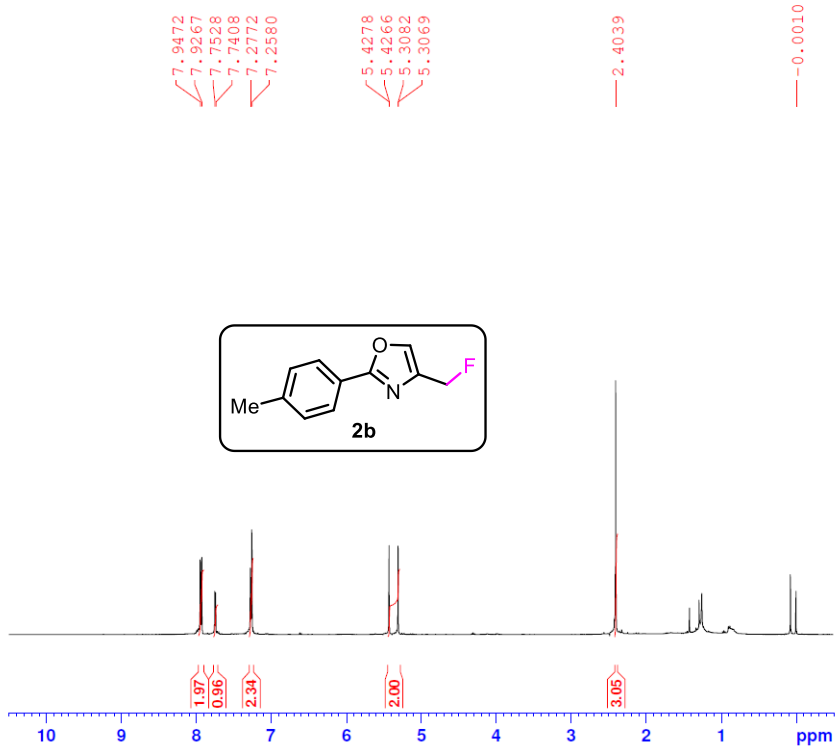
4-(fluoromethyl)-2-phenyloxazole (2a).^{13}C NMR (100 MHz, $CDCl_3$)



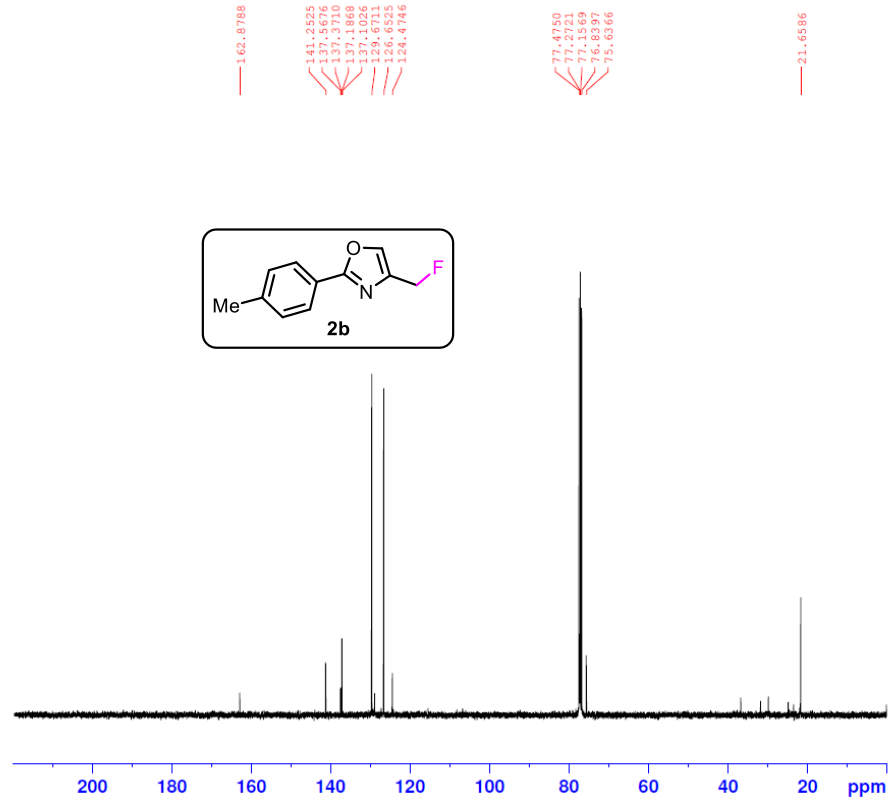
4-(fluoromethyl)-2-phenyloxazole (2a). ^{19}F NMR (376 MHz, $CDCl_3$)



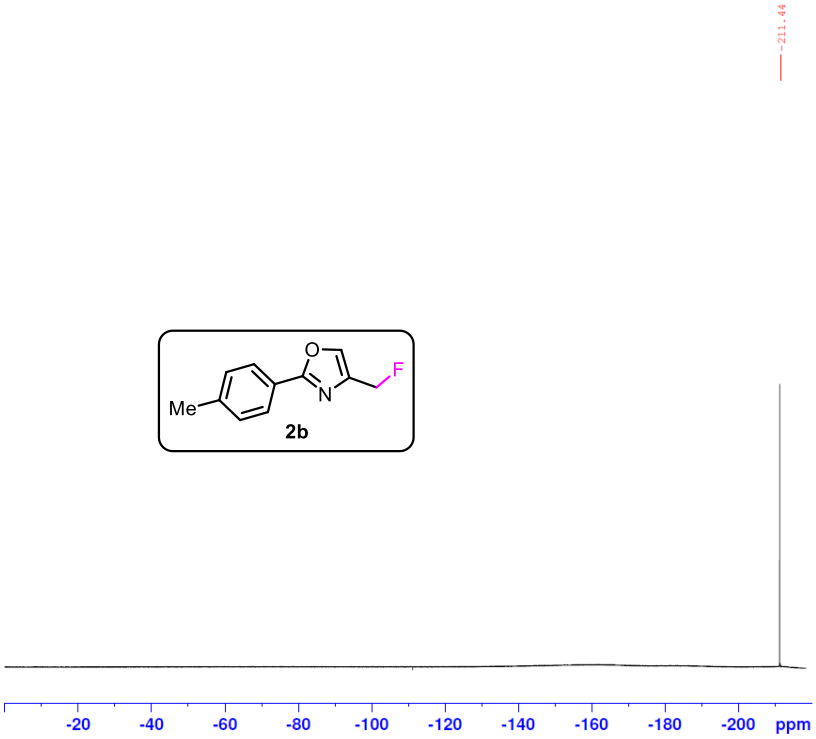
4-(fluoromethyl)-2-(*p*-tolyl)oxazole (2b). ^{1}H NMR (400 MHz, $CDCl_3$)



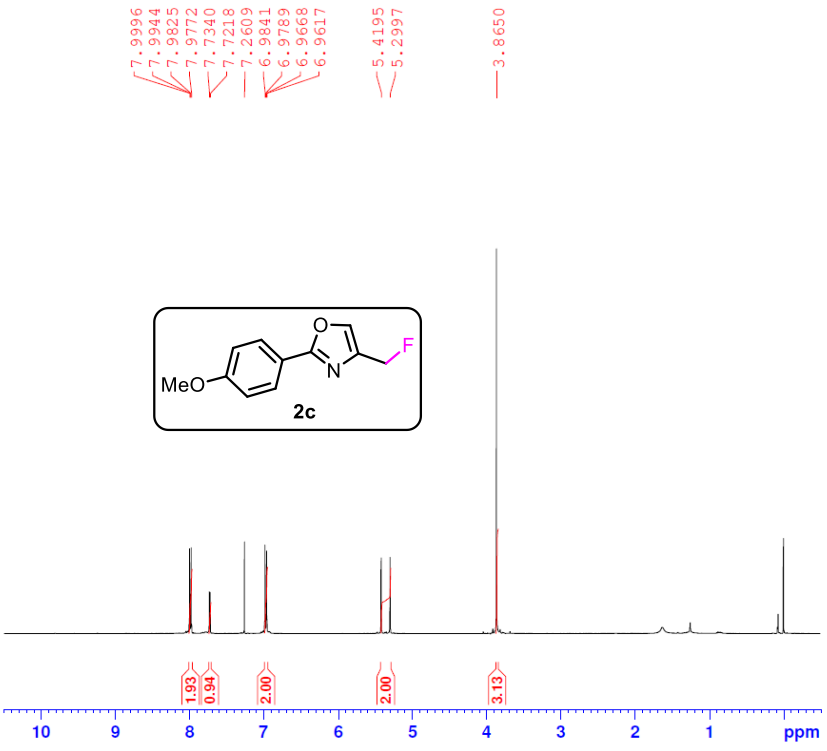
4-(fluoromethyl)-2-(*p*-tolyl)oxazole (2b). ^{13}C NMR (400 MHz, $CDCl_3$)



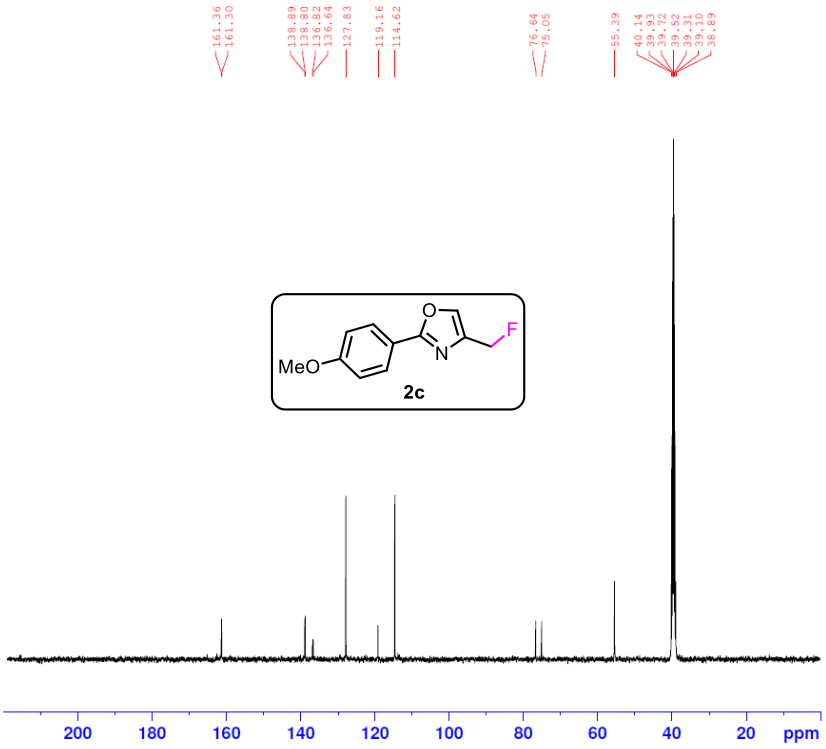
4-(fluoromethyl)-2-(*p*-tolyl)oxazole (2b). ^{19}F NMR (376 MHz, $CDCl_3$)



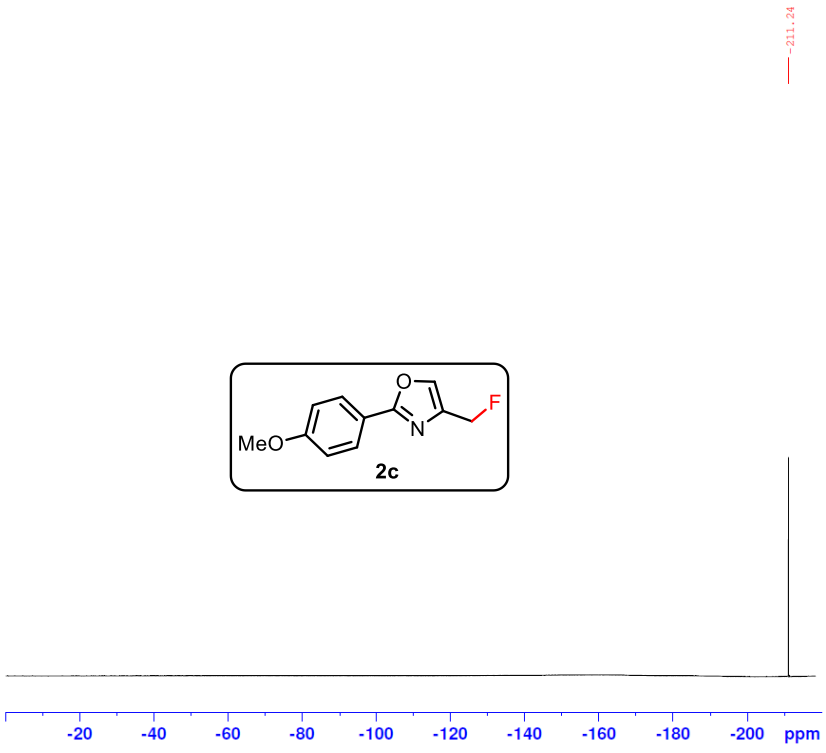
4-(fluoromethyl)-2-(4-methoxyphenyl)oxazole (2c). ^{1}H NMR (400 MHz, $CDCl_3$)



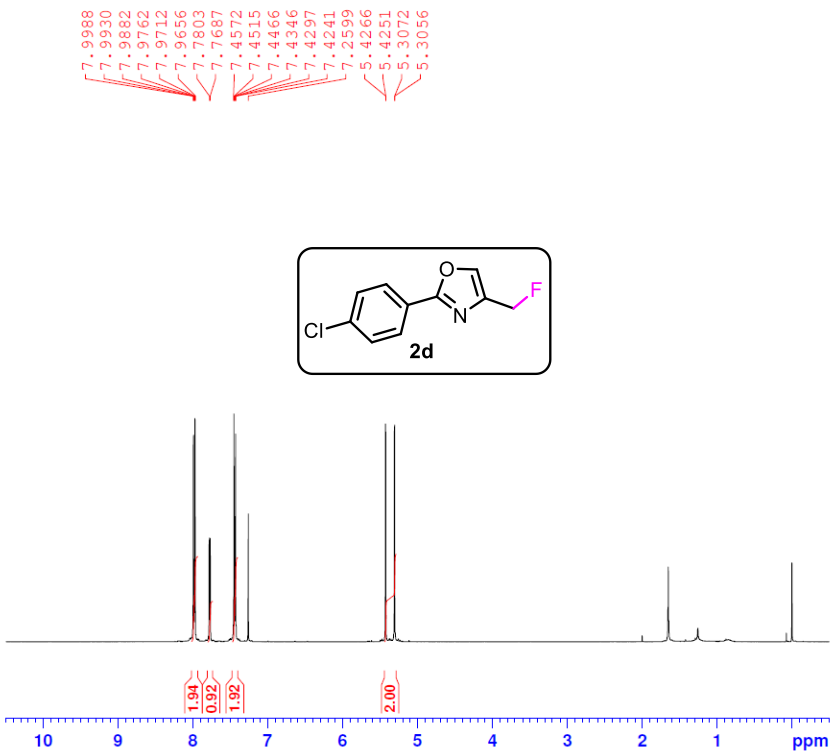
4-(fluoromethyl)-2-(4-methoxyphenyl)oxazole (2c). ^{13}C NMR (100 MHz, $CDCl_3$)



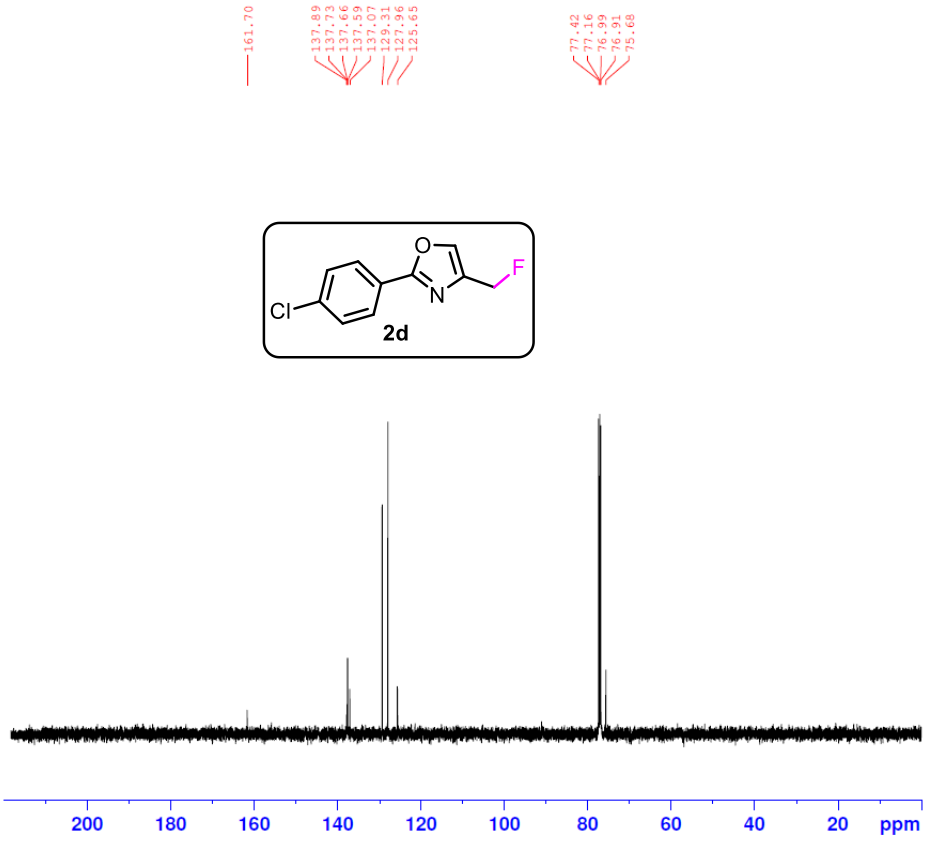
4-(fluoromethyl)-2-(4-methoxyphenyl)oxazole (2c). ^{19}F NMR (376 MHz, $CDCl_3$)



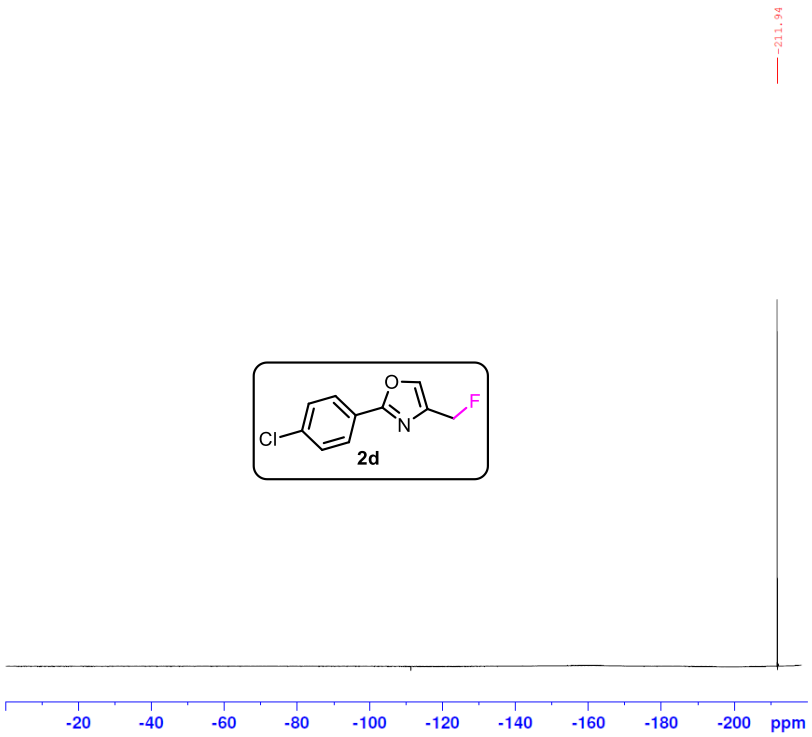
2-(4-chlorophenyl)-4-(fluoromethyl)oxazole (2d). ^{1}H NMR (400 MHz, $CDCl_3$)



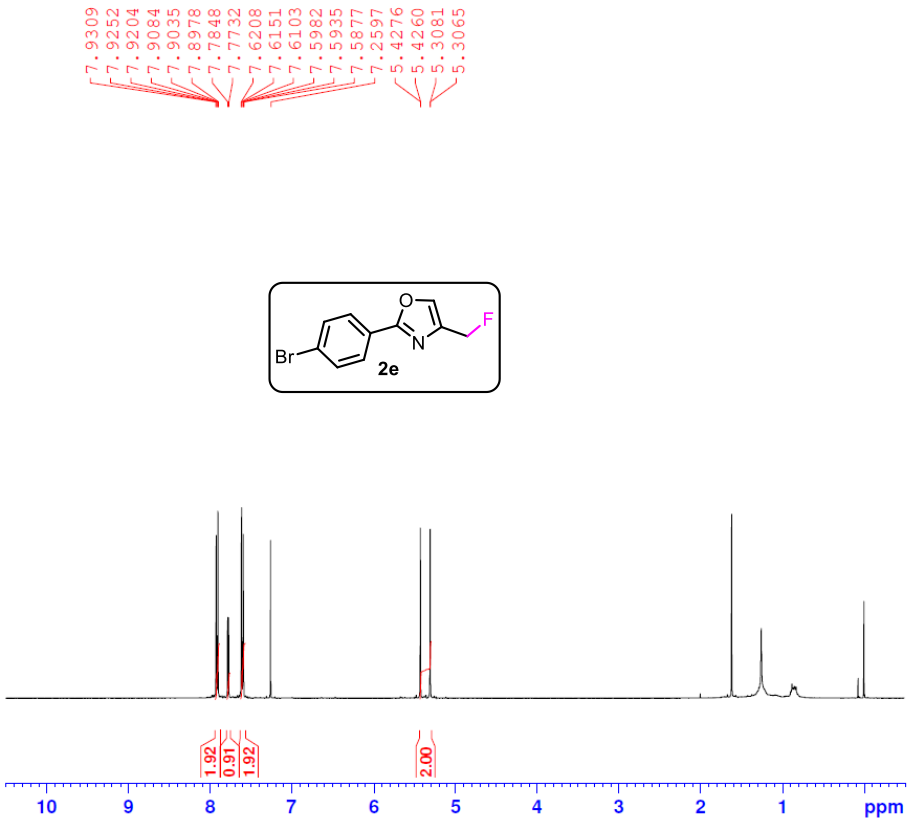
2-(4-chlorophenyl)-4-(fluoromethyl)oxazole (2d). ^{13}C NMR (125 MHz, $CDCl_3$)



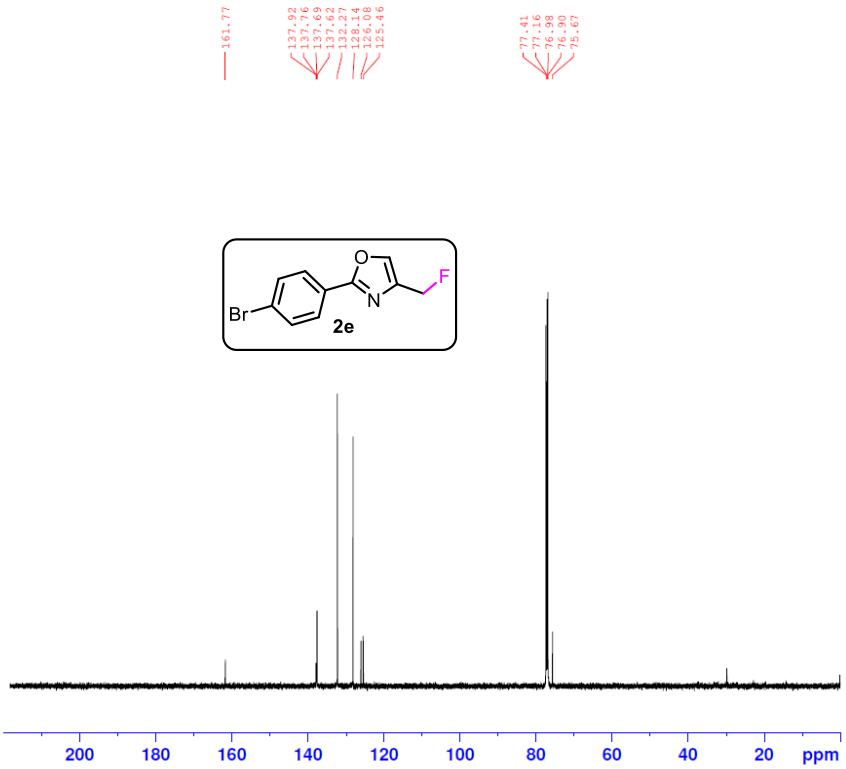
2-(4-chlorophenyl)-4-(fluoromethyl)oxazole (2d). ^{19}F NMR (376 MHz, $CDCl_3$)



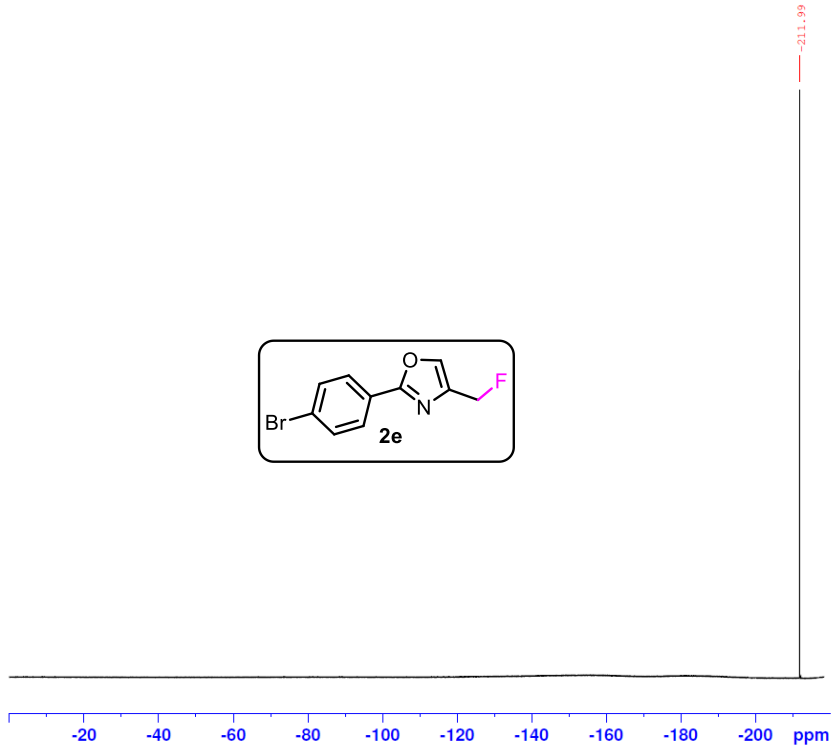
2-(4-bromophenyl)-4-(fluoromethyl)oxazole (2e). ^{1}H NMR (400 MHz, $CDCl_3$)



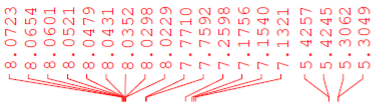
2-(4-bromophenyl)-4-(fluoromethyl)oxazole (2e). ^{13}C NMR (125 MHz, $CDCl_3$)

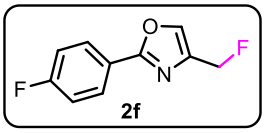


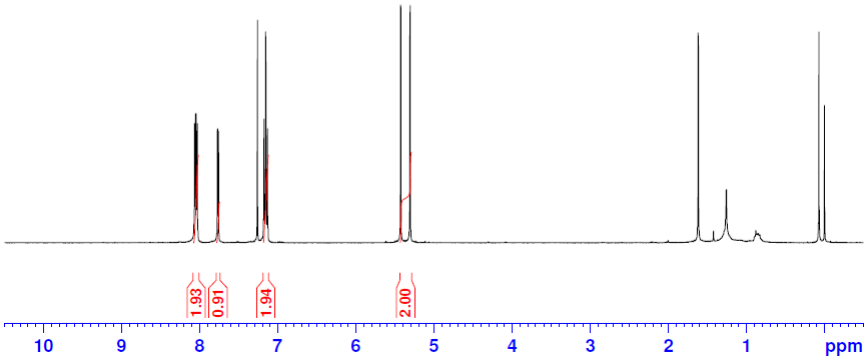
2-(4-bromophenyl)-4-(fluoromethyl)oxazole (2e). ^{19}F NMR (376 MHz, $CDCl_3$)



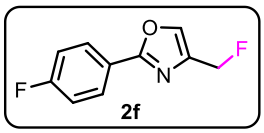
4-(fluoromethyl)-2-(4-fluorophenyl)oxazole (2f). ^{1}H NMR (400 MHz, $CDCl_3$)



