Supporting Information

DESIGN, SYNTHESIS, AND BIOLOGICAL ACTIVITY ANALYSIS OF NOVEL QUINAZOLINYL ETHER DERIVATIVES CONTAINING PIPERIDINAMIDE STRUCTURE

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***N*-(2-hydroxyphenyl)-1-(quinazolin-4-yl)piperidine-4-carboxamide (II)**：red solid, Yield: 47%, mp 256–257 °C.^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.80 (s, 1H), 9.29 (s, 1H), 8.63 (s, 1H), 8.00 (d, J = 8.4 Hz, 1H), 7.81–7.80 (m, 2H), 7.75 (d, J = 8.0 Hz, 1H), 7.58–7.51 (m, 1H), 6.95–6.92 (m, 1H), 6.86 (d, J = 8.1 Hz, 1H), 6.78–6.74 (m, 1H), 4.34 (d, J = 14.3 Hz, 2H), 3.20 (t, J = 12.8 Hz, 2H), 2.95–2.86 (m, 1H), 1.95 (d, J = 12.1 Hz, 2H), 1.91–1.81 (m, 2H). ^{13}C NMR (100 MHz, DMSO-d_6) δ: 173.6, 164.0, 153.8, 151.4, 148.0, 132.8, 128.1, 126.4, 125.7, 125.5, 124.7, 122.4, 119.1, 116.0, 115.8, 49.1, 42.3, 28.6. ESI-HRMS *m/z*: $[M - H]^-$ calcd for $C_{20}H_{19}N_4O_2$: 347.1503; found: 347.1514.

***N*-[2-[(2-cyanobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide (III-1)**: White solid, mp 219–220 °C, yield: 43.6%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.07 (s, 1H), 8.63 (s, 1H), 7.97 (d, J = 8.2 Hz, 1H), 7.90 (d, J = 6.5 Hz, 1H), 7.86 (d, J = 6.2 Hz, 1H), 7.81–7.79 (m, 2H), 7.78 (s, 1H), 7.76–7.72 (m, 1H), 7.57–7.52 (m, 2H), 7.17–7.07 (m, 2H), 6.98–6.94 (m, 1H), 5.35 (s, 2H), 4.30 (d, J = 13.3 Hz, 2H), 3.20 (t, J = 11.1 Hz, 2H), 2.91–2.79 (m, 1H), 1.94 (d, J = 9.4 Hz, 2H), 1.91–1.79 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 163.9, 153.6, 151.2, 148.9, 140.1, 133.5, 133.3, 132.8, 129.5, 129.1, 127.9, 127.8, 125.7, 125.4, 124.7, 123.3, 121.2, 117.5, 115.9, 113.1, 110.9, 68.1, 48.9, 42.3, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{28}H_{26}O_2N_5$: 464.2081; found: 464.2079.

***N*-[2-[(3-cyanobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide (III-2)**: White solid, mp 268–269 °C, yield: 39.1%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.30 (s, 1H), 8.63 (s, 1H), 8.02 (s, 1H), 7.98 (d, J = 8.2 Hz, 1H), 7.84–7.82 (m, 2H), 7.80–7.78 (m, 2H), 7.72 (d, J = 7.2 Hz, 1H), 7.61 (t, J = 7.8 Hz, 1H), 7.59–7.51 (m, 1H), 7.14–7.05 (m, 2H), 6.99–6.88 (m, 1H), 5.25 (s, 2H), 4.33 (d, J = 13.2 Hz, 2H), 3.21 (t, J = 10.6 Hz, 2H), 2.93–2.83 (m, 1H), 1.97 (d, J = 9.6 Hz, 2H), 1.92–1.84 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 164.0, 153.7, 151.3, 149.6, 139.0, 132.8, 132.1, 131.6, 130.9, 129.7, 128.0, 127.4, 125.7, 125.4, 125.2, 124.2, 120.8, 118.8, 116.0, 113.0, 111.4, 68.4, 49.1, 42.2, 28.5. ESI-HRMS *m/z*: $[M + H]^+$

calcd for: $C_{28}H_{26}O_2N_5$: 464.2081; found: 464.2075.

***N*-[2-[(4-cyanobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-3**): White solid, mp 257–258 °C, yield: 49.4%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.27 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.2 Hz, 1H), 7.92 (s, 1H), 7.83–7.80 (m, 3H), 7.75 (d, J = 7.1 Hz, 1H), 7.69–7.61 (m, 2H), 7.57–7.53 (m, 1H), 7.12–7.10 (m, 2H), 6.96–6.92 (m, 1H), 5.29 (s, 2H), 4.31 (d, J = 13.3 Hz, 2H), 3.19 (t, J = 11.6 Hz, 2H), 2.88–2.83 (m, 1H), 1.95 (d, J = 9.8 Hz, 2H), 1.89–1.82 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 164.0, 153.7, 151.3, 149.7, 138.8, 132.8, 131.4, 129.5, 128.0, 127.4, 125.6, 125.4, 125.2, 124.5, 124.1, 123.9, 120.8, 116.0, 113.0, 68.8, 55.0, 49.0, 42.2, 28.5. ESI-HRMS *m/z*: $[M - H]^-$ calcd for: $C_{28}H_{24}O_2N_5$: 462.1925; found: 462.1918.

***N*-[2-[(2-methylbenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-4**): White solid, mp 116–117 °C, yield: 29.3%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.12 (s, 1H), 8.63 (s, 1H), 7.97 (d, J = 8.3 Hz, 1H), 7.83–7.78 (m, 2H), 7.74 (d, J = 6.2 Hz, 1H), 7.58–7.54 (m, 1H), 7.46 (d, J = 5.5 Hz, 1H), 7.21–7.18 (m, 3H), 7.13–7.08 (m, 2H), 6.94–6.90 (m, 1H), 5.15 (s, 2H), 4.28 (d, J = 13.4 Hz, 2H), 3.20 (t, J = 10.9 Hz, 2H), 2.88–2.78 (m, 1H), 2.34 (s, 3H), 1.89 (d, J = 7.9 Hz, 2H), 1.85–1.78 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 163.9, 153.7, 151.3, 150.0, 136.3, 134.9, 132.7, 130.1, 128.2, 128.0, 127.9, 127.4, 125.7, 125.6, 125.3, 125.1, 124.0, 120.5, 115.9, 112.9, 68.4, 48.9, 42.1, 28.4, 18.5. ESI-HRMS *m/z*: $[M - H]^-$ calcd for: $C_{28}H_{27}O_2N_4$: 451.2129; found: 453.2143.

***N*-[2-[(3-methylbenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-5**): White solid, mp 107–108 °C, yield: 31.4%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.11 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.2 Hz, 1H), 7.83–7.80 (m, 3H), 7.58–7.54 (m, 1H), 7.45 (d, J = 7.5 Hz, 1H), 7.32–7.28 (m, 1H), 7.06–7.04 (m, 3H), 6.94–6.90 (m, 2H), 5.15 (s, 2H), 4.31 (d, J = 12.9 Hz, 2H), 3.84 (s, 3H), 3.21 (t, J = 11.2 Hz, 2H), 2.90–2.80 (m, 1H), 1.94 (d, J = 9.6 Hz, 2H), 1.91–1.80 (m, 2H). ^{13}C NMR (100

MHz, DMSO-D_6) δ: 173.1, 164.0, 153.7, 151.3, 149.8, 137.6, 137.1, 132.8, 128.4, 128.3, 128.0, 127.9, 127.5, 125.7, 125.4, 125.0, 124.5, 123.7, 120.5, 116.0, 113.0, 69.7, 49.0, 42.2, 39.6, 28.5, 21.0. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{28}H_{29}O_2N_4$: 453.2285; found: 453.2280.

***N*-[2-[(4-methylbenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-6**): White solid, mp 179–180 °C, yield: 31.1%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.15 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.5 Hz, 1H), 7.82–7.78 (m, 3H), 7.57–7.54 (m, 1H), 7.37 (d, J = 7.9 Hz, 2H), 7.17 (d, J = 7.7 Hz, 2H), 7.05–7.02 (m, 2H), 6.90–6.87 (m, 1H), 5.14 (s, 2H), 4.31 (d, J = 14.0 Hz, 2H), 3.22 (t, J = 11.4 Hz, 2H), 2.91–2.82 (m, 1H), 2.26 (s, 3H), 1.94 (d, J = 9.9 Hz, 2H), 1.91–1.79 (m, 2H). ^{13}C NMR (100 MHz, DMSO-D_6) δ: 173.1, 164.0, 153.8, 151.4, 149.5, 137.1, 134.1, 132.8, 129.0, 128.1, 127.6, 127.5, 125.7, 125.4, 124.9, 123.4, 120.5, 116.0, 113.1, 69.6, 49.0, 42.2, 28.5, 20.8. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{28}H_{29}O_2N_4$: 453.2285; found: 453.2286.

***N*-[2-[(2-fluorobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-7**): White solid, mp 185–186 °C, yield: 44.2%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.13 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.3 Hz, 1H), 7.83–7.79 (m, 3H), 7.63–7.60 (m, 1H), 7.58–7.54 (m, 1H), 7.41–7.36 (m, 1H), 7.26–7.20 (m, 2H), 7.15–7.07 (m, 2H), 6.93 (t, J = 7.6 Hz, 1H), 5.23 (s, 2H), 4.29 (d, J = 13.4 Hz, 2H), 3.20 (t, J = 11.2 Hz, 2H), 2.89–2.80 (m, 1H), 1.92 (d, J = 9.6 Hz, 2H), 1.89–1.77 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 163.9, 160.2 (d, $^1J_{C\text{-}F}$ = 245.7 Hz), 153.7, 151.3, 149.5, 132.8, 130.4, 130.3, 130.2 (d, $^3J_{C\text{-}F}$ = 8.3 Hz), 128.0, 127.6, 125.5 (d, $^2J_{C\text{-}F}$ = 28.7 Hz), 125.0, 124.5 (d, $^4J_{C\text{-}F}$ = 3.3 Hz), 123.9 (d, $^3J_{C\text{-}F}$ = 14.3 Hz), 123.7, 120.9, 115.9, 115.4 (d, $^2J_{C\text{-}F}$ = 20.9 Hz), 113.1, 64.2, 64.1, 49.0, 42.2, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{27}H_{26}O_2N_4F$: 457.2034; found: 457.2034.

***N*-[2-[(3-fluorobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-8**): White solid, mp 221–222 °C, yield: 39.7%. ^{1}H NMR (400 MHz, DMSO-d_6)

δ: 9.21 (s, 1H), 8.62 (s, 1H), 7.98 (d, J = 8.3 Hz, 1H), 7.81–7.79 (m, 2H), 7.74 (d, J = 7.3 Hz, 1H), 7.61 (s, 1H), 7.56–7.52 (m, 1H), 7.49–7.40 (m, 1H), 7.39 (t, J = 7.5 Hz, 1H), 7.35 (d, J = 7.7 Hz, 1H), 7.10–7.05 (m, 2H), 6.96-6.86 (m, 1H), 5.20 (s, 2H), 4.33 (d, J = 13.3 Hz, 2H), 3.23 (t, J = 11.2 Hz, 2H), 2.94–2.79 (m, 1H), 1.97 (d, J = 9.3 Hz, 2H), 1.92–1.80 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 172.9, 164.0, 161.6 (d, $^{1}J_{C\text{-}F}$ = 249.4 Hz), 153.6, 151.1, 140.3, 136.4 (d, $^{3}J_{C\text{-}F}$ = 7.3 Hz), 132.8, 132.2 (d, $^{3}J_{C\text{-}F}$ = 8.1 Hz), 131.1, 127.8, 127.7, 125.7, 125.4, 125.1, 124.9, 124.8 (d, $^{4}J_{C\text{-}F}$ = 3.3 Hz), 123.0, 122.5 (d, $^{2}J_{C\text{-}F}$ = 20.9 Hz), 115.9, 115.4 (d, $^{2}J_{C\text{-}F}$ = 24.9 Hz)., 49.0, 41.9, 28.3. ESI-HRMS *m/z*: $[M - H]^-$ calcd for: $C_{27}H_{24}O_2N_4F$: 455.1878; found: 455.1868.

***N*-[2-[(4-fluorobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-9**): White solid, mp 238–239 °C, yield: 23.7%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.19 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.5 Hz, 1H), 7.82–7.80 (m, 2H), 7.78 (d, J = 7.2 Hz, 1H), 7.56–7.53 (m, 3H), 7.21 (t, J = 8.8 Hz, 2H), 7.08–7.04 (m, 2H), 6.92–6.88 (m, 1H), 5.17 (s, 2H), 4.31 (d, J = 13.0 Hz, 2H), 3.21 (t, J = 11.2 Hz, 2H), 2.91–2.83 (m, 1H), 1.94 (d, J = 10.0 Hz, 2H), 1.89–1.83 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.0, 163.9, 161.7 (d, $^{1}J_{C\text{-}F}$ = 243.6 Hz), 153.7, 151.3, 149.4, 133.3 (d, $^{4}J_{C\text{-}F}$ = 2.9 Hz), 132.7, 129.7 (d, $^{3}J_{C\text{-}F}$ = 8.1 Hz), 128.0, 127.5, 125.6, 125.3, 124.8, 123.5, 120.6, 115.2 (d, $^{2}J_{C\text{-}F}$ = 21.3 Hz), 115.1, 113.0, 69.0, 48.9, 42.2, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{27}H_{26}O_2N_4F$: 457.2034; found: 457.2026.

***N*-[2-[(2-chlorobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-10**): White solid, mp 220–221 °C, yield: 35.2%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.19 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.3 Hz, 1H), 7.81–7.79 (m, 3H), 7.67–7.64 (m, 1H), 7.58–7.53 (m, 1H), 7.51–7.49 (m, 1H), 7.38–7.35 (m, 2H), 7.09 (d, J = 4.0 Hz, 2H), 6.96–6.92 (m, 1H), 5.25 (s, 2H), 4.30 (d, J = 13.4 Hz, 2H), 3.21 (t, J = 11.2 Hz, 2H), 2.91–2.81 (m, 1H), 1.94 (d, J = 9.6 Hz, 2H), 1.90–1.81 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 163.9, 153.7, 151.3, 149.4, 134.4, 132.7, 132.1, 129.7, 129.4, 128.0, 127.6, 127.3, 125.7, 125.4, 125.0, 123.7, 120.9, 116.0, 113.1, 67.4, 49.0, 42.2, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{27}H_{26}O_2N_4Cl$: 473.1739; found:

473.1733.

***N*-[2-[(3-chlorobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-11**): White solid, mp 222–223 °C, yield: 31.2%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.27 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.3 Hz, 1H), 7.82–7.81 (m, 2H), 7.73 (d, J = 7.2 Hz, 1H), 7.62 (s, 1H), 7.57–7.53 (m, 1H), 7.46–7.42 (m, 1H), 7.40 (d, J = 7.5 Hz, 1H), 7.37 (t, J = 1.9 Hz, 1H), 7.08–7.06 (m, 2H), 6.94–6.90 (m, 1H), 5.20 (s, 2H), 4.33 (d, J = 13.4 Hz, 2H), 3.22 (t, J = 11.2 Hz, 2H), 2.93–2.82 (m, 1H), 1.97 (d, J = 9.7 Hz, 2H), 1.93–1.85 (m, 2H). ^{13}C NMR (10 MHz, DMSO) δ: 173.1, 164.0, 153.7, 151.3, 149.7, 139.8, 133.2, 132.7, 130.3, 128.0, 127.7, 127.4, 127.1, 125.9, 125.6, 125.4, 125.1, 124.0, 120.7, 116.0, 112.9, 68.7, 49.0, 42.0, 28.5. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{27}H_{26}O_2N_4Cl$: 473.1739; found: 473.1737.

***N*-[2-[(4-chlorobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-12**): White solid, mp 232–233 °C, yield: 31.4%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.21 (s, 1H), 8.63 (s, 1H), 7.99 (d, J = 8.3 Hz, 1H), 7.82–7.78 (m, 3H), 7.57–7.52 (m, 3H), 7.46 (s, 1H), 7.44 (s, 1H), 7.06 (d, J = 3.6 Hz, 2H), 6.93–6.88 (m, 1H), 5.20 (s, 2H), 4.32 (d, J = 13.5 Hz, 2H), 3.22 (t, J = 12.2 Hz, 2H), 2.93–2.83 (m, 1H), 1.95 (d, J = 9.9 Hz, 2H), 1.90–1.81 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 164.0, 153.7, 151.3, 149.3, 136.2, 132.7, 132.4, 129.3, 128.4, 128.0, 127.5, 125.7, 125.4, 124.9, 123.6, 120.6, 116.0, 113.0, 68.8, 49.0, 42.2, 28.5. ESI-HRMS *m/z*: $[M - H]^-$ calcd for: $C_{27}H_{24}O_2N_4Cl$: 471.1582; found: 471.1599.

1-(quinazolin-4-yl)-*N*-[2-[[2-(trifluoromethyl)benzyl]oxy]phenyl]piperidine-4-carboxamide (**III-13**): White solid, mp 218–219 °C, yield: 34.4%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.14 (s, 1H), 8.62 (s, 1H), 7.97 (d, J = 8.3 Hz, 1H), 7.84 (d, J = 7.8 Hz, 1H), 7.82–7.80 (m, 3H), 7.79–7.77 (m, 1H), 7.71 (t, J = 7.6 Hz, 1H), 7.57–7.53 (m, 2H), 7.11–7.06 (m, 1H), 7.04–7.02 (m, 1H), 6.97–6.93 (m, 1H), 5.32 (s, 2H), 4.30 (d, J = 13.3 Hz, 2H), 3.20 (t, J = 11.1 Hz, 2H), 2.91–2.76 (m, 1H), 1.93 (d, J = 9.3 Hz, 2H), 1.87–1.77 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.0, 163.9, 153.6,

151.3, 149.4, 135.1, 132.8, 132.6, 129.6, 128.5, 128.0, 127.5, 126.3 (d, $^{2}J_{C\text{-}F}$ = 31.2 Hz), 126.0 (d, $^{3}J_{C\text{-}F}$ = 5.4 Hz), 125.4 (d, $^{2}J_{C\text{-}F}$ = 28.3 Hz), 125.3, 125.0, 124.3 (d, $^{1}J_{C\text{-}F}$ = 274.3 Hz), 123.8, 121.0, 115.9, 112.8, 66.5, 48.9, 42.2, 28.3. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{28}H_{26}O_2N_4F_3$: 507.2002; found: 507.1998.

1-(quinazolin-4-yl)-*N*-[2-[[2-(trifluoromethoxy)benzyl]oxy]phenyl]piperidine-4-carboxamide (**III-14**): White solid, mp 248–249 °C, yield: 45.0%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.21 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.3 Hz, 1H), 7.84 (d, J = 7.8 Hz, 1H) 7.82–7.78 (m, 4H), 7.72 (t, J = 7.6 Hz, 1H), 7.57–7.53 (m, 2H), 7.11–7.07 (m, 1H), 7.03–7.01 (m, 1H), 6.95 (t, J = 6.9 Hz, 1H), 5.33 (s, 2H), 4.30 (d, J = 13.2 Hz, 2H), 3.20 (t, J = 11.8 Hz, 2H), 2.88–2.81 (m, 1H), 1.92 (d, J = 3.7 Hz, 2H), 1.86–1.81 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.1, 163.9, 153.7, 151.3, 149.4, 135.2, 132.9, 132.7, 129.6, 128.6, 128.0, 127.5, 126.4, 126.1 (q, $^{4}J_{C\text{-}F}$ = 5.6 Hz) 125.7, 125.4, 125.1, 123.9, 123.0, 121.0, 116.0, 112.7, 66.5, 49.0, 42.2, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{28}H_{26}O_3N_4F_3$: 523.1952; found: 523.1944.

1-(quinazolin-4-yl)-N-[2-[[4-(trifluoromethoxy)benzyl]oxy]phenyl]piperidine-4-carboxamide (**III-15**): White solid, mp 217–218 °C, yield: 45.2%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.26 (s, 1H), 8.63 (s, 1H), 7.99 (d, J = 8.3 Hz, 1H), 7.88 (d, J = 8.3 Hz, 2H), 7.82–7.77 (m, 3H), 7.71 (d, J = 8.3 Hz, 2H), 7.58–7.54 (m, 1H), 7.07–7.05 (m, 2H), 6.94–6.90 (m, 1H), 5.31 (s, 2H), 4.33 (d, J = 13.3 Hz, 2H), 3.25 (t, J = 11.5 Hz, 2H), 2.94–2.83 (m, 1H), 1.96 (d, J = 9.7 Hz, 2H), 1.92–1.84 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.0, 163.9, 159.0, 153.7, 151.3, 149.4, 132.7, 129.8, 129.2, 128.9, 127.8, 127.6, 125.5 (q, $^{4}J_{C\text{-}F}$ = 26.0 Hz), 124.7, 123.2, 120.4, 115.9, 113.9, 113.8, 113.1, 69.5, 55.1, 48.9, 42.1, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{28}H_{26}O_3N_4F_3$: 523.1952; found: 523.1952.

***N*-[2-[[4-(tert-butyl)benzyl]oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide (III-16)**: White solid, mp 89–90 °C, yield: 44.5%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.09 (s, 1H), 8.62 (s, 1H), 7.99 (d, J = 8.8 Hz, 1H), 7.81 (s, 3H), 7.57–

7.53 (m, 1H), 7.42–7.36 (m, 4H), 7.11–7.04 (m, 2H), 6.90 (t, *J* = 7.5 Hz, 1H), 5.15 (s, 2H), 4.31 (d, *J* = 13.0 Hz, 2H), 3.22 (t, *J* = 12.3 Hz, 2H), 2.93–2.76 (m, 1H), 1.94 (d, *J* = 11.6 Hz, 2H), 1.89–1.78 (m, 2H), 1.24 (s, 9H). ^{13}C NMR (100 MHz, DMSO) *δ*: 173.0, 163.9, 153.6, 151.3, 150.2, 134.1, 132.6, 128.0, 127.7, 127.6, 127.3, 125.5, 125.3, 125.1, 124.8, 123.2, 120.4, 115.9, 112.9, 69.6, 48.9, 42.1, 34.2, 31.1, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{31}H_{35}O_2N_4$: 495.2755; found: 495.2746.

***N*-[2-[(2,6-dichlorobenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-17**): White solid, mp 77–78 °C, yield: 42.4%. ^{1}H NMR (400 MHz, DMSO-d_6) *δ*: 8.87 (s, 1H), 8.62 (s, 1H), 7.94 (d, *J* = 8.1 Hz, 1H), 7.84–7.78 (m, 3H), 7.58–7.55 (m, 1H), 7.53 (d, *J* = 7.9 Hz, 2H), 7.43–7.39 (m, 1H), 7.27 (d, *J* = 8.3 Hz, 1H), 7.14 (t, *J* = 7.8 Hz, 1H), 6.98 (t, *J* = 7.7 Hz, 1H), 5.29 (s, 2H), 4.22 (d, *J* = 13.3 Hz, 2H), 3.18 (t, *J* = 10.6 Hz, 2H), 2.83–2.70 (m, 1H), 1.81 (d, *J* = 3.8 Hz, 2H), 1.81–1.71 (m, 2H). ^{13}C NMR (100 MHz, DMSO) *δ*: 173.0, 163.9, 153.6, 151.1, 149.7, 136.3, 132.8, 131.7, 131.6, 128.8, 127.9, 125.7, 125.4, 125.0, 123.6, 121.3, 115.9, 113.7, 66.2, 48.8, 42.0, 28.3. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{27}H_{25}O_2N_4Cl_2$: 507.1349; found: 507.1343.

***N*-[2-(benzyloxy)phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-18**): White solid, mp 231–232 °C yield: 20.4%. ^{1}H NMR (400 MHz, DMSO-d_6) *δ*: 9.18 (s, 1H), 8.63 (s, 1H), 7.98 (d, *J* = 8.0 Hz, 1H), 7.82–7.79 (m, 3H), 7.57–7.54 (m, 1H), 7.50 (d, *J* = 7.4 Hz, 2H), 7.38 (t, *J* = 7.7 Hz, 2H), 7.30 (t, *J* = 7.2 Hz, 1H), 7.09–7.05 (m, 2H), 6.91–6.88 (m, 1H), 5.20 (s, 2H), 4.31 (d, *J* = 13.2 Hz, 2H), 3.21 (t, *J* = 11.1 Hz, 2H), 2.89–2.85 (m, 1H), 1.95 (d, *J* = 9.7 Hz, 2H), 1.87–1.82 (m, 2H). ^{13}C NMR (100 MHz, DMSO) *δ*: 173.1, 164.0, 153.7, 151.3, 149.5, 137.2, 132.8, 128.4, 128.0, 127.8, 127.5, 127.4, 125.7, 125.4, 124.9, 123.5, 120.5, 116.0, 113.0, 69.7, 49.0, 42.2, 28.5. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{27}H_{27}O_2N_4$: 439.2129; found: 439.2124.

***N*-[2-[(2-methoxybenzyl)oxy]phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-19**): White solid, mp 174–175 °C, yield: 54.3%. ^{1}H NMR (400 MHz,

DMSO-d_6) δ: 9.11 (s, 1H), 8.63 (s, 1H), 7.98 (d, J = 8.2 Hz, 1H), 7.83–7.81 (m, 3H), 7.58–7.54 (m, 1H), 7.46–7.43 (m, 1H), 7.32–7.27 (m, 1H), 7.06–7.01 (m, 3H), 6.96–6.90 (m, 2H), 5.15 (s, 2H), 4.31 (d, J = 12.9 Hz, 2H), 3.84 (s, 3H), 3.21 (t, J = 11.2 Hz, 2H), 2.91–2.79 (m, 1H), 1.94 (d, J = 9.6 Hz, 2H), 1.91–1.77 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.0, 163.9, 156.7, 153.7, 151.3, 149.5, 132.8, 129.3, 128.7, 128.0, 127.7, 125.7, 125.4, 124.9, 124.6, 123.2, 120.6, 120.3, 116.0, 113.0, 110.8, 65.3, 55.5, 49.0, 42.3, 28.5. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{28}H_{29}O_3N_4$: 469.2234; found: 469.2229.

***N*-(2-methoxyphenyl)-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-20**): White solid, mp 201–202 °C, yield: 14.8%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.17 (s, 1H), 8.63 (s, 1H), 8.00–7.94 (m, 2H), 7.82–7.79 (m, 2H), 7.56–7.52 (m, 1H), 7.06–7.02 (m, 2H), 6.90–6.87 (m, 1H), 4.34 (d, J = 13.4 Hz, 2H), 3.84 (s, 3H), 3.20 (t, J = 11.1 Hz, 2H), 2.95–2.90 (m, 1H), 1.94 (d, J = 13.1 Hz, 2H), 1.90–1.80 (m, 2H). ^{13}C NMR (100 MHz, DMSO-D_6) δ: 173.2, 164.0, 153.7, 151.3, 149.7, 132.8, 128.0, 127.3, 125.7, 125.4, 124.4, 122.1, 120.2, 116.0, 111.1, 55.7, 49.0, 42.3, 28.5. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{21}H_{23}O_2N_4$: 363.1816; found: 363.1810.

***N*-(2-ethoxyphenyl)-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-21**): White solid, mp 172–173 °C, yield: 26.6%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.02 (s, 1H), 8.63 (s, 1H), 8.00 (d, J = 8.3 Hz, 1H), 7.89 (d, J = 6.4 Hz, 1H), 7.82–7.80 (m, 2H), 7.57–7.53 (m, 1H), 7.07–7.03 (m, 2H), 6.91–6.87 (m, 1H), 4.34 (d, J = 13.3 Hz, 2H), 4.11–4.06 (m, 2H), 3.21 (t, J = 9.4 Hz, 2H), 2.97–2.85 (m, 1H), 1.95 (d, J = 9.5 Hz, 2H), 1.91–1.79 (m, 2H), 1.37 (t, J = 7.0 Hz, 3H). ^{13}C NMR (100 MHz, DMSO) δ: 173.0, 163.9, 153.7, 151.3, 149.2, 132.7, 128.0, 127.5, 125.6, 125.4, 124.5, 122.5, 120.2, 116.0, 112.3, 63.9, 49.0, 42.3, 28.4, 14.7. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{22}H_{25}O_2N_4$: 377.1972; found: 377.1967.

***N*-(2-propoxyphenyl)-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-22**): White solid, mp 173–174 °C, yield: 29.3%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 8.94

(s, 1H), 8.62 (s, 1H), 7.99 (d, *J* = 8.3 Hz, 1H), 7.85–7.80 (m, 3H), 7.56–7.52 (m, 1H), 7.08–7.01 (m, 2H), 6.90–6.84 (m, 1H), 4.34 (d, *J* = 13.3 Hz, 2H), 3.98 (t, *J* = 6.5 Hz, 2H), 3.23 (t, *J* = 11.1 Hz, 2H), 2.94–2.84 (m, 1H), 1.96 (d, *J* = 12.8 Hz, 2H), 1.92–1.84 (m, 2H), 1.83–1.73 (m, 2H), 1.00 (t, *J* = 7.4 Hz, 3H). ^{13}C NMR (100 MHz, DMSO) *δ*: 172.9, 163.9, 153.6, 151.3, 150.0, 132.7, 128.0, 127.1, 125.6, 125.3, 125.0, 123.3, 120.1, 115.9, 112.2, 74.4, 48.9, 42.2, 28.4, 27.7, 19.1. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{23}H_{27}O_2N_4$: 391.2129; found: 391.2127.

***N*-(2-butoxyphenyl)-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-23**): White solid, mp 139–140 °C, yield: 37.8%. ^{1}H NMR (400 MHz, DMSO-d_6) *δ*: 8.93 (s, 1H), 8.62 (s, 1H), 7.99 (d, *J* = 8.3 Hz, 1H), 7.83 (d, *J* = 2.3 Hz, 1H), 7.81–7.80 (m, 2H), 7.56–7.52 (m, 1H), 7.08–7.00 (m, 2H), 6.91–6.86 (m, 1H), 4.33 (d, *J* = 13.2 Hz, 2H), 4.01 (t, *J* = 6.6 Hz, 2H), 3.23 (t, *J* = 11.2 Hz, 2H), 2.93–2.82 (m, 1H), 1.96 (d, *J* = 13.3 Hz, 2H), 1.93–1.82 (m, 2H), 1.79–1.68 (m, 2H), 1.54–1.40 (m, 2H), 0.93 (t, *J* = 7.4 Hz, 3H). ^{13}C NMR (100 MHz, DMSO) *δ*: 172.9, 163.9, 153.6, 151.3, 149.6, 132.6, 128.0, 127.3, 125.5, 125.3, 124.7, 122.8, 120.1, 116.0, 112.2, 67.9, 48.9, 42.2, 30.7, 28.4, 18.7, 13.7. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{24}H_{29}O_2N_4$: 405.2285; found: 405.2280.

***N*-[2-(sec-butoxy)phenyl]-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-24**): White solid, mp 156–157 °C, yield: 42.9%.^{1}H NMR (400 MHz, DMSO-d_6) *δ*: 8.87 (s, 1H), 8.63 (s, 1H), 7.98 (d, *J* = 8.4 Hz, 1H), 7.89 (d, *J* = 7.6 Hz, 1H), 7.80 (d, *J* = 3.8 Hz, 2H), 7.55–7.51 (m, 1H), 7.04–7.00 (m, 2H), 6.89–6.86 (m, 1H), 4.39–4.32 (m, 4H), 3.23 (t, *J* = 10.8 Hz, 2H), 2.94–2.86 (m, 1H), 1.96 (d, *J* = 9.5 Hz, 2H), 1.88–1.82 (m, 2H), 1.63–1.56 (m, 1H), 1.24 (d, *J* = 6.1 Hz, 3H), 0.92 (t, *J* = 7.4 Hz, 3H). ^{13}C NMR (100 MHz, DMSO) *δ*: 172.9, 163.9, 153.6, 151.3, 148.5, 132.6, 128.3, 128.0, 125.6, 125.3, 124.6, 122.8, 120.1, 116.0, 113.9, 75.7, 48.9, 42.3, 28.6, 28.4, 19.1, 9.6. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{24}H_{29}O_2N_4$: 405.2285; found: 405.2279.

