Electronic Supporting Information

Iron-Catalyzed C(sp^3)–H Functionalization of Methyl Azaarenes: A Green Approach to Azaarene-substituted *α*- or *β*-Hydroxy Carboxylic Derivatives and 2-Alkenylazaarenes

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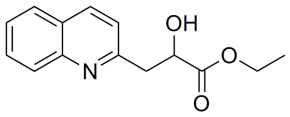
1. Analytical Data of the Products

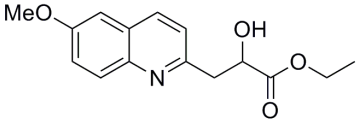


Ethyl 2-hydroxy-3-(quinolin-2-yl)propanoate (3aa)

CAS registry No.: 53574-77-9.

White solid (90% yield), mp: 112-115 ^{o}C; IR (ATR, neat) ν = 626, 763, 831, 1040, 1161, 1287, 1508, 1599, 1732, 2979, 3065 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.23 (t, J = 7.5 Hz, 3H, CH_3), 3.39-3.52 (m, 2H, CH_2), 4.22 (q, J = 7.5 Hz, 2H, CH_2), 4.77 (dd, J_1 = 7.5 Hz, J_2 = 3.5 Hz, 1H, CH), 7.31 (d, J = 8.5 Hz, 1H, ArH), 7.51-7.53 (m, 1H, ArH), 7.68-7.72 (m, 1H, ArH), 7.79 (d, J = 8.0 Hz, 1H, ArH), 8.00 (d, J = 8.0 Hz, 1H, ArH), 8.11 (d, J = 9.0 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 40.9, 61.3, 70.4, 122.0, 126.2, 126.9, 127.5, 128.7, 129.7, 136.7, 147.1, 158.8, 173.6 ppm; ESI-HR-MS: *m/z* = 268.0952, calcd. for $C_{14}H_{15}NNaO_3$ $[M+Na]^+$: 268.0950.

Ethyl 2-hydroxy-3-(6-methoxyquinolin-2-yl)propanoate (3ab)

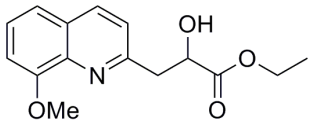


CAS registry No.: none.

Light yellow solid (85% yield), mp: 99-101 ^{o}C; IR (ATR, neat) *v* = 610, 831, 1023, 1238, 1383, 1540, 1599, 1726, 2979, 3074 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.23 (t, J = 7.0 Hz, 3H, CH_3), 3.34-3.48 (m, 2H, CH_2), 3.93 (s, 3H, CH_3O), 4.21 (q, J = 7.5 Hz, 2H, CH_2), 4.74 (dd, J_1 = 7.0 Hz, J_2 = 4.0 Hz, 1H, CH),7.05 (d, J = 3.0 Hz, 1H, ArH), 7.25 (d, J =

8.0 Hz, 1H, ArH), 7.35 (dd, J_1 = 9.0 Hz, J_2 = 2.5 Hz, 1H, ArH), 7.89 (d, J = 9.0 Hz, 1H, ArH), 8.01 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14,1, 40.6, 55.5, 61.2, 70.5, 105.1, 122.2, 122.3, 127.8, 130.1, 135.5, 143.2, 156.1, 157.6, 173.6 ppm; ESI-HR-MS: *m/z* = 298.1064, calcd. for $C_{15}H_{17}NNaO_4$ $[M+Na]^+$: 298.1055.

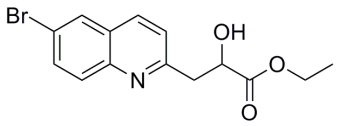
Ethyl 2-hydroxy-3-(8-methoxyquinolin-2-yl)propanoate (3ac)



CAS registry No.: none.

Yellow solid (81% yield), mp: 84-86 °C. IR (ATR, neat) *v* = 759, 845, 1103, 1257, 1505, 1600, 1739, 3152 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$) : δ = 1.25 (t, J = 7.0 Hz, 3H, CH_3), 3.36-3.54 (m, 2H, CH_2), 4.04 (s, 3H, CH_3O), 4.22 (q, J = 7.0 Hz, 2H, CH_2), 4.78 (dd, J_1 = 7.5 Hz, J_2 = 3.5 Hz, 1H, CH), 7.04 (d, J = 8.0 Hz, 1H, ArH), 7.34-7.37 (m, 2H, ArH), 7.43 (t, J = 8.0 Hz, 1H, ArH), 8.08 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 40.7, 55.9, 61.2, 70.6, 108.0, 119.2, 122.3, 126.4, 127.9, 136.6, 138.9, 154.9, 157.6, 173.5 ppm； ESI-HR-MS: *m/z* = 298.1058, calcd. for $C_{15}H_{17}NNaO_4$ $[M+Na]^+$: 298.1055.

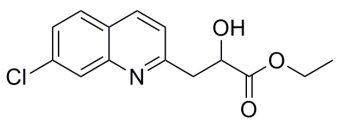
Ethyl 3-(6-bromoquinolin-2-yl)-2-hydroxypropanoate (3ad)



CAS registry No.: none.

Yellow solid (88% yield), mp: 68-70 °C; IR (ATR, neat) *v* = 638, 832, 1029, 1289, 1490, 1593, 1729, 2982, 3133 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.23 (t, J = 7.0 Hz, 3H, CH_3), 3.37-3.51 (m, 2H, CH_2), 4.22 (q, J = 7.0 Hz, 2H, CH_2), 4.75 (dd, J_1 = 7.0 Hz, J_2 = 4.0 Hz, 1H, CH), 7.33 (d, J = 8.5 Hz, 1H, ArH), 7.43-7.77 (m, 1H, ArH), 7.86 (d, J = 8.5 Hz, 1H, ArH), 7.95 (d, J = 2.0 Hz, 1H, ArH), 8.01 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 41.2, 61.3, 70.1, 119.9, 122.8, 127.9, 129.5, 130.3, 133.0, 135.5, 145.7, 159.1, 173.5 ppm； ESI-HR-MS: *m/z* = 348.0066, calcd. for $C_{14}H_{14}BrNNaO_3$ $[M+Na]^+$: 348.0055.

Ethyl 3-(7-chloroquinolin-2-yl)-2-hydroxypropanoate (3ae)

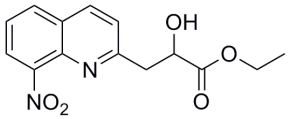


CAS registry No.: none.

Yellow solid (88% yield), mp: 63-65 °C; IR (ATR, neat) *v* = 628, 847, 1033, 1161, 1279, 1499, 1615, 1735, 2979, 3095 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.25 (t, J = 7.0 Hz, 3H, CH_3), 3.38-3.52 (m, 2H, CH_2), 4.23 (q, J = 7.0 Hz, 2H, CH_2), 4.74-4.76 (m, 1H, CH), 7.31 (d, J = 8.0 Hz, 1H, ArH), 7.47 (dd, J_1 = 9.0 Hz, J_2 = 2.0 Hz, 1H, ArH), 7.73 (d, J = 8.5

Hz, 1H, ArH), 8.01 (d, J = 2.0 Hz, 1H, ArH), 8.08 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 41.1, 61.4, 70.1, 122.2, 125.2, 127.3, 127.7, 128.7, 135.5, 136.4, 147.5, 159.8, 173.6 ppm; ESI-HR-MS: m/z = 302.0560, calcd. for $C_{14}H_{14}ClNNaO_3[M+Na]^+$: 302.0560.

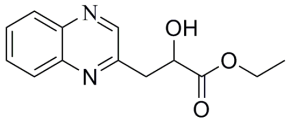
Ethyl 2-hydroxy-3-(8-nitroquinolin-2-yl)propanoate (3af)



CAS registry No.: none.

Brown solid (72% yield), mp: 98-100 °C; IR (ATR, neat) v = 660, 775, 842, 1026, 1248, 1349, 1520, 1600, 1712, 3067, 3390 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.28 (t, J = 7.5 Hz, 3H, CH_3), 3.50-3.59 (m, 2H, CH_2), 4.20-4.26 (m, 2H, CH_2), 4.77 (m, 1H, CH), 7.47 (d, J = 8.5 Hz, 1H, ArH), 7.60 (t, J = 8.0 Hz, 1H, ArH), 8.03 (d, J = 8.5 Hz, 1H, ArH), 8.11 (dd, J_1= 8.0 Hz, J_2 = 1.0 Hz, 1H, ArH), 8.21 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.0, 41.1, 61.5, 69.8, 123.8, 124.6, 132.2, 136.6, 138.4, 147.1, 161.6, 173.3 ppm; ESI-HR-MS: m/z=313.0798, calcd. for $C_{14}H_{14}N_2NaO_5$ $[M+Na]^+$: 313.0800.

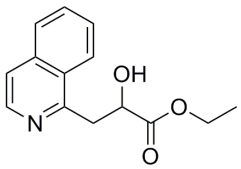
Ethyl 2-hydroxy-3-(quinoxalin-2-yl)propanoate (3ag)



CAS registry No.: 6639-94-7.

White solid (88% yield), mp: 80-82 °C; IR (ATR, neat) v = 762, 864, 957, 1095, 1279, 1495, 1727, 3054, 3244 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.27 (t, J = 7.0 Hz, 3H, CH_3), 3.42-3.57 (m, 2H, CH_2), 4.23-4.29 (m, 2H, CH_2), 4.77 (dd, J_1 = 7.0 Hz, J_2 = 4.0 Hz, 1H, CH), 7.72-7.78 (m, 2H, ArH), 8.01-8.03 (m, 1H, ArH), 8.08-8.10 (m, 1H, ArH), 8.78 (s, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 39.5, 61.7, 69.8, 128.7, 129.1, 129.4, 130.1, 141.4, 141.6, 146.1, 153.1, 173.5 ppm; ESI-HR-MS: m/z = 269.0897, calcd. for $C_{13}H_{14}N_2NaO_3$ $[M+Na]^+$: 269.0902.

Ethyl 2-hydroxy-3-(isoquinolin-1-yl)propanoate (3ah)

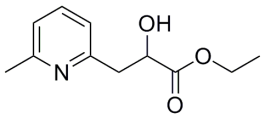


CAS registry No.: 92961-43-8.

Brown oil (90% yield); IR (ATR, neat) v = 726, 824, 1042, 1161, 1257, 1389, 1622, 1710, 2976, 3056, 3403 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.20 (t, J = 7.0 Hz, 3H, CH_3), 3.78 (d, J = 5.5 Hz, 2H, CH_2), 4.19 (t, J = 7.5 Hz, 2H, CH_2), 4.86 (t, J = 5.0 Hz, 1H, CH), 7.56 (d, J = 6.0 Hz, 1H, ArH), 7.61-7.65 (m, 1H, ArH), 7.69-7.72 (m, 1H, ArH), 7.83 (d, J = 8.0 Hz, 1H, ArH), 8.13 (d, J = 8.0 Hz, 1H, ArH), 8.37 (d, J = 5.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.0, 36.5, 61.2, 70.0, 119.9, 124.7, 127.2, 127.3, 127.4, 130.3, 136.1, 140.7, 158.2, 173.7 ppm; ESI-HR-MS : m/z = 268.0948, calcd. for $C_{14}H_{15}NNaO_3$ [

M+Na]$^+$: 268.0950.

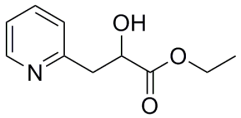
Ethyl 2-hydroxy-3-(6-methylpyridin-2-yl)propanoate (3ai)



CAS registry No.: none.

Yellow solid (75% yield), mp: 61-63 ^{o}C; IR (ATR, neat) v = 583, 792, 1040, 1198, 1459, 1600, 1730, 2982, 3078 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.23 (t, J = 7.0 Hz, 3H, CH_3), 2.51 (s, 3H, CH_3), 3.12-3.28 (m, 2H, CH_2), 4.20 (q, J = 7.0 Hz, 2H, CH_2), 4.63 (dd, J_1 = 7.5 Hz, J_2 = 4.0 Hz, 1H, CH), 6.97 (d, J = 8.0 Hz, 1H, ArH), 7.02 (d, J = 8.0 Hz, 1H, ArH), 7.51 (t, J = 7.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 24.3, 40.1, 61.1, 70.7, 120.7, 121.4, 137.0, 157.4, 173.6 ppm; ESI-HR-MS: m/z = 232.0943, calcd. for $C_{11}H_{15}NNaO_3$ [M+Na]$^+$: 232.0949.

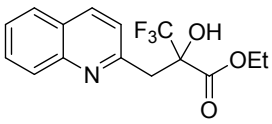
Ethyl 2-hydroxy-3-(6-methylpyridin-2-yl)propanoate (3aj)



CAS registry No.: 108325-56-0.

Light yellow oil (41% yield); IR (ATR, neat) v = 764, 1091, 1205, 1475, 1595, 1732, 2979, 3403 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.23 (t, J = 7.0 Hz, 3H, CH_3), 3.16-3.34 (m, 2H, CH_2), 4.20 (q, J = 7.0 Hz, 2H, CH_2), 4.64-4.66 (m, 1H, CH), 7.17-7.20 (m, 2H, ArH), 7.62-7.65 (m, 1H, ArH), 8.50 (d, J = 5.0 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 40.6, 61.3, 70.5, 121.9, 123.9, 136.8, 148.7, 158.0, 173.7 ppm; ESI-HR-MS: m/z = 218.0804, calcd. for $C_{10}H_{13}NNaO_3$ [M+Na]$^+$: 218.0793.

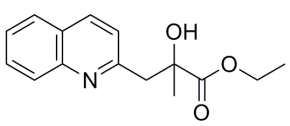
Ethyl 3,3,3-trifluoro-2-hydroxy-2-(quinolin-2-ylmethyl propanoate (3ba)



CAS registry No.: none.

Light yellow solid (86% yield); IR (KBr) v = 750, 1108, 1201, 1295, 1590, 1622, 1746, 2961, 3420 cm^{-1}; ^{1}H NMR ($CDCl_3$, 400 MHz) δ: 1.18 (t, J = 7.2 Hz, 3H), 3.52 (d, J = 15.2 Hz, 1H), 3.76 (*d*, J = 15.2 Hz, 1H), 4.23 (q, J = 7.2 Hz, 2H), 6.79 (s, 1H), 7.31 (d, J = 8.4 Hz, 1H), 7.51-7.55 (m, 1H), 7.68-7.72 (m, 1H), 7.79 (dd, J = 8.4, 1.2 Hz, 1H), 7.94 (d, J = 8.4 Hz, 1H), 8.14 (d, J = 8.4 Hz, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz) δ: 13.8, 29.7, 38.4, 62.8, 77.9 (q, J = 29.1 Hz, CF_3), 122.1, 126.7, 126.9, 127.6, 128.4, 130.1, 137.3, 146.6, 156.3, 168.8; ^{19}F NMR ($CDCl_3$, 376.5 MHz) δ: -78.4 (s, 3F); HRMS (ESI) calcd for $C_{15}H_{15}F_3NO_3$ [M+H]$^+$: 314.0998, found: 314.0996.

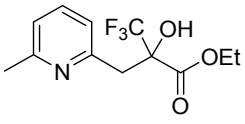
Ethyl 2-hydroxy-2-methyl-3-(quinolin-2-yl)propanoate (3bb)



CAS registry No.:none

Light yellow oil (26% yield); IR (ATR, neat) ν = 752, 823, 1018, 1107, 1190, 1291, 1426, 1506, 1599, 1725, 2980, 3391 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 1.10 (t, J = 7.0 Hz, 3H, CH_3), 1.58 (s, 3H, CH_3), 3.27 (d, J = 15.0 Hz, 1H, CH_2), 3.56 (d, J = 16.0 Hz, 1H, CH_2), 4.09 (q, J = 7.0 Hz, 2H, CH_2), 7.27 (d, J = 8.5 Hz, 1H, ArH), 7.49-7.53 (m, 1H, ArH), 7.67-7.71 (m, 1H, ArH), 7.78 (d, J = 8.0 Hz, 1H, ArH), 7.98 (d, J = 8.5 Hz, 1H, ArH), 8.09 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.1, 26.4, 46.3, 61.1, 75.1, 122.2, 126.2, 126.8, 127.5, 128.6, 129.7, 136.7, 146.8, 159.1, 176.0 ppm； ESI-HR-MS: *m/z* = 282.1106, calcd. for $C_{15}H_{17}NNaO_3$ $[M+Na]^+$: 282.1106.

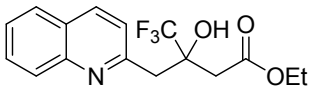
Ethyl 3, 3, 3-trifluoro-2-hydroxy-2-(6-methylpyridin-2-ylmethyl)propanoate (3bc)



CAS registry No. :none.

Light yellow oil (54% yield); IR (KBr) ν = 699, 797, 1011, 1069, 1139, 1194, 1373, 1455, 1579, 1602, 1747, 2284, 2938, 2988, 3475 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz) δ: 1.20 (t, J = 6.8 Hz, 3H), 2.49 (s, 3H), 3.29 (d, J = 14.8 Hz, 1H), 3.47 (d, J = 14.8 Hz, 1H), 4.12 (q, J = 7.2 Hz, 2H), 7.01 (d, J = 7.6 Hz, 1H), 7.06 (d, J = 7.6 Hz, 1H), 7.55 (t, J = 7.6 Hz, 1H); ^{13}C NMR ($CDCl_3$, 100 MHz) δ: 13.8, 23.9, 37.6, 62.5, 78.1 (q, J = 28.8 Hz, CF_3), 121.3, 121.9, 124.8, 137.5, 154.8, 157.3, 168.7; ^{19}F NMR ($CDCl_3$, 376.5 MHz) δ: -78.3 (s, 3F); HRMS (ESI) calcd for $C_{12}H_{15}F_3NO_3$ $[M+H]^+$: 278.0999, found: 278.0997.

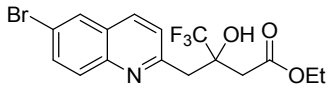
Ethyl 4,4,4-trifluoro-3-hydroxy-3-(quinolin-2-ylmethyl)butanoate(3ca)



CAS registry No: none.

Yellow oil (51% yield); IR (KBr) ν = 668, 758, 832, 1014, 1158, 1505, 1598, 1734, 3225 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz) δ = 1.23 (t, J = 6.8 Hz, 3H), 2.77 (s, 2H), 3.40 (d, J = 15.2 Hz, 1H), 3.69 (d, J = 15.2 Hz, 1H), 4.07 (q, J = 7.2 Hz, 2H), 7.41 (d, J = 8.4 Hz, 1H), 7.52-7.56 (m, 1H), 7.70-7.74 (m, 1H), 7.81 (d, J = 8.0, 1H), 7.97-8.00 (m, 2H), 8.16 (d, J = 8.4 Hz, 1H) ppm; ^{13}C NMR ($CDCl_3$, 100 MHz) δ = 14.0, 38.4, 38.9, 61.0, 75.1 (q, J = 28.4 Hz, CF_3), 123.1, 124.1, 126.7, 126.9, 127.7, 128.5, 130.1, 137.3, 146.4, 157.9, 169.9 ppm; ^{19}F NMR($CDCl_3$, 376.5 MHz) δ = -80.9 (s, 3F) ppm; HRMS (ESI) calcd for $C_{16}H_{16}F_3NNaO_3$ $[M+Na]^+$: 350.0975, found: 350.0968.

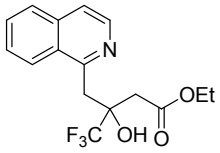
Ethyl 3-((6-bromoquinolin-2-yl)methyl)-4,4,4-trifluoro-3-hydroxybutanoate(3cb)



CAS registry No.: none

Yellow oil (48% yield); IR (KBr) v = 590, 839, 1014, 1174, 1228, 1306, 1485, 1734, 2929, 3361 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz) δ = 1.23 (t, J = 7.2 Hz, 3H), 2.76 (s, 2H), 3.38 (d, J = 14.8 Hz, 1H), 3.64 (d, J = 14.8 Hz, 1H), 4.07 (q, J = 7.2 Hz, 2H), 7.43 (d, J = 8.4 Hz, 1H), 7.76-7.79 (m, 1H), 7.85 (d, J = 9.2 Hz, 1H), 7.97 (d, J = 2 Hz, 1H), 8.06 (d, J = 8.4, 1H) ppm; ^{13}C NMR ($CDCl_3$, 100 MHz) δ = 14.0, 38.5, 38.9, 61.1, 74.9 (q, J = 30.4 Hz, CF_3), 120.5, 123.9, 126.9, 128.1, 129.7, 130.2, 133.5, 136.2, 145.1, 158.3, 170.1 ppm; ^{19}F NMR ($CDCl_3$, 376.5 MHz) δ = -80.9 (s, 3F) ppm; HRMS (ESI) calcd for $C_{16}H_{16}BrF_3NO_3$ $[M+H]^+$: 406.0260, found: 406.0254.

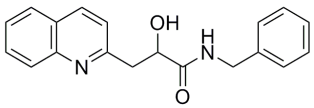
Ethyl 4,4,4-trifluoro-3-hydroxy-3-(isoquinolin-1-ylmethyl)butanoate(3cc)



CAS registry No.: none

Light yellow oil (44% yield); IR (KBr): v = 746, 824, 1014, 1190, 1497, 1563, 1625, 1731, 3435 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz) δ = 1.22 (t, J = 7.2 Hz, 3H), 2.86 (q, J = 14.4 Hz, 2H), 3.82 (d, J = 16.0 Hz, 1H), 3.93 (d, J = 16.0 Hz, 1H), 4.05-4.12 (m, 2H), 7.60 (d, J = 5.6 Hz), 7.66 (t, J = 7.6 Hz, 1H), 7.73 (t, J = 7.2 Hz, 1H), 7.84 (d, J = 8.0 Hz, 1H), 8.23 (d, J = 8.4 Hz, 1H), 8.36 (d, J = 6.0 Hz, 1H) ppm; ^{13}C NMR ($CDCl_3$, 100 MHz) δ = 14.0, 32.7, 39.6, 61.0, 75.3 (q, J = 30.4 Hz, CF_3), 120.4, 124.3, 125.2, 127.5, 127.7, 127.9, 130.8, 136.5, 139.8,157.8, 169.8 ppm; ^{19}F NMR ($CDCl_3$, 376.5 MHz) δ = -80.9 (s, 3F) ppm; HRMS (ESI) calcd for $C_{16}H_{16}F_3NNaO_3$ $[M+Na]^+$: 350.0975, found: 350.0969.

***N*-benzyl-2-hydroxy-3-(quinolin-2-yl)propanamide (3da)**

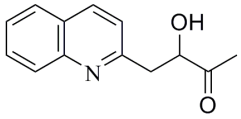


CAS registry No.: none.

Yellow solid (79% yield), mp: 139-141 ^oC; IR (ATR, neat): v = 624, 691, 830, 1074, 1310, 1505, 1599, 1651, 2816, 3060, 3300 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 3.39-3.43 (m, 1H, CH), 3.54-3.58 (m, 1H, CH), 4.31-4.35 (m, 1H, CH), 4.52-4.57 (m, 1H, CH), 4.69 (dd, J_1 = 7.5 Hz, J_2 = 4.0 Hz, 1H, CH), 7.04-7.12 (m, 2H, ArH), 7.13-7.18 (m, 3H, ArH), 7.34 (d, J = 8.5 Hz, 1H, ArH), 7.53-7.56 (m, 1H, ArH), 7.67-7.72 (m, 1H, ArH), 7.82 (d, J = 8.0 Hz, 1H, ArH), 7.91 (d, J = 8.0 Hz, 1H, ArH), 8.13 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 39.4, 42.8, 71.6, 122.3, 126.4, 126.9, 127.2, 127.3, 127.6, 127.7, 128.3, 128.4, 128.7, 129.9, 137.2, 138.0, 146.5, 160.0, 173.0 ppm; ESI-HR-MS: m/z = 329.1271, calcd. for

$C_{19}H_{18}N_2NaO_2$ $[M+Na]^+$: 329.1266.

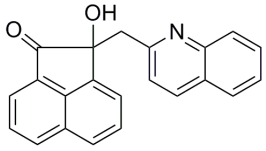
3-hydroxy-4-(quinolin-2-yl)butan-2-one (3ea)



CAS registry No.: none.

Brown solid (76% yield), mp:103-105 °C; IR (ATR, neat) v = 625, 750, 834, 1069, 1309, 1359, 1427, 1506, 1599, 1702, 2933, 3064 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 2.39 (s, 3H, CH_3), 3.34-3.38 (m, 1H, CH), 3.45-3.49 (m, 1H, CH), 4.58-4.61 (m, 1H, CH), 7.32 (d, J = 8.5 Hz, 1H, ArH), 7.51-7.54 (m, 1H, ArH), 7.70 (t, J = 7.5 Hz, 1H, ArH), 7.79 (d, J = 8.0 Hz, 1H, ArH), 7.98 (d, J = 8.5 Hz, 1H, ArH), 8.10 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 26.3, 40.1, 76.8, 122.1, 126.2, 126.9, 127.6, 128.5, 129.7, 136.8, 147.0, 158.9, 211.1 ppm; ESI-HR-MS: m/z = 238.0849, calcd. for $C_{13}H_{13}NNaO_2$ $[M+Na]^+$: 238.0844.

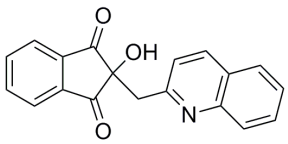
2-hydroxy-2-(quinolin-2-ylmethyl)acenaphthylen-1(2H)-one (3ga)



CAS registry No.: none.

Yellow oil (68% yield); IR (ATR, neat) v = 726, 780, 829, 1014, 1343, 1426, 1505, 1597, 1721, 3056, 3259 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 3.30 (d, J = 15.0 Hz, 1H, CH), 3.66 (d, J = 15.5 Hz, 1H, CH), 7.04 (d, J = 7.0 Hz, 1H, ArH), 7.14 (d, J = 8.5 Hz, 1H, ArH), 7.46 (d, J = 8.0 Hz, 1H, ArH), 7.59 (d, J = 8.0 Hz, 1H, ArH), 7.73-7.86(m, 4H, ArH), 8.00 (d, J = 7.5 Hz, 1H, ArH), 8.13 (t, J = 8.5 Hz, 3H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 42.3, 80.0, 120.5, 122.1, 122.6, 125.0, 126.5, 127.0, 127.6, 128.2, 128.5, 128.7, 130.1, 130.5, 130.6, 131.8, 137.1, 140.8, 140.9, 146.6, 159.0, 203.3 ppm; ESI-HR-MS: m/z = 348.1014, calcd. for $C_{22}H_{15}NNaO_2$ $[M+Na]^+$: 348.1000.

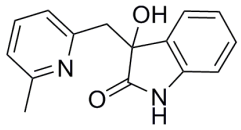
2-hydroxy-2-(quinolin-2-ylmethyl)-1H-indene-1,3(2H)-dione (3ha)



CAS registry No.: none.

Yellow solid (87% yield), mp: 135-137 °C; IR (ATR, neat) v = 571, 747, 942, 1072, 1279, 1597, 1708, 2845, 3058, 3414, 3528 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 3.48 (s, 2H, CH_2), 7.18 (d, J = 8.5 Hz, 1H, ArH), 7.50-7.52 (m, 1H, ArH), 7.65-7.79 (m, 3H, ArH), 7.90 (dd, J_1 = 6.0 Hz, J_2 = 3.0 Hz, 2H, ArH), 8.02 (dd, J_1 = 6.0 Hz, J_2 = 3.0 Hz, 2H, ArH), 8.10 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 40.2, 76.6, 121.6, 123.9, 126.4, 126.9, 127.5, 128.3, 129.8, 136.1, 137.1, 140.4, 146.5, 156.7, 199.1 ppm; ESI-HR-MS: m/z = 326.0795 , calcd. for $C_{19}H_{13}NNaO_3$$[M+Na]^+$: 326.0793.

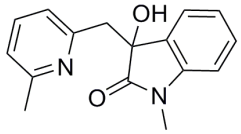
3-hydroxy-3-((6-methylpyridin-2-yl)methyl)indolin-2-one (5a)



CAS registry No.: 199929-32-3.

White solid (68% yield), mp:194-196 ^{o}C; IR (ATR, neat) v = 656, 737, 1110, 1174, 1474, 1620, 1710, 3065, 3259 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 2.61 (s, 3H, CH_3), 3.02 (d, J = 14.5 Hz, 1H, CH_2), 3.31 (d, J = 15.0 Hz, 1H, CH_2), 6.75 (d, J = 7.0 Hz, 1H, ArH), 6.83-6.91 (m, 3H, ArH), 7.14 (d, J = 8.0 Hz, 1H, ArH), 7.18-7.22 (m, 1H, ArH), 7.55 (t, J = 8.0 Hz, 1H, ArH), 8.09 (s, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 24.3, 42.4, 76.5, 110.1, 121.6, 122.0, 122.6, 124.3, 129.2, 131.7, 137.4, 139.9, 156.9, 157.3, 178.9 ppm; ESI-HR-MS: m/z = 277.0962, calcd. for $C_{15}H_{14}N_2NaO_2$[M+Na]$^{+}$: 277.0953.

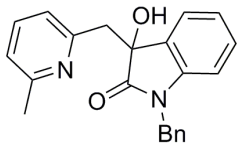
3-hydroxy-1-methyl-3-((6-methylpyridin-2-yl)methyl)indolin-2-one (5b)



CAS registry No.: 1356219-59-4.

White solid (62% yield), mp: 127-129 ^{o}C; IR (ATR, neat) v = 601, 756, 1094, 1469, 1618, 1697, 3280 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 2.60 (s, 3H, CH_3), 3.01 (d, J = 15.0 Hz, 1H, CH_2), 3.19 (s, 3H, CH_3), 3.30 (d, J = 14.5 Hz, 1H, CH_2), 6.77 (d, J = 7.0 Hz, 1H, ArH), 6.81 (d, J = 8.0 Hz, 1H, ArH), 6.85 (d, J = 7.5 Hz, 1H, ArH), 6.91-6.94 (m, 1H, ArH), 7.13 (d, J = 8.0 Hz, 1H, ArH), 7.25-7.28 (m, 1H, ArH), 7.54 (t, J = 8.0 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 24.2, 26.1, 42.2, 76.1, 108.1, 121.4, 121.8, 122.6, 123.8, 129.2, 131.2, 137.3, 142.9, 157.0, 157.2, 176.8 ppm; ESI-HR-MS : m/z = 291.1119, calcd. for $C_{16}H_{16}N_2NaO_2$ [M+Na]$^{+}$:291.1109.

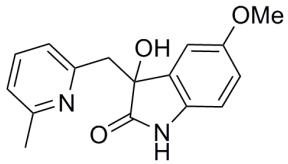
1-benzyl-3-hydroxy-3-((6-methylpyridin-2-yl)methyl)indolin-2-one (5c)



CAS registry No.: 1356219-73-2.

Light yellow Solid (76% yield), mp: 176-179 ^{o}C; IR (ATR, neat) v = 605, 749, 1078, 1352, 1616, 1720, 2924, 3178 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 2.62 (s, 3H, CH_3), 3.06 (d, J = 14.5 Hz, 1H, CH_2), 3.35 (d, J = 14.5 Hz, 1H, CH_2), 4.81-4.96 (m, 2H, CH_2), 6.69 (d, J = 7.5 Hz, 1H, ArH), 6.81 (d, J = 6.5 Hz, 1H, ArH), 6.88 (q, J = 7.5 Hz, 2H, ArH), 7.13-7.16 (m, 2H, ArH), 7.26-7.33 (m, 5H, ArH), 7.56 (t, J = 8.0 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 24.3, 42.5, 43.6, 76.2, 109.2, 121.5, 121.9, 122.7, 123.9, 127.2, 127.5, 128.7, 129.1, 131.2, 135.7, 137.4, 141.9, 156.8, 157.2, 176.9 ppm; ESI-HR-MS: m/z = 367.1415, calcd. for $C_{22}H_{20}N_2NaO_2$ [M+Na]$^{+}$: 367.1422.

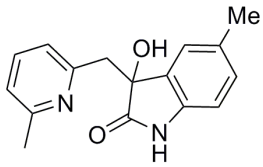
3-hydroxy-5-methoxy-3-((6-methylpyridin-2-yl)methyl)indolin-2-one (5d)



CAS registry No.:1384978-74-8.

White solid (59% yield), mp: 197-199 ^{o}C; IR (ATR, neat) v = 645, 800, 1204, 1281, 1484, 1595, 1696, 2959, 3254 cm^{-1}; ^{1}H NMR (500 MHz, CD_3OD): δ = 2.39 (s, 3H, CH_3), 3.15 (d, J = 13.0 Hz, 1H, CH_2), 3.35 (d, J = 13.5 Hz, 1H, CH_2), 3.65 (s, 3H, CH_3), 6.45 (d, J = 2.5 Hz, 1H, ArH), 6.65-6.72 (m, 2H, ArH), 7.09 (dd, J_1 = 8.0 Hz, J_2 = 3.0 Hz, 2H, ArH), 7.55 (t, J = 7.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, CD_3OD): δ = 23.8, 45.5, 56.1, 78.2,111.5, 112.7, 115.5, 122.9, 123.3, 133.0, 135.6, 138.2, 156.5, 157.1, 158.4, 181.4 ppm; ESI-HR-MS: m/z = 307.1052, calcd. for $C_{16}H_{16}N_2NaO_3$ $[M+Na]^+$: 307.1058.

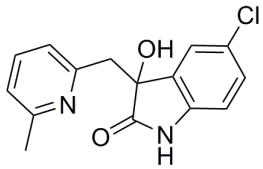
3-hydroxy-5-methyl-3-((6-methylpyridin-2-yl)methyl)indolin-2-one (5e)



CAS registry No.: none.

White solid (64% yield), mp: 193-195 ^{o}C; IR (ATR, neat) v = 646, 814, 955, 1102, 1311, 1490, 1596, 1694, 3328 cm^{-1}; ^{1}H NMR (500 MHz, CD_3OD): δ = 2.20 (s, 3H, CH_3), 2.39 (s, 3H, CH_3), 3.16 (d, J = 13.5 Hz, 1H, CH_2), 3.33 (d, J = 13.5 Hz, 1H, CH_2), 6.63 (d, J = 7.0 Hz, 1H, ArH), 6.67 (s, 1H, OH), 6.96 (dd, J_1 = 8.0 Hz, J_2 = 2.0 Hz, 1H, ArH), 7.07 (t, J = 8.5 Hz, 2H, ArH), 7.53 (t, J = 8.0 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, CD_3OD): δ = 21.1, 23.7, 45.6, 77.9, 110.7, 122.8, 123.2, 126.7, 130.6, 131.9, 132.7, 138.2, 140.0, 156.6, 158.3, 181.5 ppm; ESI-HR-MS : m/z = 291.1118, calcd. for $C_{16}H_{16}N_2NaO_2$ $[M+Na]^+$: 291.1109.

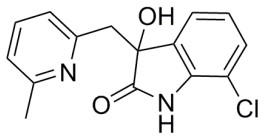
5-chloro-3-hydroxy-3-((6-methylpyridin-2-yl)methyl)indolin-2-one (5f)



CAS registry No.: 1384978-73-7.

White solid (81% yield), mp: 189-192 ^{o}C; IR (ATR, neat) v = 636, 808, 1110, 1160, 1297, 1461, 1597, 1702, 3263 cm^{-1}; ^{1}H NMR (500 MHz, CD_3OD): δ = 2.39 (s, 3H, CH_3), 3.17 (d, J = 13.5 Hz, 1H, CH_2), 3.35 (d, J = 12.5 Hz, 1H, CH_2), 6.71 (d, J = 8.0 Hz, 1H, ArH), 6.81 (d, J = 2.5 Hz, 1H, ArH), 7.09 (d, J = 7.5 Hz, 2H, ArH), 7.14-7.16 (m, 1H, ArH), 7.56 (t, J = 7.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, CD_3OD): δ = 23.8, 45.4, 77.8, 112.1, 122.9, 123.2, 126.4, 128.3, 130.2, 133.8, 138.2, 141.3, 156.1, 158.5, 181.1 ppm; ESI-HR-MS: m/z = 311.0554, calcd. for $C_{15}H_{13}ClN_2NaO_2$ $[M+Na]^+$:311.0563.

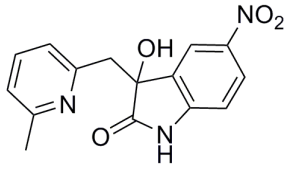
7-chloro-3-hydroxy-3-((6-methylpyridin-2-yl)methyl)indolin-2-one (5g)



CAS registry No.: none.

Light yellow solid (83% yield), mp: 169-172 °C; IR (ATR, neat) v = 730, 780, 1055, 1139, 1319, 1462, 1617, 1727, 3092, 3159 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 2.60 (s, 3H, CH_3), 3.03 (d, J = 14.5 Hz, 1H, CH_2), 3.32 (d, J = 15.0 Hz, 1H, CH_2), 6.65 (d, J = 7.5 Hz, 1H, ArH), 6.87-6.83 (m, 2H, ArH), 7.14 (d, J = 7.0 Hz, 1H, ArH), 7.18-7.19 (m, 1H, ArH), 7.55 (t, J = 8.0 Hz, 1H, ArH) ppm; ^{13} NMR (125 MHz, $CDCl_3$): δ = 24.2, 42.2, 77.4, 115.3, 121.5, 122.0, 122.4, 123.4, 129.0, 133.1, 137.5, 137.8, 156.4, 157.3, 178.0 ppm; ESI-HR-MS: m/z = 311.0572, calcd. for $C_{15}H_{13}ClN_2NaO_2$ $[M+Na]^+$:311.0563.

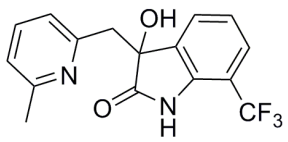
3-hydroxy-3-((6-methylpyridin-2-yl)methyl)-5-nitroindolin-2-one (5h)



CAS registry No.: none.

