

Supplementary Information

Catalyst-Free Friedel-Crafts Hydroxyalkylation of Imidazo[1,2-*a*]pyridines with Ethyl Trifluoropyruvate

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Experimental Section

Solvents were dried with standard methods and freshly distilled prior to use if needed. Unless otherwise noted, all the starting materials were commercially available and used without further purification. 2-phenylimidazo[1,2- α]pyridines were prepared by following literature reports.^[1] All reactions were carried out using Schlenk techniques. Melting points were measured on a melting point apparatus and are uncorrected. ¹ H, ¹³ C and ¹⁹ F NMR spectra were all recorded using TMS as an internal standard. Data are reported as follows: chemical shift (δ ppm), multiplicity (s = single, d = doublet, t = triplet, q = quartet, m = multiplet), integration, and coupling constants in hertz (Hz). HRMS were determined on a Q-ToF Micro MS/MS System ESI spectrometer.

General Procedure for the Friedel-Crafts hydroxyalkylation of imidazo[1,2- α]pyridines with Ethyl Trifluoropyruvate:

To a stirred solution of 2-Phenylimidazo[1,2- α]pyridines (0.1 mmol) in isopropyl ether (1.0 mL), ethyl trifluoropyruvate (26.5 μ L, 0.2 mmol) was added under argon atmosphere. The mixture was stirred at room temperature or 60 °C for 10 - 48 h. Then the solvent was removed in vacuo, and the residue was purified by thin-layer chromatography (PE/EtOAc) to give product as a white solid.

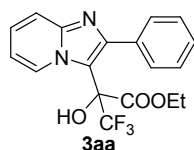
References

- [1] (a) A. K. Bagdi, M. Rahman, S. Santra, A. Majee, A. Hajra, *Adv. Synth. Catal.*, 2013, **355**, 1741 - 1747; (b) S. Y. Takizawa, J. I. Nishida, T. Tsuzuki, S. Tokito, Y. Yamashita, *Inorg. Chem.*, 2007, **46**, 4308 - 4319.

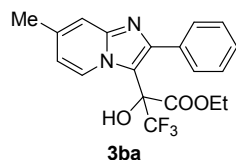
Table 1 Crystal data and structure refinement for 3aa.

Empirical formula	C ₂₀ H ₂₁ F ₃ N ₂ O ₄
Formula weight	410.39
Temperature/K	291.15
Crystal system	monoclinic
Space group	P2 ₁ /c
a/Å	10.8633(5)
b/Å	12.9671(4)
c/Å	14.6615(5)
α /°	90
β /°	104.876(4)
γ /°	90
Volume/Å ³	1996.08(13)
Z	4
ρ_{calc} /cm ³	1.366
μ /mm ⁻¹	0.975
F(000)	856.0
Crystal size/mm ³	0.2 × 0.18 × 0.18
Radiation	CuK α (λ = 1.54184)
2 θ range for data collection/°	8.422 to 134.052
Index ranges	-12 ≤ h ≤ 12, -15 ≤ k ≤ 9, -17 ≤ l ≤ 9
Reflections collected	7321
Independent reflections	3560 [R _{int} = 0.0195, R _{sigma} = 0.0274]
Data/restraints/parameters	3560/1/277
Goodness-of-fit on F ²	1.031
Final R indexes [I ≥ 2 σ (I)]	R ₁ = 0.0407, wR ₂ = 0.1073
Final R indexes [all data]	R ₁ = 0.0479, wR ₂ = 0.1139
Largest diff. peak/hole / e Å ⁻³	0.23/-0.20

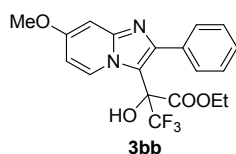
Characterization data



3,3,3-trifluoro-2-hydroxy-2-(2-phenylimidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3aa). White solid, m.p. = 164-165°C. ¹H NMR (600 MHz, DMSO-*d*₆): δ 8.85 (d, *J* = 6.9 Hz, 1H), 8.67 (s, 1H, -OH), 7.44 – 7.39 (m, 6H), 7.04 (t, *J* = 7.2 Hz, 1H), 3.47 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.15 (dq, *J* = 10.8, 7.2 Hz, 1H), 0.89 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (150 MHz, DMSO-*d*₆): δ 165.4, 147.0, 145.6, 134.6, 130.1, 129.2, 128.7, 128.1, 126.5, 125.0 (q, *J*_{C-F} = 285.2 Hz), 117.4, 113.1, 113.0, 76.7 (q, *J*_{C-F} = 28.5 Hz), 62.3, 13.6. ¹⁹F NMR (565 MHz, DMSO-*d*₆): δ -74.5. HRMS (positive ESI): [M+H]⁺ calcd for C₁₈H₁₆F₃N₂O₃⁺: 365.1108. Found: 365.1106.

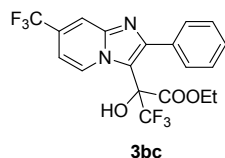


3,3,3-trifluoro-2-hydroxy-2-(7-methyl-2-phenylimidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3ba). White solid, m.p. = 193 – 194°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.71 (d, *J* = 7.2 Hz, 1H), 8.65 (s, 1H, -OH), 7.43 – 7.36 (m, 6H), 8.78 (s, 5H), 6.89 (dd, *J* = 7.2, 1.6 Hz, 1H), 3.46 (dq, *J* = 7.2, 10.8 Hz, 1H), 3.13 (dq, *J* = 7.2, 10.8 Hz, 1H), 2.39 (s, 3H), 0.88 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.9, 146.2, 145.5, 136.7, 134.1, 129.6, 128.7, 127.5, 124.5 (q, *J*_{C-F} = 285.2 Hz), 115.0, 114.9, 111.9, 76.1 (q, *J*_{C-F} = 29.4 Hz), 61.8, 20.5, 13.1. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -74.5. HRMS (positive ESI): [M+H]⁺ calcd for C₁₉H₁₈F₃N₂O₃⁺: 379.1264. Found: 379.1263.