***N*-(2-isobutoxyphenyl)-1-(quinazolin-4-yl)piperidine-4-carboxamide** (**III-25**):

White solid, mp 139–140 °C, yield: 32.0%.^{1}H NMR (400 MHz, DMSO-d_6) δ: 8.95 (s, 1H), 8.62 (s, 1H), 7.99 (d, J = 8.4 Hz, 1H), 7.83–7.79 (m, 2H), 7.76 (d, J = 7.8 Hz, 1H), 7.57–7.53 (m, 1H), 7.09–7.05 (m, 1H), 7.02–7.00 (m, 1H), 6.89 (t, J = 7.6 Hz, 1H), 4.34 (d, J = 13.4 Hz, 2H), 3.78 (d, J = 6.5 Hz, 2H), 3.24 (t, J = 11.4 Hz, 2H), 2.93–2.81 (m, 1H), 2.15–1.99 (m, 1H), 1.97 (d, J = 9.5 Hz, 2H), 1.89–1.83 (m 2H), 1.01 (s, 3H), 0.99 (s, 3H). ^{13}C NMR (100 MHz, DMSO) δ: 172.9, 163.9, 153.6, 151.2, 150.0, 132.7, 127.9, 127.1, 125.7, 125.4, 125.0, 123.3, 120.1, 115.9, 112.2, 74.4, 48.9, 42.2, 28.5, 27.7, 19.2. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{24}H_{29}O_2N_4$: 405.2285; found: 405.2285.

methyl 2-[[2-[1-(quinazolin-4-yl)piperidine-4-carboxamide]phenoxy]sulfonyl]acetate (**III-26**): White solid, mp 178–179 °C, yield: 26.1%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.17 (s, 1H), 8.63 (s, 1H), 8.02–7.96 (m, 2H), 7.82–7.80 (m, 2H), 7.57–7.53 (m, 1H), 7.06–7.02 (m, 1H), 6.99–6.93 (m, 2H), 4.87 (s, 2H), 4.35 (d, J = 13.3 Hz, 2H), 3.72 (s, 3H), 3.23 (t, J = 11.3 Hz, 2H), 2.96–2.85 (m, 1H), 1.96 (d, J = 3.3 Hz, 2H), 1.94–1.82 (m, 2H). ^{13}C NMR (100 MHz, DMSO) δ: 173.0, 169.5, 163.9, 153.6, 151.2, 148.3, 132.7, 128.0, 127.9, 125.6, 125.4, 124.2, 122.2, 121.4, 115.9, 113.1, 65.8, 52.0, 49.0, 42.4, 28.4. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{23}H_{25}O_4N_4$: 421.1870; found: 421.1871.

ethyl 2-[[2-[1-(quinazolin-4-yl)piperidine-4-carboxamide]phenoxy]sulfonyl]acetate (**III-27**): White solid, mp 109–110 °C, yield: 28.0%. ^{1}H NMR (400 MHz, DMSO-d_6) δ: 9.19 (s, 1H), 8.63 (s, 1H), 8.01–7.97 (m, 2H), 7.82–7.80 (m, 2H), 7.57–7.53 (m, 1H), 7.06–7.02 (m, 1H), 6.98–6.93 (m, 2H), 4.85 (s, 2H), 4.34 (d, J = 13.6 Hz, 2H), 4.20–4.16 (m, 2H), 3.22 (t, J = 11.6 Hz, 2H), 2.93–2.87 (m, 1H), 1.97 (d, J = 10.1 Hz, 2H), 1.91–1.81 (m, 2H), 1.21 (t, J = 7.1 Hz, 3H). ^{13}C NMR (100 MHz, DMSO-D_6) δ: 173.1, 169.0, 164.0, 153.7, 151.3, 148.3, 132.8, 128.0, 125.7, 125.4, 124.3, 122.2, 121.4, 116.0, 113.1, 65.9, 60.9, 49.0, 42.5, 28.5, 14.1. ESI-HRMS *m/z*: $[M + H]^+$ calcd for: $C_{24}H_{27}O_4N_4$: 435.2027; found: 435.2022.

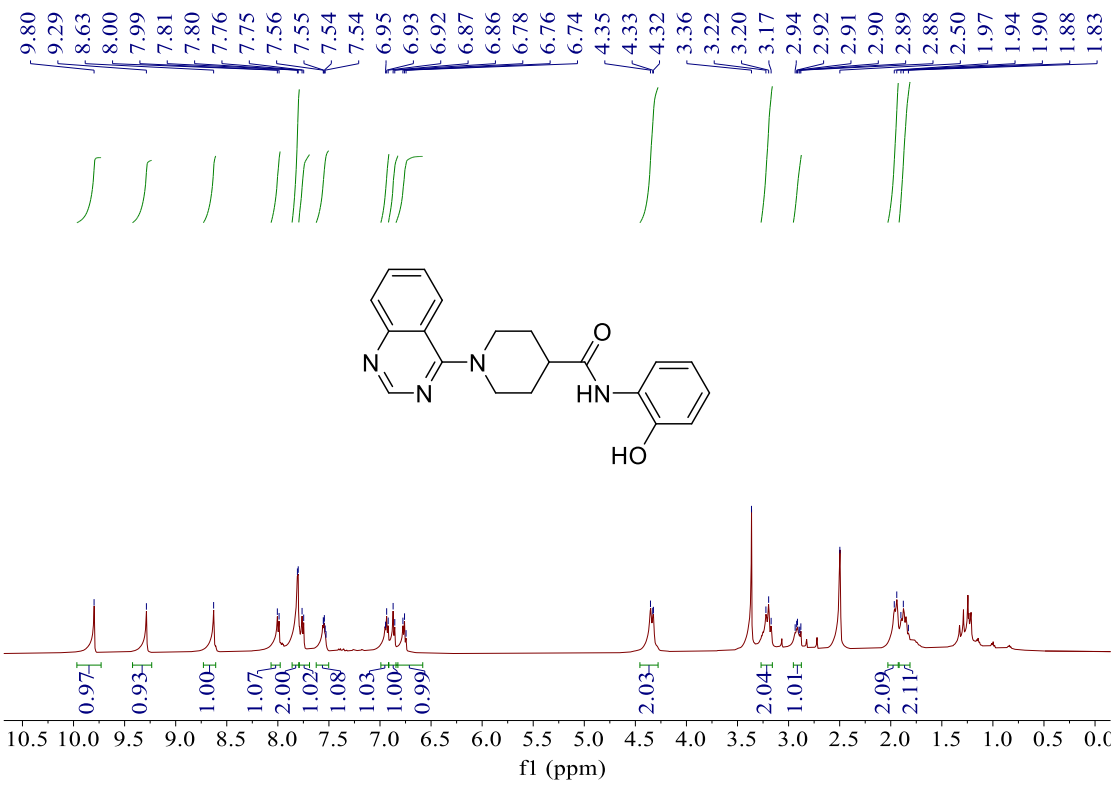

Figure S1. ^{1}H NMR spectrum of intermediate **II** (DMSO-d_6)

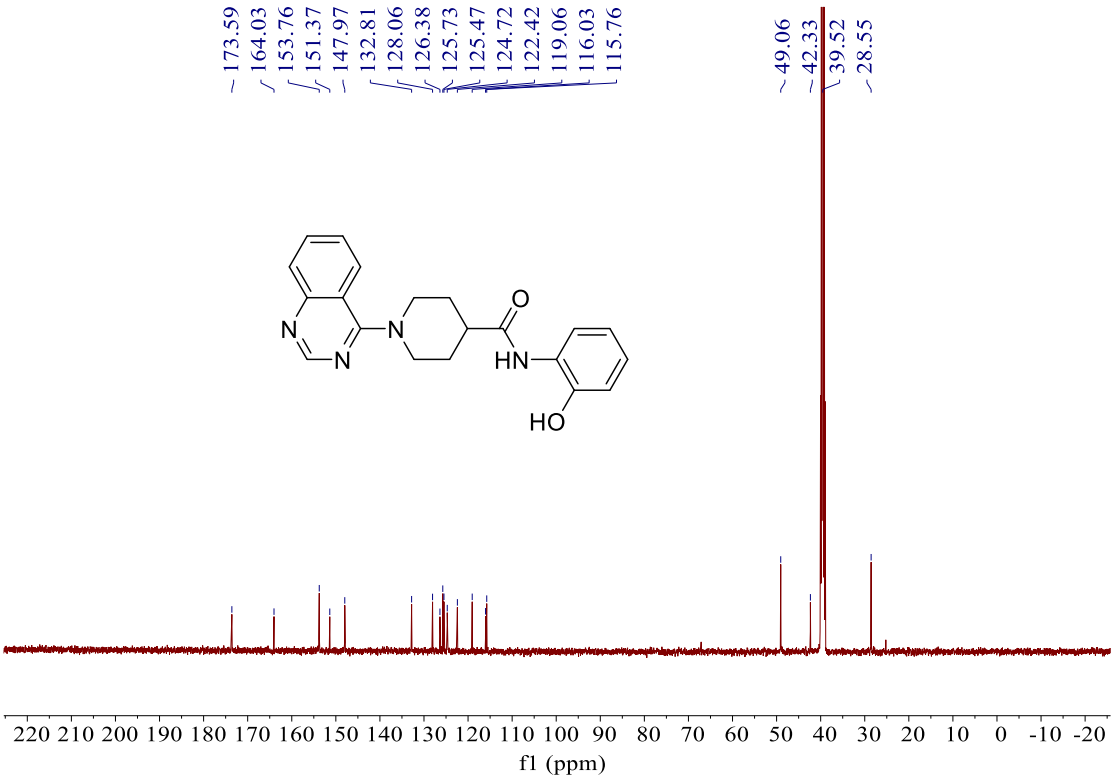

Figure S2. ^{13}C NMR spectrum of intermediate **II** (DMSO-d_6)

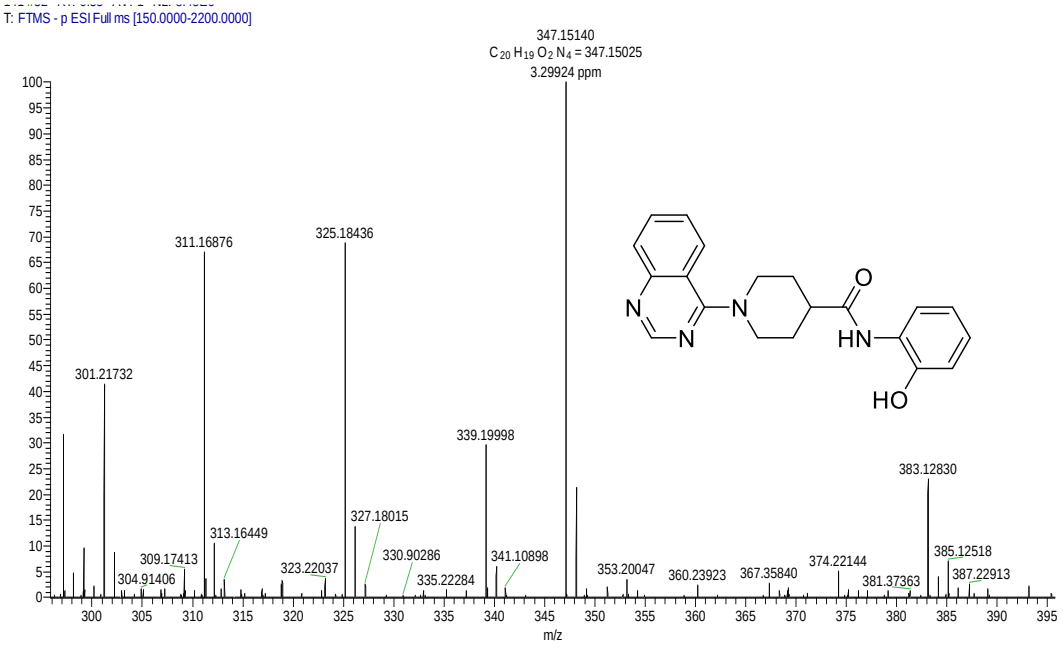

Figure S3. HRMS spectrum of intermediate **II**

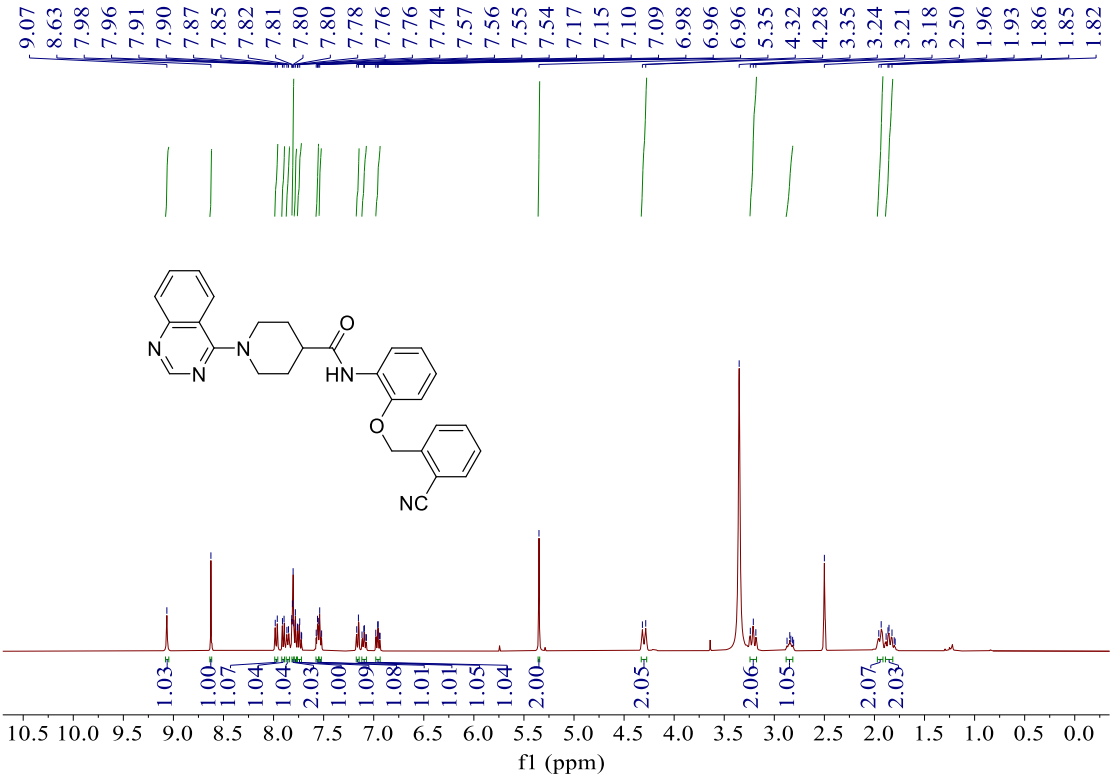

Figure S4. ^{1}H NMR spectrum of compound **III-1** (DMSO-d_6)

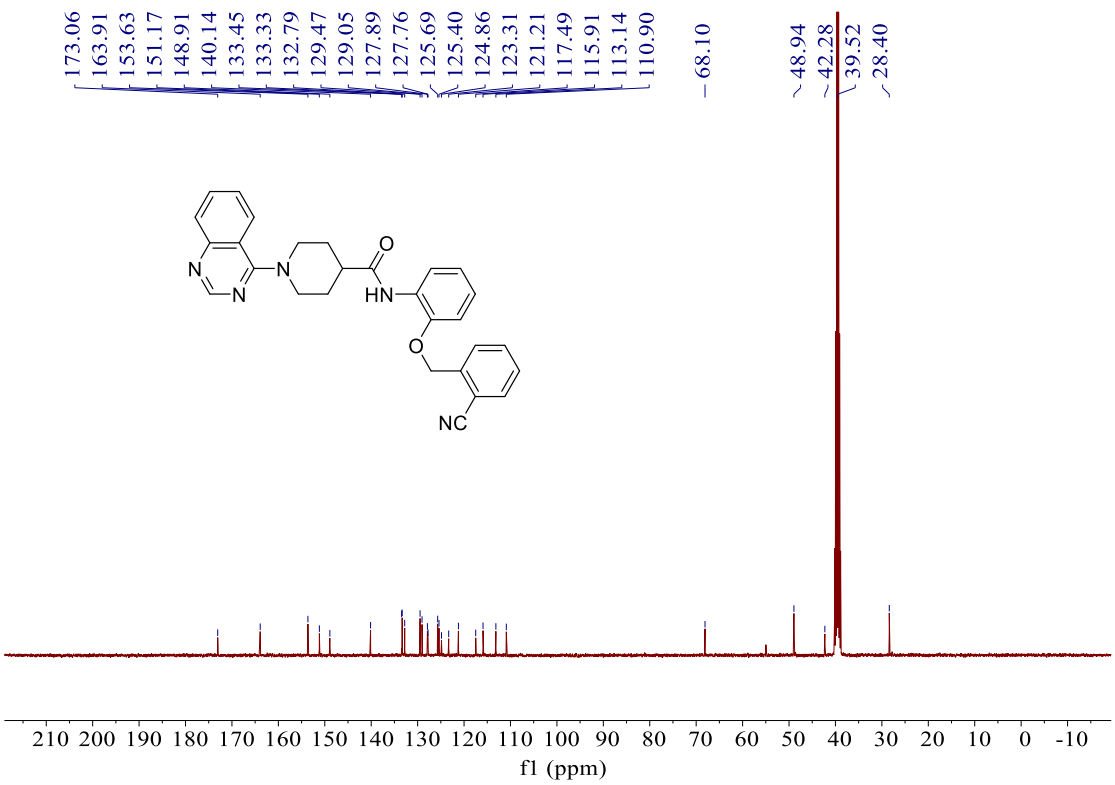

Figure S5. ^{13}C NMR spectrum of compound **III-1** (DMSO-d_6)

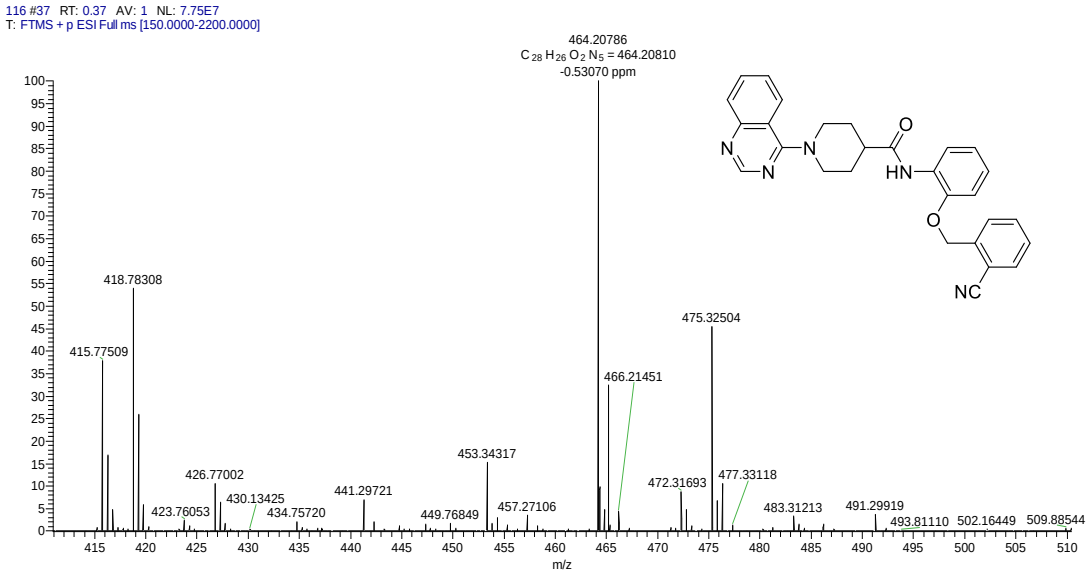

Figure S6. HRMS spectrum of compound **III-1**

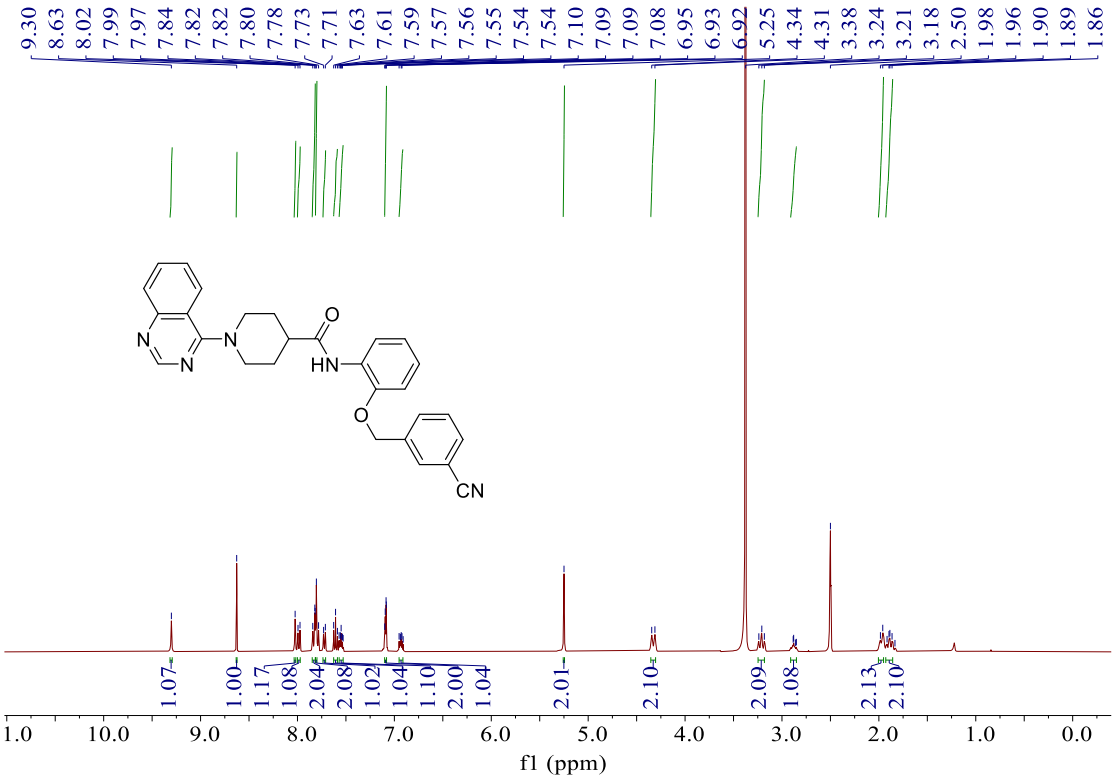

Figure S7. ^{1}H NMR spectrum of compound **III-2** (DMSO-d_6)

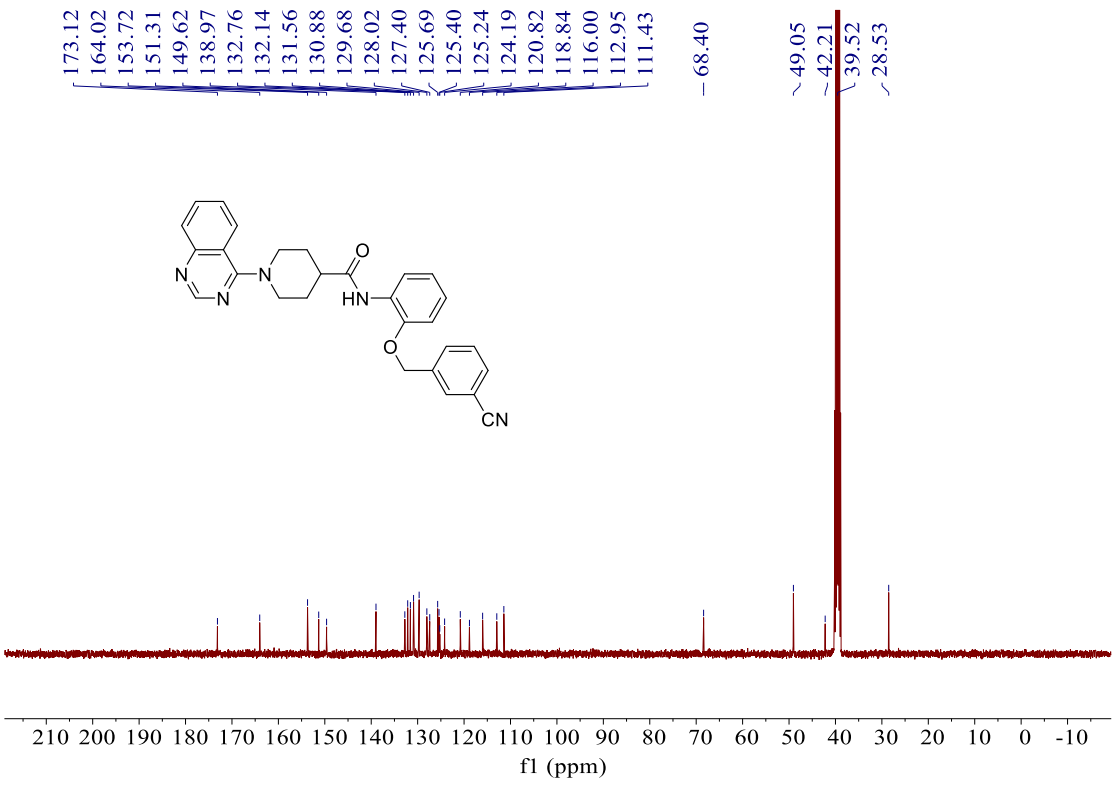

Figure S8. ^{13}C NMR spectrum of compound **III-2** (DMSO-d_6)

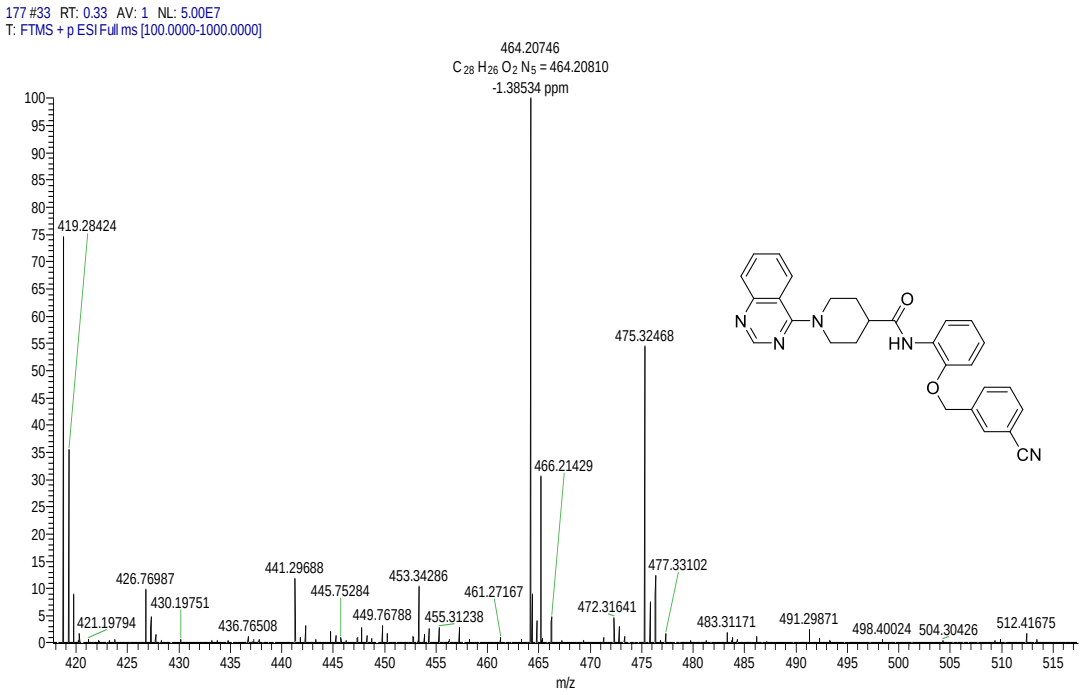

Figure S9. HRMS spectrum of compound **III-2**

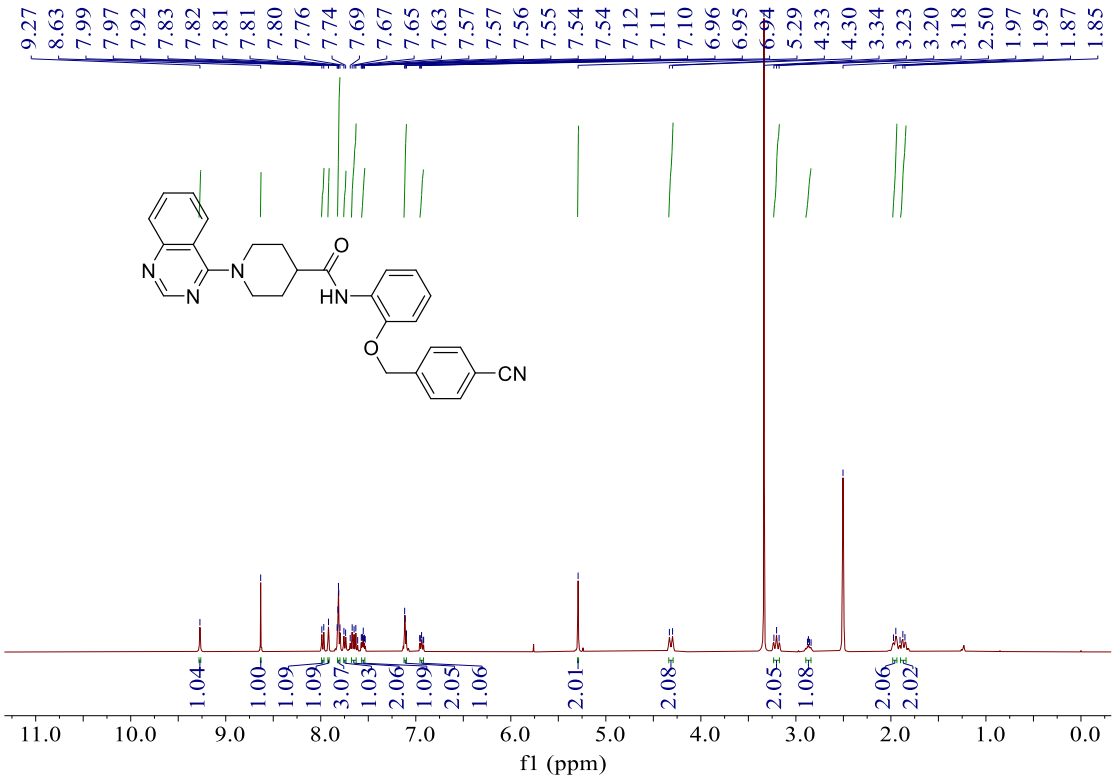

Figure S10. ^{1}H NMR spectrum of compound **III-3** (DMSO-d_6)

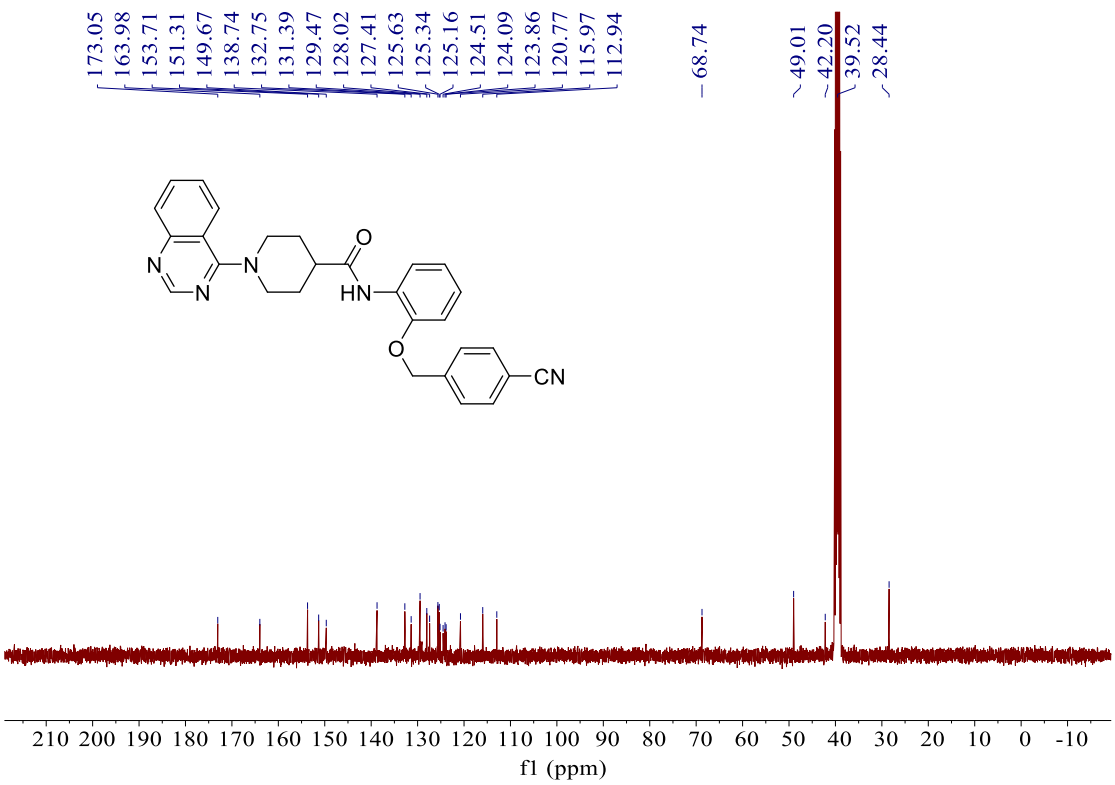

Figure S11. ^{13}C NMR spectrum of compound **III-3** (DMSO-d_6)