Yellow solid (72% yield), mp: 209-211 °C; IR (ATR, neat) v = 778, 1036, 1332, 1455, 1516, 1619, 1709, 3226 cm^{-1}; ^1H NMR (500 MHz, CD_3OD): δ = 2.34 (s, 3H, CH_3), 3.22 (d, J = 13.5 Hz, 1H, CH_2), 3.42 (d, J = 13.5 Hz, 1H, CH_2), 6.90 (d, J = 8.5 Hz, 1H, ArH), 7.10 (dd, J_1 = 12.5 Hz, J_2 = 7.5 Hz, 2H, ArH), 7.57 (t, J = 7.5 Hz, 1H, ArH), 7.71 (d, J = 2.5 Hz, 1H, ArH), 8.14 (dd, J_1 = 8.5 Hz, J_2 = 2.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, CD_3OD): δ = 23.7, 45.3, 77.2, 110.9, 121.9, 123.0, 123.3, 127.3, 133.0, 138.3, 144.2, 149.0, 155.8, 158.6, 181.5 ppm; ESI-HR-MS: m/z =322.0804, calcd. for $C_{15}H_{13}N_3NaO_4$ $[M+Na]^+$: 322.0804.

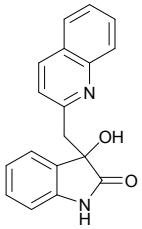
3-hydroxy-3-((6-methylpyridin-2-yl)methyl)-7-(trifluoromethyl)indolin-2-one (5i)



CAS registry No.: none.

Light yellow solid (90% yield), mp: 166-168 °C; IR (ATR, neat) v = 711, 814, 1110, 1342, 1458, 1623, 1735, 3125, 3238 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 2.61 (s, 3H, CH_3), 3.07 (d, J = 15.0 Hz, 1H, CH_2), 3.28 (d, J = 15.5 Hz, 1H, CH_2), 6.88 (d, J = 7.0 Hz, 1H, ArH), 6.97-7.03 (m, 2H, ArH), 7.16 (d, J = 8.0 Hz, 1H, ArH), 7.42 (d, J = 7.0 Hz, 1 H, ArH), 7.57 (t, J = 7.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 24.2, 42.1, 75.4, 111.9, 112.1, 112.4, 121.5, 122.1, 122.4, 122.6, 124.8, 125.8, 125.9, 126.0, 127.6, 133.2, 137.5, 137.6, 156.2, 157.3, 178.2 ppm; ESI-HR-MS: m/z = 345.0816, calcd. for $C_{16}H_{13}F_3N_2NaO_2$ $[M+Na]^+$:345.0826.

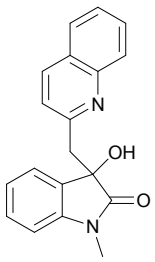
3-Hydroxy-3-(quinolin-2-ylmethyl)indolin-2-one (6a)



CAS registry No.: none.

Yellow solid (60% yield), mp 185-187 °C; IR (ATR, neat) v = 594, 636, 750, 832, 1084, 1201, 1315, 1470, 1618, 1723, 3147, 3416 cm^{-1}; ^1H NMR ($CDCl_3$+MeOD, 400 MHz): δ = 3.21 (d, J = 14.4 Hz, 1H), 3.50 (d, J = 14.4 Hz, 1H), 6.70-6.79 (m, 3H), 7.06-7.11 (m, 1H), 7.18 (d, J = 8.4 Hz, 1H), 7.48 (t, J = 7.4 Hz, 1H), 7.64-7.69 (m, 1H), 7.76 (d, J = 8.0 Hz, 1H), 7.95 (d, J = 8.4 Hz, 1H), 8.05 (d, J = 8.4 Hz, 1H) ppm; ^{13}C NMR ($CDCl_3$+MeOD, 100 MHz): δ = 43.8, 76.6, 110.2, 122.5, 122.8, 124.4, 126.5, 127.0, 127.6, 128.4, 129.4, 130.0, 131.0, 136.9, 140.5, 146.7, 157.8, 179.3 ppm; ESI-HR-MS: m/z = 291.1128 $[M+H]^+$, calcd. for $C_{18}H_{15}N_2O_2$ $[M+H]^+$:291.1125.

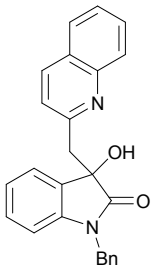
3-Hydroxy-1-methyl-3-(quinolin-2-ylmethyl)indolin-2-one (6b)



CAS registry No.: none.

Yellow solid (49% yield), mp 158-160°C; IR (ATR, neat) v = 602, 695, 754, 781, 1015, 1065, 1478, 1501, 1618, 1696, 3058, 3280 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 3.21 (s, 3H), 3.22 (d, J = 14.4 Hz, 1H), 3.56 (d, J = 14.4 Hz, 1H), 6.82 (d, J = 8.0 Hz, 1H), 6.88 (t, J = 7.6 Hz, 1H), 7.18 (d, J = 8.4 Hz, 1H), 7.24-7.28 (m, 1H), 7.52-7.60 (m, 1H), 7.74-7.79 (m, 1H), 7.84 (d, J = 8.0 Hz, 1H), 8.10 (d, J = 8.4 Hz, 1H), 8.14 (d, J = 8.4 Hz, 1H) ppm; ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 26.3, 43.1, 76.4, 108.3, 122.7, 122.8, 124.0, 126.7, 127.1, 127.7, 128.8, 129.4, 130.2, 131.2, 137.2, 143.1, 146.6, 158.7, 176.7 ppm; ESI-HR-MS: m/z = 305.1285, calcd. for $C_{19}H_{17}N_2O_2$ $[M+H]^+$: 305.1283.

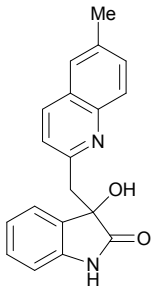
1-Benzyl-3-hydroxy-3-(quinolin-2-ylmethyl)indolin-2-one (6c)



CAS registry No.:none.

Yellow solid(43% yield), mp 146-148 °C; IR (ATR, neat) v = 691, 750, 832, 980, 1085, 1167, 1198, 1350, 1427, 1490, 1614, 1712, 2918, 3148, 3404 cm^{-1}; ^1H NMR ($CDCl_3$+MeOD, 400 MHz): δ = 3.30 (d, J = 14.8 Hz, 1H), 3.62 (d, J = 14.8 Hz, 1H), 4.76 (d, J = 15.6 Hz, 1H), 4.93 (d, J = 15.6 Hz, 1H), 6.64 (d, J = 8.0 Hz, 1H), 6.84-6.91 (m, 2H), 7.09-7.20 (m, 7H), 7.54 (t, J = 7.2 Hz, 1H), 7.72 (d, J = 7.6 Hz, 1H), 7.80 (d, J = 8.4 Hz, 1H), 8.03 (d, J = 8.0 Hz, 1H), 8.07 (d, J = 8.0 Hz, 1H) ppm; ^{13}C NMR ($CDCl_3$+MeOD, 100 MHz): δ = 43.7, 43.8, 76.3, 109.3, 122.6, 122.9, 124.1, 126.5, 127.0, 127.1, 127.5, 127.6, 128.6, 128.7, 129.3, 130.0, 130.7, 135.4, 137.0, 142.0, 146.7, 157.8, 177.0 ppm; ESI-HR-MS: m/z = 381.1598, calcd. for $C_{25}H_{21}N_2O_2$ $[M+H]^+$: 381.1595.

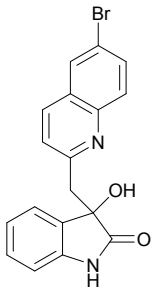
3-Hydroxy-3-((6-methylquinolin-2-yl)methyl)indolin-2-one (6d)



CAS registry No.: none.

Yellow solid (45% yield), mp 186-187 °C; IR (ATR, neat) v = 583, 746, 824, 1081, 1197, 1221, 1326, 1439, 1474, 1618, 1727, 3151, 3408 cm^{-1}; ^1H NMR (MeOD, 400 MHz): δ = 2.50 (s, 3H), 3.21 (d, J = 13.2 Hz, 1H), 3.58 (d, J = 13.2 Hz, 1H), 6.72 (d, J = 7.6 Hz, 1H), 6.84-6.88 (m, 2H), 7.14-7.09 (m, 1H), 7.39 (d, J = 8.4 Hz, 1H), 7.53 (dd, J_1 = 8.4 Hz, J_2 = 1.6 Hz, 1H), 7.61 (s, 1H), 7.75 (d, J = 8.4 Hz, 1H), 8.06 (d, J = 8.8 Hz, 1H) ppm; ^{13}C NMR (MeOD, 100 MHz): δ = 20.1, 45.1, 76.4, 109.7, 121.8, 122.7, 124.5, 126.2, 127.1, 127.2, 129.1, 130.5, 131.6, 135.6, 136.3, 141.2, 145.4, 155.8, 180.1 ppm; ESI-HR-MS: m/z = 305.1285, calcd. for $C_{19}H_{17}N_2O_2$ $[M+H]^+$: 305.1283

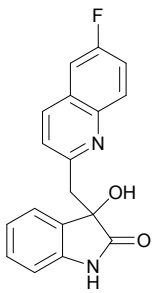
3-((6-bromoquinolin-2-yl)methyl)-3-hydroxyindolin-2-one (6e)



CAS registry No.: none.

Yellow solid (41% yield), mp 192-193°C; IR (ATR, neat) v = 629, 750, 836, 964, 1092, 1182, 1225, 1314, 1384, 1470, 1591, 1622, 1715, 1738, 3202, 3440 cm^{-1};^1H NMR (MeOD, 400 MHz): δ = 3.45 (d, J = 13.2 Hz, 1H), 3.60 (d, J = 13.6 Hz, 1H), 6.72 (d, J = 8.0 Hz, 1H), 6.87 (dt, J_1= 7.6 Hz, J_2 = 0.8 Hz, 1H), 6.93-6.95 (m, 1H), 7.12 (dt, J_1 = 7.6 Hz, J_2 = 1.2 Hz, 1H), 7.44 (d, J = 8.4 Hz, 1H), 7.76 (d, J = 1.2 Hz, 2H), 8.05 (t, J = 1.2 Hz ,1H), 8.09 (d, J = 8.4 Hz, 1H) ppm; ^{13}C NMR (MeOD, 100 MHz): δ = 45.3, 76.3, 109.7, 119.6, 121.9, 123.7, 124.4, 128.2, 129.2, 129.5, 129.6, 130.5, 132.6, 135.2, 141.3, 145.5, 157.5, 180.0 ppm; ESI-HR-MS: m/z = 369.0233, calcd. for $C_{18}H_{14}N_2O_2Br$ $[M+H]^+$: 369.0232.

3-((7-fluoroquinolin-2-yl)methyl)-3-hydroxyindolin-2-one (6f)

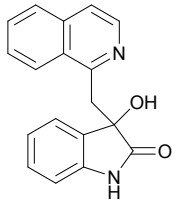


CAS registry No.: none.

Yellow solid(57% yield), mp 179-181°C; 614, 637, 707, 754, 847, 964, 1084, 1116, 1163, 1201, 1287, 1341, 1427, 1474, 1509, 1622, 1704, 3147, 3303 cm^{-1}; ^1H NMR (MeOD, 400 MHz): δ = 3.45 (d, J = 13.6 Hz, 1H), 3.60 (d, J = 13.2 Hz, 1H), 6.72 (d, J = 7.6 Hz, 1H), 6.88 (t, J = 7.2 Hz, 1H), 6.95 (d, J = 6.8 Hz, 1H), 7.12 (dt, J_1 = 8.0 Hz, J_2 = 1.2 Hz, 1H), 7.33-7.40 (m, 2H), 7.90 (dd, J_1 = 10.4 Hz, J_2 = 2.4 Hz, 1H), 7.90 (dd, J_1 = 8.8 Hz, J_2 = 6.0 Hz, 1H), 8.15 (d, J = 8.4 Hz, 1H) ppm; ^{13}C NMR (MeOD, 100 MHz): δ = 45.3, 76.6, 109.7, 110.9, 111.1, 116.1, 116.4, 121.9, 122.1, 124.1, 124.4,

129.2, 129.9, 130.0, 130.4, 136.1, 141.3, 147.7, 158.1, 161.9, 164.4, 180.0 ppm; ESI-HR-MS: *m/z* = 309.1034, calcd. for $C_{18}H_{14}N_2O_2F$ $[M+H]^+$: 309.1032.

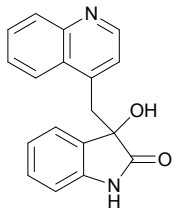
3-Hydroxy-3-(isoquinolin-1-ylmethyl)indolin-2-one (6g)



CAS registry No.: none.

Yellow solid (60% yield), mp 147-149 °C; IR (ATR, neat) *v* = 575, 637, 758, 1026, 1221, 1314, 1388, 1470, 1618, 1734, 2925, 3272 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz): δ = 3.63 (d, *J* = 16.0 Hz, 1H), 3.85 (d, *J* = 16.0 Hz, 1H), 6.81-6.85 (m, 2H), 6.95(d, *J* = 7.2 Hz, 1H), 7.14-7.18 (m, 2H), 7.71-7.67 (m, 1H), 7.51-7.55 (m, 1H), 7.66-7.70 (m, 2H), 7.85 (d, *J* = 8.4 Hz, 1H), 7.90 (d, *J* = 8.4 Hz, 1H), 8.43 (s, 1H), 8.51 (d, *J* = 7.0 Hz, 1H) ppm; ^{13}C NMR ($CDCl_3$, 100 MHz): δ = 37.7, 76.6, 110.2, 120.5, 122.7, 124.6, 124.7, 127.6, 127.7, 127.3, 130.6, 132.0, 136.3, 140.0, 158.3, 179.0 ppm; ESI-HR-MS: *m/z* = 291.1128, calcd. for $C_{18}H_{14}N_2O_2F$ $[M+H]^+$: 291.1125.

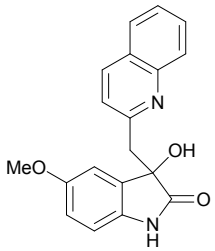
3-Hydroxy-3-(quinolin-4-ylmethyl)indolin-2-one (6h)



CAS registry No.: none.

Yellow solid (24% yield), mp192-194°C; IR (ATR, neat) *v* = 645, 738, 766, 1124, 1167, 1213, 1314, 1404, 1474, 1590, 1626, 1715, 3319 cm^{-1}; ^1H NMR (MeOD, 400 MHz): δ = 3.68 (d, *J* = 13.2 Hz, 1H), 3.76 (d, *J* = 13.2 Hz, 1H), 6.67 (d, *J* = 7.6 Hz, 1H), 6.83 (dt, J_1 = 7.6 Hz, J_2 = 0.8 Hz, 1H), 6.99 (d, *J* = 7.2 Hz, 1H), 7.10 (dt, J_1 = 8.0 Hz, J_2 = 1.2 Hz, 1H), 7.22 (d, *J* = 4.8 Hz, 1H), 7.46-7.50 (m, 1H), 7.65-7.68 (m, 1H), 7.93 (d, *J* = 8.0 Hz, 1H), 8.11 (d, *J* = 8.0 Hz, 1H), 8.59 (d, *J* = 4.4 Hz, 1H) ppm; ^{13}C NMR (MeOD, 100 MHz): δ = 38.5, 76.9, 109.7, 121.8, 123.5, 124.7, 124.8, 126.0, 128.0, 128.2, 129.2, 129.3, 130.2, 141.1, 142.8, 147.4, 148.4, 180.2 ppm; ESI-HR-MS: *m/z* = 291.1128, calcd. for $C_{18}H_{14}N_2O_2F$ $[M+H]^+$: 291.1125.

3-Hydroxy-5-methoxy-3-(quinolin-2-ylmethyl)indolin-2-one (6i)

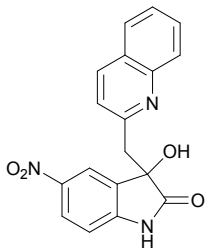


CAS registry No.: none.

Yellow solid (37% yield), mp 174-175°C; IR (ATR, neat) *v* = 645, 781, 839, 1088, 1158, 1201, 1264, 1431, 1485, 1598, 1707, 3311 cm^{-1}; ^1H NMR (MeOD, 400 MHz): δ = 3.38 (d, *J* = 13.2 Hz, 1H), 3.50 (s, 3H), 3.61 (d, *J* = 13.6 Hz, 1H), 6.42 (d, *J* = 2.4Hz, 1H), 6.64-6.70 (m, 2H), 7.48 (d, *J* = 8.4 Hz, 1H), 7.54 (t, *J* = 7.6 Hz, 1H), 7.67-7.71 (m, 1H), 7.87 (t, *J* = 7.2 Hz, 2H), 8.19 (d, *J* = 8.4 Hz, 1H)

ppm; ^{13}C NMR (MeOD, 100 MHz): δ = 46.6, 56.0, 78.1, 111.6, 112.5, 115.8, 124.3, 127.6, 128.5, 128.8 , 128.9, 130.8, 132.9, 135.7, 137.6, 148.2, 157.1, 158.3, 181.5 ppm; ESI-HR-MS: *m/z* = 321.1234, calcd. for $C_{19}H_{16}N_2O_3$ $[M+H]^+$: 321.1233.

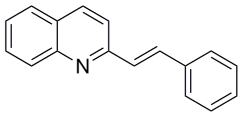
3-Hydroxy-5-nitro-3-(quinolin-2-ylmethyl)indolin-2-one (6j)



CAS registry No.: none.

Yellow solid (37% yield); mp 130-132 °C; IR (ATR, neat) *v* = 750, 832, 1104, 1334, 1384, 1524, 1618, 1735, 2921, 3420 cm^{-1}; ^{1}H NMR ($CDCl_3$+MeOD, 400 MHz): δ = 3.24 (d, *J* = 14.4 Hz, 1H), 3.42 (d, *J* = 14.0 Hz, 1H), 6.68 (d, *J* = 8.4 Hz, 1H), 7.13(d, *J* = 8.8 Hz, 1H), 7.32 (t, *J* = 7.2 Hz, 1H), 7.48 (t, *J* = 7.2 Hz, 1H), 7.60-7.62 (m, 2H), 7.67 (d, *J* = 8.4 Hz, 1H),7.91 (t, *J* = 8.4 Hz, 2H) ppm; ^{13}C NMR ($CDCl_3$+MeOD, 100 MHz): δ = 43.9, 75.6, 109.5, 120.2, 122.2, 126.0, 126.3, 126.7, 127.3, 127.7, 129.6, 131.4, 136.6, 142.5, 146.5, 147.3, 155.9, 179.4 ppm; ESI-HR-MS: *m/z* = 336.0979, calcd. for $C_{18}H_{14}N_3O_4$ $[M+H]^+$: 336.0980.

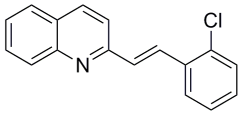
(*E*)-2-styrylquinoline (9aa)



CAS registry No.: 38101-69-8.

White solid (96% yield); mp: 99-101°C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.32-7.52 (m, 5H, ArH), 7.64-7.73 (m, 5H, ArH), 7.79 (d, *J* = 8.0 Hz, 1H, CH), 8.08 (d, *J* = 8.0 Hz, 1H, CH), 8.14 (d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.2, 126.1, 127.2, 127.3, 127.5, 128.6, 128.8, 129.0, 129.2, 129.7, 134.4, 136.3, 136.5, 148.3, 156.0 ppm; EI-HR-MS: *m/z* = 231.1054, calcd. for $C_{17}H_{13}N$: 231.1048.

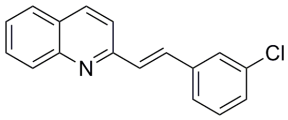
(*E*)-2-(2-chlorostyryl)quinoline (9ab)



CAS registry No.: 14174-62-0.

Light yellow oil (93% yield); ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.24-7.33 (m, 2H, ArH), 7.40-7.53 (m, 3H, ArH), 7.70-7.84 (m, 4H, ArH), 8.05 (d, *J* = 16.5 Hz, 1H, CH), 8.09 (d, *J* = 8.5 Hz, 1H, CH), 8.15 (d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.0, 126.4, 126.9, 127.1, 127.4, 127.5, 129.3, 129.5, 129.8, 130.0, 130.2, 131.8, 134.1, 134.6, 136.4, 148.2, 155.8 ppm; EI-HR-MS: *m/z* = 265.0650, calcd. for $C_{17}H_{12}ClN$: 265.0658.

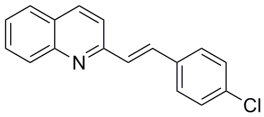
(*E*)-2-(3-chlorostyryl)quinoline (9ac)



CAS registry No.: 1318193-02-0.

White solid (95% yield), mp: 96-99 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.28-7.41 (m, 3H, ArH), 7.50-7.53 (m, 2H, ArH), 7.62-7.73 (m, 4H, ArH), 7.79 (dd, J_1 = 8.0 Hz, J_2 = 1.5 Hz, 1H, ArH), 8.08 (d, J = 8.5 Hz, 1H, CH), 8.14 (d, J = 8.5 Hz, 1H, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.4, 125.4, 126.3, 127.0, 127.4, 127.5, 128.4, 129.3, 129.8, 129.9, 130.3, 132.7, 134.7, 136.4, 138.4, 148.2, 155.3 ppm; EI-HR-MS: *m/z* = 265.0649, calcd. for $C_{17}H_{12}ClN$: 265.0658.

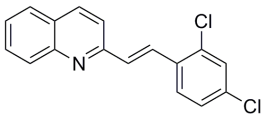
(*E*)-2-(4-chlorostyryl)quinoline (9ad)



CAS registry No.: 38101-91-6.

White solid (94% yield), mp: 142-145 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.36-7.39 (m, 3H, ArH), 7.49-7.58 (m, 3H, ArH), 7.64-7.73 (m, 3H, ArH), 7.79 (d, J = 8.5 Hz, 1H, CH), 8.08 (d, J = 9.0 Hz, 1H, CH), 8.14 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.4, 126.3, 127.4, 127.5, 128.4, 129.0, 129.2, 129.5, 129.8, 133.0, 134.3, 135.0, 136.4, 148.3, 155.6 ppm; EI-HR-MS: *m/z* = 265.0648, calcd. for $C_{17}H_{12}ClN$: 265.0658.

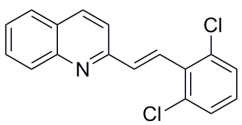
(*E*)-2-(2,4-dichlorostyryl)quinoline (9ae)



CAS registry No.: 496799-59-8.

White solid (97% yield), mp: 136-138 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.30 (dd, J_1 = 8.5 Hz, J_2 = 2.0 Hz, 1H, ArH), 7.39 (d, J = 16.5 Hz, 1H, CH), 7.45 (d, J = 2.5 Hz, 1H, ArH), 7.52-7.55 (m, 1H, ArH), 7.71-7.76 (m, 3H, ArH), 7.81 (d, J = 8.0 Hz, 1H, ArH), 7.98 (d, J = 16.5 Hz, 1H, CH), 8.09 (d, J = 8.5 Hz, 1H, ArH), 8.17 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.0, 126.5, 127.5, 127.6, 129.0, 129.4, 129.7, 129.8, 132.2, 133.3, 134.5, 136.5, 148.2, 155.4 ppm; EI-HR-MS: *m/z* = 299.0266, calcd. for $C_{17}H_{11}Cl_2N$: 299.0269.

(*E*)-2-(2,6-dichlorostyryl)quinoline (9af)

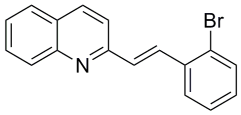


CAS registry No.: 907163-89-7.

White solid (91% yield), mp: 91-93 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.16 (t, J = 8.0 Hz, 1H, ArH)，7.39 (d, J = 8.5 Hz, 1H, CH), 7.70-7.82(m, 4H, ArH), 7.49-7.54 (m, 2H, ArH), 8.12 (d, J = 8.5 Hz, 1H, CH), 8.17 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ =119.3, 126.4, 127.4, 127.5, 128.1, 128.6, 129.5, 129.7, 133.8, 134.8, 136.4, 148.2,

137.1, 155.2 ppm; EI-HR-MS: *m/z* = 299.0271, calcd. for $C_{17}H_{11}Cl_2N$: 299.0269.

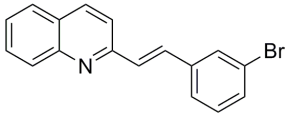
(*E*)-2-(2-bromostyryl)quinoline (9ag)



CAS registry No.: none.

Light yellow oil (99% yield); ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.15-7.19 (m, 1H, ArH)，7.33-7.38 (m, 2H, ArH), 7.69-7.81 (m, 4H, ArH), 7.51 (t, *J* = 8.0 Hz, 1H, ArH), 7.62 (d, *J* = 8.0 Hz, 1H, CH), 8.00 (d, *J* = 16.5 Hz, 1H, CH), 8.09 (d, *J* = 8.5 Hz, 1H, ArH), 8.13 (d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 118.9, 124.7, 126.4, 127.1, 127.4, 127.5, 127.7, 129.3, 129.7, 129.8, 132.0, 132.9, 133.2,136.3, 136.4, 148.2, 155.7 ppm; EI-HR-MS: *m/z* = 309.0160, calcd. for $C_{17}H_{12}BrN$: 309.0153.

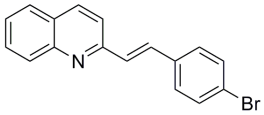
(*E*)-2-(3-bromostyryl)quinoline (9ah)



CAS registry No.: 1049983-48-3.

White solid (99% yield), mp: 104-106 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.24-7.44 (m, 3H, ArH)，7.49-7.54 (m, 2H, ArH), 7.59-7.63 (m, 2H, ArH), 7.70-7.79 (m, 3H, ArH), 8.12 (d, *J* = 8.5 Hz, 1H, CH), 8.07 (d, *J* = 9.0 Hz, 1H, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.4, 122.9, 125.8, 126.4, 127.4, 127.5, 129.3, 129.8, 130.0, 130.2, 130.3, 131.3, 132.6, 136.4, 138.7, 148.2, 155.3 ppm; EI-HR-MS: *m/z* = 309.0157, calcd. for $C_{17}H_{12}BrN$: 309.0153.

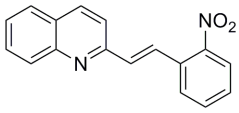
(*E*)-2-(4-bromostyryl)quinoline (9ai)



CAS registry No.: 1220212-12-3

White solid (96% yield), mp: 139-142 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.37 (d, *J* = 16.5 Hz, 1H, CH), 7.47-7.52 (m, 5H, ArH), 7.60-7.63 (m, 2H, ArH), 7.69-7.77 (m, 1H, ArH), 7.77 (d, *J* = 7.5 Hz, 1H, ArH), 8.07 (d, *J* = 8.5 Hz, 1H, CH), 8.11(d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.4, 122.5, 126.3, 127.4, 127.5, 128.7, 129.2, 129.6, 129.8, 132.0, 133.0, 135.5, 136.4, 148.3, 155.6 ppm; EI-HR-MS: *m/z* = 309.0160, calcd. for $C_{17}H_{12}BrN$: 309.0153.

(*E*)-2-(2-nitrostyryl)quinoline (9aj)

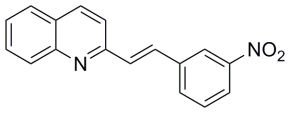


CAS registry No.: none.

Yellow solid (94% yield), mp: 101-103 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.41 (d, *J* = 16.5 Hz, 1H, CH), 7.45-7.55 (m, 2H, ArH), 7.63-7.82 (m, 4H, ArH), 7.88 (d, *J* = 8.0 Hz, 1H, ArH), 8.02 (dd, J_1 = 8.0 Hz, J_2 = 1.5 Hz, 1H, ArH), 8.17 (d, *J* = 8.5 Hz, 1H, CH),

8.08-8.11(m, 2H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 118.9, 124.8, 126.6, 127.4, 127.5, 128.4, 128.7, 129.0, 129.3, 129.8, 132.2, 133.2, 134.1, 136.5, 148.1, 148.0, 155.1 ppm; EI-HR-MS: *m/z* = 276.0892, calcd. for $C_{17}H_{12}N_2O_2$: 276.0899.

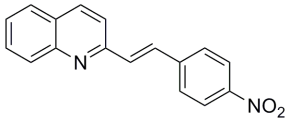
(*E*)-2-(3-nitrostyryl)quinoline (9ak)



CAS registry No.: none.

Light yellow solid (90% yield), mp: 157-159 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.48-7.58 (m, 3H, ArH), 7.65 (d, *J* = 8.5 Hz, 1H, CH), 7.72-7.82 (m, 3H, ArH), 7.91 (d, *J* = 7.5 Hz, 1H, ArH), 8.09 (d, *J* = 8.5 Hz, 1H, CH), 8.14-8.18 (m, 2H, ArH), 8.48-8.49 (m, 1H, ArH) ppm; ^{13}C NMR(125 MHz, $CDCl_3$): δ = 119.6, 121.5, 122.8, 126.6, 127.5, 129.3, 129.6, 129.9, 131.5, 131.7, 132.8, 136.6, 138.3, 148.7, 148.2, 154.7 ppm; EI-HR-MS: *m/z* = 276.0898, calcd. for $C_{17}H_{12}N_2O_2$: 276.0899.

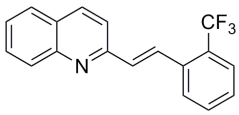
(*E*)-2-(4-nitrostyryl)quinoline (9al)



CAS registry No.: 855761-42-1.

Light yellow solid (92% yield), mp: 171-173 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.52-7.57 (m, 2H, ArH), 7.67 (d, *J* = 8.5 Hz, 1H, ArH), 7.73-7.83 (m, 5H, ArH), 8.10 (d, *J* = 8.5 Hz, 1H, CH), 8.19 (d, *J* = 9.0 Hz, 1H, CH), 8.26 (d, *J* = 9.0 Hz, 2H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.7, 124.2, 126.8, 127.5, 127.6, 129.4, 130.0, 131.6, 133.1, 136.7, 142.9, 147.4, 148.3, 154.6 ppm; EI-HR-MS: *m/z* = 276.0902, calcd. for $C_{17}H_{12}N_2O_2$: 276.0899.

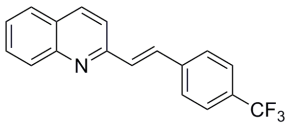
(*E*)-2-(2-(trifluoromethyl)styryl)quinoline (9am)



CAS registry No.: 1318193-05-3.

White solid (93% yield), mp: 94-95 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.40-7.61 (m, 4H, ArH), 7.71-7.76 (m, 3H, ArH), 7.81 (d, *J* = 8.0 Hz, 1H, CH), 7.92-8.00 (m, 2H, ArH), 8.10 (d, *J* = 8.5 Hz, 1H, ArH), 8.17 (d, *J* = 8.0 Hz, 1H, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 118.7, 123.3, 125.4, 125.8, 125.9, 126.0, 126.5, 127.3, 127.4, 127.8, 128.0, 129.3, 129.7, 132.0, 133.3, 135.5, 136.4, 148.1, 155.4 ppm; EI-HR-MS: *m/z* = 299.0914, calcd. for $C_{18}H_{12}F_3N$: 299.0922.

(*E*)-2-(4-(trifluoromethyl)styryl)quinoline (9an)

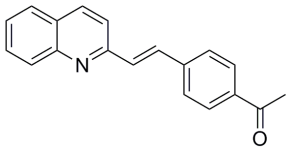


CAS registry No.: 1318193-04-2.

White solid (90% yield), mp: 123-126 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.46-7.55 (m, 2H, ArH), 7.65-7.74 (m, 7H, ArH), 7.81 (d, *J* = 8.0 Hz, 1H, CH), 8.10

(d, *J* = 8.5 Hz, 1H, ArH), 8.17 (d, *J* = 8.5 Hz, 1H, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.4, 123.0, 125.1, 125.6, 125.7, 126.4, 127.2, 127.5, 129.3, 129.8, 129.9, 130.1, 131.3, 132.5, 136.4, 139.9, 148.2, 155.1 ppm; EI-HR-MS: *m/z* = 299.0925, calcd. for $C_{18}H_{12}F_3N$: 299.0922.

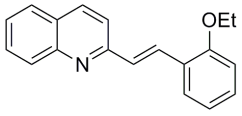
(*E*)-2-(4-acetylstyryl)quinoline (9ao)



CAS registry No.: 108701-11-7.

Yellow solid (76% yield), mp: 169-171 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 2.63 (s, 3H, CH_3), 7.49-7.54 (m, 2H, ArH), 7.67 (d, *J* = 8.5 Hz, 1H, CH), 7.71-7.75 (m, 4H, ArH), 7.80 (d, *J* = 8.0 Hz, 1H, ArH),, 7.99 (d, *J* = 8.5 Hz, 2H, ArH), 8.09 (d, *J* = 8.5 Hz, 1H, CH), 8.16 (d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 26.6, 119.5, 126.5, 127.4, 127.2, 127.5, 128.8, 129.3, 129.8, 132.9, 131.5, 136.5, 136.6, 141.0, 148.2, 155.2, 197.4 ppm; EI-HR-MS: *m/z* = 273.1164, calcd. for $C_{19}H_{15}NO$: 273.1154.

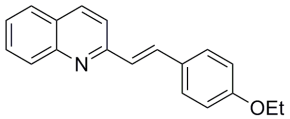
(*E*)-2-(2-ethoxystyryl)quinoline (9ap)



CAS registry No.: 1287429-73-5.

Light yellow oil (89% yield); ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.51 (t, *J* = 6.5 Hz, 3H, CH_3), 4.13 (q, *J* = 6.5 Hz, 2H, CH_2), 6.91 (d, *J* = 8.5 Hz, 1H, CH), 6.98 (t, *J* = 7.5 Hz, 1H, ArH), 7.25-7.29 (m, 1H, CH), 7.45-7.46 (m, 2H, ArH), 7.67-7.77 (m, 4H, ArH), 8.02-8.10 (m, 3H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.9, 63.9, 112.1, 119.0, 120.7, 125.6, 125.9, 127.1, 127.2, 127.4, 129.2, 129.3, 129.4, 129.5, 129.7, 136.1, 148.2, 156.8, 156.7 ppm; EI-HR-MS: *m/z* = 275.1307, calcd. for $C_{19}H_{17}NO$: 275.1310.

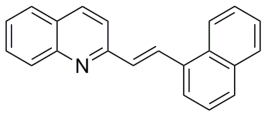
(*E*)-2-(4-ethoxystyryl)quinoline (9aq)



CAS registry No.: 161987-49-1.

White solid (85% yield), mp:139-141 °C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.43 (t, *J* = 7.0 Hz, 3H, CH_3), 4.06 (q, *J* = 7.0 Hz, 2H, CH_2), 6.91-6.92 (m, 1H, ArH), 7.25-7.29 (m, 1H, CH), 7.45-7.48 (m, 1H, ArH), 7.56-7.70 (m, 5H, ArH), 7.76 (dd, J_1 = 8.0 Hz, J_2 = 1.0 Hz, 1H, CH), 8.05-8.09 (m, 2H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.8, 63.5, 114.7, 119.1, 125.9, 126.7, 127.2, 127.4, 129.1, 129.6, 128.6, 134.1, 136.2, 148.3, 156.4, 159.5 ppm; EI-HR-MS: *m/z* = 275.1306, calcd. for $C_{19}H_{17}NO$: 275.1310.

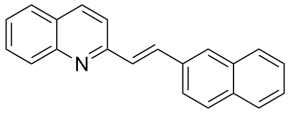
(*E*)-2-(2-(naphthalen-1-yl)vinyl)quinoline (9ar)



CAS registry No.: 190437-71-9.

Yellow oil (81% yield). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.44-7.58 (m, 5H, ArH), 7.69-7.89 (m, 6H, ArH), 8.12 (d, *J* = 8.5 Hz, 2H, ArH), 8.32 (d, *J* = 8.5 Hz, 1H, CH), 8.51 (d, *J* = 16.0 Hz, 1H, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.5 123.7, 124.2, 125.7, 125.9, 126.2, 126.3, 127.4, 127.5, 128.6, 128.9, 129.3, 129.7, 131.3, 131.5, 131.7, 133.7, 134.0, 136.3, 148.3, 156.0 ppm; EI-HR-MS: *m/z* = 281.1207, calcd. for $C_{21}H_{15}N$: 281.1204.

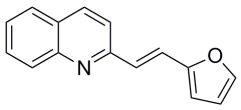
(*E*)-2-(2-(naphthalen-2-yl)vinyl)quinoline (9as)



CAS registry No.: 190437-74-2.

Yellow solid (84% yield), mp:169-171^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.47-7.55 (m, 4H, ArH), 7.70-7.74 (m, 2H, ArH), 7.70-7.88 (m, 6H, ArH), 8.00 (s, 1H, ArH), 8.10 (d, *J* = 8.5 Hz, 1H, CH), 8.15 (d, *J* = 8.5 Hz, 1H, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.3 126.2, 126.3, 126.4, 127.3, 127.5, 127.7, 128.1, 128.2, 128.5, 129.2, 129.3, 129.7, 133.5, 133.6, 134.1, 134.5, 136.3, 148.3, 156.0 ppm; EI-HR-MS: *m/z* = 281.1193, calcd. for $C_{21}H_{15}N$: 281.1204.

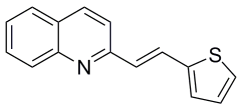
(*E*)-2-(2-(furan-2-yl)vinyl)quinoline (9at)



CAS registry No.: 1318193-21-3.

Yellow solid (84% yield), mp: 53-55 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 6.47-6.48 (m, 1H, ArH), 6.55 (d, *J* = 3.0 Hz, 1H, ArH), 7.28 (d, *J* = 16.5 Hz, 1H, CH), 7.46-7.58 (m, 4H, ArH), 7.68-7.71 (m, 1H, ArH), 7.76 (d, *J* = 8.5 Hz, 1H, ArH), 8.05 (d, *J* = 8.5 Hz, 1H, CH), 8.10 (d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 111.1, 111.9, 119.9, 121.7, 126.0, 126.8, 127.3, 127.4, 129.1, 129.6, 136.2, 143.1, 148.3, 152.8, 155.5 ppm; EI-HR-MS: *m/z* = 221.0835, calcd. for $C_{15}H_{11}NO$: 221.0841.

(*E*)-2-(2-(thiophen-2-yl)vinyl)quinoline (9au)

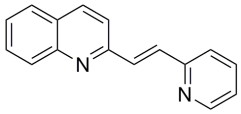


CAS registry No.: 73010-95-4.

Light yellow solid (88% yield), mp: 89-91 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.05-7.04 (m, 1H, ArH), 7.18-7.29 (m, 3H, ArH), 7.46-7.49 (m, 1H, ArH), 7.56 (d, *J* = 8.5 Hz, 1H, ArH), 7.67-7.77 (m, 1H, ArH), 7.76 (d, *J* = 8.0 Hz, 1H, ArH), 7.84 (d, *J* = 16.0 Hz, 1H, ArH), 8.07 (dd, J_1 = 15.5 Hz, J_2 = 8.5 Hz, 2H, CHCH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.3, 125.9, 126.0, 127.2, 127.4, 127.7, 128.0, 128.1, 129.1, 129.7, 136.2, 142.0, 148.2, 155.4, 155.5

ppm; EI-HR-MS: *m/z* = 237.0614, calcd. for $C_{15}H_{11}NS$: 237.0612.