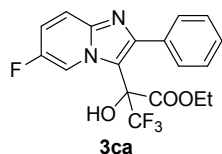


3,3,3-trifluoro-2-hydroxy-2-(7-methoxy-2-phenylimidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3bb). White solid, m.p. = 156 - 158°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.86 (d, *J* = 7.6 Hz, 1H), 8.64 (s, 1H, -OH), 7.43 – 7.36 (m, 5H), 7.03 (d, *J* = 2.8 Hz, 1H), 6.77 (dd, *J* = 8.0, 2.8 Hz, 1H), 3.87 (s, 3H), 3.46 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.13 (dq, *J* = 10.8, 7.2 Hz, 1H), 0.88 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.9, 157.9, 146.8, 156.2, 134.2, 129.5,

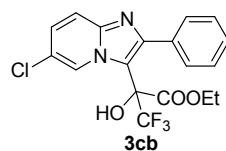
129.2, 128.1, 127.5, 124.4 (q, $J_{C-F} = 285.2$ Hz), 111.4, 106.9, 94.4, 75.9 (q, $J_{C-F} = 29.3$ Hz), 61.8, 55.7, 13.1. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -74.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{19}\text{H}_{18}\text{F}_3\text{N}_2\text{O}_4^+$: 395.1213. Found: 395.1217.



3,3,3-trifluoro-2-hydroxy-2-(7-(trifluoromethyl)-2-phenylimidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3bc). White solid, m.p. = 191 - 194 °C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 9.07 (d, $J = 7.6$ Hz, 1H), 8.96 (s, 1H, -OH), 8.21 (s, 1H), 7.49 - 7.42 (m, 5H), 7.37 (dd, $J = 7.6, 2.0$ Hz, 1H), 3.50 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.17 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.90 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, $\text{DMSO-}d_6$): δ 164.5, 148.4, 143.2, 133.2, 130.2, 129.6, 128.7, 127.7, 126.0 (q, $J_{C-F} = 33.4$ Hz), 124.3 (q, $J_{C-F} = 285.2$ Hz), 123.3 (q, $J_{C-F} = 270.4$ Hz), 115.1 (q, $J_{C-F} = 4.8$ Hz), 114.5, 108.0 (q, $J_{C-F} = 2.5$ Hz), 75.9 (q, $J_{C-F} = 29.5$ Hz), 62.1, 13.0. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -62.3, -74.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{19}\text{H}_{15}\text{F}_6\text{N}_2\text{O}_3^+$: 433.0981. Found: 433.0985.

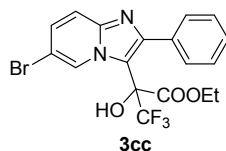


3,3,3-trifluoro-2-hydroxy-2-(6-fluoro-2-phenylimidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3ca). White solid, m.p. = 202 - 203 °C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 8.86 (s, 1H, -OH), 8.82 (d, $J = 3.2$ Hz, 1H), 7.78 (dd, $J = 10.0, 5.6$ Hz, 1H), 7.59 - 7.54 (m, 1H), 7.46 - 7.40 (m, 5H), 3.48 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.16 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.89 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, $\text{DMSO-}d_6$): δ 164.4, 152.0 (d, $J_{C-F} = 231.8$ Hz), 147.6, 142.9, 133.6, 129.5, 128.7, 127.7, 124.3 (q, $J_{C-F} = 285.0$ Hz), 118.0 (d, $J_{C-F} = 25.7$ Hz), 117.8 (d, $J_{C-F} = 9.4$ Hz), 115.2 (d, $J_{C-F} = 41.8$ Hz), 114.1, 75.8 (q, $J_{C-F} = 29.3$ Hz), 62.0, 13.0. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -74.6, -139.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{18}\text{H}_{15}\text{F}_4\text{N}_2\text{O}_3^+$: 383.1013. Found: 383.1005.

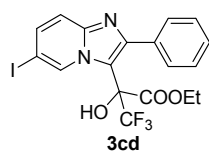


3,3,3-trifluoro-2-hydroxy-2-(6-chloro-2-phenylimidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3cb). White solid, m.p. = 210 - 211 °C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 8.92 (s, 1H, -OH), 8.89 (s, 1H), 7.76 (d, $J = 9.6$ Hz, 1H), 7.53 (dd, $J = 9.6, 2.0$ Hz, 1H), 7.46 - 7.45 (m, 3H),

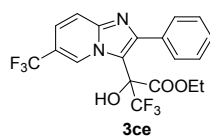
7.41 – 7.38 (m, 2H), 3.48 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.16 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.89 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, DMSO- d_6): δ 164.5, 147.4, 143.5, 133.4, 129.5, 128.5, 127.8, 127.0, 125.9, 124.8 (q, $J_{\text{C-F}} = 284.9$ Hz), 119.4, 113.4, 75.9 (q, $J_{\text{C-F}} = 29.5$ Hz), 62.1, 13.0. ^{19}F NMR (376 MHz, DMSO- d_6): δ -74.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{18}\text{H}_{16}\text{ClF}_4\text{N}_2\text{O}_3^+$: 399.0718. Found: 399.0697.