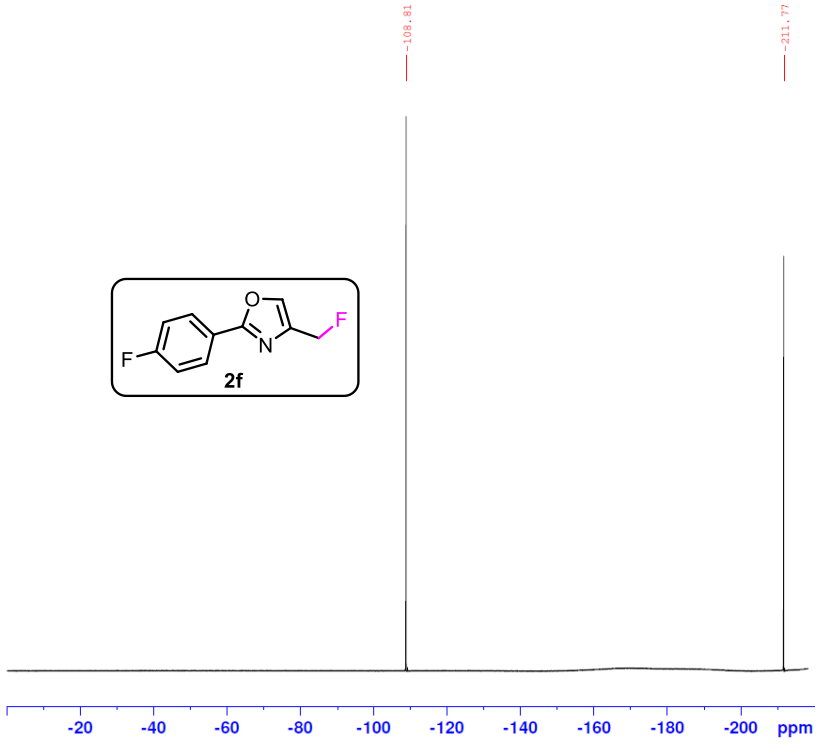




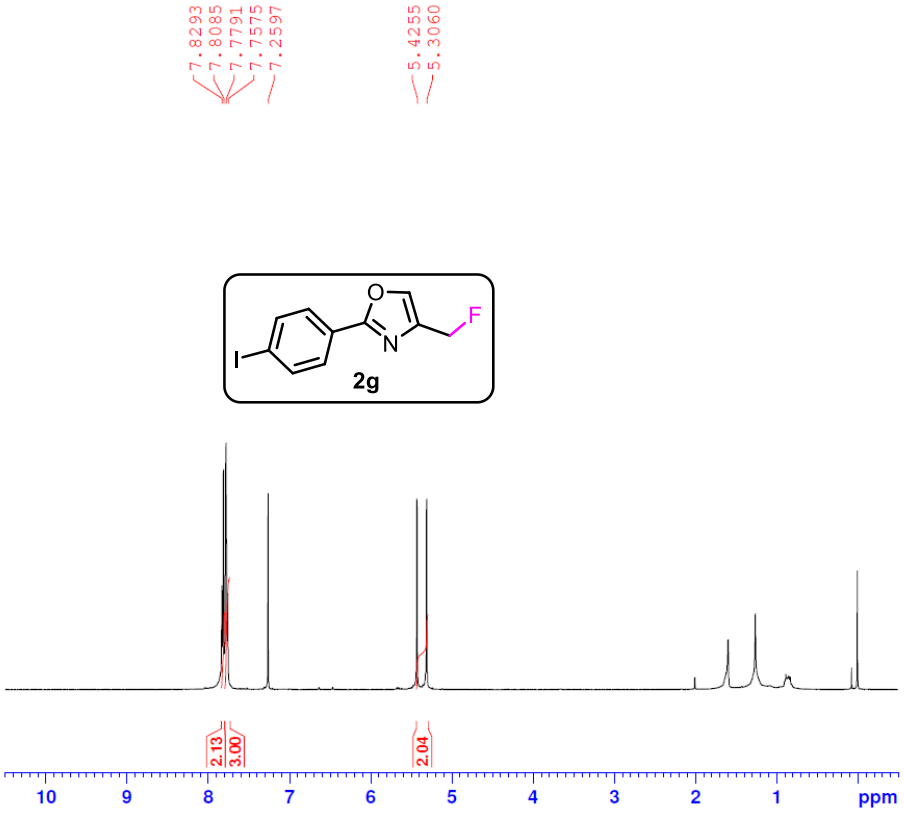
4-(fluoromethyl)-2-(4-fluorophenyl)oxazole (2f). ^{13}C NMR (125 MHz, $CDCl_3$)



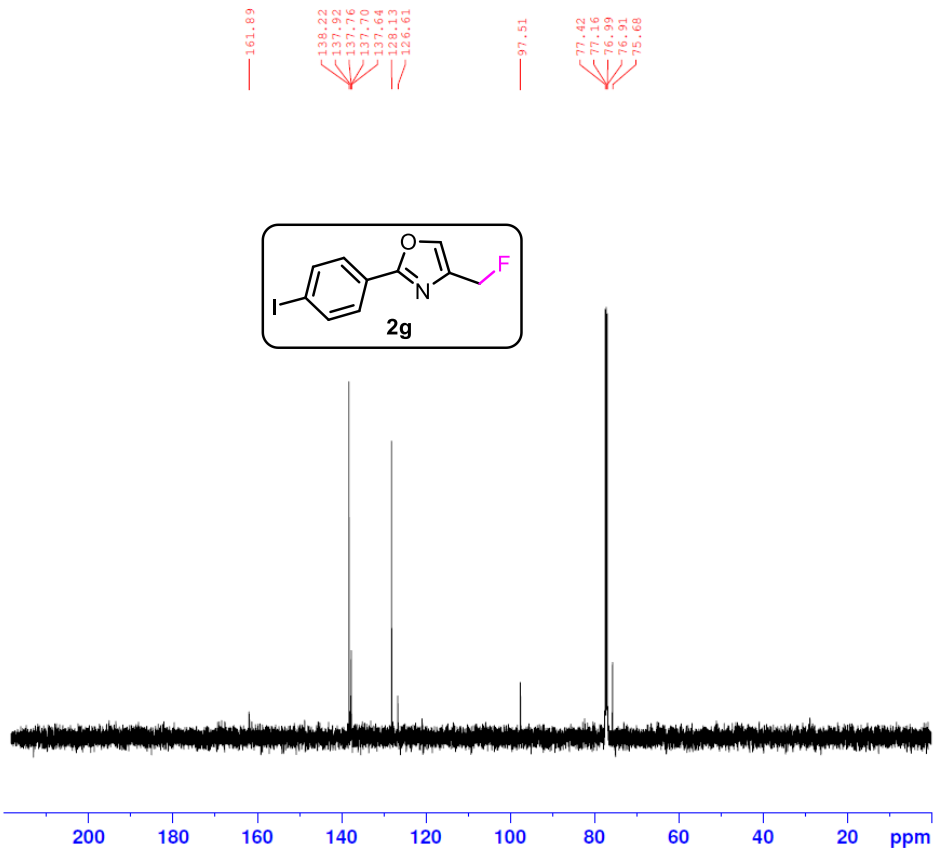
4-(fluoromethyl)-2-(4-fluorophenyl)oxazole (2f). ^{19}F NMR (376 MHz, $CDCl_3$)



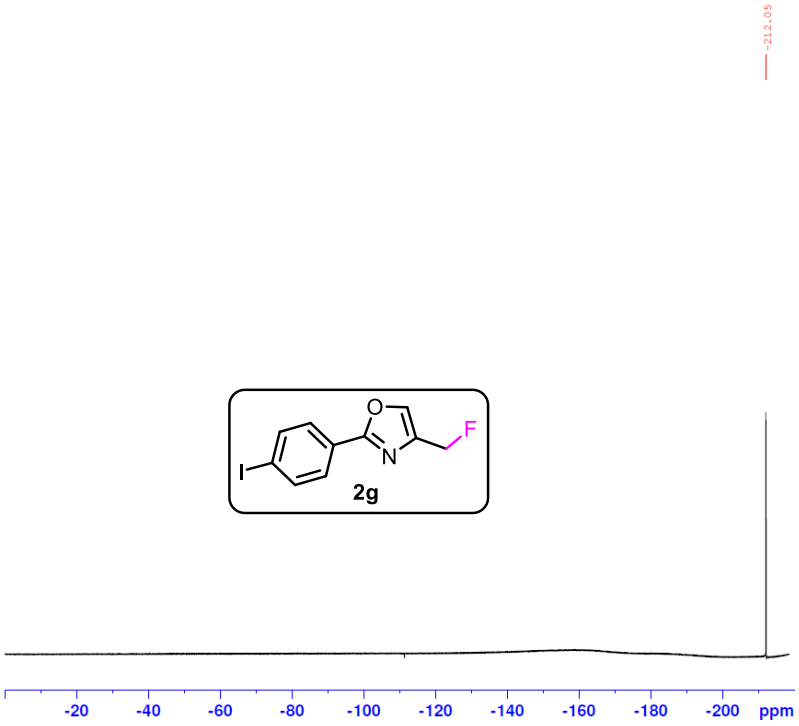
4-(fluoromethyl)-2-(4-iodophenyl)oxazole (2g). ^{1}H NMR (400 MHz, $CDCl_3$)



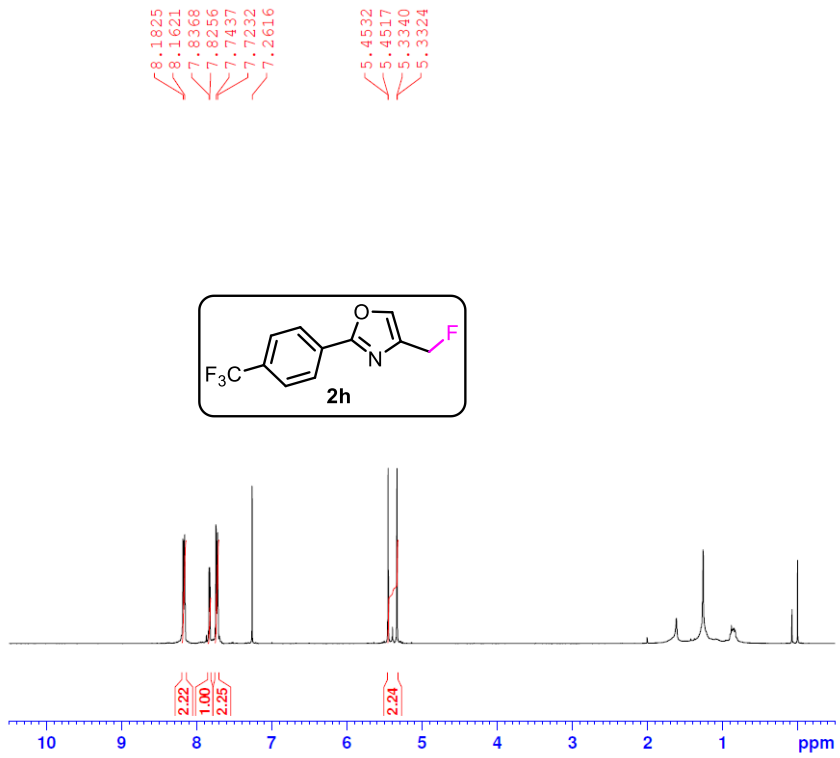
4-(fluoromethyl)-2-(4-iodophenyl)oxazole (2g). ^{13}C NMR (125 MHz, $CDCl_3$)



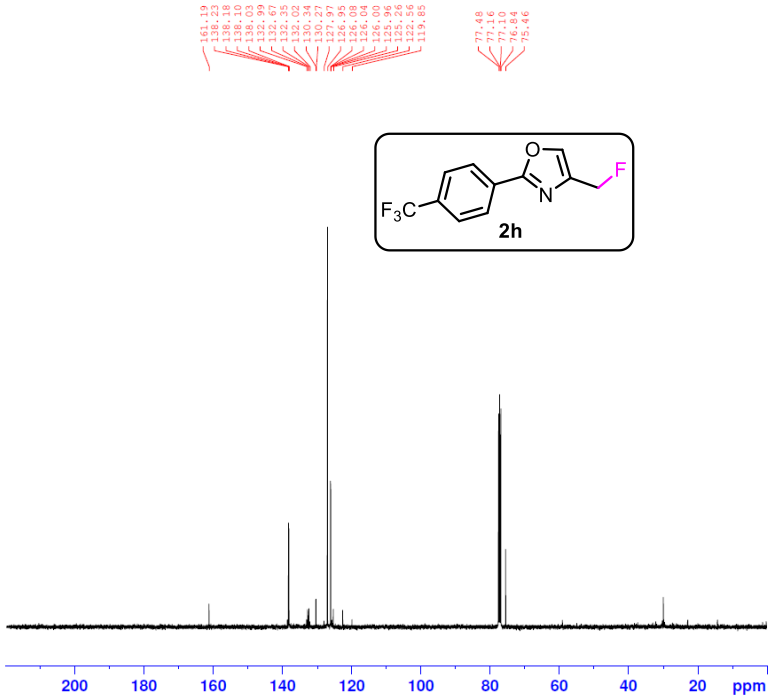
4-(fluoromethyl)-2-(4-iodophenyl)oxazole (2g). ^{19}F NMR (376 MHz, $CDCl_3$)



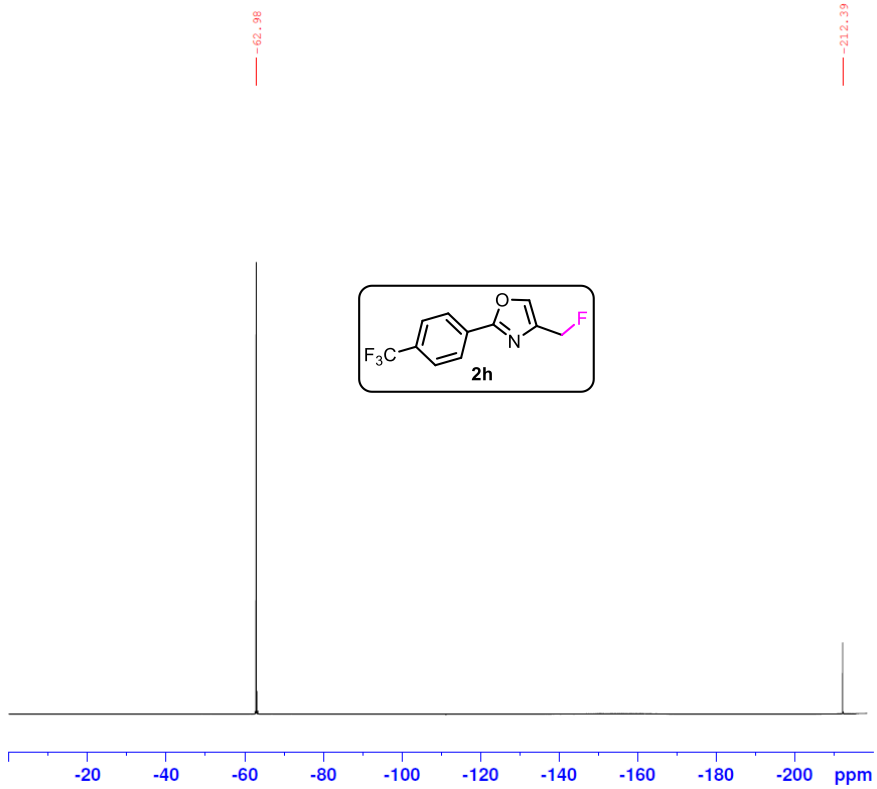
4-(fluoromethyl)-2-(4-(trifluoromethyl)phenyl)oxazole (2h). ^{1}H NMR (400 MHz, $CDCl_3$)



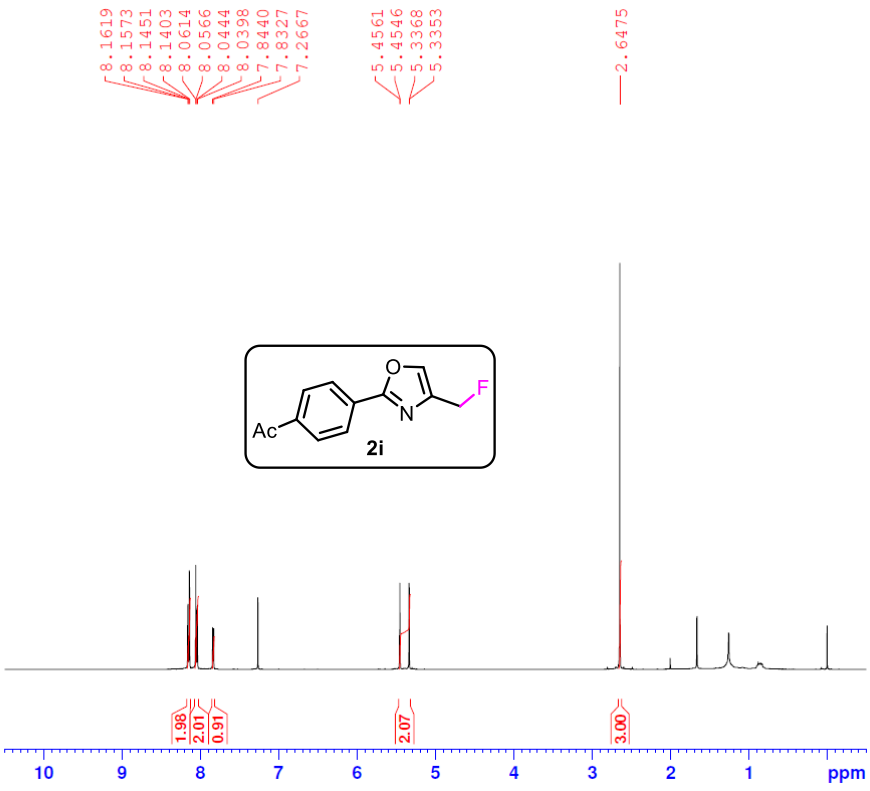
4-(fluoromethyl)-2-(4-(trifluoromethyl)phenyl)oxazole (2h). ^{13}C NMR (100 MHz, $CDCl_3$)



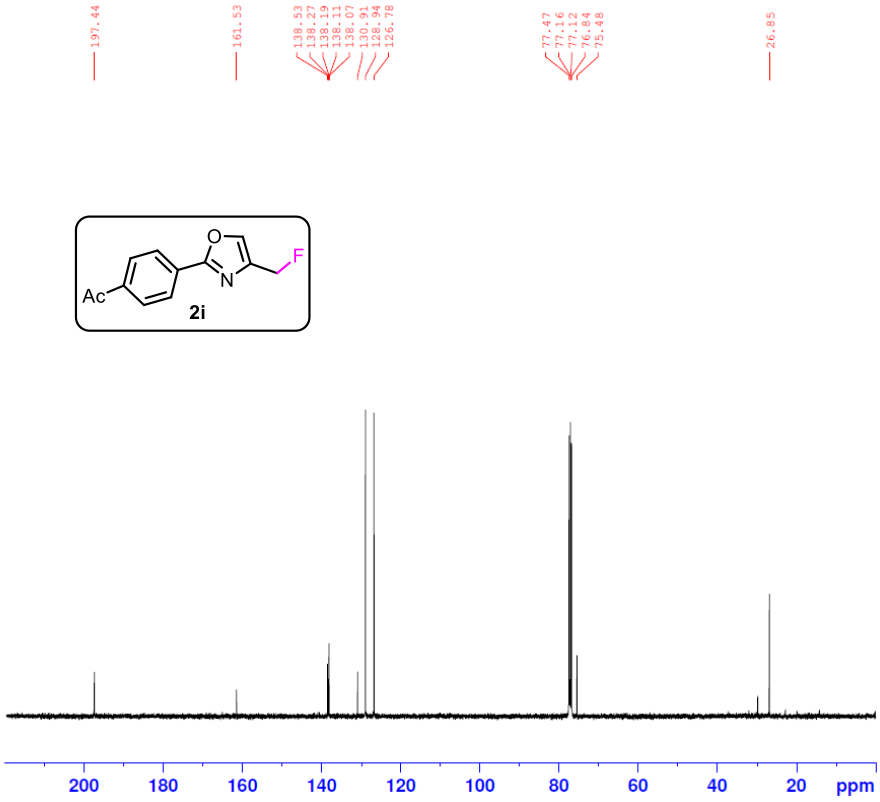
4-(fluoromethyl)-2-(4-(trifluoromethyl)phenyl)oxazole (2h). ^{19}F NMR (376 MHz, $CDCl_3$)



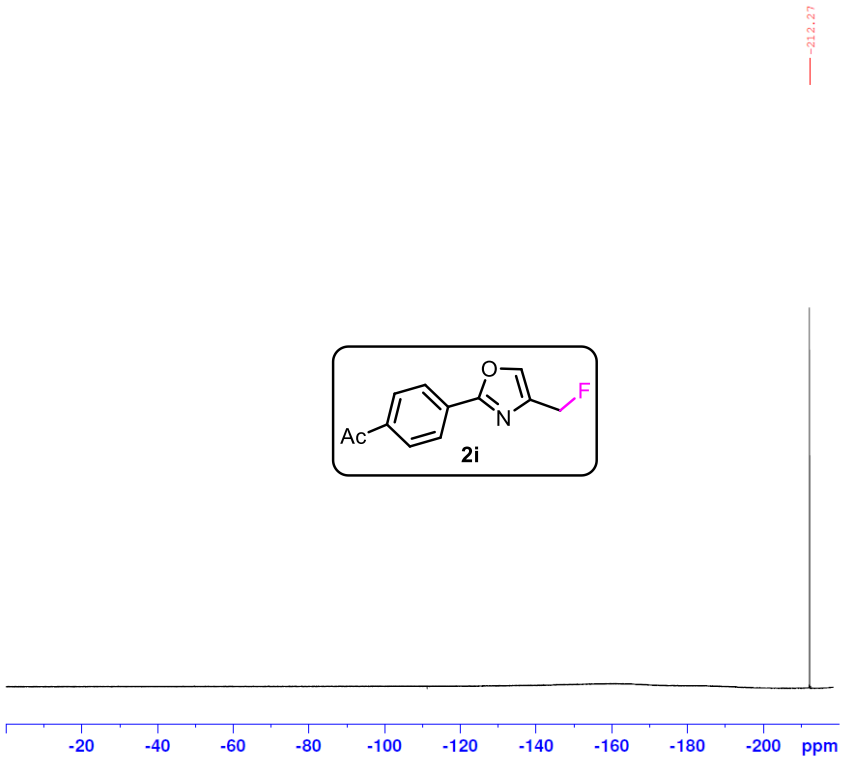
1-(4-(4-(fluoromethyl)oxazol-2-yl)phenyl)ethan-1-one (2i). ^{1}H NMR (400 MHz, $CDCl_3$)



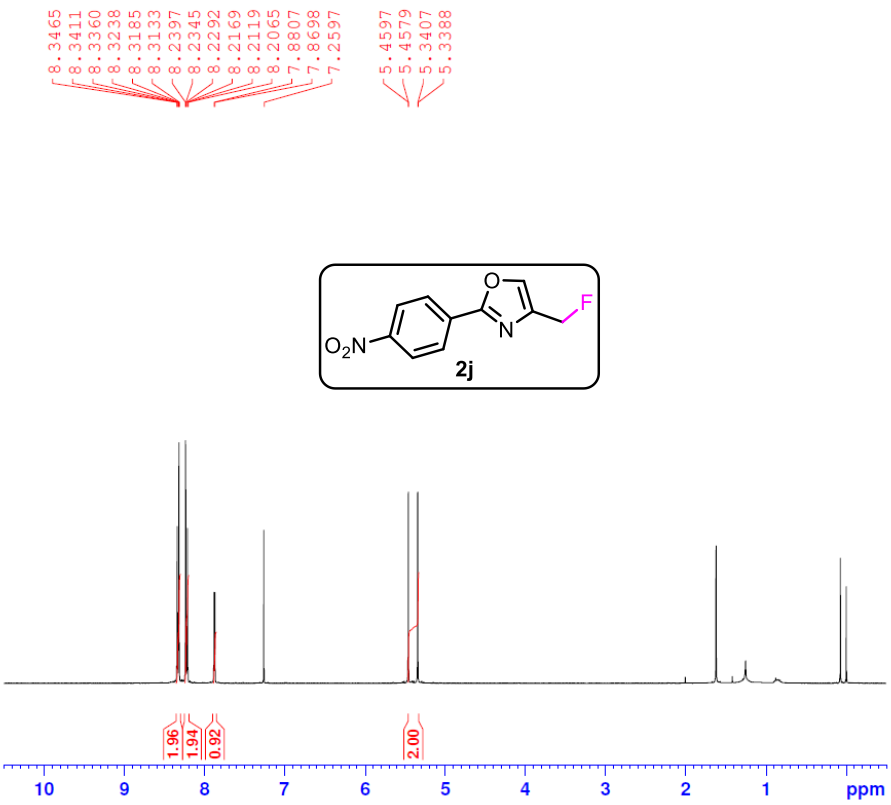
1-(4-(4-(fluoromethyl)oxazol-2-yl)phenyl)ethan-1-one (2i). ^{13}C NMR(100 MHz, $CDCl_3$)



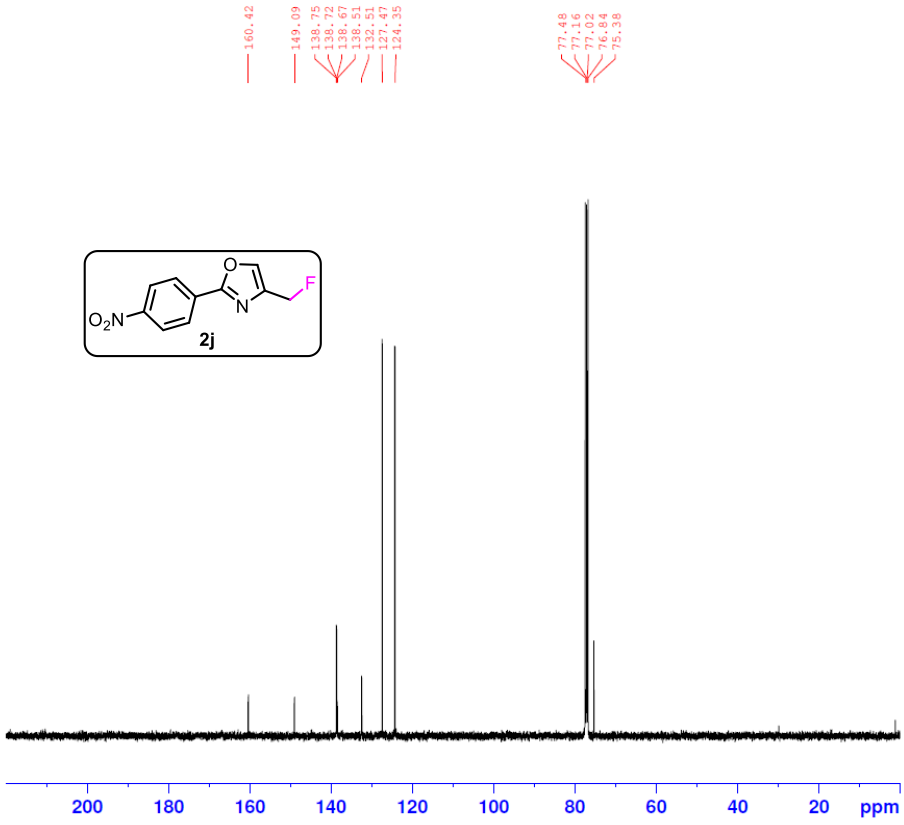
1-(4-(4-(fluoromethyl)oxazol-2-yl)phenyl)ethan-1-one (2i). ^{19}F NMR (376 MHz, $CDCl_3$)



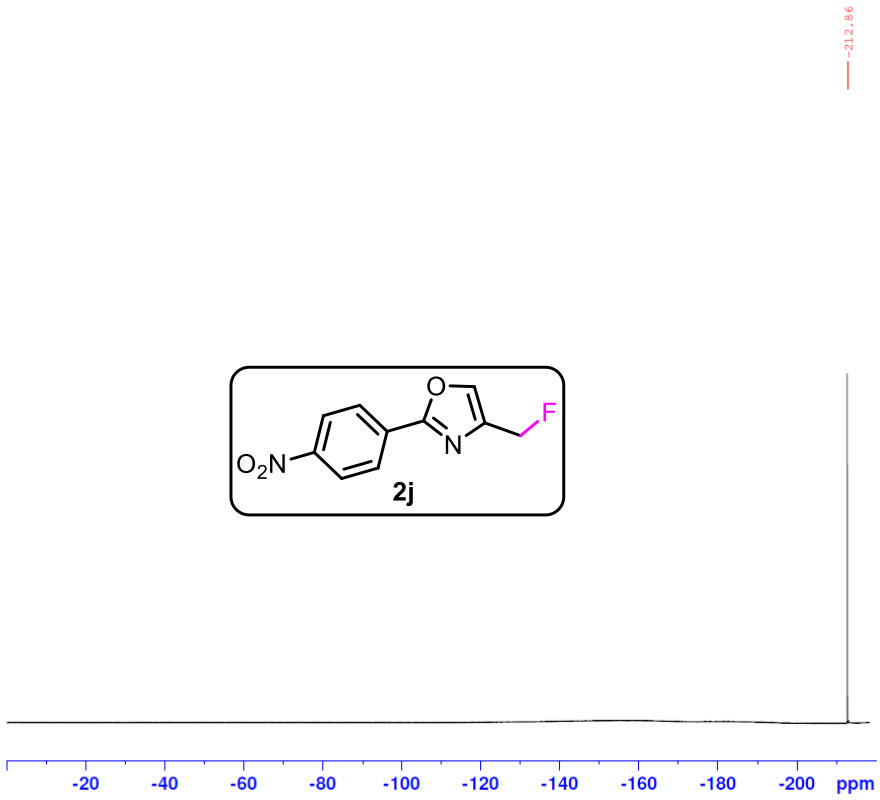
4-(fluoromethyl)-2-(4-nitrophenyl)oxazole (2j). ^{1}H NMR (400 MHz, $CDCl_3$)