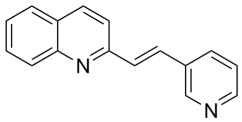
(*E*)-2-(2-(pyridin-2-yl)vinyl)quinoline (9av)



CAS registry No.: 16552-20-8.

Light yellow solid (95% yield), mp: 96-98^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.19-7.21 (m, 1H, ArH), 7.47-7.57 (m, 2H, ArH), 7.66-7.87 (m, 6H, ArH), 8.12 (dd, J_1 = 16.0 Hz, J_2 = 8.5 Hz, 2H, CHCH), 8.65 (d, *J* = 3.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 120.2, 122.6, 122.7,126.3, 127.4, 127.5, 129.3, 129.6, 132.5, 133.6, 136.5, 136.4, 148.2, 149.7, 154.9, 155.2 ppm; EI-HR-MS: *m/z* = 232.1006, calcd. for $C_{16}H_{12}N_2$: 232.1000.

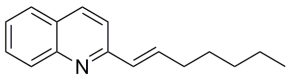
(*E*)-2-(2-(pyridin-3-yl)vinyl)quinoline (9aw)



CAS registry No.: 143816-38-0.

Light yellow solid (71% yield), mp: 92-94 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.34 (dd, J_1 = 8.0 Hz, J_2 = 5.0 Hz, 1H, ArH), 7.46 (d, *J* = 16.5 Hz, 1H, CH), 7.51-7.54 (m, 1H, ArH), 7.66-7.76 (m, 3H, ArH), 7.80 (d, *J* = 7.5 Hz, 1H, ArH), 7.95-7.98 (m, 1H, ArH), 8.09 (d, *J* = 8.5 Hz, 1H, CH), 8.16 (d, *J* = 8.5 Hz, 1H, ArH), 8.55 (d, *J* = 3.5 Hz, 1H, ArH), 8.85 (s, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.3, 123.6, 126.4, 127.4, 127.5, 129.2, 129.8, 130.5, 130.8, 132.2, 133.2, 136.5, 148.1, 149.1, 149.4, 155.1 ppm; EI-HR-MS: *m/z* = 232.1002, calcd. for $C_{16}H_{12}N_2$: 232.1000.

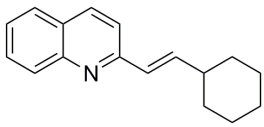
(*E*)-2-(hept-1-enyl)quinoline (9ax)



CAS registry No.: 488710-26-5.

Brown oil (47% yield); ^{1}H NMR (500 MHz, $CDCl_3$): δ = 0.90-0.93 (m, 3H, CH_3), 1.35-1.63 (m, 6H, CH_2), 2.31-2.35 (m, 2H, CH_2), 6.71 (d, *J* = 16.0 Hz, 1H, CH), 6.80-6.86 (m, 1H, ArH), 7.45-7.48 (m, 1H, ArH), 7.53 (d, *J* = 8.5 Hz, 1H, ArH), 7.69-7.75 (m, 1H, ArH), 7.75 (d, *J* = 8.0 Hz, 1H, ArH), 8.02 (d, *J* = 8.5 Hz, 1H, CH), 8.06 (d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 14.0, 22.5, 28.6, 31.5, 33.0, 118.7, 125.8, 127.1, 127.4, 129.0, 129.5, 131.0, 136.2, 138.2, 148.0, 156.5 ppm; EI-HR-MS: *m/z* = 225.1514, calcd. for $C_{16}H_{19}N$: 225.1517.

(*E*)-2-(2-cyclohexylvinyl)quinoline (9ay)

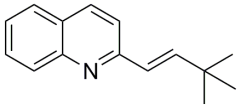


CAS registry No.: 1318193-26-8.

Light yellow oil (42% yield); ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.18-1.40 (m, 6H, CH_2), 1.55-1.91 (m, 4H, CH_2), 2.15-2.31 (m, 1H, CH_2), 6.67 (d, *J* = 16.0 Hz, 1H,

CH), 6.75-6.80 (m, 1H, ArH), 7.44-7.47 (m, 1H, ArH), 7.53 (d, J = 8.5 Hz, 1H, CH), 7.64-7.68 (m, 1H, ArH), 7.74 (dd, J_1 = 8.0 Hz, J_2 = 1.5 Hz, 1H, ArH), 8.02-8.06 (m, 2H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 26.0, 26.1, 32.5, 41.1, 118.7, 125.8, 127.1, 127.4, 128.6, 129.1, 129.4, 136.1, 143.3, 148.1, 156.8 ppm; EI-HR-MS: *m/z* = 237.1527, calcd. for $C_{17}H_{19}N$: 237.1517.

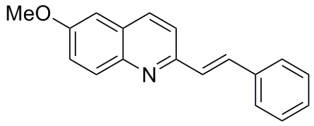
(*E*)-2-(3,3-dimethylbut-1-enyl)quinoline (9az)



CAS registry No.: none.

Light yellow oil (65% yield); ^{1}H NMR (500 MHz, $CDCl_3$): δ = 1.20 (s, 9H, CH_3), 6.67 (d, J = 16.5 Hz, 1H, CH), 6.83 (d, J = 16.5 Hz, 1H, CH), 7.45-7.48(m, 1H, ArH), 7.57 (d, J = 9.0 Hz, 1H, ArH), 7.69-7.65 (m, 1H, ArH), 7.75 (d, J = 8.0 Hz, 1H, ArH), 8.03 (d, J = 8.5 Hz, 1H, ArH), 8.06 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 29.4, 33.8, 118.6, 125.8, 126.4, 127.1, 127.4, 129.0, 129.4, 136.1, 148.0, 148.2, 156.9 ppm; EI-HR-MS: *m/z* = 211.1351, calcd. for $C_{15}H_{17}N$: 211.1361.

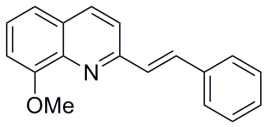
(*E*)-6-methoxy-2-styrylquinoline (9ba)



CAS registry No.: 59066-58-9.

White solid (83% yield), mp:148-151 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.92 (s, 3H, CH_3O), 7.05 (d, J = 2.5 Hz, 1H, ArH), 7.29-7.41 (m, 5H, ArH), 7.60-7.63 (m, 4H, ArH), 7.99 (dd, J_1 = 14.0 Hz, J_2 = 8.5 Hz, 2H, CHCH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 55.4, 105.2, 119.5, 122.2, 127.0, 128.2, 128.3, 128.7, 129.0, 130.5, 133.1, 134.9, 136.6, 144.2, 153.6, 157.5 ppm;. EI-HR-MS: *m/z* = 261.1143, calcd. for $C_{18}H_{15}NO$: 261.1154.

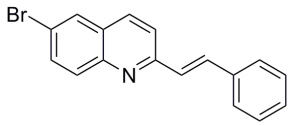
(*E*)-8-methoxy-2-styrylquinoline (9ca)



CAS registry No.: 1299463-11-8.

Yellow solid (99% yield), mp: 55-57 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 4.11 (s, 3H, CH_3O), 7.05 (d, J = 8.0 Hz, 1H, ArH), 7.29-7.49 (m, 5H, ArH), 7.52-7.64 (m, 4H, ArH), 7.76 (d, J = 8.5 Hz, 1H, CH), 8.09 (d, J = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 55.9, 107.9, 119.0, 119.3, 126.2, 127.1, 128.2, 128.3, 128.4, 128.6, 129.5, 133.9, 136.2, 136.5, 139.9, 155.0 ppm; EI-HR-MS: *m/z* = 261.1162, calcd. for $C_{18}H_{15}NO$: 261.1154.

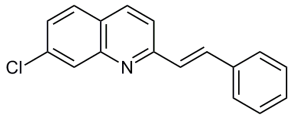
(*E*)-6-bromo-2-styrylquinoline (9da)



CAS registry No.: 1139911-21-9.

White solid (86 % yield), mp: 167-169 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.32-7.42 (m, 4H, ArH), 7.63-7.77 (m, 5H, ArH), 7.93-7.94 (m, 2H, ArH), 8.02 (d, *J* = 8.5 Hz, 1H, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.9, 120.1, 127.3, 128.3, 128.5, 128.7, 128.8, 129.5, 130.8, 133.1, 134.9, 135.2, 136.3, 146.8, 156.3 ppm; EI-HR-MS: *m/z* = 309.0159, calcd. for $C_{17}H_{12}BrN$: 309.0153.

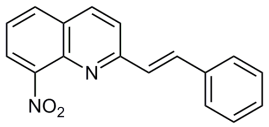
(*E*)-7-chloro-2-styrylquinoline (9ea)



CAS registry No.: 1299463-26-5.

White solid (82% yield), mp: 157-159 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.33-7.46 (m, 5H, ArH), 7.64-7.65 (m, 3H, ArH, CH), 7.70-7.73 (m, 2H, ArH), 8.08-8.11 (m, 2H, ArH, CH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.5, 125.6, 127.0, 127.2, 128.1, 128.4, 128.6, 128.7, 128.8, 135.1, 135.4, 136.0, 136.2, 148.6, 156.8 ppm; EI-HR-MS: *m/z* = 265.0655, calcd. for $C_{17}H_{12}ClN$: 265.0658.

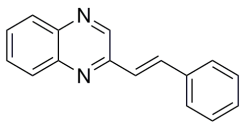
(*E*)-8-nitro-2-styrylquinoline (9fa)



CAS registry No.: none.

Light yellow solid (89% yield), mp: 137-139 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.34-7.43 (m, 4H, ArH), 7.48-7.55 (m, 1H, ArH), 7.64-7.65 (m, 2H, ArH), 7.72 (d, *J* = 8.5 Hz, 1H, CH), 7.83 (d, *J* = 16.5 Hz, 1H, CH), 7.96-8.01 (m, 2H, ArH), 8.19 (d, *J* = 8.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 121.4, 123.7, 124.3, 127.6, 127.7, 128.0, 128.5, 128.8, 129.1, 131.5, 133.7, 136.0, 136.2, 136.6, 139.5, 148.0, 157.9 ppm; EI-HR-MS: *m/z* = 276.0886, calcd. for $C_{17}H_{12}N_2O_2$: 276.0899.

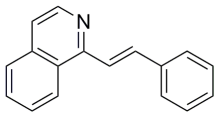
(*E*)-2-styrylquinoxaline (9ga)



CAS registry No.: 112193-05-2.

Purple solid (59% yield), mp: 98-101 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.24-7.45 (m, 4H, ArH), 7.67 (d, *J* = 8.0 Hz, 2H, CH), 7.72-7.78 (m, 2H, ArH), 7.89 (d, *J* = 16.5 Hz, 1H, ArH), 8.07-8.08(m, 2H, CH), 9.06 (s, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 125.3, 127.4, 128.9, 129.0, 129.1, 129.2, 130.3, 135.9, 136.4, 141.5, 142.4, 144.4, 150.6 ppm; EI-HR-MS: *m/z* = 232.0992, calcd. for $C_{16}H_{12}N_2$: 232.1000.

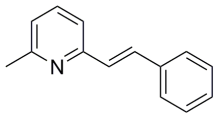
(*E*)-1-styrylisoquinoline (9ha)



CAS registry No.: 59066-57-8.

White solid (85% yield), mp: 115-117 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.33-7.36 (m, 1H, ArH), 7.42 (t, *J* = 8.0 Hz, 2H, ArH), 7.57 (d, *J* = 5.5 Hz, 1H, ArH), 7.62-7.72 (m, 4H, ArH), 7.84 (d, *J* = 8.0 Hz, 1H, CH), 7.96-8.04 (m, 2H, ArH), 8.38 (d, *J* = 8.5 Hz, 1H, CH), 8.56 (d, *J* = 5.5 Hz, 1H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.9, 122.8, 124.4, 126.7, 127.1, 127.2, 127.4, 128.5, 128.7, 129.8, 135.8, 136.6, 136.9, 142.4, 154.4 ppm; EI-HR-MS: *m/z* = 231.1049, calcd. for $C_{17}H_{13}N$: 231.1048.

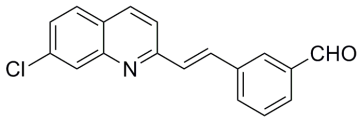
(*E*)-2-methyl-6-styrylpyridine (9ia)



CAS registry No.: 7370-21-0.

Yellow oil (35% yield); ^{1}H NMR (500 MHz, $CDCl_3$): δ = 2.59 (s, 3H, CH_3), 7.02 (d, *J* = 7.5 Hz, 1H, ArH), 7.17 (d, *J* = 16.5 Hz, 1H, CH), 7.24 (d, *J* = 7.5 Hz, 1H, ArH), 7.27-7.31(m, 1H, ArH), 7.35-7.38 (m, 2H, ArH), 7.54-7.60 (m, 4H, ArH) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 24.6, 118.8, 121.7, 127.0, 128.1, 128.4, 128.6, 132.4, 136.6, 136.8, 155.1, 158.3 ppm; EI-HR-MS: *m/z* = 195.1049, calcd. for $C_{14}H_{13}N$: 195.1048.

(*E*)-3-(2-(7-chloroquinolin-2-yl)vinyl)benzaldehyde (11)



CAS registry No.:120578-03-2.

Light yellow solid (65% yield), mp: 150-152 ^{o}C; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.45-7.49 (m, 2H, ArH), 7.59 (t, *J* = 8.0 Hz, 1H, ArH), 7.64 (d, *J* = 9.0 Hz, 1H, CH), 7.74 (d, *J* = 8.5 Hz, 1H, ArH), 7.81 (d, *J* = 16.5 Hz, 1H, CH), 7.85 (d, *J* = 7.5 Hz, 1H, ArH), 7.90 (d, *J* = 7.5 Hz, 1H, ArH), 8.10-8.15 (m, 3H, ArH), 10.08 (s, 1H, CHO) ppm; ^{13}C NMR (125 MHz, $CDCl_3$): δ = 119.9, 125.8, 127.3, 128.1, 128.2, 128.7, 129.5, 129.7, 130.1, 132.9, 133.4, 135.7, 136.3, 136.9, 137.3, 148.6, 156.1,192.0 ppm; EI-HR-MS: *m/z* = 293.0615, calcd. for $C_{18}H_{12}ClNO$: 293.0607.

2. ^{1}H NMR, ^{13}C NMR & ^{19}F NMR Spectra of the Products

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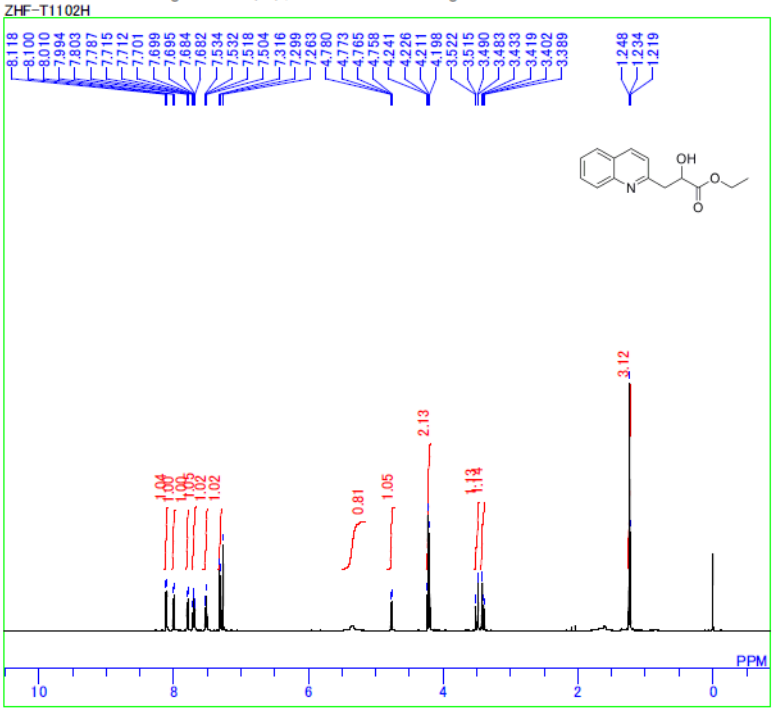
ZHF-T1102H



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INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	64
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	21
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T1	0.00
T2	0.00
T3	90.00
T4	100.00
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EXPCM	Single pulse
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IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
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LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	613
CSPED	15 Hz
FILDC	
FILDF	

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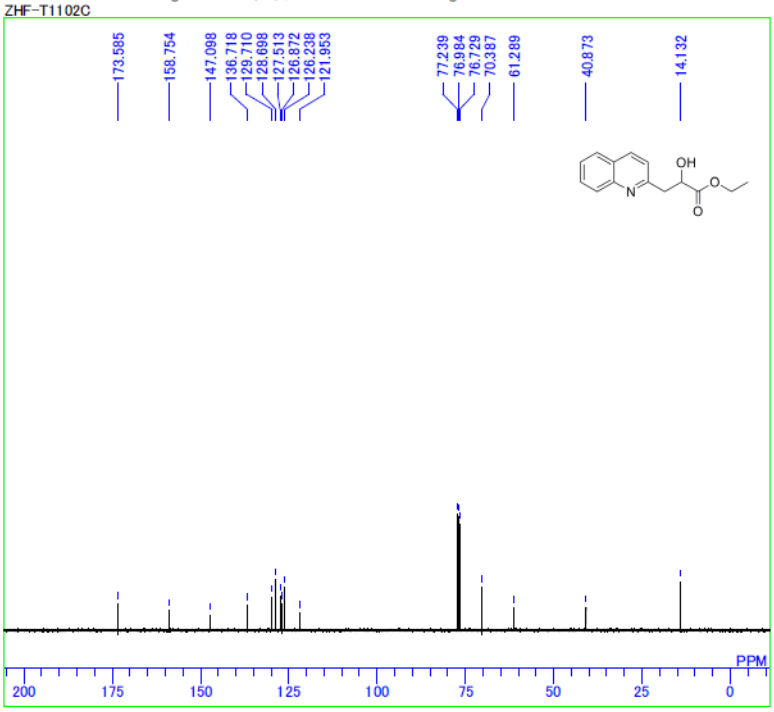
ZHF-T1102C



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PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
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TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
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PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
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IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
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LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	986
CSPED	12 Hz
FILDC	
FILDF	

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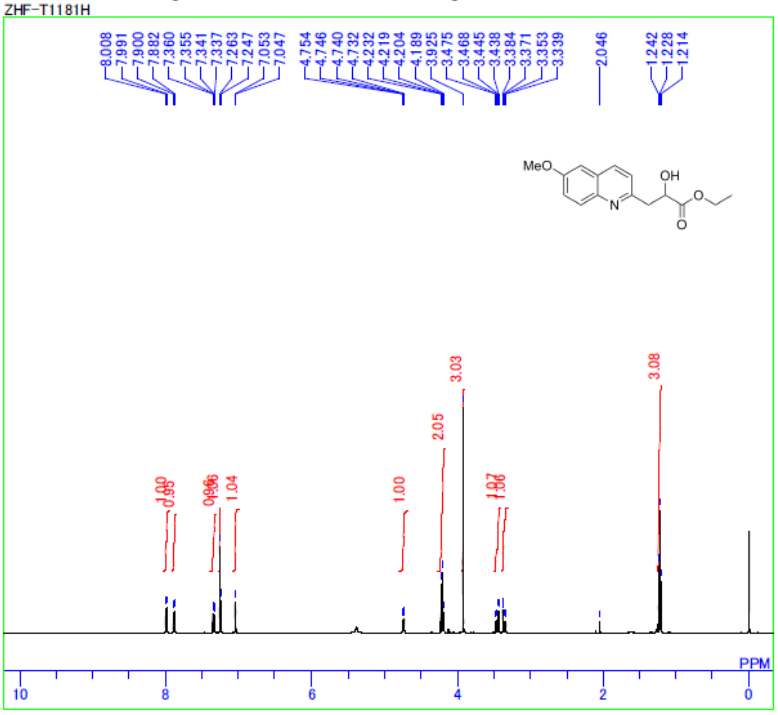
ZHF-T1181H



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OBFIN	162410.00 Hz
PW1	6.40 usec
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PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
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IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
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FILDC	
FILDF	

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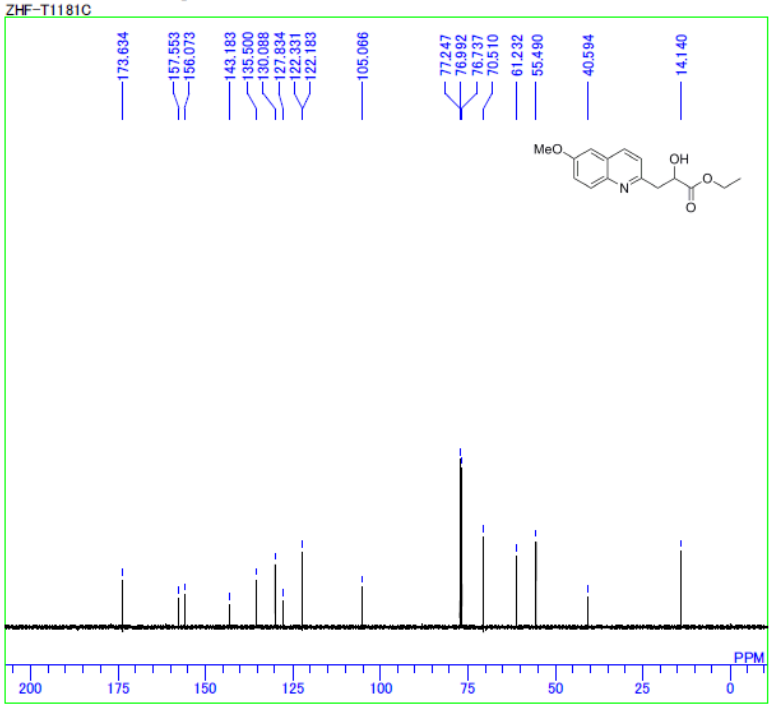
ZHF-T1181C



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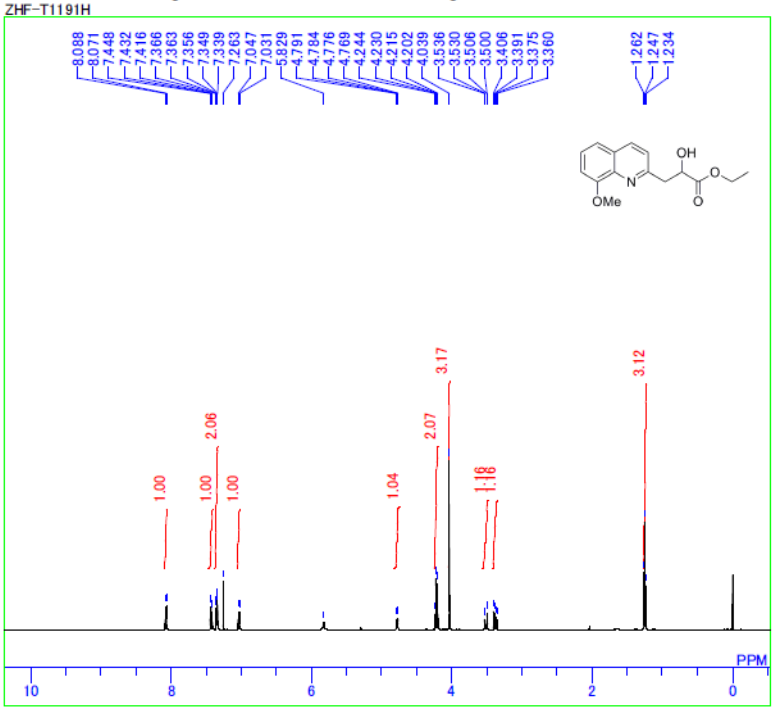
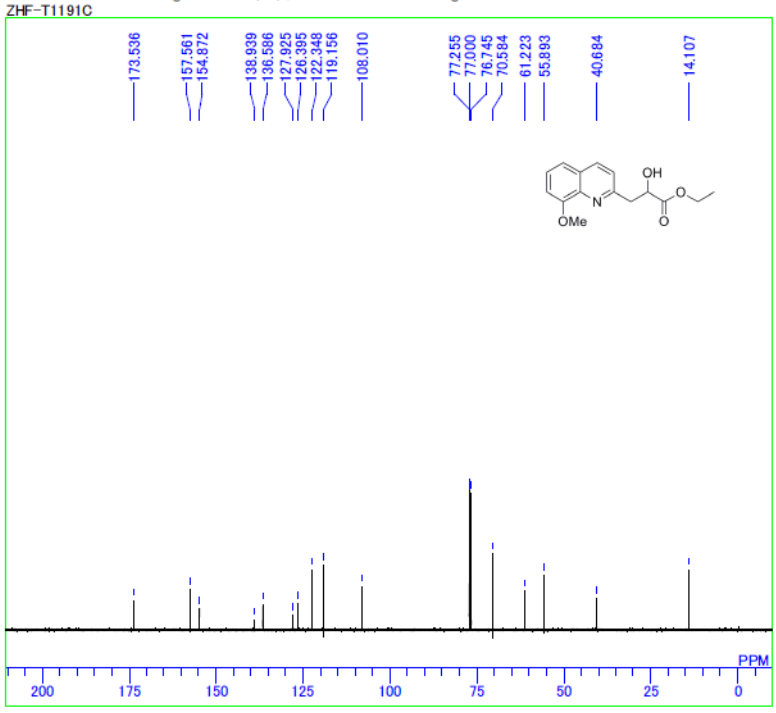
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2_1ZHF-T1181C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	716
CSPED	14 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1191H.als
ZHF-T1191H



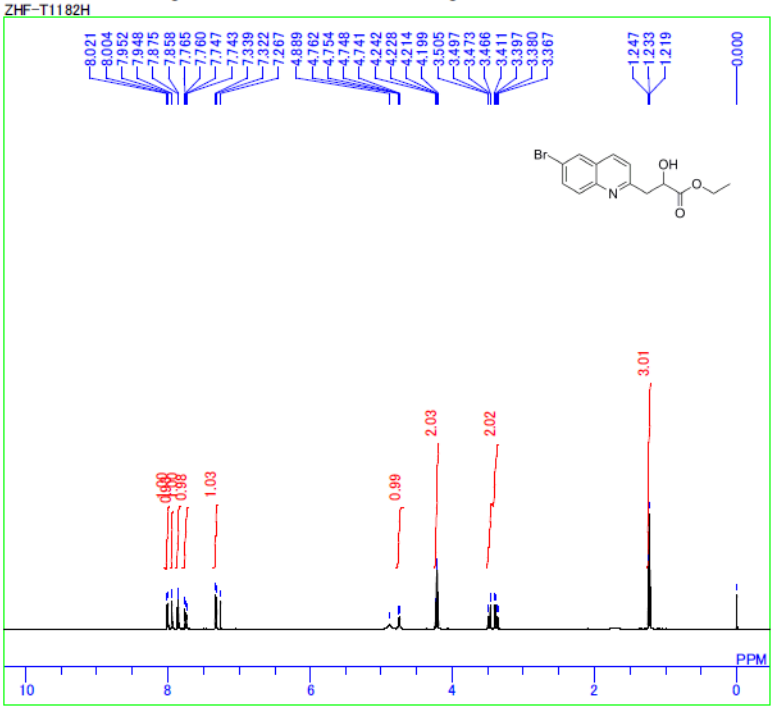
MENUF	non_th5atfTH5ATFG2_1ZHF-T1191H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1191H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	999
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1191C.als
ZHF-T1191C



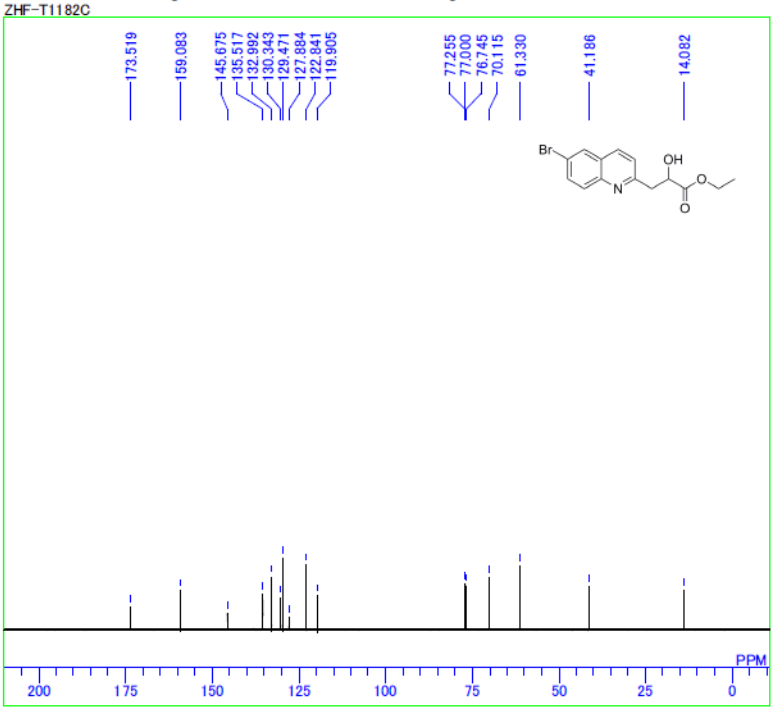
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1191C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1191C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	740
CSPED	14 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1182H.als
ZHF-T1182H



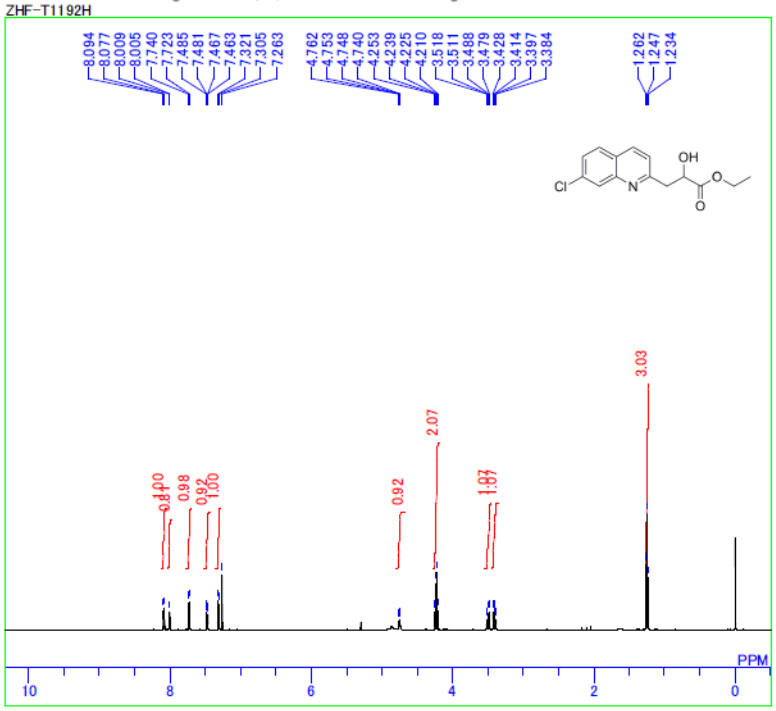
MENUF	non_th5atfTH5ATFG2_1ZHF-T1182H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	19
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1182H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	25
LKPHS	214
LKSIG	2247
CSPED	16 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1182C.als
ZHF-T1182C



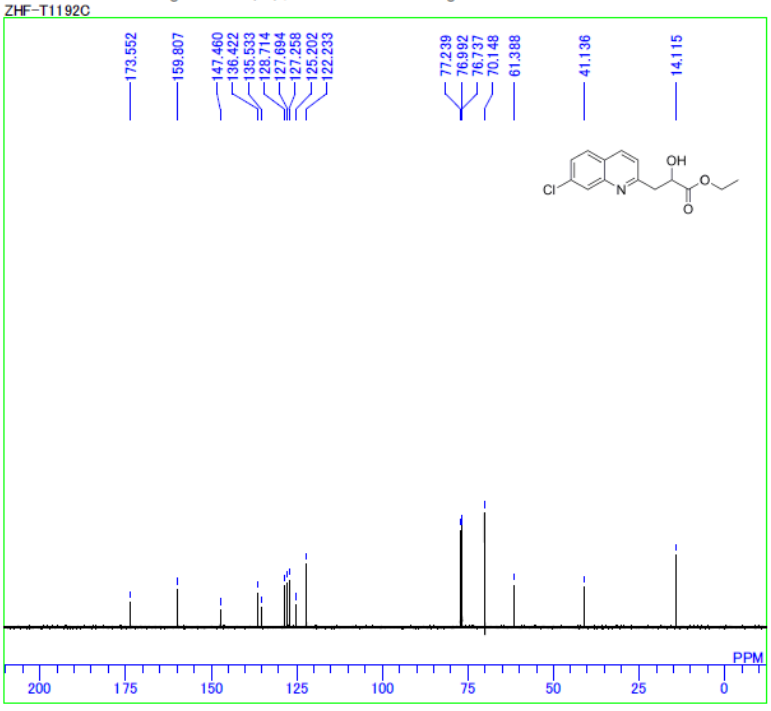
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1182C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1182C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	665
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1192H.als
ZHF-T1192H



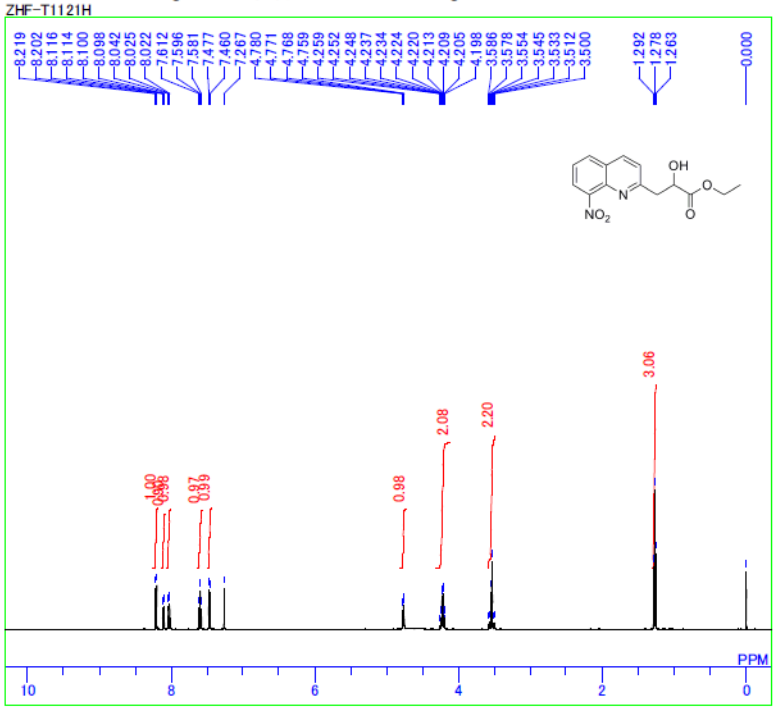
MENUF	non_th5atfTH5ATFG2_1ZHF-T1192H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	21
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1192H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1338
CSPED	16 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1192C.als
ZHF-T1192C



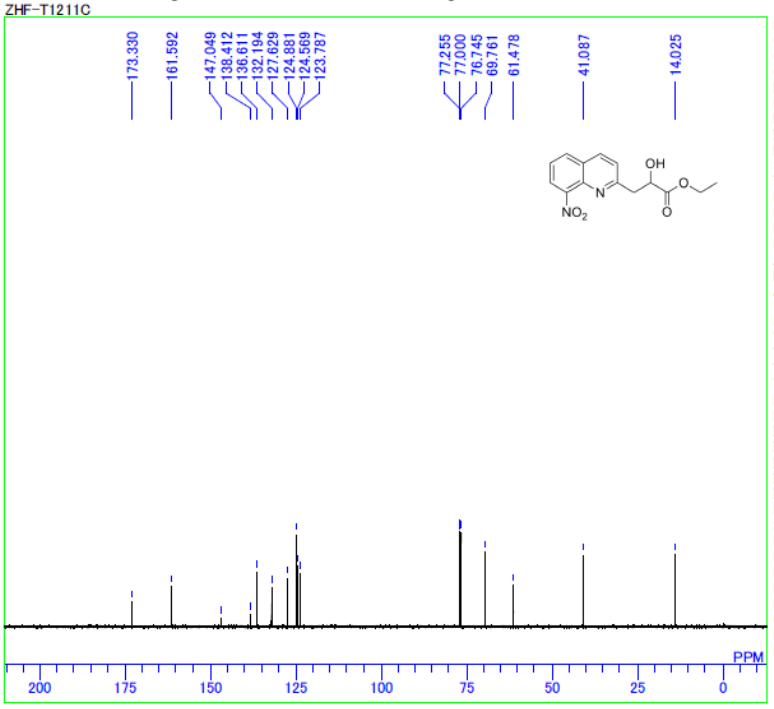
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1192C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1192C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	567
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1211H.als
ZHF-T1121H



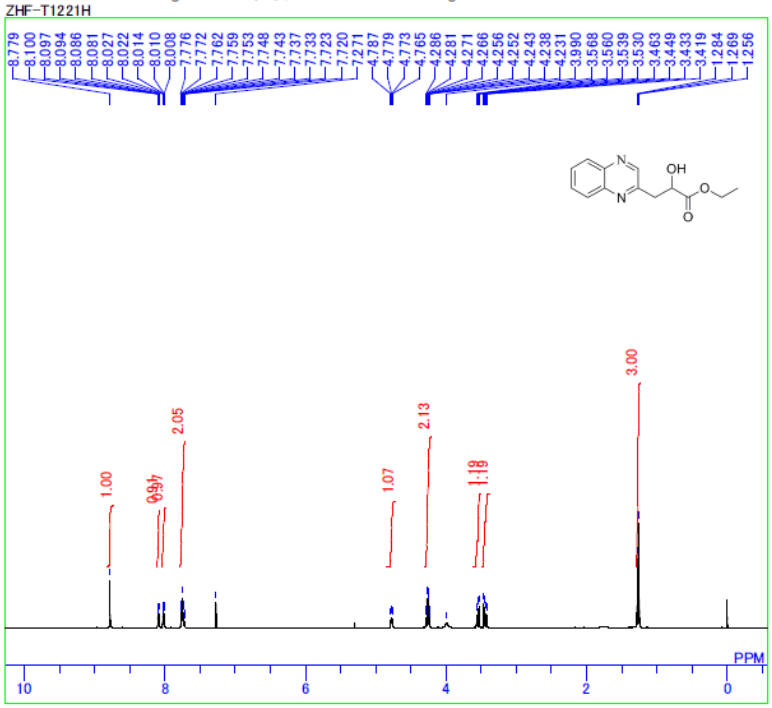
MENUF	non_th5atfTH5ATFG2_1ZHF-T1121H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	18
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1121H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1714
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1211C.als
ZHF-T1211C