3,3,3-trifluoro-2-hydroxy-2-(6-bromo-2-phenylimidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3cc). White solid, m.p. = 214 - 215°C. ^1H NMR (400 MHz, DMSO- d_6): δ 8.97 (s, 1H), 8.92 (s, 1H, -OH), 7.71 (d, $J = 9.6$ Hz, 1H), 7.60 (dd, $J = 9.6, 1.6$ Hz, 1H), 7.46 – 7.38 (m, 5H), 3.48 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.15 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.89 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, DMSO- d_6): δ 164.5, 147.2, 143.5, 133.3, 129.5, 129.0, 128.5, 128.0, 127.7, 124.3 (q, $J_{\text{C-F}} = 285.5$ Hz) 76.0 (q, $J_{\text{C-F}} = 29.3$ Hz), 62.1, 13.0. ^{19}F NMR (376 MHz, DMSO- d_6): δ -74.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{18}\text{H}_{16}\text{BrF}_3\text{N}_2\text{O}_3^+$: 433.0213. Found: 433.0210.

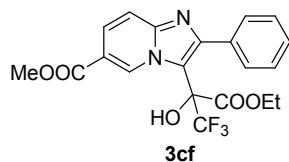


3,3,3-trifluoro-2-hydroxy-2-(6-iodo-2-phenylimidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3cd). White solid. M.p. = 210 – 211°C. ^1H NMR (400 MHz, DMSO- d_6): δ 9.06 (s, 1H), 8.87 (s, 1H, -OH), 7.63 (dd, $J = 9.2, 1.6$ Hz, 1H), 7.55 (d, $J = 9.2$ Hz, 1H), 7.45 – 7.37 (m, 5H), 3.48 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.14 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.88 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, DMSO- d_6): δ 164.5, 146.7, 143.6, 133.5, 133.4, 132.7, 129.6, 128.5, 127.7, 124.4 (q, $J_{\text{C-F}} = 284.7$ Hz), 118.4, 112.7, 112.6, 75.9 (q, $J_{\text{C-F}} = 29.4$ Hz), 62.0, 13.0. ^{19}F NMR (376 MHz, DMSO- d_6): δ -74.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{18}\text{H}_{16}\text{IF}_3\text{N}_2\text{O}_3^+$: 491.0074. Found: 491.0068.



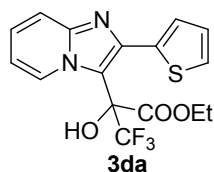
3,3,3-trifluoro-2-hydroxy-2-(6-(trifluoromethyl)-2-phenylimidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3ce). White solid, m.p. = 173 - 174°C. ^1H NMR (400 MHz, DMSO-

*d*₆): δ 9.26 (s, 1H), 9.06 (s, 1H, -OH), 7.93 (d, J = 9.6 Hz, 1H), 7.72 (dd, J = 9.6, 1.6 Hz, 1H), 7.49 – 7.41 (m, 5H), 3.51 (dq, J = 10.8, 7.2 Hz, 1H), 3.18 (dq, J = 10.8, 7.2 Hz, 1H), 0.90 (t, J = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.3, 148.3, 144.9, 133.0, 129.5, 128.8, 127.8, 127.4, 124.3 (q, J_{C-F} = 285.2 Hz), 123.6 (q, J_{C-F} = 269.4 Hz), 121.6 (q, J_{C-F} = 2.3 Hz), 118.4, 115.1 (q, J_{C-F} = 33.1 Hz), 114.2, 75.9 (q, J_{C-F} = 29.2 Hz), 62.2, 13.0. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -61.0, -74.8. HRMS (positive ESI): [M+H]⁺ calcd for C₁₉H₁₅F₆N₂O₃⁺: 433.0981. Found: 433.0985.

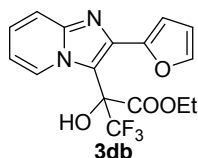


3,3,3-trifluoro-2-hydroxy-2-(6-(methyl-carboxy)-2-

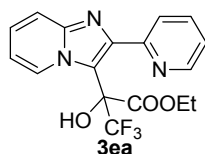
phenylimidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3cf). White solid, m.p. = 231 – 232 °C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 9.57 (s, 1H), 8.87 (s, 1H, -OH), 7.84 (dd, J = 9.6, 1.6 Hz, 1H), 7.76 (d, J = 9.6 Hz, 1H), 7.48 – 7.41 (m, 5H), 3.94 (s, 3H), 3.50 (dq, J = 10.8, 7.2 Hz, 1H), 3.17 (dq, J = 10.8, 7.2 Hz, 1H), 0.89 (t, J = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 165.9, 164.8, 145.3, 145.2, 138.8, 130.0, 129.3, 128.7, 128.4, 126.4, 124.4 (q, J_{C-F} = 284.9 Hz), 117.0, 113.0, 112.8, 76.1 (q, J_{C-F} = 29.3 Hz), 62.0, 52.3, 13.0. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -74.5. HRMS (positive ESI): [M+H]⁺ calcd for C₂₀H₁₈F₃N₂O₅⁺: 423.1162. Found: 423.1165.