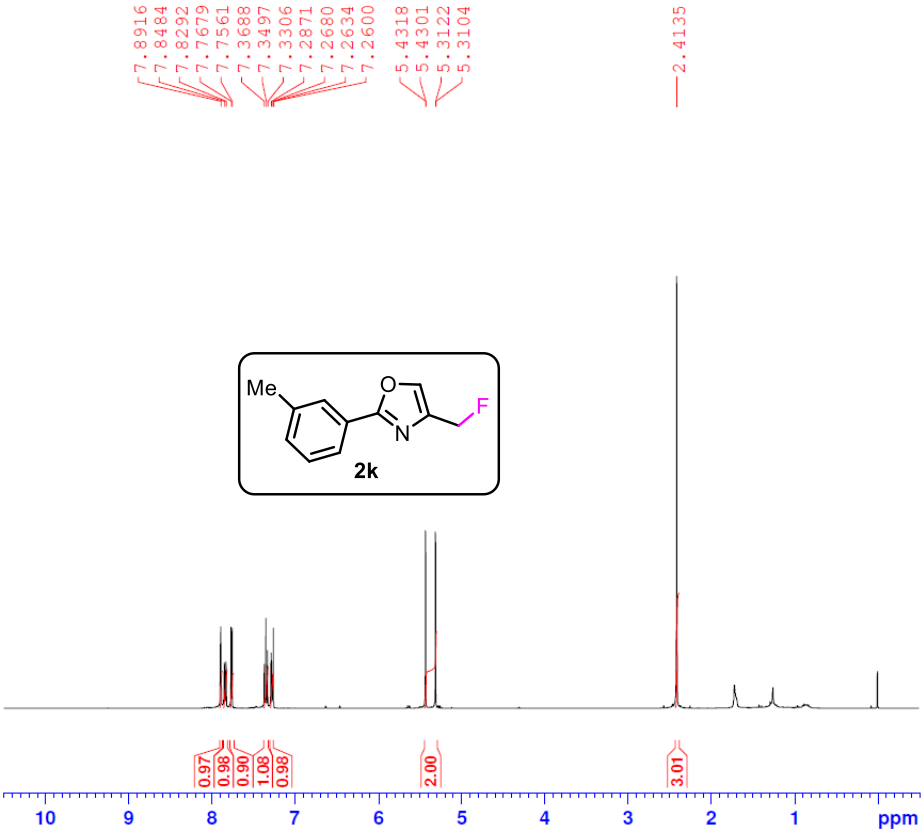
4-(fluoromethyl)-2-(4-nitrophenyl)oxazole (2j). ^{13}C NMR (100 MHz, $CDCl_3$)



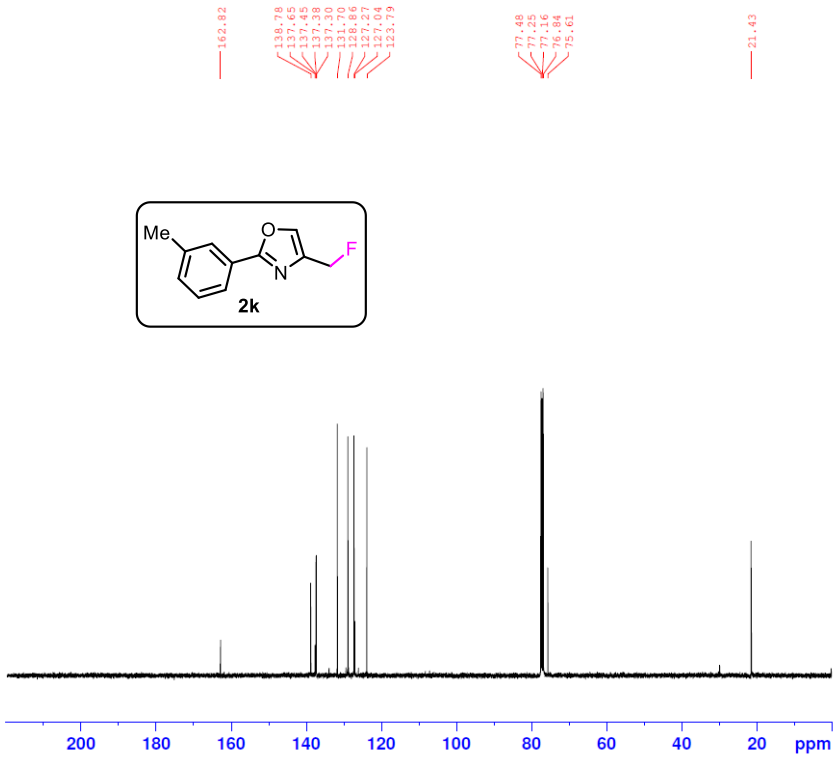
4-(fluoromethyl)-2-(4-nitrophenyl)oxazole (2j). ^{19}F NMR (376 MHz, $CDCl_3$)



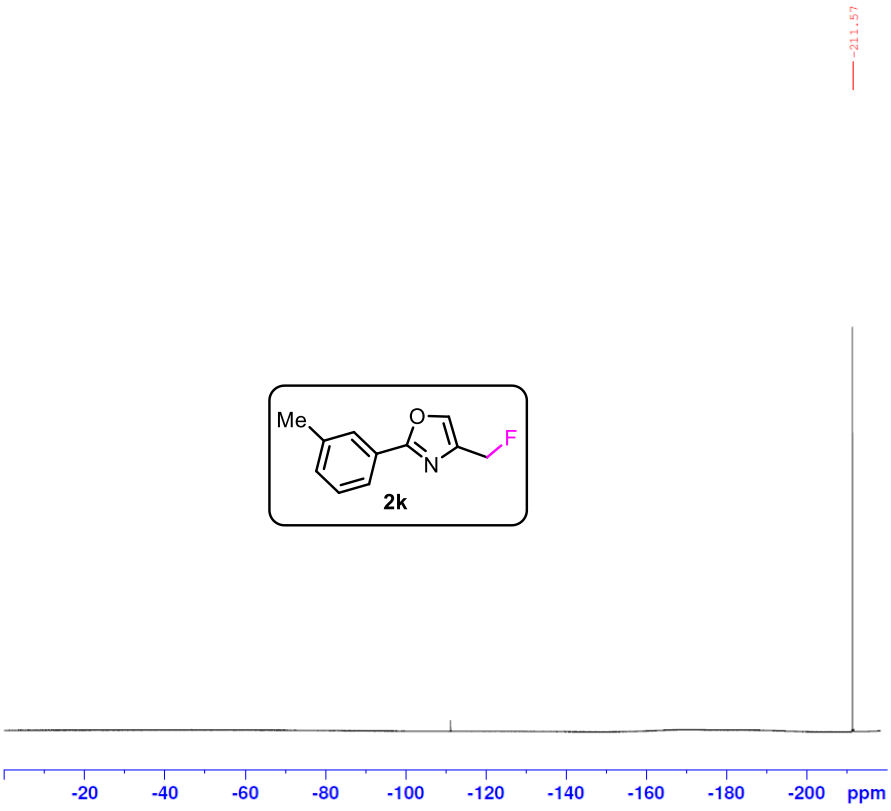
4-(fluoromethyl)-2-(*m*-tolyl)oxazole (2k). ^{1}H NMR (400 MHz, $CDCl_3$)



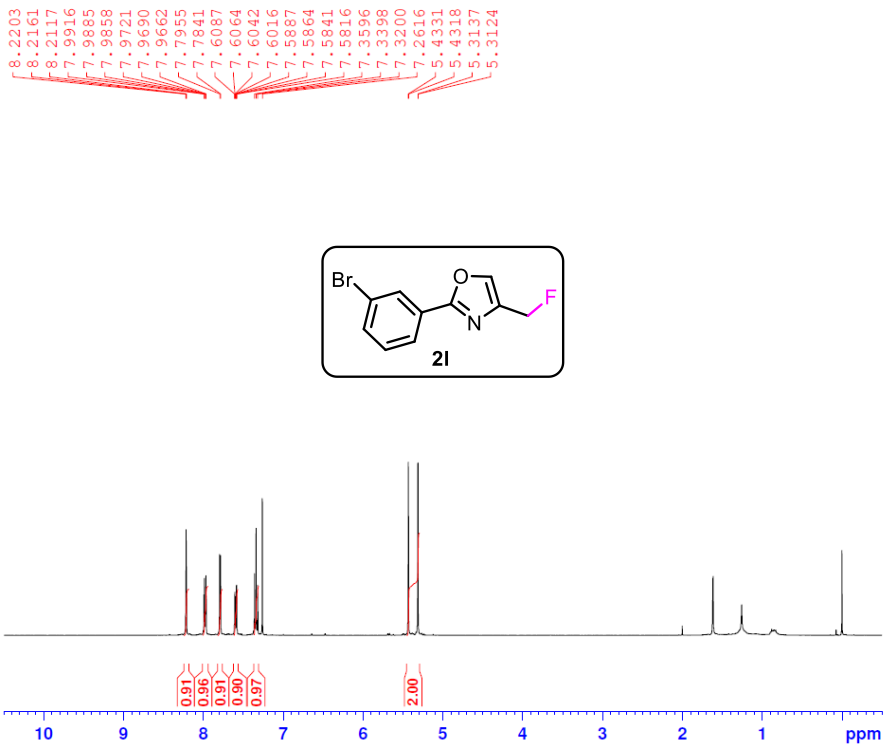
4-(fluoromethyl)-2-(*m*-tolyl)oxazole (2k). ^{13}C NMR (100 MHz, $CDCl_3$)



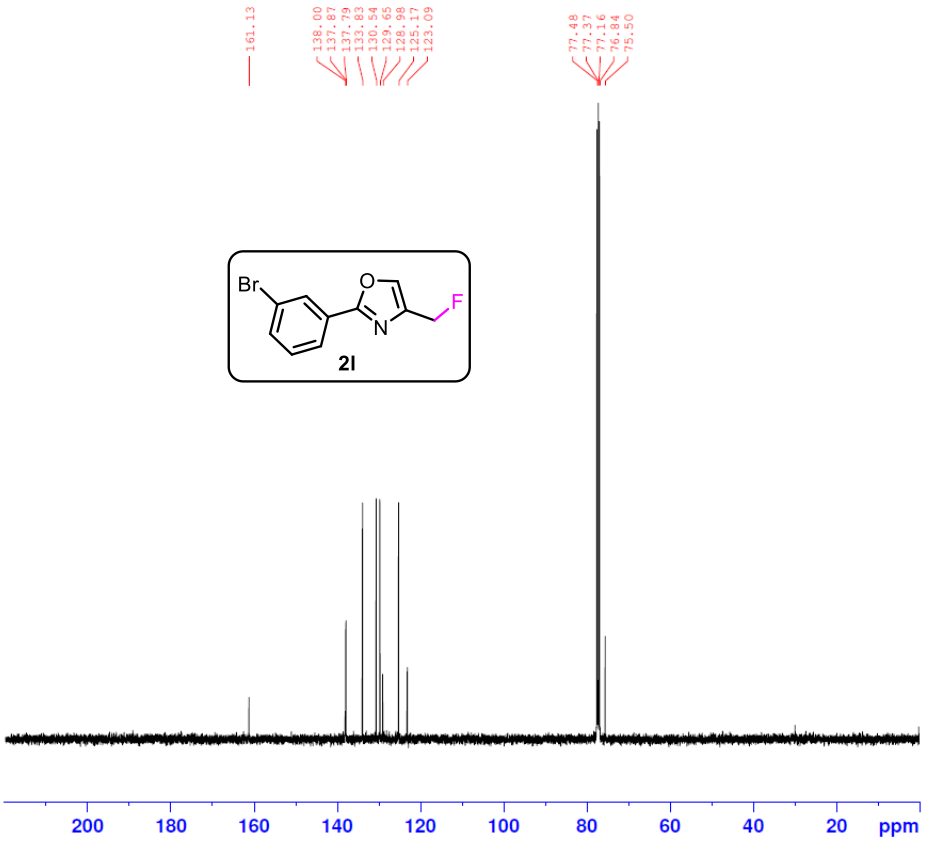
4-(fluoromethyl)-2-(*m*-tolyl)oxazole (2k). ^{19}F NMR (376 MHz, $CDCl_3$)



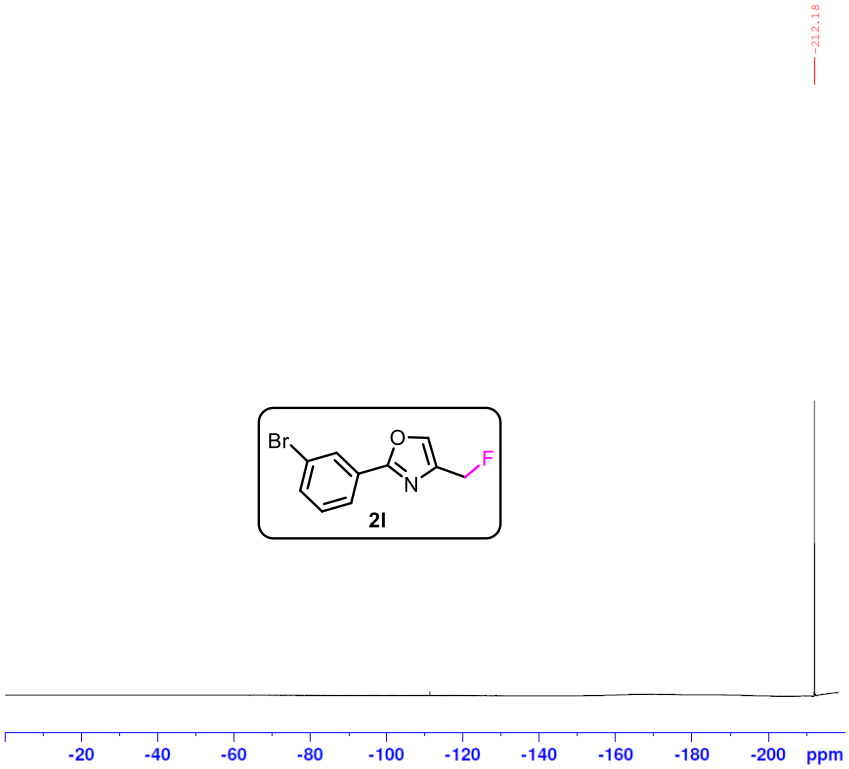
2-(3-bromophenyl)-4-(fluoromethyl)oxazole (2l). ^{1}H NMR (400 MHz, $CDCl_3$)



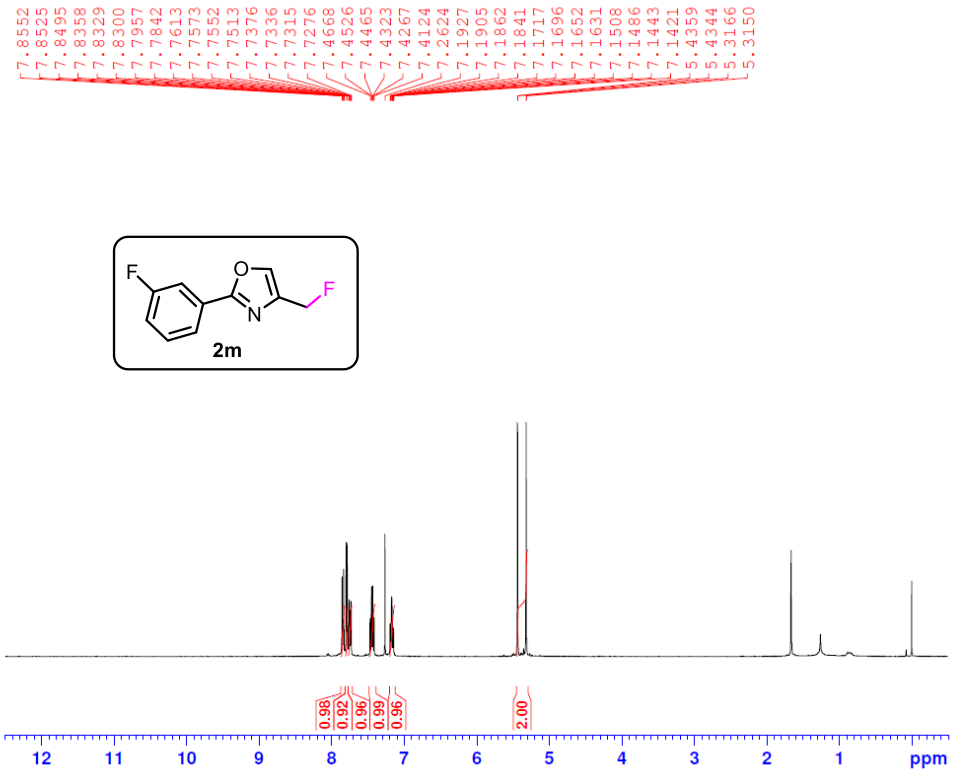
2-(3-bromophenyl)-4-(fluoromethyl)oxazole (2l). ^{13}C NMR (100 MHz, $CDCl_3$)



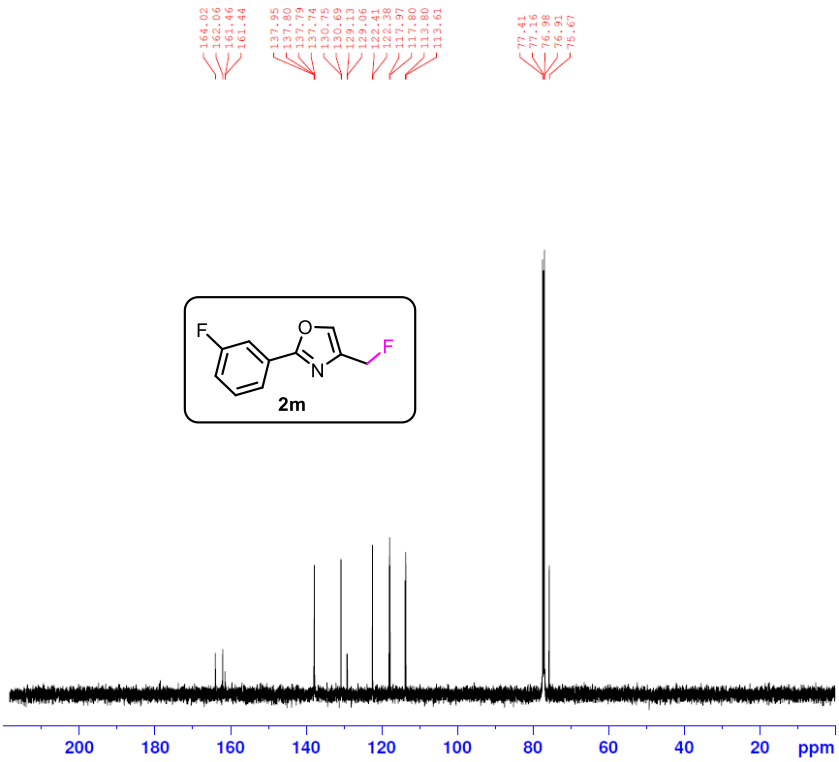
2-(3-bromophenyl)-4-(fluoromethyl)oxazole (2l). ^{19}F NMR (376 MHz, $CDCl_3$)



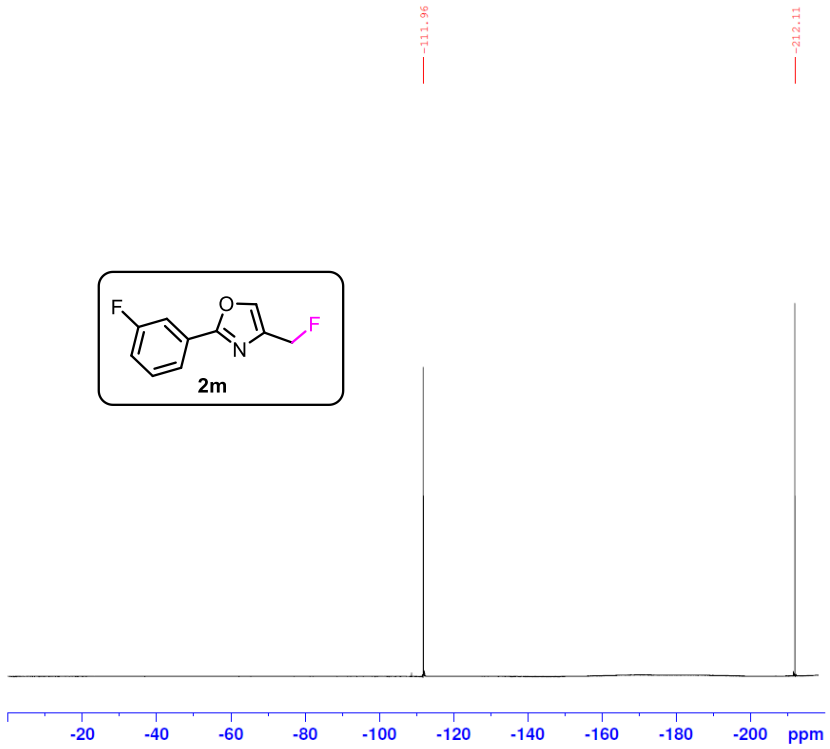
(2-(3-fluorophenyl)oxazol-4-yl)methanol (2m). ^{1}H NMR (400 MHz, $CDCl_3$)



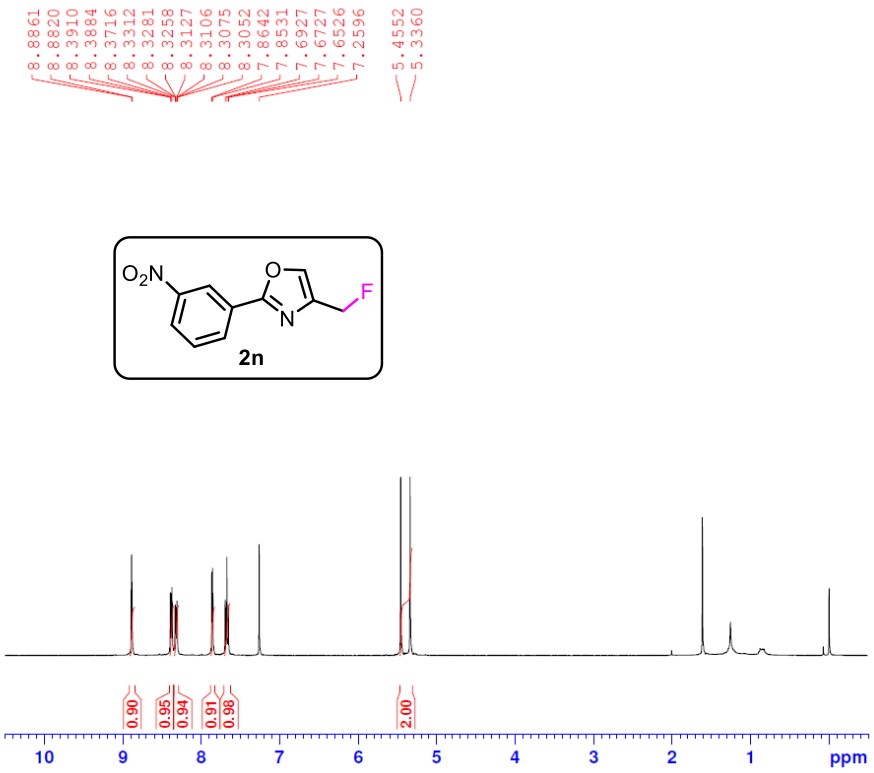
(2-(3-fluorophenyl)oxazol-4-yl)methanol (2m). ^{13}C NMR (100 MHz, $CDCl_3$)



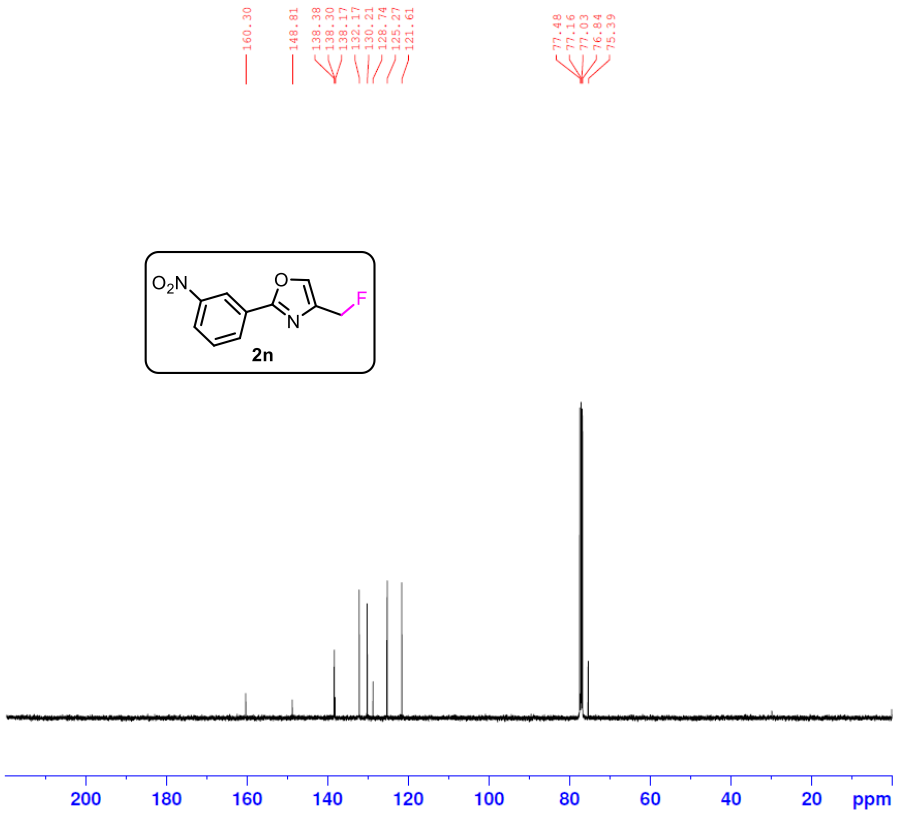
(2-(3-fluorophenyl)oxazol-4-yl)methanol (2m). ^{19}F NMR (376 MHz, $CDCl_3$)



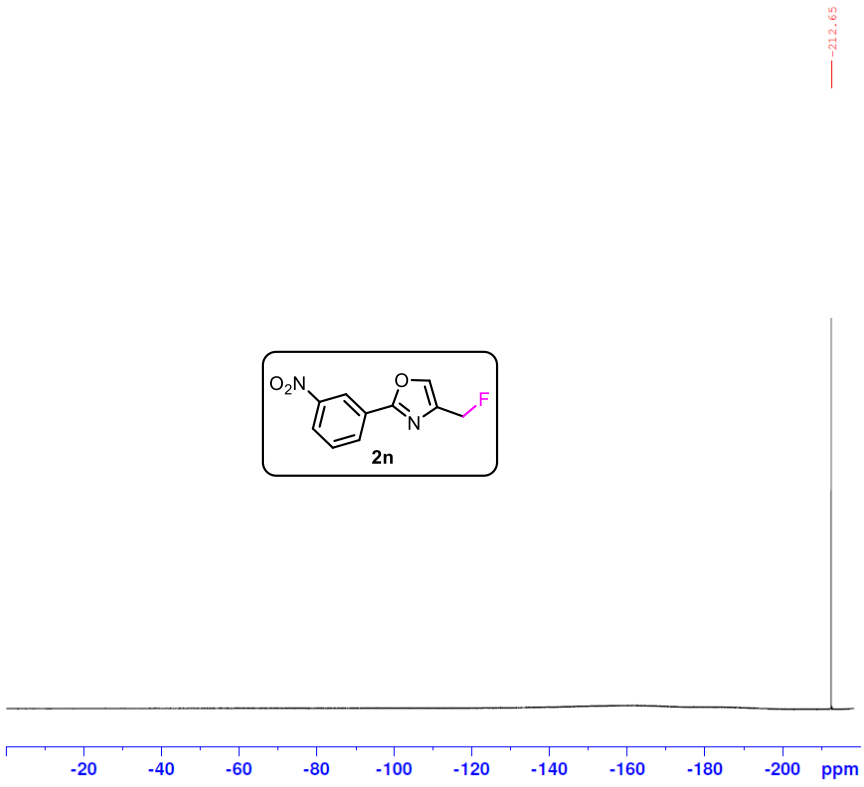
4-(fluoromethyl)-2-(3-nitrophenyl)oxazole (2n). ^{1}H NMR (400 MHz, $CDCl_3$)



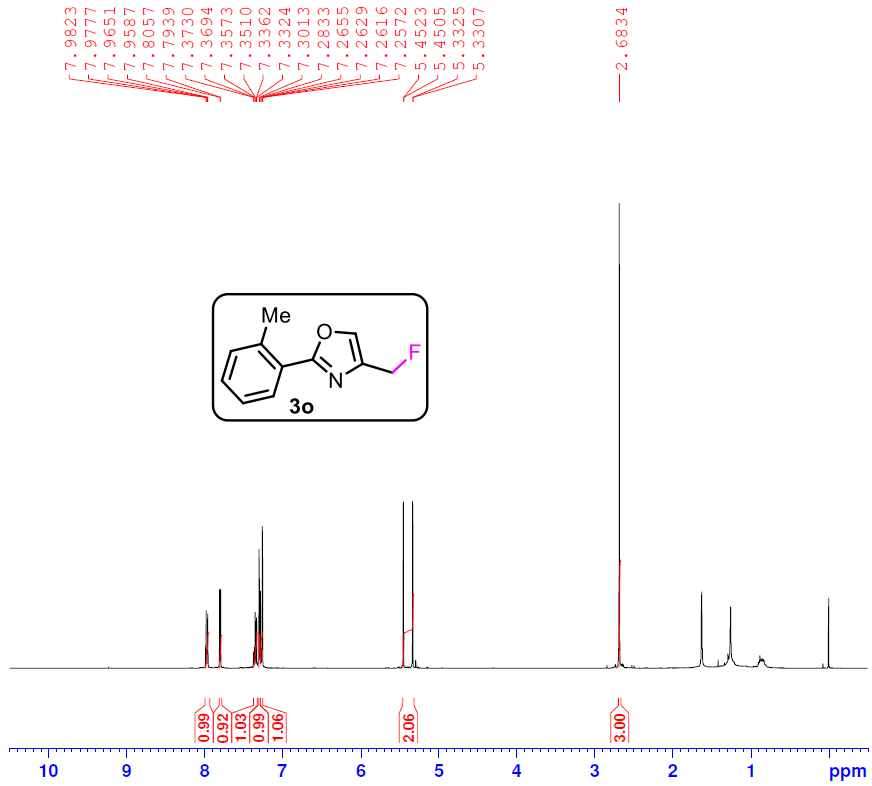
4-(fluoromethyl)-2-(3-nitrophenyl)oxazole (2n). ^{13}C NMR (100 MHz, $CDCl_3$)