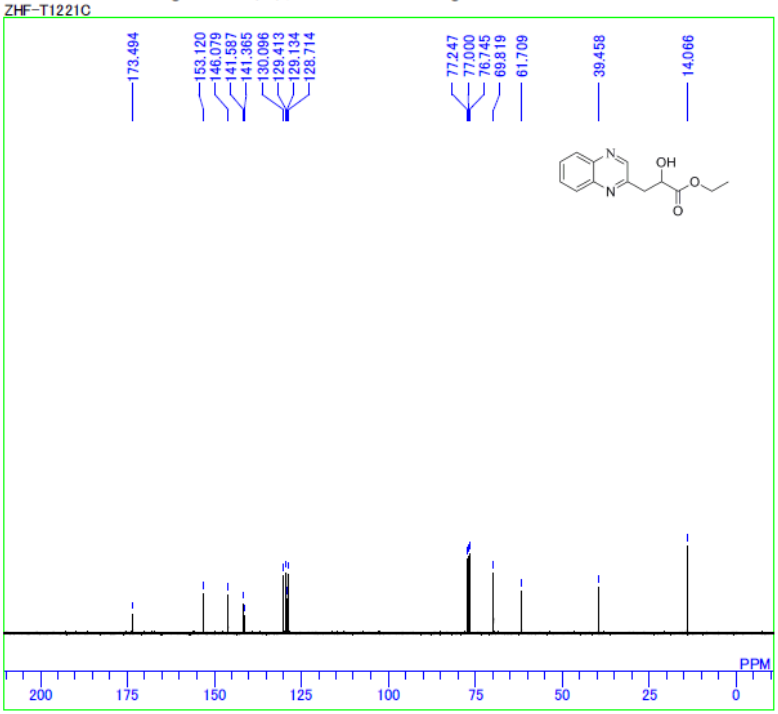
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1211C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1211C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	696
CSPED	16 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1221H.als
ZHF-T1221H



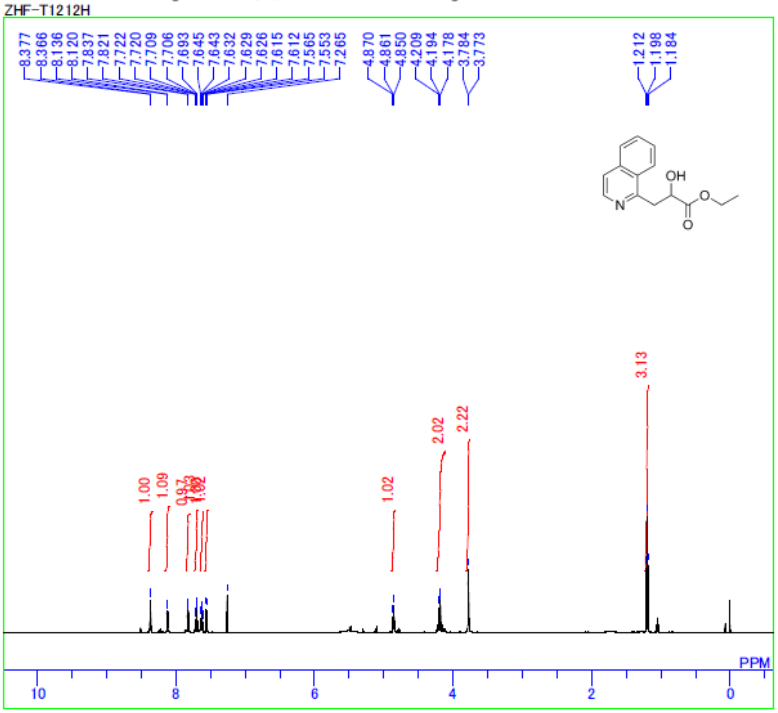
MENUF	non_th5atfTH5ATFG2_1ZHF-T1221H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	17
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1221H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1681
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1221C.als
ZHF-T1221C



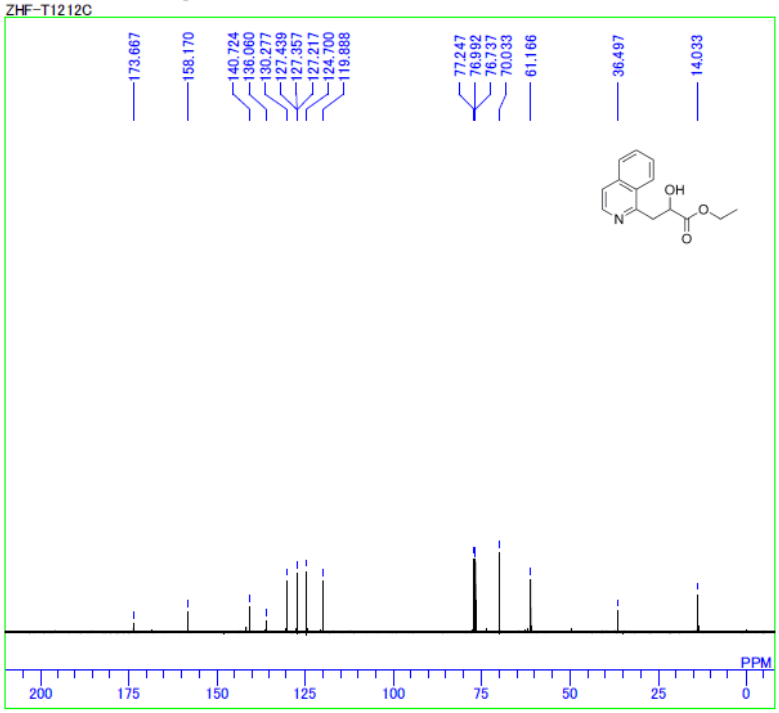
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1221C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1221C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1055
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1212H.als
ZHF-T1212H



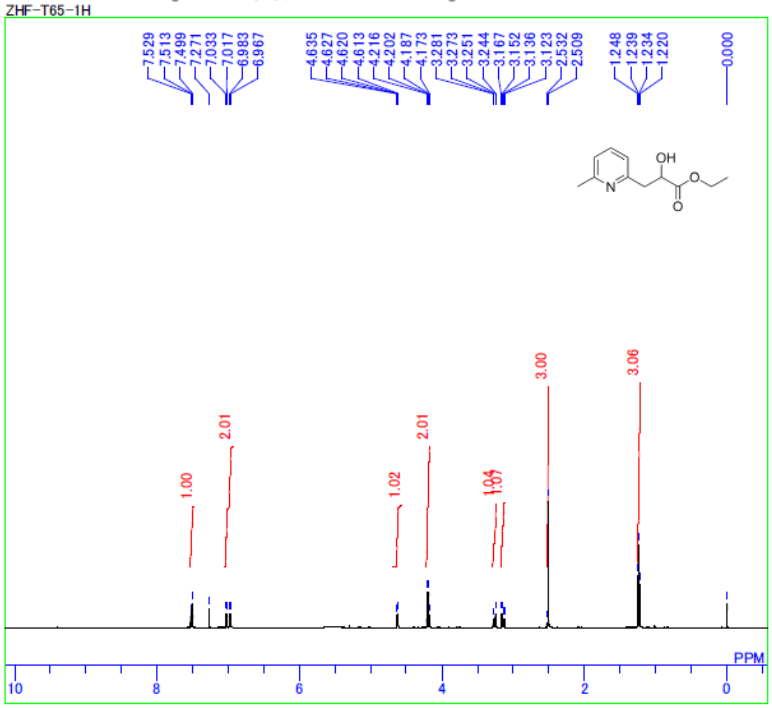
MENUF	non_th5atfTH5ATFG2_1ZHF-T1212H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	19
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1212H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	25
LKPHS	214
LKSIG	2225
CSPED	15 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T1212C



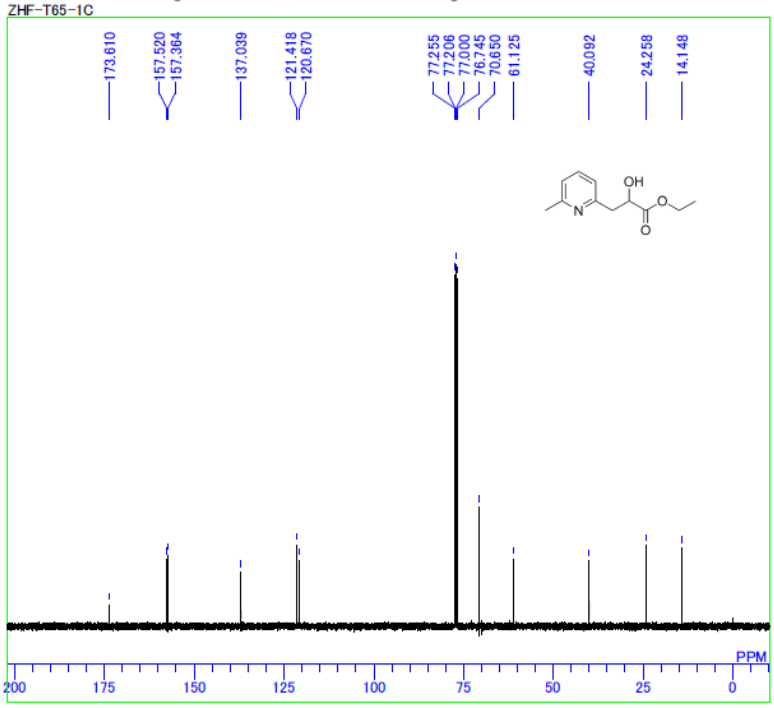
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1212C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2_1ZHF-T1212C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	692
CSPED	16 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T65-1H.als
ZHF-T65-1H



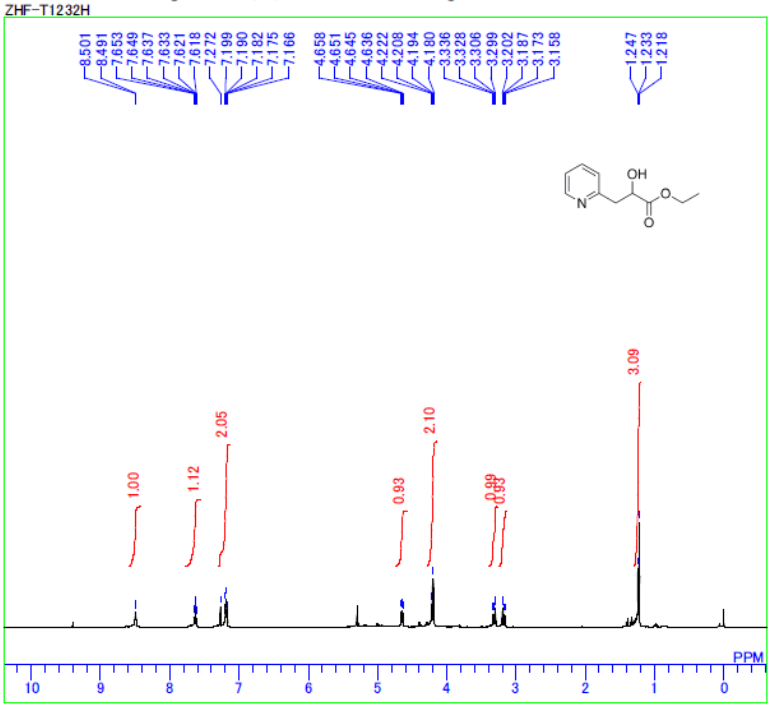
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	17
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	219
LKSIG	787
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T65-1C.als
ZHF-T65-1C



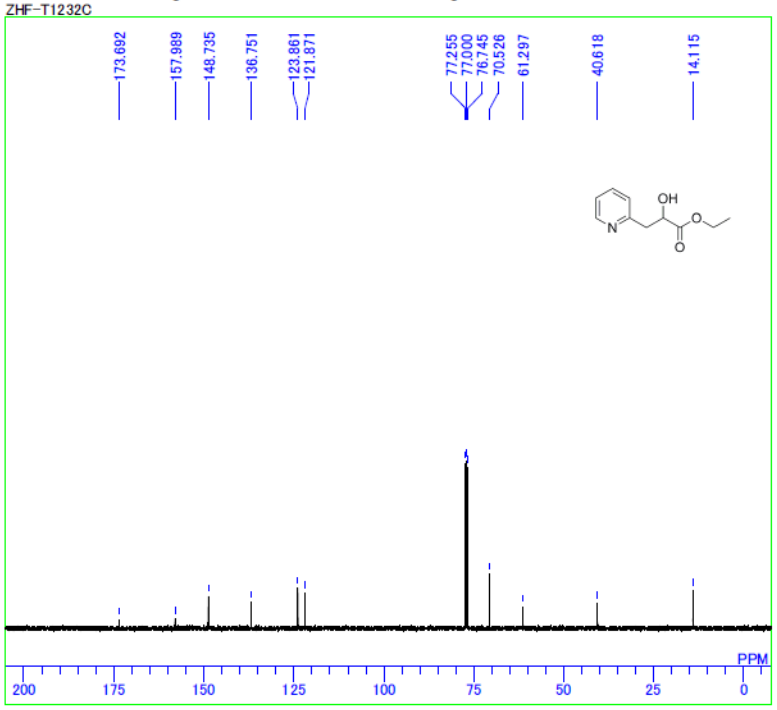
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	219
LKSIG	772
CSPED	13 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1232H.als
ZHF-T1232H



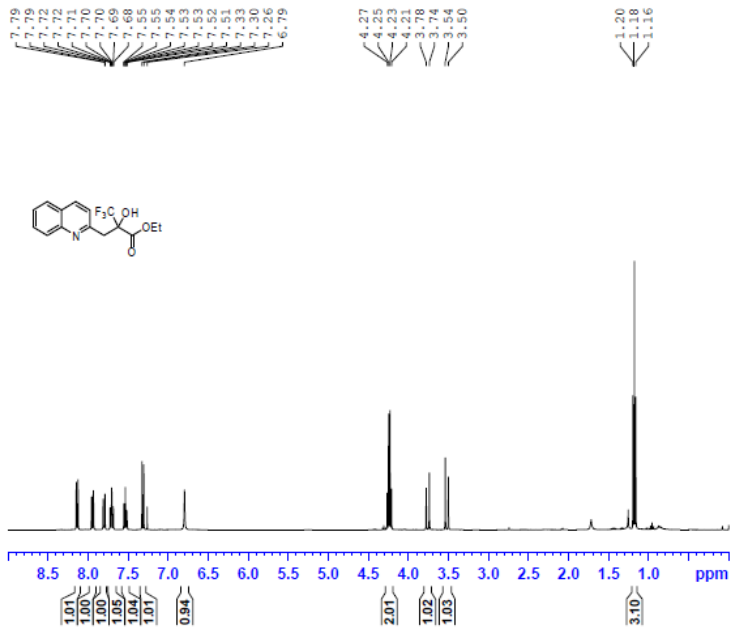
MENUF	non_th5atfTH5ATFG2_1ZHF-T1232H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	32
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	17
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1232H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	582
CSPED	16 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1232C.als
ZHF-T1232C



MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1232C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1232C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	595
CSPED	16 Hz
FILDC	
FILDF	

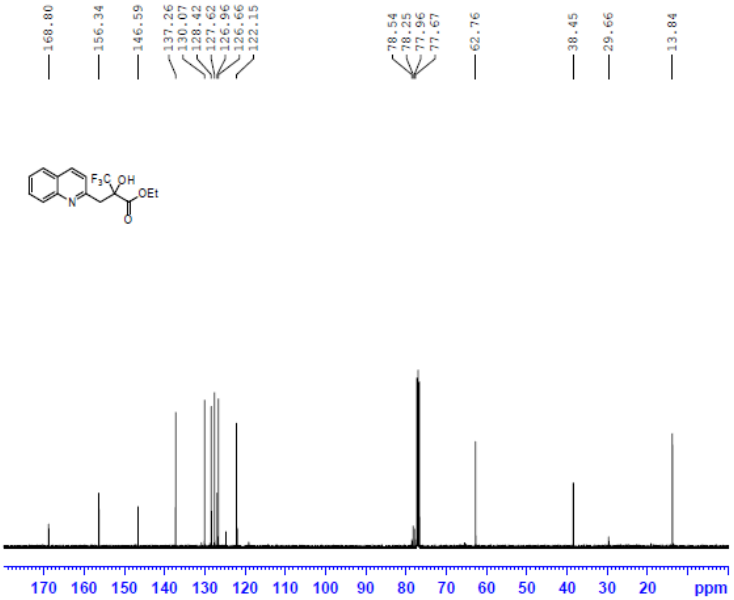
1H of JK-78



BRUKER

```
Current Data Parameters
NAME                  JK-78
EXPNO                     1
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130510
Time               18.24
INSTRUM            spect
PROBHD     5 mm PABBO BB-
PULPROG            zg30
TD                 65536
SOLVENT            CDCl3
NS                 16
DS                 2
SWH                8223.685 Hz
FIDRES             0.125483 Hz
AQ                 3.9846387 sec
RG                 64
DW                 60.800 usec
DE                 6.50 usec
TE                 297.6 K
D1                 1.00000000 sec

======== CHANNEL f1 ========
NUC1               1H
P1                 13.70 usec
PLW1               14.30000019 W
SFO1               400.1324710 MHz

F2 - Processing parameters
SI                 65536
SF                 400.1300176 MHz
WDW                EM
SSB                0
LB                 0.30 Hz
GB                 0
PC                 1.00
```

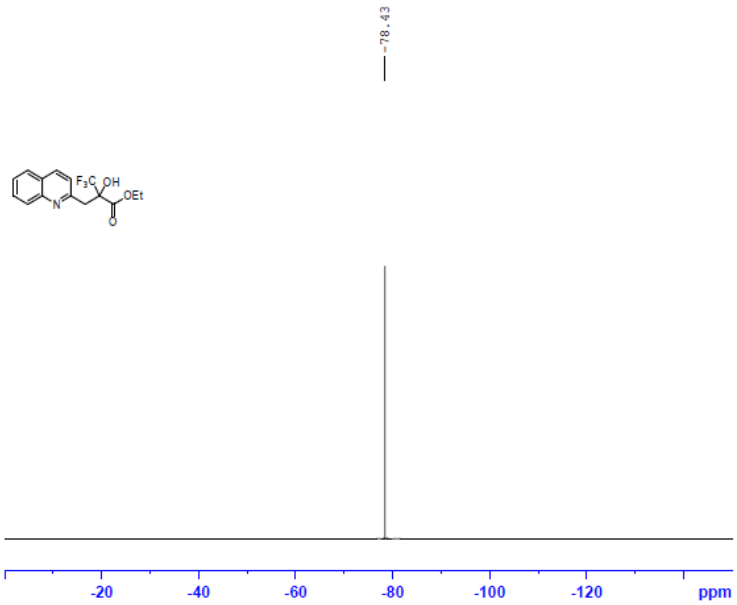
13C of JK-78



BRUKER

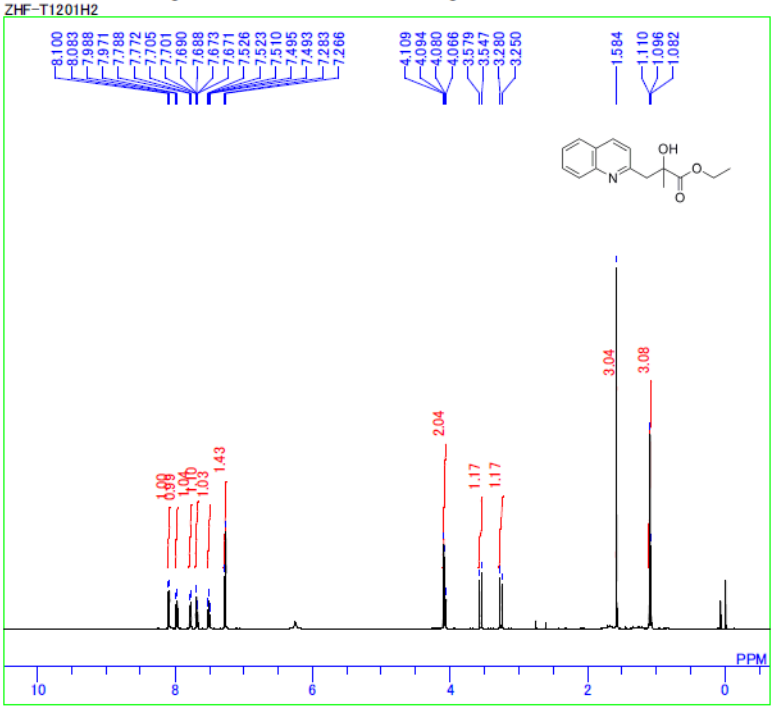
```
Current Data Parameters
NAME                  JK-78
EXPNO                     2
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130510
Time               18.35
INSTRUM            spect
PROBHD     5 mm PABBO BB-
PULPROG            zgpg30
TD                 65536
SOLVENT            CDCl3
NS                 304
DS                 4
SWH                24038.461 Hz
FIDRES             0.366798 Hz
AQ                 1.3631988 sec
RG                 203
DW                 20.800 usec
DE                 6.50 usec
TE                 298.5 K
D1                 0.20000000 sec
D11                0.03000000 sec

======== CHANNEL f1 ========
NUC1               13C
P1                 11.65 usec
PLW1               34.00000000 W
SFO1               100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2            waltz16
NUC2               1H
PCPD2              90.00 usec
PLW2               14.30000019 W
PLW12              0.33135000 W
PLW13              0.26840001 W
SFO2               400.1316005 MHz

F2 - Processing parameters
SI                 32768
SF                 100.6127752 MHz
WDW                EM
SSB                0
LB                 1.00 Hz
GB                 0
PC                 1.40
```

19F of JK-78



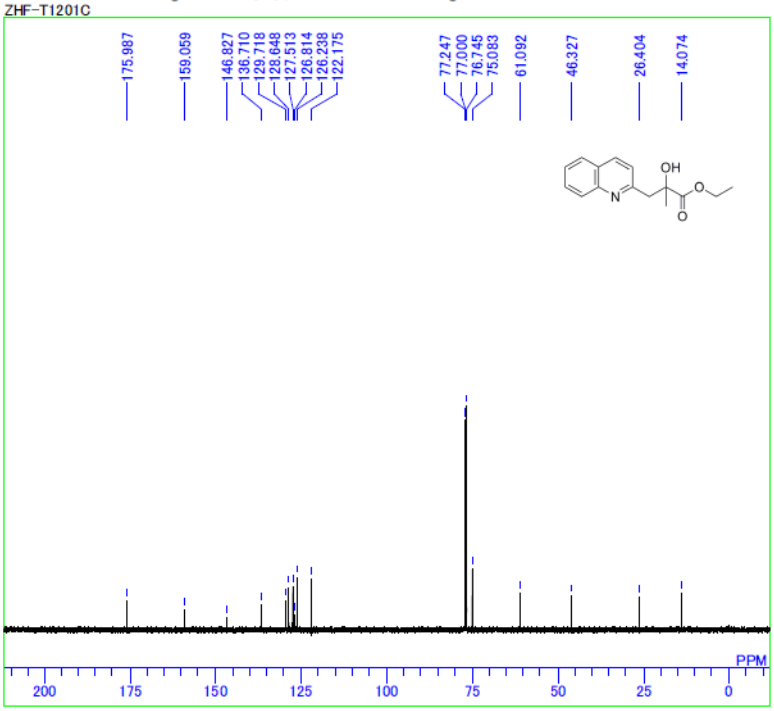

```
Current Data Parameters
NAME                  JK-78
EXPNO                     3
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130510
Time                  18.40
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG           zgfhigqn
TD                  131072
SOLVENT               CDCl3
NS                      112
DS                        4
SWH               89285.711 Hz
FIDRES            0.681196 Hz
AQ                0.7340532 sec
RG                      203
DW                  5.600 usec
DE                  6.50 usec
TE                  298.1 K
D1                1.00000000 sec
D11               0.03000000 sec
D12               0.00002000 sec

======== CHANNEL f1 ========
NUC1                    19F
P1                    14.00 usec
PLW1             13.49800014 W
SFO1            376.4607164 MHz

======== CHANNEL f2 ========
CPDPRG2             waltz16
NUC2                    1H
PCPD2                 90.00 usec
PLW2             14.30000019 W
PLW12             0.33135000 W
SFO2            400.1316005 MHz

F2 - Processing parameters
SI                     65536
SF              376.4983660 MHz
WDW                       EM
SSB                    0
LB                    0.30 Hz
GB                     0
PC                    1.00
```

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1201H.als
ZHF-T1201H2



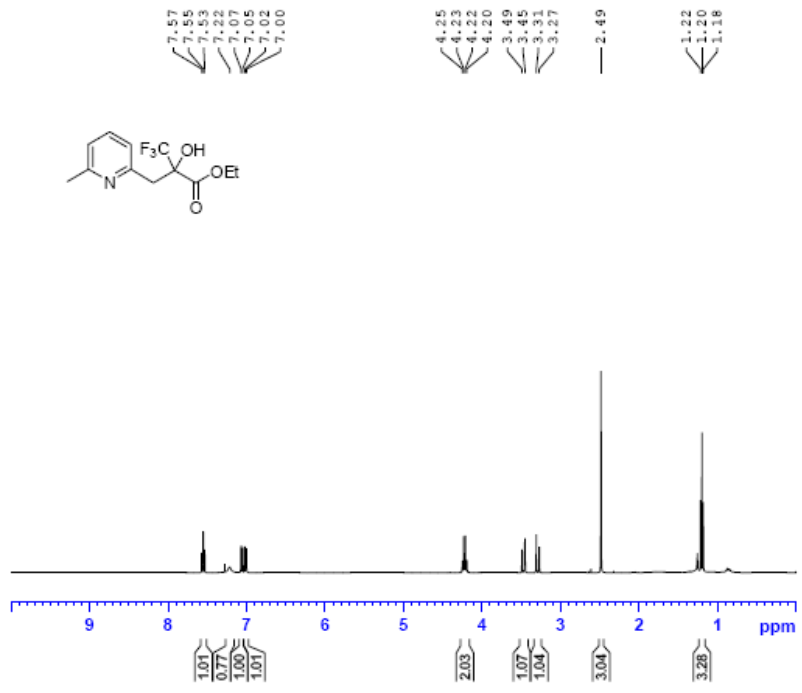

```
MENUF     non_th5atfTH5ATFG2_1ZHF-T1201H2
OBNUC     1H
OBFRQ       500.00 MHz
OBFIN     162410.00 Hz
PW1         6.40 usec
DEADT      56.80 usec
PREDL      0.20000 msec
INIWT      10.0000 msec
POINT       16384
SAMPO       16384
TIMES          64
DUMMY           1
FREQU      10000.00 Hz
FILTR       5000 Hz
DELAY      40.00 usec
ACQTM      1.6384 sec
PD         2.0000 sec
ADBIT          16
RGAIN          19
BF          0.00 Hz
T1             0.00
T2             0.00
T3            90.00
T4           100.00
EXMOD     SINGL
EXPCM     Single pulse
IRNUC     1H
IRFRQ       500.00 MHz
IRFIN     162410.00 Hz
IRRPW         50 usec
IRATN          511
DFILE     C:¥Documents and Settings¥ALPHA¥
SHMFL     TH5ATFG2_1ZHF-T1201H2
LKFIN       70334.0 Hz
LKLEV          180
LGAIN           20
LKPHS          214
LKSIG          588
CSPED        13 Hz
FILDC
FILDF
```

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1201C.als
ZHF-T1201C



MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1201C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1201C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	584
CSPED	15 Hz
FILDC	
FILDF	

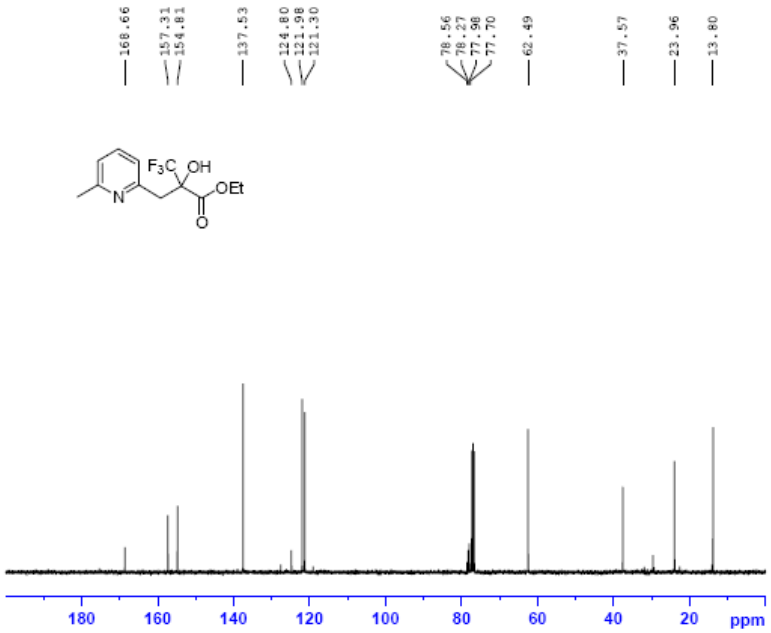
1H of PDW-5



BRUKER

```
Current Data Parameters
NAME                  PDW-5
EXPNO                     1
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130710
Time                   9.38
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG               zg30
TD                   65536
SOLVENT              CDCl3
NS                      16
DS                       2
SWH               8223.685 Hz
FIDRES            0.125483 Hz
AQ                3.9846387 sec
RG                      32
DW                 60.800 usec
DE                  6.50 usec
TE                 297.7 K
D1                1.00000000 sec

========== CHANNEL f1 ==========
NUC1                    1H
P1                  13.70 usec
PLW1          14.30000019 W
SFO1          400.1324710 MHz

F2 - Processing parameters
SI                   65536
SF            400.1300109 MHz
WDW                     EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```

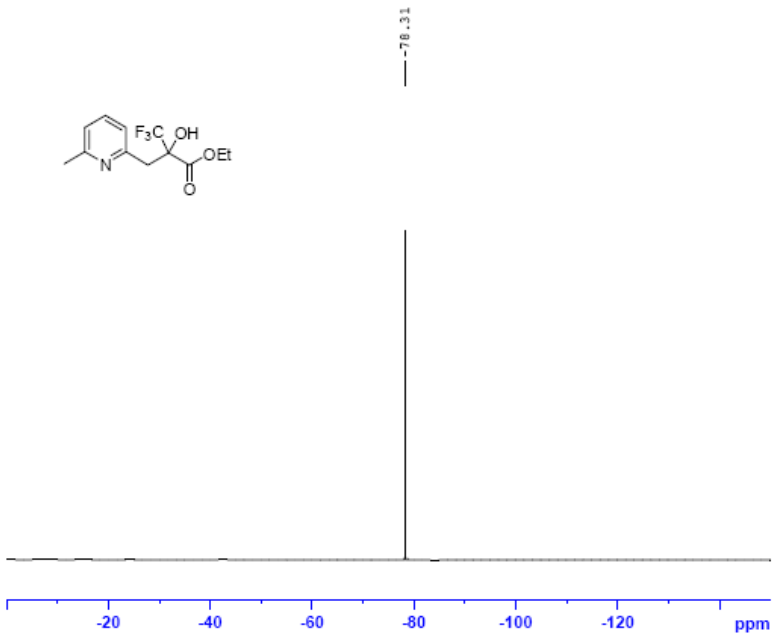
13C of PDW-5



BRUKER

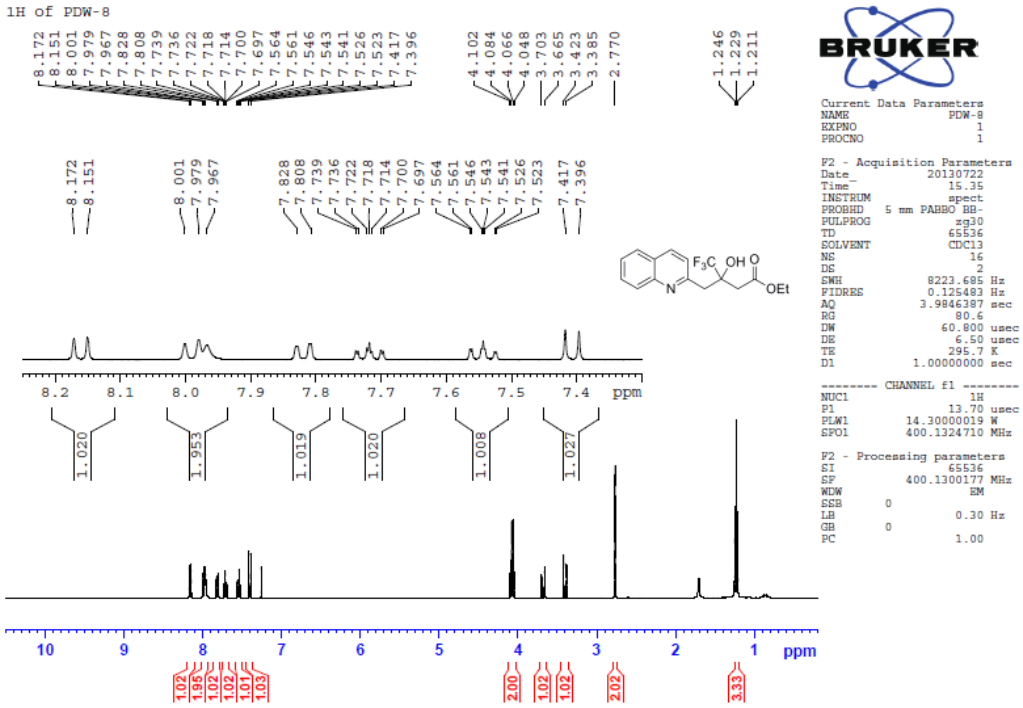
```
Current Data Parameters
NAME                  PDW-5
EXPNO                     2
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130710
Time                   9.46
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                   65536
SOLVENT              CDCl3
NS                     561
DS                       0
SWH              24038.461 Hz
FIDRES           0.366798 Hz
AQ               1.3631988 sec
RG                     114
DW                20.800 usec
DE                 6.50 usec
TE                 298.4 K
D1              0.20000000 sec
D11             0.03000000 sec

======== CHANNEL f1 ========
NUC1                  13C
P1                 11.65 usec
PLW1         34.00000000 W
SFO1        100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2           waltz16
NUC2                  1H
PCPD2              90.00 usec
PLW2         14.30000019 W
PLW12         0.33135000 W
PLW13         0.26840001 W
SFO2        400.1316005 MHz

F2 - Processing parameters
SI                   32768
SF          100.6127753 MHz
WDW                     EM
SSB       0
LB                  1.00 Hz
GB        0
PC                  1.40
```

19F of PDW-5



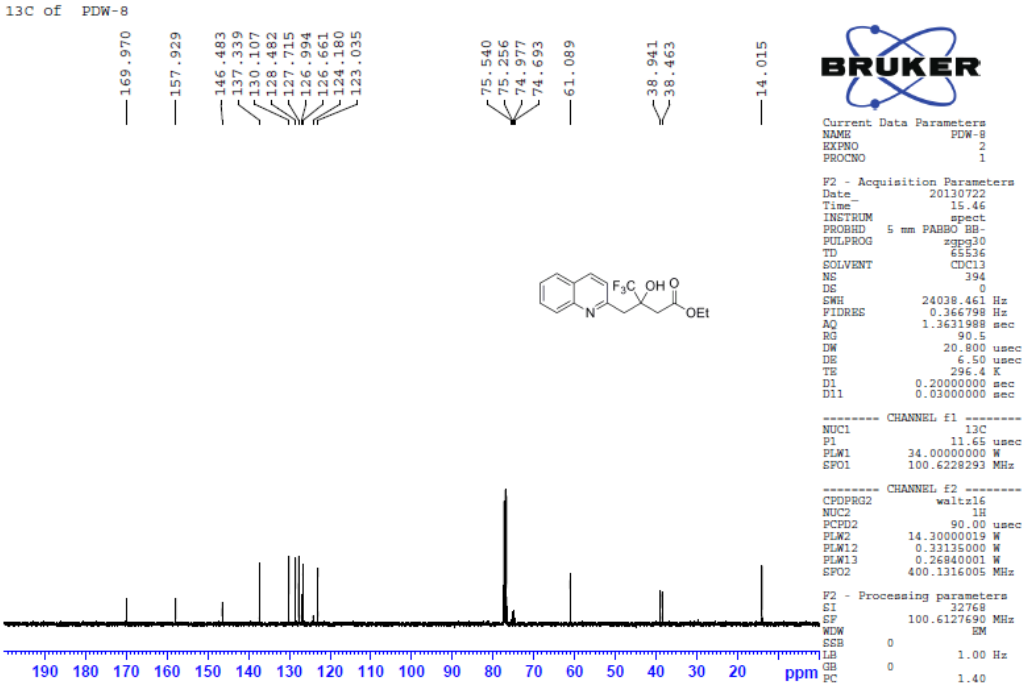
BRUKER

```
Current Data Parameters
NAME                  PDW-5
EXPNO                     3
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130710
Time                   9.58
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG           zgfhigqn
TD                  131072
SOLVENT              CDCl3
NS                      42
DS                       4
SWH              89285.711 Hz
FIDRES           0.681196 Hz
AQ               0.7340532 sec
RG                     203
DW                5.600 usec
DE                 6.50 usec
TE                 298.0 K
D1              1.00000000 sec
D11             0.03000000 sec
D12             0.00002000 sec

======== CHANNEL f1 ========
NUC1                  19F
P1                 14.00 usec
PLW1         13.49800014 W
SFO1        376.4607164 MHz

======== CHANNEL f2 ========
CPDPRG2           waltz16
NUC2                  1H
PCPD2              90.00 usec
PLW2         14.30000019 W
PLW12         0.33135000 W
SFO2        400.1316005 MHz

F2 - Processing parameters
SI                   65536
SF          376.4983660 MHz
WDW                     EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```