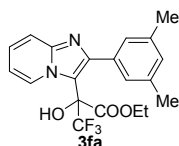
3,3,3-trifluoro-2-hydroxy-2-(2-(thiophen-2-yl)imidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3da). White solid. M.p. = 198 - 199 °C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.89 (s, 1H, -OH), 8.84 (d, J = 7.2 Hz, 1H), 7.70 (d, J = 5.2 Hz, 1H), 7.68 (d, J = 9.2 Hz, 1H), 7.43 (dd, J = 8.4, 7.2 Hz, 1H), 7.13 – 7.03 (m, 3H), 3.78 (dq, J = 10.8, 7.2 Hz, 1H), 3.48 (dq, J = 10.8, 7.2 Hz, 1H), 0.93 (t, J = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.8, 145.1, 136.9, 135.6, 128.6, 128.3, 127.4, 127.0, 126.4, 124.5 (q, J_{C-F} = 284.6 Hz), 116.8, 112.8, 112.5, 76.2 (q, J_{C-F} = 29.5 Hz), 62.2, 13.2. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -75.4. HRMS (positive ESI): [M+H]⁺ calcd for C₁₆H₁₄F₃N₂O₃S⁺: 371.0672. Found: 371.0671.



3,3,3-trifluoro-2-hydroxy-2-(2-(furan-2-yl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3db). White solid. M.p. = 196 – 197°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.92 (s, 1H, -OH), 8.89 (d, *J* = 7.2 Hz, 1H), 7.76 (d, *J* = 1.2 Hz, 1H), 7.65 (d, *J* = 9.2 Hz, 1H), 7.41 (ddd, *J* = 9.2, 6.8, 1.2 Hz, 1H), 7.02 (dt, *J* = 7.2, 1.2 Hz, 1H), 6.74 (d, *J* = 3.2 Hz, 1H), 6.62 (dd, *J* = 3.2, 2.0 Hz, 1H), 3.95 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.85 (dq, *J* = 10.8, 7.2 Hz, 1H), 0.97 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 165.0, 147.9, 145.4, 143.6, 136.4, 128.8, 126.4, 124.3 (q, *J*_{C-F} = 285.2 Hz), 116.8, 112.70, 112.68, 111.5, 110.1, 76.4 (q, *J*_{C-F} = 30.0 Hz), 62.0, 13.2. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -75.8. HRMS (positive ESI): [M+H]⁺ calcd for C₁₆H₁₄F₃N₂O₄⁺: 355.0900. Found: 355.0894.

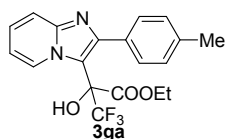


3,3,3-trifluoro-2-hydroxy-2-(2-(pyridine-2-yl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3ea). White solid. M.p. = 183 - 184°C. ¹H NMR (400 MHz, CDCl₃): δ 14.02 (brs, 1H), 8.66 (d, *J* = 8.0 Hz, 1H), 8.53 (dd, *J* = 4.8, 0.8 Hz, 1H), 8.06 (d, *J* = 7.2 Hz, 1H), 7.95 (td, *J* = 7.6, 1.6 Hz, 1H), 7.70 (d, *J* = 5.2 Hz, 1H), 7.37 – 7.30 (m, 2H), 6.87 (dt, *J* = 7.2, 1.2 Hz, 1H), 4.40 – 4.28 (m, 2H), 1.97 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, CDCl₃): δ 167.4, 151.5, 145.6, 145.4, 143.8, 139.0, 125.9, 125.2, 125.1, 124.4 (q, *J*_{C-F} = 286.2 Hz), 124.3, 123.3, 118.9, 118.3, 113.7, 76.5 (q, *J*_{C-F} = 30.2 Hz), 64.0, 13.9. ¹⁹F NMR (376 MHz, CDCl₃): δ -77.8. HRMS (positive ESI): [M+H]⁺ calcd for C₁₇H₁₅F₃N₃O₃⁺: 366.1060. Found: 366.1058.

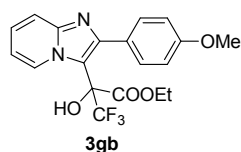


3,3,3-trifluoro-2-hydroxy-2-(2-(3,5-dimethylphenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3fa). White solid, m.p. = 181 - 182°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.83 (d, *J* = 6.8 Hz, 1H), 8.66 (s, 1H, -OH), 7.65 (d, *J* = 9.2 Hz, 1H), 7.41 (dt, *J* = 8.0, 0.8 Hz, 1H), 7.06 – 6.99 (m, 4H), 3.51 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.10 (dq, *J* = 10.8, 7.2 Hz, 1H), 2.03 (s, 6H), 0.88

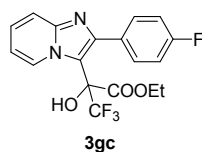
(t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, $\text{DMSO-}d_6$): δ 164.8, 146.7, 145.0, 136.5, 133.8, 129.4, 128.7, 127.3, 126.0, 124.5 (q, $J_{\text{C-F}} = 282.6$ Hz), 116.8, 112.4, 76.1 (q, $J_{\text{C-F}} = 28.7$ Hz), 61.9, 20.8, 13.0. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -74.5. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{20}\text{H}_{20}\text{F}_3\text{N}_2\text{O}_3^+$: 393.1421. Found: 393.1419.



3,3,3-trifluoro-2-hydroxy-2-(2-(4-methylphenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3ga). Whilt solid, m.p. = 165 - 166°C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 8.83 (d, $J = 7.2$ Hz, 1H), 8.67 (s, 1H, -OH), 7.41 (ddd, $J = 8.8, 6.8, 0.8$ Hz, 1H), 7.26 (q, $J = 8.0$ Hz, 3H), 7.03 (dt, $J = 7.2, 1.2$ Hz, 1H), 3.50 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.17 (dq, $J = 10.8, 7.2$ Hz, 1H), 2.36 (s, 3H), 0.90 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, $\text{DMSO-}d_6$): δ 146.9, 146.5, 145.0, 137.6, 131.1, 129.5, 128.6, 128.1, 126.0, 124.5 (q, $J_{\text{C-F}} = 285.6$ Hz), 116.8, 112.4, 76.2 ((q, $J_{\text{C-F}} = 29.2$ Hz), 61.9, 20.8, 13.1. ^{19}F NMR (400MHz, $\text{DMSO-}d_6$): δ -74.5. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{19}\text{H}_{18}\text{F}_3\text{N}_2\text{O}_3^+$: 379.1264. Found: 379.1259.