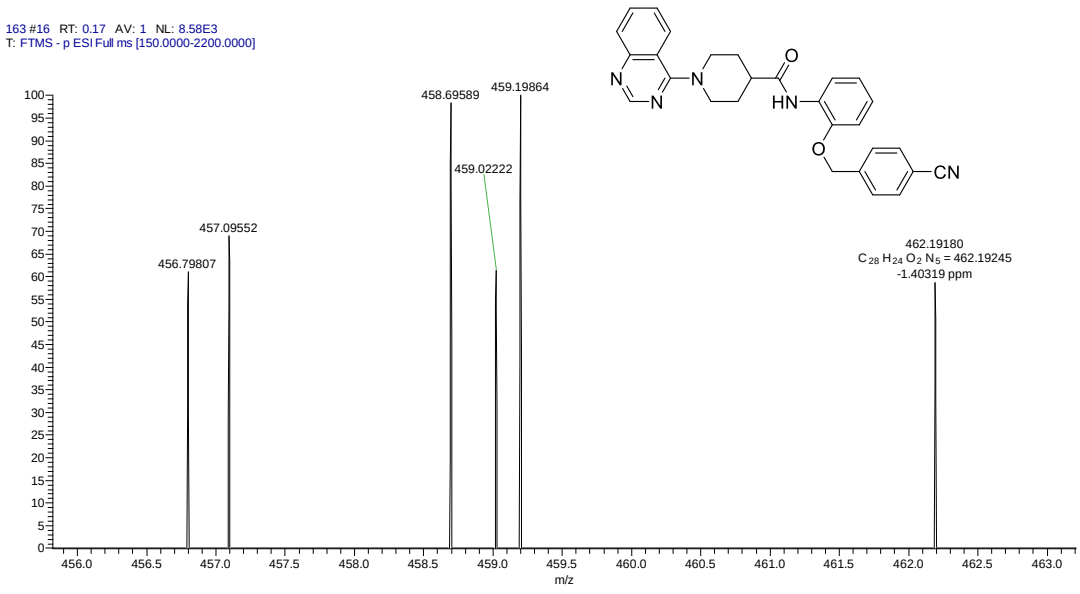

Figure S12. HRMS spectrum of compound **III-3**

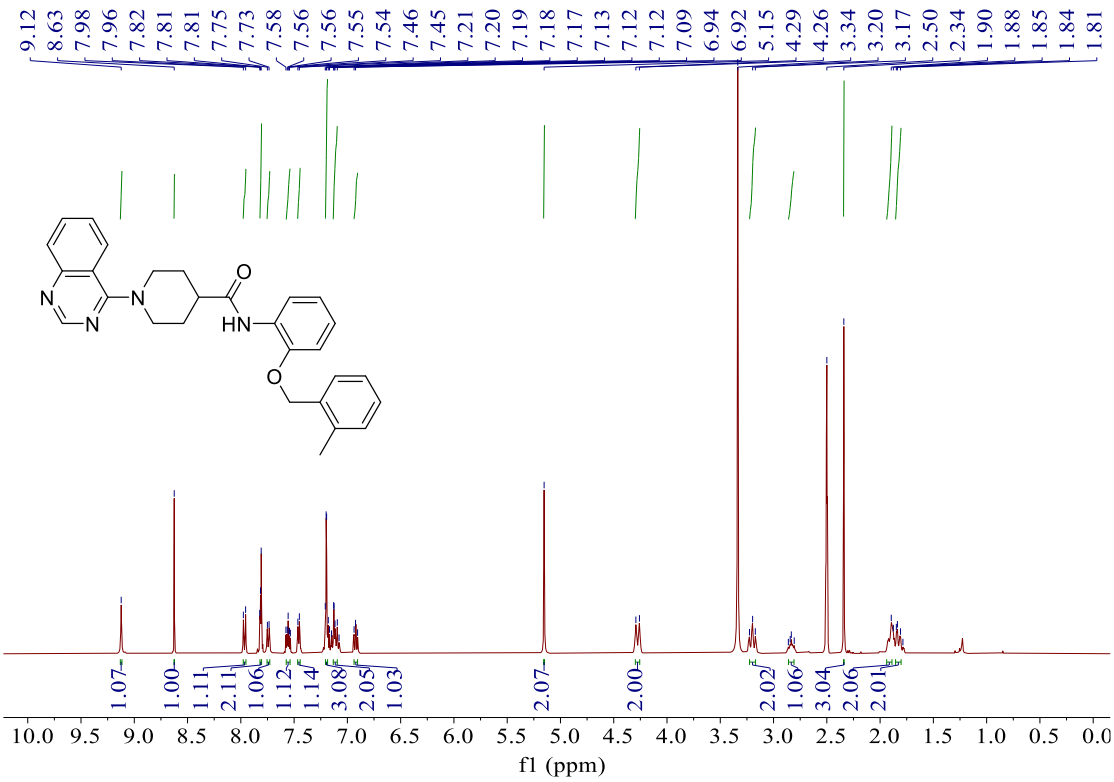

Figure S13. ^{1}H NMR spectrum of compound **III-4** (DMSO-d_6)

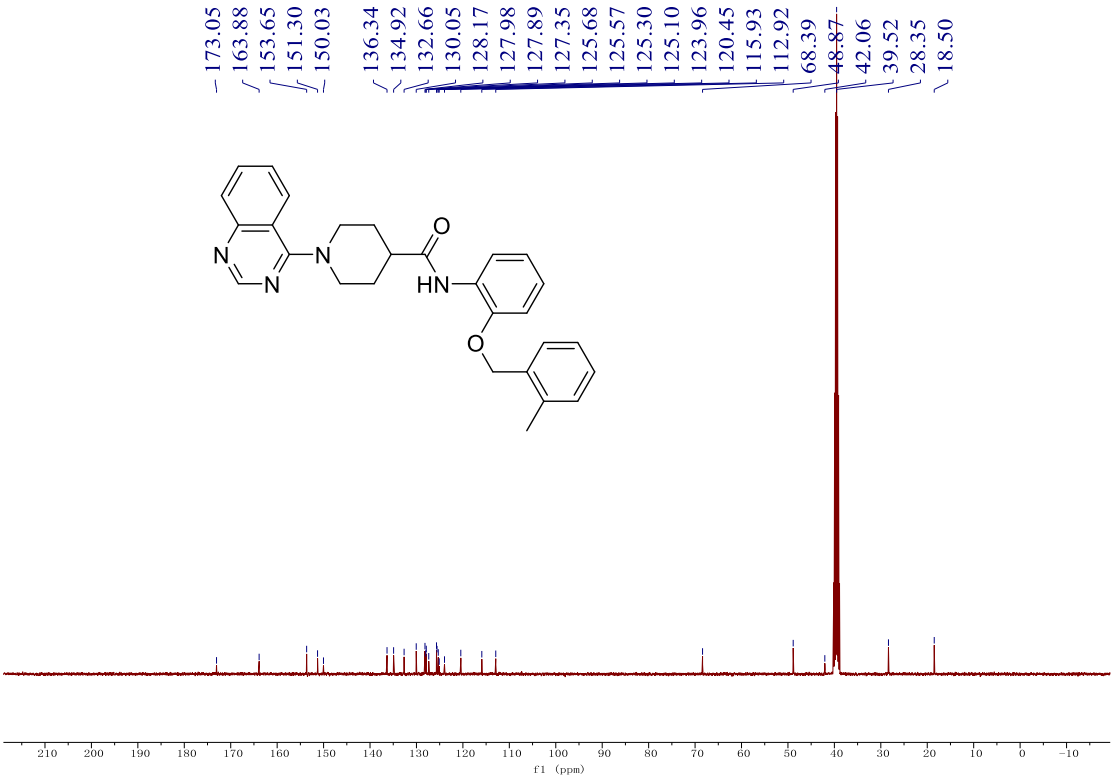

Figure S14. ^{13}C NMR spectrum of compound **III-4** (DMSO-d_6)

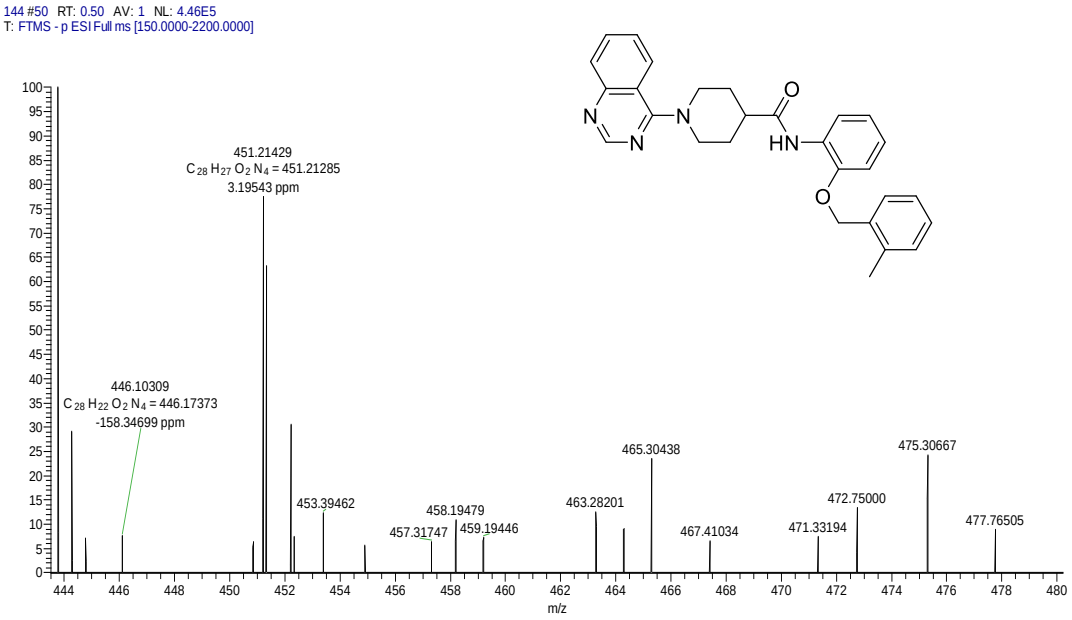

Figure S15. HRMS spectrum of compound **III-4**

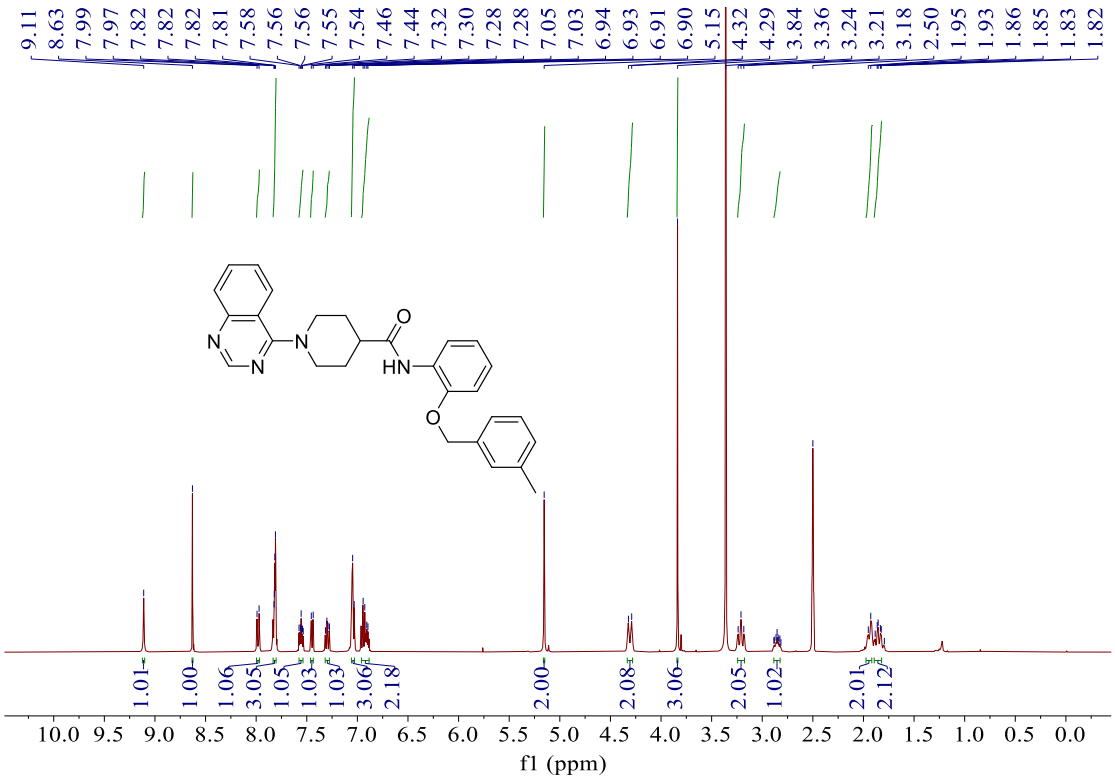

Figure S16. ^{1}H NMR spectrum of compound **III-5** (DMSO-d_6)

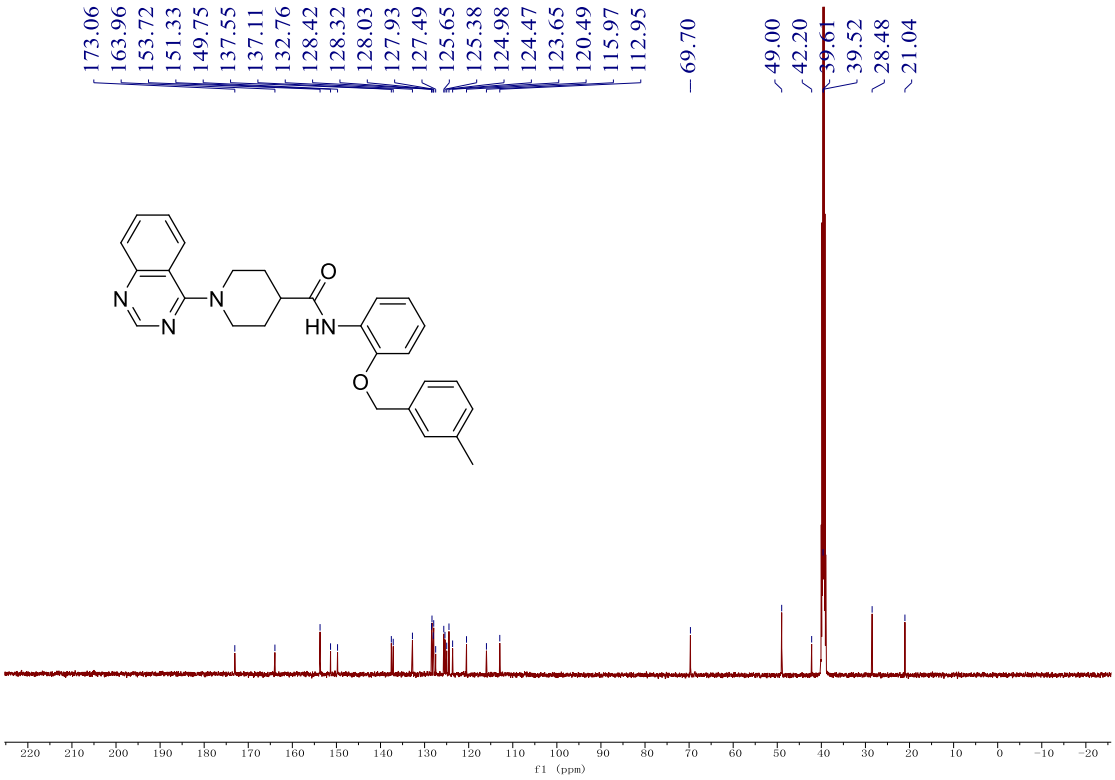

Figure S17. ^{13}C NMR spectrum of compound **III-5** (DMSO-d_6)

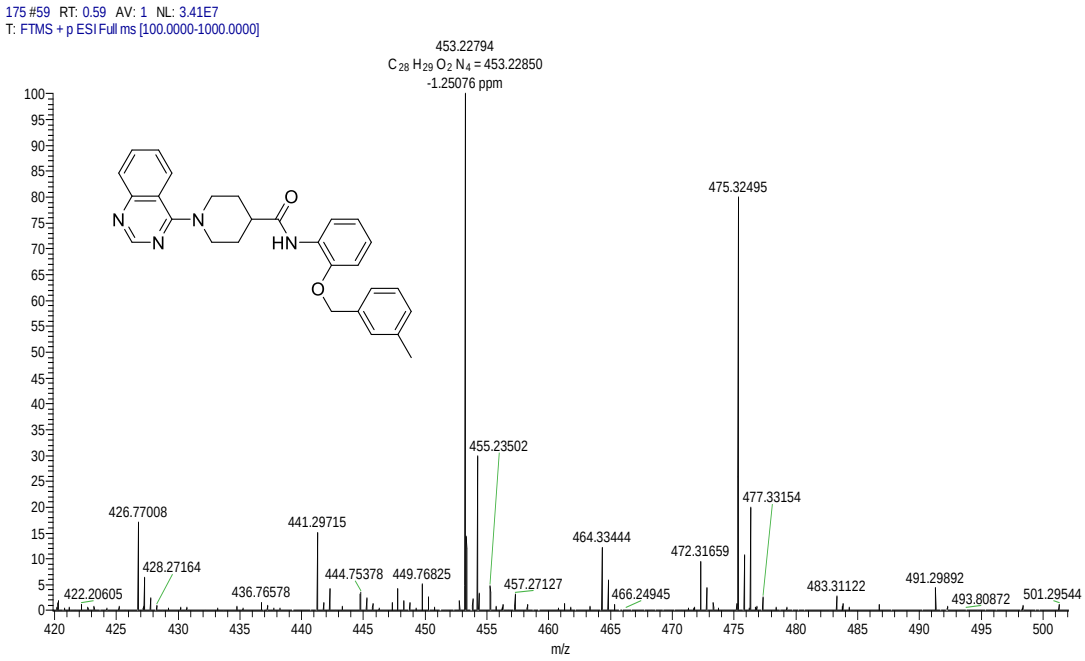

Figure S18. HRMS spectrum of compound **III-5**

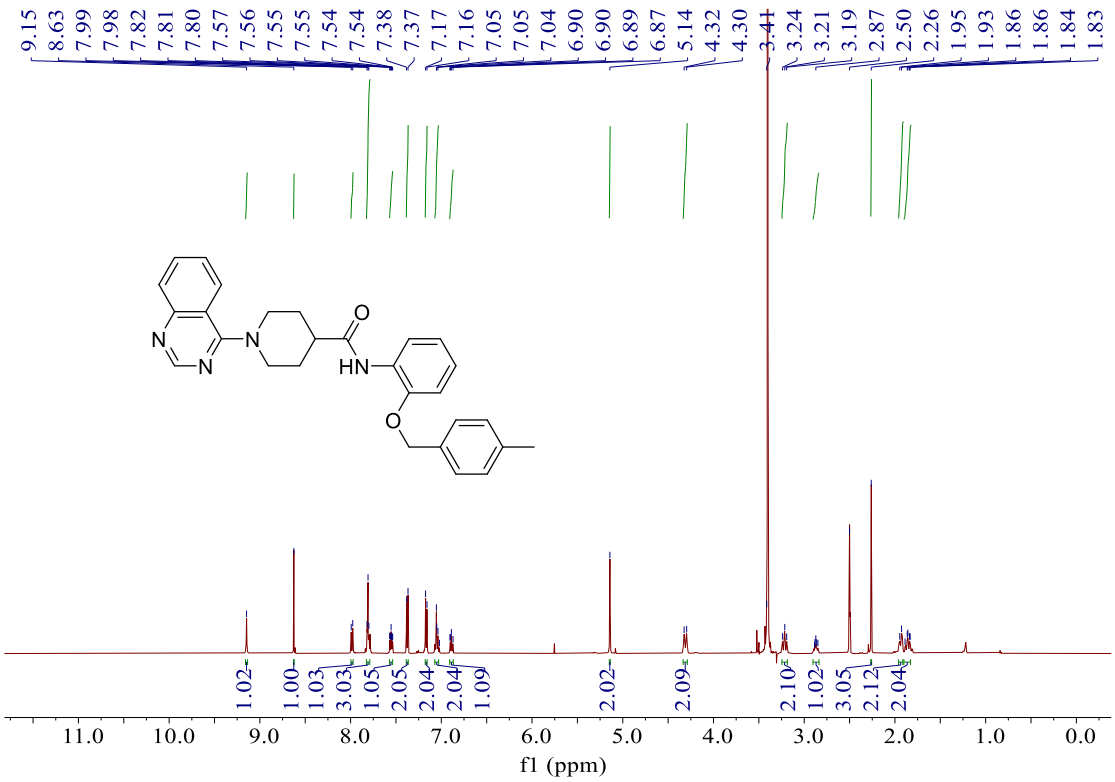

Figure S19. ^{1}H NMR spectrum of compound **III-6** (DMSO-d_6)

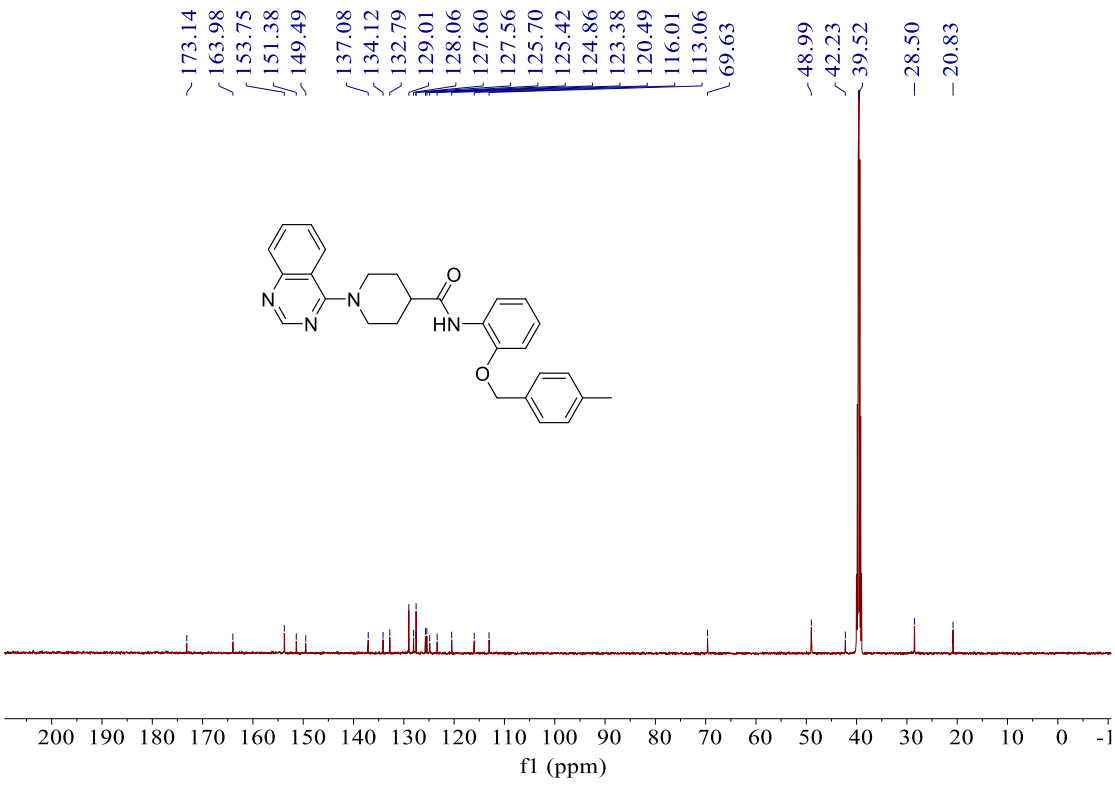

Figure S20. ^{13}C NMR spectrum of compound **III-6** (DMSO-d_6)

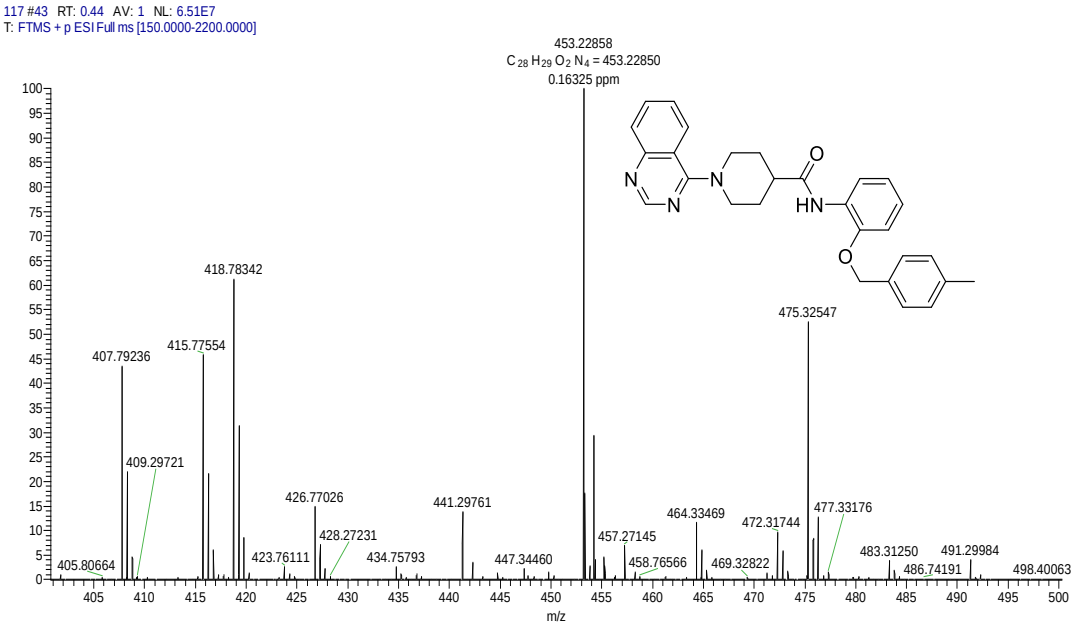

Figure S21. HRMS spectrum of compound **III-6**

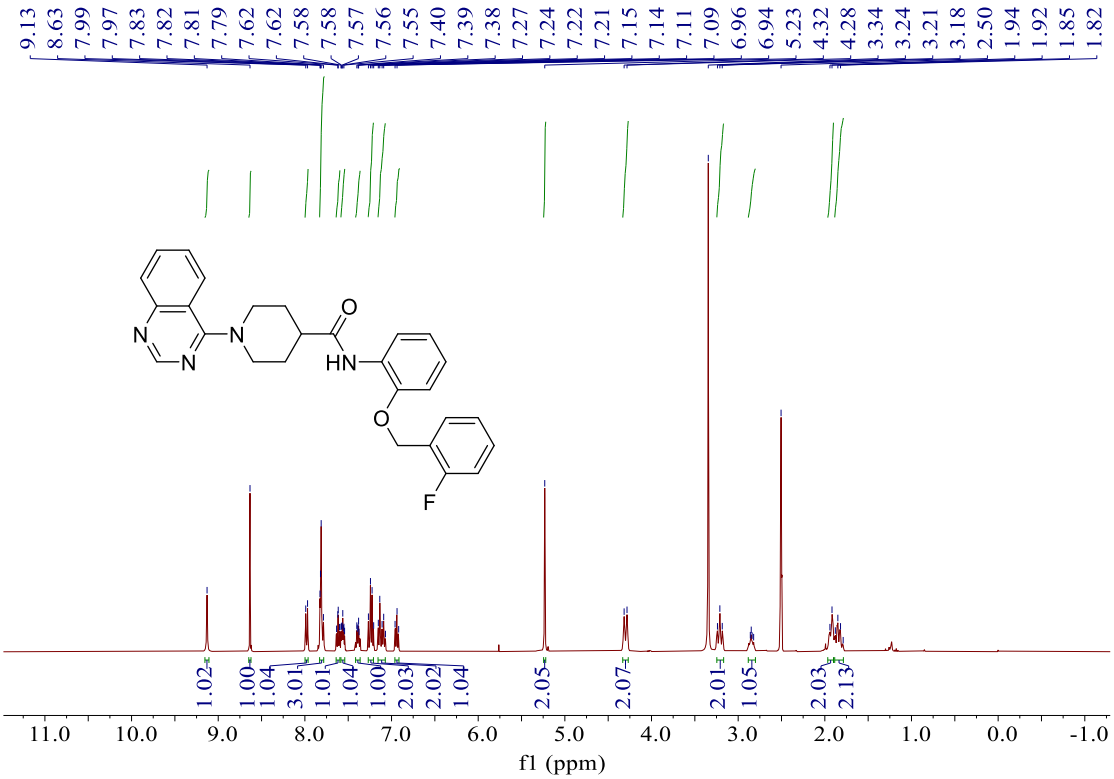

Figure S22. ^{1}H NMR spectrum of compound **III-7** (DMSO-d_6)

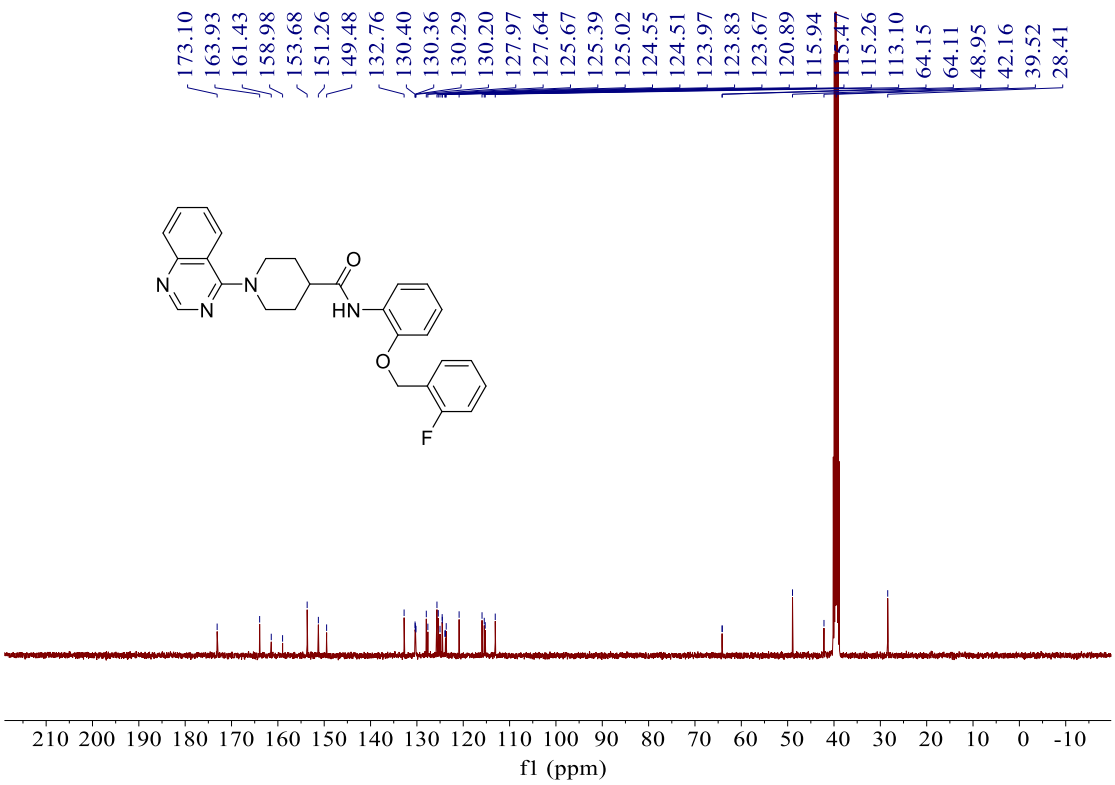

Figure S23. ^{13}C NMR spectrum of compound **III-7** (DMSO-d_6)