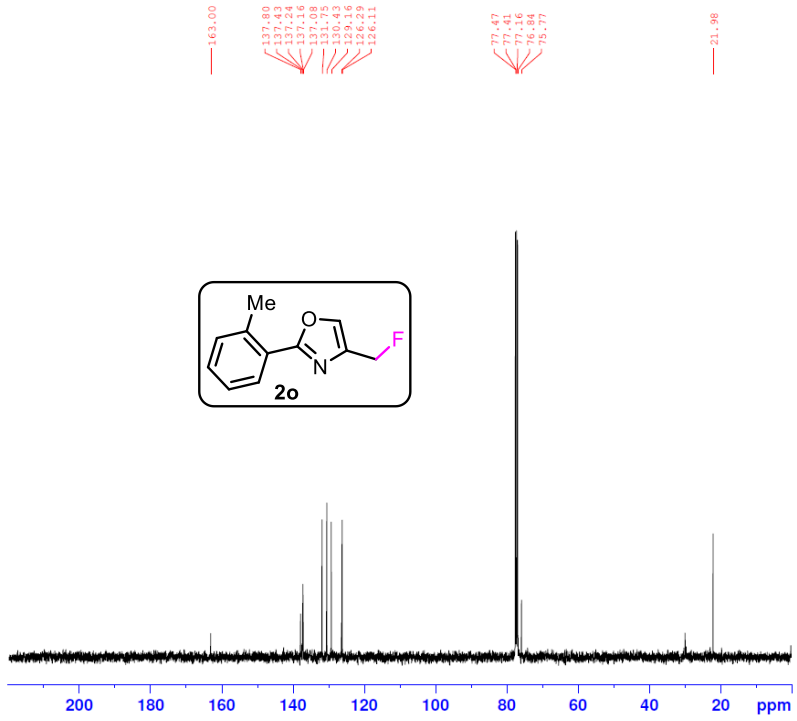
4-(fluoromethyl)-2-(3-nitrophenyl)oxazole (2n). ^{19}F NMR (376 MHz, $CDCl_3$)



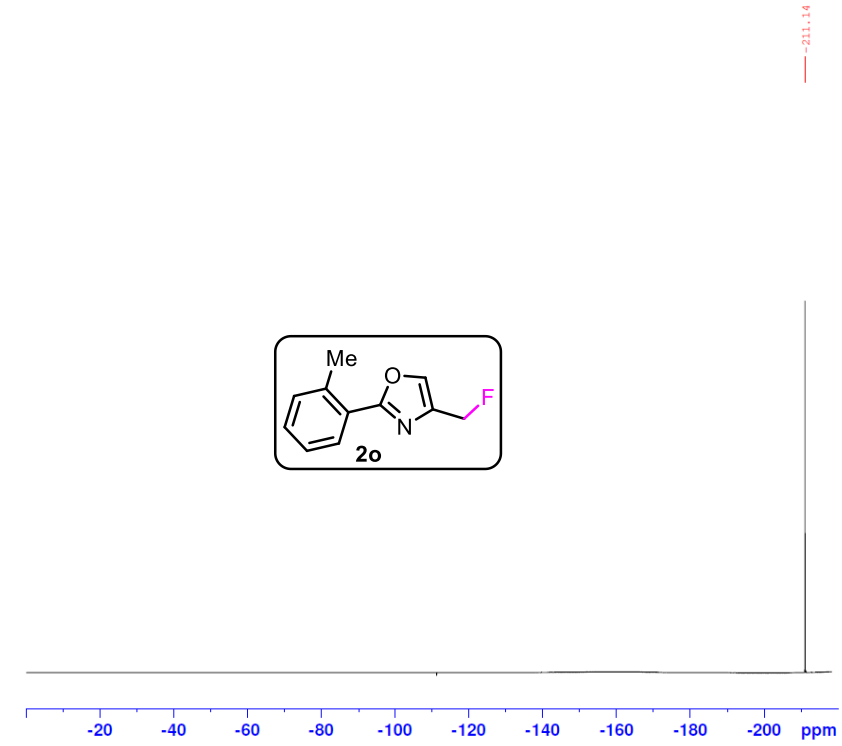
4-(fluoromethyl)-2-(*o*-tolyl)oxazole (2o). ^{1}H NMR (400 MHz, $CDCl_3$)



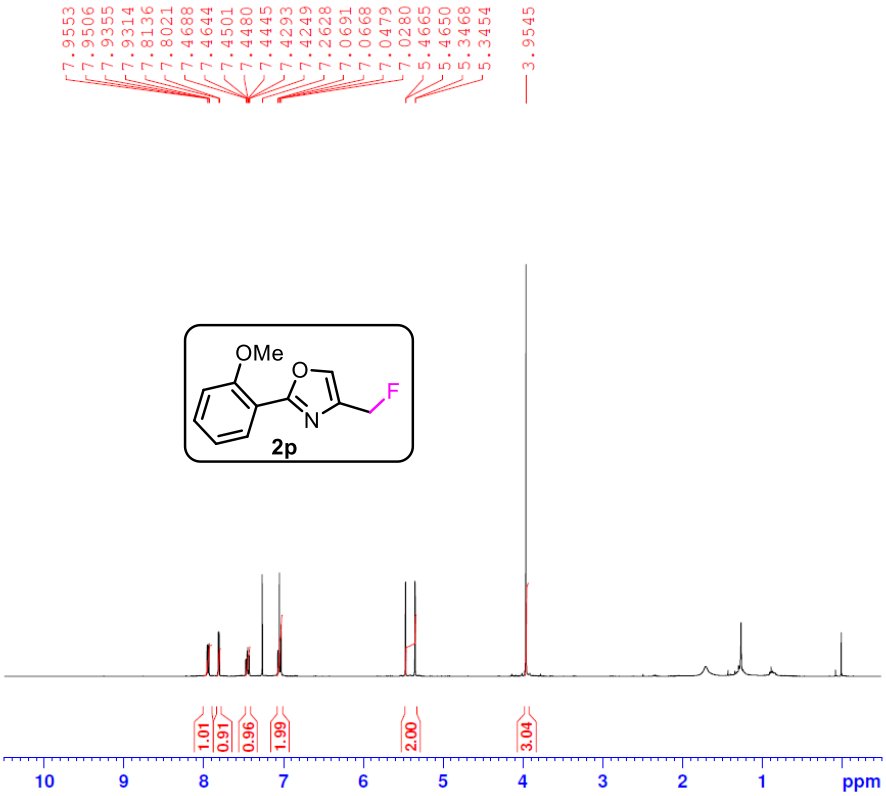
4-(fluoromethyl)-2-(*o*-tolyl)oxazole (2o). ^{13}C NMR (100 MHz, $CDCl_3$)



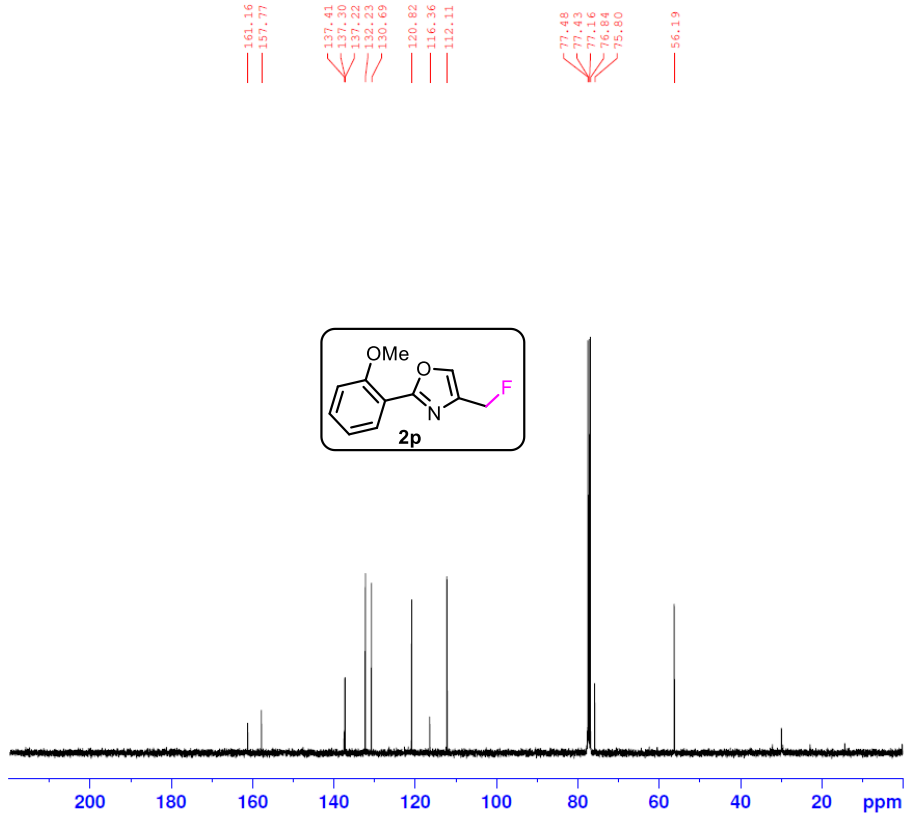
4-(fluoromethyl)-2-(*o*-tolyl)oxazole (2o). ^{19}F NMR (376 MHz, $CDCl_3$)



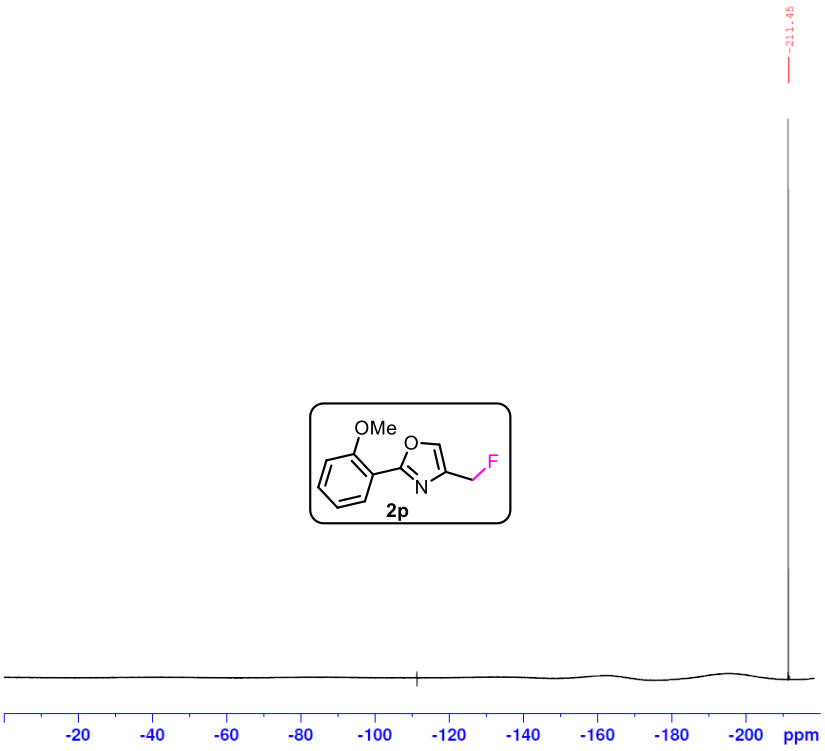
4-(fluoromethyl)-2-(2-methoxyphenyl)oxazole (2p). ^{1}H NMR (400 MHz, $CDCl_3$)



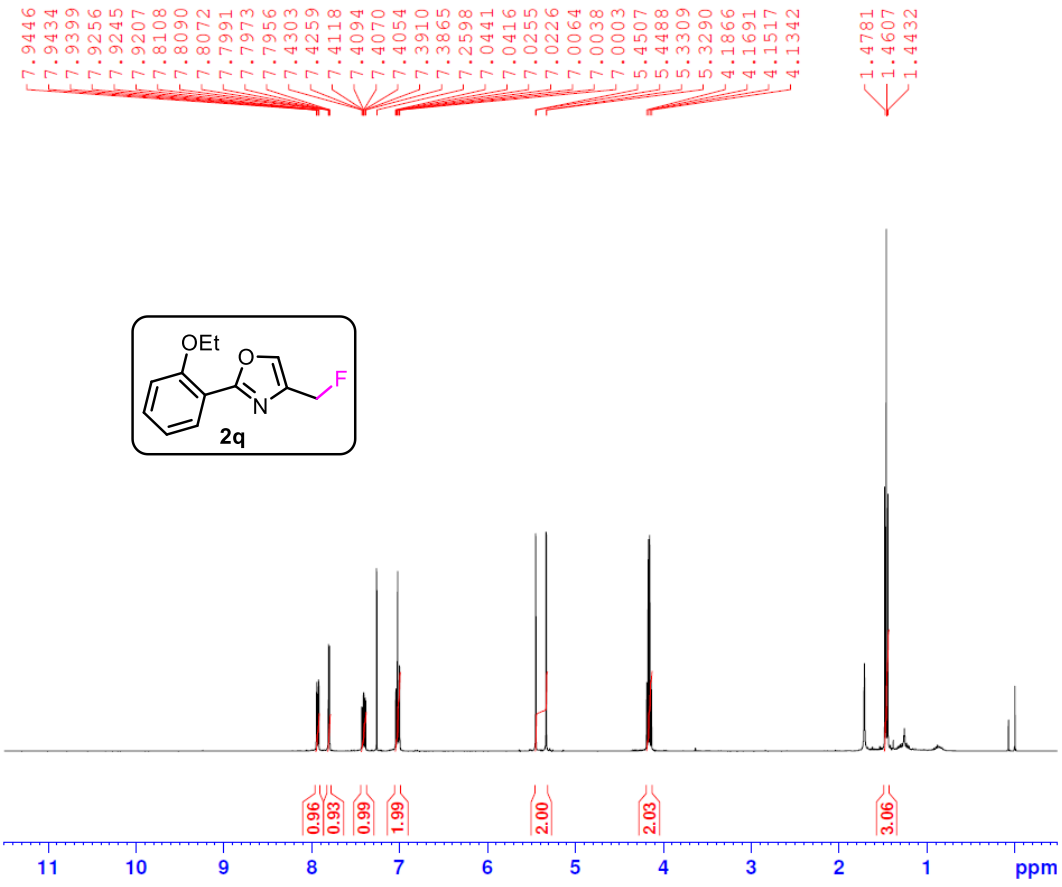
4-(fluoromethyl)-2-(2-methoxyphenyl)oxazole (2p). ^{13}C NMR (100 MHz, $CDCl_3$)



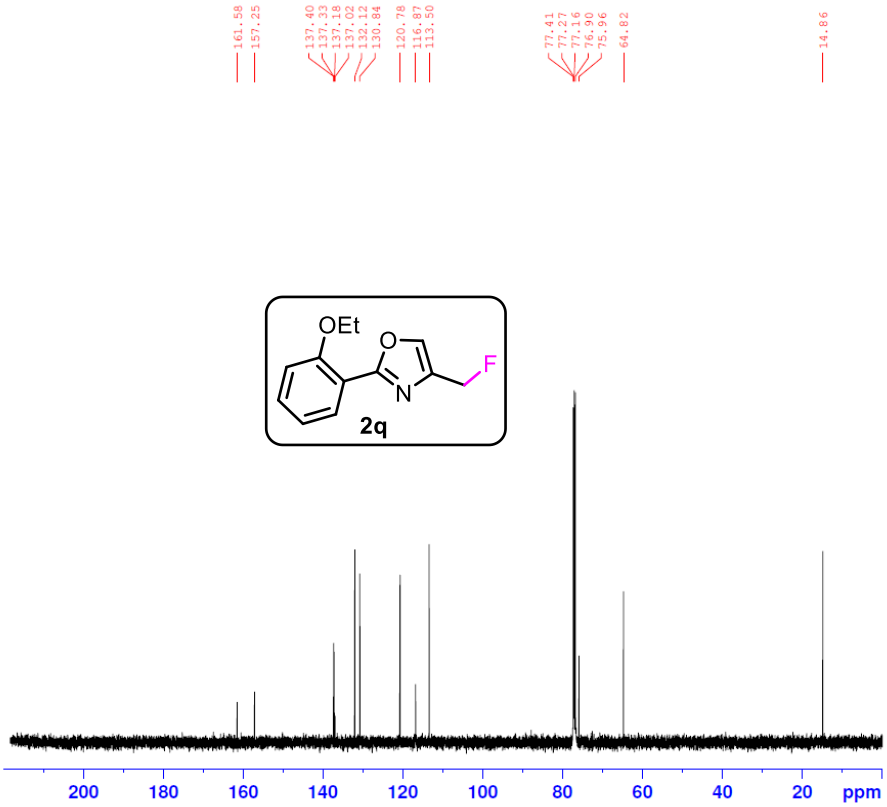
4-(fluoromethyl)-2-(2-methoxyphenyl)oxazole (2p). ^{19}F NMR (376 MHz, $CDCl_3$)



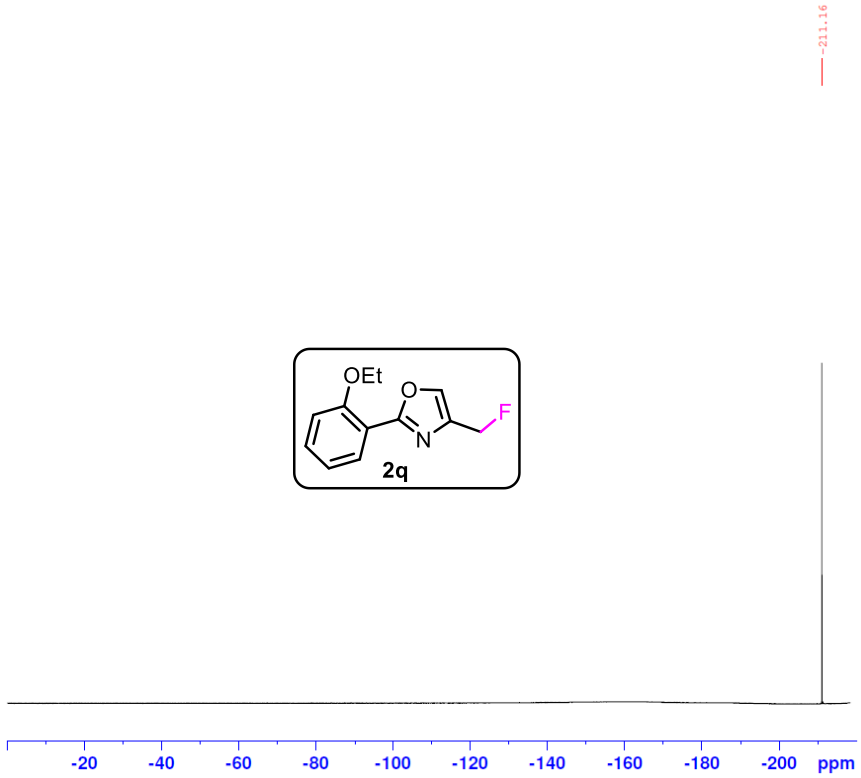
2-(2-ethoxyphenyl)-4-(fluoromethyl)oxazole (2q). ^{1}H NMR (400 MHz, $CDCl_3$)



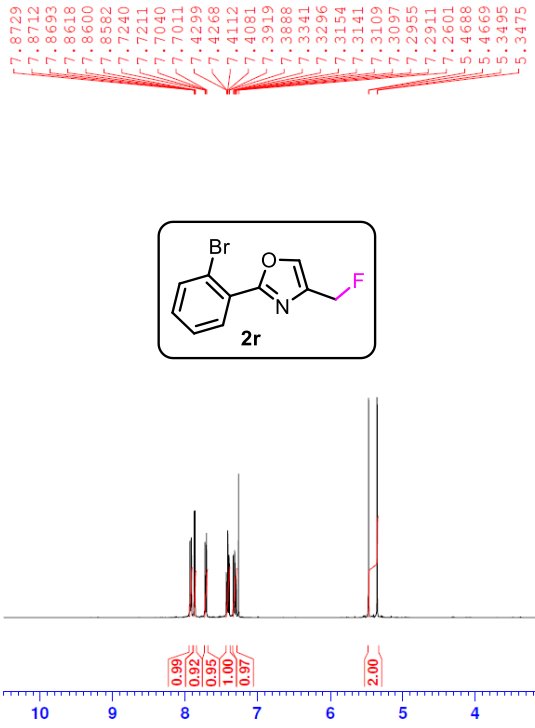
2-(2-ethoxyphenyl)-4-(fluoromethyl)oxazole (2q). **^{13}C NMR** (100 MHz, $CDCl_3$)



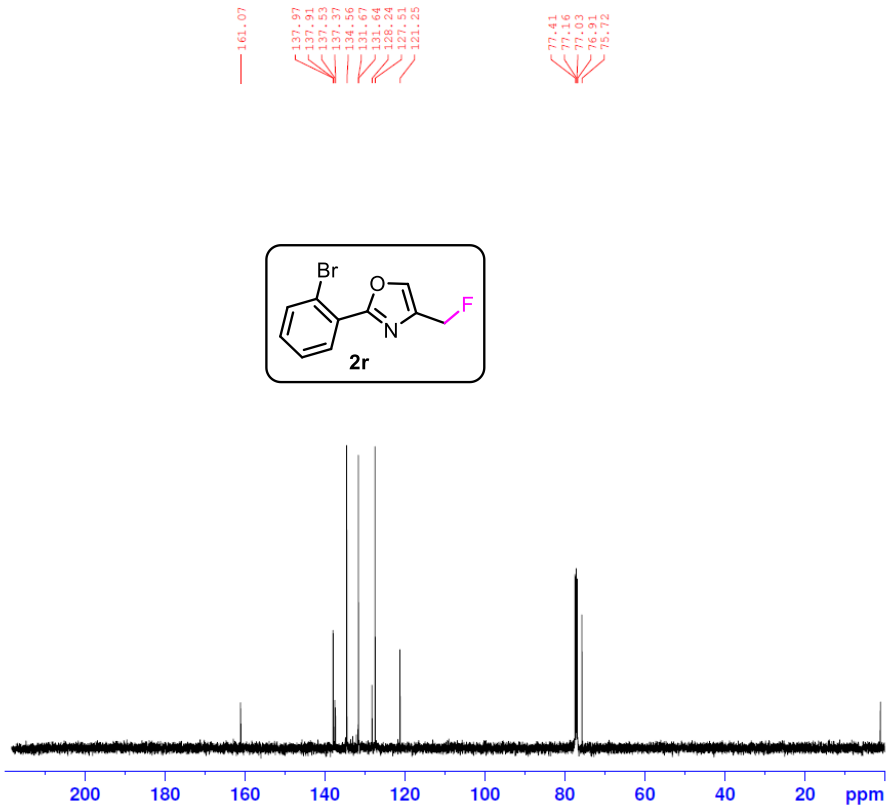
2-(2-ethoxyphenyl)-4-(fluoromethyl)oxazole (2q). **^{19}F NMR** (376 MHz, $CDCl_3$)



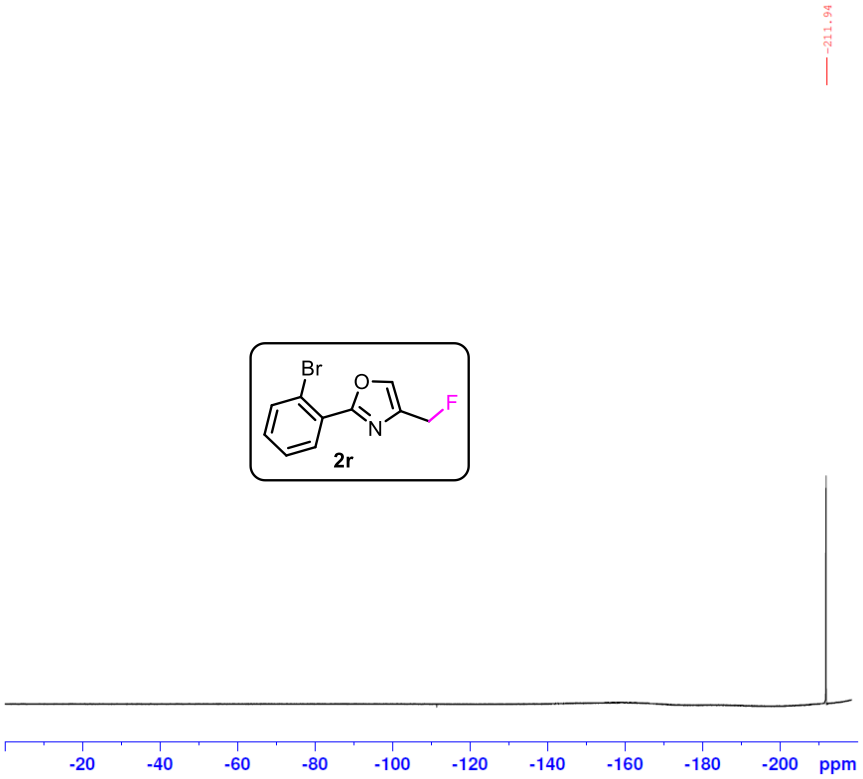
(2-(2-bromophenyl)oxazol-4-yl)methanol (2r). ^{1}H NMR (400 MHz, $CDCl_3$)



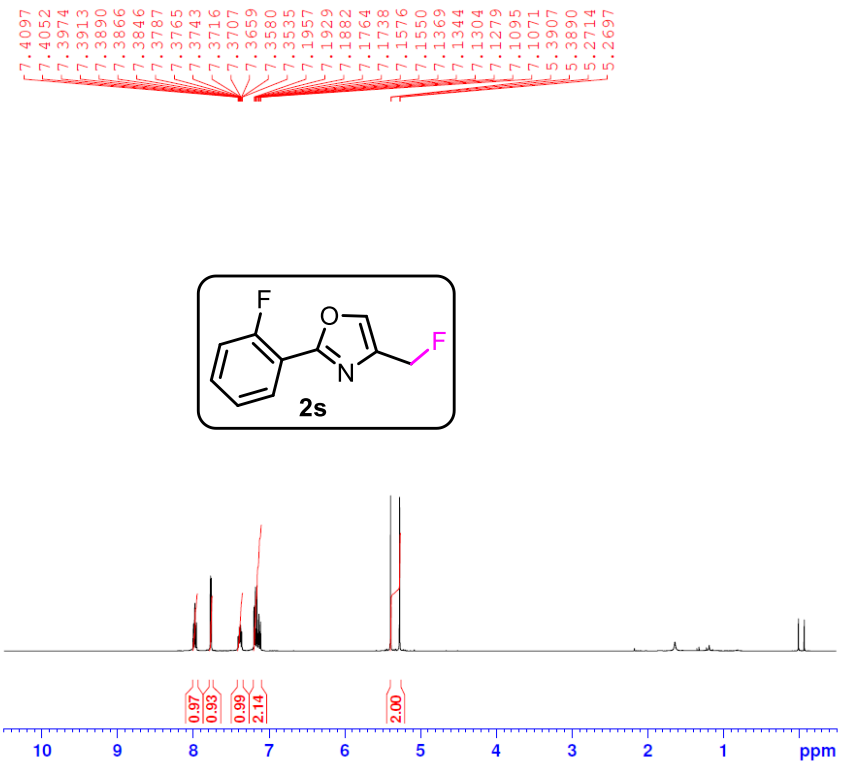
(2-(2-bromophenyl)oxazol-4-yl)methanol (2r). ^{13}C NMR (125 MHz, $CDCl_3$)



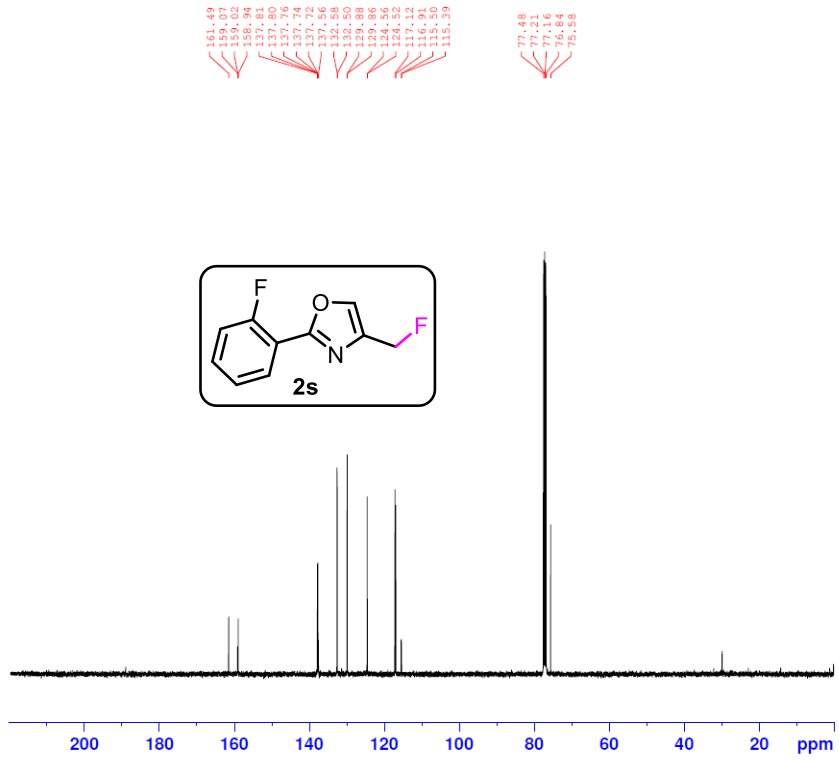
(2-(2-bromophenyl)oxazol-4-yl)methanol (2r). ^{19}F NMR (376 MHz, $CDCl_3$)