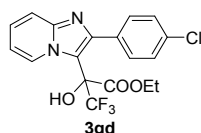


3,3,3-trifluoro-2-hydroxy-2-(2-(4-methoxyphenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3gb). Whilt solid, m.p. = 188 - 189°C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 8.83 (d, $J = 7.2$ Hz, 1H), 8.67 (s, 1H, -OH), 7.40 (t, $J = 8.0$ Hz, 1H), 7.32 (d, $J = 8.8$ Hz, 2H), 7.03 (dd, $J = 7.2, 0.8$ Hz, 1H), 7.00 (d, $J = 8.8$ Hz, 2H), 3.80 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.25 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.92 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, $\text{DMSO-}d_6$): δ 165.0, 159.3, 146.3, 145.0, 130.9, 128.6, 126.2, 125.9, 124.5 (q, $J_{\text{C-F}} = 284.6$ Hz), 116.8, 113.0, 112.34, 112.30, 76.2 (q, $J_{\text{C-F}} = 29.3$ Hz), 62.0, 55.2, 13.1. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -74.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{19}\text{H}_{18}\text{F}_3\text{N}_2\text{O}_4^+$: 395.1213. Found: 395.1208.



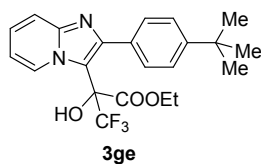
3,3,3-trifluoro-2-hydroxy-2-(2-(4-fluorophenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3gc). White solid, m.p. = 175 - 176°C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 8.84 (d, $J =$

7.2 Hz, 1H), 8.87 (s, 1H, *-OH*), 7.76 (d, $J = 9.2$ Hz, 1H), 7.45 -7.41 (m, 3H), 7.28 (t, $J = 8.8$ Hz, 2H), 7.06 (t, $J = 6.8$ Hz, 1H), 3.58 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.27 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.94 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, DMSO- d_6): δ 164.9, 162.1 (d, $J_{\text{C-F}} = 243.7$ Hz), 145.4, 145.0, 131.8 (d, $J_{\text{C-F}} = 3.0$ Hz), 128.6, 126.2, 124.4 (q, $J_{\text{C-F}} = 285.1$ Hz), 116.9, 114.5 (d, $J_{\text{C-F}} = 81.3$ Hz), 112.6, 76.1 (d, $J_{\text{C-F}} = 29.1$ Hz), 62.0, 13.1. ^{19}F NMR (376 MHz, DMSO- d_6): δ -74.6, -113.4. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{18}\text{H}_{15}\text{F}_4\text{N}_2\text{O}_3^+$: 383.1013. Found: 383.1007.



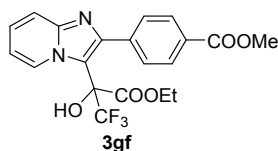
3,3,3-trifluoro-2-hydroxy-2-(2-(4-chlorophenyl)imidazo[1,2-a]pyridin-3-yl)-propionic

acid ethyl ester (3gd). White solid, m.p. = 187 – 188 °C. ^1H NMR (400 MHz, DMSO- d_6): δ 8.84 (d, $J = 7.2$ Hz, 1H), 8.77 (s, 1H, *-OH*), 7.68 (d, $J = 9.2$ Hz, 1H), 7.52 (d, $J = 0.84$ Hz, 2H), 7.45 (dd, $J = 6.8, 0.8$ Hz, 1H), 7.41 (d, $J = 0.84$ Hz, 2H), 7.06 (dt, $J = 7.2, 1.2$ Hz, 1H), 3.59 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.28 (dq, $J = 10.8, 7.2$ Hz, 1H), 0.94 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, DMSO- d_6): δ 164.9, 145.2, 145.1, 133.3, 132.8, 131.4, 128.6, 127.7, 126.3, 124.4 (q, $J_{\text{C-F}} = 285.3$ Hz), 116.9, 112.7, 76.1 (q, $J_{\text{C-F}} = 29.3$ Hz), 62.1, 13.1. ^{19}F NMR (376 MHz, DMSO- d_6): δ -74.6. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{18}\text{H}_{15}\text{F}_3\text{N}_2\text{O}_3\text{Cl}^+$: 399.0718. Found: 399.0714.

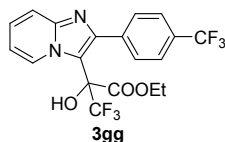


3,3,3-trifluoro-2-hydroxy-2-(2-(4-(*tert*-butyl)phenyl)imidazo[1,2-

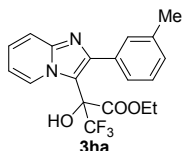
a]pyridin-3-yl)-propionic acid ethyl ester (3ge). White solid, m.p. = 214 - 215 °C. ^1H NMR (400 MHz, DMSO- d_6): δ 8.84 (d, $J = 6.8$ Hz, 1H), 8.67 (s, 1H, *-OH*), 7.66 (d, $J = 8.8$ Hz, 1H), 7.46 – 7.39 (m, 3H), 7.32 (d, $J = 8.4$ Hz, 2H), 7.03 (dt, $J = 7.2, 1.2$ Hz, 1H), 3.37 (dq, $J = 10.8, 7.2$ Hz, 1H), 3.20 (dq, $J = 10.8, 7.2$ Hz, 1H), 1.32 (s, 9H), 0.84 (t, $J = 7.2$ Hz, 3H). ^{13}C NMR (100 MHz, DMSO- d_6): δ 165.0, 150.7, 146.5, 145.1, 131.2, 129.3, 128.7, 128.6, 126.0, 124.5 (q, $J_{\text{C-F}} = 284.9$ Hz), 124.3, 116.8, 112.4, 76.2 (q, $J_{\text{C-F}} = 29.3$ Hz), 61.9, 34.3, 30.0, 13.0. ^{19}F NMR (376 MHz, DMSO- d_6): δ -74.4. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{22}\text{H}_{24}\text{F}_3\text{N}_2\text{O}_3^+$: 421.1734. Found: 421.1733.