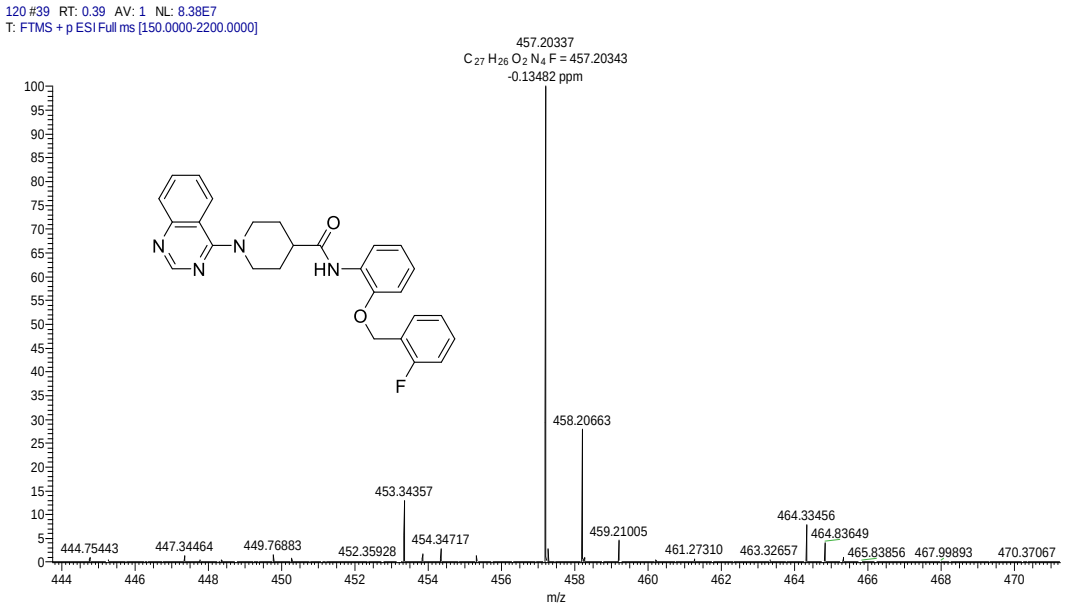

Figure S24. HRMS spectrum of compound **III-7**

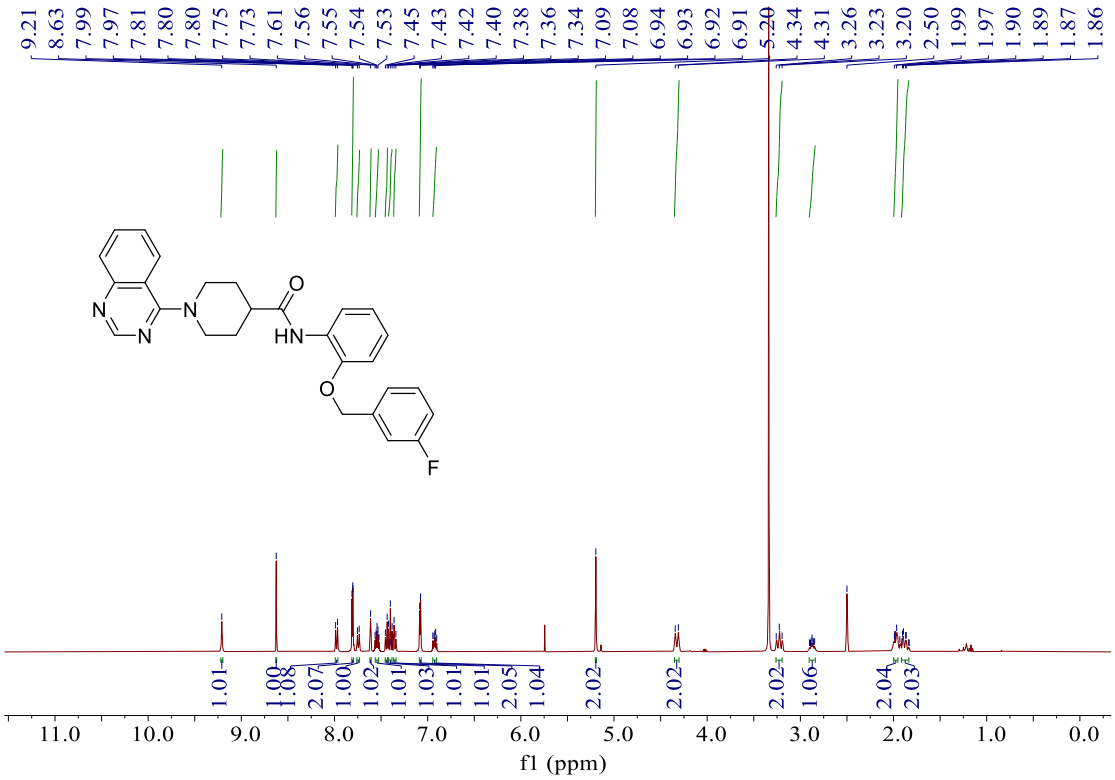

Figure S25. ^{1}H NMR spectrum of compound **III-8** (DMSO-d_6)

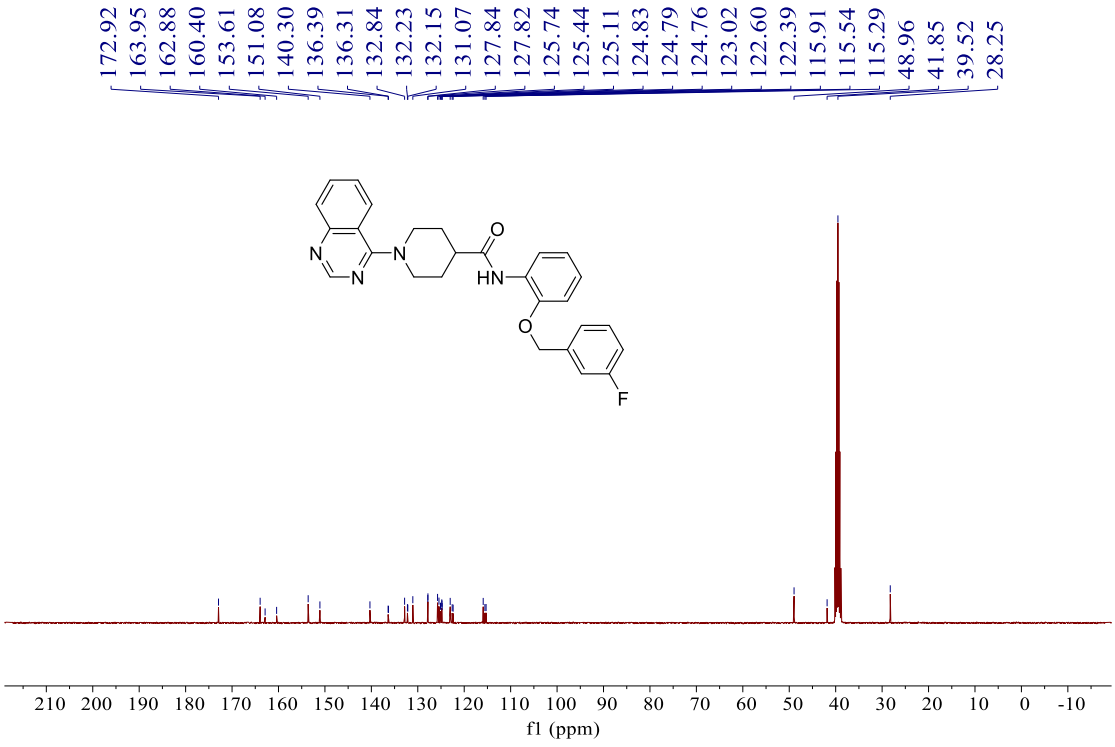

Figure S26. ^{13}C NMR spectrum of compound **III-8** (DMSO-d_6)

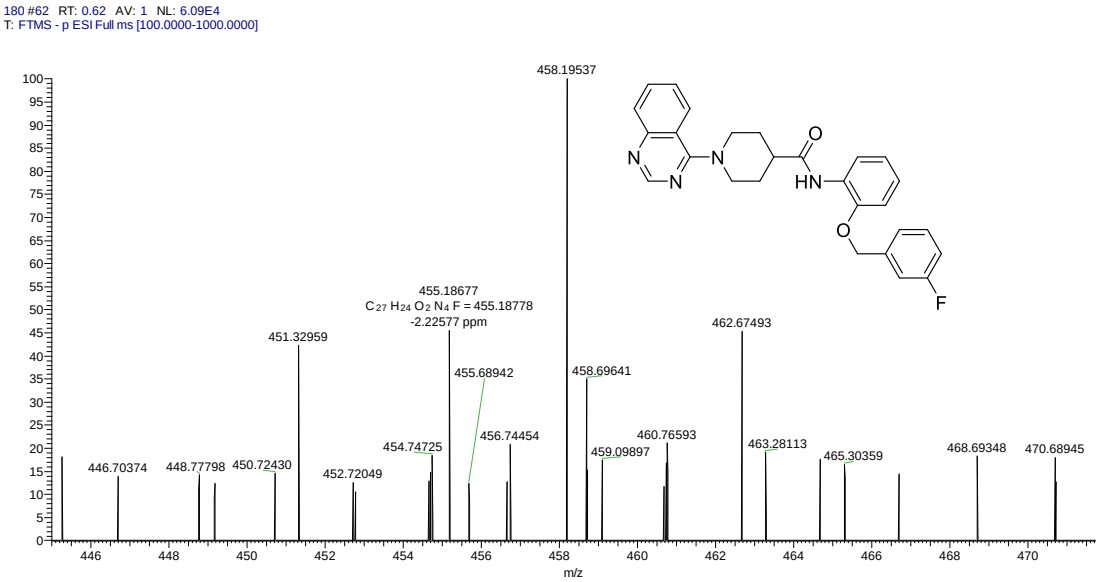

Figure S27. HRMS spectrum of compound **III-8**

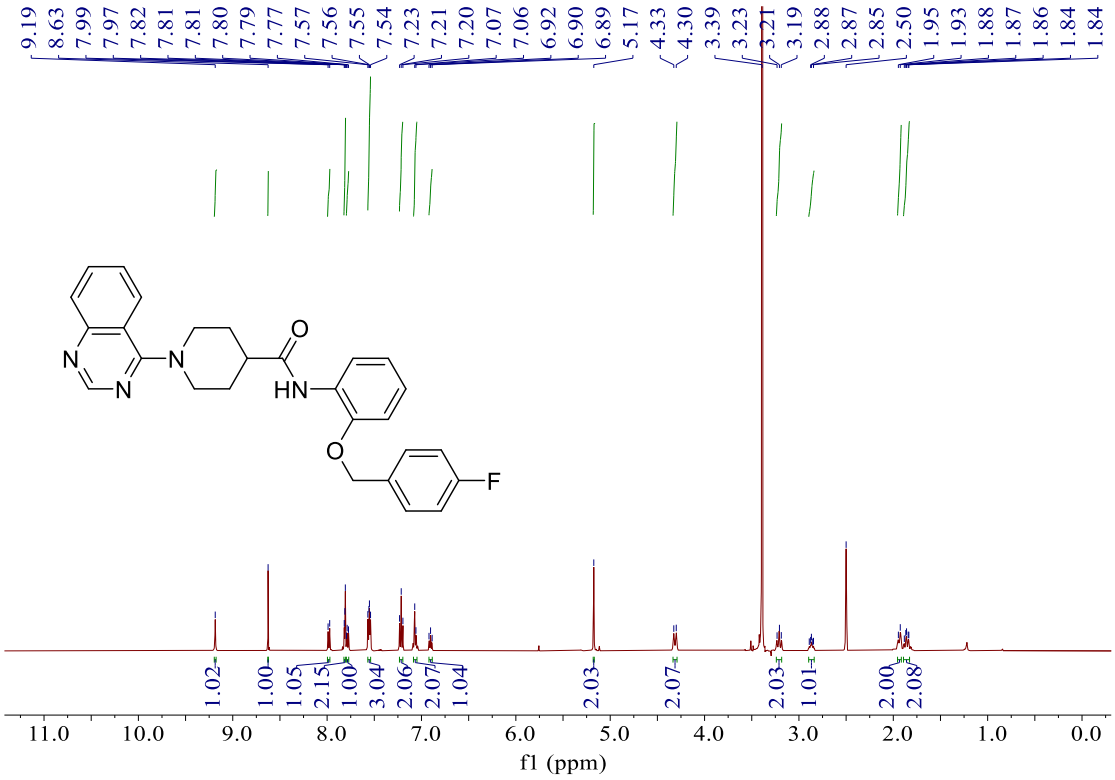

Figure S28. ^{1}H NMR spectrum of compound **III-9** (DMSO-d_6)

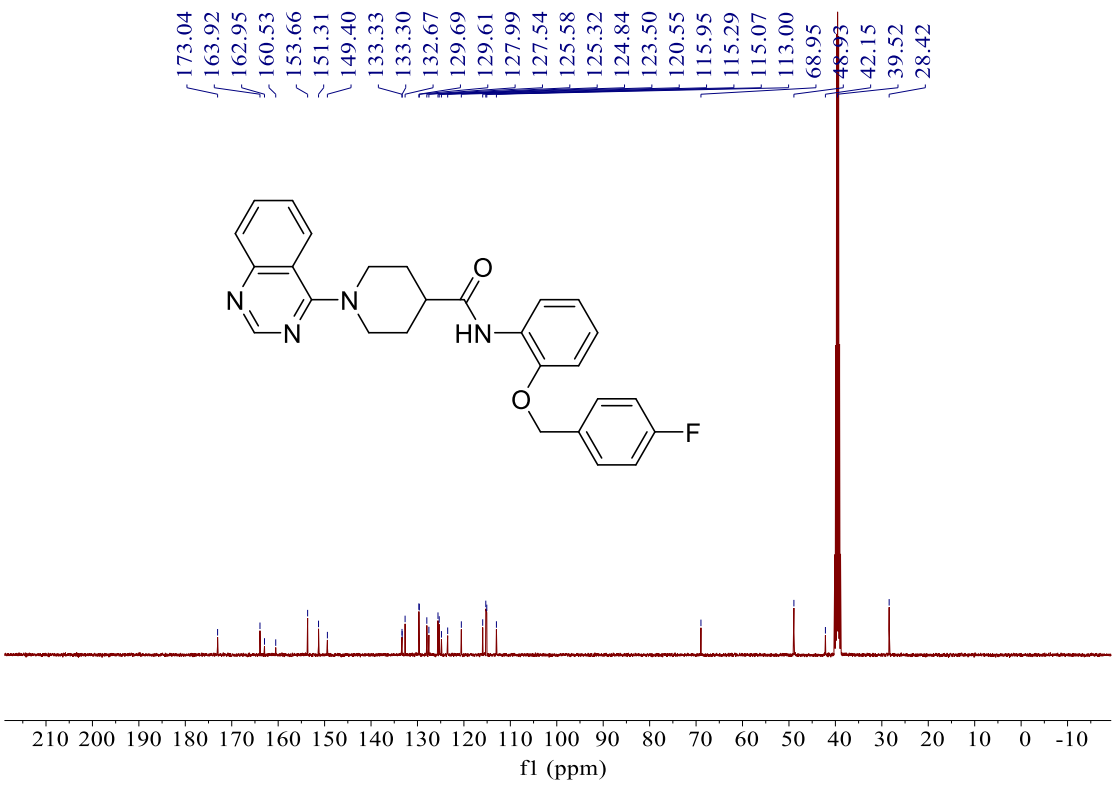

Figure S29. ^{13}C NMR spectrum of compound **III-9** (DMSO-d_6)

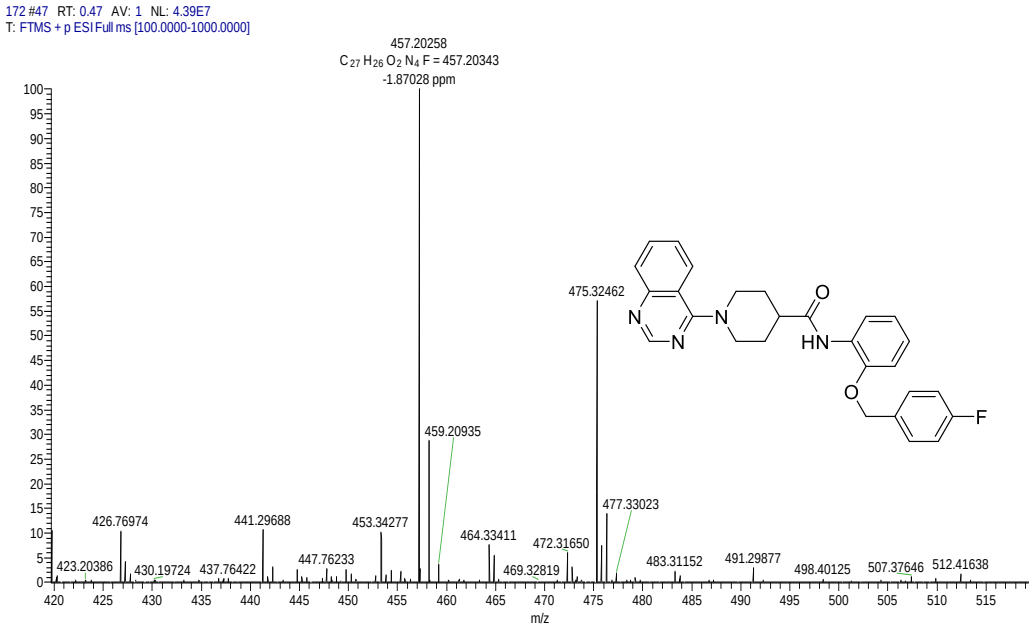

Figure S30. HRMS spectrum of compound **III-9**

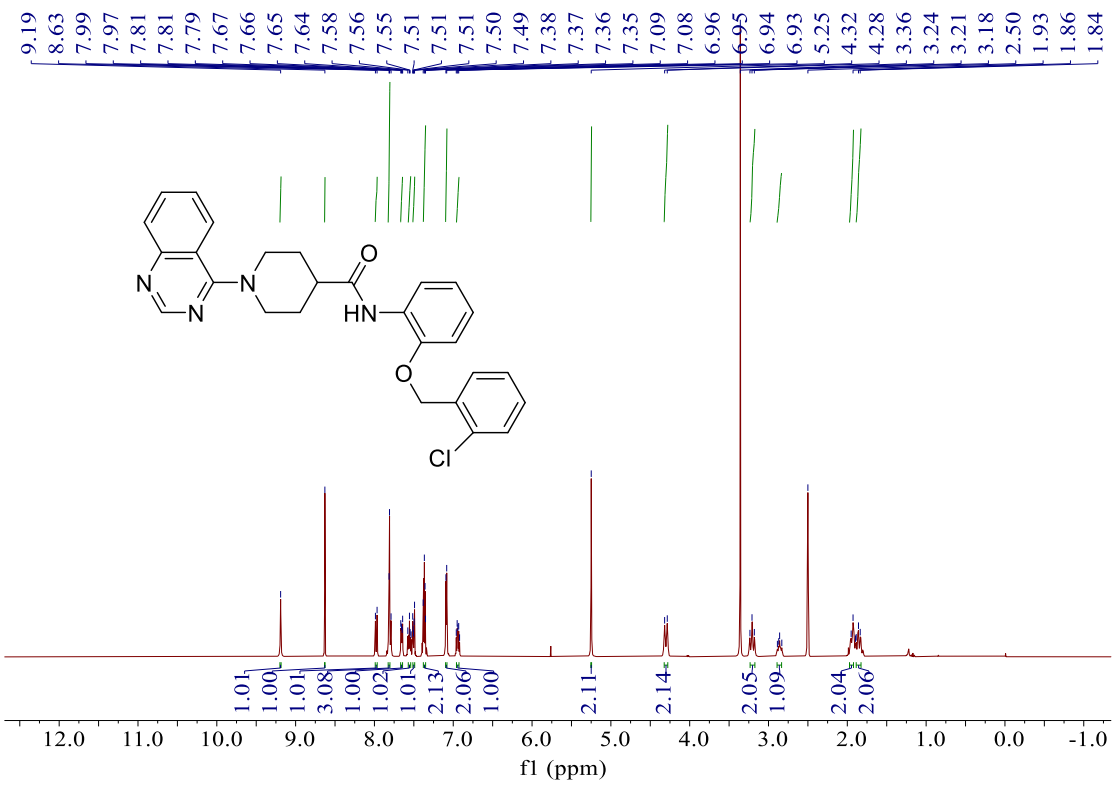

Figure S31. ^{1}H NMR spectrum of compound **III-10** (DMSO-d_6)

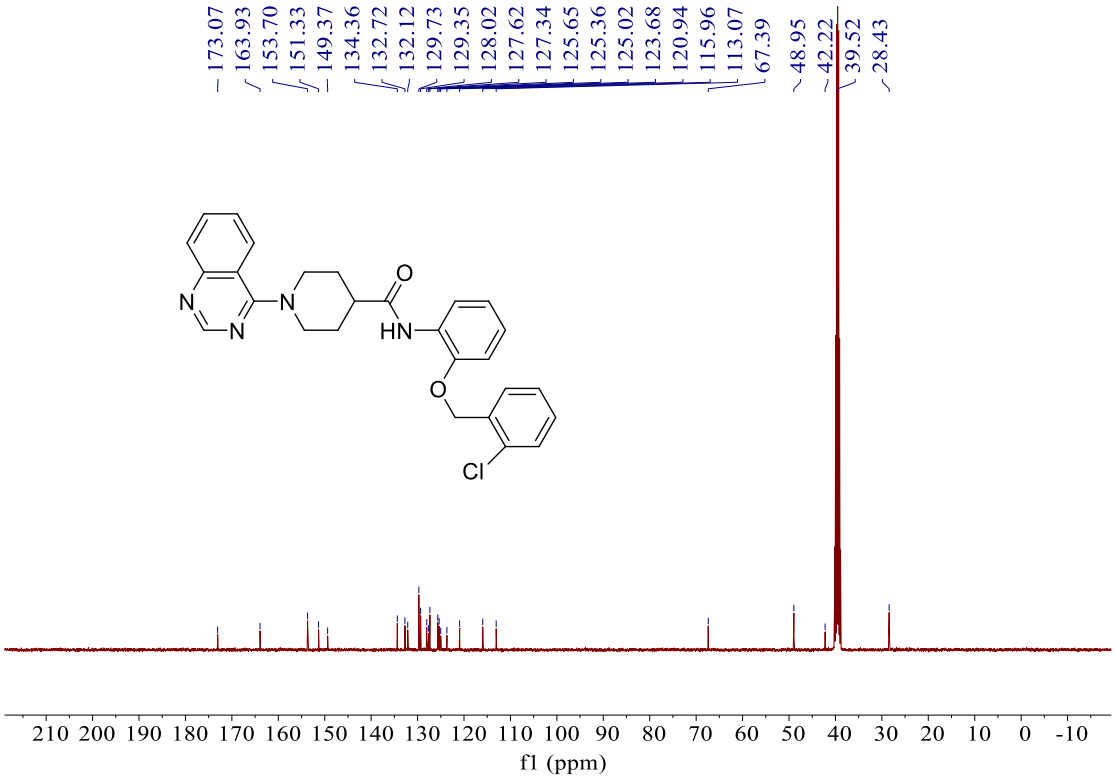

Figure S32. ^{13}C NMR spectrum of compound **III-10** (DMSO-d_6)

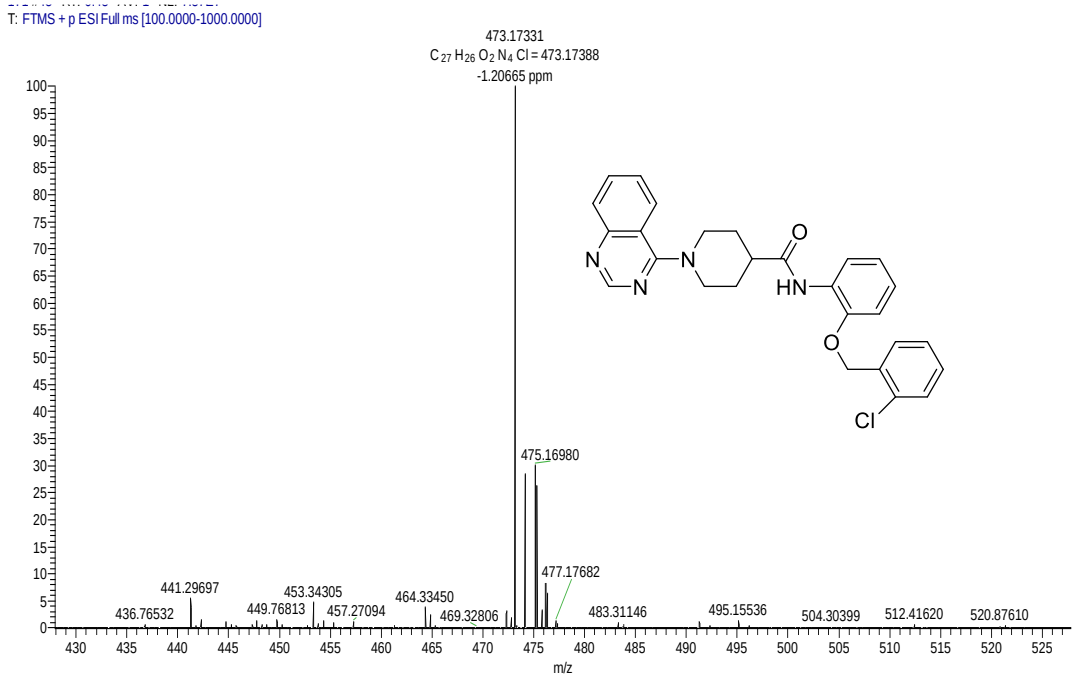

Figure S33. HRMS spectrum of compound **III-10**

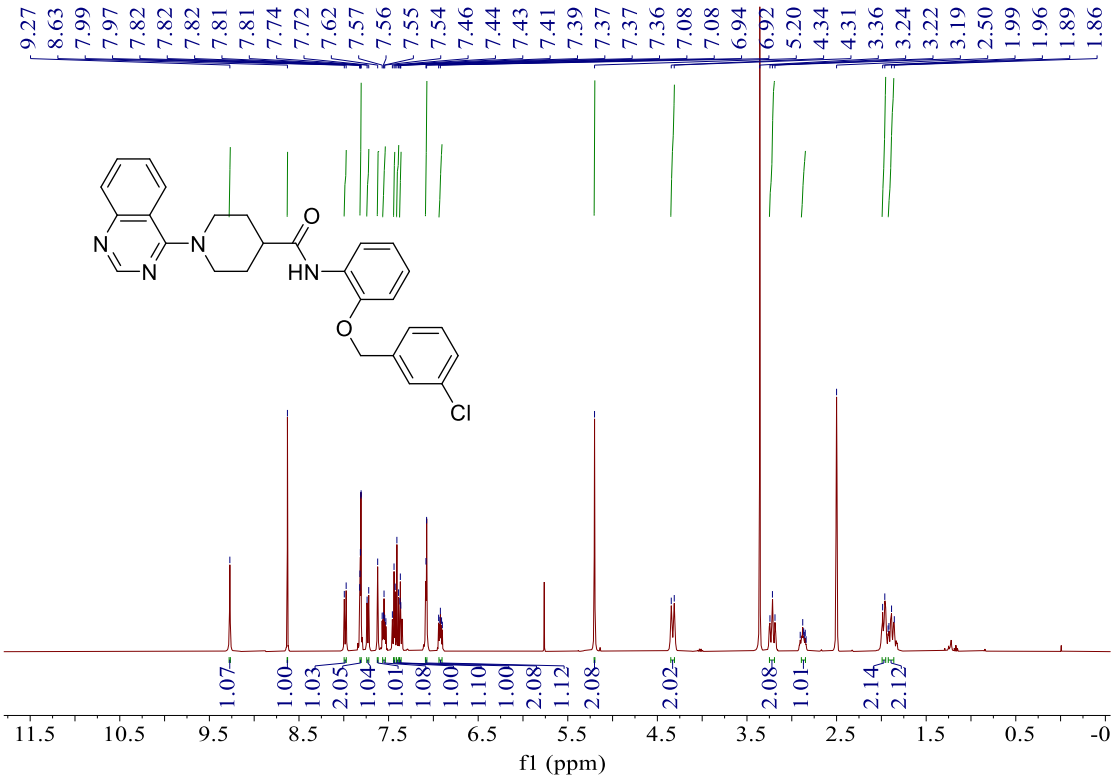

Figure S34. ^{1}H NMR spectrum of compound **III-11** (DMSO-d_6)

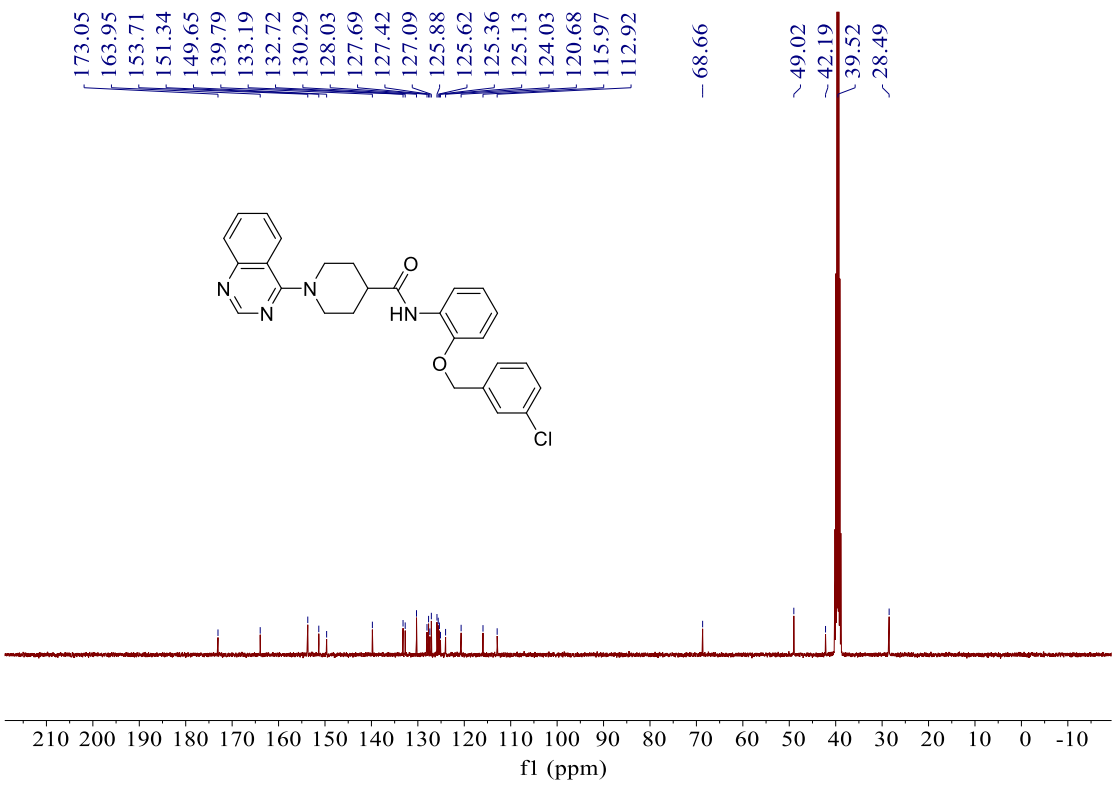

Figure S35. ^{13}C NMR spectrum of compound **III-11** (DMSO-d_6)