BRUKER

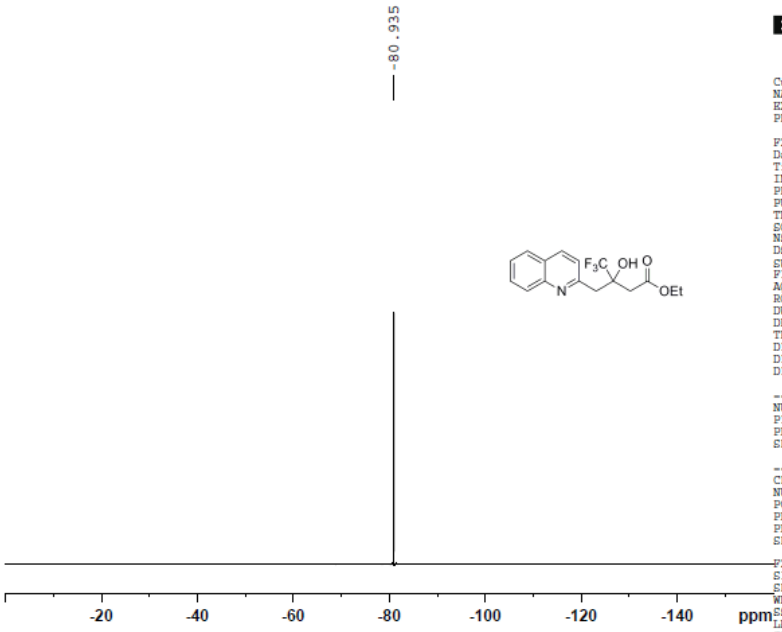
```
Current Data Parameters
NAME                  PDW-8
EXPNO                     1
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130722
Time_                 15.35
INSTRUM               spect
PROBHD    5 mm PABBO BB-
PULPROG               zg30
TD                   65536
SOLVENT              CDCl3
NS                      16
DS                       2
SWH              8223.685 Hz
FIDRES           0.125483 Hz
AQ               3.9846387 sec
RG                    80.6
DW                60.800 usec
DE                 6.50 usec
TE                 295.7 K
D1              1.00000000 sec

======== CHANNEL f1 ========
NUC1                   1H
P1                 13.70 usec
PLW1         14.30000019 W
SFO1        400.1324710 MHz

F2 - Processing parameters
SI                   65536
SF          400.1300177 MHz
WDW                    EM
SSB          0
LB                 0.30 Hz
GB           0
PC                    1.00
```



BRUKER

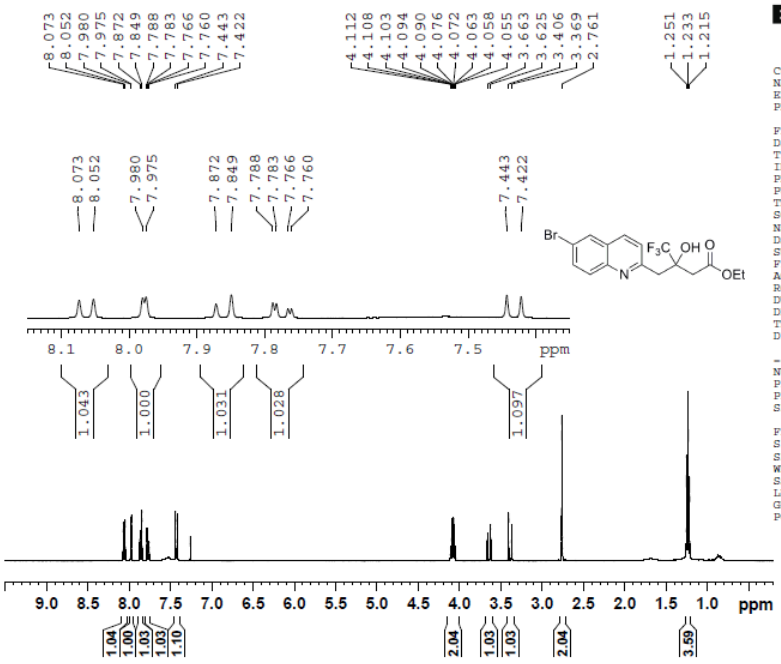
```
Current Data Parameters
NAME                  PDW-8
EXPNO                     2
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130722
Time_                 15.46
INSTRUM               spect
PROBHD    5 mm PABBO BB-
PULPROG             zgpg30
TD                   65536
SOLVENT              CDCl3
NS                      394
DS                       0
SWH             24038.461 Hz
FIDRES           0.366798 Hz
AQ               1.3631988 sec
RG                    90.5
DW                20.800 usec
DE                 6.50 usec
TE                 296.4 K
D1              0.20000000 sec
D11             0.03000000 sec

======== CHANNEL f1 ========
NUC1                  13C
P1                 11.65 usec
PLW1         34.00000000 W
SFO1        100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2             waltz16
NUC2                   1H
PCPD2              90.00 usec
PLW2         14.30000019 W
PLW12         0.33135000 W
PLW13         0.26840001 W
SFO2        400.1316005 MHz

F2 - Processing parameters
SI                   32768
SF          100.6127690 MHz
WDW                    EM
SSB          0
LB                 1.00 Hz
GB           0
PC                    1.40
```

19F of PDW-8



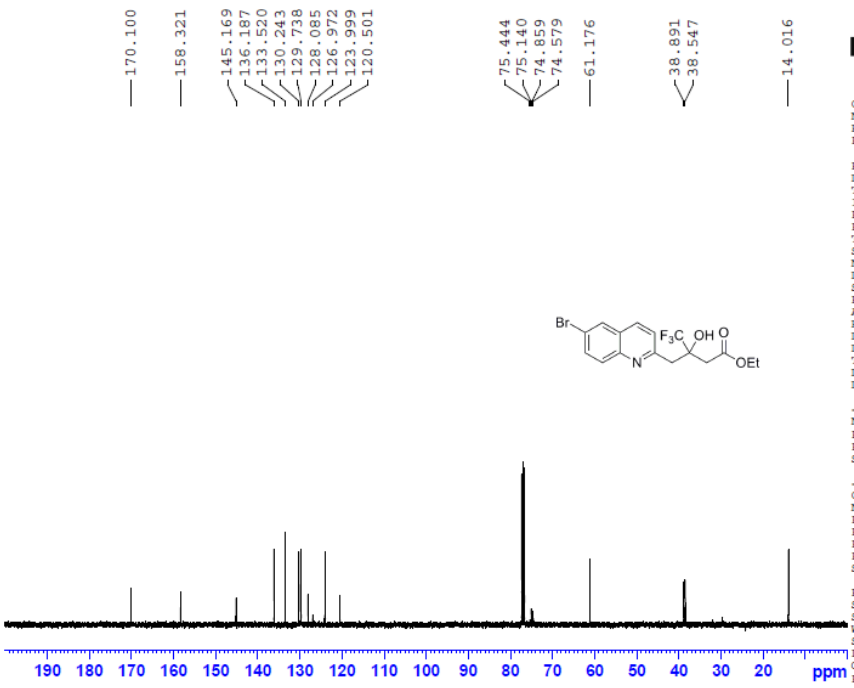

```
Current Data Parameters
NAME                  PDW-8
EXPNO                     3
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130722
Time                  15.53
INSTRUM               spect
PROBHD     5 mm PABBO BB-
PULPROG           zgfhigqn
TD                  131072
SOLVENT               CDCl3
NS                       64
DS                        4
SWH               89285.711 Hz
FIDRES                0.681196 Hz
AQ                0.7340532 sec
RG                      203
DW                    5.600 usec
DE                    6.50 usec
TE                   296.0 K
D1                1.00000000 sec
D11               0.03000000 sec
D12               0.00002000 sec

-------- CHANNEL f1 --------
NUC1                     19F
P1                    14.00 usec
PLW1             13.49800014 W
SFO1            376.4607164 MHz

-------- CHANNEL f2 --------
CPDPRG2               waltz16
NUC2                     1H
PCPD2                 90.00 usec
PLW2             14.30000019 W
PLW12             0.33135000 W
SFO2            400.1316005 MHz

F2 - Processing parameters
SI                       65536
SF              376.4983660 MHz
WDW                         EM
SSB                  0
LB                    0.30 Hz
GB                   0
PC                    1.00
```

1H of PDW-10




```
Current Data Parameters
NAME                 PDW-10
EXPNO                     1
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130722
Time                  16.02
INSTRUM               spect
PROBHD     5 mm PABBO BB-
PULPROG               zg30
TD                    65536
SOLVENT               CDCl3
NS                       16
DS                        2
SWH               8223.685 Hz
FIDRES                0.125483 Hz
AQ                3.9846387 sec
RG                     71.8
DW                    60.800 usec
DE                    6.50 usec
TE                   295.7 K
D1                1.00000000 sec

-------- CHANNEL f1 --------
NUC1                      1H
P1                    13.70 usec
PLW1             14.30000019 W
SFO1            400.1324710 MHz

F2 - Processing parameters
SI                       65536
SF              400.1300179 MHz
WDW                         EM
SSB                  0
LB                    0.30 Hz
GB                   0
PC                    1.00
```

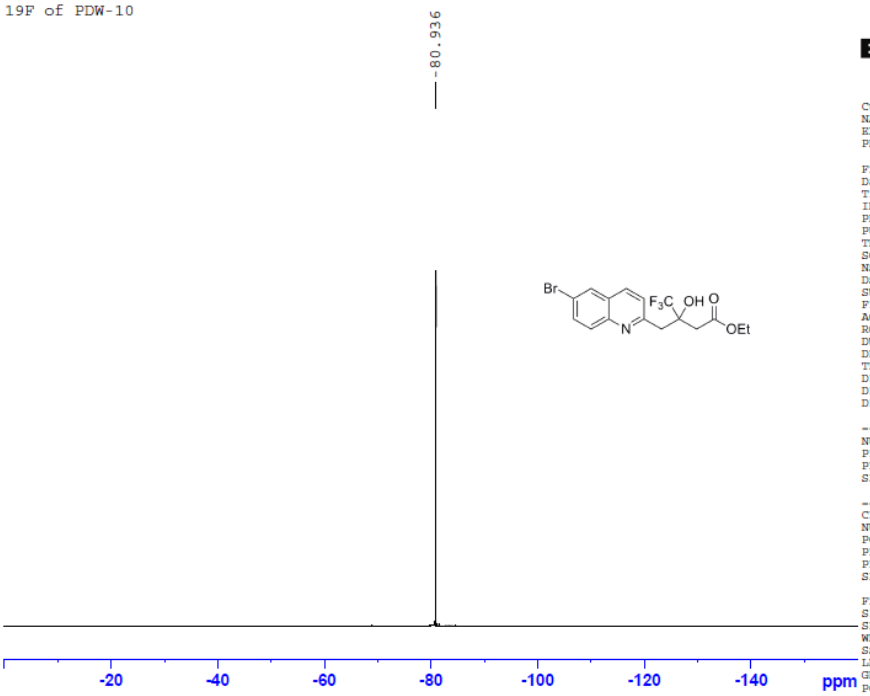
13C of PDW-10



BRUKER

```
Current Data Parameters
NAME                  PDW-10
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130722
Time                  16.09
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                   65536
SOLVENT              CDCl3
NS                     260
DS                       0
SWH              24038.461 Hz
FIDRES           0.366798 Hz
AQ               1.3631988 sec
RG                    80.6
DW                20.800 usec
DE                 6.50 usec
TE                 296.5 K
D1              0.20000000 sec
D11             0.03000000 sec

-------- CHANNEL f1 --------
NUC1                  13C
P1                 11.65 usec
PLW1          34.00000000 W
SFO1         100.6228293 MHz

-------- CHANNEL f2 --------
CPDPRG2           waltz16
NUC2                  1H
PCPD2              90.00 usec
PLW2          14.30000019 W
PLW12          0.33135000 W
PLW13          0.26840001 W
SFO2         400.1316005 MHz

F2 - Processing parameters
SI                    32768
SF           100.6127690 MHz
WDW                     EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```

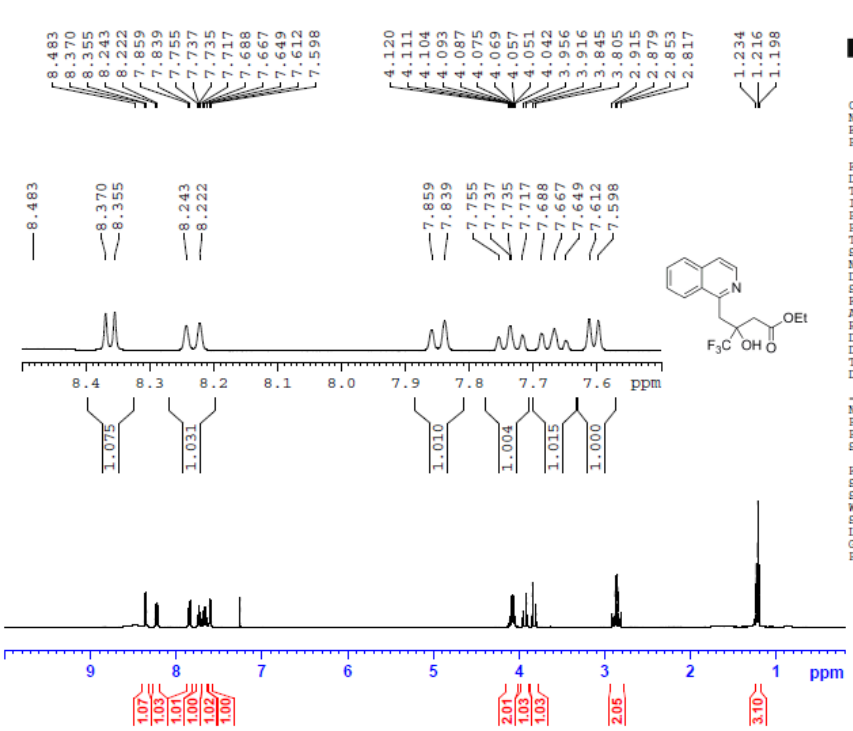
19F of PDW-10

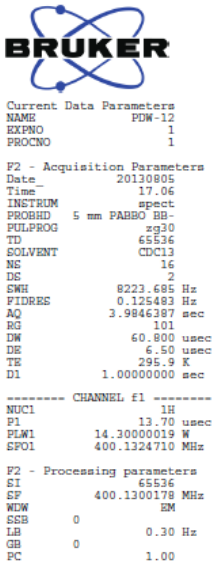


BRUKER

```
Current Data Parameters
NAME                  PDW-10
EXPNO                      3
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130722
Time                  16.15
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG           zgfhigqn
TD                  131072
SOLVENT              CDCl3
NS                      64
DS                       4
SWH              89285.711 Hz
FIDRES           0.681196 Hz
AQ               0.7340532 sec
RG                     203
DW                5.600 usec
DE                 6.50 usec
TE                 296.3 K
D1              1.00000000 sec
D11             0.03000000 sec
D12             0.00002000 sec

-------- CHANNEL f1 --------
NUC1                  19F
P1                 14.00 usec
PLW1          13.49800014 W
SFO1         376.4607164 MHz

-------- CHANNEL f2 --------
CPDPRG2           waltz16
NUC2                  1H
PCPD2              90.00 usec
PLW2          14.30000019 W
PLW12          0.33135000 W
SFO2         400.1316005 MHz

F2 - Processing parameters
SI                    65536
SF           376.4983660 MHz
WDW                     EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

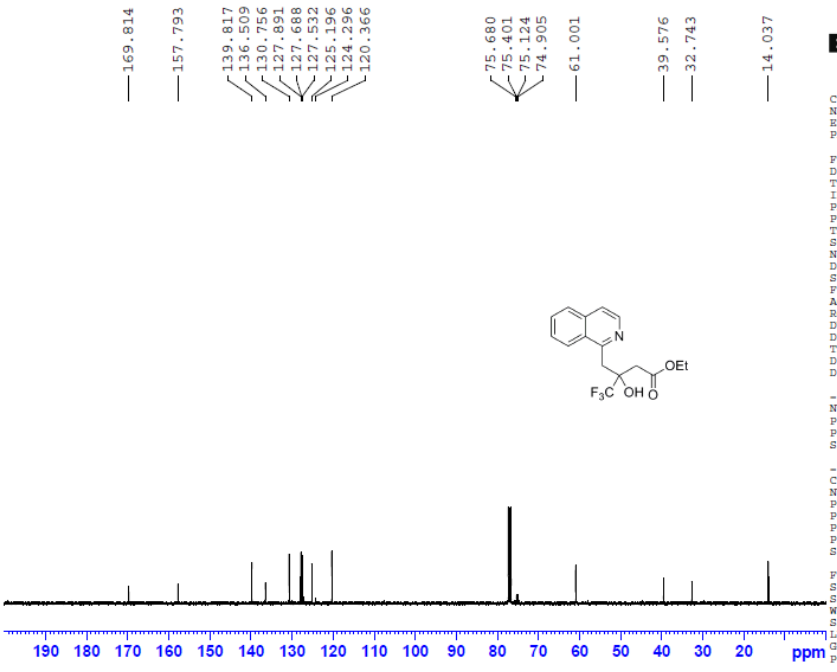
1H of PDW-12





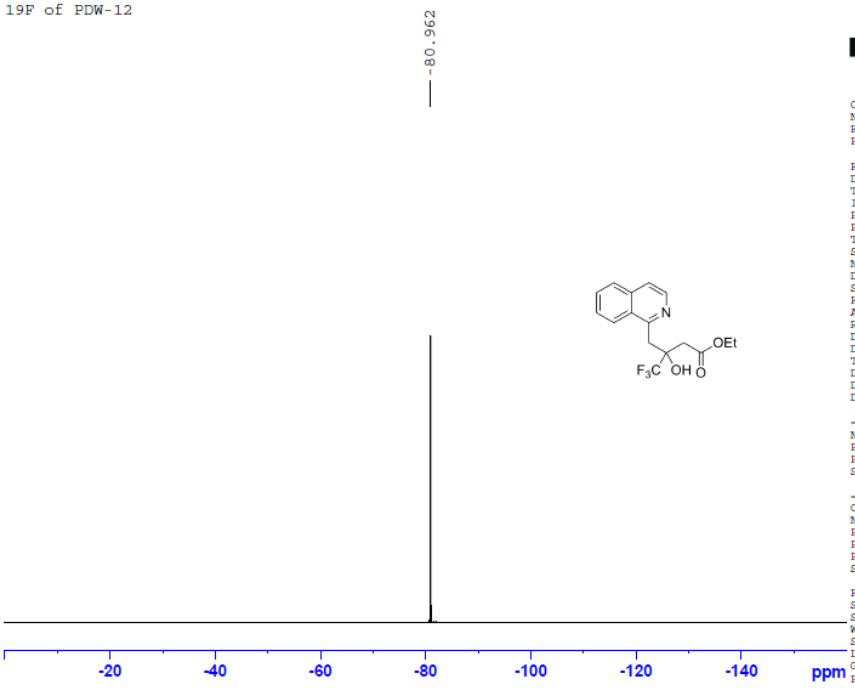
```
Current Data Parameters
NAME                  PDW-12
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130805
Time                   17.06
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                        16
DS                         2
SWH                8223.685 Hz
FIDRES             0.125483 Hz
AQ                 3.9846387 sec
RG                       101
DW                  60.800 usec
DE                   6.50 usec
TE                   295.9 K
D1                 1.00000000 sec

======== CHANNEL f1 ========
NUC1                       1H
P1                     13.70 usec
PLW1           14.30000019 W
SFO1           400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF                 400.1300178 MHz
WDW                        EM
SSB          0
LB                      0.30 Hz
GB           0
PC                      1.00
```

13C of PDW-12



```
Current Data Parameters
NAME                  PDW-12
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130805
Time                   17.17
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT               CDCl3
NS                       394
DS                         0
SWH               24038.461 Hz
FIDRES             0.366798 Hz
AQ                 1.3631988 sec
RG                       101
DW                  20.800 usec
DE                   6.50 usec
TE                   296.7 K
D1                 0.20000000 sec
D11                0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                     11.65 usec
PLW1           34.00000000 W
SFO1           100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2                waltz16
NUC2                       1H
PCPD2                  90.00 usec
PLW2           14.30000019 W
PLW12           0.33135000 W
PLW13           0.26840001 W
SFO2           400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF                 100.6127690 MHz
WDW                        EM
SSB          0
LB                      1.00 Hz
GB           0
PC                      1.40
```

19F of PDW-12



Current Data Parameters
NAME PDW-12
EXPNO 3
PROCNO 1

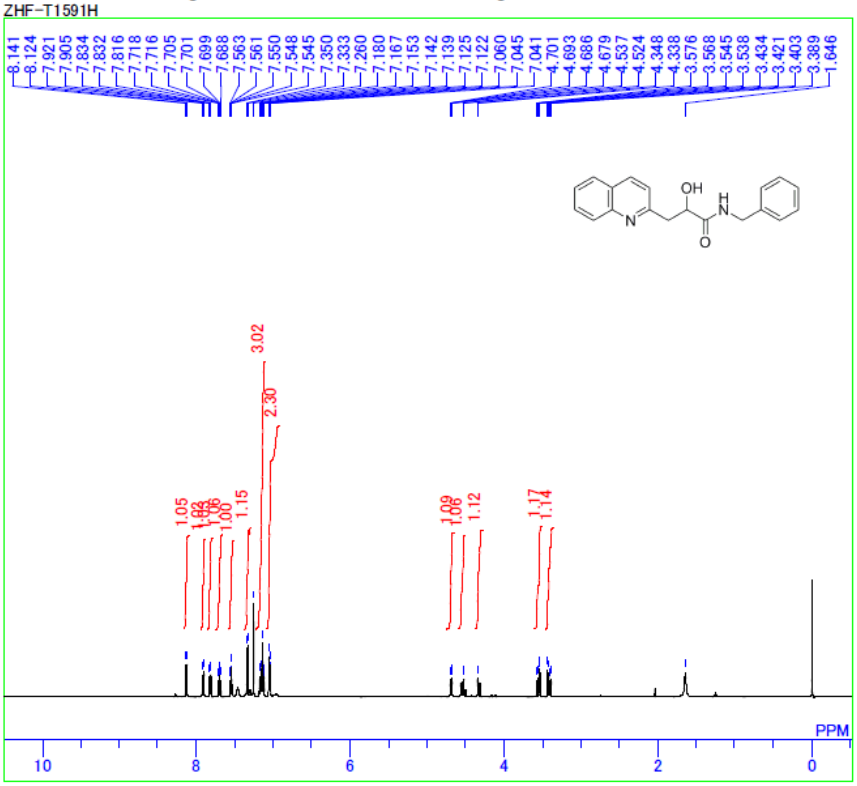
F2 - Acquisition Parameters
Date_ 20130805
Time 17.22
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgfhigqn
TD 131072
SOLVENT CDCl3
NS 21
DS 4
SWH 89285.711 Hz
FIDRES 0.681196 Hz
AQ 0.7340532 sec
RG 203
DW 5.600 usec
DE 6.50 usec
TE 296.1 K
D1 1.00000000 sec
D11 0.03000000 sec
D12 0.00002000 sec

-------- CHANNEL f1 --------
NUC1 19F
P1 14.00 usec
PLW1 13.49800014 W
SFO1 376.4607164 MHz

-------- CHANNEL f2 --------
CPDPRG2 waltz16
NUC2 1H
PCPD2 90.00 usec
PLW2 14.30000019 W
PLW12 0.33135000 W
SFO2 400.1316005 MHz

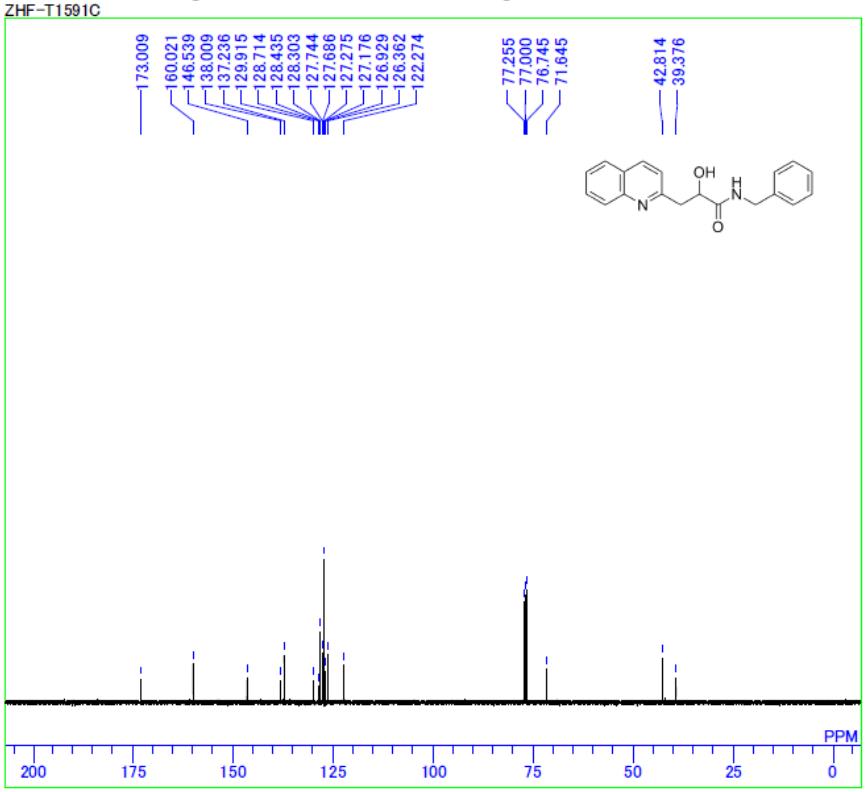
F2 - Processing parameters
SI 65536
SF 376.4983660 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1591H.als
ZHF-T1591H



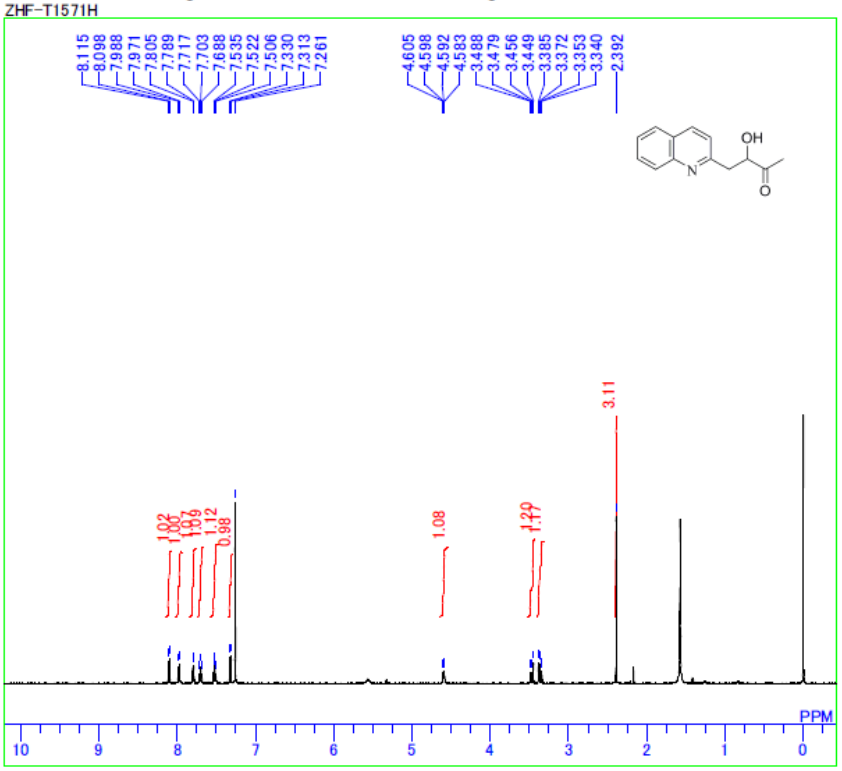
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	21
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and S
SHMFL	TH5ATFG2_1ZHF-T1
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	25
LKPHS	214
LKSIG	2112
CSPED	3 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1591C.als
ZHF-T1591C



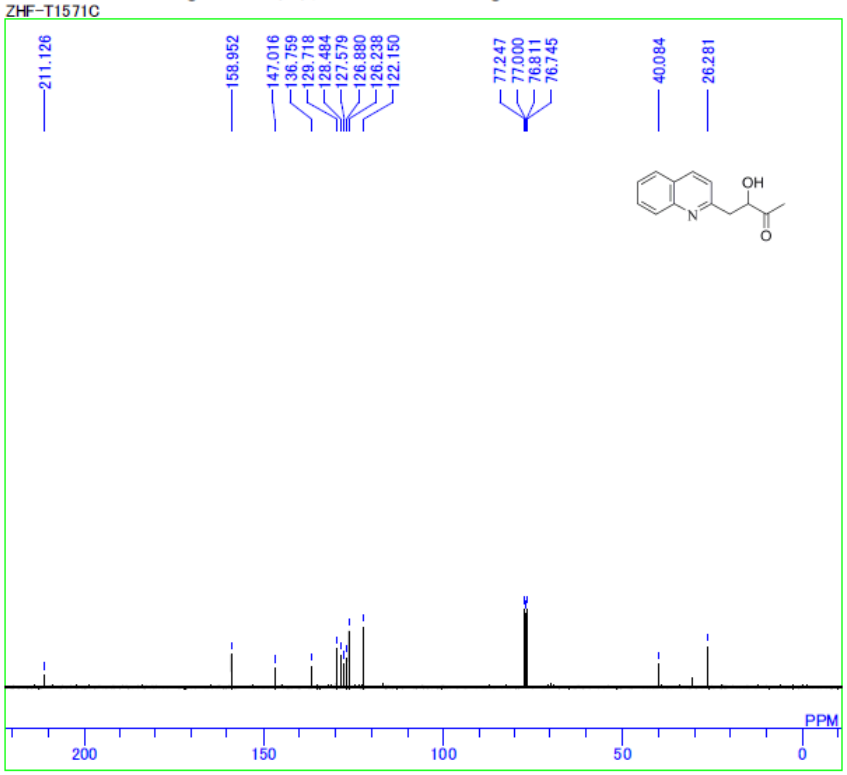
MENUF	bcm_th5atfTH5ATF
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and
SHMFL	TH5ATFG2_1ZHF-
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1149
CSPED	14 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃｰﾌﾞﾙ ﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1571H.als
ZHF-T1571H



MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Sett
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1113
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃｰﾌﾞﾙ ﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1571C.als
ZHF-T1571C



MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Sett
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	904
CSPED	16 Hz
FILDC	
FILDF	

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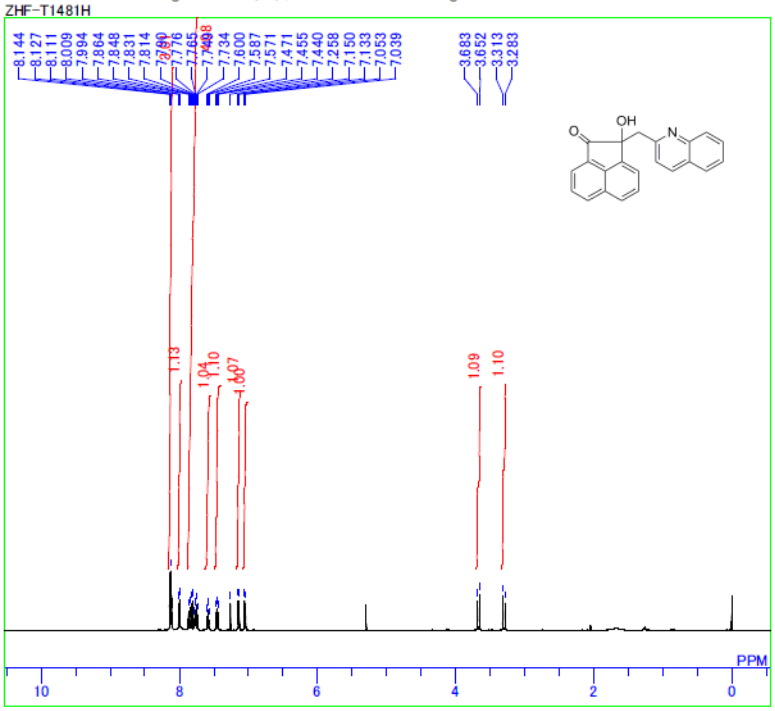
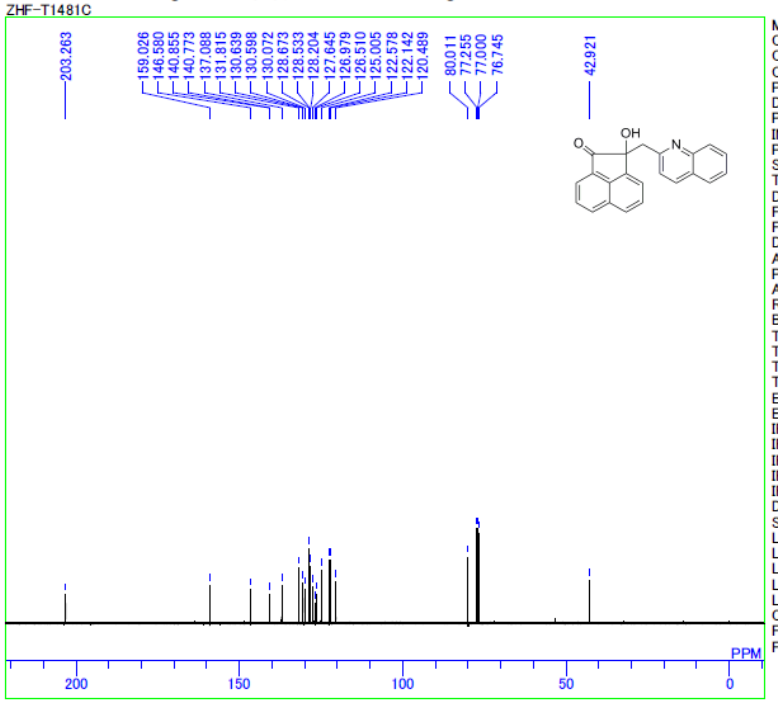
ZHF-T1481H



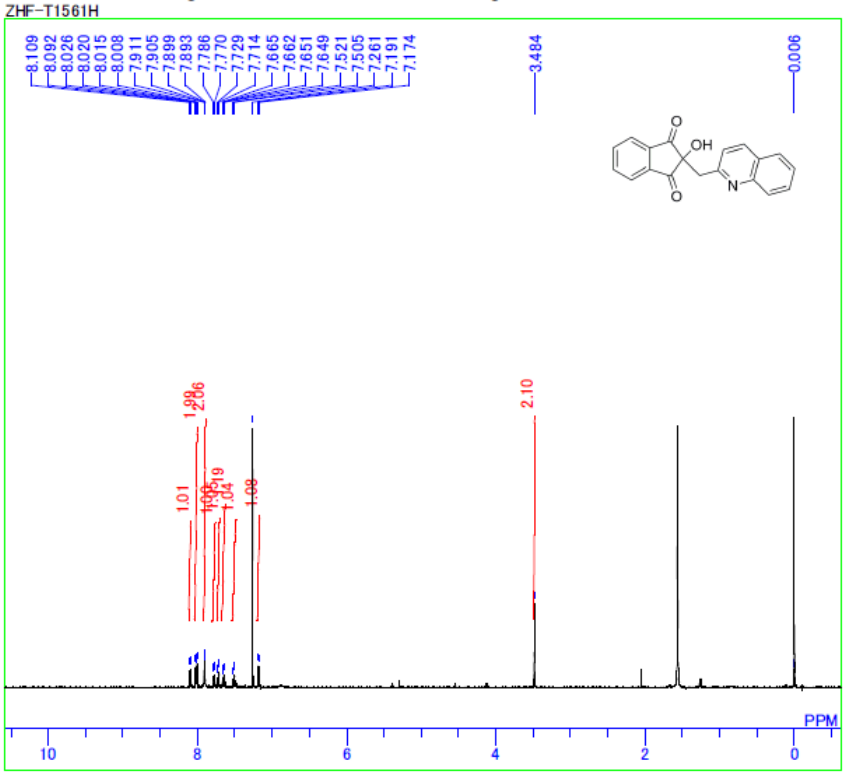
MENUF	non_th5atfTH5ATFG2_1ZHF-T1481H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	17
BF	0.00 Hz
T1	0.00
T2	0.00
T3	100.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1481H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	25
LKPHS	214
LKSIG	2039
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1481C.als
ZHF-T1481C



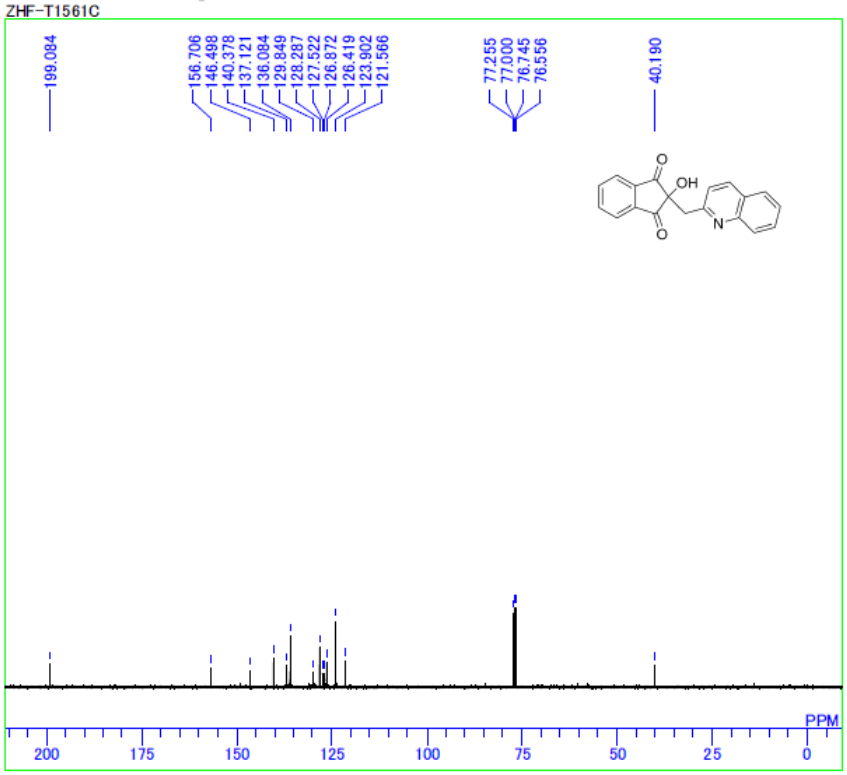
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1481C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	100.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1481C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	667
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1561H.als
ZHF-T1561H