3,3,3-trifluoro-2-hydroxy-2-(2-(4-(methyl-carboxy)phenyl)imidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3gf). White solid, m.p. = 209 - 210°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.85 (d, *J* = 7.2 Hz, 1H), 8.80 (s, 1H, -OH), 7.70 (d, *J* = 9.2 Hz, 1H), 7.56 (d, *J* = 8.4 Hz, 2H), 7.46 (t, *J* = 8.0 Hz, 1H), 7.08 (dt, *J* = 6.8, 0.8 Hz, 1H), 3.90 (s, 3H), 3.52 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.15 (dq, *J* = 10.8, 7.2 Hz, 1H), 0.89 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.7, 164.5, 148.2, 145.5, 133.2, 132.4, 129.5, 128.7, 127.7, 125.0, 124.3 (q, *J*_{C-F} = 285.0 Hz), 116.8, 115.7, 113.8, 75.9 (q, *J*_{C-F} = 29.3 Hz), 62.1, 52.9, 13.0. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -74.6. HRMS (positive ESI): [M+H]⁺ calcd for C₂₀H₁₈F₃N₂O₅⁺: 423.1162. Found: 423.1164.

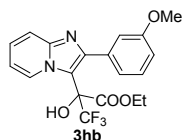


3,3,3-trifluoro-2-hydroxy-2-(2-(4-(trifluoromethyl)phenyl)imidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3gg). White solid, m.p. = 197 - 198°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.85 (d, *J* = 7.2 Hz, 1H), 8.82 (s, 1H, -OH), 7.83 (d, *J* = 8.0 Hz, 2H), 7.71 (d, *J* = 9.2 Hz, 1H), 7.62 (d, *J* = 8.0 Hz, 2H), 7.46 (ddd, *J* = 8.8, 6.8, 1.2 Hz, 1H), 7.09 (dt, *J* = 7.2, 1.2 Hz, 1H), 3.51 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.42 (dq, *J* = 10.8, 7.2 Hz, 1H), 0.89 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.9, 154.2, 144.9, 138.2, 130.5, 128.8 (q, *J*_{C-F} = 32.9 Hz), 128.6, 126.5, 124.5 (q, *J*_{C-F} = 3.7 Hz), 124.3 (q, *J*_{C-F} = 285.2 Hz), 124.2 (q, *J*_{C-F} = 270.6 Hz), 117.1, 113.0 (q, *J*_{C-F} = 9.0 Hz), 112.9, 76.1 (q, *J*_{C-F} = 29.3 Hz), 62.1, 13.0. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -61.1, -74.6. HRMS (positive ESI): [M+H]⁺ calcd for C₁₉H₁₅F₆N₂O₃⁺: 433.0981. Found: 433.0984.

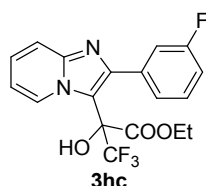


3,3,3-trifluoro-2-hydroxy-2-(2-(3-methylphenyl)imidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3ha). White solid, m.p. = 171 - 172°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.85 (d, *J* = 6.8 Hz, 1H), 8.69 (s, 1H, -OH), 7.66 (d, *J* = 9.2 Hz, 1H), 7.41 (ddd, *J* = 8.8, 6.8, 1.2 Hz, 1H), 7.31 (t, *J* = 7.6 Hz, 1H), 7.25 - 7.18 (m, 3H), 7.34 (dt, *J* = 7.2, 1.2 Hz, 1H), 3.50 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.12 (dq, *J* = 10.8, 7.2 Hz, 1H), 2.35 (s, 3H), 0.89 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz,

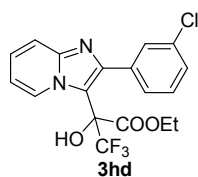
DMSO-*d*₆): δ 164.8, 146.6, 145.0, 136.7, 133.9, 130.3, 128.7, 127.5, 126.7, 124.5 (q, J_{C-F} = 285.2 Hz, 116.9, 112.4, 76.1 (q, J_{C-F} = 29.3 Hz), 61.9, 20.9, 13.0. ¹⁹F NMR (376MHz, DMSO-*d*₆): δ -74.5. HRMS (positive ESI): [M+H]⁺ calcd for C₁₉H₁₈F₃N₂O₃⁺: 379.1264. Found: 379.1265.