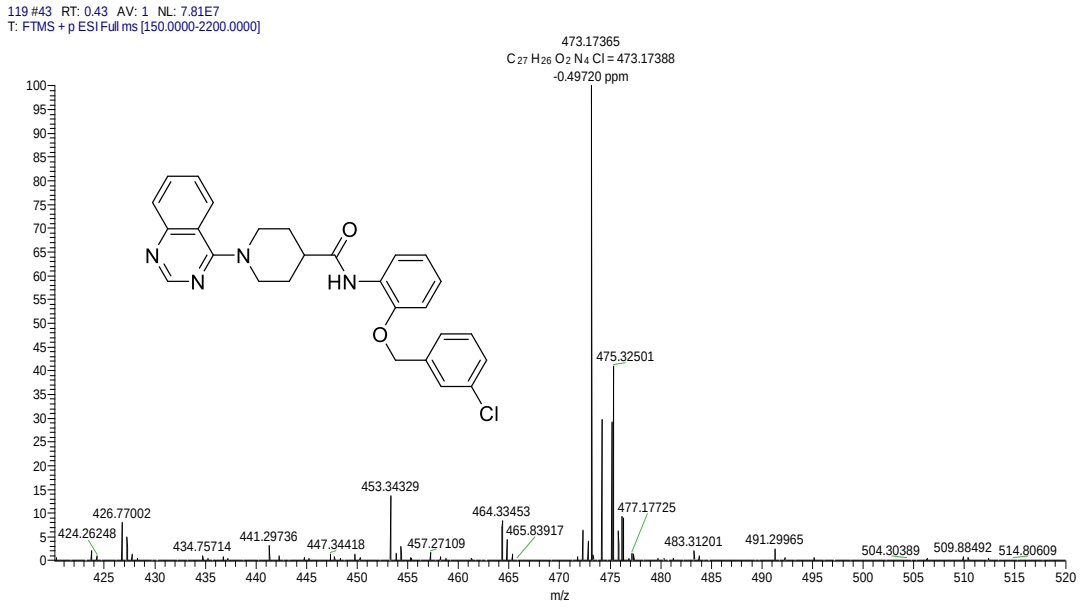

Figure S36. HRMS spectrum of compound **III-11**

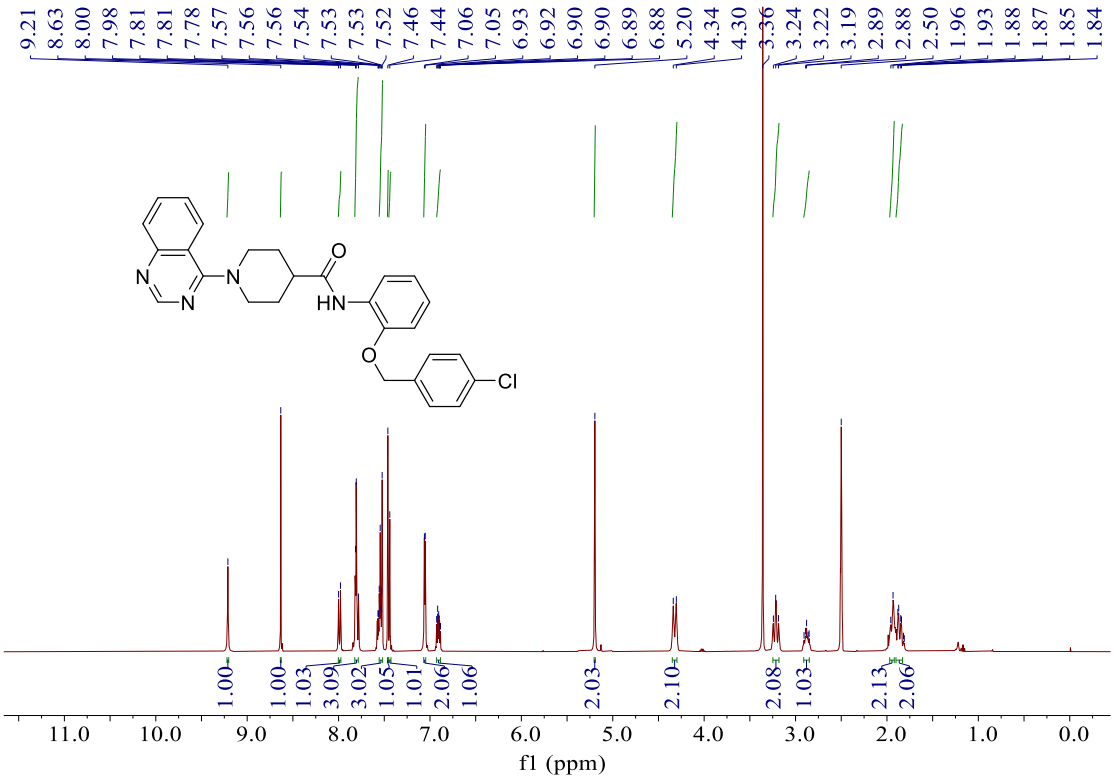

Figure S37. ^{1}H NMR spectrum of compound **III-12** (DMSO-d_6)

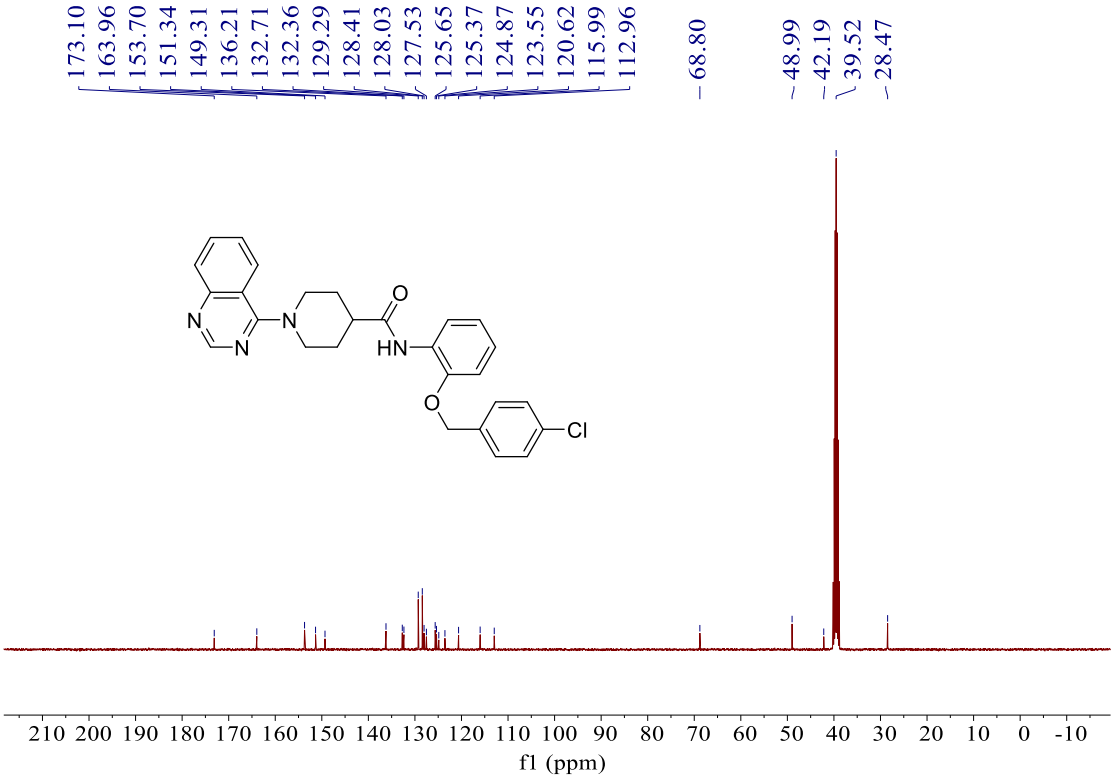

Figure S38. ^{13}C NMR spectrum of compound **III-12** (DMSO-d_6)

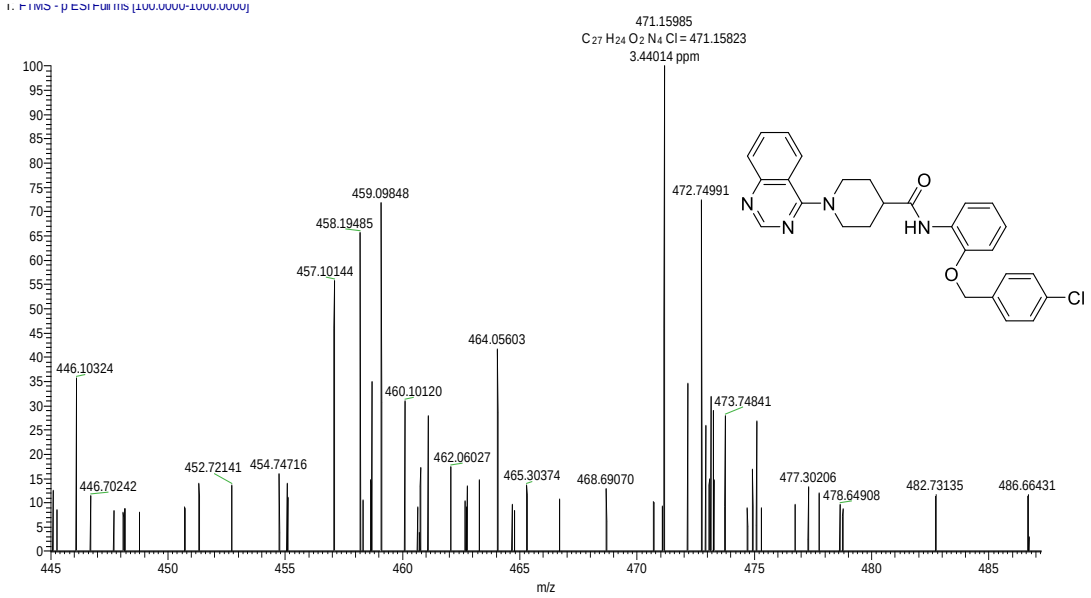

Figure S39. HRMS spectrum of compound **III-12**

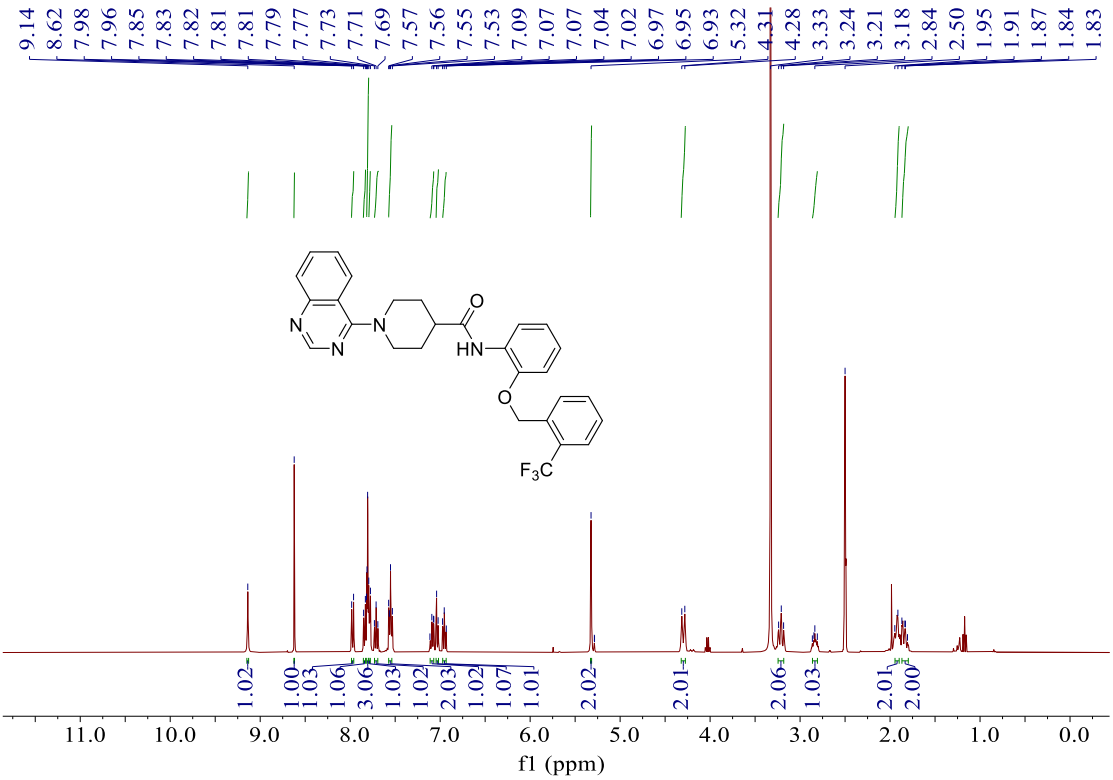

Figure S40. ^{1}H NMR spectrum of compound **III-13** (DMSO-d_6)

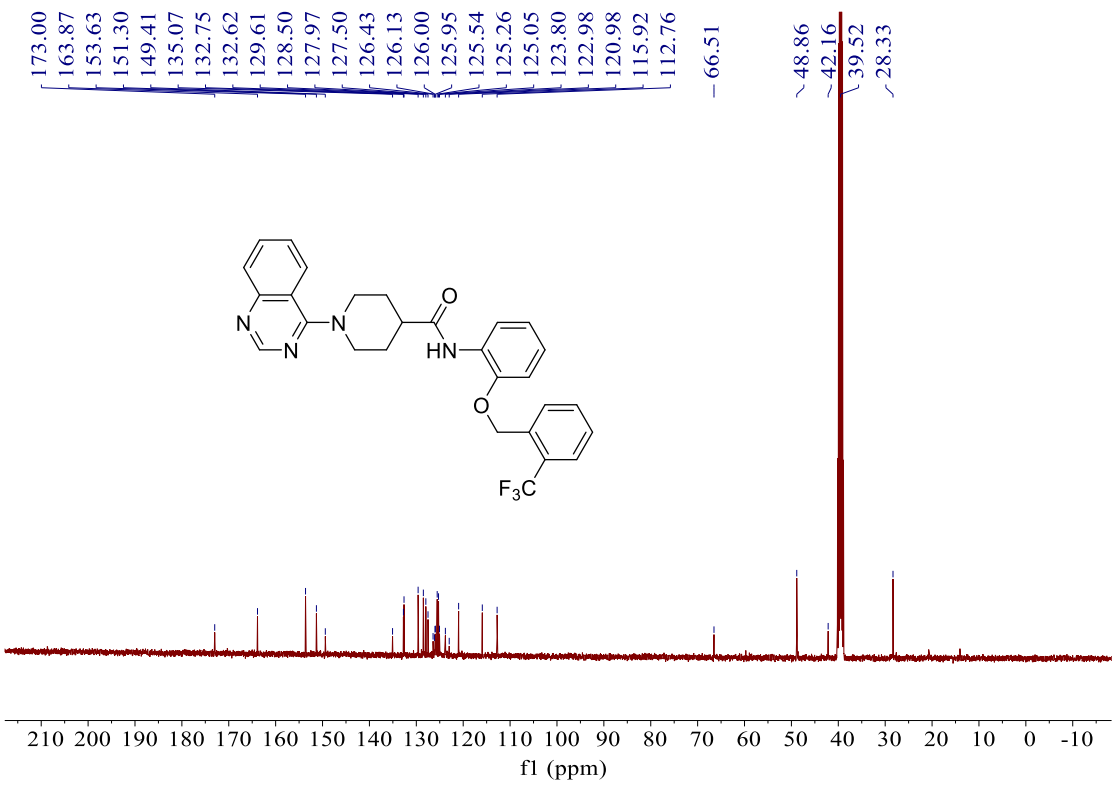

Figure S41. ^{13}C NMR spectrum of compound **III-13** (DMSO-d_6)

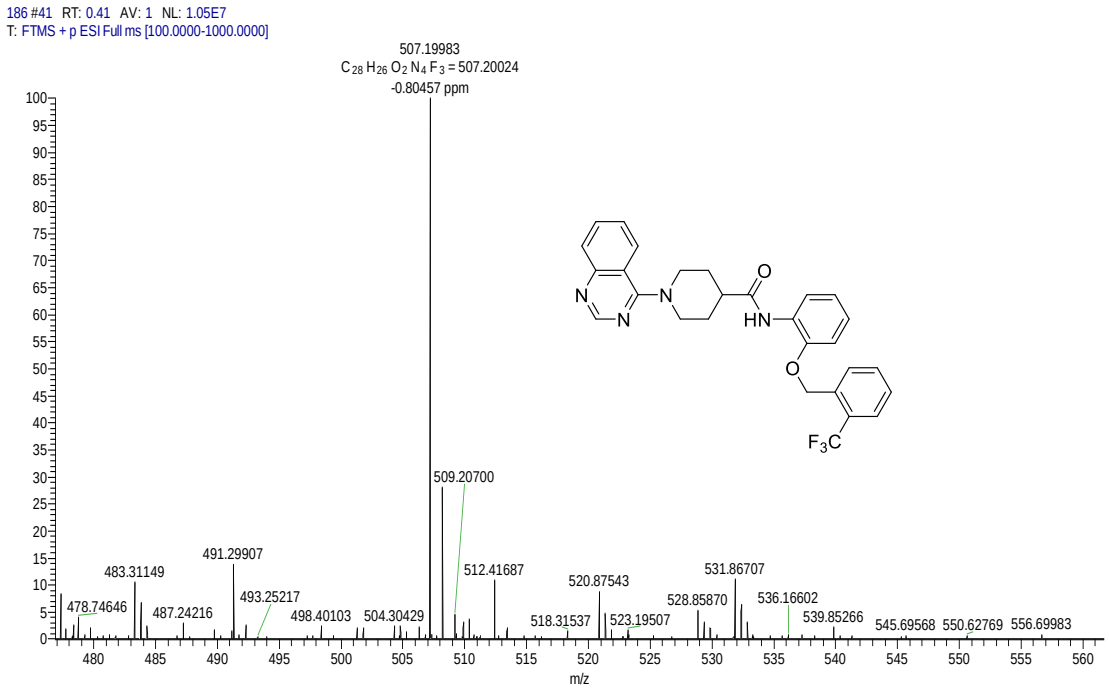

Figure S42. HRMS spectrum of compound **III-13**

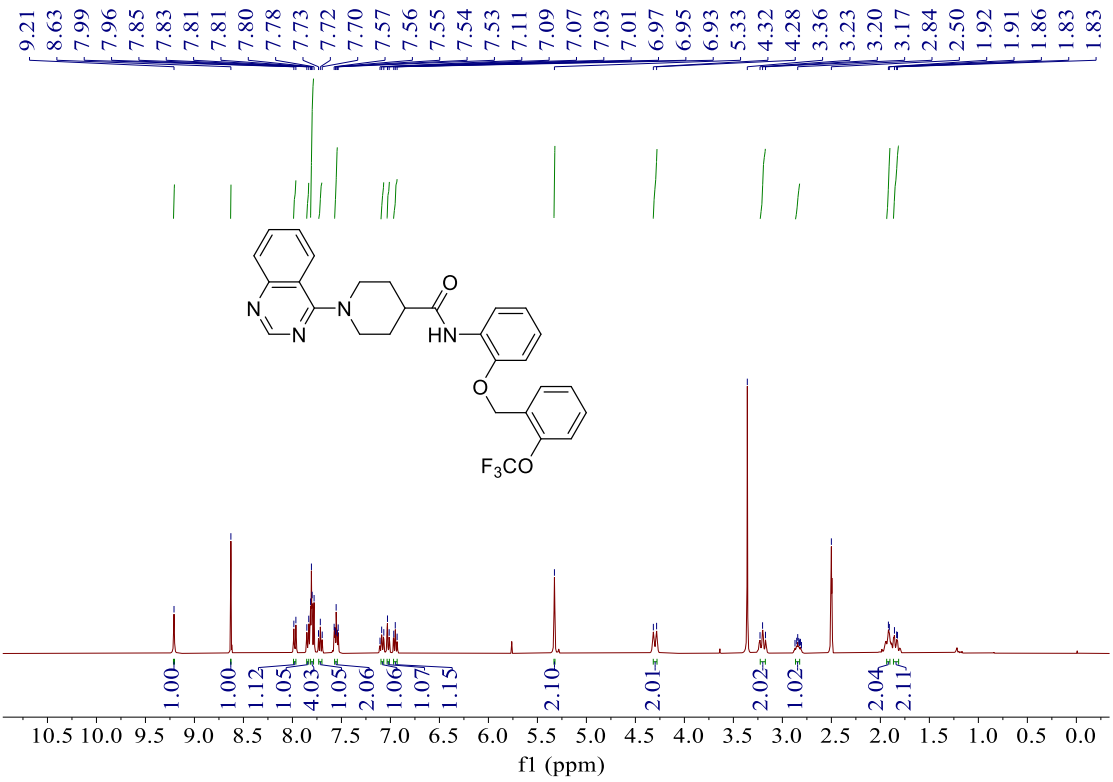

Figure S43. ^{1}H NMR spectrum of compound **III-14** (DMSO-d_6)

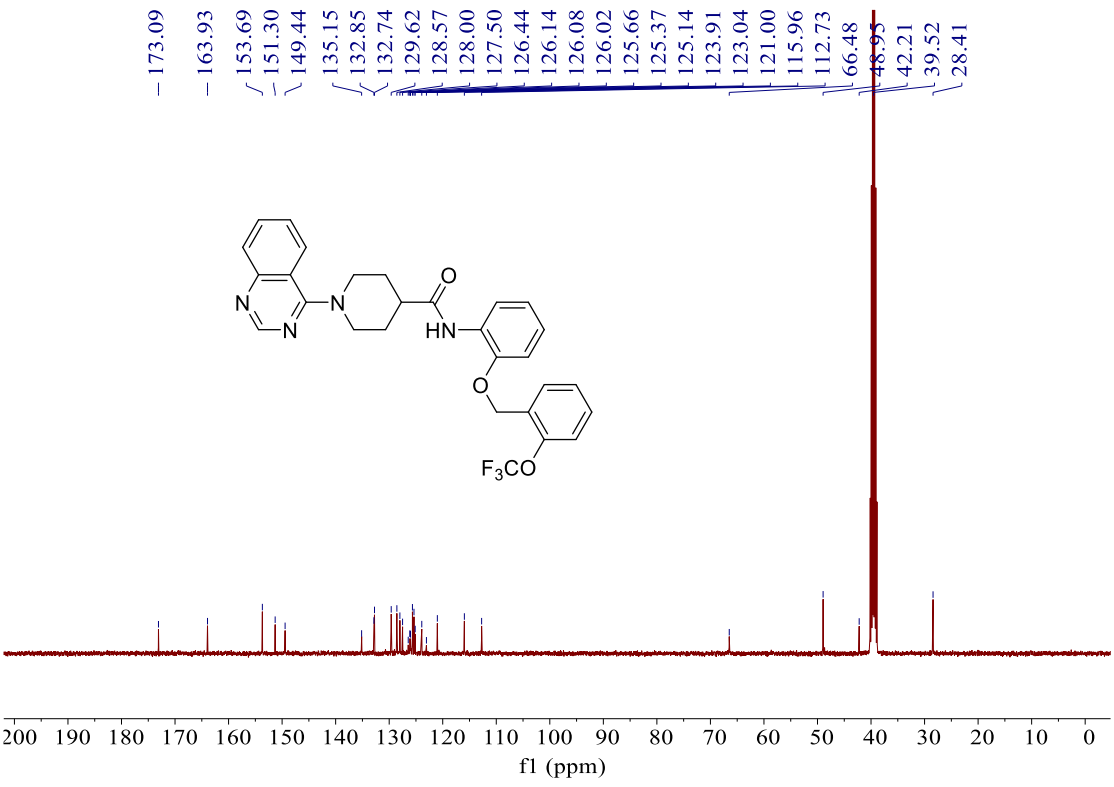

Figure S44. ^{13}C NMR spectrum of compound **III-14** (DMSO-d_6)

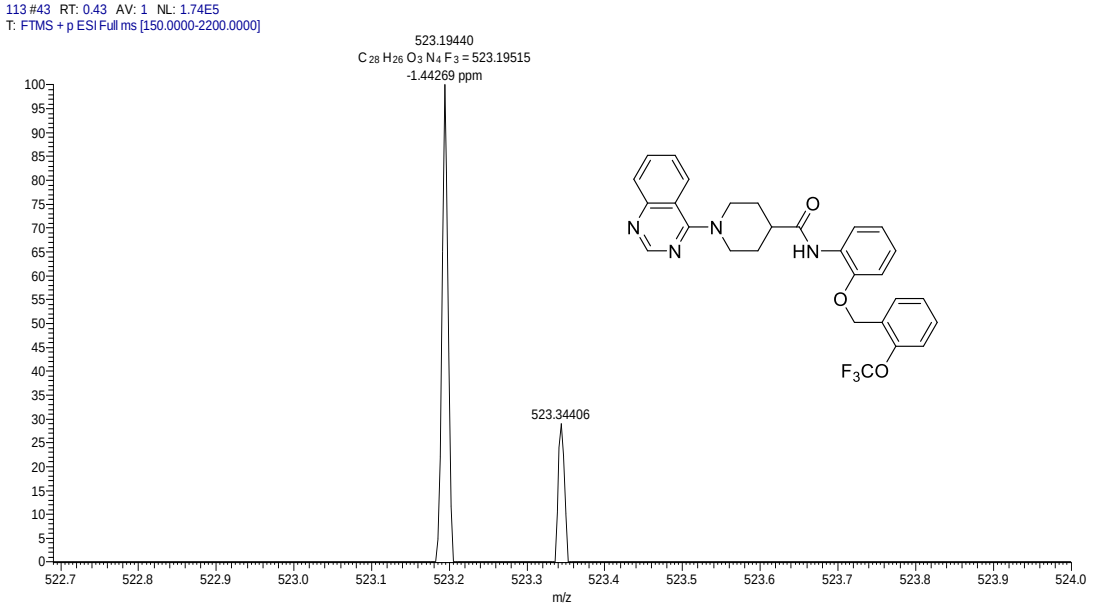

Figure S45. HRMS spectrum of compound **III-14**

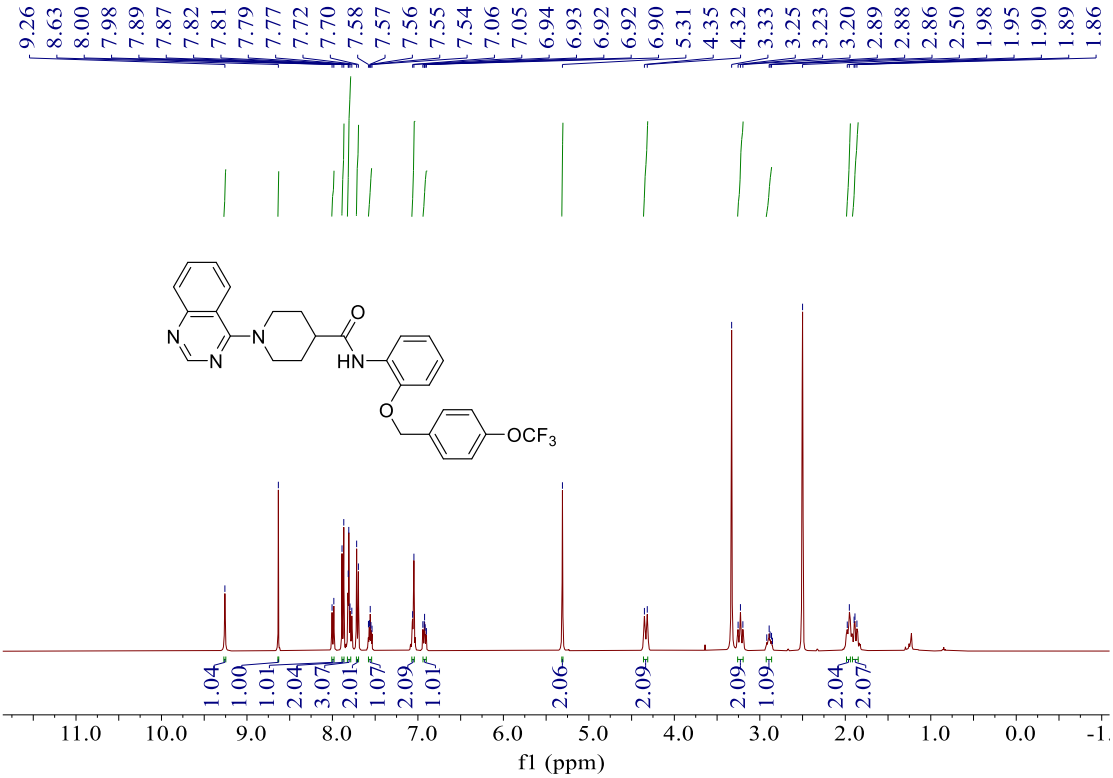

Figure S46. ^{1}H NMR spectrum of compound **III-15** (DMSO-d_6)

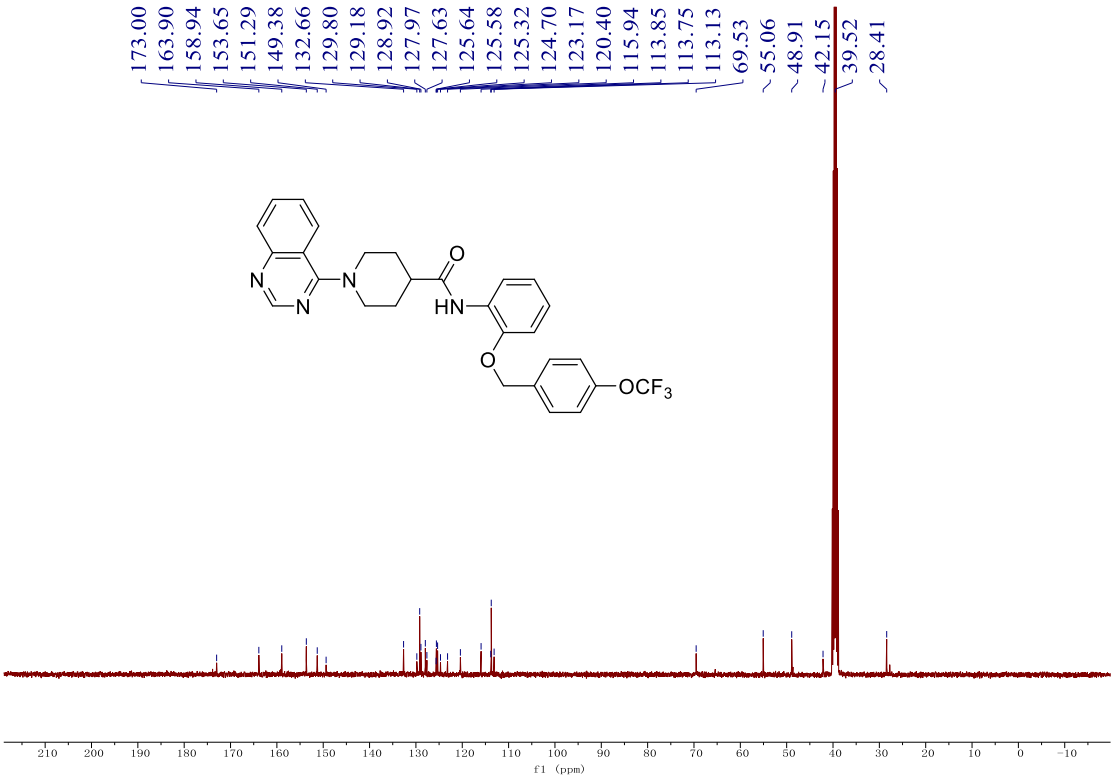

Figure S47. ^{13}C NMR spectrum of compound **III-15** (DMSO-d_6)