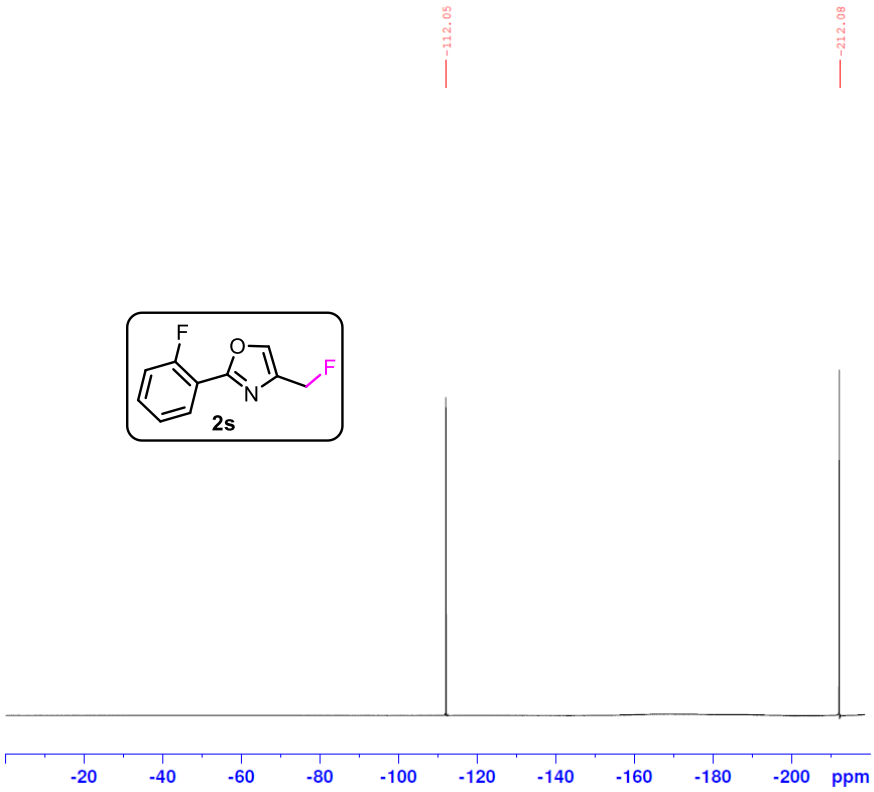
4-(fluoromethyl)-2-(2-fluorophenyl)oxazole (2s). ^{1}H NMR (400 MHz, $CDCl_3$)



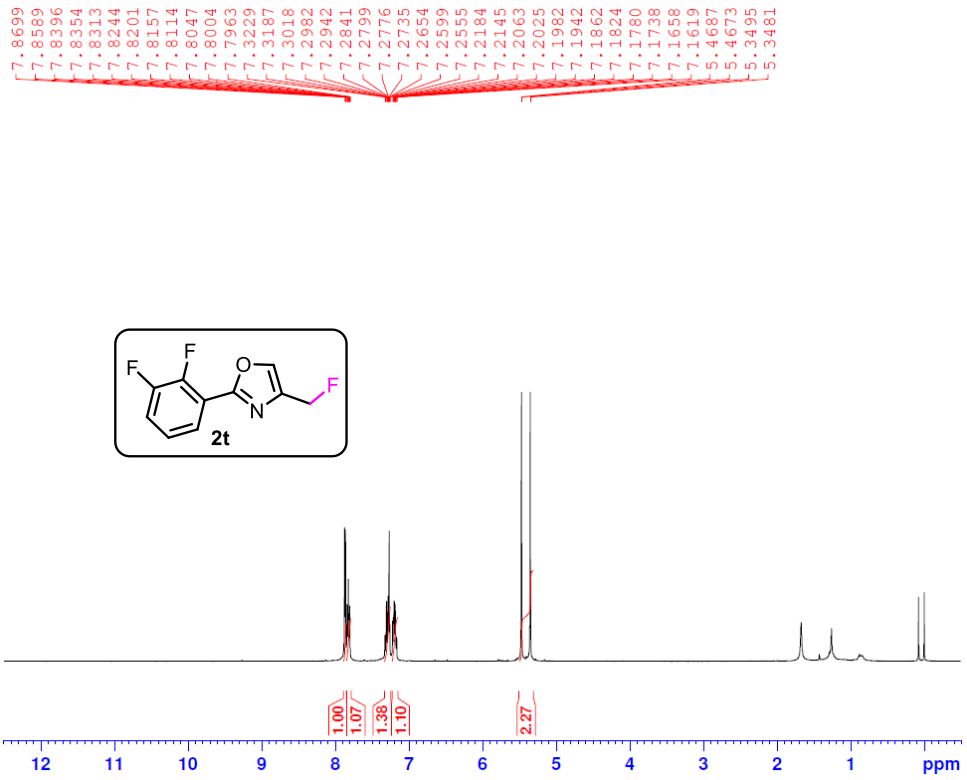
4-(fluoromethyl)-2-(2-fluorophenyl)oxazole (2s). ^{13}C NMR (100 MHz, $CDCl_3$)



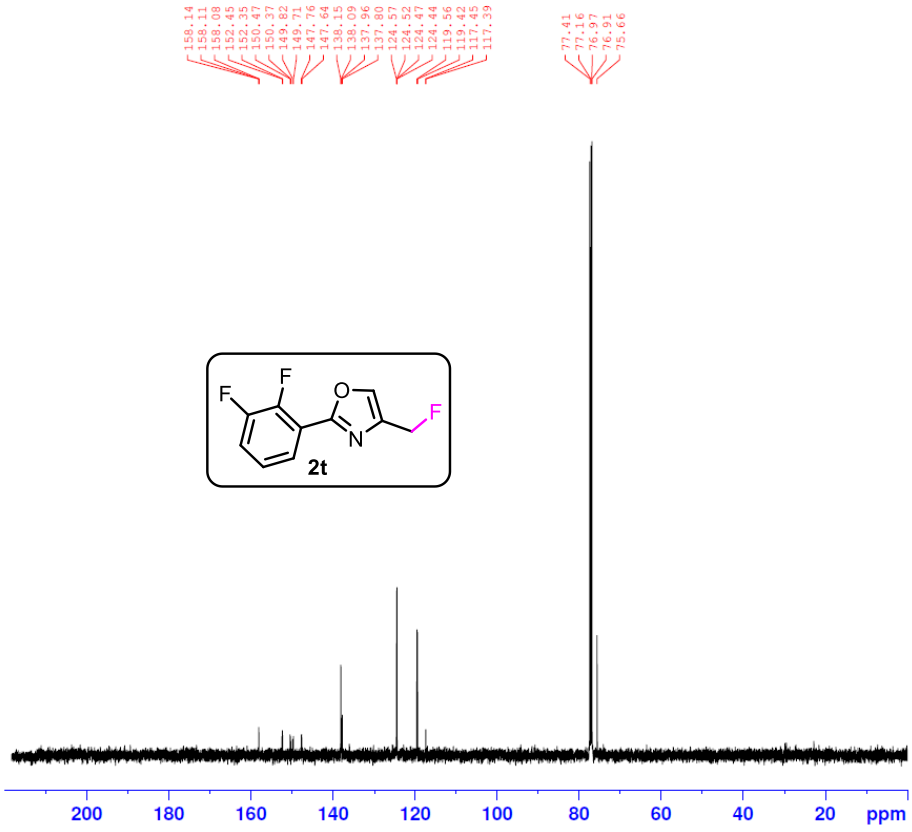
4-(fluoromethyl)-2-(2-fluorophenyl)oxazole (2s). ^{19}F NMR (376 MHz, $CDCl_3$)



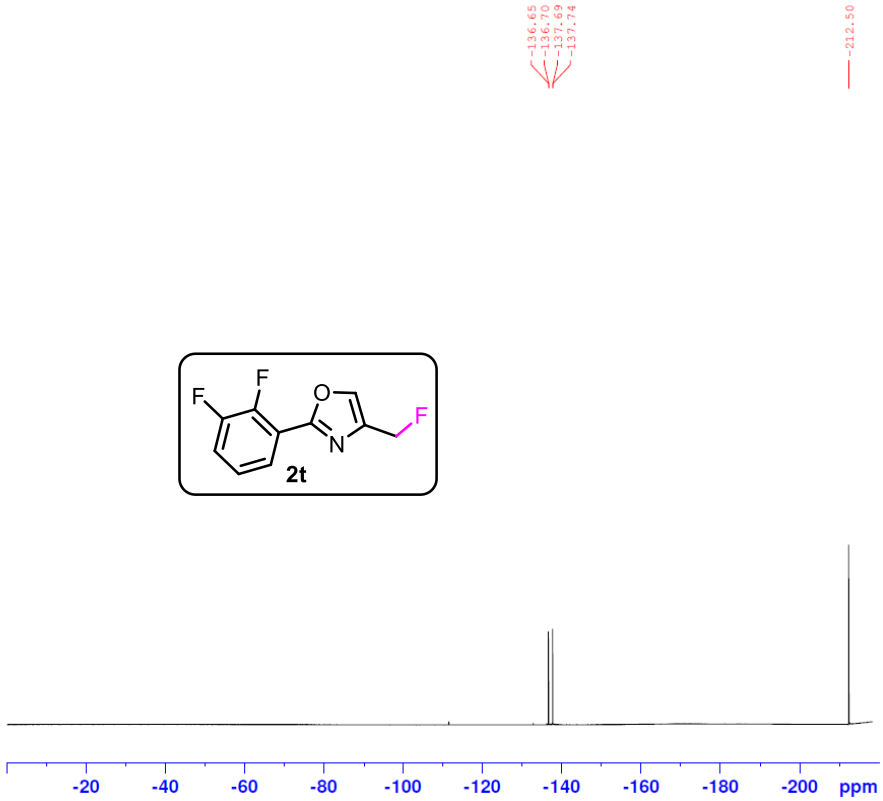
2-(2,3-difluorophenyl)-4-(fluoromethyl)oxazole (2t). ^{1}H NMR (400 MHz, $CDCl_3$)



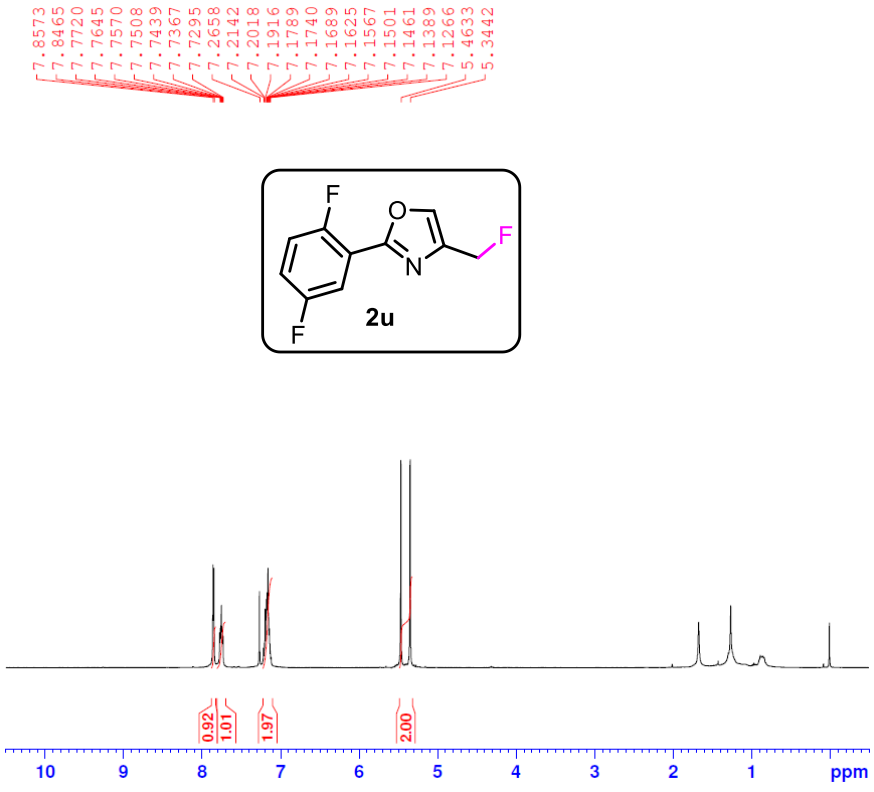
2-(2,3-difluorophenyl)-4-(fluoromethyl)oxazole (2t). ^{13}C NMR (125 MHz, $CDCl_3$)



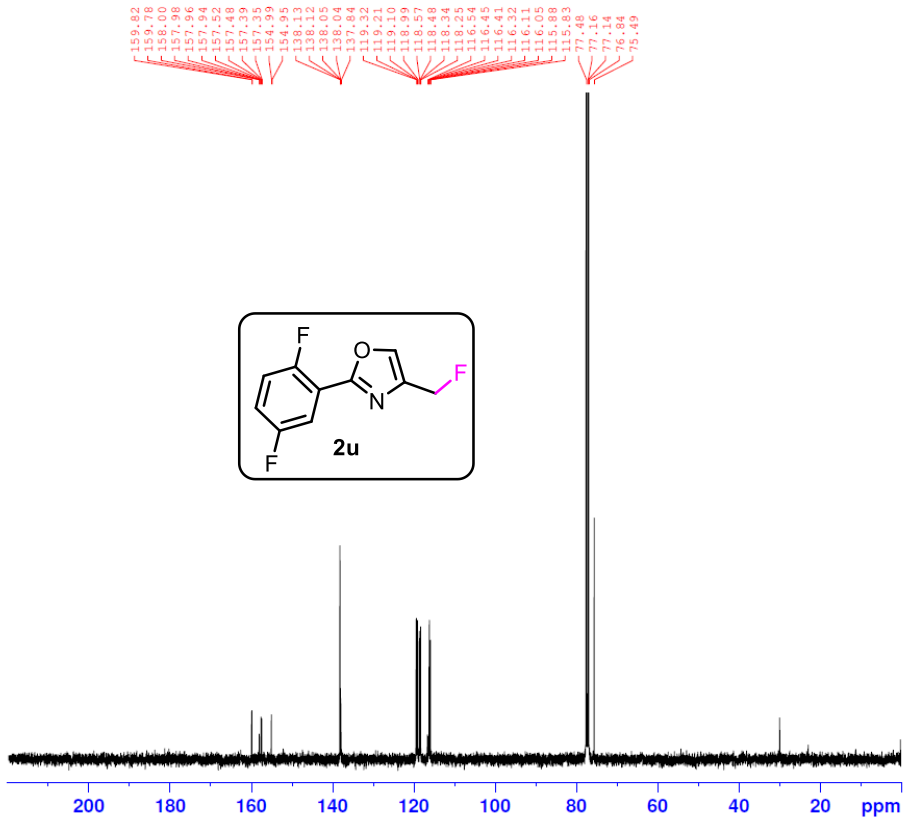
2-(2,3-difluorophenyl)-4-(fluoromethyl)oxazole (2t). ^{19}F NMR (376 MHz, $CDCl_3$)



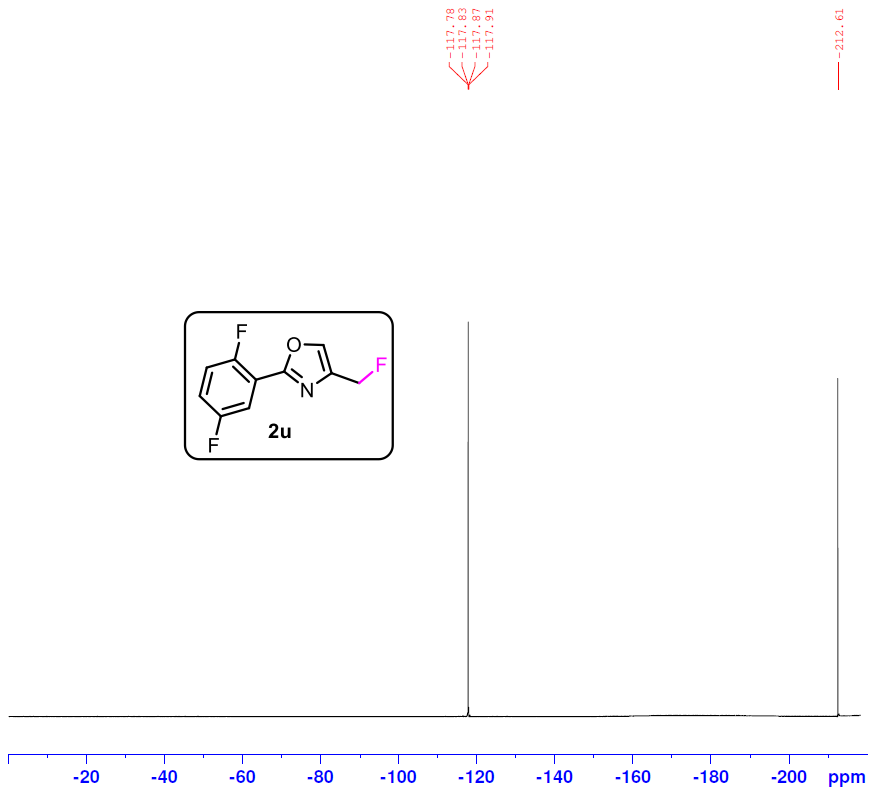
2-(2,5-difluorophenyl)-4-(fluoromethyl)oxazole (2u). ^{1}H NMR (400 MHz, $CDCl_3$)



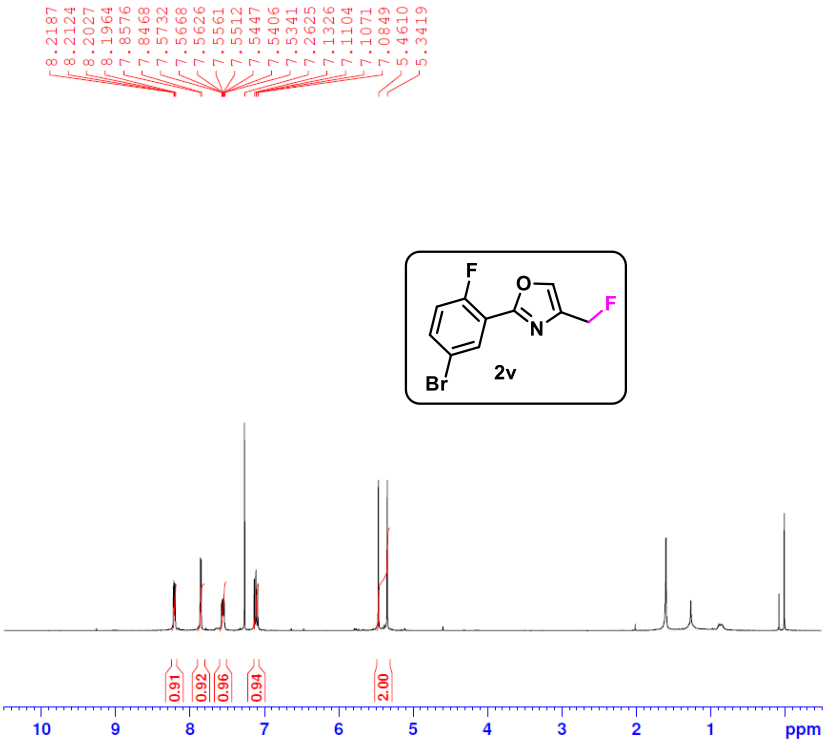
2-(2,5-difluorophenyl)-4-(fluoromethyl)oxazole (2u). ^{13}C NMR (100 MHz, $CDCl_3$)



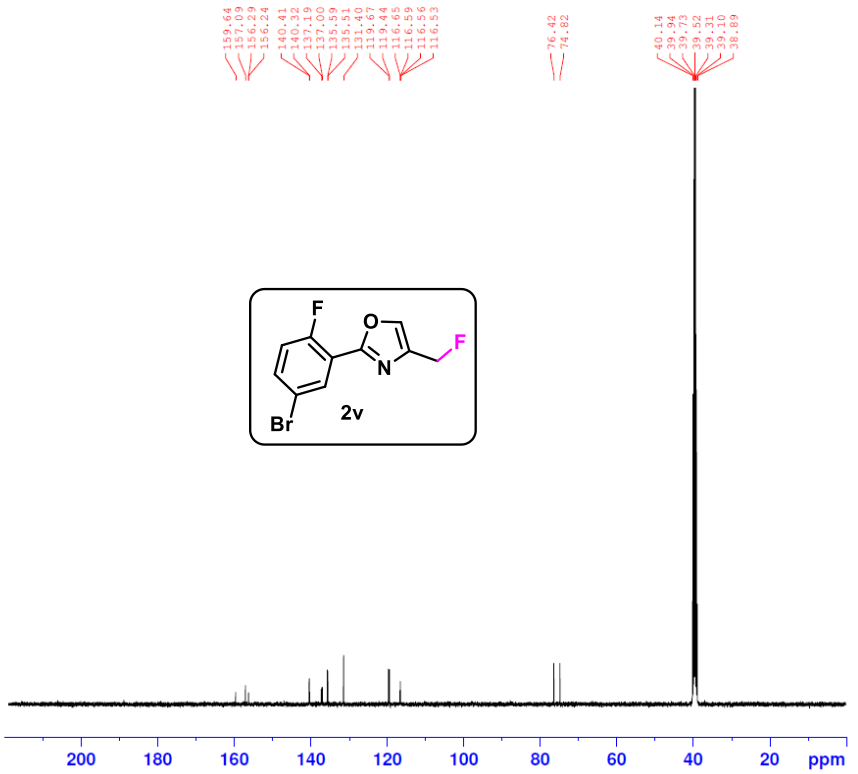
2-(2,5-difluorophenyl)-4-(fluoromethyl)oxazole (2u). ^{19}F NMR (376 MHz, $CDCl_3$)



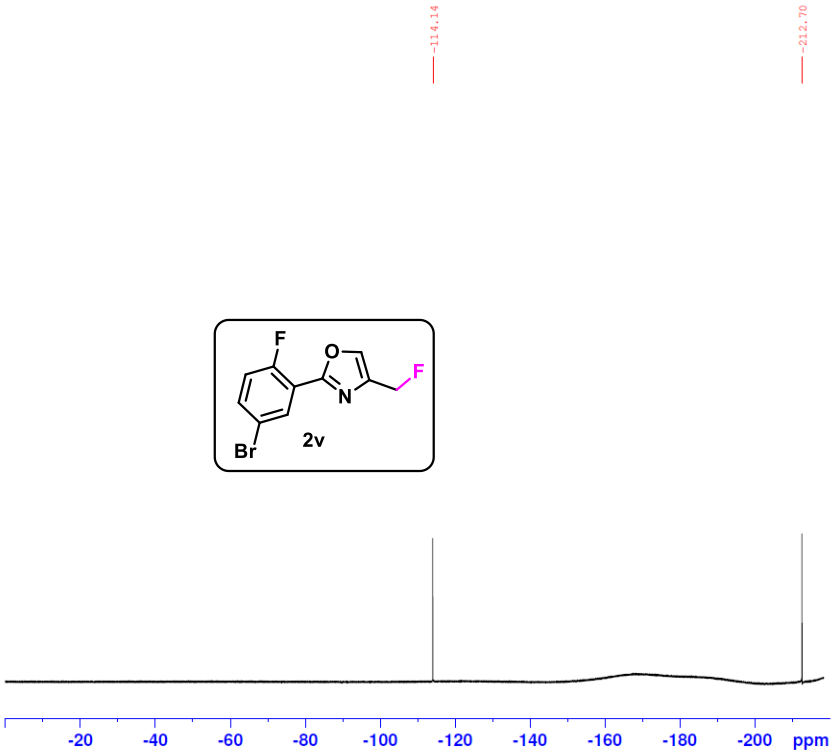
2-(5-bromo-2-fluorophenyl)-4-(fluoromethyl)oxazole (2v). ^{1}H NMR (400 MHz, $CDCl_3$)



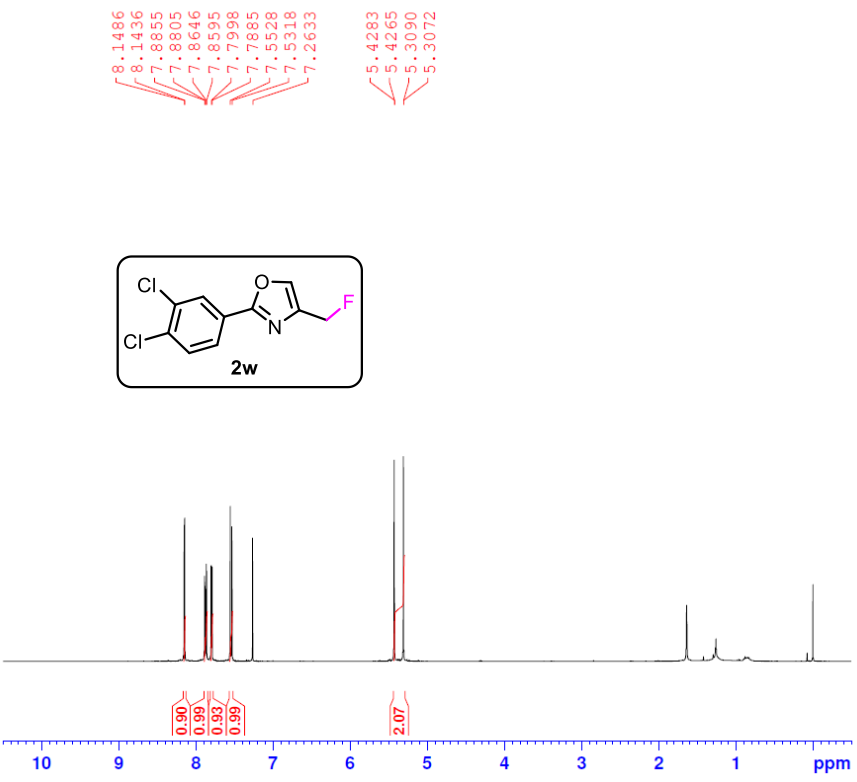
2-(5-bromo-2-fluorophenyl)-4-(fluoromethyl)oxazole (2v). ^{13}C NMR (100 MHz, DMSO-d_6)



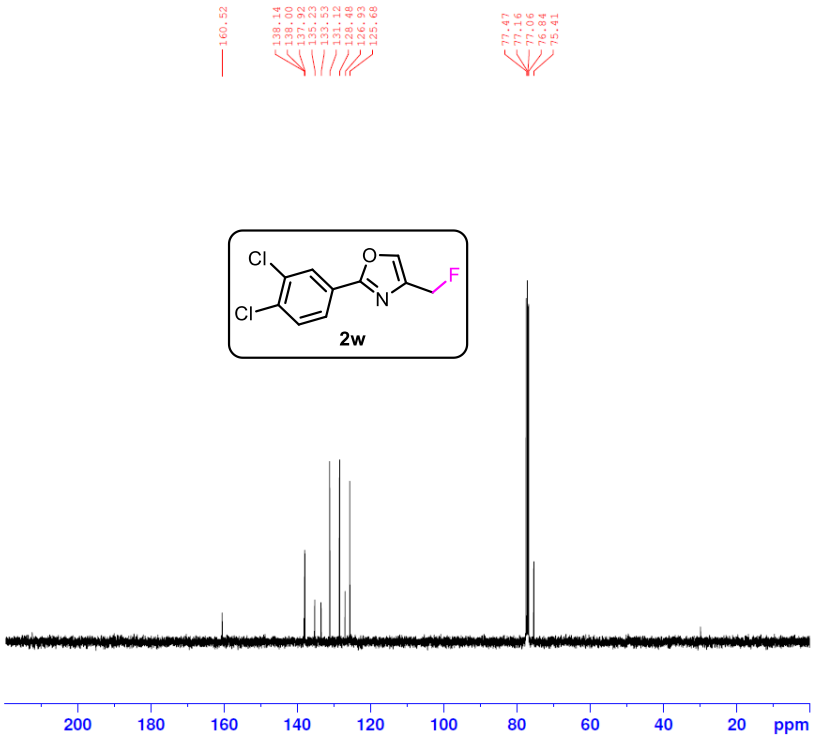
2-(5-bromo-2-fluorophenyl)-4-(fluoromethyl)oxazole (2v). ^{19}F NMR (376 MHz, $CDCl_3$)