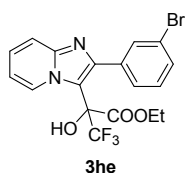
3,3,3-trifluoro-2-hydroxy-2-(2-(3-methoxyphenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3hb). White solid, m.p. = 177 - 178 °C. ¹H NMR(400 MHz, DMSO-*d*₆): δ 8.85 (d, J = 6.8 Hz, 1H), 8.72 (s, 1H, -OH), 7.67 (d, J = 9.2 Hz, 1H), 7.44 – 7.40 (m, 1H), 7.35 (t, J = 8.0 Hz, 1H), 7.04 (dt, J = 6.8, 1.2 Hz, 1H), 7.00 (dd, J = 8.0, 2.4 Hz, 2H), 6.93 (s, 1H), 3.79 (s, 3H), 3.54 (dq, J = 10.8, 7.2 Hz, 1H), 3.19 (dq, J = 10.8, 7.2 Hz, 1H), 0.90 (t, J = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.9, 158.4, 146.3, 145.1, 135.2, 128.8, 128.7, 126.1, 124.5 (q, J_{C-F} = 285.6 Hz), 121.9, 116.9, 114.9, 114.0, 112.5, 76.2 (q, J_{C-F} = 29.3 Hz), 61.9, 54.9, 13.0. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -74.5. HRMS (positive ESI): [M+H]⁺ calcd for C₁₉H₁₈F₃N₂O₄⁺: 395.1213. Found: 395.1214.



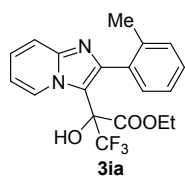
3,3,3-trifluoro-2-hydroxy-2-(2-(3-fluorophenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3hc). White solid, m.p. = 179 - 180 °C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.84 (d, J = 7.2 Hz, 1H), 8.80 (s, 1H, -OH), 7.69 (d, J = 9.2 Hz, 1H), 7.53 – 7.43 (m, 2H), 7.30 (dt, J = 8.4, 2.4 Hz, 1H), 7.25 (d, J = 7.6 Hz, 1H), 7.17 (d, J = 10.0 Hz, 1H), 7.07 (dt, J = 7.2, 1.0 Hz, 1H), 3.58 (dq, J = 10.8, 7.2 Hz, 1H), 3.27 (dq, J = 10.8, 7.2 Hz, 1H), 0.93 (t, J = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.9, 161.3 (d, J_{C-F} = 242.1 Hz), 145.1, 145.0, 136.2 (d, J_{C-F} = 8.0 Hz), 129.7 (d, J_{C-F} = 8.3 Hz), 128.7, 126.4, 125.8, 124.4 (q, J_{C-F} = 285.2 Hz), 116.3 (d, J_{C-F} = 21.7 Hz), 115.2 (d, J_{C-F} = 20.5 Hz), 112.8, 112.7, 76.1 (q, J_{C-F} = 29.4 Hz), 62.1, 13.0. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -74.6, -113.7. HRMS (positive ESI): [M+H]⁺ calcd for C₁₈H₁₅F₄N₂O₃⁺: 383.1013. Found: 383.1011.



3,3,3-trifluoro-2-hydroxy-2-(2-(3-chlorophenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3hd). White solid, m.p. = 159 - 160°C. ¹H NMR(400 MHz, DMSO-*d*₆): δ 8.84 (d, *J* = 7.2 Hz, 1H), 8.81 (s, 1H, -OH), 7.69 (d, *J* = 9.2 Hz, 1H), 7.54 – 7.43 (m, 3H), 7.40 – 7.36 (m, 2H), 7.08 (dt, *J* = 7.2, 1.2 Hz, 1H), 3.58 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.28 (dq, *J* = 10.8, 7.2 Hz, 1H), 0.94 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.8, 145.1, 144.8, 136.0, 132.4, 129.6, 128.7, 128.3, 128.2, 126.4, 124.4 (q, *J*_{C-F} = 284.9 Hz), 117.0, 112.8, 76.1 (q, *J*_{C-F} = 29.5 Hz), 62.1, 13.0. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -74.6. HRMS (positive ESI): [M+H]⁺ calcd for C₁₈H₁₅ClF₃N₂O₃⁺: 399.0718. Found: 399.0719.

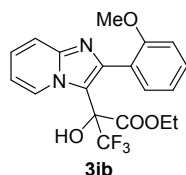


3,3,3-trifluoro-2-hydroxy-2-(2-(3-bromophenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3hd). White solid, m.p. = 150 - 151°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.54 (d, *J* = 7.2 Hz, 1H), 8.80 (s, 1H, -OH), 7.70 – 7.65 (m, 2H), 7.54 (s, 1H), 7.47 – 7.40 (m, 3H), 7.07 (dt, *J* = 7.2, 1.2 Hz, 1H), 3.59 (dq, *J* = 10.8, 7.2 Hz, 1H), 3.29 (dq, *J* = 10.8, 7.2 Hz, 1H), 0.95 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.8, 145.1, 144.8, 136.3, 132.1, 131.1, 129.9, 128.7, 126.4, 124.4 (q, *J*_{C-F} = 285.1 Hz), 120.9, 117.0, 112.8, 76.1 (q, *J*_{C-F} = 29.4 Hz), 62.2, 13.1. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -74.6. HRMS (positive ESI): [M+H]⁺ calcd for C₁₈H₁₅BrF₃N₂O₃⁺: 443.0213. Found: 443.0211.