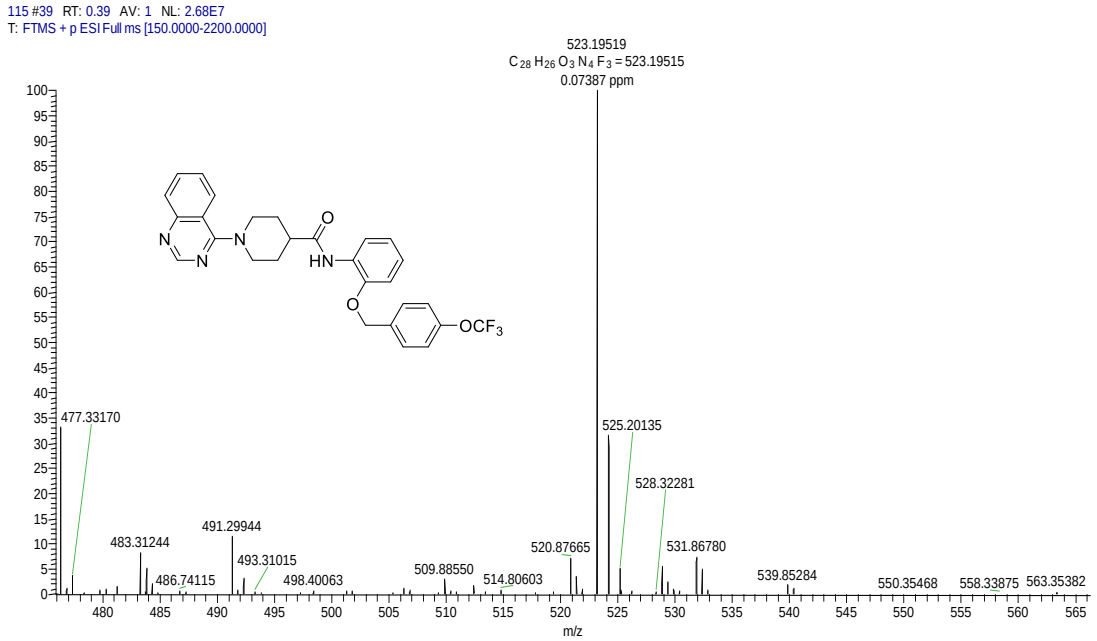

Figure S48. HRMS spectrum of compound **III-15**

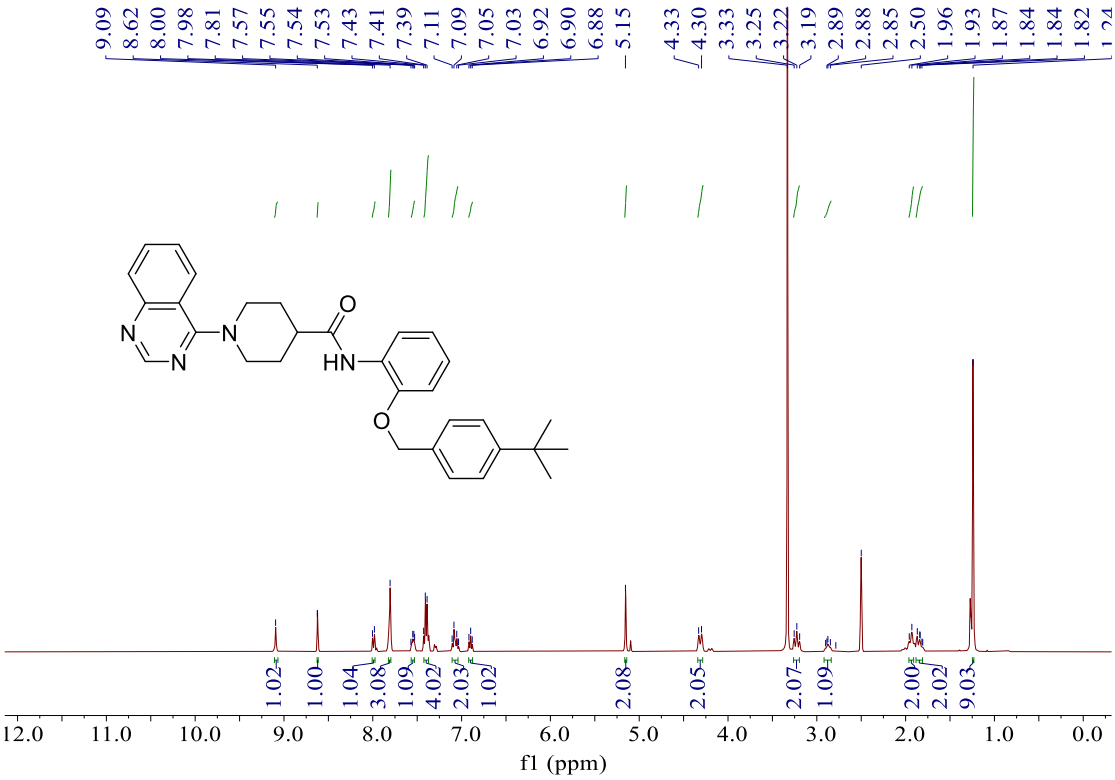

Figure S49. ^{1}H NMR spectrum of compound **III-16** (DMSO-d_6)

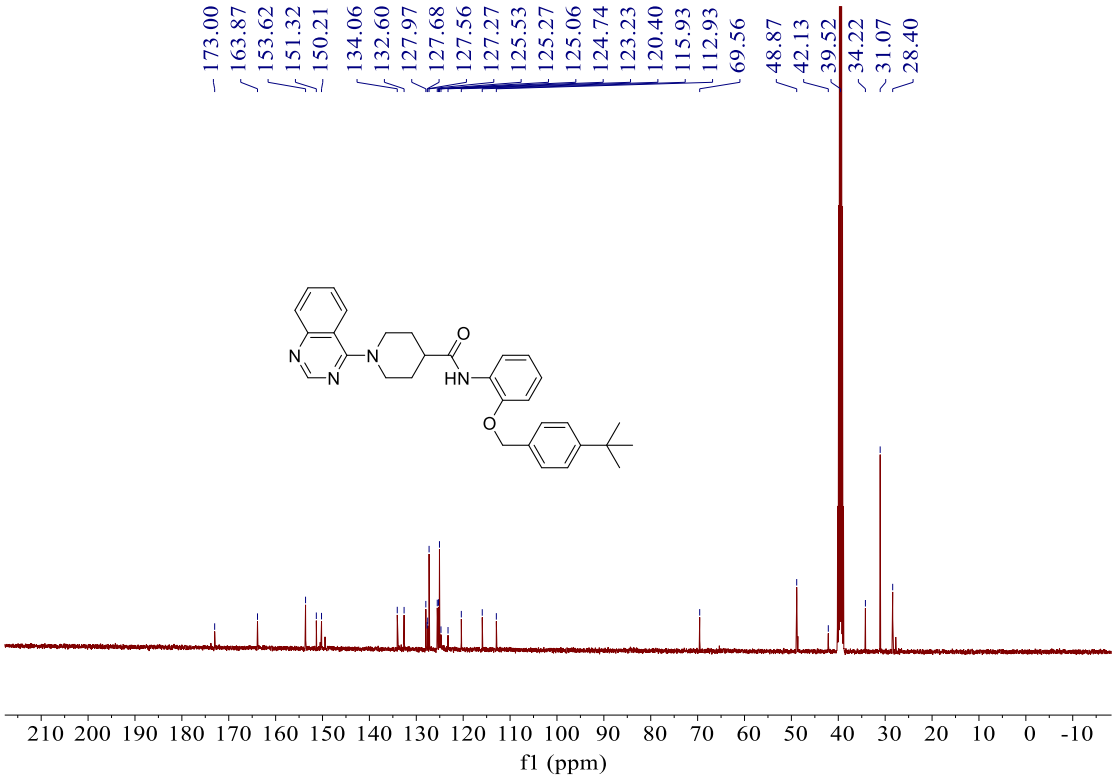

Figure S50. ^{13}C NMR spectrum of compound **III-16** (DMSO-d_6)

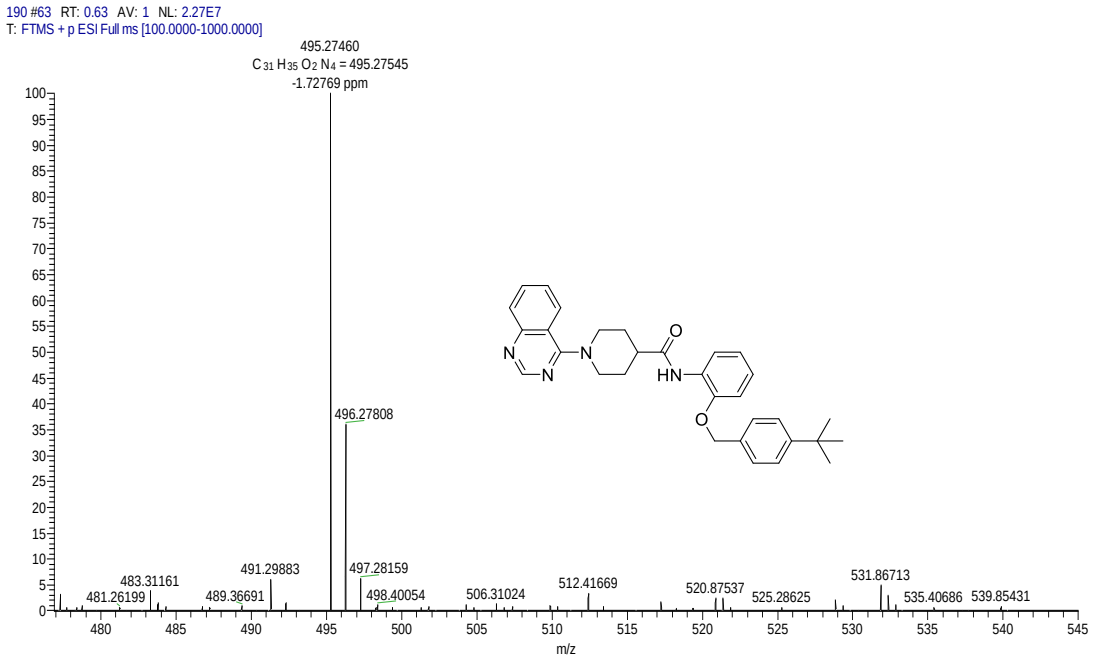

Figure S51. HRMS spectrum of compound **III-16**

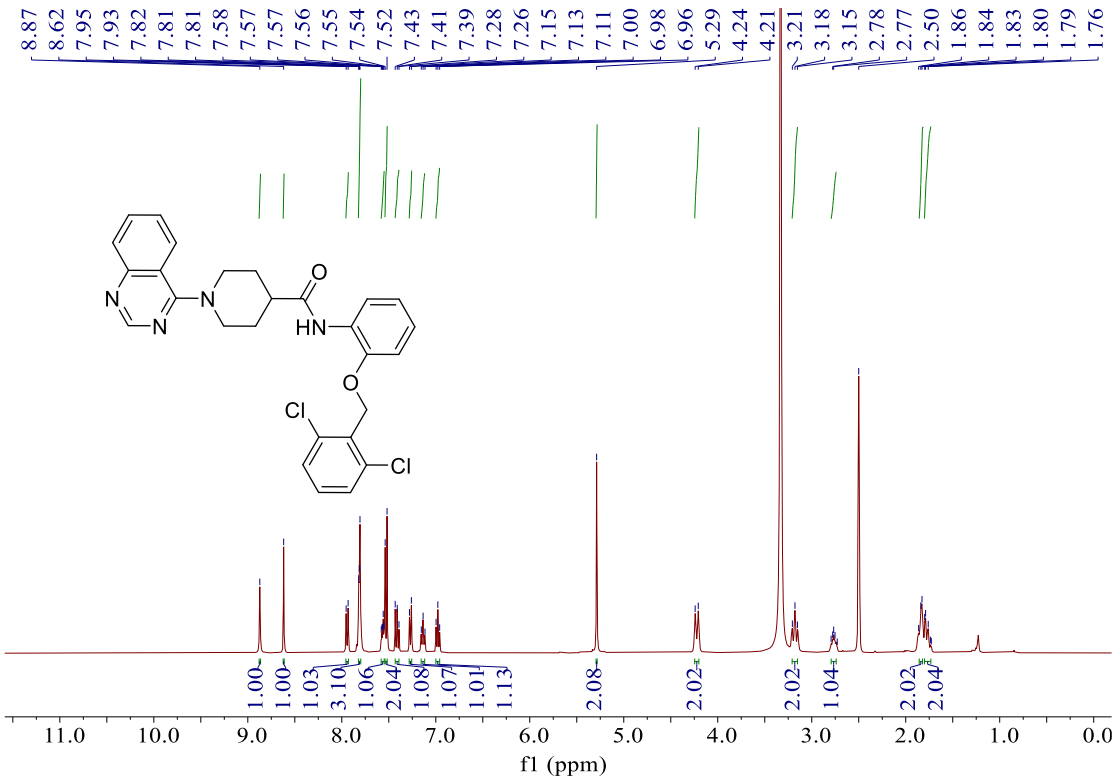

Figure S52. ^{1}H NMR spectrum of compound **III-17** (DMSO-d_6)

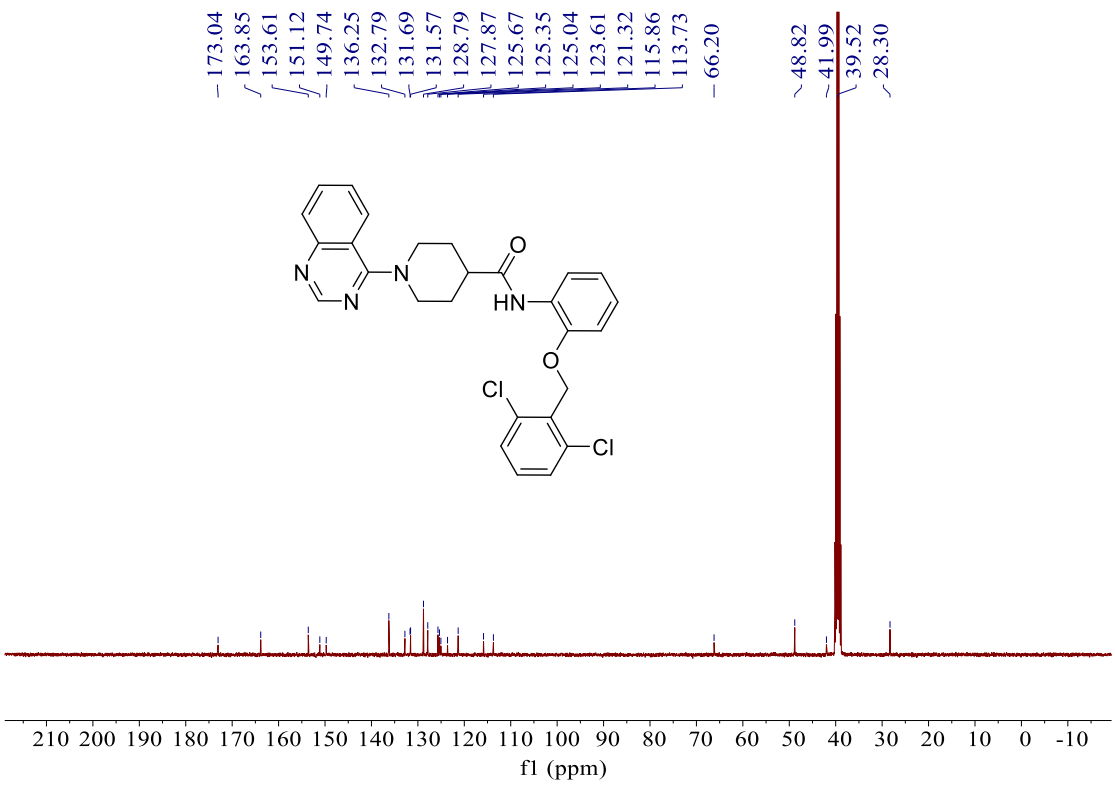

Figure S53. ^{13}C NMR spectrum of compound **III-17** (DMSO-d_6)

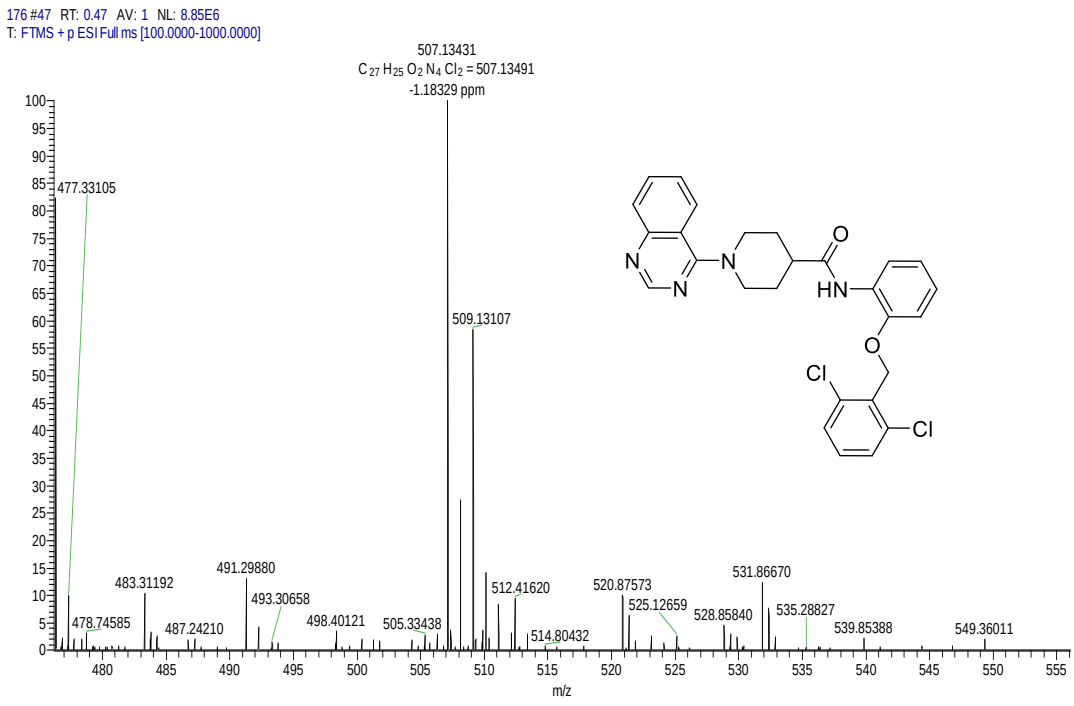

Figure S54. HRMS spectrum of compound **III-17**

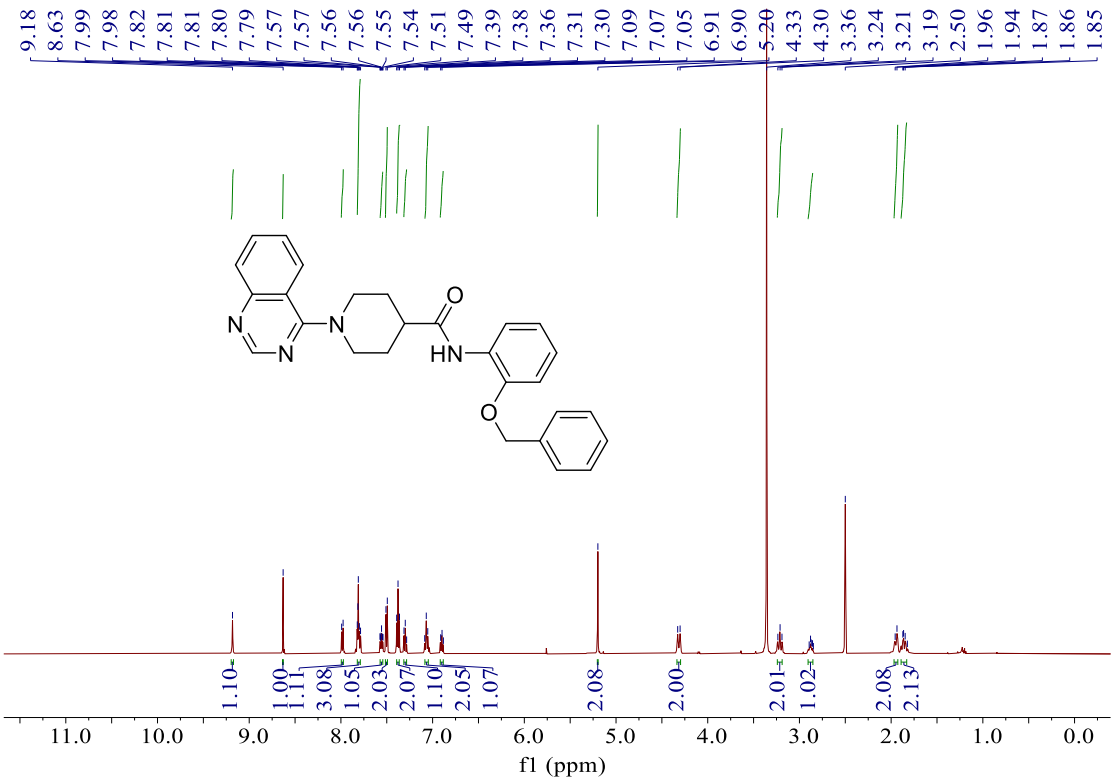

Figure S55. ^{1}H NMR spectrum of compound **III-18** (DMSO-d_6)

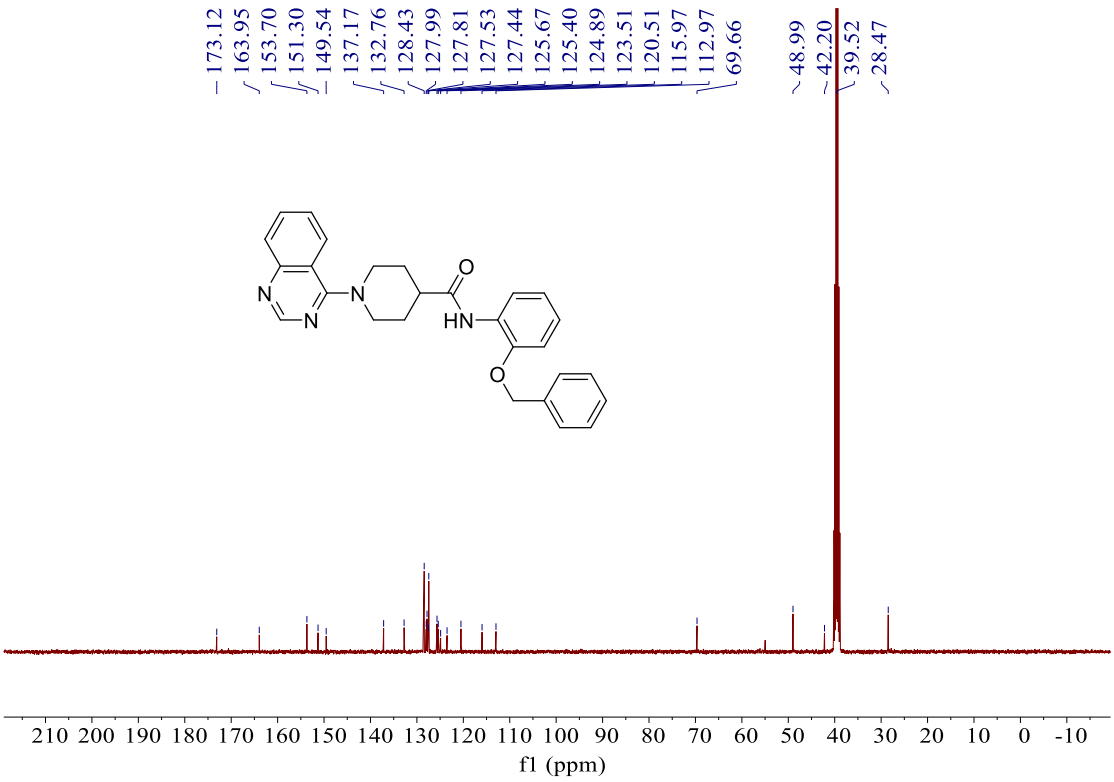

Figure S56. ^{13}C NMR spectrum of compound **III-18** (DMSO-d_6)

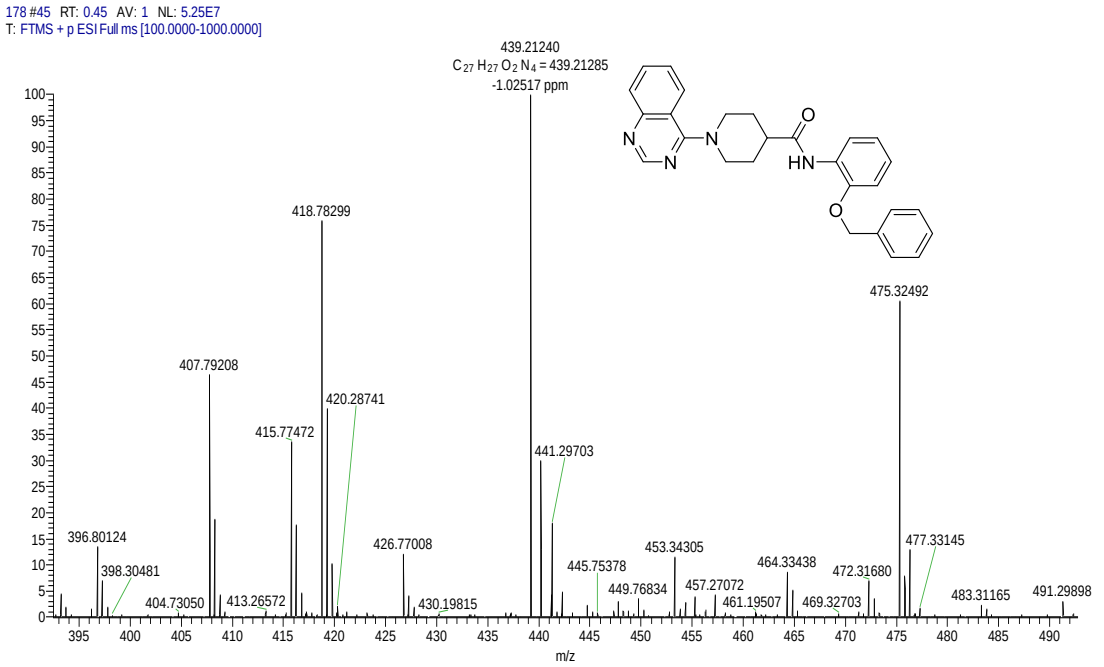

Figure S57. HRMS spectrum of compound **III-18**

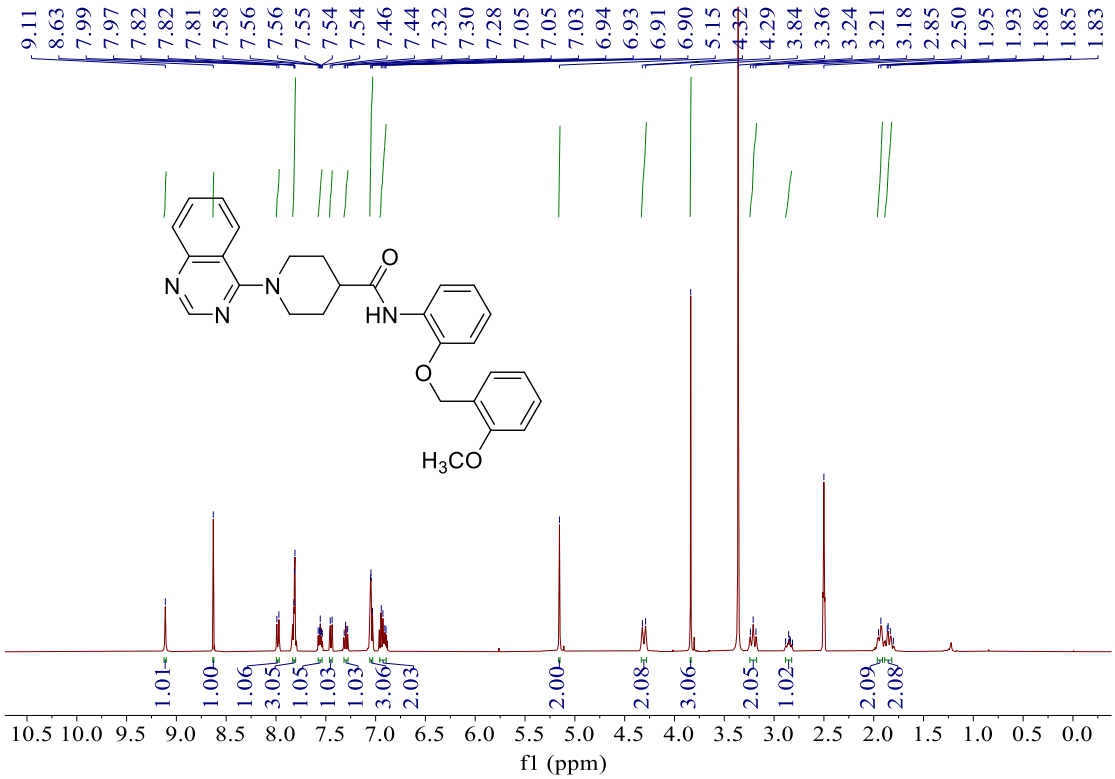

Figure S58. ^{1}H NMR spectrum of compound **III-19** (DMSO-d_6)

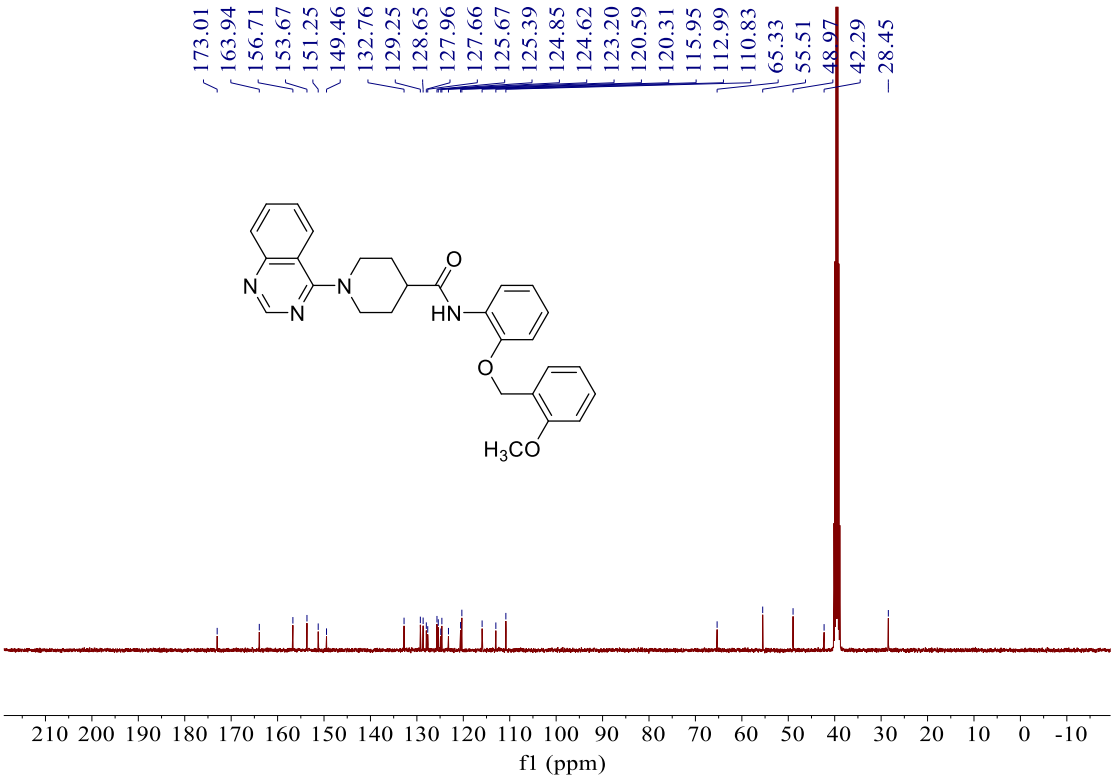

Figure S59. ^{13}C NMR spectrum of compound **III-19** (DMSO-d_6)