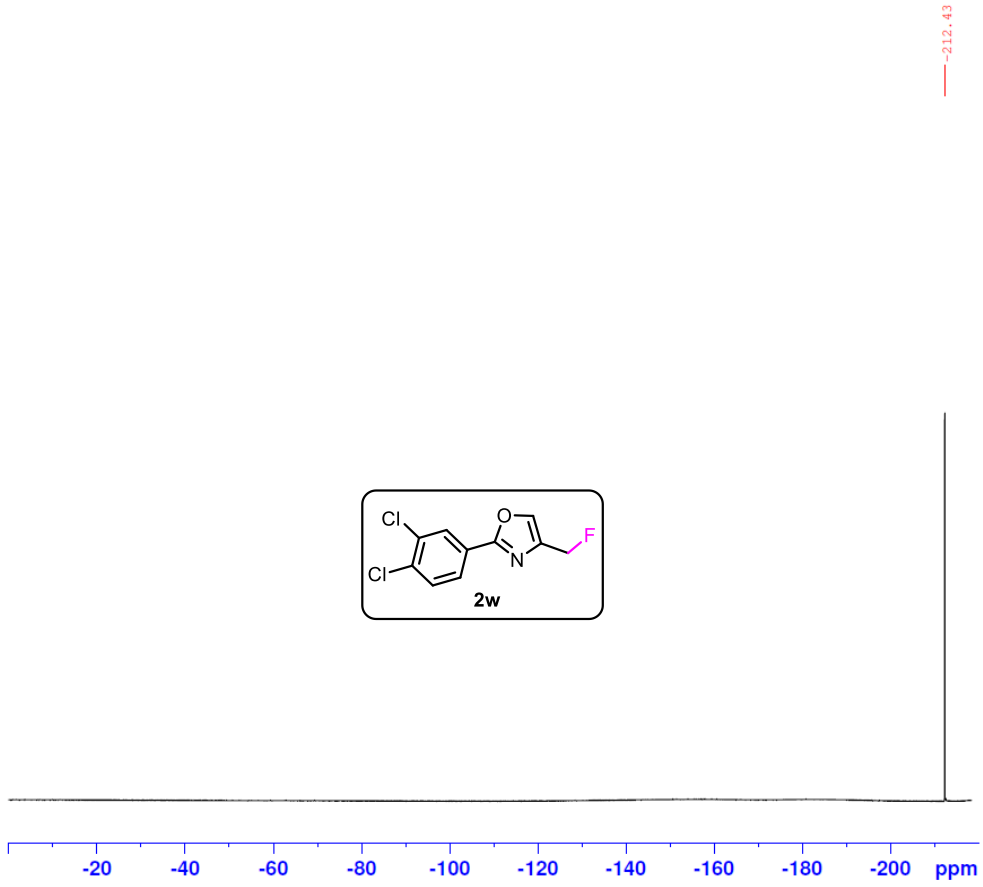
(2-(3,4-dichlorophenyl)oxazol-4-yl)methanol (2w). ^{1}H NMR (400 MHz, $CDCl_3$)



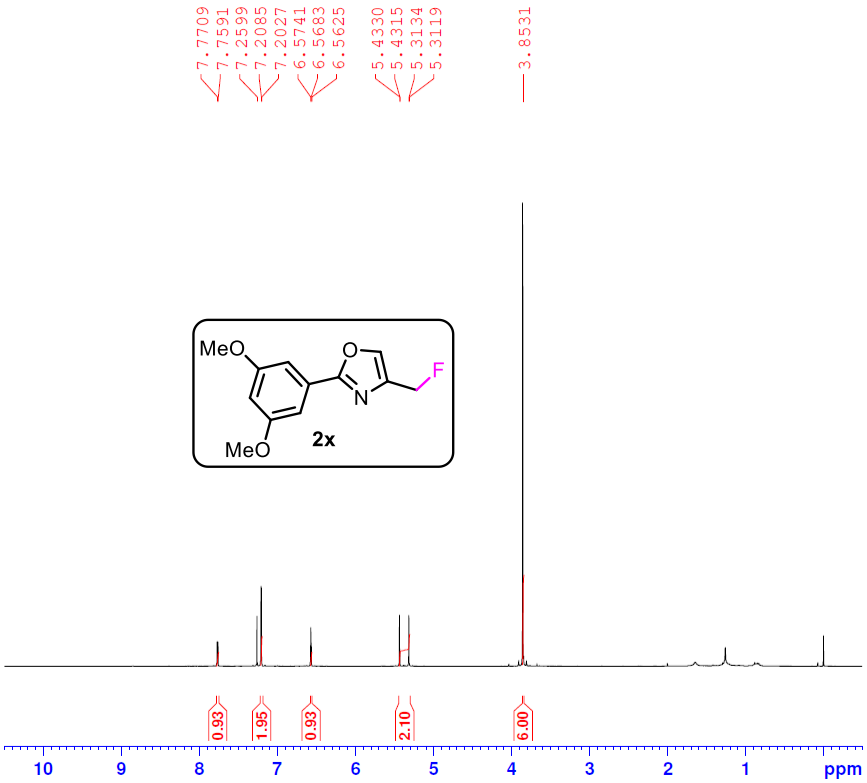
(2-(3,4-dichlorophenyl)oxazol-4-yl)methanol (2w). ^{13}C NMR (100 MHz, $CDCl_3$)



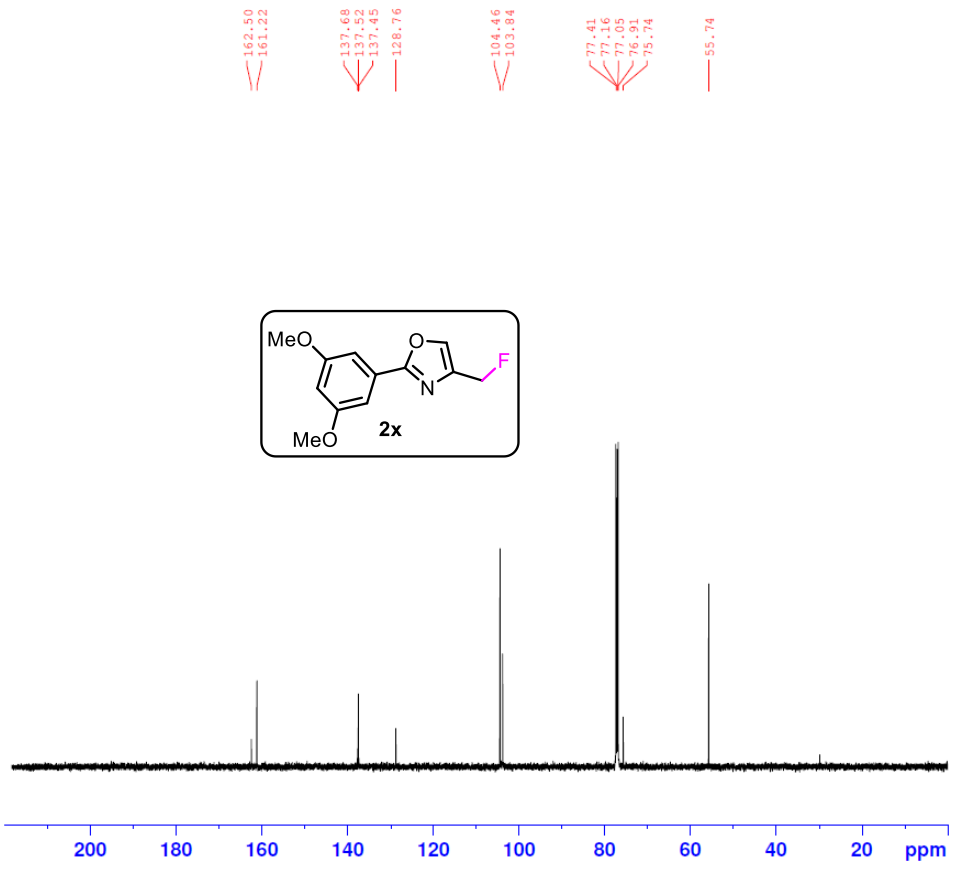
(2-(3,4-dichlorophenyl)oxazol-4-yl)methanol (2w). ^{19}F NMR (376 MHz, $CDCl_3$)



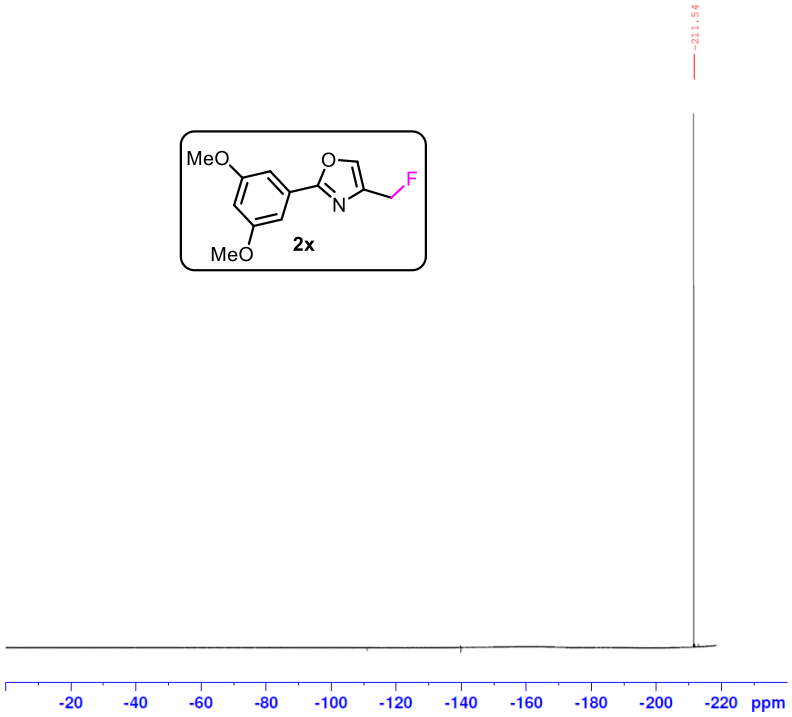
2-(3,5-dimethoxyphenyl)-4-(fluoromethyl)oxazole (2x). ^{1}H NMR (400 MHz, $CDCl_3$)



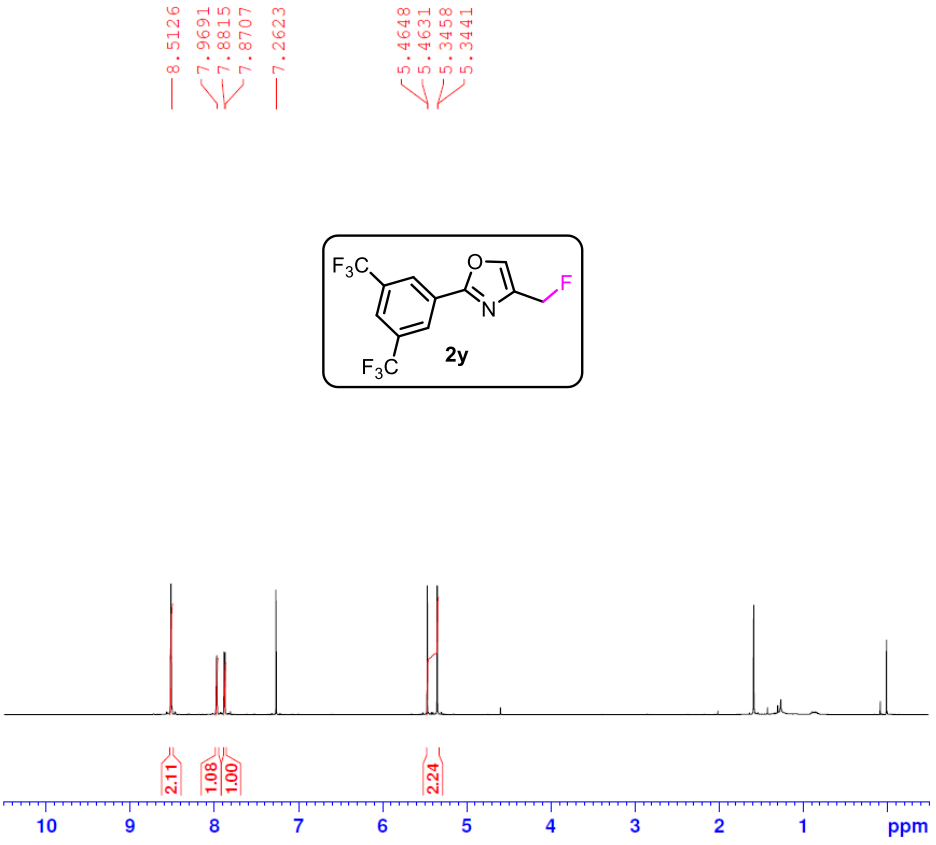
2-(3,5-dimethoxyphenyl)-4-(fluoromethyl)oxazole (2x). ^{13}C NMR (125 MHz, $CDCl_3$)



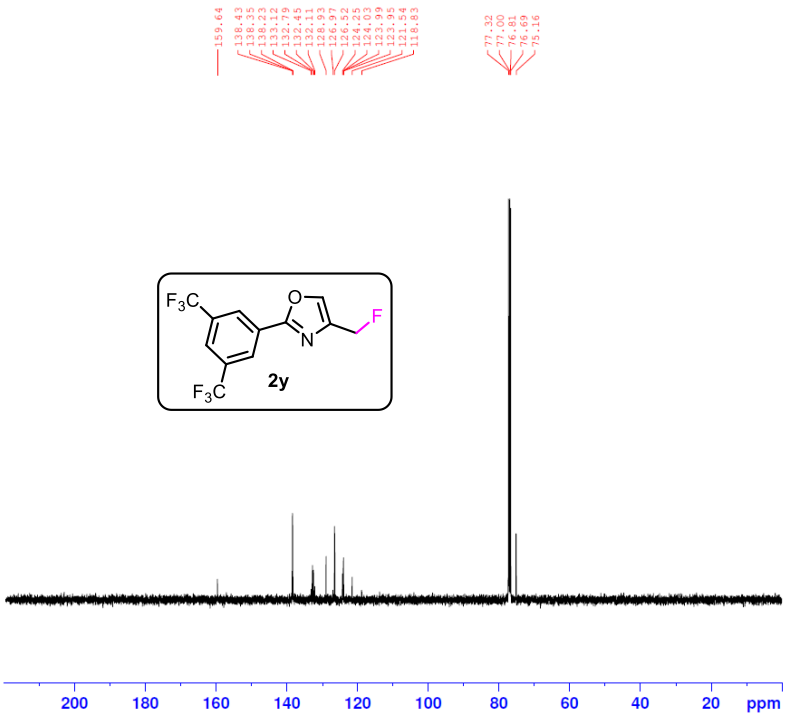
2-(3,5-dimethoxyphenyl)-4-(fluoromethyl)oxazole (2x). ^{19}F NMR (376 MHz, $CDCl_3$)



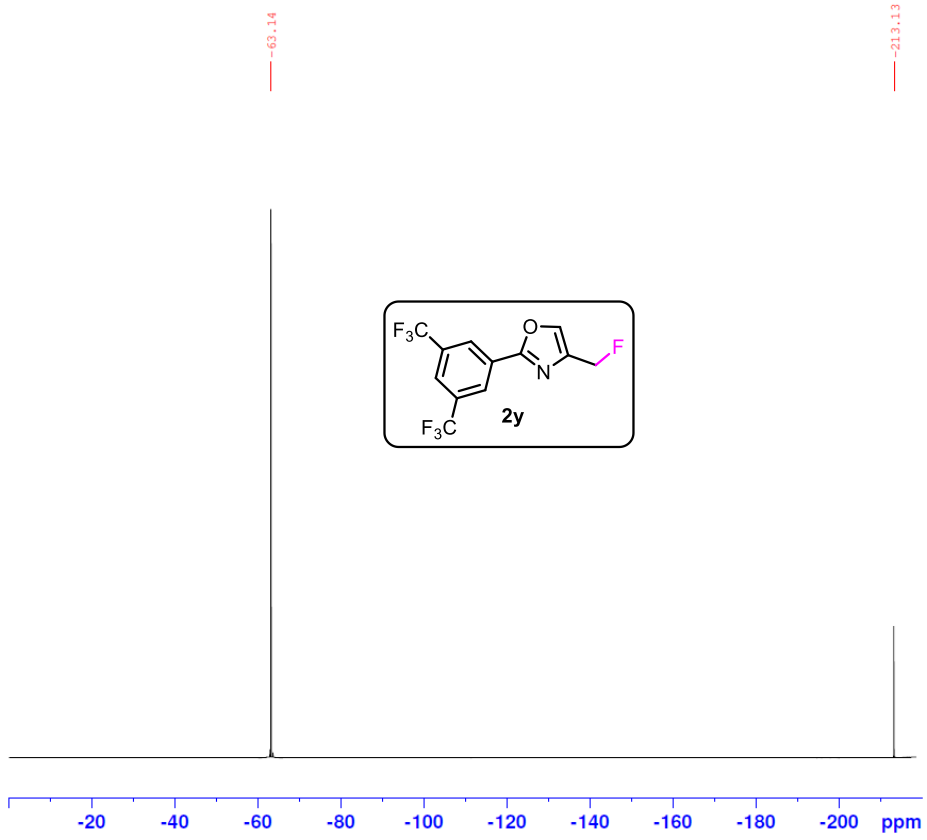
2-(3,5-bis(trifluoromethyl)phenyl)-4-(fluoromethyl)oxazole (2y). ^{1}H NMR (400 MHz, $CDCl_3$)



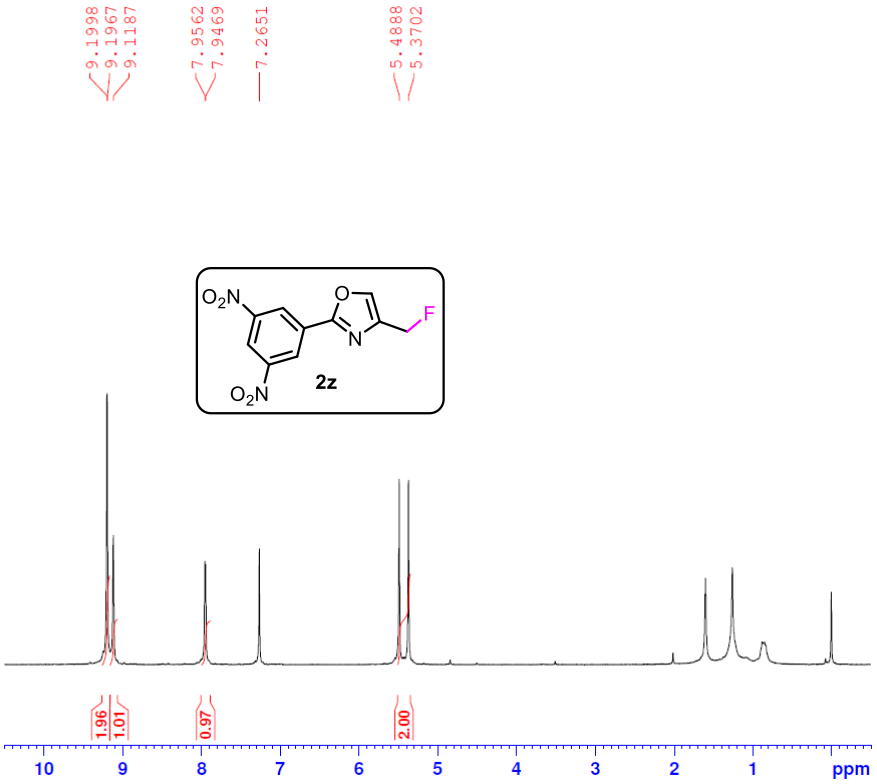
2-(3,5-bis(trifluoromethyl)phenyl)-4-(fluoromethyl)oxazole (2y). ^{13}C NMR (100 MHz, $CDCl_3$)



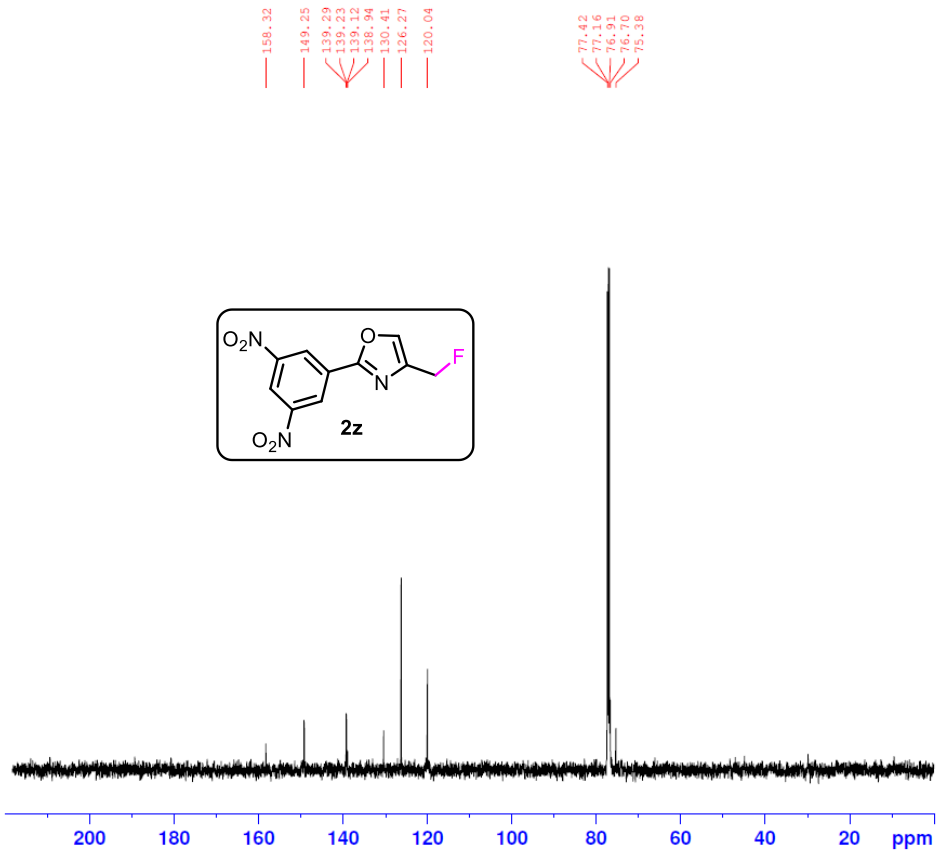
2-(3,5-bis(trifluoromethyl)phenyl)-4-(fluoromethyl)oxazole (2y). ^{19}F NMR (376 MHz, $CDCl_3$)



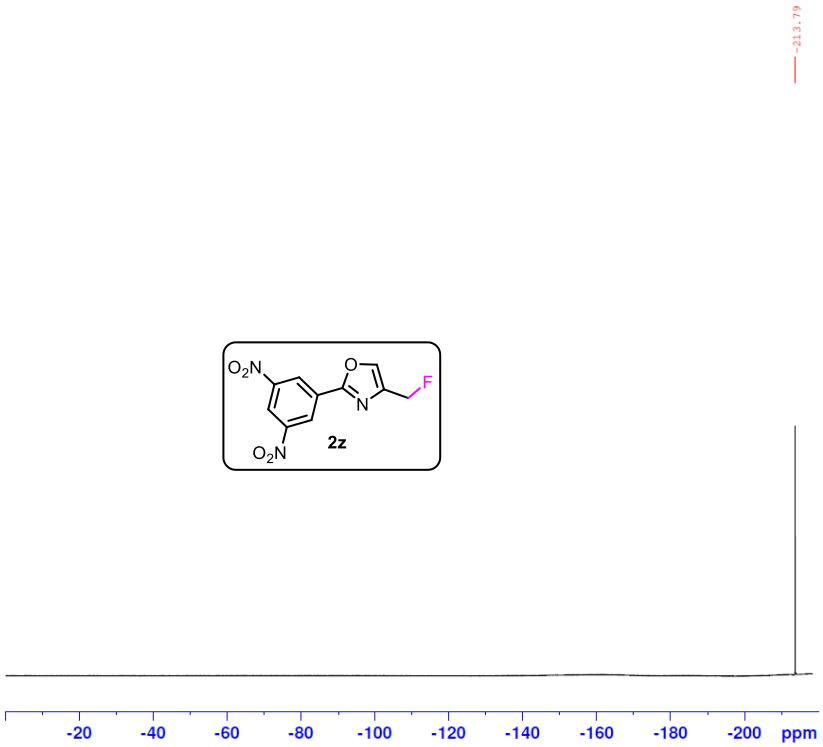
2-(3,5-dinitrophenyl)-4-(fluoromethyl)oxazole (2z). ^{1}H NMR (400 MHz, $CDCl_3$)



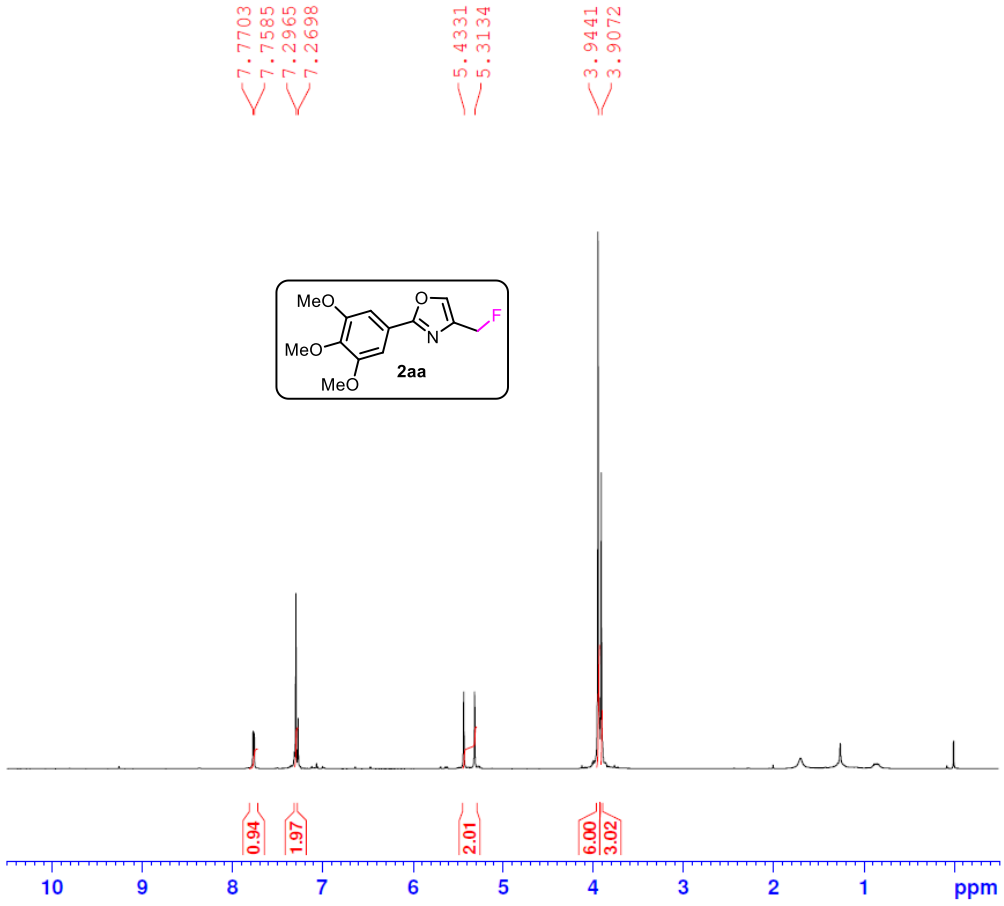
2-(3,5-dinitrophenyl)-4-(fluoromethyl)oxazole (2z). ^{13}C NMR (125 MHz, $CDCl_3$)



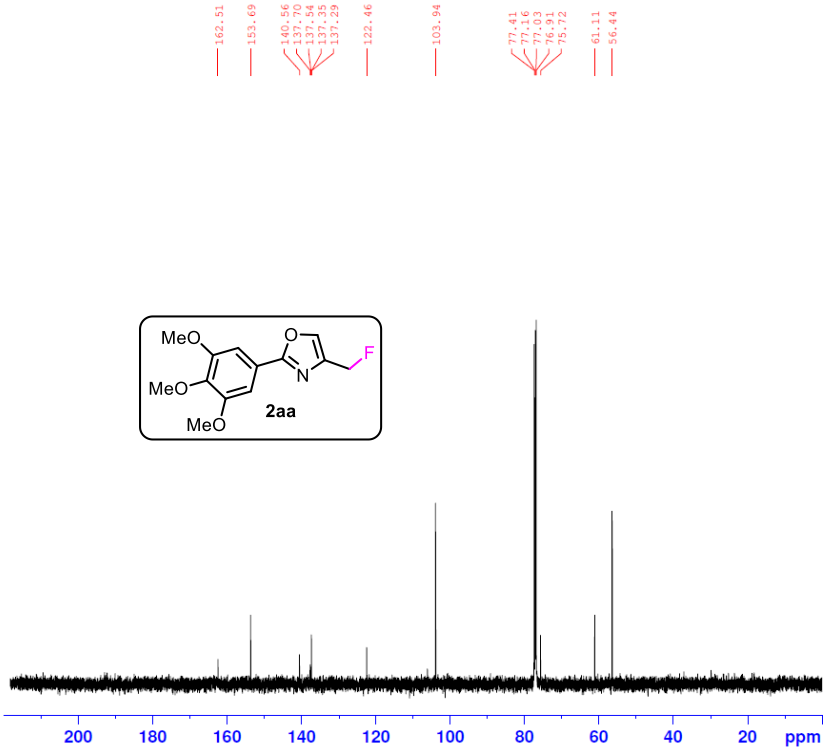
2-(3,5-dinitrophenyl)-4-(fluoromethyl)oxazole (2z). ^{19}F NMR (376 MHz, $CDCl_3$)



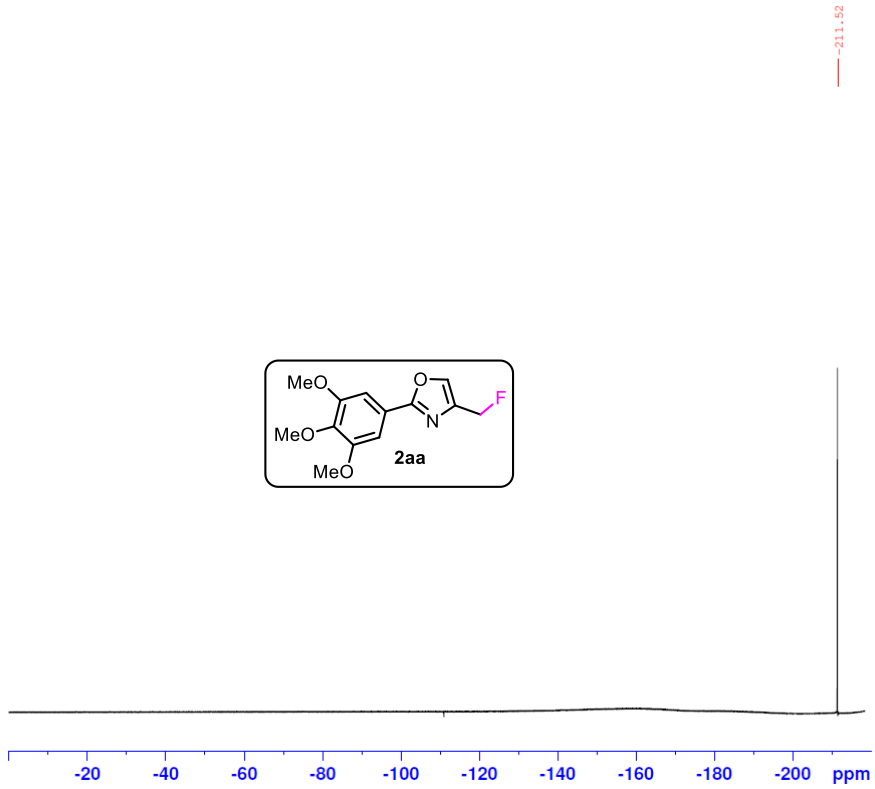
4-(fluoromethyl)-2-(3,4,5-trimethoxyphenyl)oxazole (2aa). ^{1}H NMR (400 MHz, $CDCl_3$)