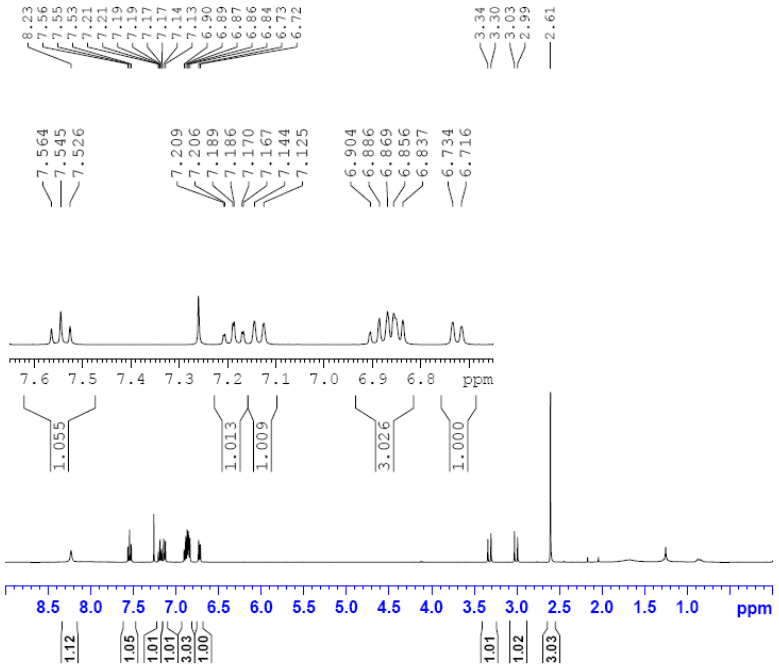
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Set
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	935
CSPED	16 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T1561C

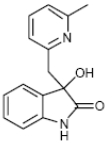


MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMM(
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	170
LGAIN	27
LKPHS	214
LKSIG	2300
CSPED	12 Hz
FILDC	
FILDF	

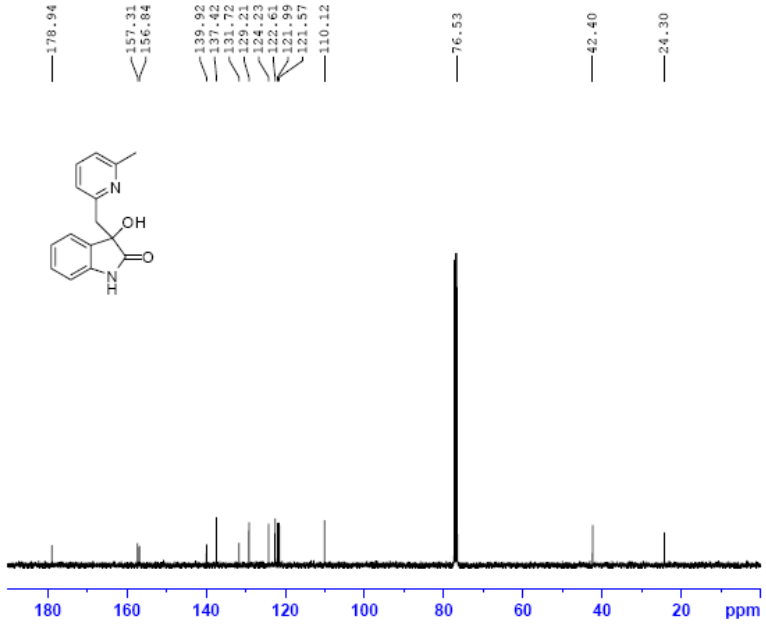
1H of JK-93



```
Current Data Parameters
NAME                  JK-93
EXPNO                     1
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130727
Time                  15.43
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                       16
DS                        2
SWH                8223.685 Hz
FIDRES            0.125483 Hz
AQ                3.9846387 sec
RG                      128
DW                   60.800 usec
DE                    6.50 usec
TE                   297.4 K
D1                1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                     13.70 usec
PLW1            14.30000019 W
SFO1           400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF               400.1300177 MHz
WDW                          EM
SSB                       0
LB                     0.30 Hz
GB                        0
PC                     1.00
```

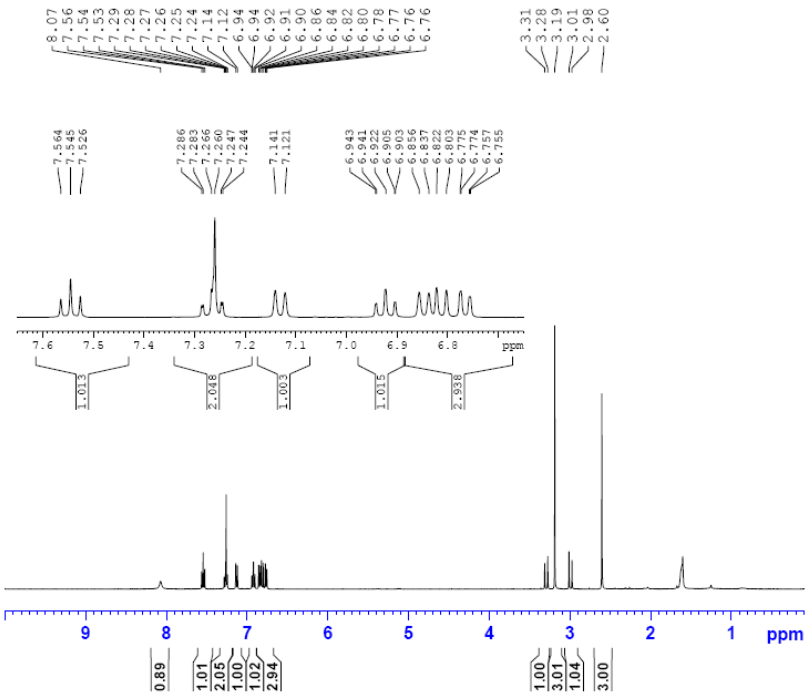


13C of JK-93

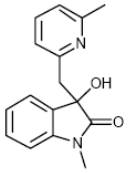


```
Current Data Parameters
NAME                  JK-93
EXPNO                     2
PROCNO                    1

F2 - Acquisition Parameters
Date_              20130727
Time                  15.52
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT               CDCl3
NS                      296
DS                        4
SWH               24038.461 Hz
FIDRES            0.366798 Hz
AQ                1.3631988 sec
RG                      161
DW                   20.800 usec
DE                    6.50 usec
TE                   298.0 K
D1             0.20000000 sec
D11            0.03000000 sec

======== CHANNEL f1 ========
NUC1                     13C
P1                     11.65 usec
PLW1           34.00000000 W
SFO1           100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2              waltz16
NUC2                      1H
PCPD2                  90.00 usec
PLW2            14.30000019 W
PLW12           0.33135000 W
PLW13           0.26840001 W
SFO2           400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF               100.6127739 MHz
WDW                          EM
SSB                       0
LB                     1.00 Hz
GB                        0
PC                     1.40
```

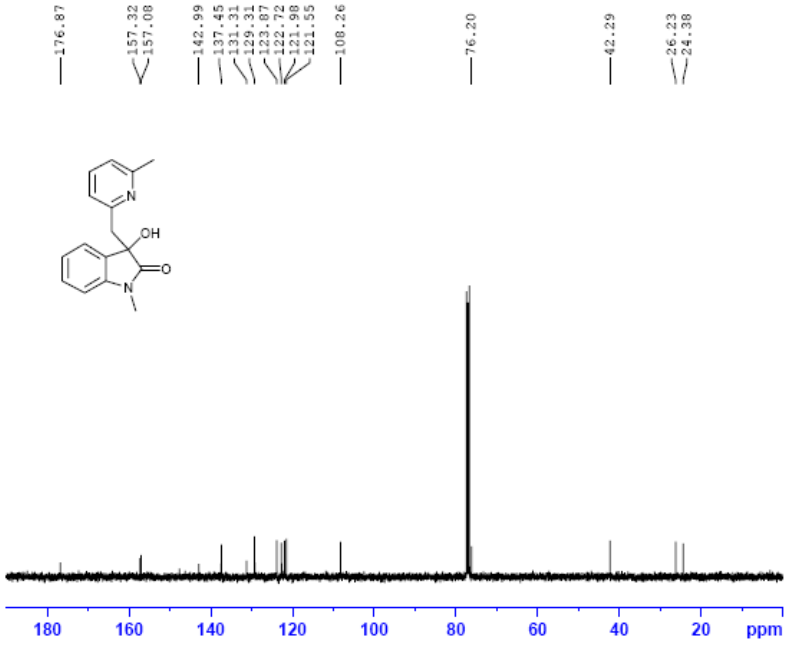
1H of JK-104



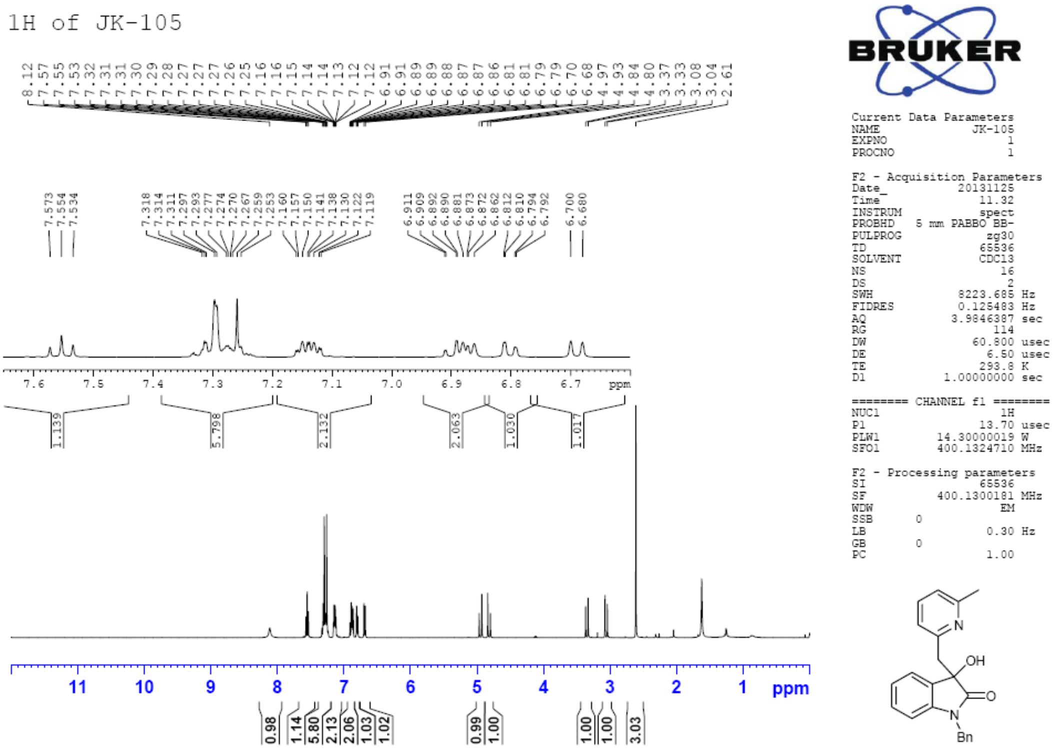
```
Current Data Parameters
NAME                  JK-104
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131125
Time                   10.45
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                       16
DS                        2
SWH                8223.685 Hz
FIDRES             0.125483 Hz
AQ                 3.9846387 sec
RG                       114
DW                  60.800 usec
DE                   6.50 usec
TE                   293.7 K
D1                 1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                     13.70 usec
PLW1             14.30000019 W
SFO1            400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF                 400.1300178 MHz
WDW                        EM
SSB          0
LB                     0.30 Hz
GB           0
PC                     1.00
```

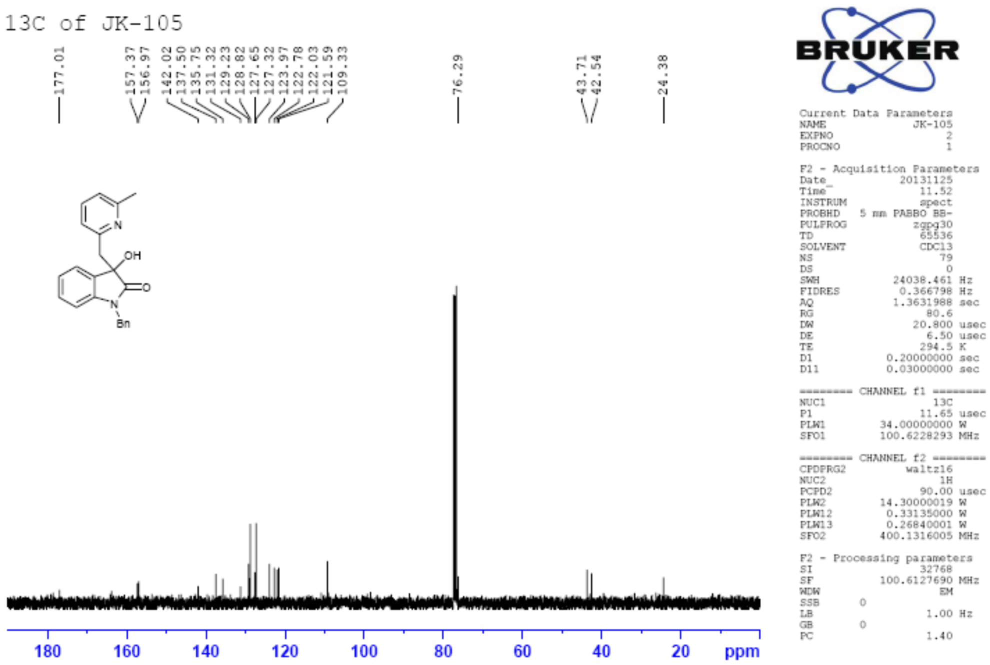


13C of JK-104

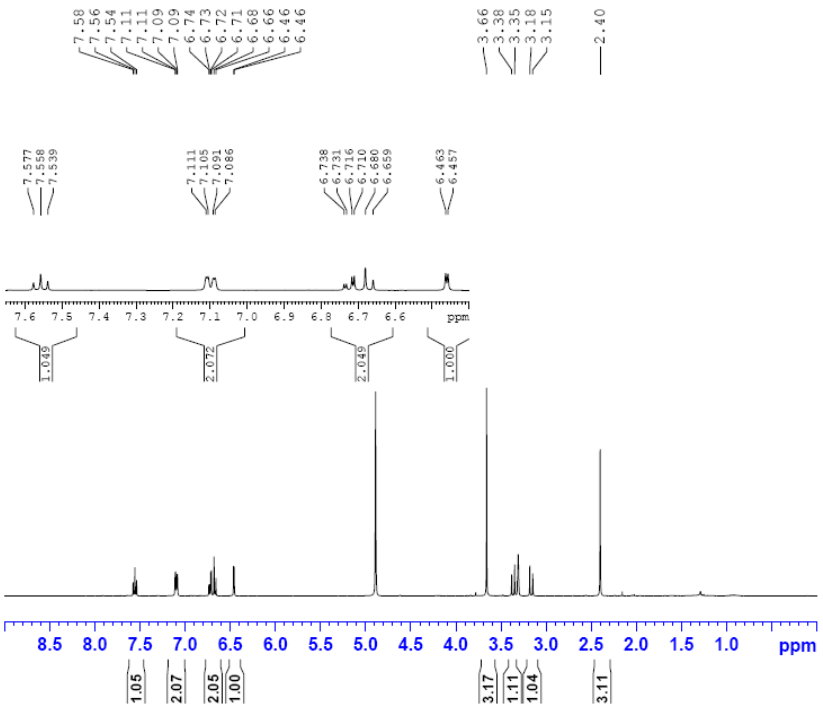



```
Current Data Parameters
NAME                  JK-104
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131125
Time                   11.42
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT               CDCl3
NS                      109
DS                        4
SWH               24038.461 Hz
FIDRES             0.366798 Hz
AQ                 1.3631988 sec
RG                      80.6
DW                  20.800 usec
DE                   6.50 usec
TE                   294.4 K
D1                 2.00000000 sec
D11                0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                     11.65 usec
PLW1             34.00000000 W
SFO1            100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2              waltz16
NUC2                      1H
PCPD2                  90.00 usec
PLW2             14.30000019 W
PLW12             0.33135000 W
PLW13             0.26840001 W
SFO2            400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF                 100.6127690 MHz
WDW                        EM
SSB          0
LB                     1.00 Hz
GB           0
PC                     1.40
```

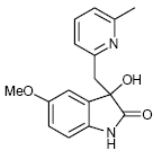

1H of JK-105
BRUKER
Current Data Parameters
NAME JK-105
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20131125
Time 11.32
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
AQ 3.9846387 sec
RG 114
DW 60.800 usec
DE 6.50 usec
TE 293.8 K
D1 1.00000000 sec
======== CHANNEL f1 ========
NUC1 1H
P1 13.70 usec
PLW1 14.30000019 W
SFO1 400.1324710 MHz
F2 - Processing parameters
SI 65536
SF 400.1300181 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
OH
N
Bn
ppm


13C of JK-105
177.01
157.37
156.97
142.02
137.50
135.75
131.32
129.23
128.82
127.65
127.32
123.97
122.78
122.03
121.59
109.33
76.29
43.71
42.54
24.38
BRUKER
Current Data Parameters
NAME JK-105
EXPNO 2
PROCNO 1
F2 - Acquisition Parameters
Date_ 20131125
Time 11.52
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 79
DS 0
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 80.6
DW 20.800 usec
DE 6.50 usec
TE 294.5 K
D1 0.20000000 sec
D11 0.03000000 sec
======== CHANNEL f1 ========
NUC1 13C
P1 11.65 usec
PLW1 34.00000000 W
SFO1 100.6228293 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 90.00 usec
PLW2 14.30000019 W
PLW12 0.33135000 W
PLW13 0.26840001 W
SFO2 400.1316005 MHz
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
OH
N
Bn
ppm

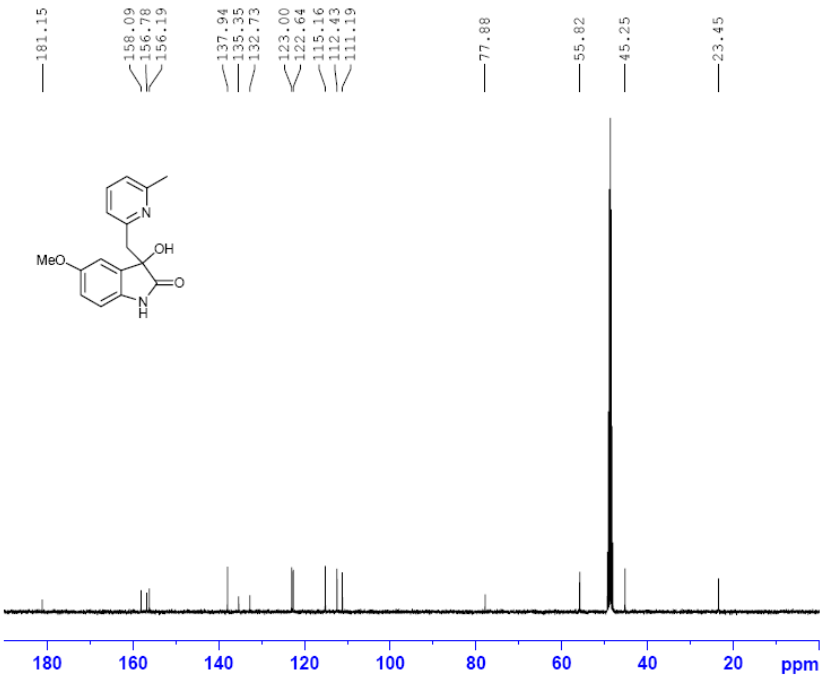
1H of JK-117



```
Current Data Parameters
NAME                  JK-117
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_               20191212
Time                    9.18
INSTRUM                spect
PROBHD    5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT                MeOD
NS                       16
DS                        2
SWH                8223.685 Hz
FIDRES             0.125483 Hz
AQ                 3.9846387 sec
RG                      90.5
DW                   60.800 usec
DE                    6.50 usec
TE                   295.1 K
D1                 1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                     13.70 usec
PLW1             14.30000019 W
SFO1            400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF                 400.1300119 MHz
WDW                          EM
SSB                       0
LB                        0.30 Hz
GB                        0
PC                        1.00
```

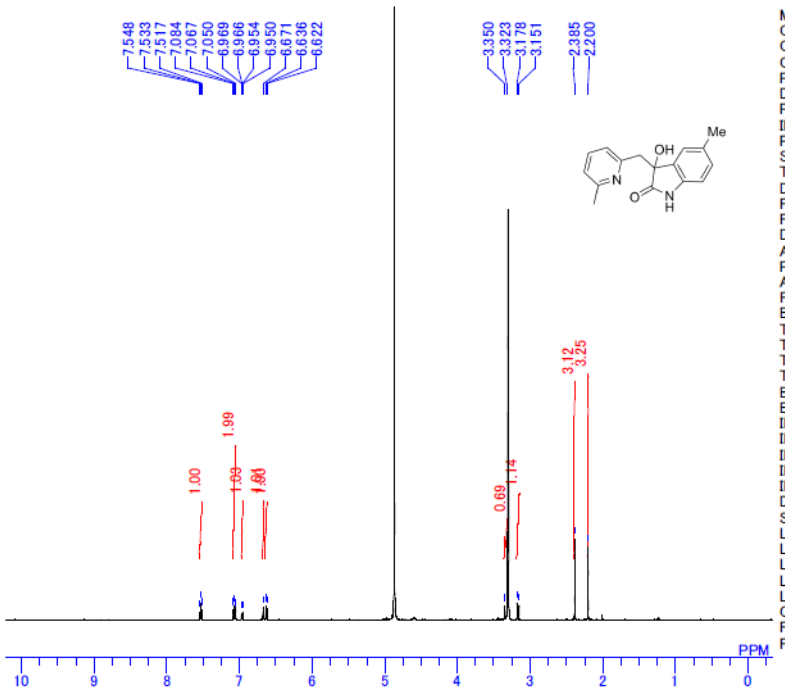


13C of JK-117



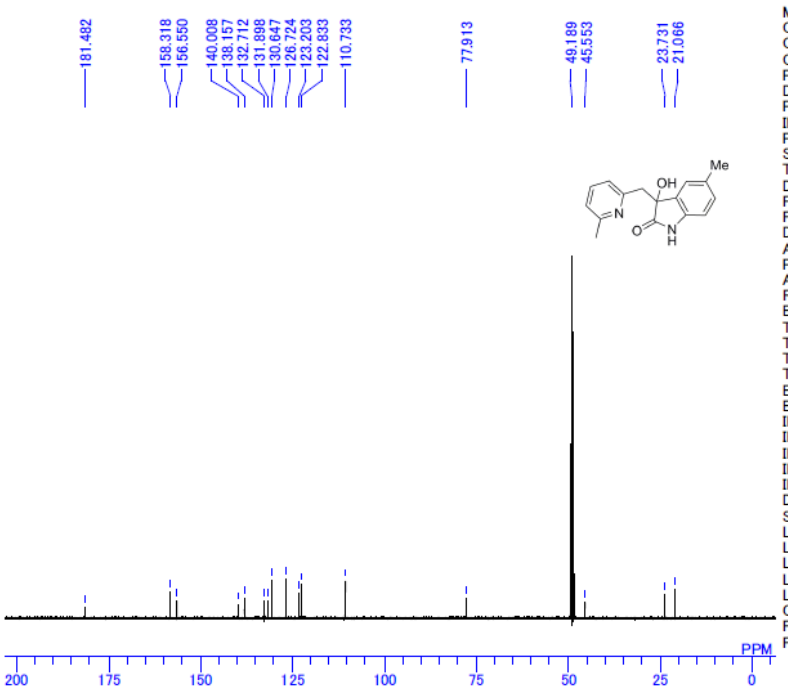
```
Current Data Parameters
NAME                  JK-117
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_               20191212
Time                    9.27
INSTRUM                spect
PROBHD    5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT                MeOD
NS                       590
DS                         0
SWH               24038.461 Hz
FIDRES             0.366798 Hz
AQ                 1.3631988 sec
RG                       144
DW                   20.800 usec
DE                    6.50 usec
TE                   295.6 K
D1                 0.20000000 sec
D11                0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                     11.65 usec
PLW1             34.00000000 W
SFO1            100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2                waltz16
NUC2                      1H
PCPD2                  90.00 usec
PLW2             14.30000019 W
PLW12             0.33135000 W
PLW13             0.26840001 W
SFO2            400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF                 100.6126579 MHz
WDW                          EM
SSB                       0
LB                     1.00 Hz
GB                        0
PC                        1.40
```

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1451H.als



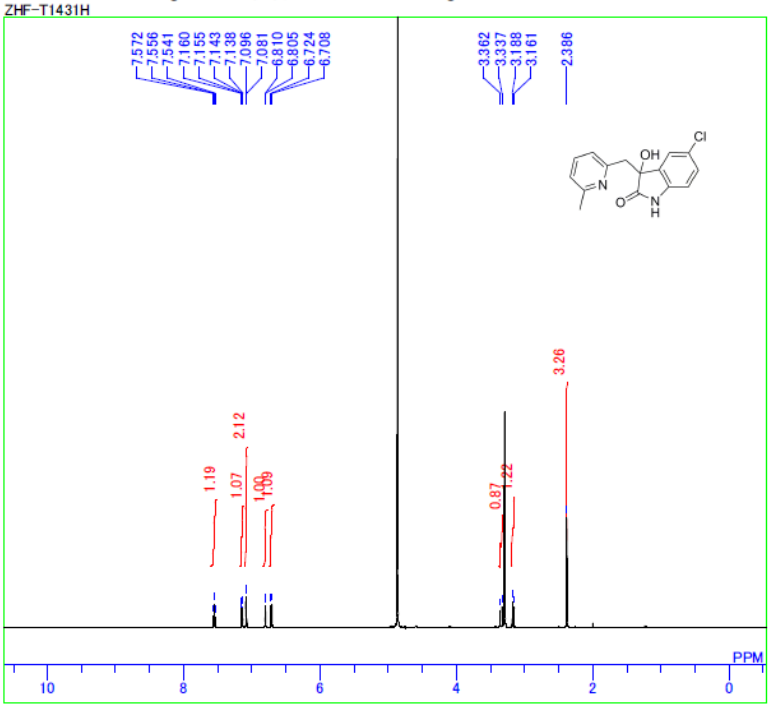
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	21
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70031.0 Hz
LKLEV	160
LGAIN	12
LKPHS	214
LKSIG	450
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1451C.als



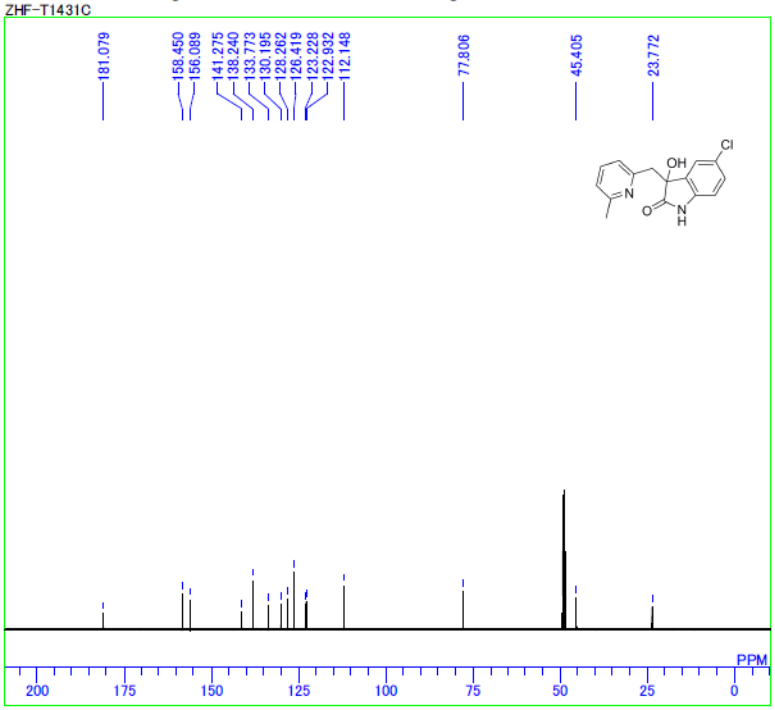
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1451C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T1451C
LKFIN	70031.0 Hz
LKLEV	160
LGAIN	18
LKPHS	214
LKSIG	2402
CSPED	14 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1431H.als
ZHF-T1431H



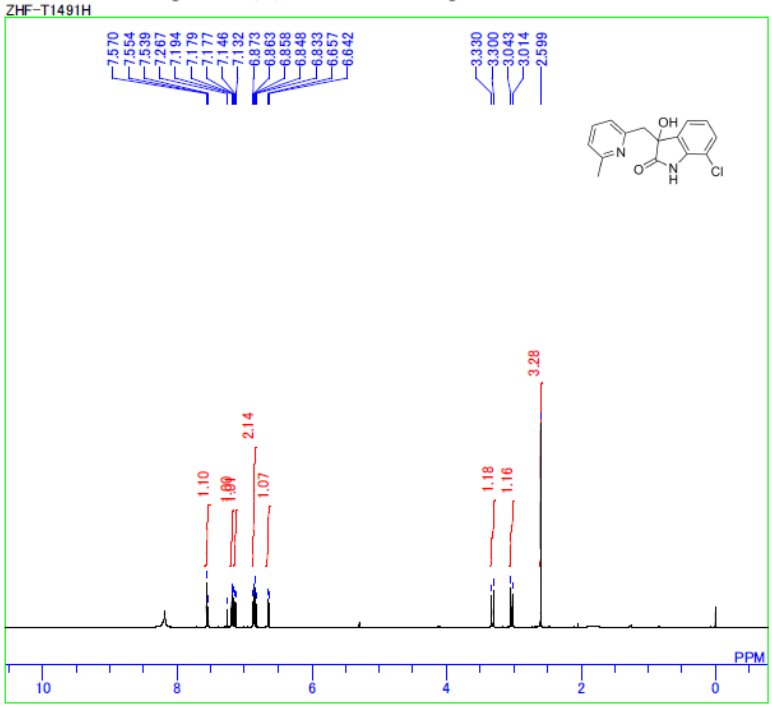
MENUF	non_th5atfTH5ATFG2_1ZHF-T1431H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1431H
LKFIN	70031.0 Hz
LKLEV	160
LGAIN	16
LKPHS	214
LKSIG	1619
CSPED	12 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1431C.als
ZHF-T1431C



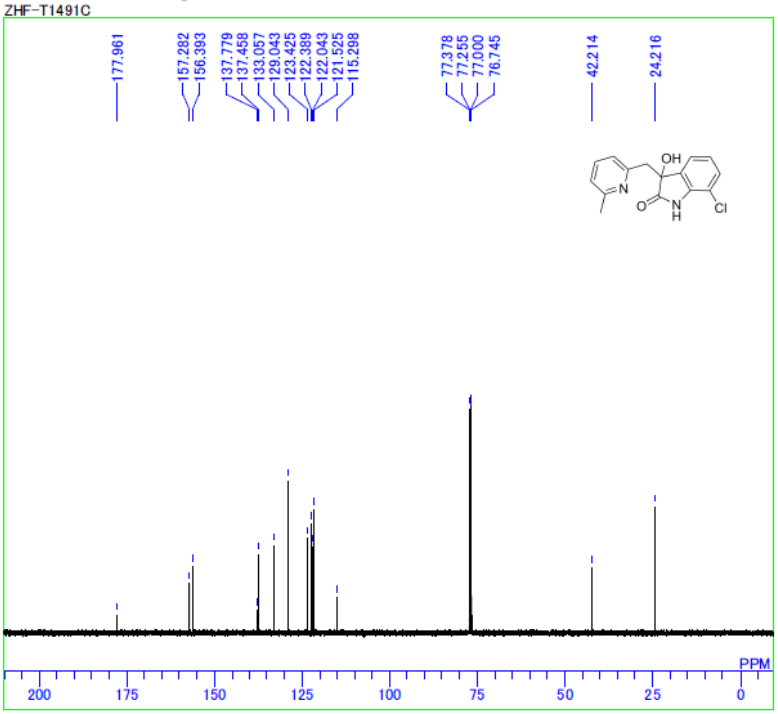
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1431C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1431C
LKFIN	70031.0 Hz
LKLEV	160
LGAIN	17
LKPHS	214
LKSIG	1634
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1491H.als
ZHF-T1491H



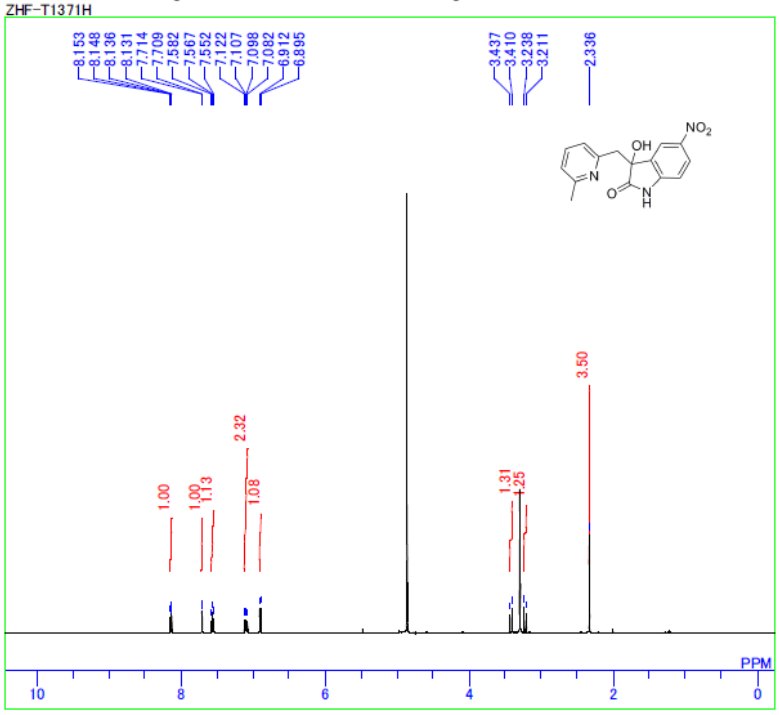
MENUF	non_th5atfTH5ATFG2_1ZHF-T1491H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	17
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1491H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1620
CSPED	16 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T1491C



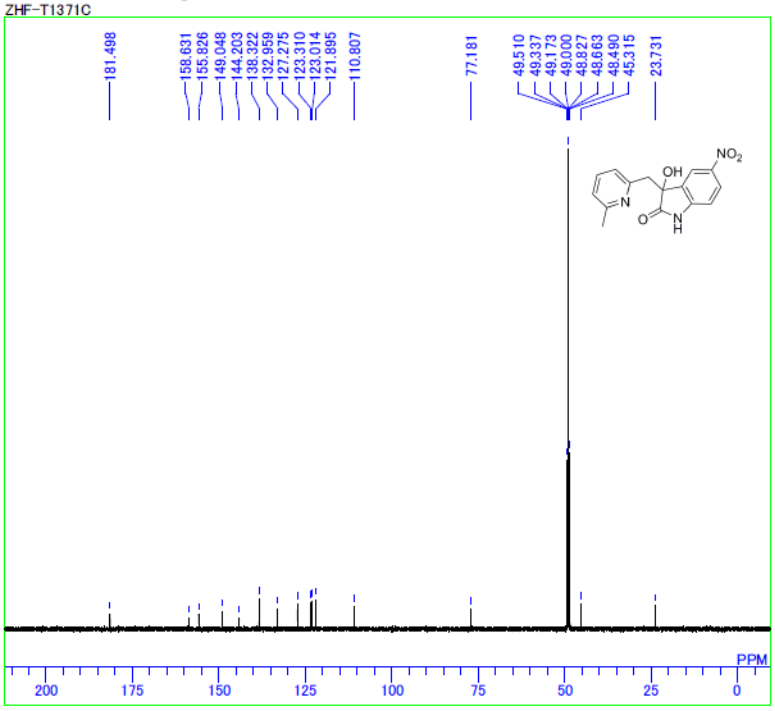
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1491C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2_1ZHF-T1491C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	668
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1371H.als
ZHF-T1371H



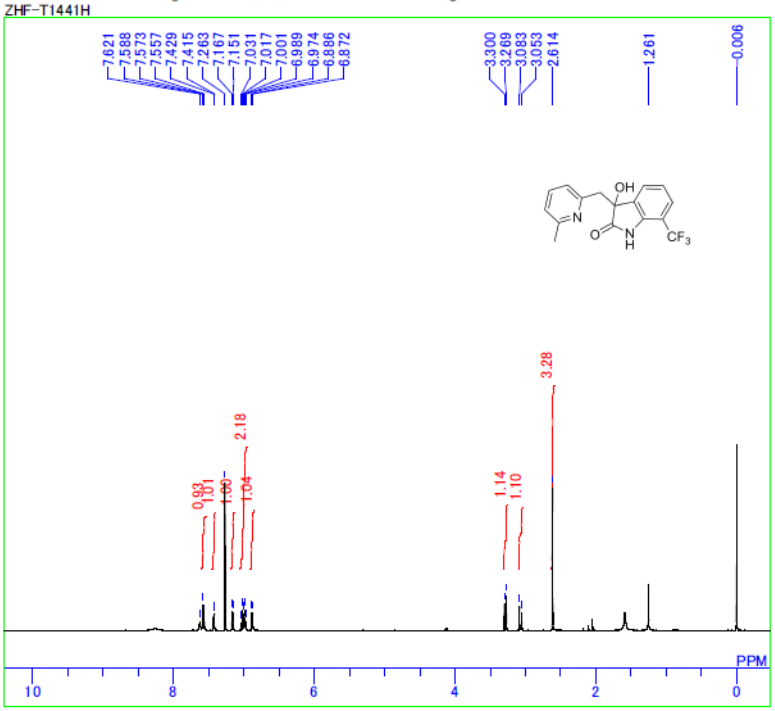
MENUF	non_th5atfTH5ATFG2_1ZHF-T1371H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1371H
LKFIN	70031.0 Hz
LKLEV	160
LGAIN	14
LKPHS	214
LKSIG	847
CSPED	12 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T1371C