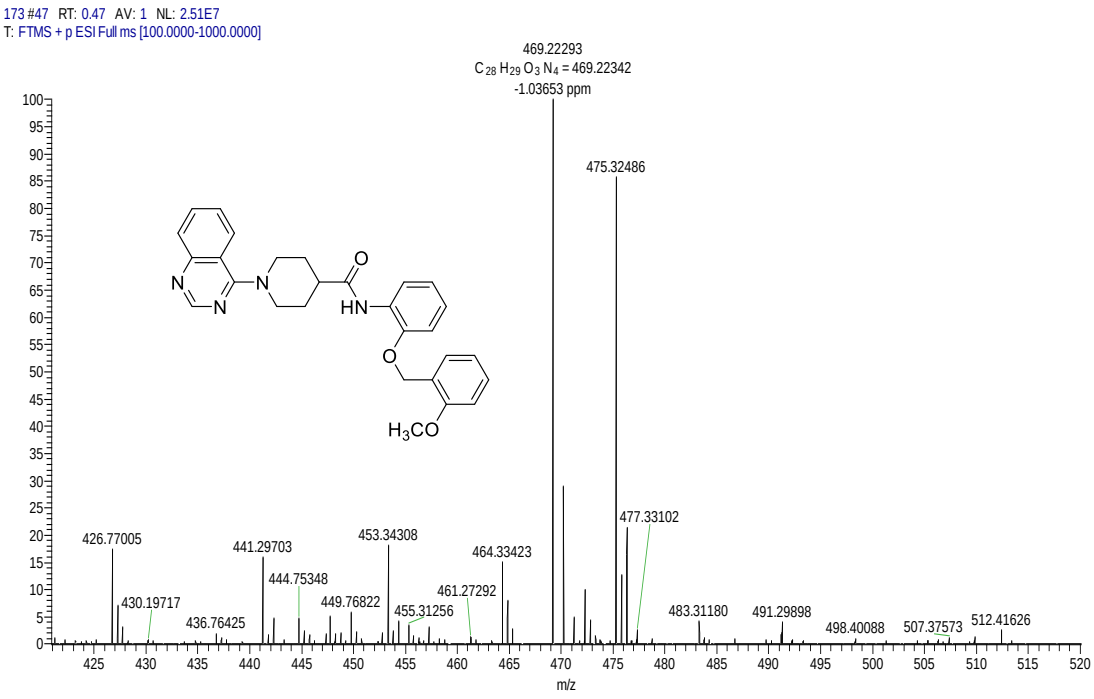

Figure S60. HRMS spectrum of compound **III-19**

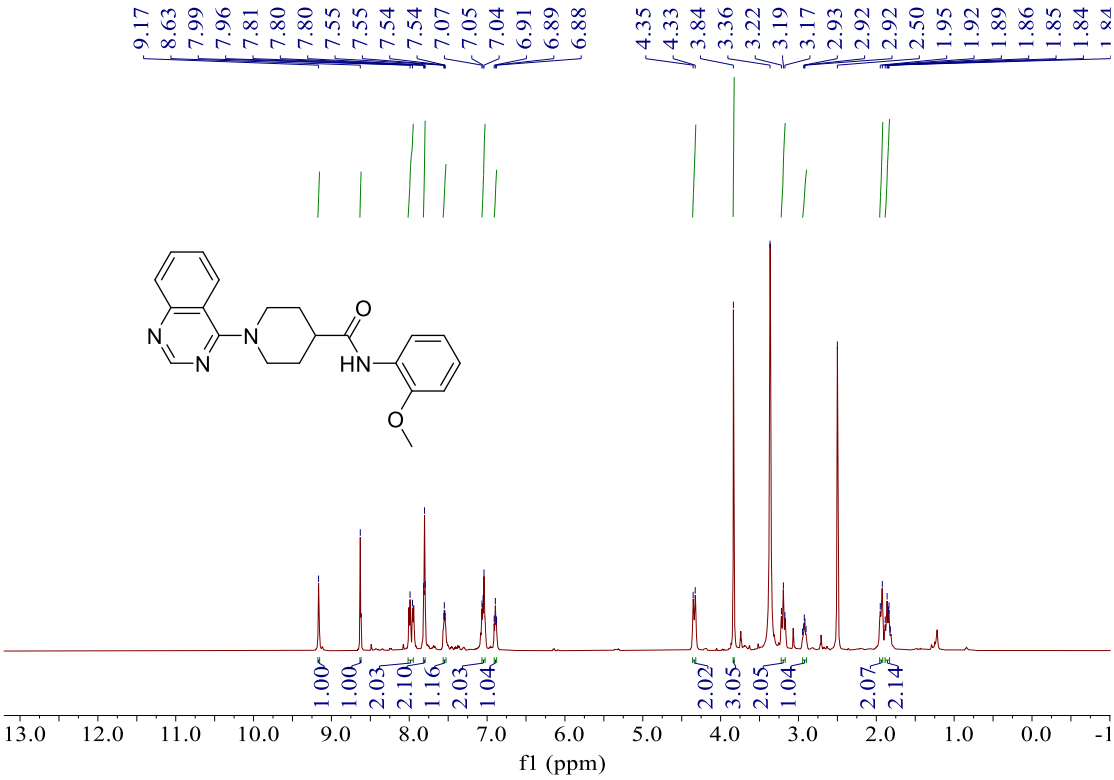

Figure S61. ^{1}H NMR spectrum of compound **III-20** (DMSO-d_6)

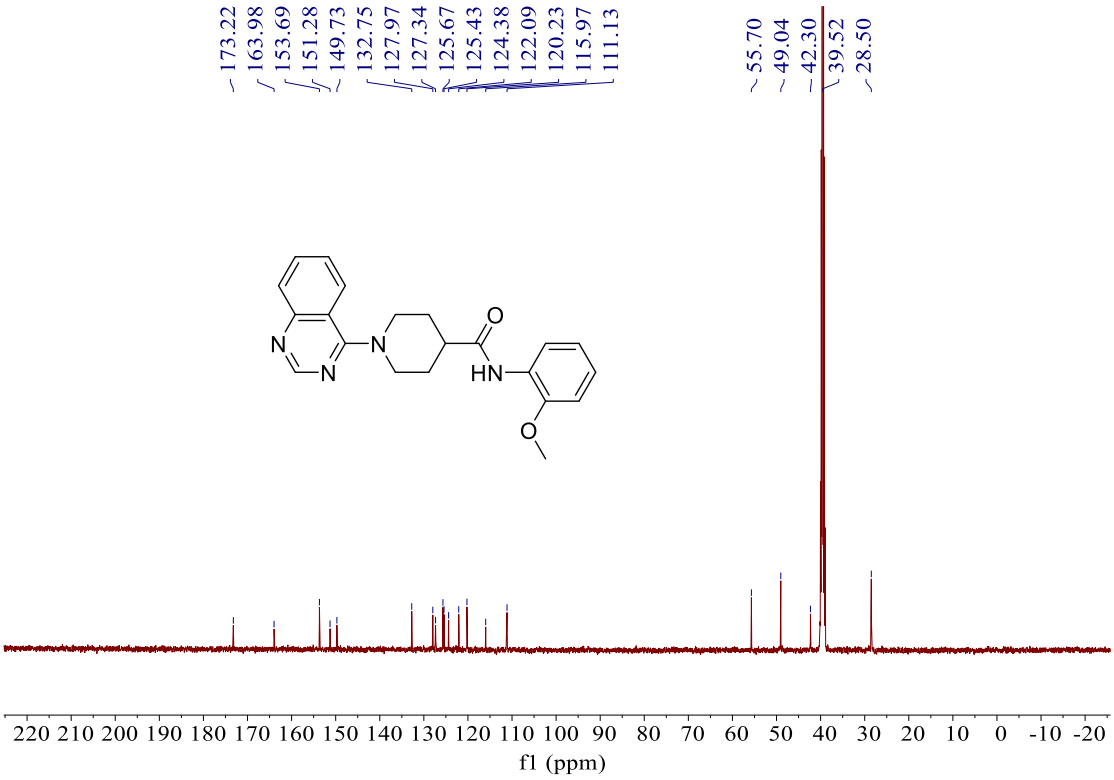

Figure S62. ^{13}C NMR spectrum of compound **III-20** (DMSO-d_6)

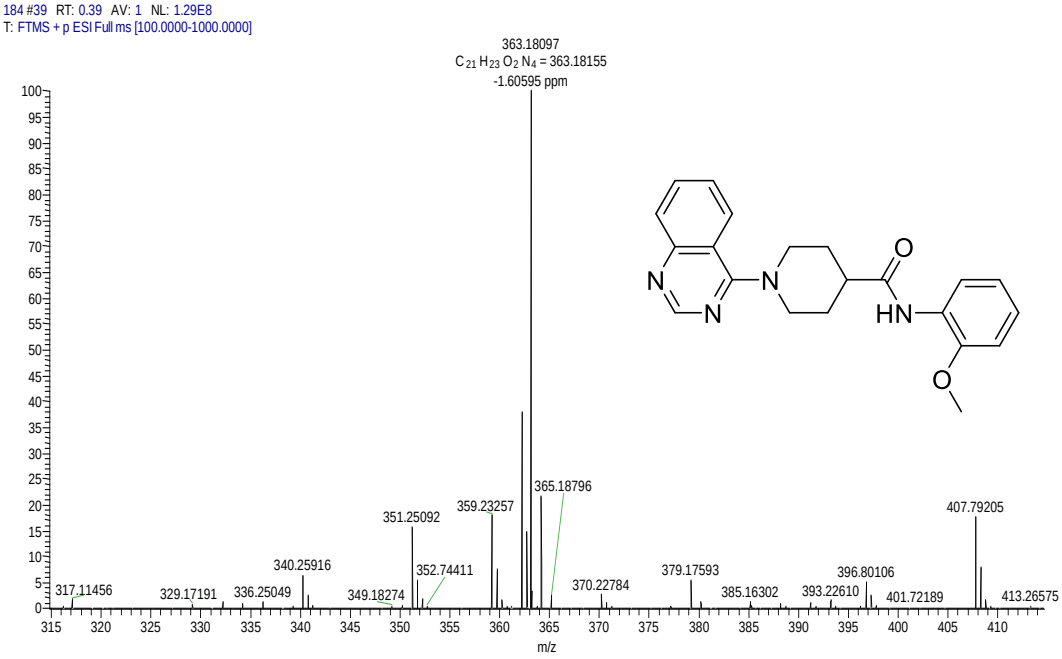

Figure S63. HRMS spectrum of compound **III-20**

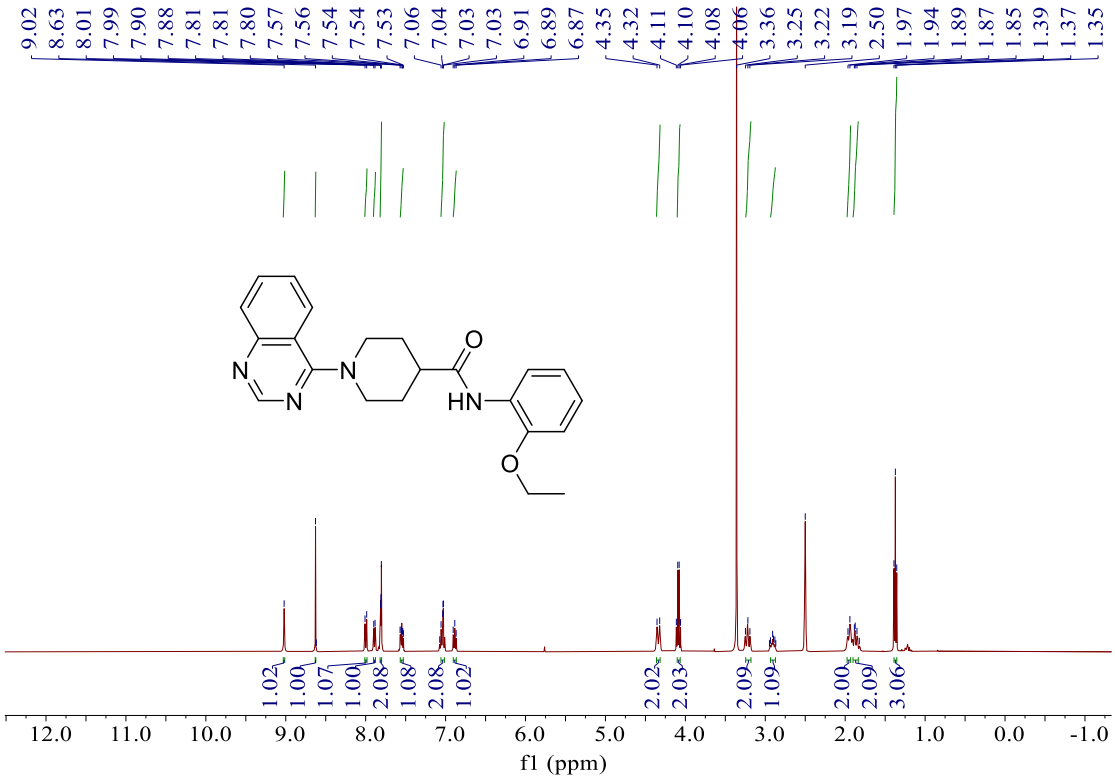

Figure S64. ^{1}H NMR spectrum of compound **III-21** (DMSO-d_6)

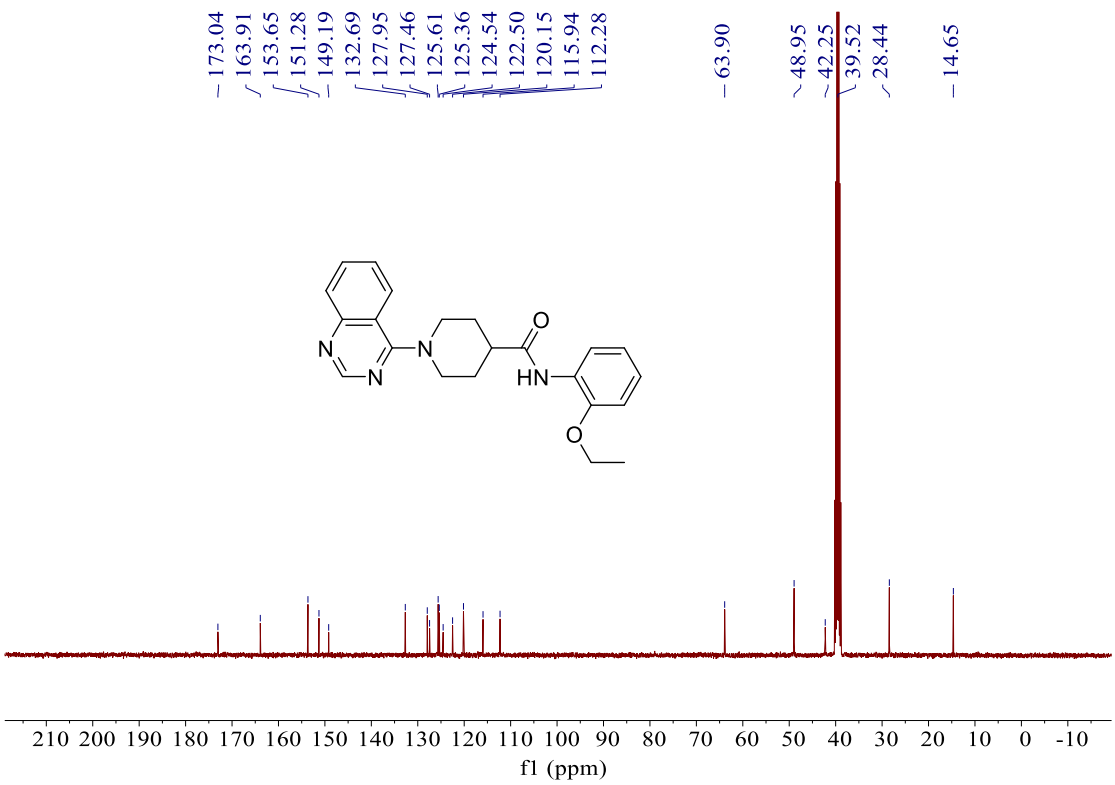

Figure S65. ^{13}C NMR spectrum of compound **III-21** (DMSO-d_6)

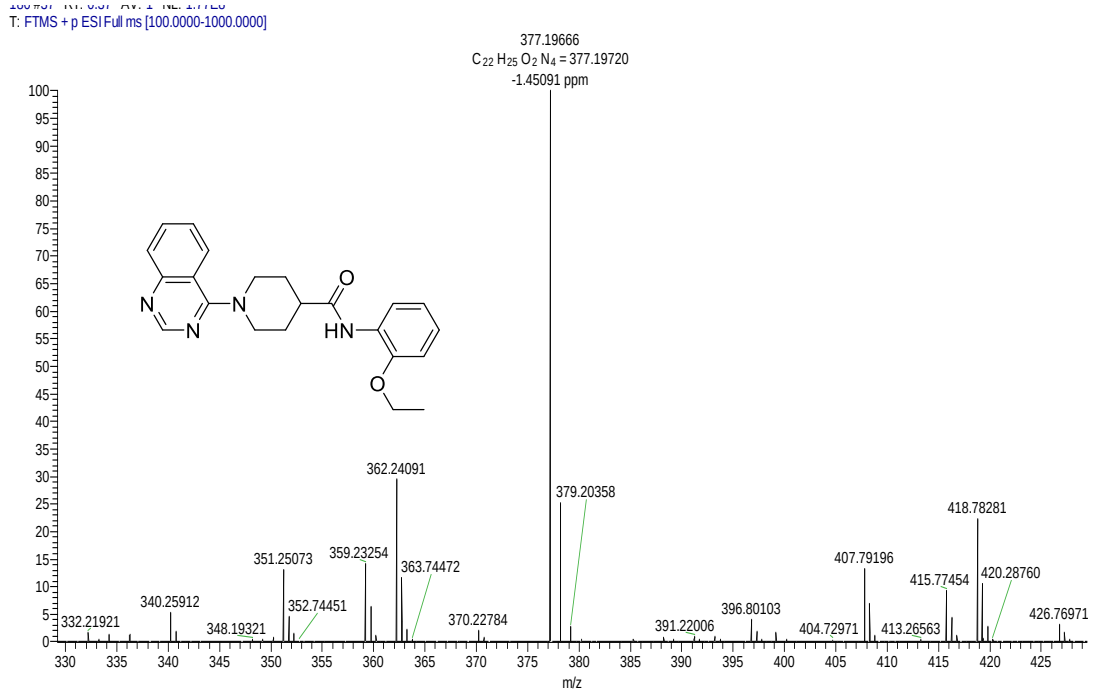

Figure S66. HRMS spectrum of compound **III-21**

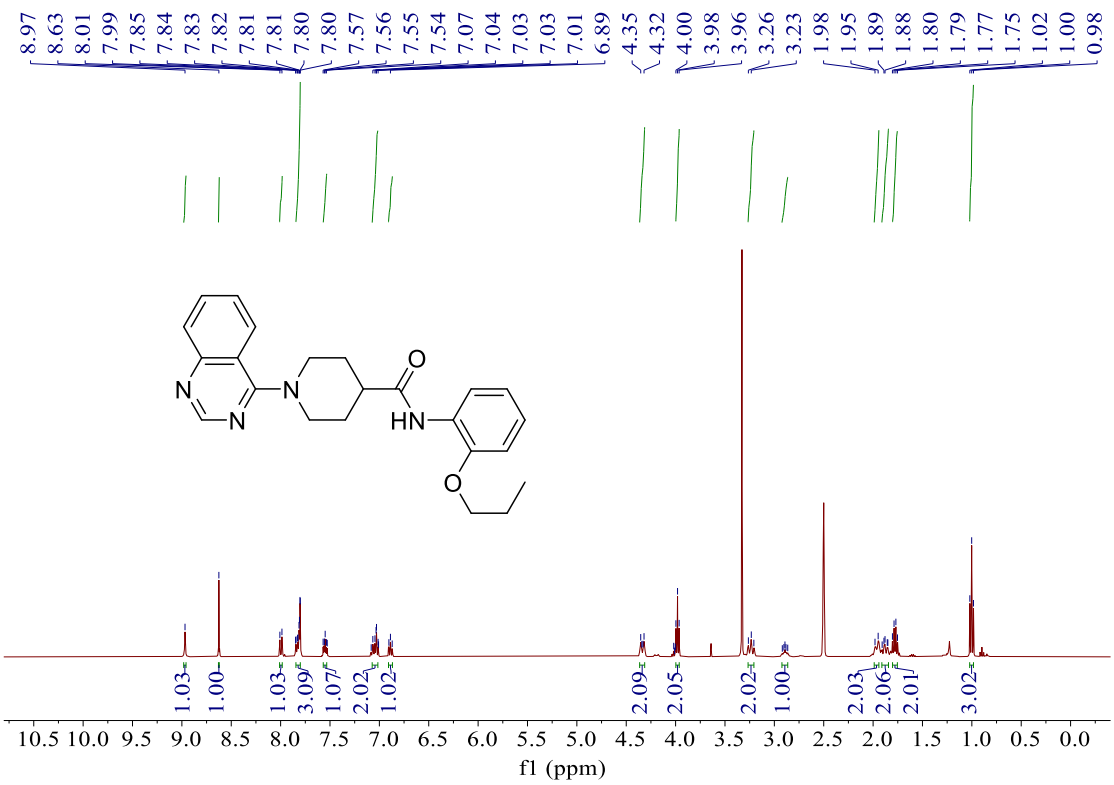

Figure S67. ^{1}H NMR spectrum of compound **III-22** (DMSO-d_6)

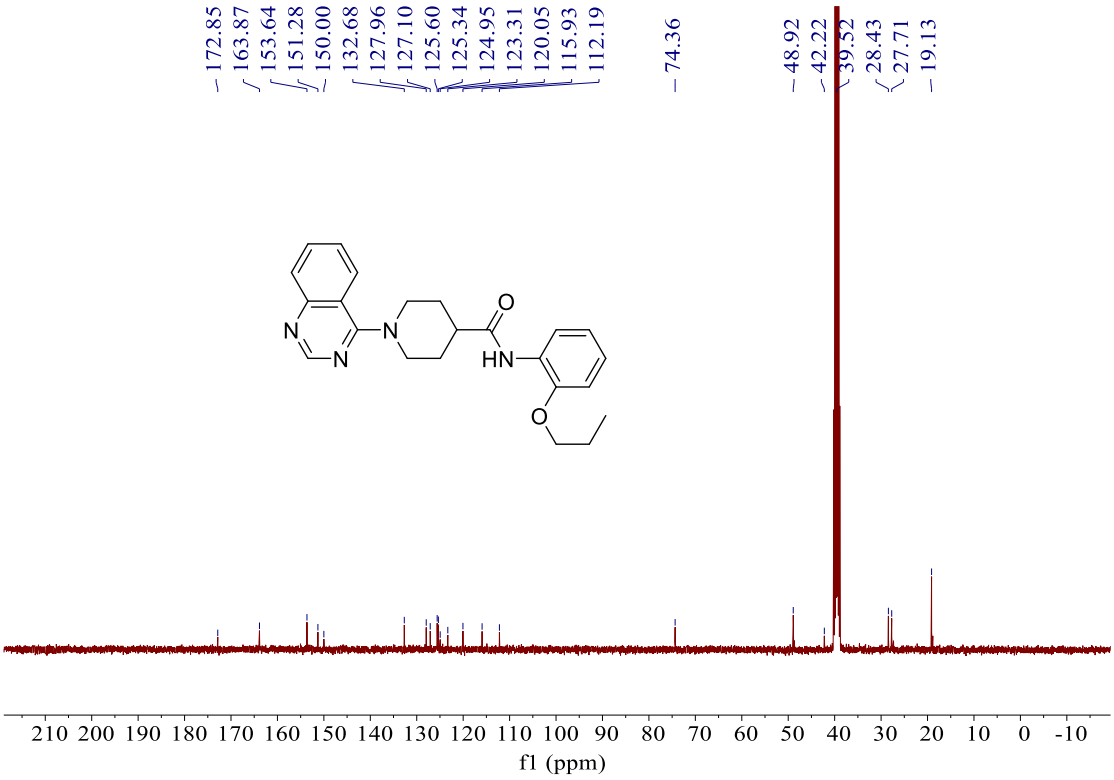

Figure S68. ^{13}C NMR spectrum of compound **III-22** (DMSO-d_6)

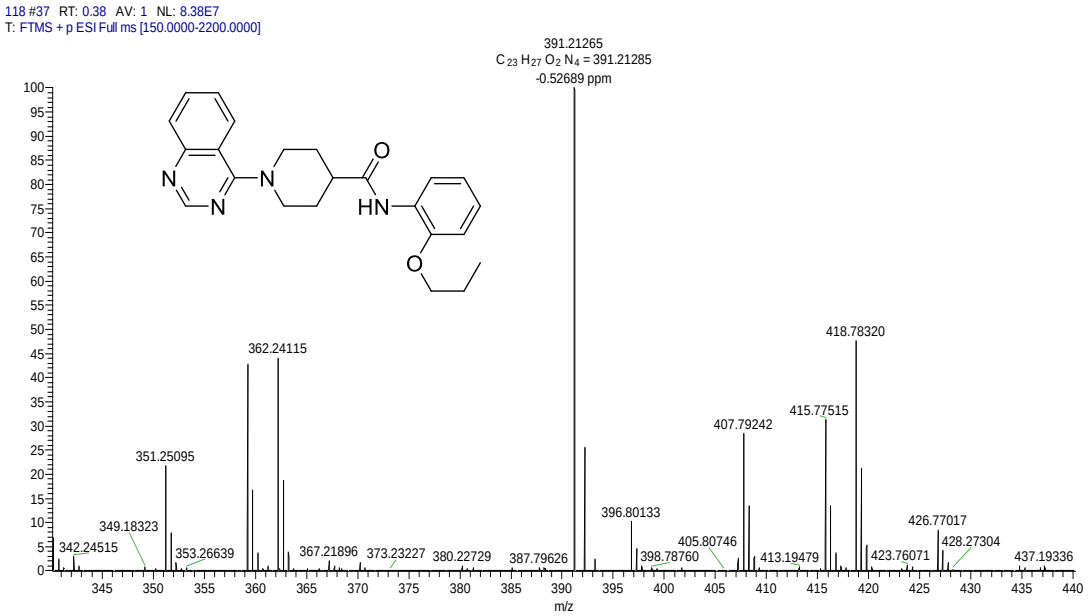

Figure S69. HRMS spectrum of compound **III-22**

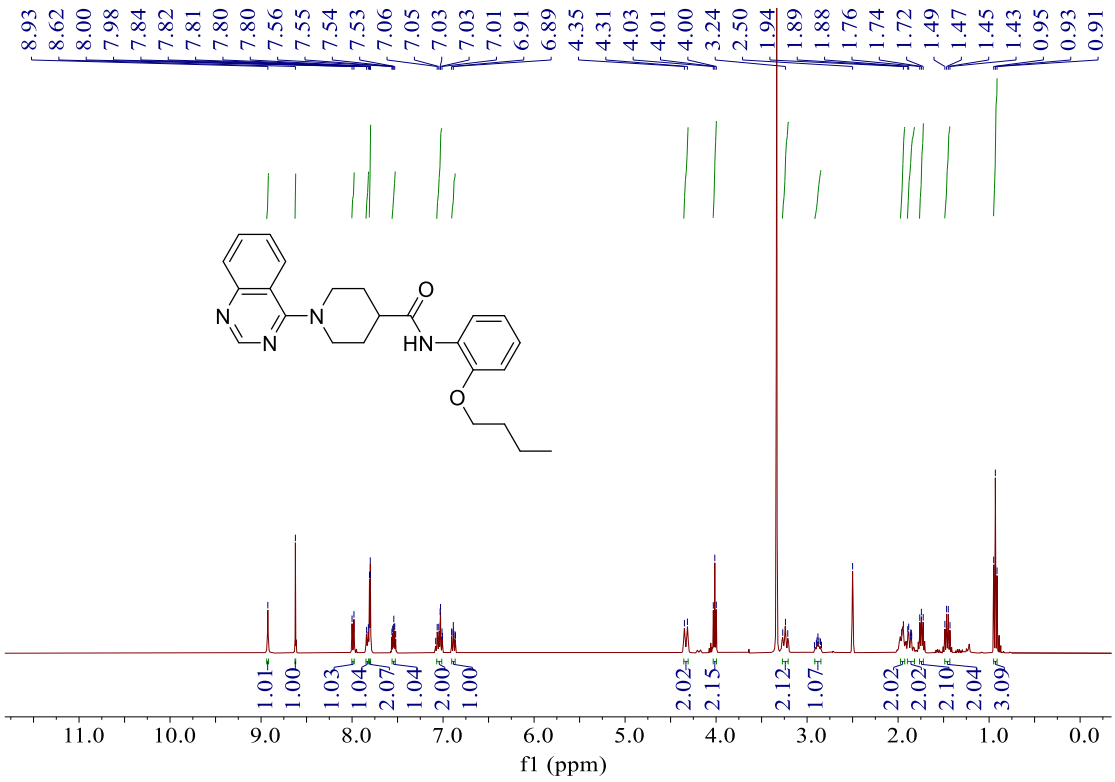

Figure S70. ^{1}H NMR spectrum of compound **III-23** (DMSO-d_6)

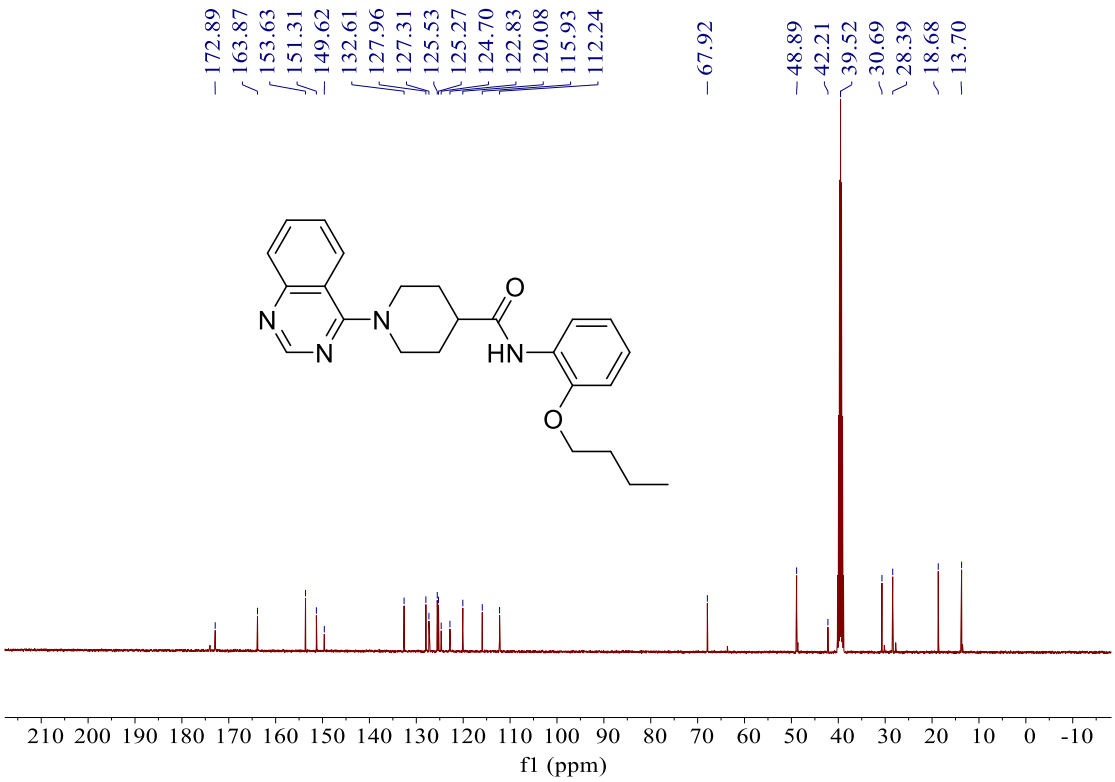

Figure S71. ^{13}C NMR spectrum of compound **III-23** (DMSO-d_6)