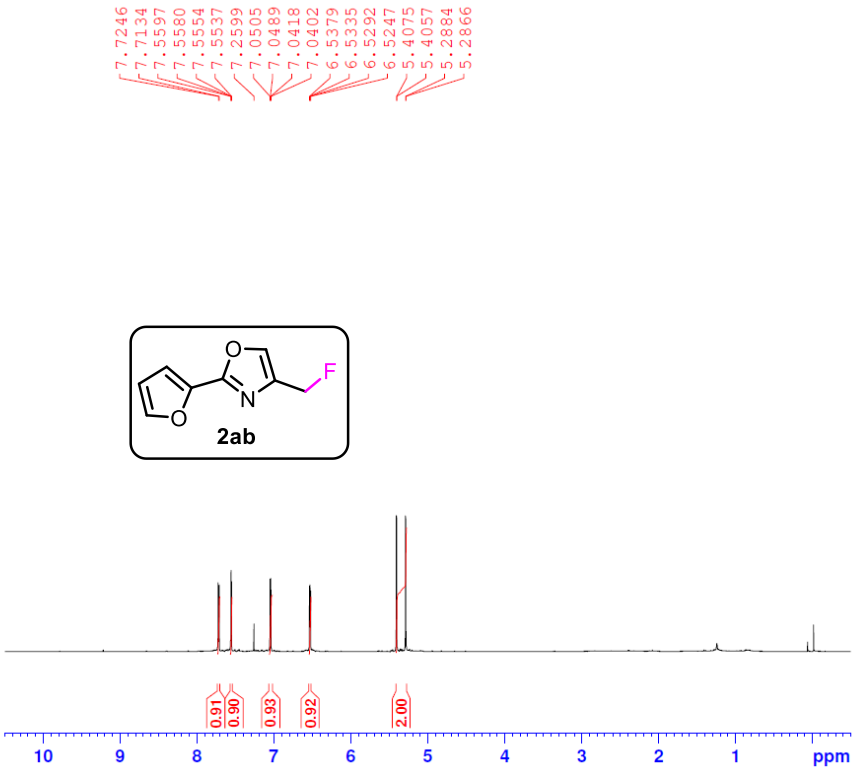
4-(fluoromethyl)-2-(3,4,5-trimethoxyphenyl)oxazole (2aa). ^{13}C NMR (125 MHz, $CDCl_3$)



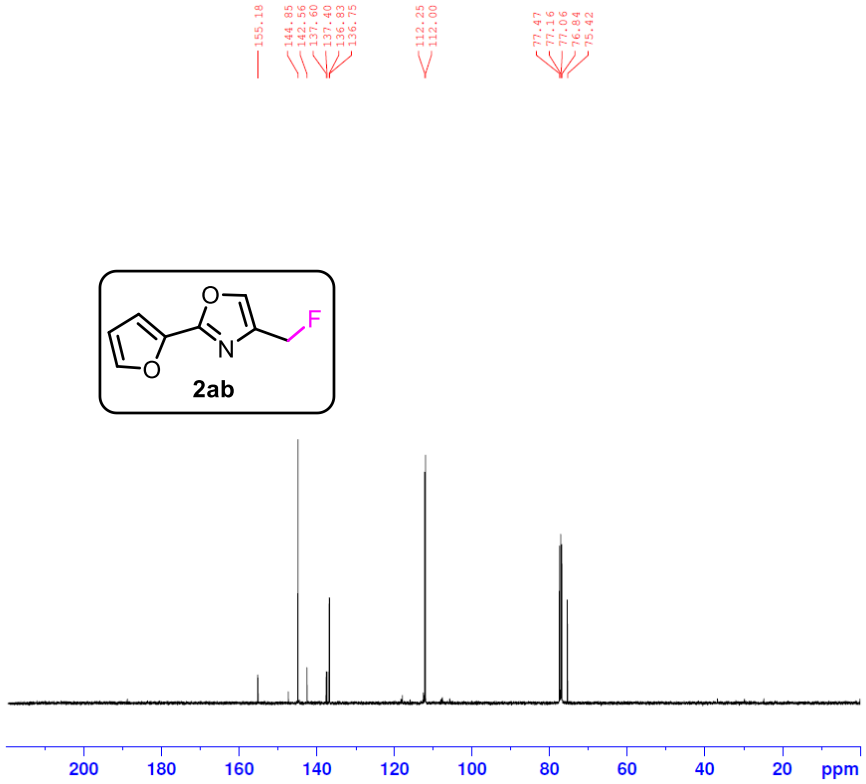
4-(fluoromethyl)-2-(3,4,5-trimethoxyphenyl)oxazole (2aa). ^{19}F NMR (376 MHz, $CDCl_3$)



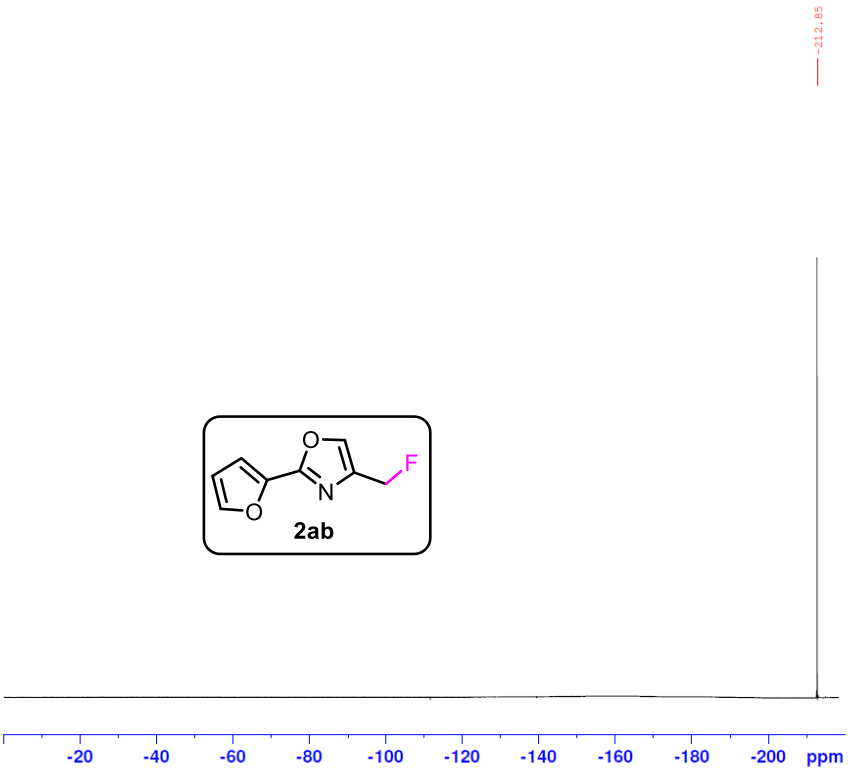
4-(fluoromethyl)-2-(furan-2-yl)oxazole (2ab). ^{1}H NMR (400 MHz, $CDCl_3$)



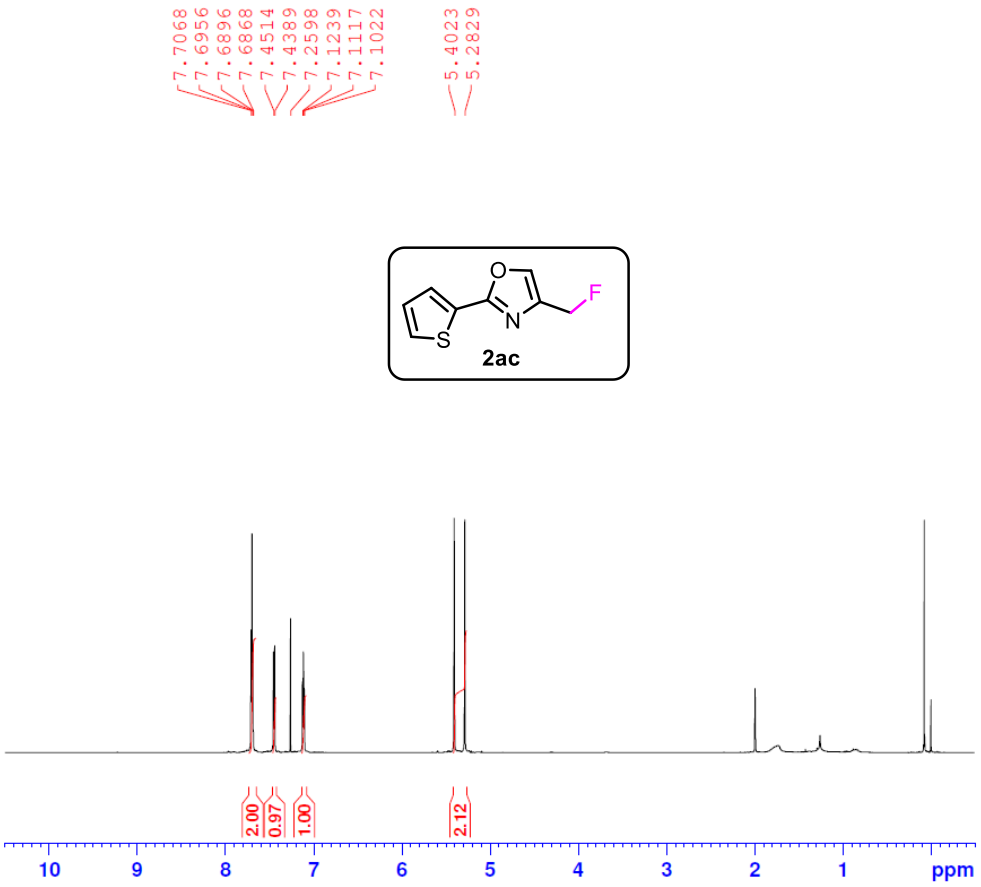
4-(fluoromethyl)-2-(furan-2-yl)oxazole (2ab). ^{13}C NMR (100 MHz, $CDCl_3$)



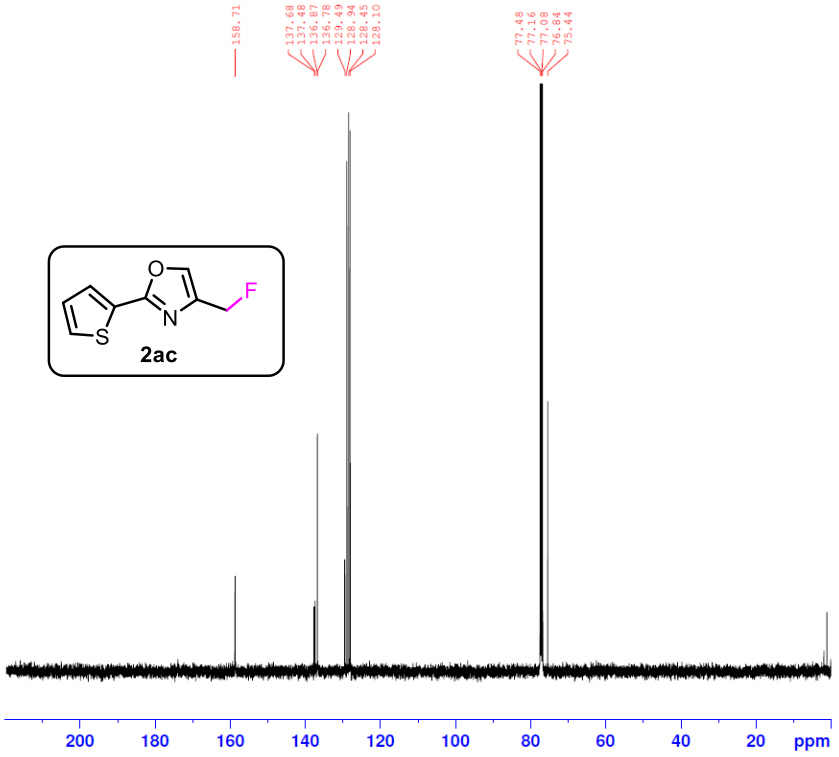
4-(fluoromethyl)-2-(furan-2-yl)oxazole (2ab). ^{19}F NMR (376 MHz, $CDCl_3$)



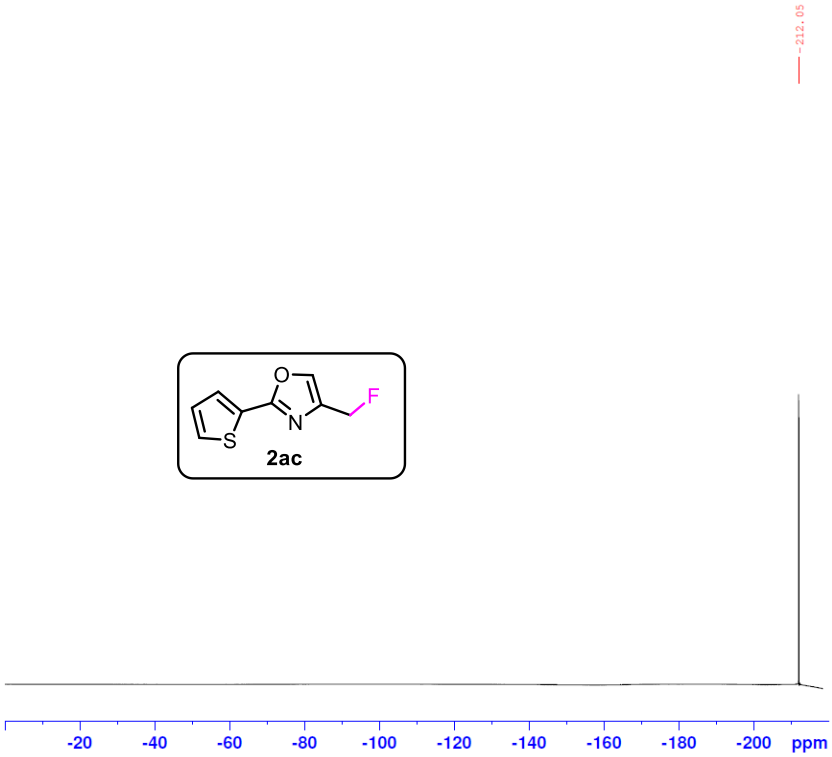
(2-(thiophen-2-yl)oxazol-4-yl)methanol (2ac). ^{1}H NMR (400 MHz, $CDCl_3$)



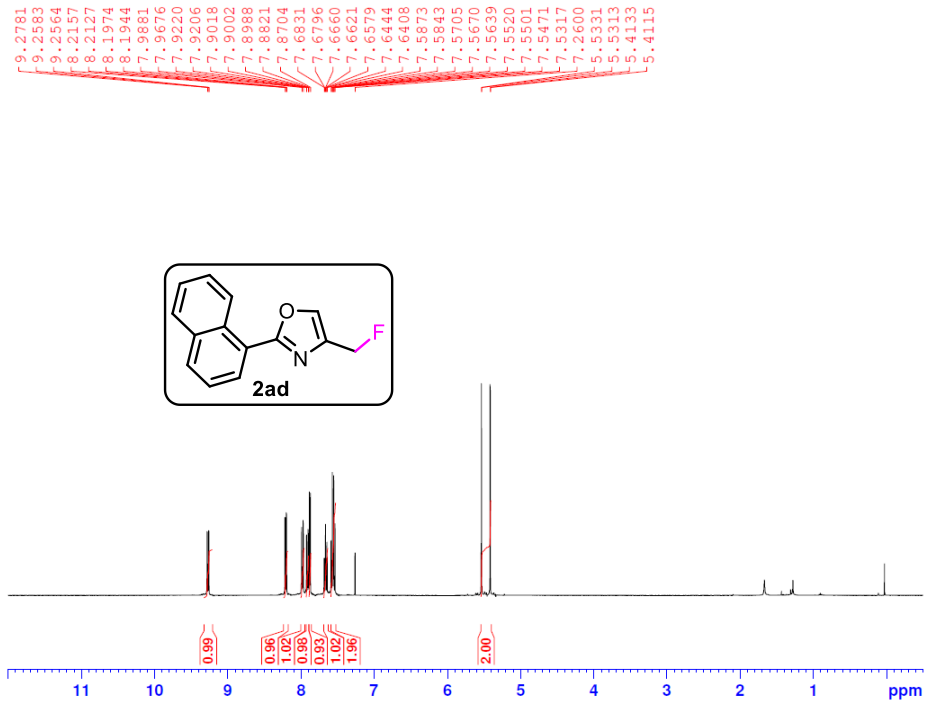
(2-(thiophen-2-yl)oxazol-4-yl)methanol (2ac). ^{13}C NMR (100 MHz, $CDCl_3$)



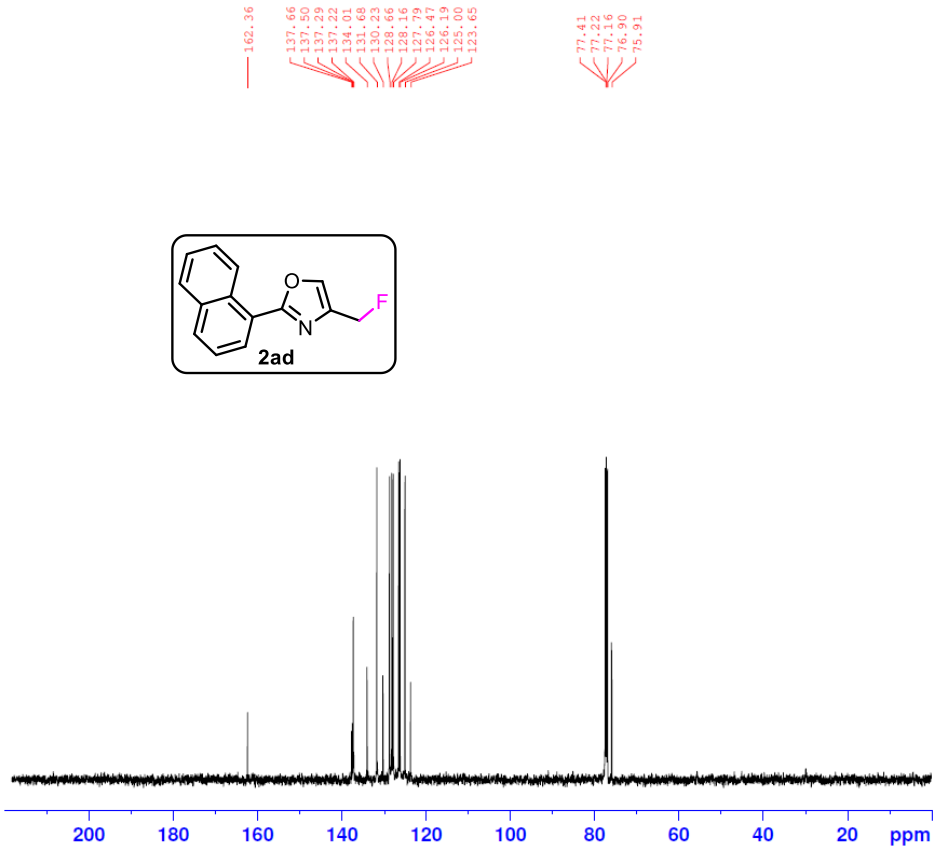
(2-(thiophen-2-yl)oxazol-4-yl)methanol (2ac). ^{19}F NMR (376 MHz, $CDCl_3$)



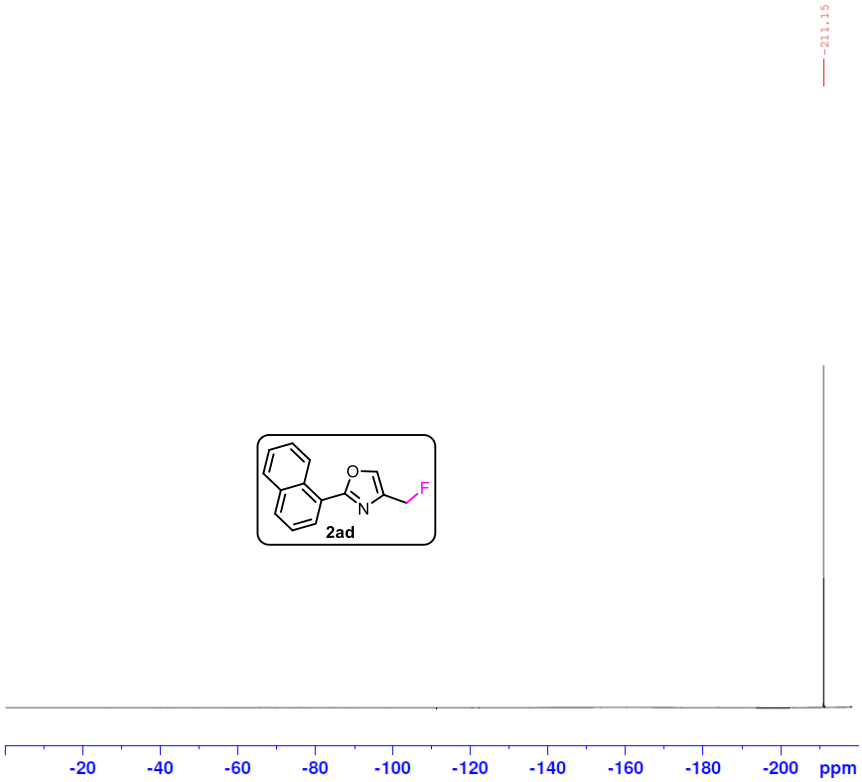
4-(fluoromethyl)-2-(naphthalen-1-yl)oxazole (2ad). ^{1}H NMR (400 MHz, $CDCl_3$)



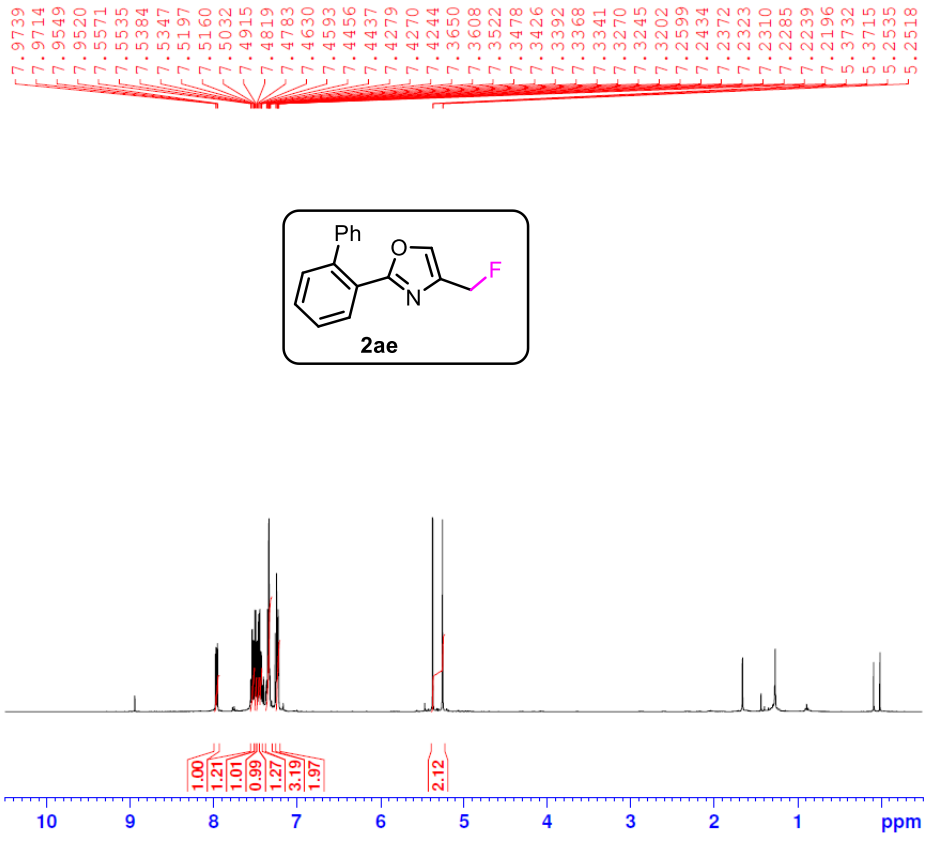
4-(fluoromethyl)-2-(naphthalen-1-yl)oxazole (2ad). ^{13}C NMR (125 MHz, $CDCl_3$)



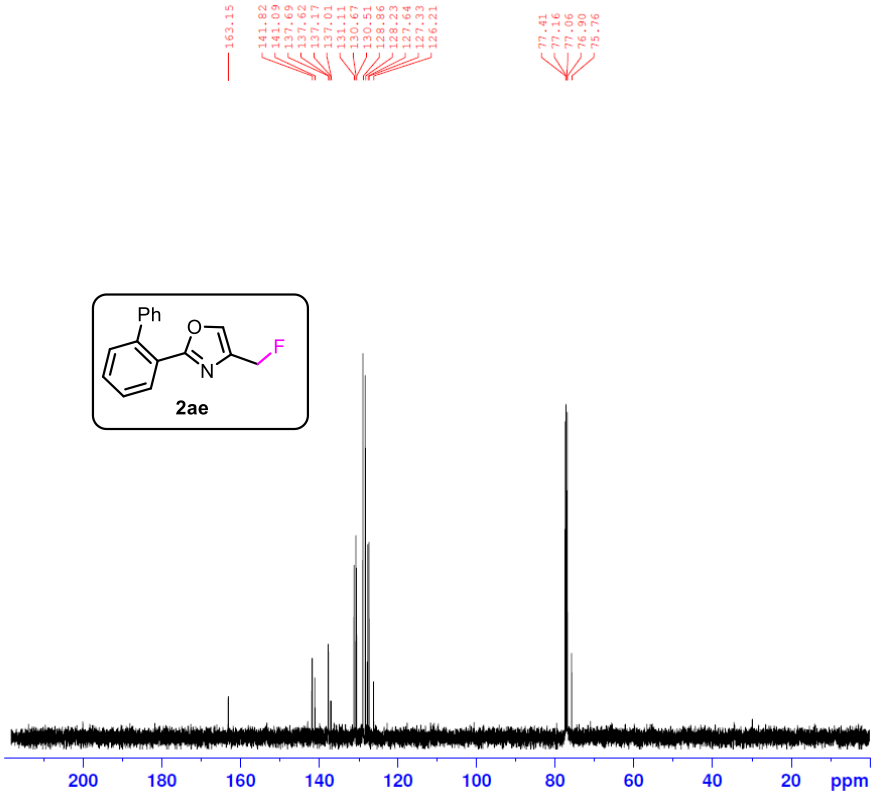
4-(fluoromethyl)-2-(naphthalen-1-yl)oxazole (2ad). ^{19}F NMR (376 MHz, $CDCl_3$)



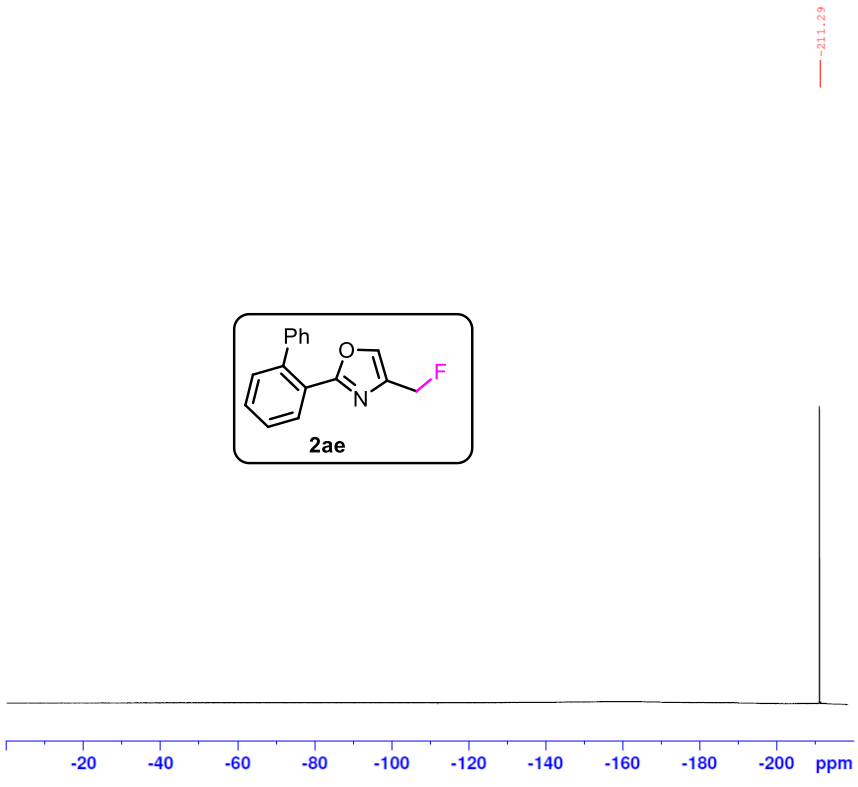
(2-([1,1'-biphenyl]-2-yl)oxazol-4-yl)methanol (2ae). ^{1}H NMR (400 MHz, $CDCl_3$)