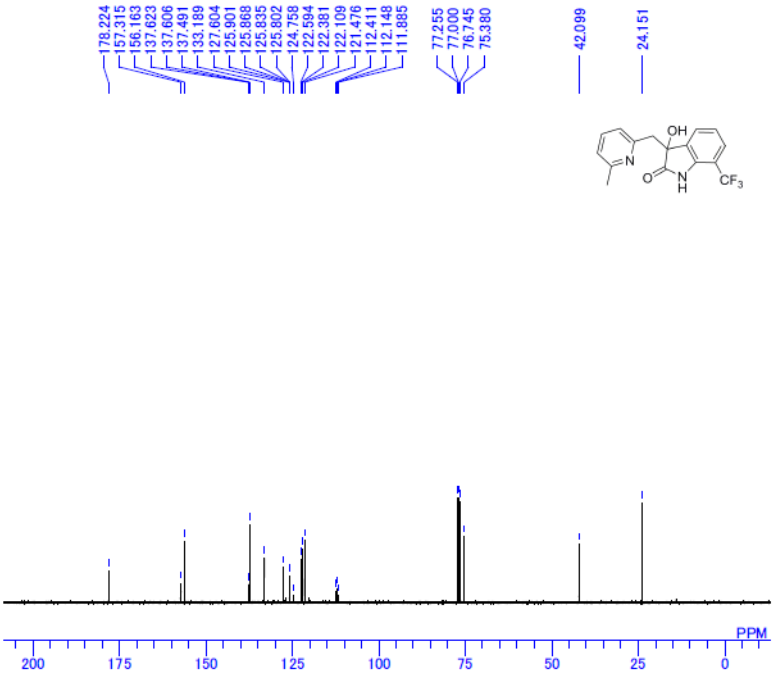
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1371C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2_1ZHF-T1371C
LKFIN	70031.0 Hz
LKLEV	160
LGAIN	14
LKPHS	214
LKSIG	368
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1441H.als
ZHF-T1441H



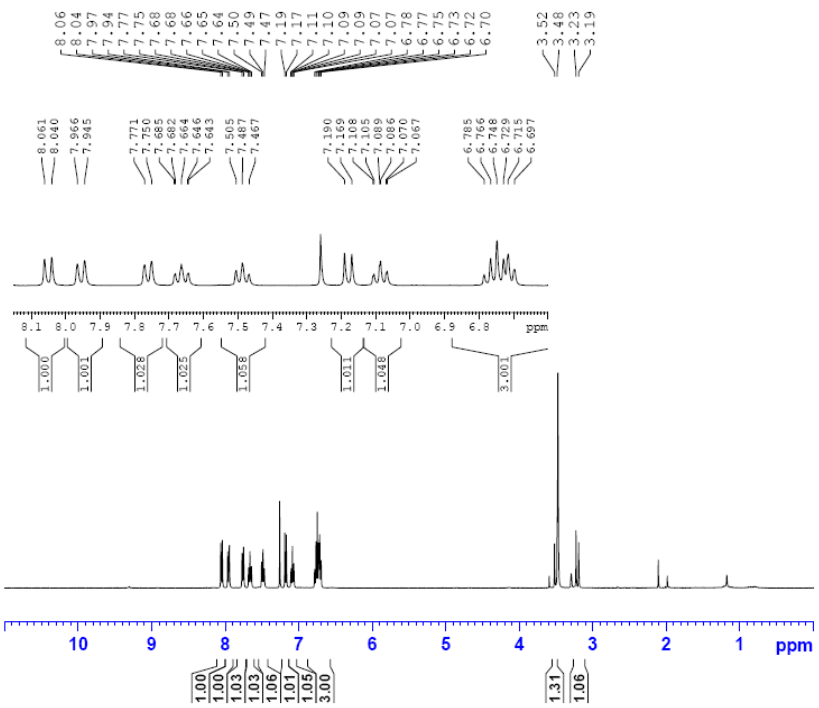
MENUF	non_th5atfTH5ATFG2_1ZHF-T1441H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	24
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T1441H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	948
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1441C.als

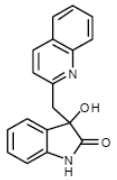


MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1441C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1441C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	621
CSPED	11 Hz
FILDC	
FILDF	

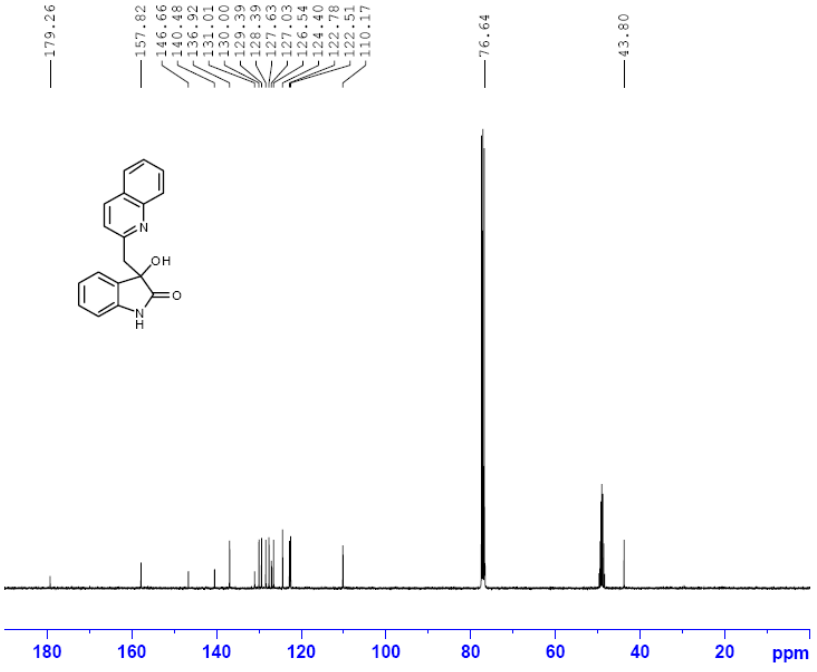
1H of JK-108




```
Current Data Parameters
NAME                  JK-108
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131203
Time                   8.28
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                        16
DS                         2
SWH                8223.685 Hz
FIDRES             0.125483 Hz
AQ                 3.9846387 sec
RG                       114
DW                  60.800 usec
DE                   6.50 usec
TE                   294.0 K
D1                 1.00000000 sec

======== CHANNEL f1 ========
NUC1                       1H
P1                      13.70 usec
PLW1             14.30000019 W
SFO1            400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF               400.1299845 MHz
WDW                          EM
SSB          0
LB                      0.30 Hz
GB           0
PC                        1.00
```

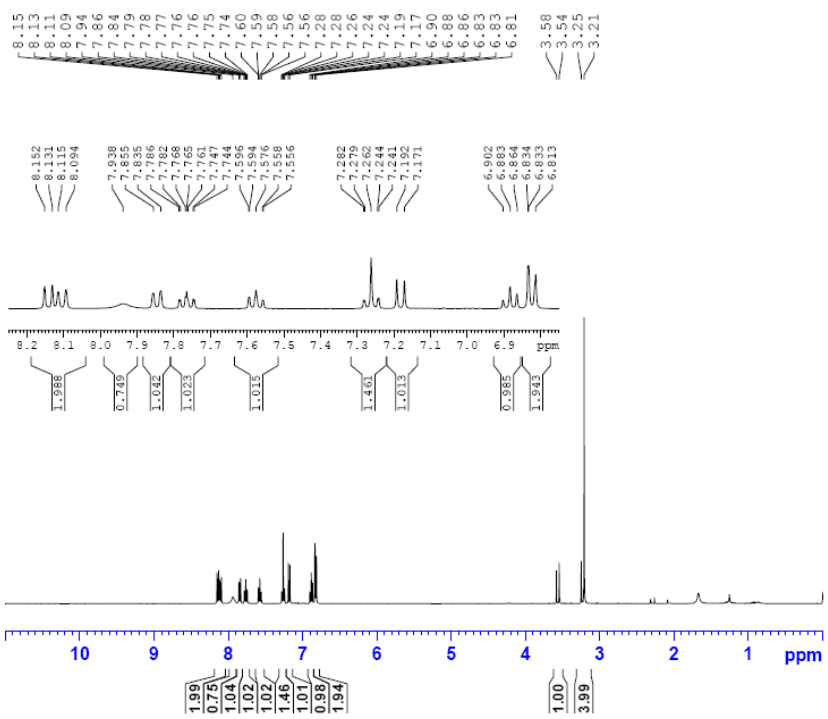


13C of JK-108



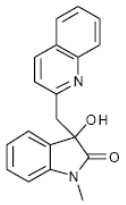

```
Current Data Parameters
NAME                  JK-108
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131203
Time                  12.02
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT               CDCl3
NS                      7055
DS                         0
SWH               24038.461 Hz
FIDRES             0.366798 Hz
AQ                 1.3631988 sec
RG                      90.5
DW                  20.800 usec
DE                   6.50 usec
TE                   297.0 K
D1                 0.20000000 sec
D11                0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                      11.65 usec
PLW1             34.00000000 W
SFO1            100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2                waltz16
NUC2                       1H
PCPD2                   90.00 usec
PLW2             14.30000019 W
PLW12             0.33135000 W
PLW13             0.26840001 W
SFO2            400.1316008 MHz

F2 - Processing parameters
SI                        32768
SF               100.6127690 MHz
WDW                          EM
SSB          0
LB                      1.00 Hz
GB           0
PC                        1.40
```

1H of JK-109

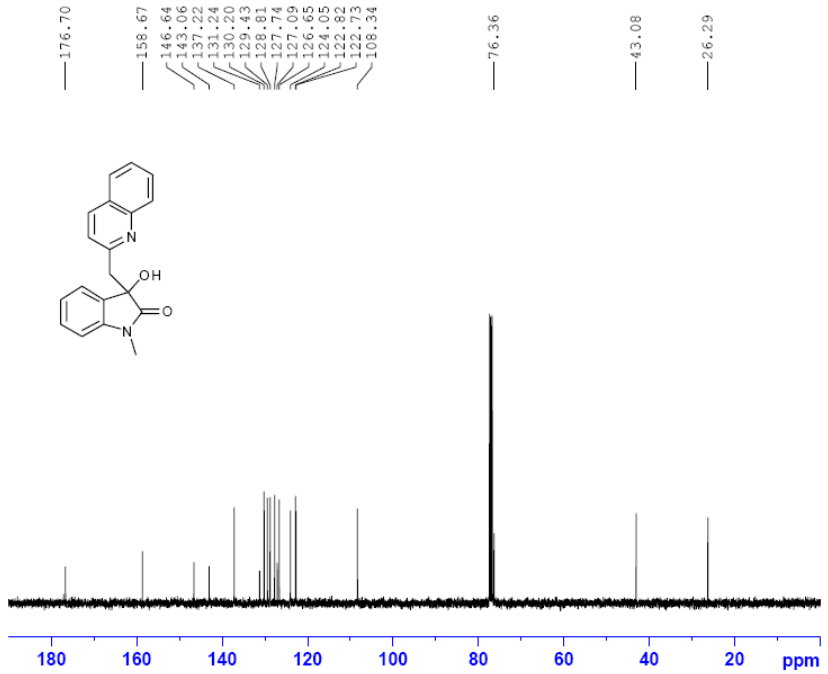


BRUKER

```
Current Data Parameters
NAME                  JK-109
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131203
Time                   8.33
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3
NS                        16
DS                         2
SWH               8223.685 Hz
FIDRES            0.125483 Hz
AQ                3.9846387 sec
RG                       101
DW                  60.800 usec
DE                   6.50 usec
TE                   293.7 K
D1              1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                     13.70 usec
PLW1           14.30000019 W
SFO1           400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF             400.1300171 MHz
WDW                          EM
SSB          0
LB                     0.30 Hz
GB           0
PC                     1.00
```



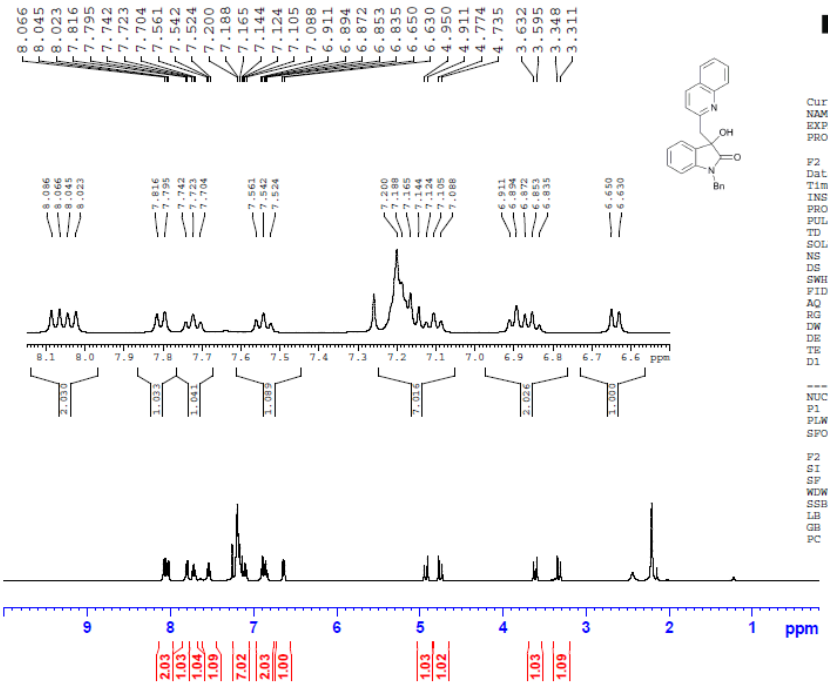
13C of JK-109



BRUKER

```
Current Data Parameters
NAME                  JK-109
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131203
Time                  12.16
INSTRUM               spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT               CDCl3
NS                      179
DS                        0
SWH              24038.461 Hz
FIDRES            0.366798 Hz
AQ                1.3631988 sec
RG                     90.5
DW                  20.800 usec
DE                   6.50 usec
TE                   295.0 K
D1              0.20000000 sec
D11             0.03000000 sec

======== CHANNEL f1 ========
NUC1                     13C
P1                     11.65 usec
PLW1           34.00000000 W
SFO1           100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2              waltz16
NUC2                      1H
PCPD2                  90.00 usec
PLW2           14.30000019 W
PLW12           0.33135000 W
PLW13           0.26840001 W
SFO2           400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF             100.6127690 MHz
WDW                          EM
SSB          0
LB                     1.00 Hz
GB           0
PC                     1.40
```

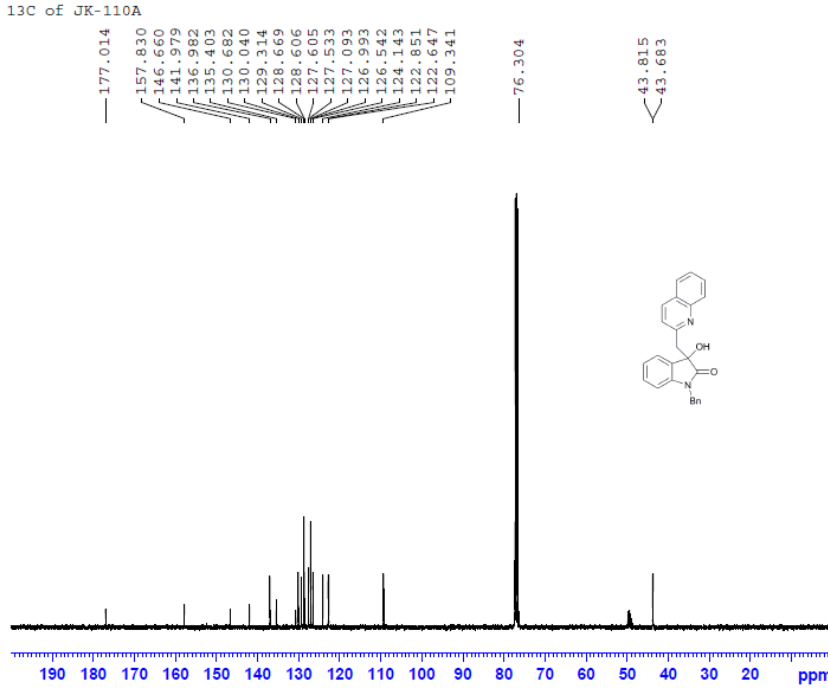
1H of JK-110A



BRUKER

```
Current Data Parameters
NAME                  JK-110A
EXPNO                       1
PROCNO                      1

F2 - Acquisition Parameters
Date_              20140921
Time                   15.40
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT               CDCl3 + MeOD
NS                       16
DS                        2
SWH                8223.685 Hz
FIDRES             0.125483 Hz
AQ                 3.9846387 sec
RG                      114
DW                   60.800 usec
DE                    6.50 usec
TE                   294.9 K
D1                 1.00000000 sec

-------- CHANNEL f1 --------
NUC1                      1H
P1                     13.70 usec
PLW1             14.30000019 W
SFO1            400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF               400.1300180 MHz
WDW                          EM
SSB          0
LB                     0.30 Hz
GB           0
PC                     1.00
```

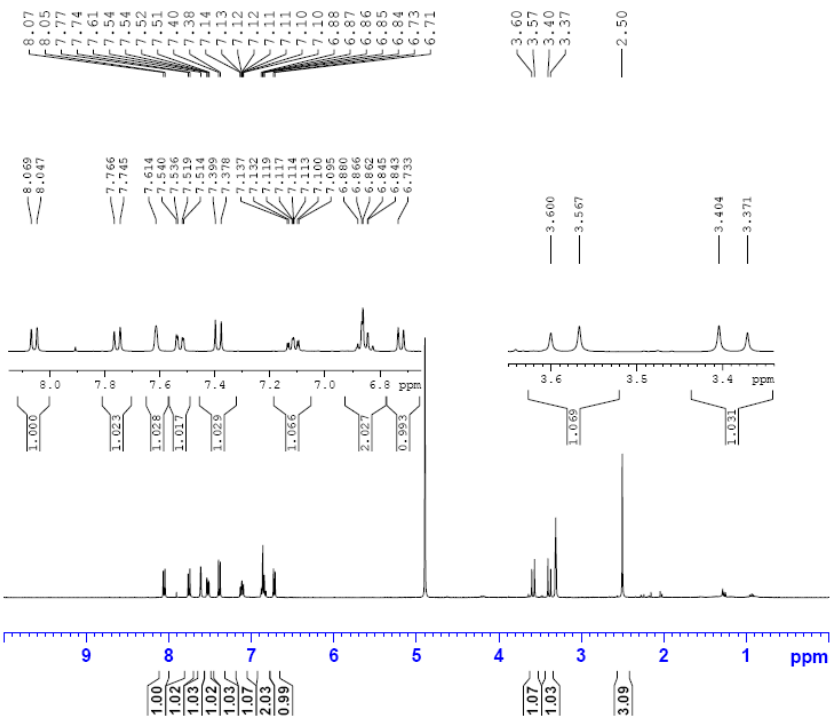
13C of JK-110A



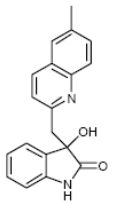
BRUKER

```
Current Data Parameters
NAME                  JK-110A
EXPNO                       2
PROCNO                      1

F2 - Acquisition Parameters
Date_              20140921
Time                   15.52
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT               CDCl3
NS                     1951
DS                        0
SWH               24038.461 Hz
FIDRES             0.366798 Hz
AQ                 1.3631988 sec
RG                      203
DW                   20.800 usec
DE                    6.50 usec
TE                   295.7 K
D1                 0.20000000 sec
D11                0.03000000 sec

-------- CHANNEL f1 --------
NUC1                     13C
P1                     11.65 usec
PLW1             34.00000000 W
SFO1            100.6228293 MHz

-------- CHANNEL f2 --------
CPDPRG2              waltz16
NUC2                      1H
PCPD2                  90.00 usec
PLW2             14.30000019 W
PLW12             0.33135000 W
PLW13             0.26840001 W
SFO2            400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF               100.6127778 MHz
WDW                          EM
SSB          0
LB                     1.00 Hz
GB           0
PC                     1.40
```

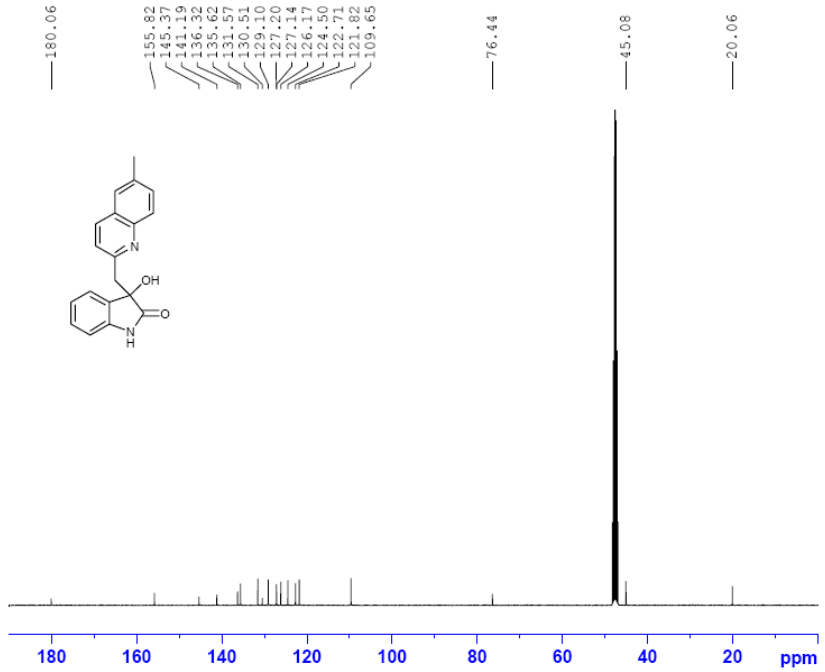
1H of JK-112



```
Current Data Parameters
NAME                  JK-112
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131205
Time                  16.49
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT                MeOD
NS                       16
DS                        2
SWH                8223.685 Hz
FIDRES             0.125483 Hz
AQ                 3.9846387 sec
RG                      114
DW                  60.800 usec
DE                   6.50 usec
TE                   294.4 K
D1                 1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                     13.70 usec
PLW1              14.30000019 W
SFO1             400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF                 400.1300118 MHz
WDW                          EM
SSB                       0
LB                        0.30 Hz
GB                        0
PC                        1.00
```

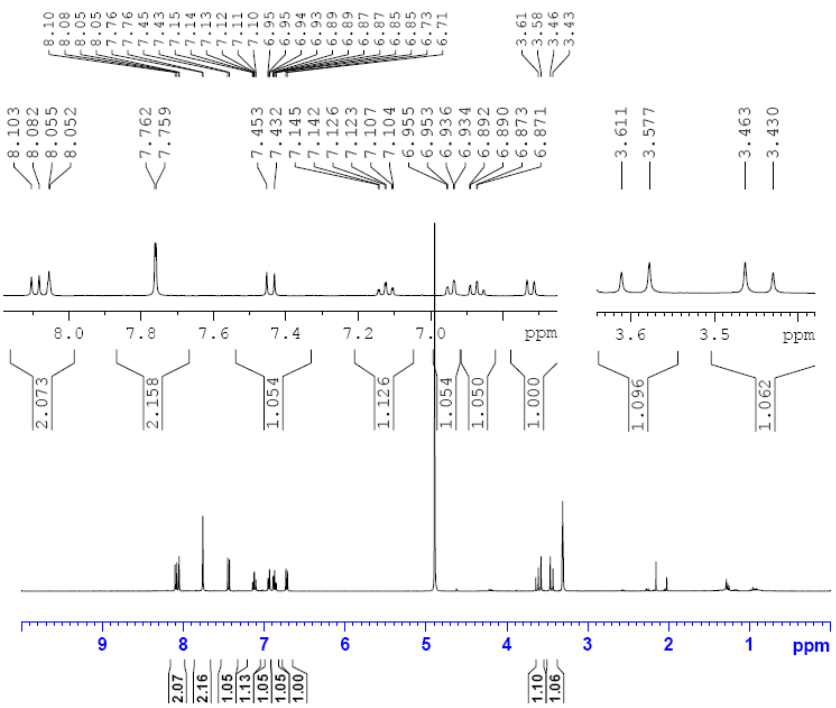


13C of JK-112

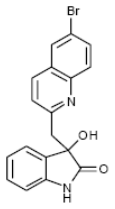


```
Current Data Parameters
NAME                  JK-112
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131205
Time                  21.06
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT                MeOD
NS                    10240
DS                        0
SWH               24038.461 Hz
FIDRES             0.366798 Hz
AQ                 1.3631988 sec
RG                      128
DW                  20.800 usec
DE                   6.50 usec
TE                   294.7 K
D1                 0.20000000 sec
D11                0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                     11.65 usec
PLW1              34.00000000 W
SFO1             100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2                waltz16
NUC2                      1H
PCPD2                  90.00 usec
PLW2              14.30000019 W
PLW12              0.33135000 W
PLW13              0.26840001 W
SFO2             400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF                 100.6127690 MHz
WDW                          EM
SSB                       0
LB                     1.00 Hz
GB                        0
PC                        1.40
```

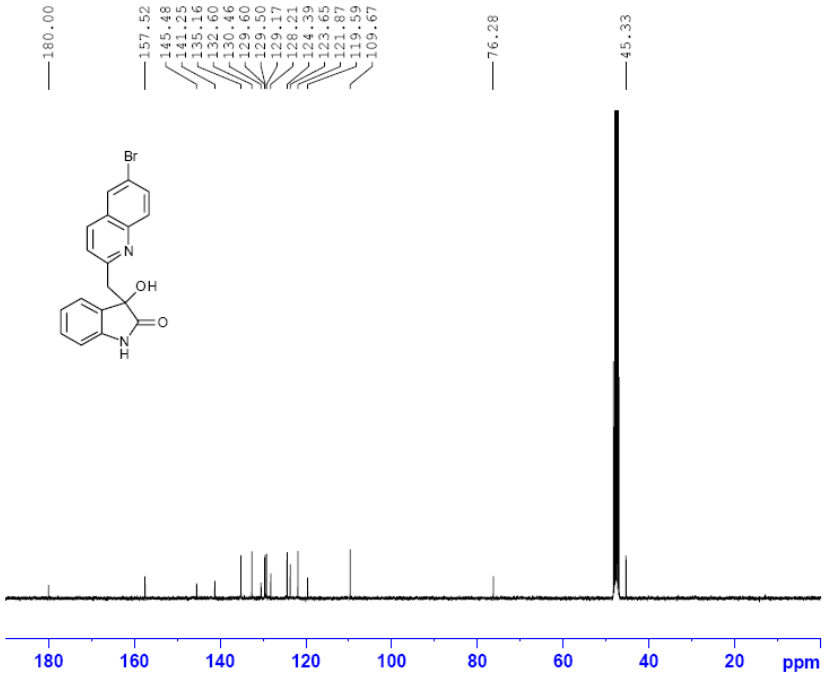
1H of JK-114




```
Current Data Parameters
NAME                  JK-114
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131205
Time                  17.06
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT                MeOD
NS                       16
DS                        2
SWH                8223.685 Hz
FIDRES            0.125483 Hz
AQ                3.9846387 sec
RG                       128
DW                  60.800 usec
DE                   6.50 usec
TE                   294.7 K
D1              1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                    13.70 usec
PLW1           14.30000019 W
SFO1           400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF             400.1300118 MHz
WDW                        EM
SSB          0
LB                     0.30 Hz
GB           0
PC                     1.00
```

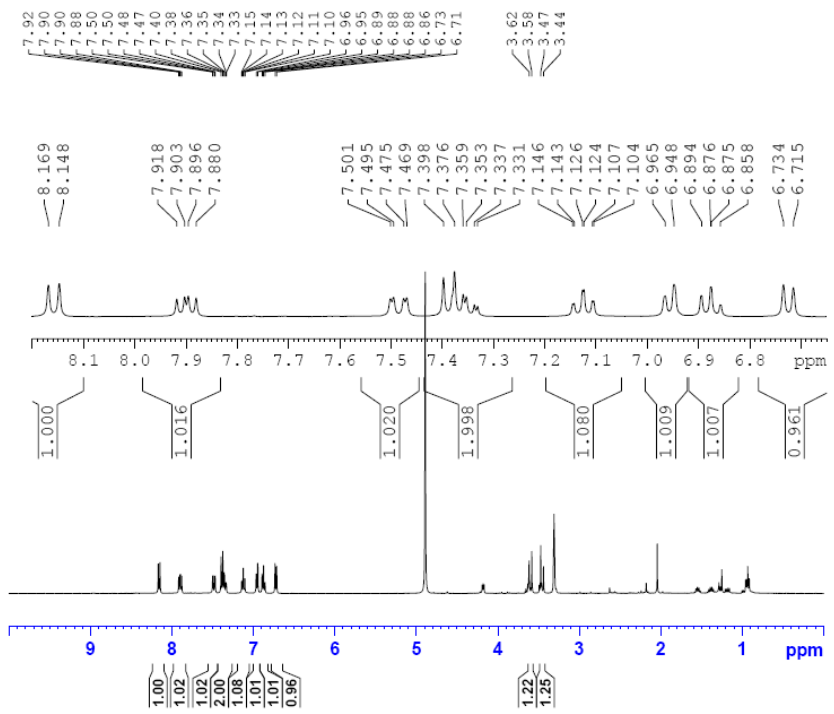


13C of JK-114




```
Current Data Parameters
NAME                  JK-114
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131205
Time                  18.45
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT                MeOD
NS                      6814
DS                        0
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631988 sec
RG                     80.6
DW                  20.800 usec
DE                   6.50 usec
TE                   297.3 K
D1             0.20000000 sec
D11            0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                    11.65 usec
PLW1           34.00000000 W
SFO1           100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2              waltz16
NUC2                      1H
PCPD2                 90.00 usec
PLW2           14.30000019 W
PLW12           0.33135000 W
PLW13           0.26840001 W
SFO2           400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF             100.6127690 MHz
WDW                        EM
SSB          0
LB                     1.00 Hz
GB           0
PC                     1.40
```

1H of JK-113



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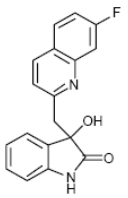
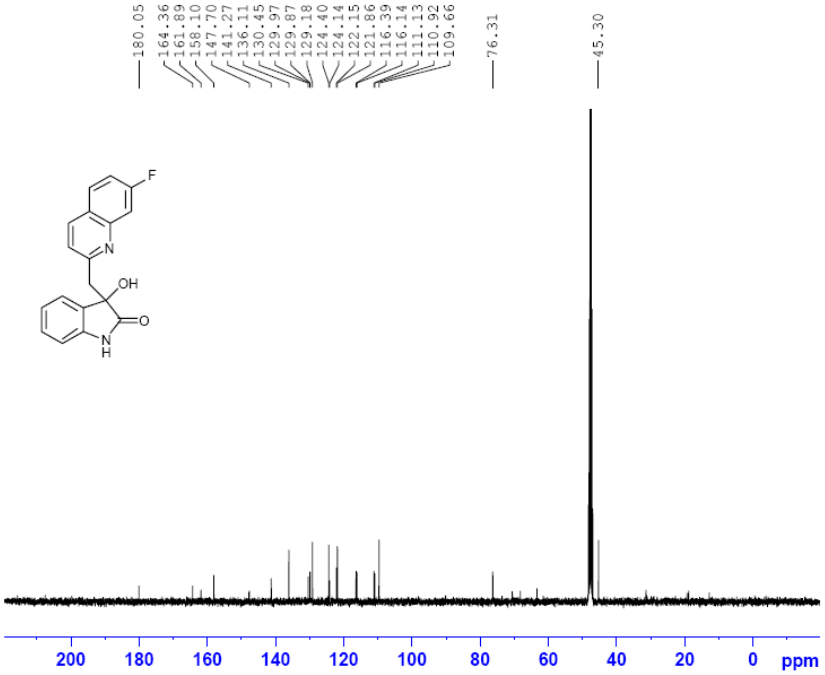
```
Current Data Parameters
NAME                  JK-113
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131205
Time                  16.59
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT                MeOD
NS                       16
DS                        2
SWH                8223.685 Hz
FIDRES            0.125483 Hz
AQ                3.9846387 sec
RG                      114
DW                   60.800 usec
DE                    6.50 usec
TE                   294.7 K
D1                1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                    13.70 usec
PLW1             14.30000019 W
SFO1            400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF               400.1300119 MHz
WDW                          EM
SSB          0
LB                     0.30 Hz
GB           0
PC                     1.00
```



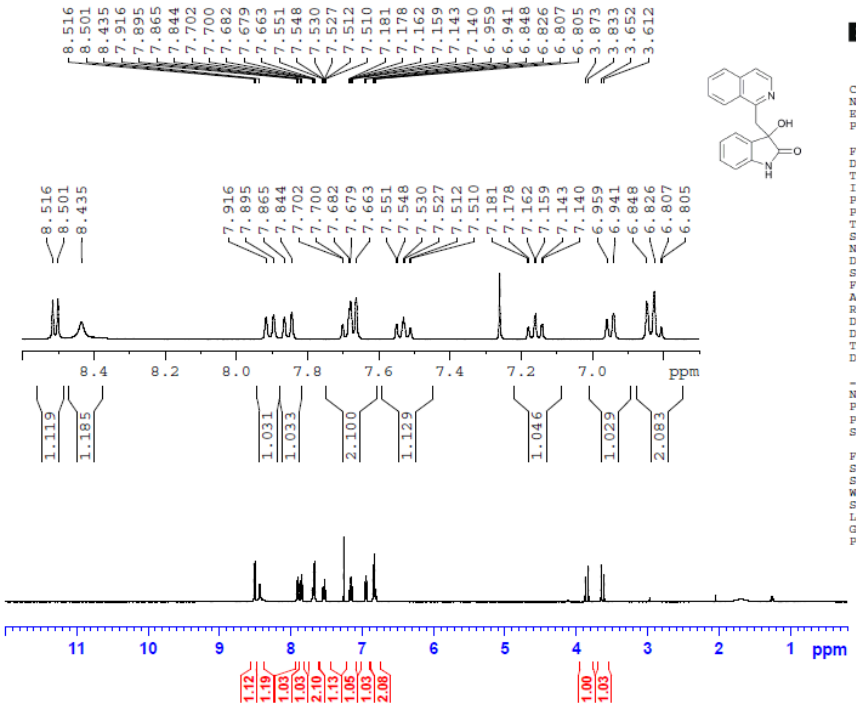
13C of JK-113



BRUKER

```
Current Data Parameters
NAME                  JK-113
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131205
Time                  20.53
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT                MeOD
NS                      557
DS                        0
SWH               24038.461 Hz
FIDRES            0.366798 Hz
AQ                1.3631988 sec
RG                      128
DW                   20.800 usec
DE                    6.50 usec
TE                   294.8 K
D1                0.20000000 sec
D11               0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                    11.65 usec
PLW1             34.00000000 W
SFO1            100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2              waltz16
NUC2                      1H
PCPD2                 90.00 usec
PLW2             14.30000019 W
PLW12             0.33135000 W
PLW13             0.26840001 W
SFO2            400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF               100.6127690 MHz
WDW                          EM
SSB          0
LB                     1.00 Hz
GB           0
PC                     1.40
```

1H of JK-111A



BRUKER

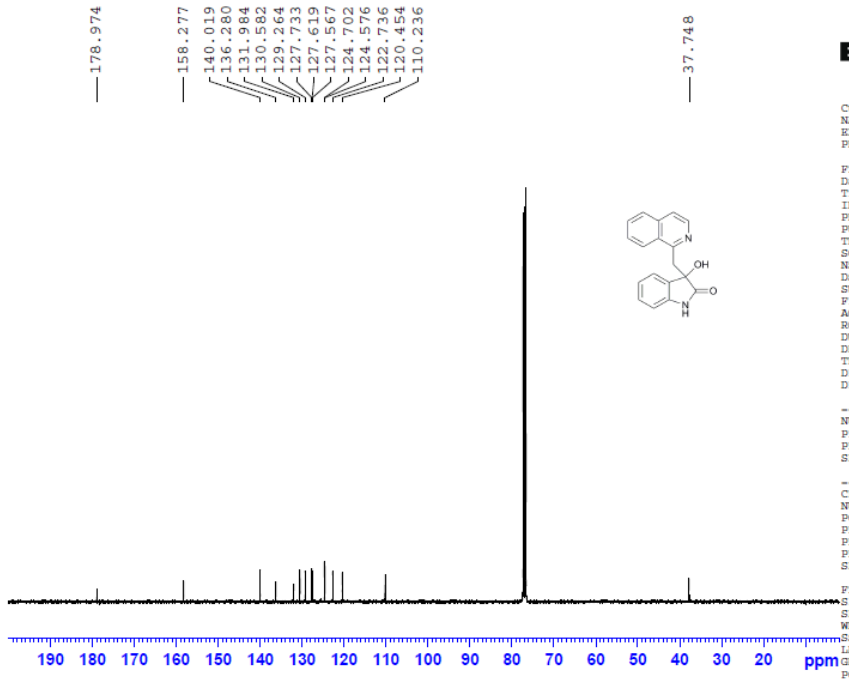
Current Data Parameters
NAME JK-111A
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20140921
Time 18.27
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
AQ 3.9846387 sec
RG 128
DW 60.800 usec
DE 6.50 usec
TE 296.2 K
D1 1.00000000 sec

-------- CHANNEL f1 --------
NUC1 1H
P1 13.70 usec
PLW1 14.30000019 W
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 65536
SF 400.1300178 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

13C of JK-111A



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Current Data Parameters
NAME JK-111A
EXPNO 2
PROCNO 1

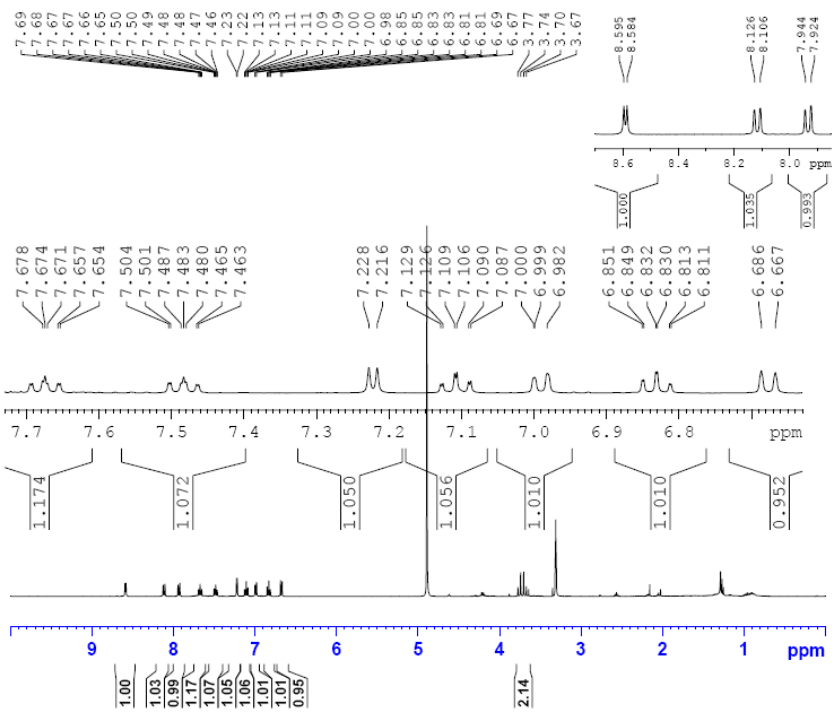
F2 - Acquisition Parameters
Date_ 20140921
Time 18.43
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1518
DS 0
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 161
DW 20.800 usec
DE 6.50 usec
TE 296.1 K
D1 2.00000000 sec
D11 0.03000000 sec