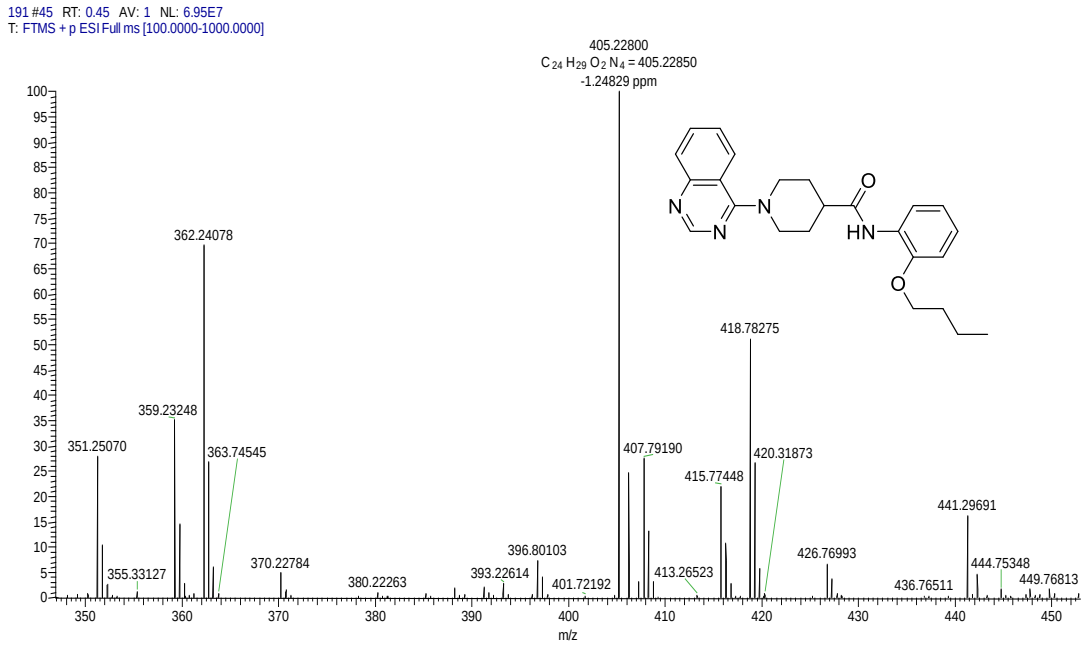

Figure S72. HRMS spectrum of compound **III-23**

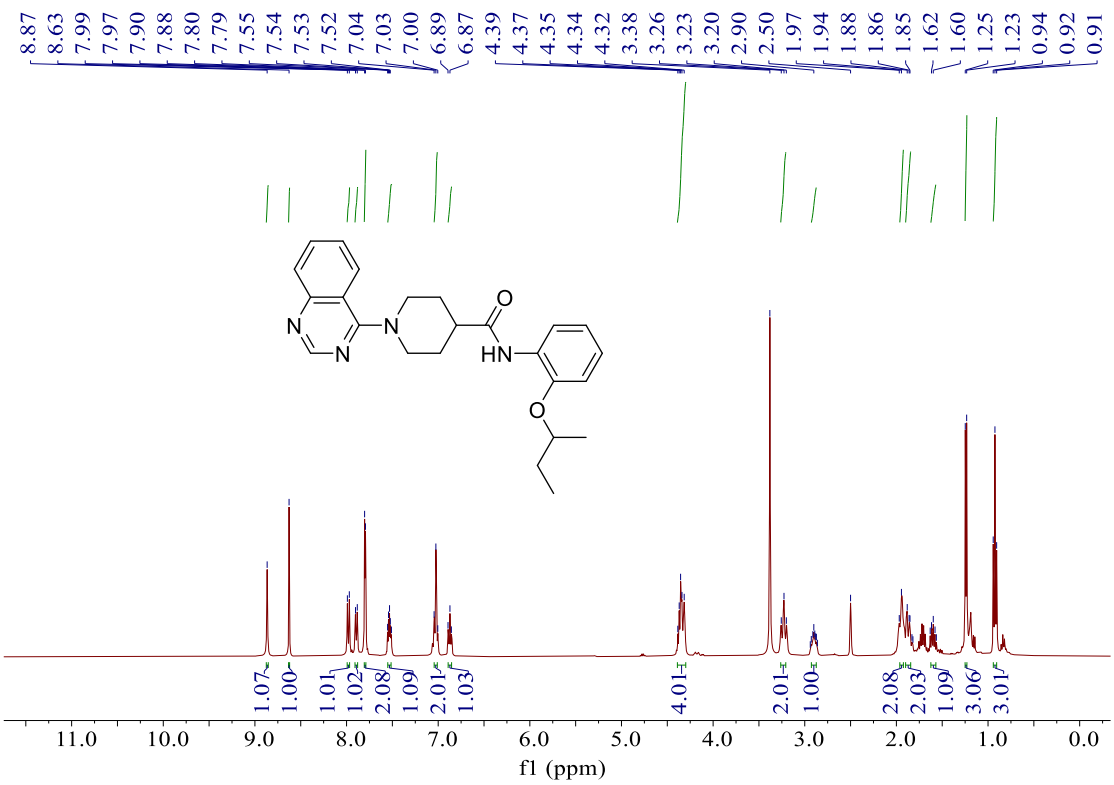

Figure S73. ^{1}H NMR spectrum of compound **III-24** (DMSO-d_6)

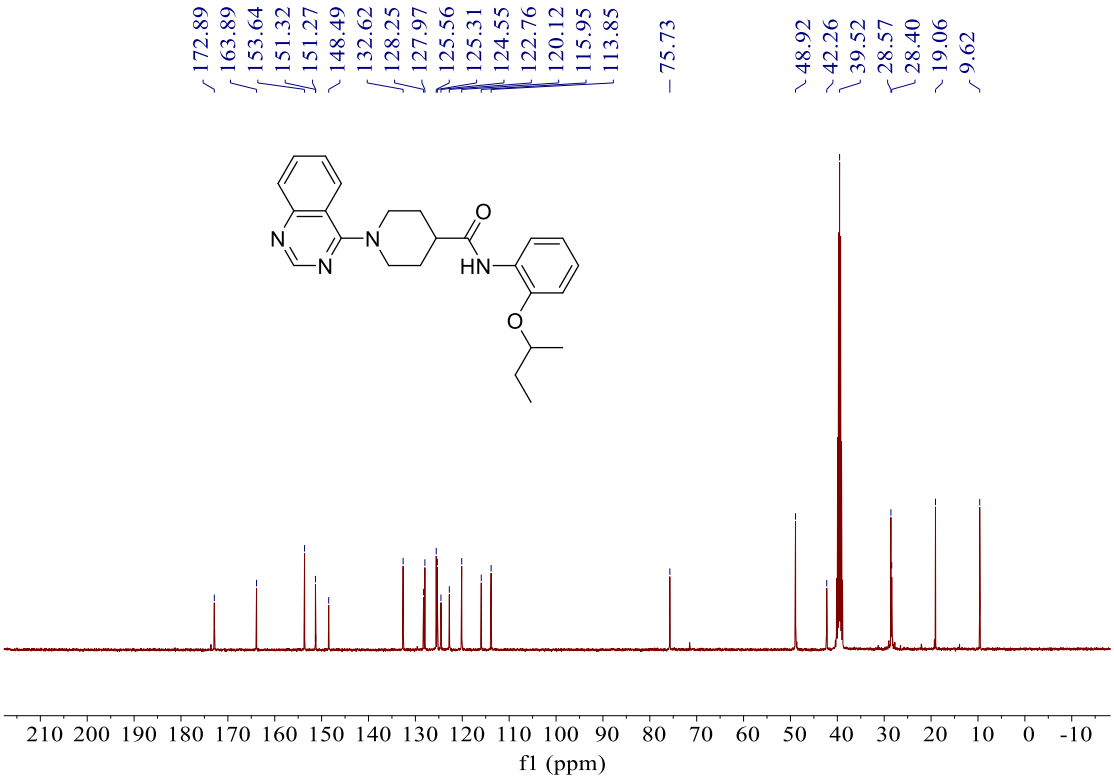

Figure S74. ^{13}C NMR spectrum of compound **III-24** (DMSO-d_6)

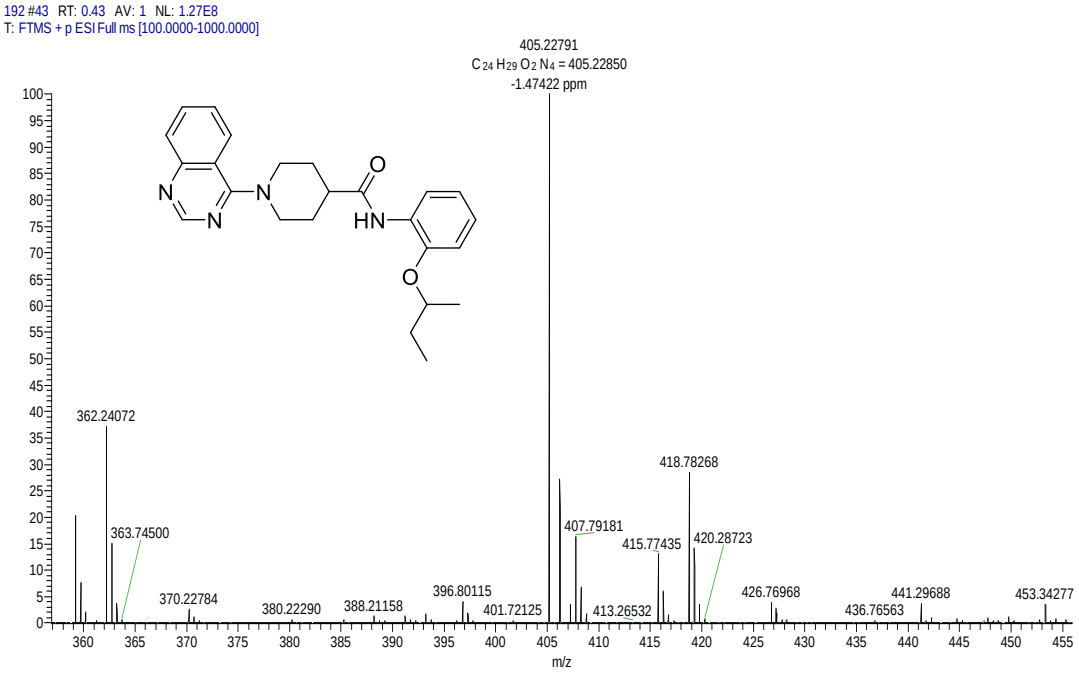

Figure S75. HRMS spectrum of compound **III-24**

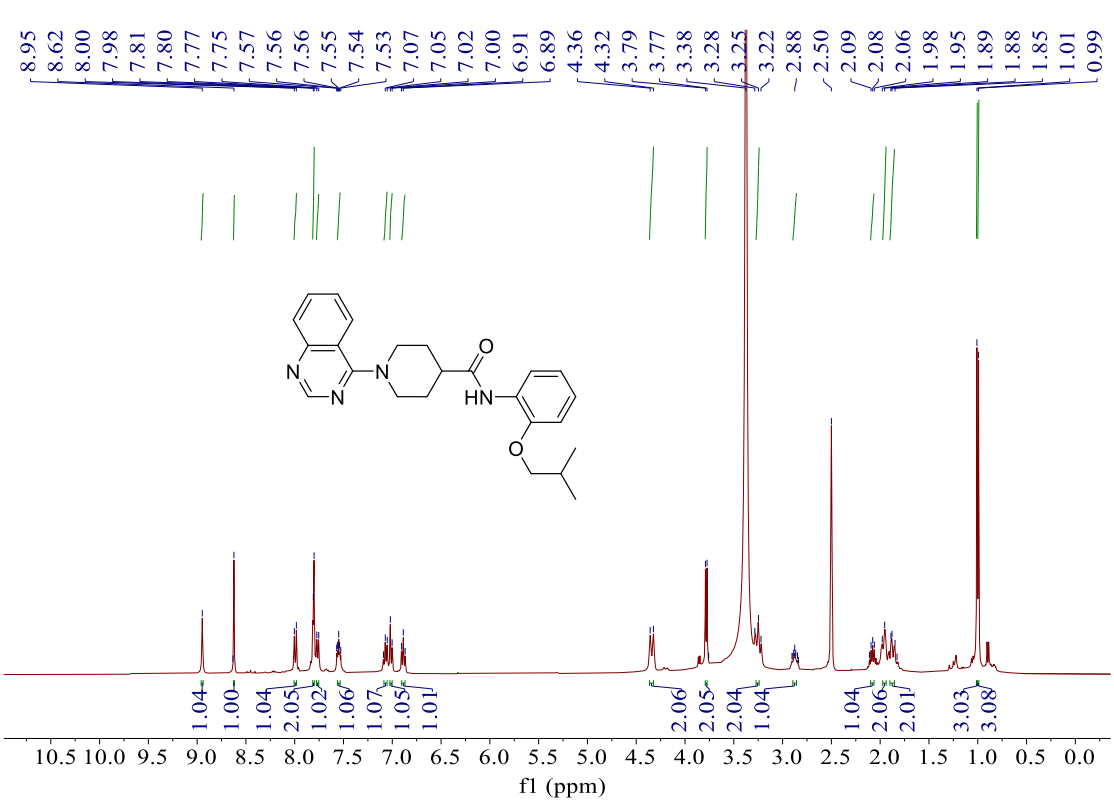

Figure S76. ^{1}H NMR spectrum of compound **III-25** (DMSO-d_6)

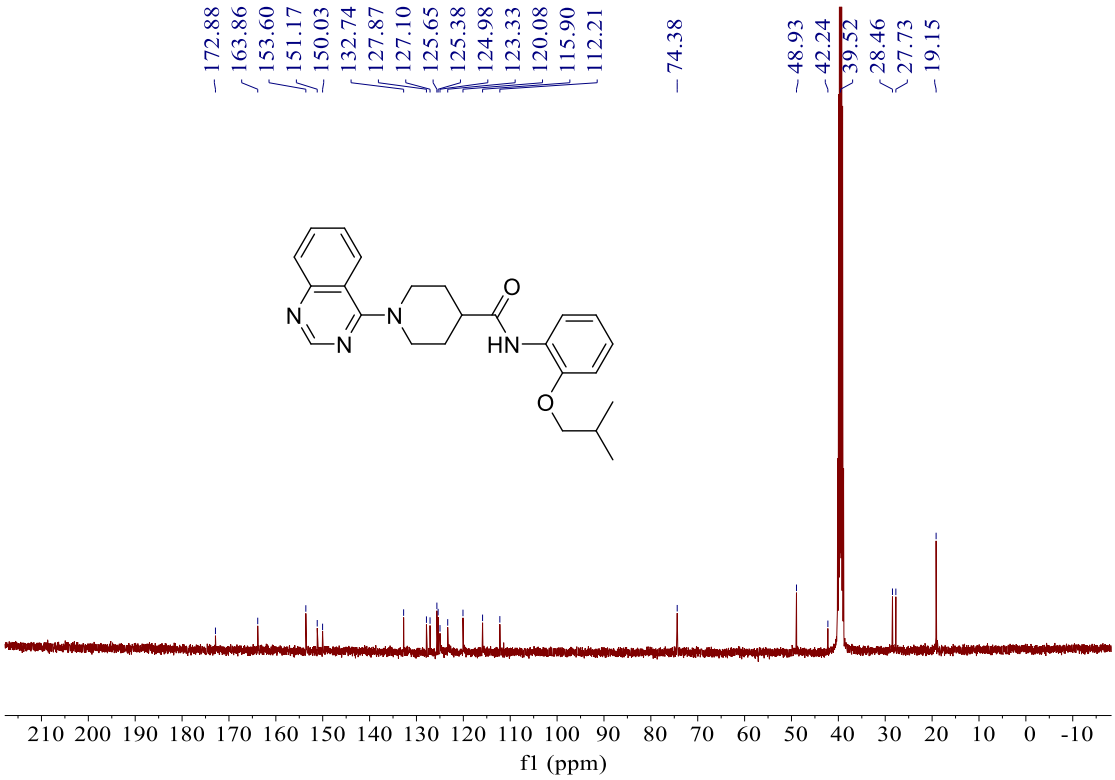

Figure S77. ^{13}C NMR spectrum of compound **III-25** (DMSO-d_6)

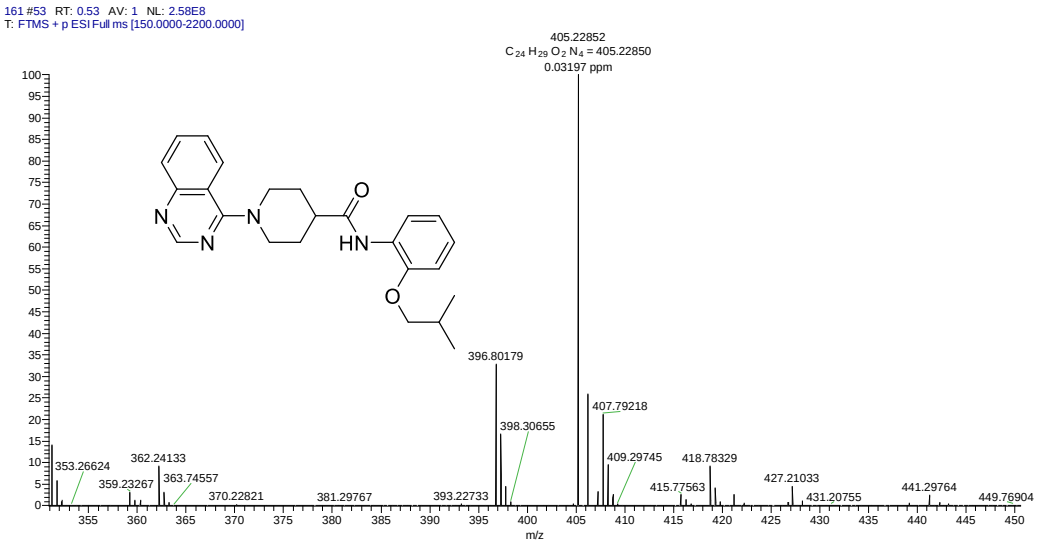

Figure S78. HRMS spectrum of compound **III-25**

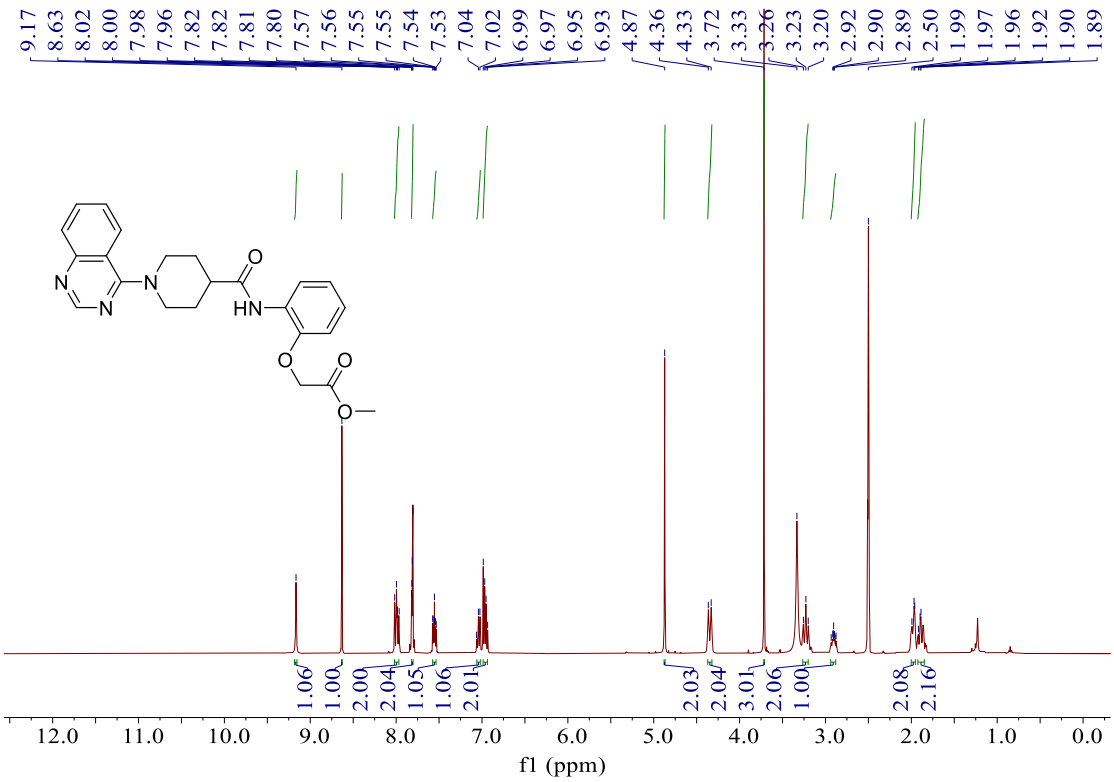

Figure S79. ^{1}H NMR spectrum of compound **III-26** (DMSO-d_6)

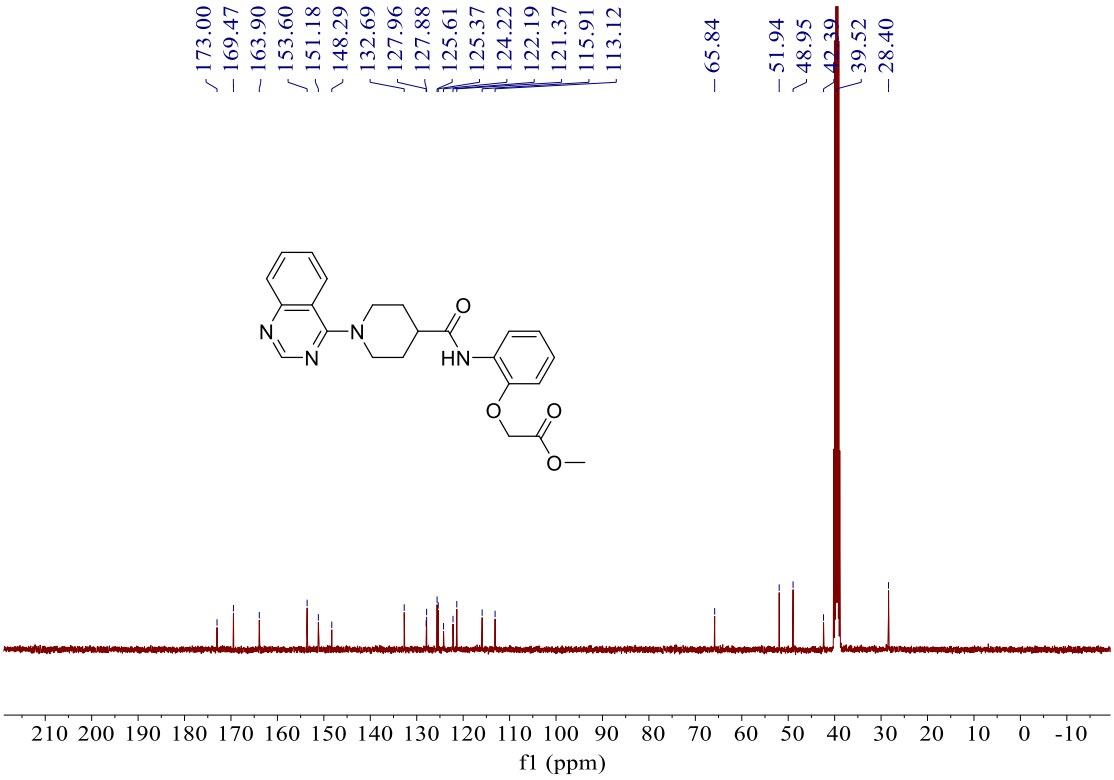

Figure S80. ^{13}C NMR spectrum of compound **III-26** (DMSO-d_6)

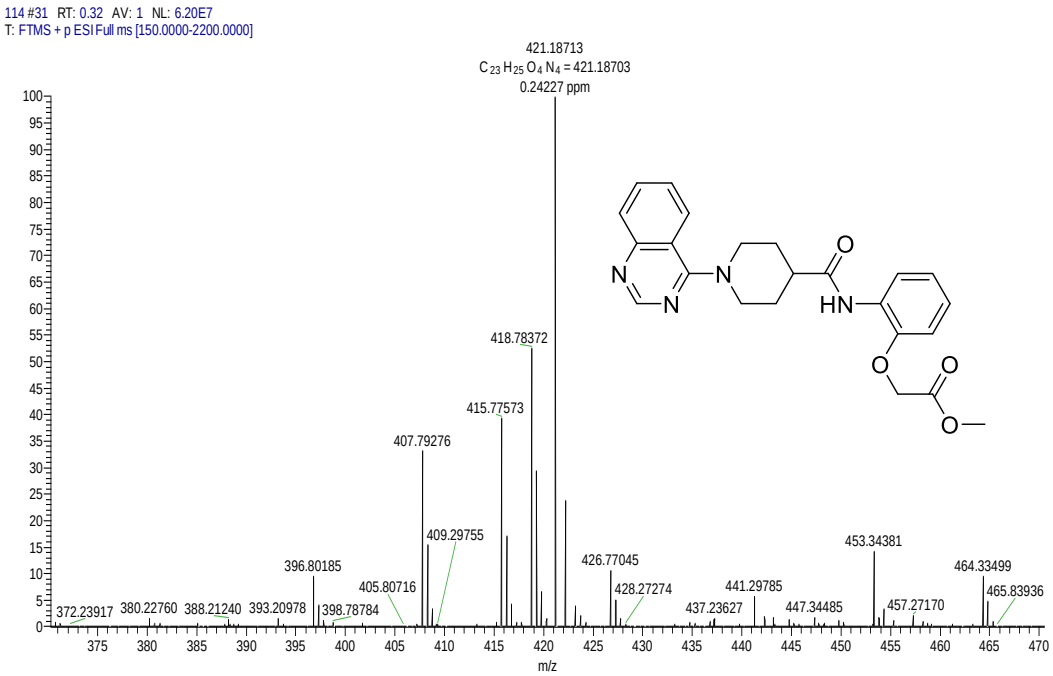

Figure S81. HRMS spectrum of compound **III-26**

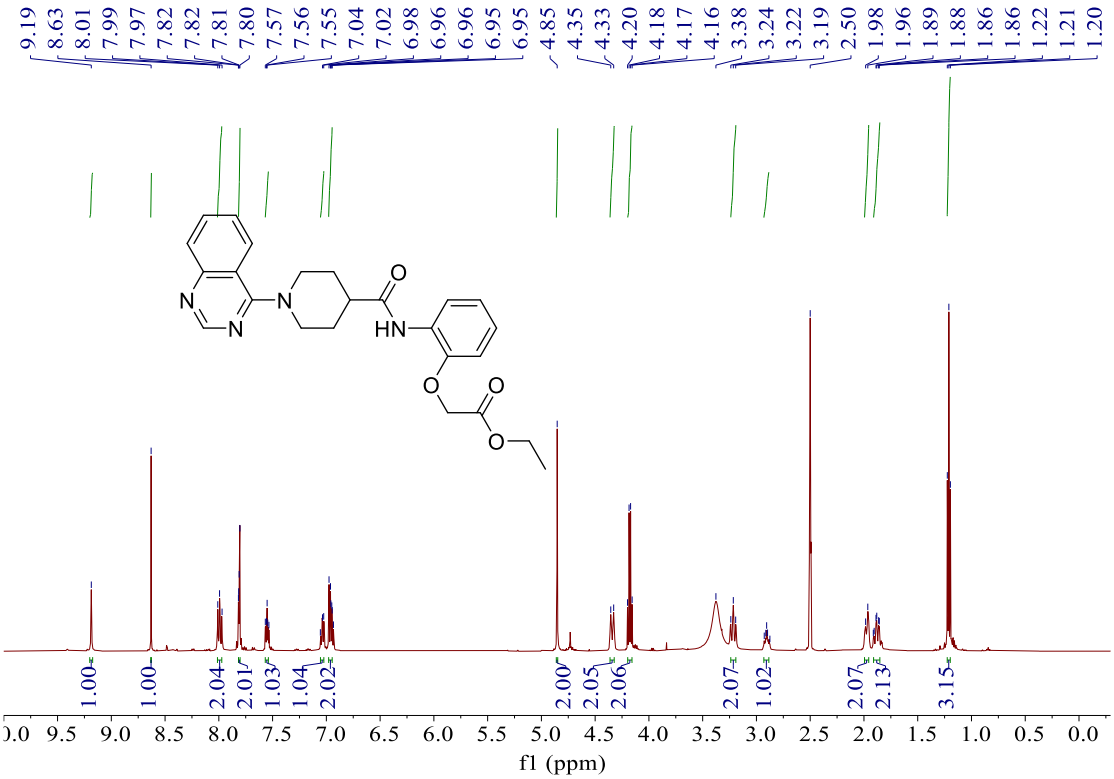

Figure S82. ^{1}H NMR spectrum of compound **III-27** (DMSO-d_6)

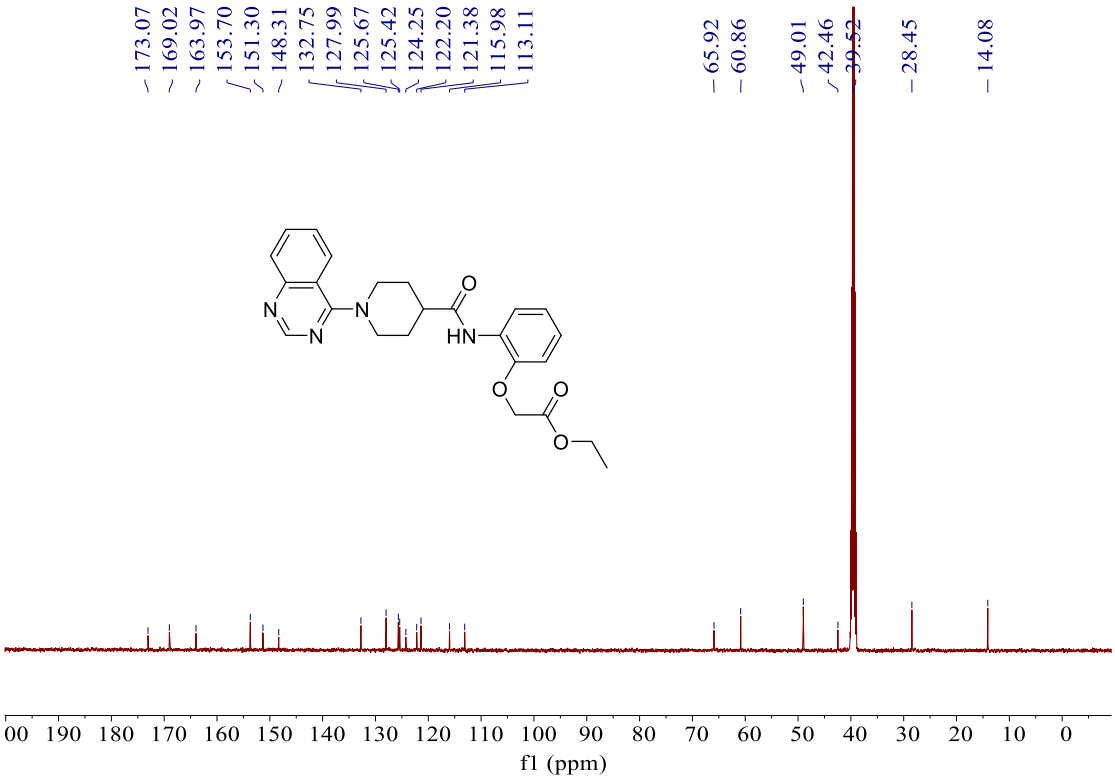

Figure S83. ^{13}C NMR spectrum of compound **III-27** (DMSO-d_6)

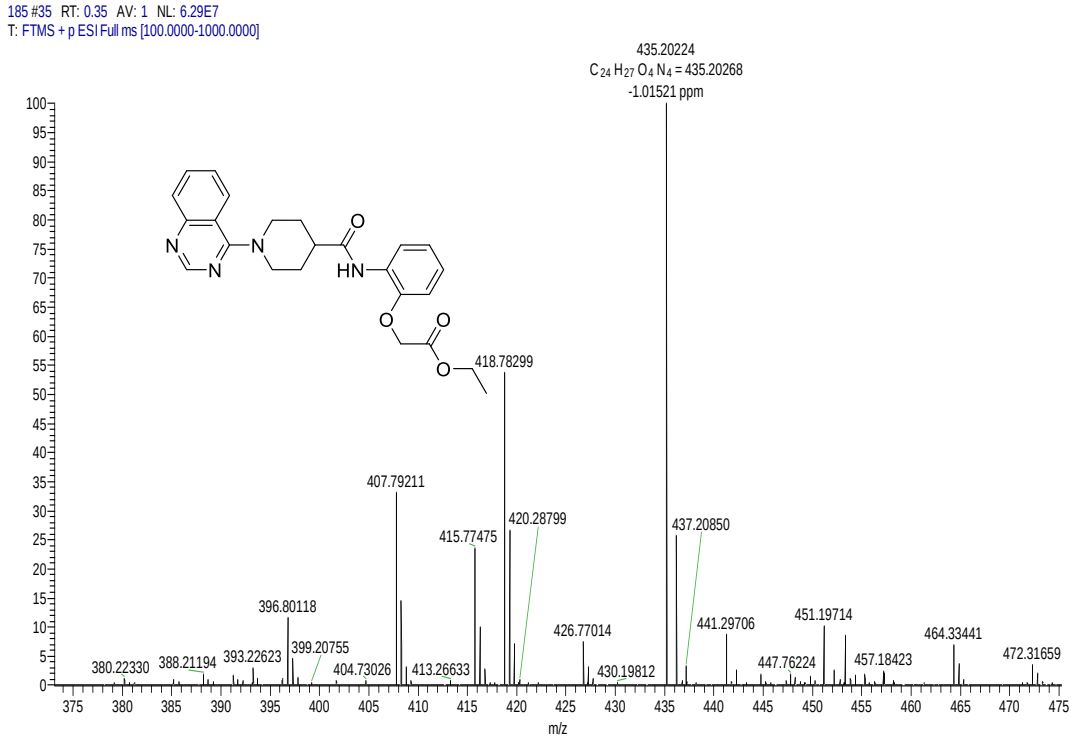

Figure S84. HRMS spectrum of compound **III-27**