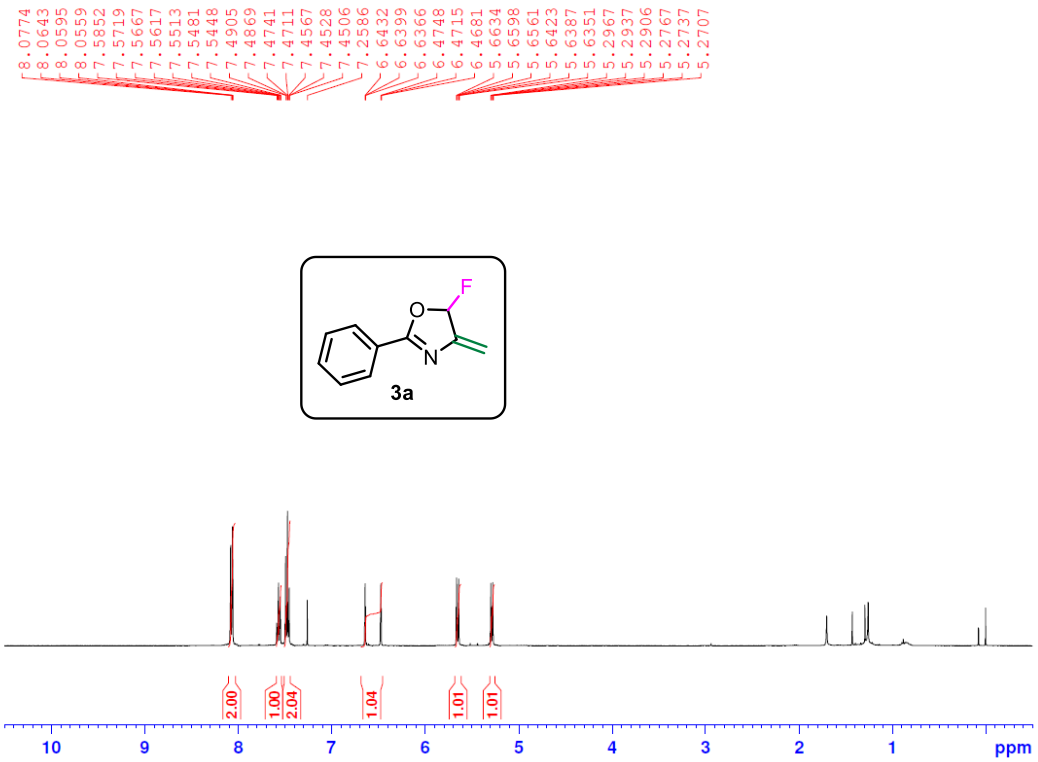
(2-([1,1'-biphenyl]-2-yl)oxazol-4-yl)methanol (2ae). ^{13}C NMR (125 MHz, $CDCl_3$)



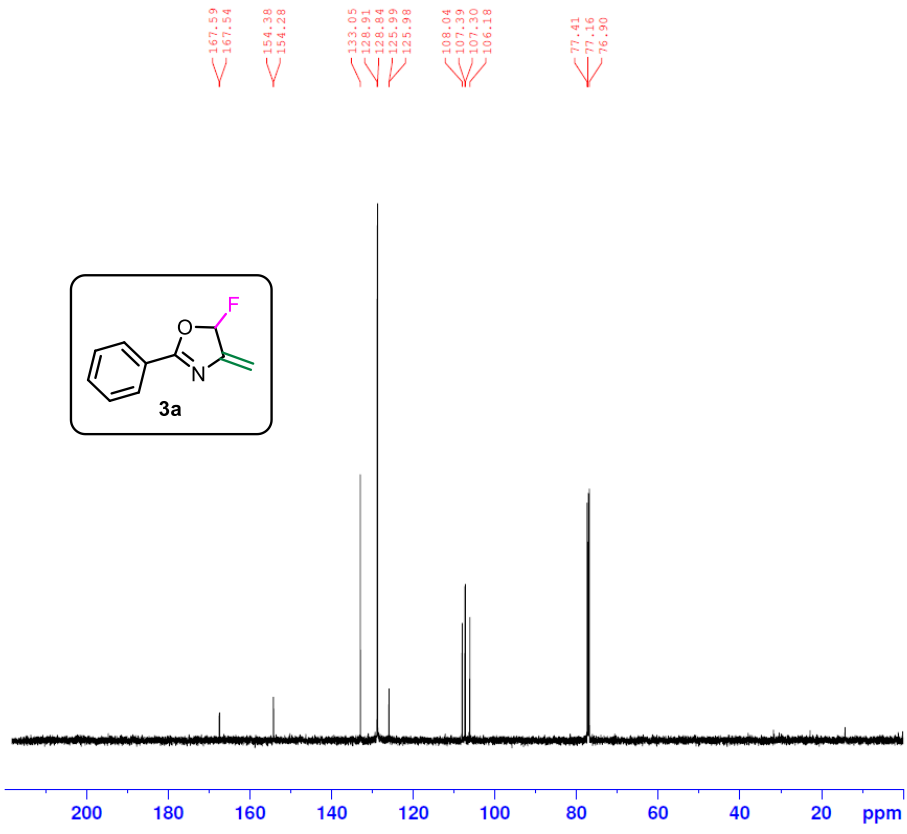
(2-([1,1'-biphenyl]-2-yl)oxazol-4-yl)methanol (2ae). ^{19}F NMR (376 MHz, $CDCl_3$)



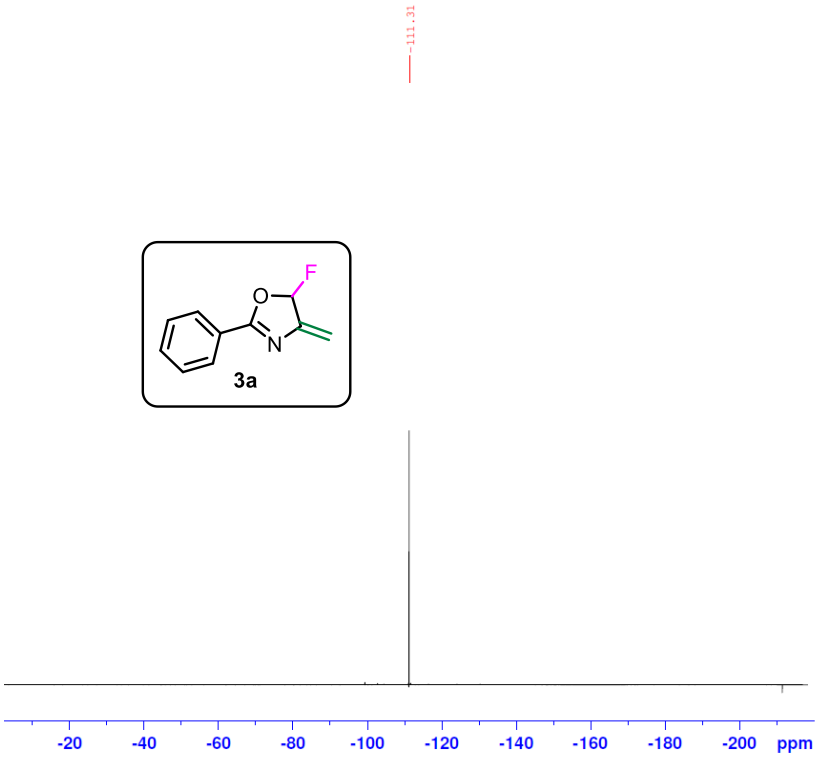
5-fluoro-4-methylene-2-phenyl-4,5-dihydrooxazole (3a). ^{1}H NMR (400 MHz, $CDCl_3$)



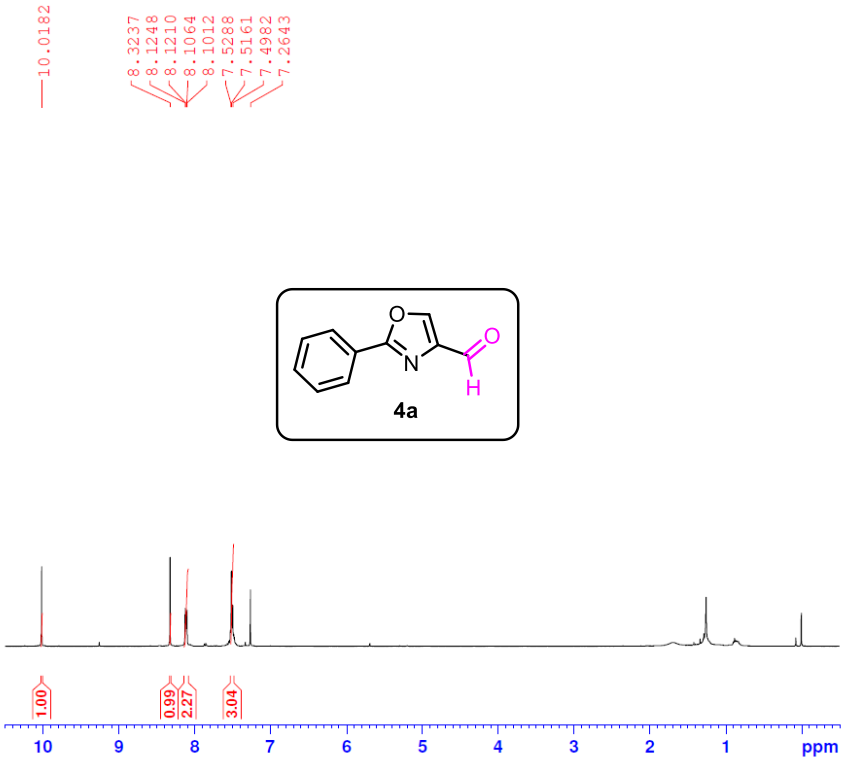
5-fluoro-4-methylene-2-phenyl-4,5-dihydrooxazole (3a). ^{13}C NMR (125 MHz, $CDCl_3$)



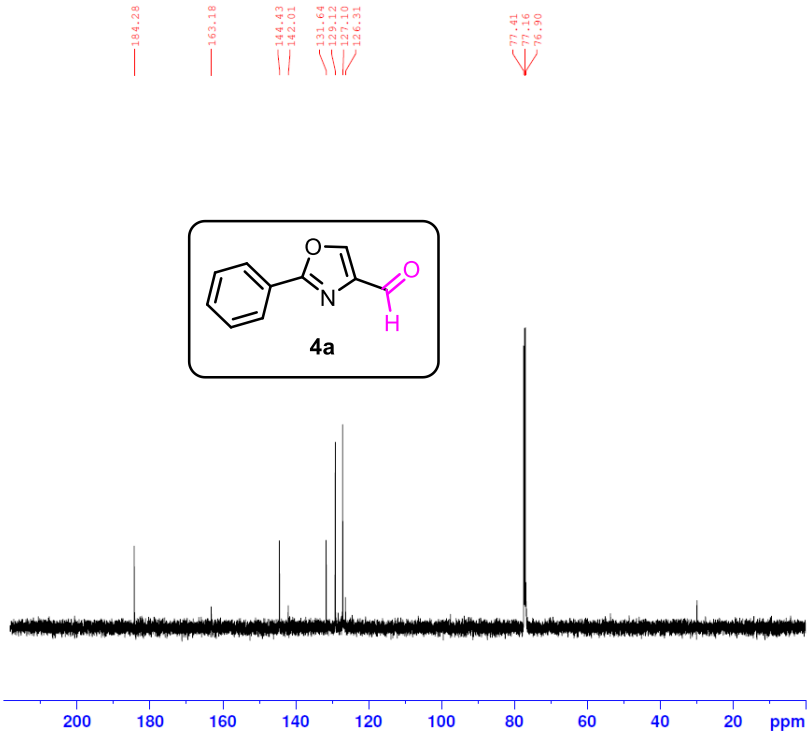
5-fluoro-4-methylene-2-phenyl-4,5-dihydrooxazole (3a). ^{19}F NMR (376 MHz, $CDCl_3$)



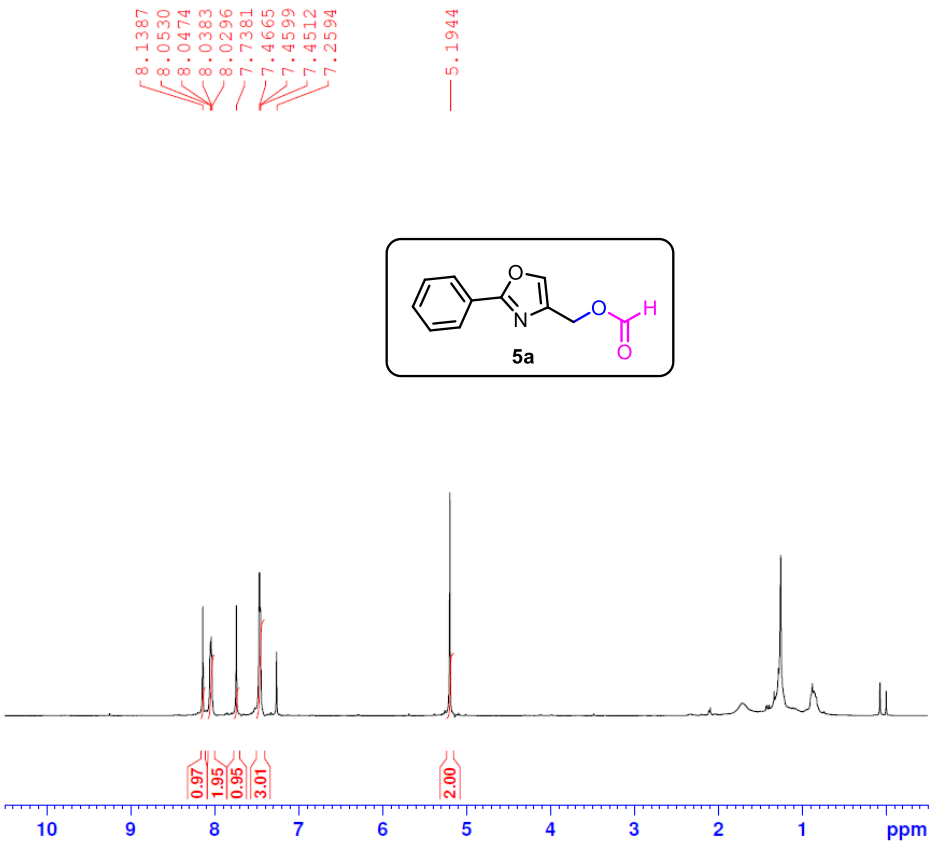
2-phenyloxazole-4-carbaldehyde (4a). ^{1}H NMR (400 MHz, $CDCl_3$)



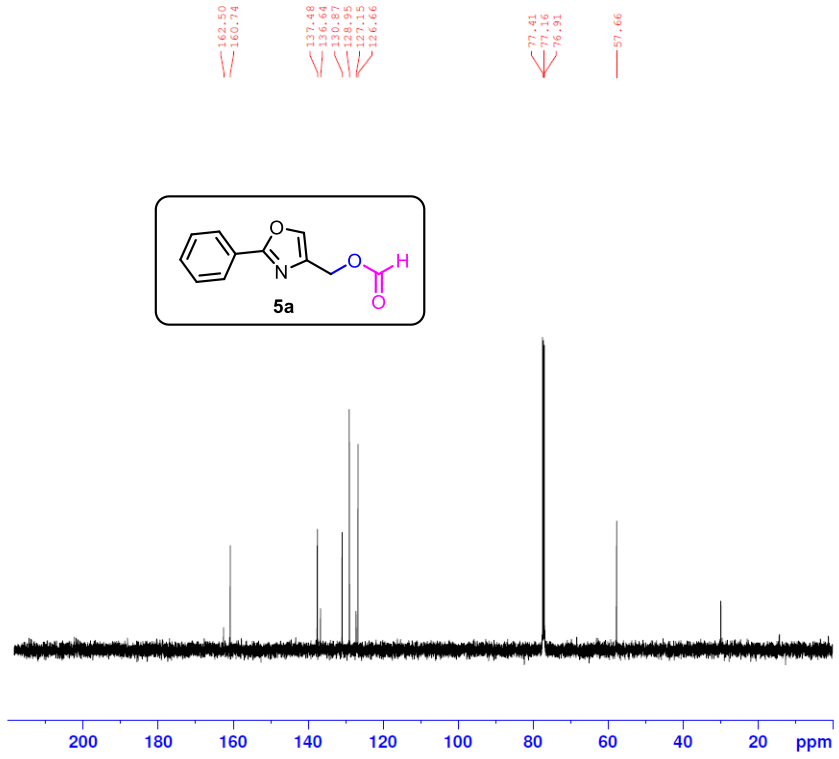
2-phenyloxazole-4-carbaldehyde (4a). ^{13}C NMR (125 MHz, $CDCl_3$)



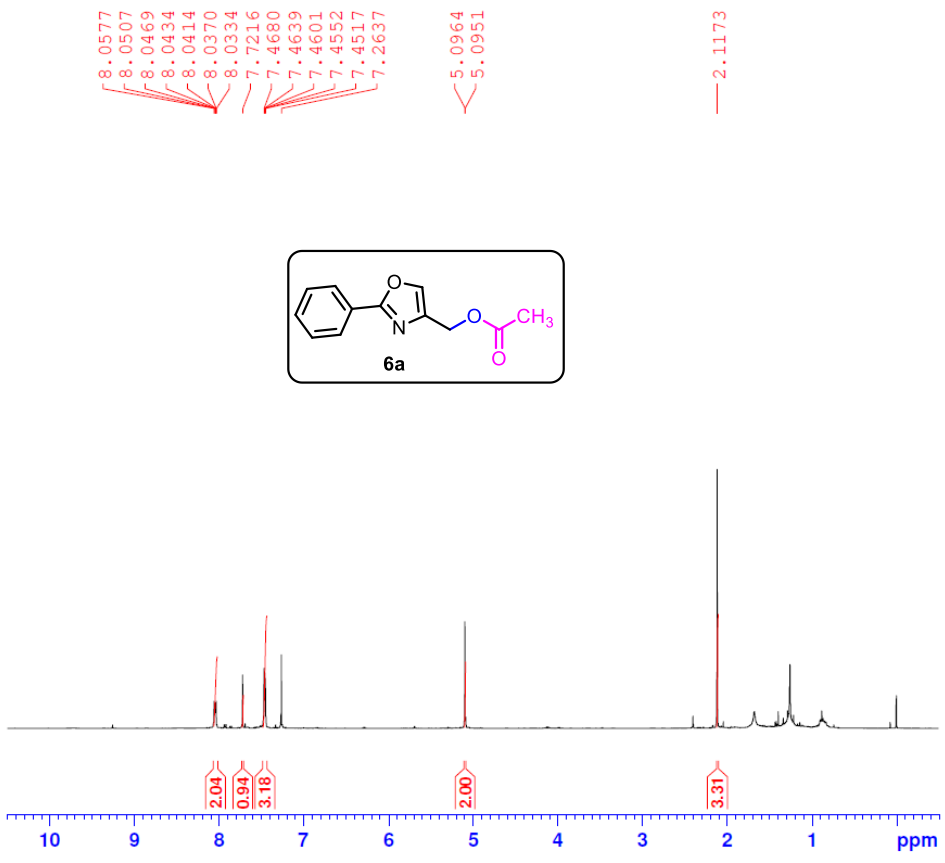
(2-phenyloxazol-4-yl)methyl formate (5a). ^{1}H NMR (400 MHz, $CDCl_3$)



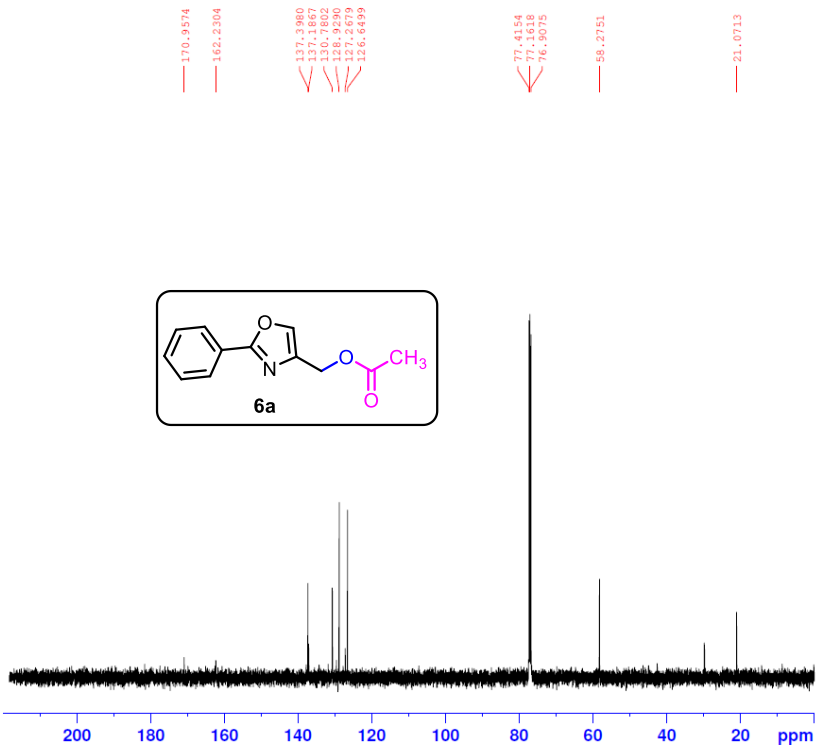
(2-phenyloxazol-4-yl)methyl formate (5a). ^{13}C NMR (125 MHz, $CDCl_3$)



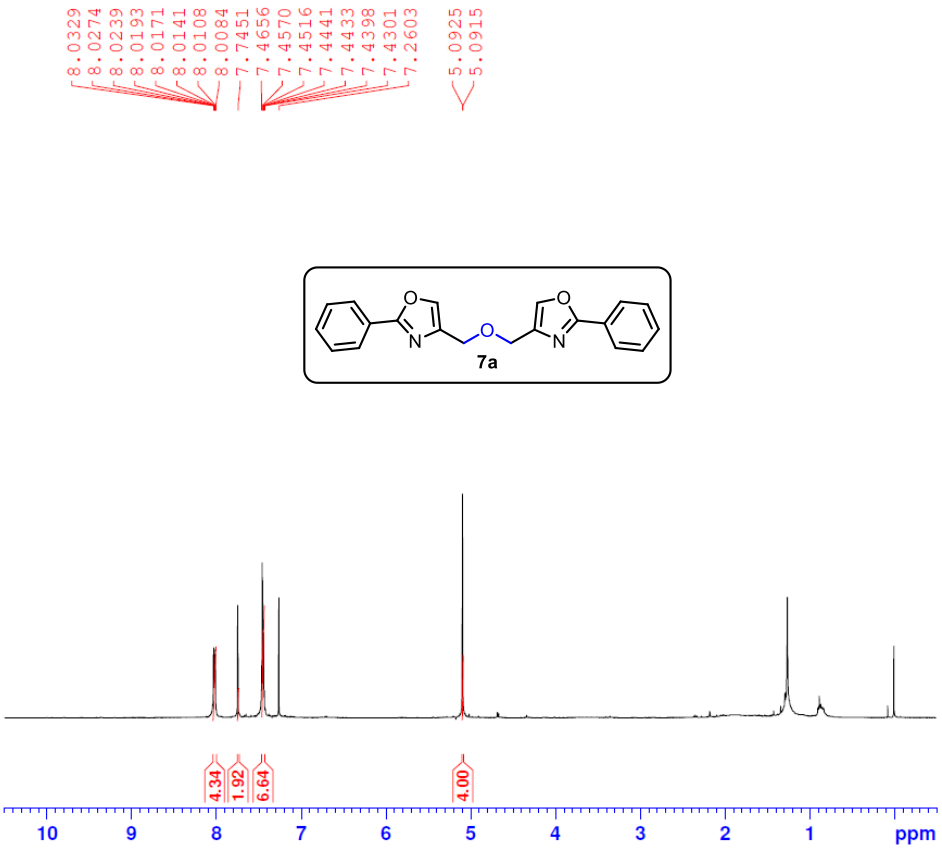
(2-phenyloxazol-4-yl)methyl acetate (6a). ^{1}H NMR (400 MHz, $CDCl_3$)



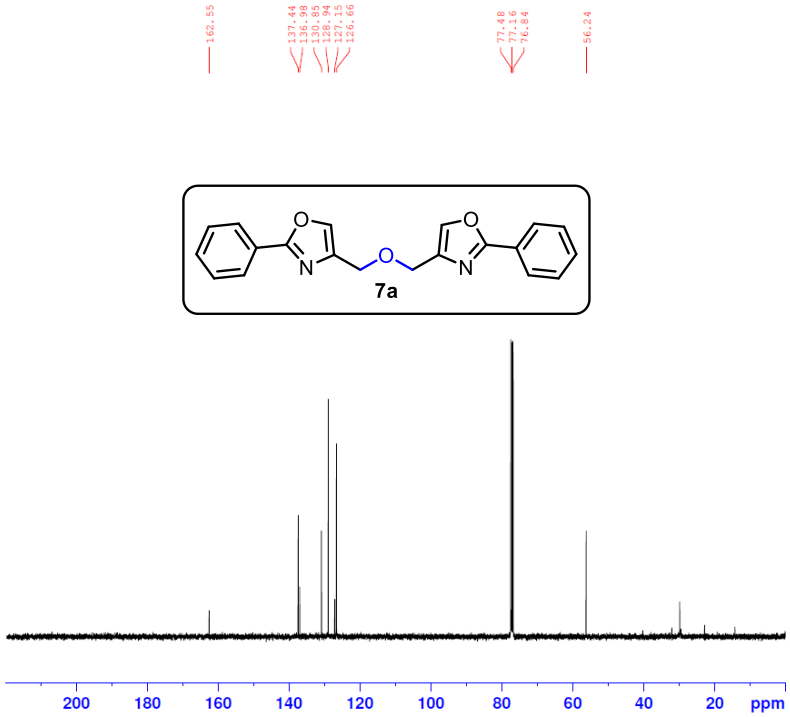
(2-phenyloxazol-4-yl)methyl acetate (6a). ^{13}C NMR (125 MHz, $CDCl_3$)



4,4'-(oxybis(methylene))bis(2-phenyloxazole) (7a). ^{1}H NMR (400 MHz, $CDCl_3$)

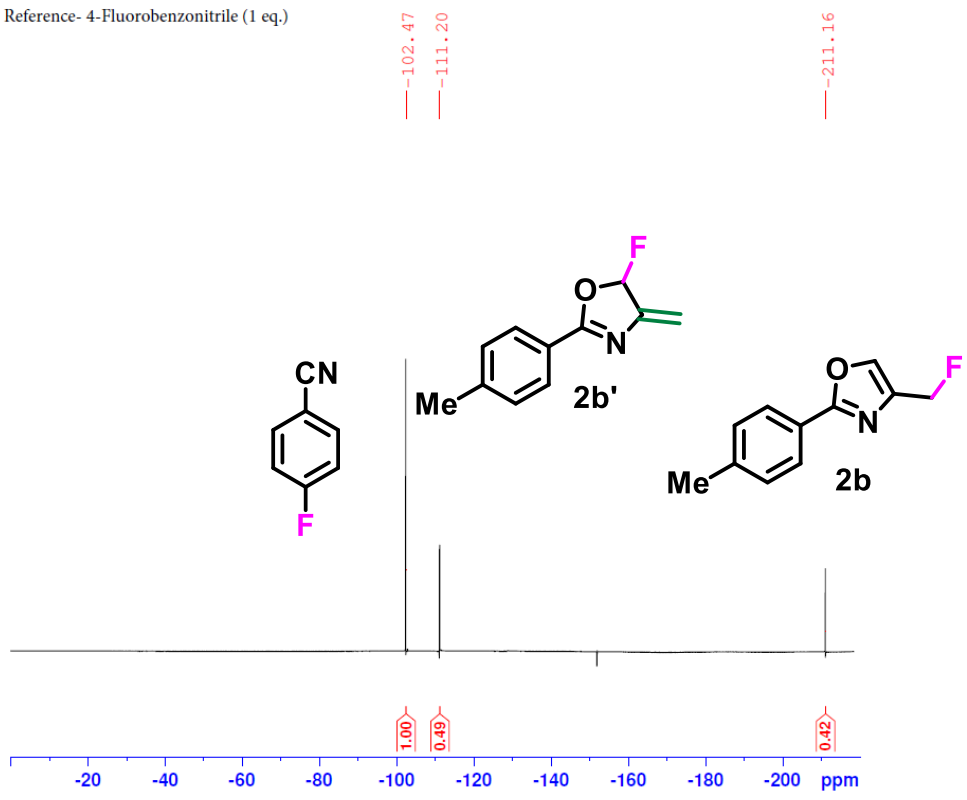


4,4'-(oxybis(methylene))bis(2-phenyloxazole) (7a). ^{13}C NMR (125 MHz, $CDCl_3$)



XI. Crude ^{19}F-NMR spectra for NMR yield calculation (Scheme 1. Substrate scope)

Entry	Solvent	Additive	Temp.	Time	Yield of 2b (NMR yield)	Yield of 2b' (NMR yield)
2b	ACN	AgF	rt	15 h	42 %	49 %



Entry	Solvent	Additive	Temp.	Time	Yield of 2p (NMR yield)	Yield of 2p' (NMR yield)
2p	ACN	AgF	rt	12 h	38 %	18 %