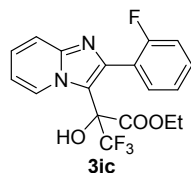


3,3,3-trifluoro-2-hydroxy-2-(2-(2-methylphenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3ia). White solid, m.p. = 213 - 214°C. ¹H NMR (400 MHz, DMSO-*d*₆): δ 8.86 (d, *J* = 7.2 Hz, 1H), 8.57 (s, 1H, -OH), 7.40 (ddd, *J* = 8.8, 5.6, 1.2 Hz, 1H), 7.34 – 7.28 (m, 2H), 7.20 (dt, *J* = 7.2, 1.6 Hz, 1H), 7.10 (brs, 1H), 7.03 (dt, *J* = 6.8, 1.2 Hz, 1H), 3.21 (s, 2H), 2.07 (s, 3H), 0.97 (t, *J* =

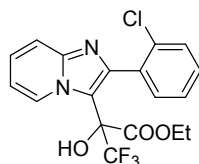
7.2 Hz, 3H). ^{13}H NMR (100 MHz, $\text{DMSO-}d_6$): δ 165.0, 145.6, 145.0, 137.7, 130.6, 129.4, 128.5, 126.0, 124.6, 124.3 (q, q, $J_{\text{C-F}} = 285.8$ Hz), 116.8, 112.9, 112.4, 76.0 (q, q, $J_{\text{C-F}} = 29.8$ Hz), 61.9, 13.1. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -72.8, -74.1. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{19}\text{H}_{18}\text{F}_3\text{N}_2\text{O}_3^+$: 379.1264. Found: 379.1260.



3,3,3-trifluoro-2-hydroxy-2-(2-(2-methoxyphenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3ib). White solid, m.p. = 202 - 203 °C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 8.83 (d, $J = 7.2$ Hz, 1H), 8.55 (s, 1H, -OH), 7.60 (d, $J = 9.2$ Hz, 1H), 7.43 - 7.36 (m, 2H), 7.06 (d, $J = 8.4$ Hz, 2H), 7.01 (dt, $J = 7.2, 1.2$ Hz, 1H), 6.96 (t, $J = 7.2$ Hz, 1H), 3.66 (s, 3H), 3.35 (s, 2H), 0.99 (t, $J = 7.2$ Hz, 3H). ^{13}H NMR (100 MHz, $\text{DMSO-}d_6$): δ 165.0, 157.7, 144.8, 143.3, 131.9, 130.1, 128.4, 125.7, 124.3 (q, $J_{\text{C-F}} = 285.6$ Hz), 122.2, 119.1, 116.8, 113.3, 112.1, 110.7, 75.9 (q, $J_{\text{C-F}} = 29.5$ Hz), 61.7, 55.0, 13.2. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -73.6, -74.3. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{19}\text{H}_{18}\text{F}_3\text{N}_2\text{O}_4^+$: 395.1213. Found: 395.1207.



3,3,3-trifluoro-2-hydroxy-2-(2-(2-fluorophenyl)imidazo[1,2-a]pyridin-3-yl)propionic acid ethyl ester (3ic). White solid, m.p. = 208 - 209 °C. ^1H NMR (400 MHz, $\text{DMSO-}d_6$): δ 8.86 (d, $J = 6.8$ Hz, 1H), 8.73 (s, 1H, -OH), 7.66 (d, $J = 9.2$ Hz, 1H), 7.54 - 7.49 (m, 1H), 7.46 - 7.42 (m, 1H), 7.30 (t, $J = 9.2$ Hz, 1H), 7.28 - 7.25 (m, 2H), 7.07 (dt, $J = 7.2, 0.8$ Hz, 1H), 3.50 - 3.40 (m, 2H), 1.03 (t, $J = 7.2$ Hz, 3H). ^{13}H NMR (100 MHz, $\text{DMSO-}d_6$): δ 165.0, 160.1 (d, $J_{\text{C-F}} = 247.0$ Hz), 145.0, 140.3, 132.5, 131.0 (d, $J_{\text{C-F}} = 8.0$ Hz), 128.5, 126.9, 124.3 (q, $J_{\text{C-F}} = 285.5$ Hz), 123.4 (d, $J_{\text{C-F}} = 3.3$ Hz), 121.6 (d, $J_{\text{C-F}} = 15.6$ Hz), 116.9, 115.2 (d, $J_{\text{C-F}} = 21.3$ Hz), 113.9, 112.7, 75.9 (q, $J_{\text{C-F}} = 29.7$ Hz), 62.1, 13.1. ^{19}F NMR (376 MHz, $\text{DMSO-}d_6$): δ -74.5, -112.4. HRMS (positive ESI): $[\text{M}+\text{H}]^+$ calcd for $\text{C}_{18}\text{H}_{15}\text{F}_4\text{N}_2\text{O}_3^+$: 383.1013. Found: 383.1007.



3id

3,3,3-trifluoro-2-hydroxy-2-(2-(2-chlorophenyl)imidazo[1,2-a]pyridin-3-yl)-propionic acid ethyl ester (3id). White solid, m.p. = 199 - 200°C. ¹H NMR(400 MHz, DMSO-*d*₆): δ 8.87 (d, *J* = 6.8 Hz, 1H), 8.71 (s, 1H, -OH), 7.66 (d, *J* = 9.2 Hz, 1H), 7.56 (dd, *J* = 8.0, 1.2 Hz, 1H), 7.49 – 7.37 (m, 3H), 7.29 (d, *J* = 6.4 Hz, 1H), 7.06 (dt, *J* = 6.8, 1.2 Hz, 1H), 3.49 – 3.37 (m, 2H), 1.04 (t, *J* = 7.2 Hz, 3H). ¹³C NMR (100 MHz, DMSO-*d*₆): δ 164.8, 144.9, 143.2, 133.9, 132.8, 132.3, 130.3, 129.1, 128.5, 126.1, 124.3 (q, *J*_{C-F} = 286.7 Hz), 117.1, 113.5, 112.6, 76.1 (q, *J*_{C-F} = 29.6 Hz), 62.0, 13.2. ¹⁹F NMR (376 MHz, DMSO-*d*₆): δ -72.9, -74.4. HRMS (positive ESI): [M+H]⁺ calcd for C₁₈H₁₅ClF₃N₂O₃⁺: 399.0718. Found: 399.0712.

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