-------- CHANNEL f1 --------
NUC1 13C
P1 11.65 usec
PLW1 34.00000000 W
SFO1 100.6228293 MHz

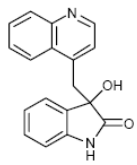
-------- CHANNEL f2 --------
CPDPRG2 waltz16
NUC2 1H
PCPD2 90.00 usec
PLW2 14.30000019 W
PLW12 0.33135000 W
PLW13 0.26840001 W
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127746 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

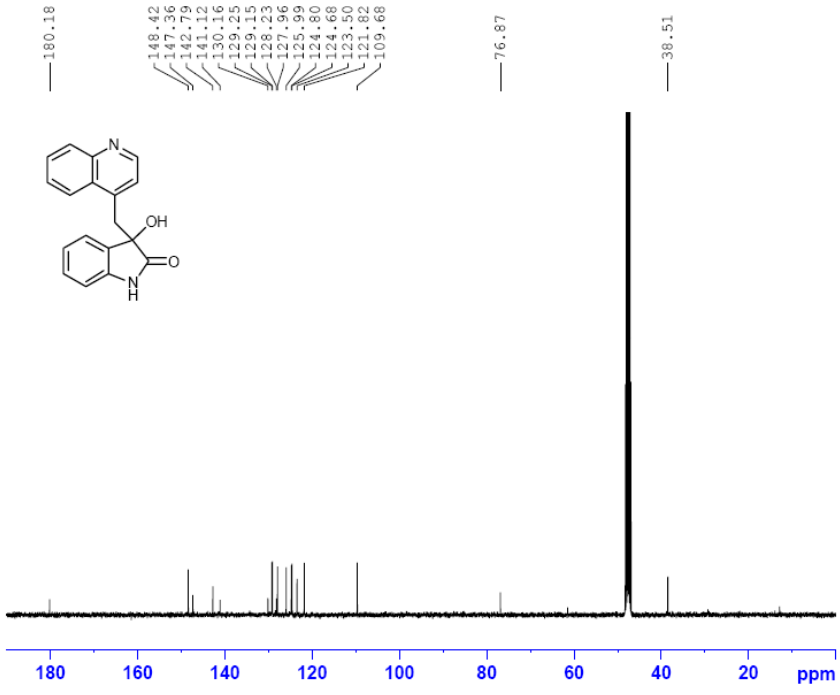
1H of JK-116



```
Current Data Parameters
NAME                  JK-116
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131205
Time                  20.21
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG                zg30
TD                    65536
SOLVENT                MeOD
NS                       16
DS                        2
SWH                8223.686 Hz
FIDRES            0.125483 Hz
AQ                3.9846387 sec
RG                      128
DW                 60.800 usec
DE                  6.50 usec
TE                 294.9 K
D1              1.00000000 sec

======== CHANNEL f1 ========
NUC1                      1H
P1                    13.70 usec
PLW1           14.30000019 W
SFO1           400.1324710 MHz

F2 - Processing parameters
SI                        65536
SF                400.1300117 MHz
WDW                       EM
SSB          0
LB                     0.30 Hz
GB           0
PC                     1.00
```

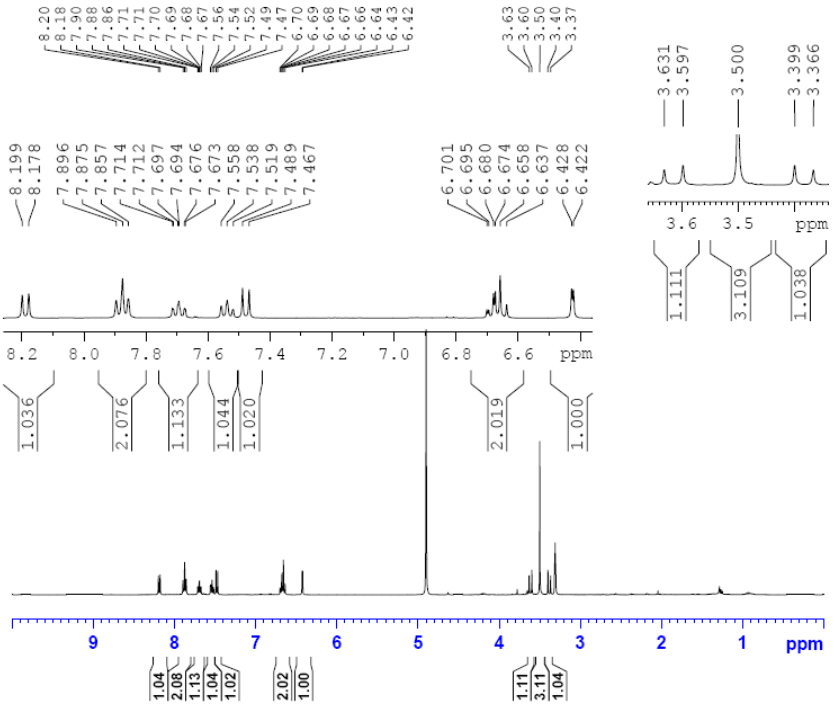


13C of JK-116



```
Current Data Parameters
NAME                  JK-116
EXPNO                      2
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131206
Time                  12.00
INSTRUM                spect
PROBHD   5 mm PABBO BB-
PULPROG             zgpg30
TD                    65536
SOLVENT                MeOD
NS                      3161
DS                         0
SWH               24038.461 Hz
FIDRES            0.366798 Hz
AQ                1.3631988 sec
RG                      114
DW                 20.800 usec
DE                  6.50 usec
TE                 303.0 K
D1              0.20000000 sec
D11             0.03000000 sec

======== CHANNEL f1 ========
NUC1                      13C
P1                    11.65 usec
PLW1           34.00000000 W
SFO1           100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2              waltz16
NUC2                      1H
PCPD2                 90.00 usec
PLW2           14.30000019 W
PLW12           0.33135000 W
PLW13           0.26840001 W
SFO2           400.1316005 MHz

F2 - Processing parameters
SI                        32768
SF                100.6127690 MHz
WDW                       EM
SSB          0
LB                     1.00 Hz
GB           0
PC                     1.40
```

1H of JK-119

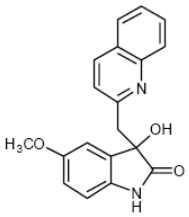


Current Data Parameters
NAME JK-119
EXPNO 1
PROCNO 1

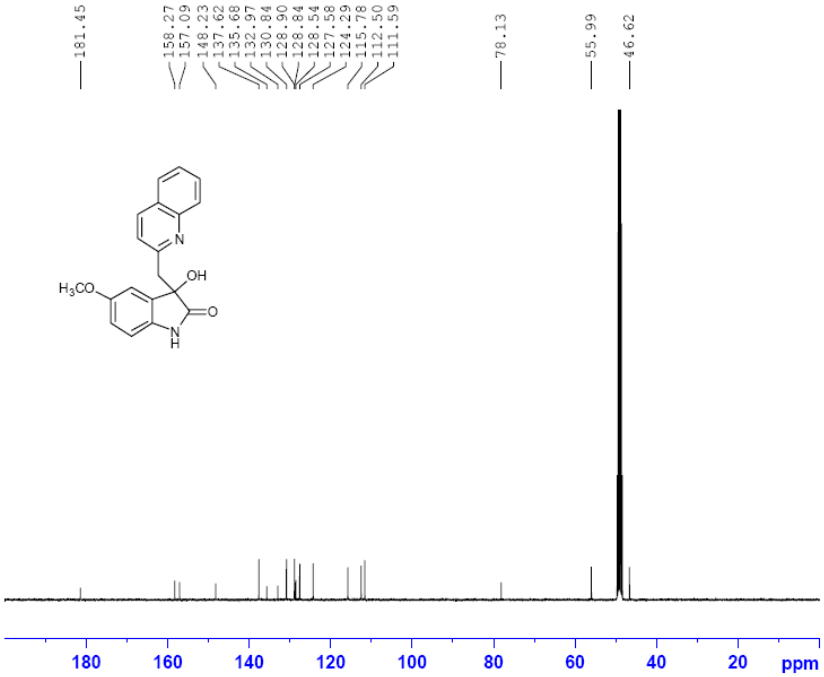
F2 - Acquisition Parameters
Date_ 20131212
Time 17.34
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT MeOD
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
AQ 3.9846387 sec
RG 101
DW 60.800 usec
DE 6.50 usec
TE 294.1 K
D1 1.00000000 sec

======== CHANNEL f1 ========
NUC1 1H
P1 13.70 usec
PLW1 14.30000019 W
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 65536
SF 400.1300116 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



13C of JK-119



Current Data Parameters
NAME JK-119
EXPNO 2
PROCNO 1

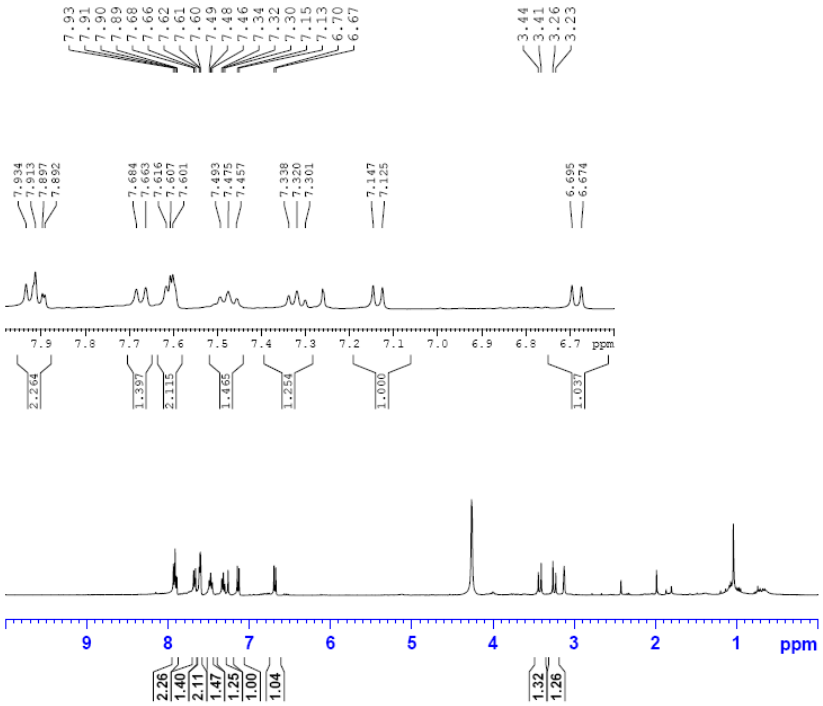
F2 - Acquisition Parameters
Date_ 20131212
Time 19.13
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT MeOD
NS 3366
DS 0
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 128
DW 20.800 usec
DE 6.50 usec
TE 296.4 K
D1 0.20000000 sec
D11 0.03000000 sec

======== CHANNEL f1 ========
NUC1 13C
P1 11.65 usec
PLW1 34.00000000 W
SFO1 100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 90.00 usec
PLW2 14.30000019 W
PLW12 0.93135000 W
PLW13 0.26940001 W
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6126281 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1H of JK-120A

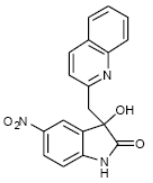


Current Data Parameters
NAME JK-120A
EXPNO 1
PROCNO 1

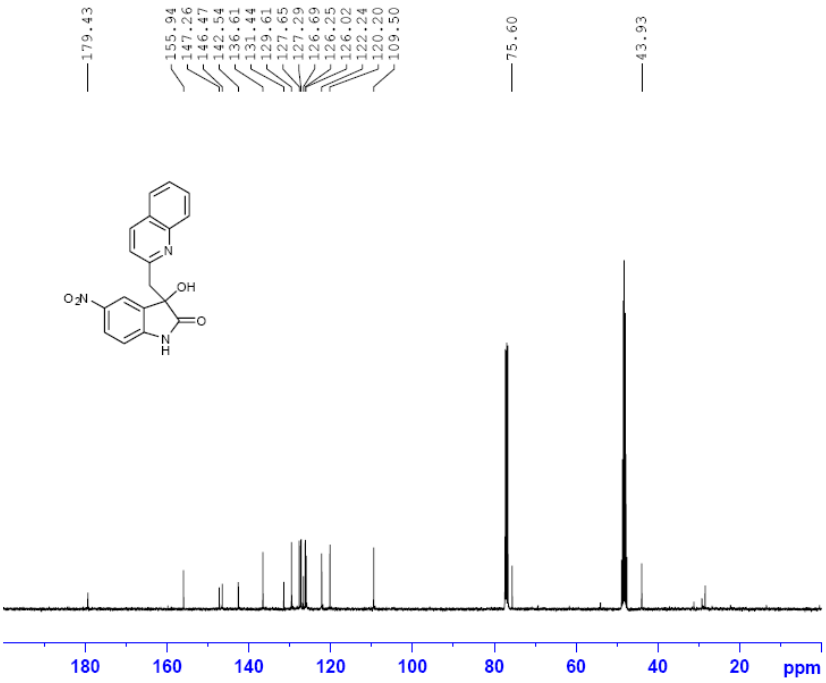
F2 - Acquisition Parameters
Date_ 20140103
Time 11.02
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
AQ 3.9846387 sec
RG 101
DW 60.800 usec
DE 6.50 usec
TE 293.7 K
D1 1.00000000 sec

======== CHANNEL f1 ========
NUC1 1H
P1 13.70 usec
PLW1 14.30000019 W
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 65536
SF 400.1316673 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



13C of JK-120A



Current Data Parameters
NAME JK-120A
EXPNO 2
PROCNO 1

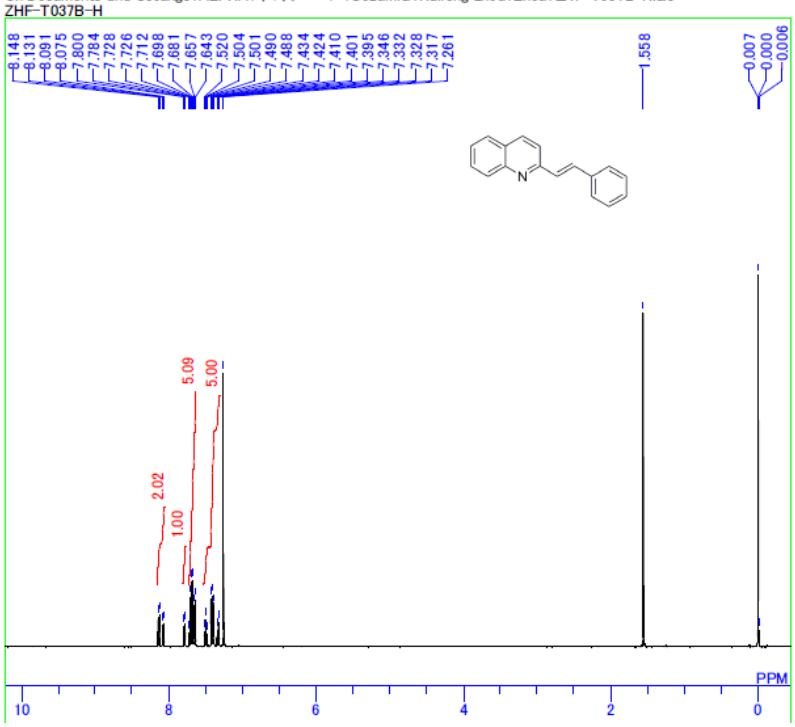
F2 - Acquisition Parameters
Date_ 20140103
Time 11.31
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 7596
DS 0
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 203
DW 20.800 usec
DE 6.50 usec
TE 294.4 K
D1 0.20000000 sec
D11 0.03000000 sec

======== CHANNEL f1 ========
NUC1 13C
P1 11.65 usec
PLW1 34.00000000 W
SFO1 100.6228293 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 90.00 usec
PLW2 14.30000019 W
PLW12 0.33135000 W
PLW13 0.26840001 W
SFO2 400.1316005 MHz

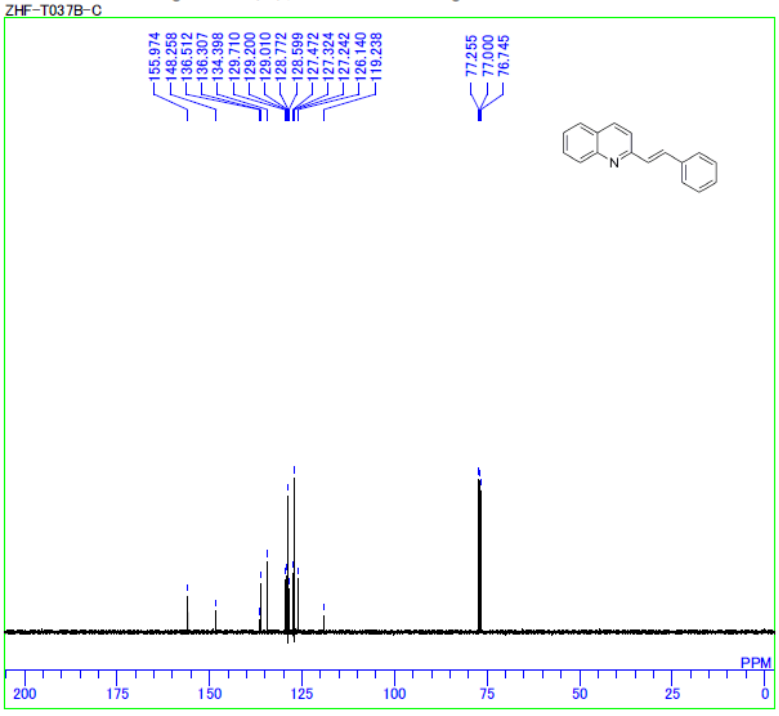
F2 - Processing parameters
SI 32768
SF 100.6132019 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T037B-H.als
ZHF-T037B-H



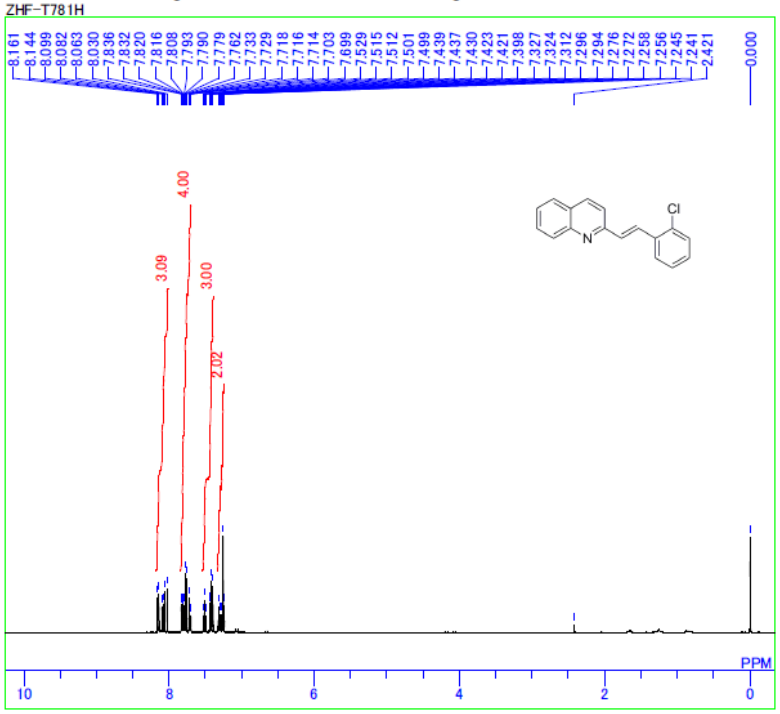
MENUF	non_th5atfTH5ATFG2_1ZHF-T037
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	32
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	25
BF	0.15 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPH
SHMFL	TH5ATFG2_1ZHF-T037B-H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	208
LKSIG	1395
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T037B-C.als
ZHF-T037B-C



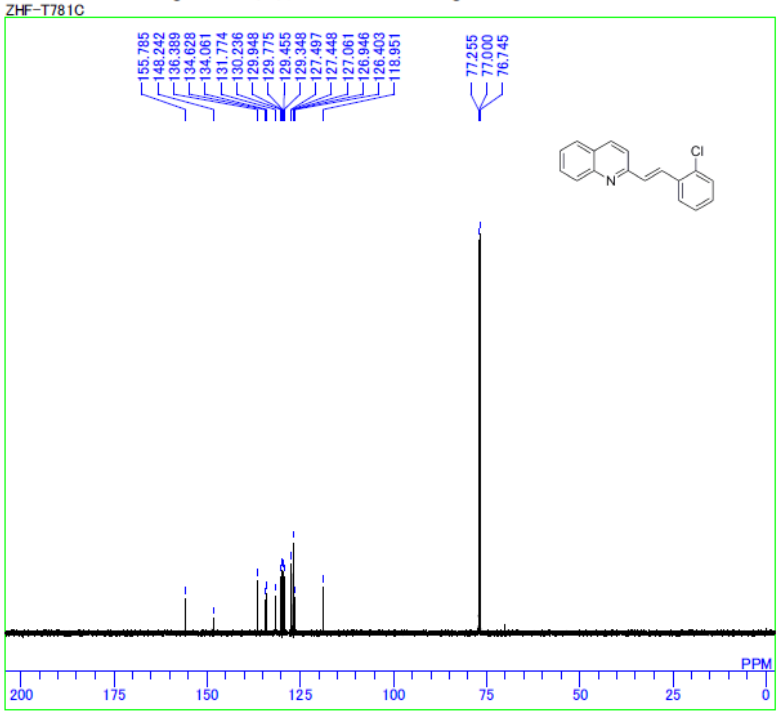
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T037B
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T037B-C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	208
LKSIG	1042
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T781H.als
ZHF-T781H



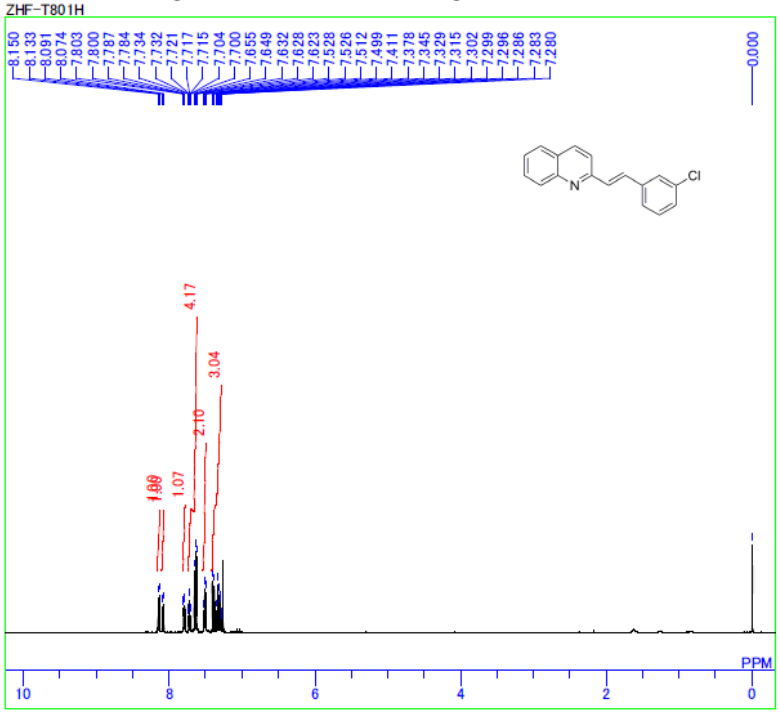
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	19
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1066
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T781C.als
ZHF-T781C



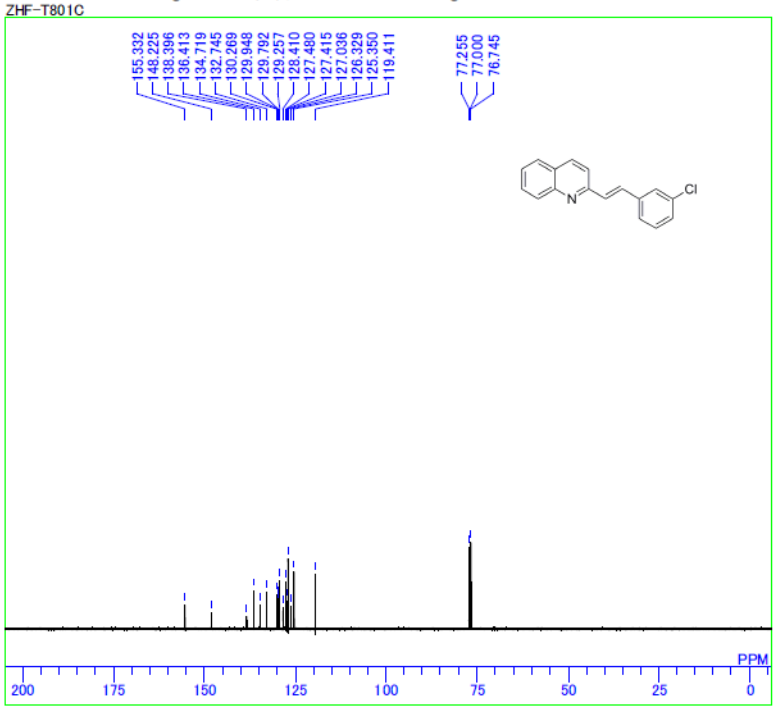
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1061
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T801H.als
ZHF-T801H



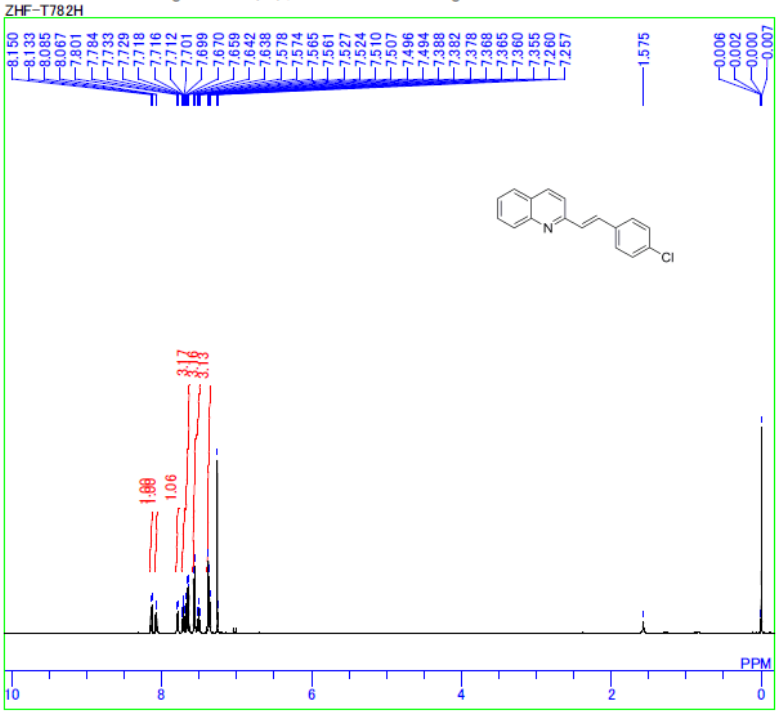
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	18
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1422
CSPED	3 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T801C.als
ZHF-T801C



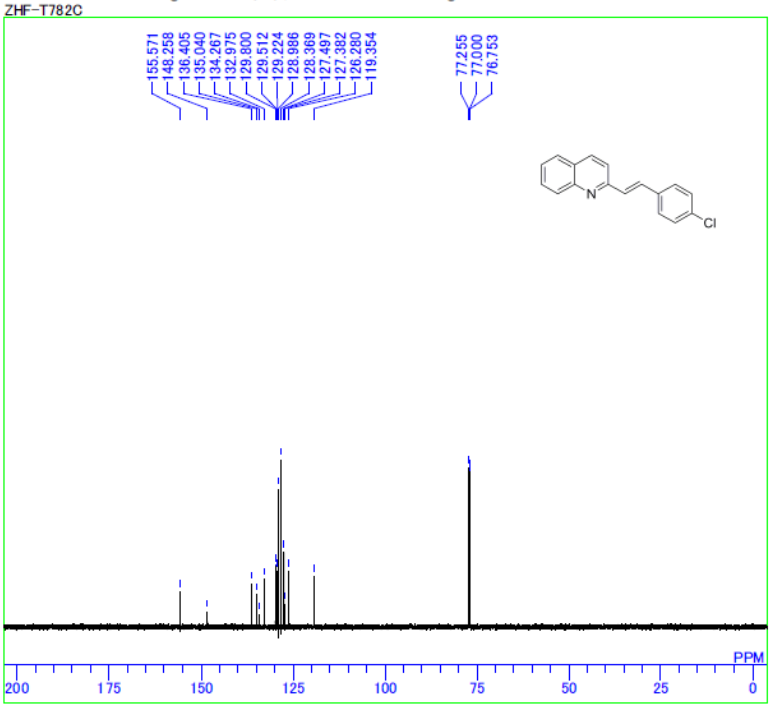
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1024
CSPED	12 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T782H.als
ZHF-T782H



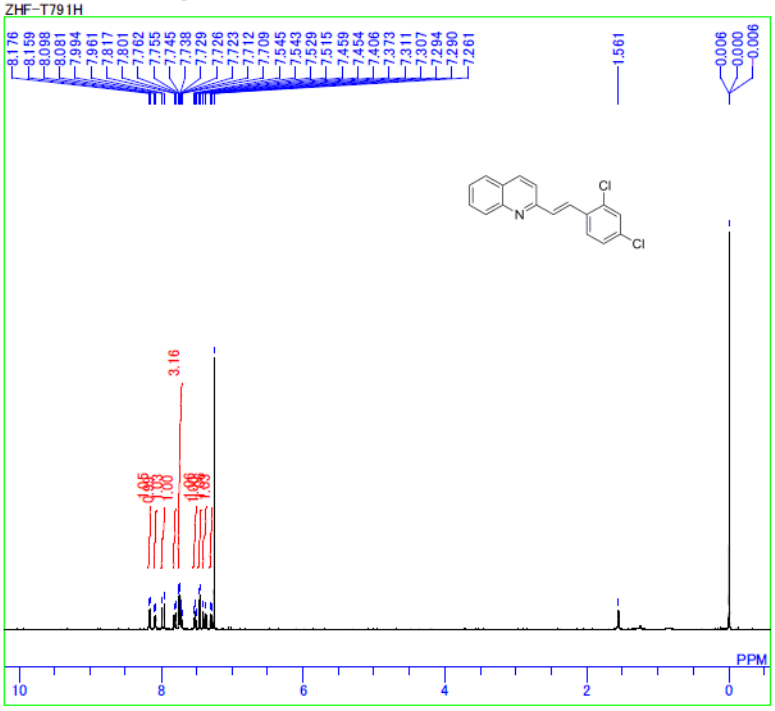
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	22
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	851
CSPED	1 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T782C.als
ZHF-T782C



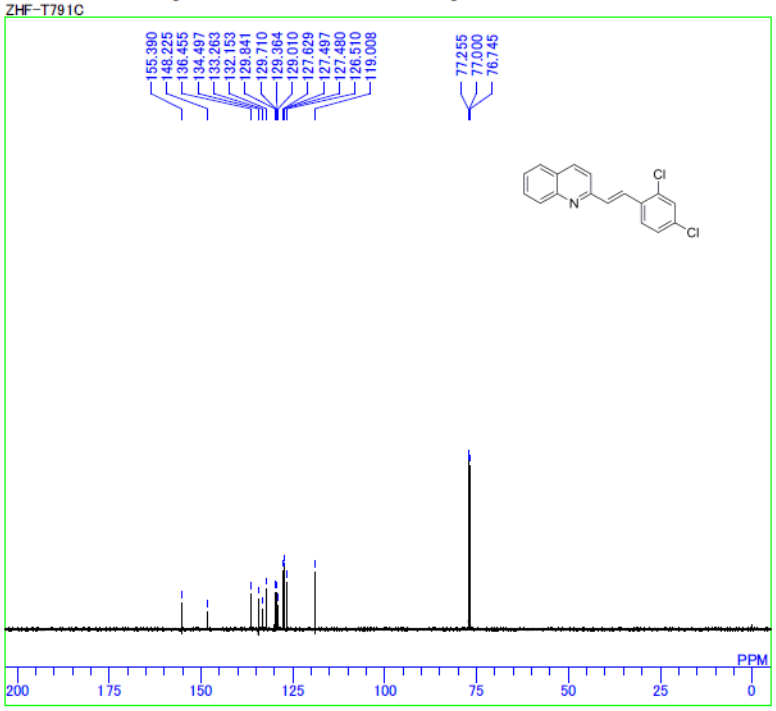
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	51200
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	805
CSPED	14 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T791H



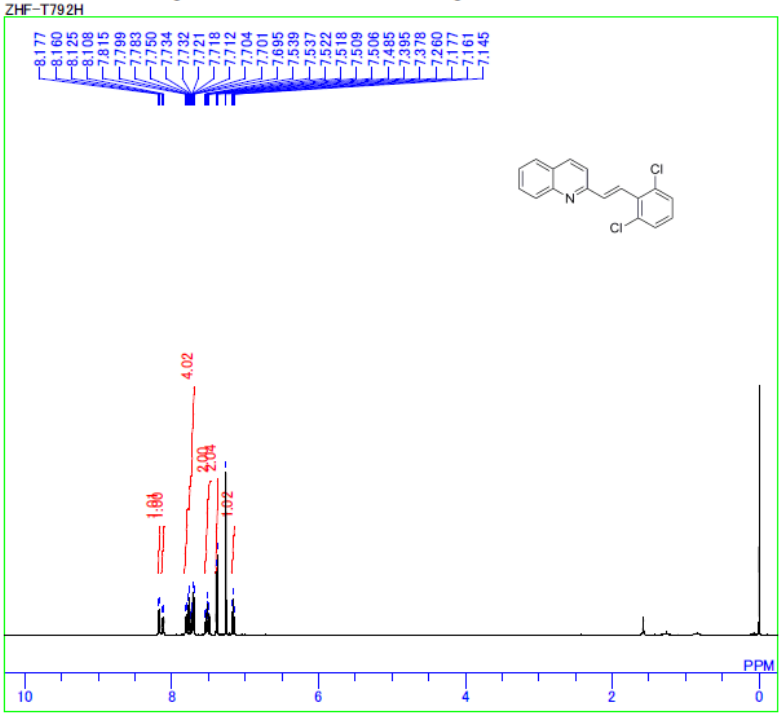
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	24
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL1
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	792
CSPED	4 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T791C.als
ZHF-T791C



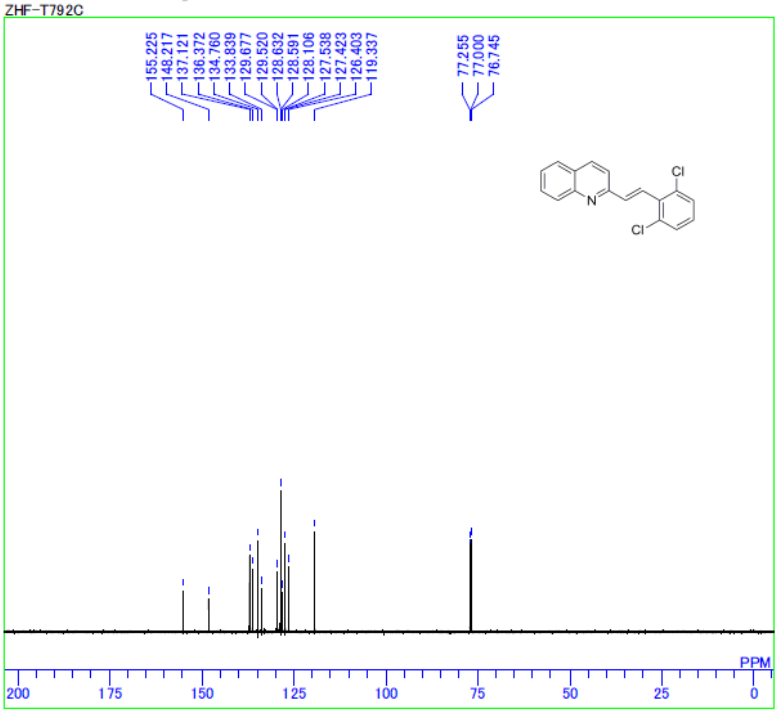
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	570
CSPED	14 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T792H.als
ZHF-T792H



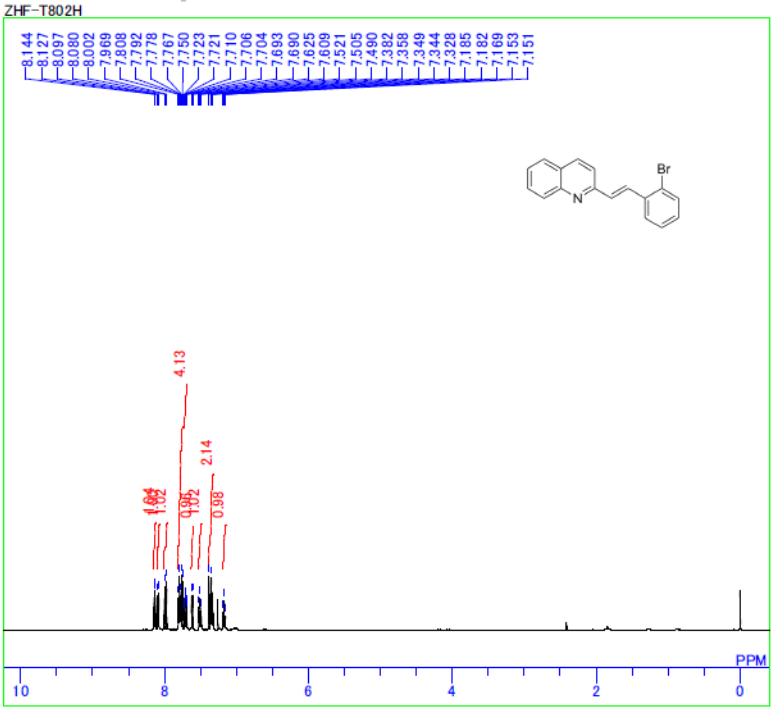
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	23
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	831
CSPED	3 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T792C



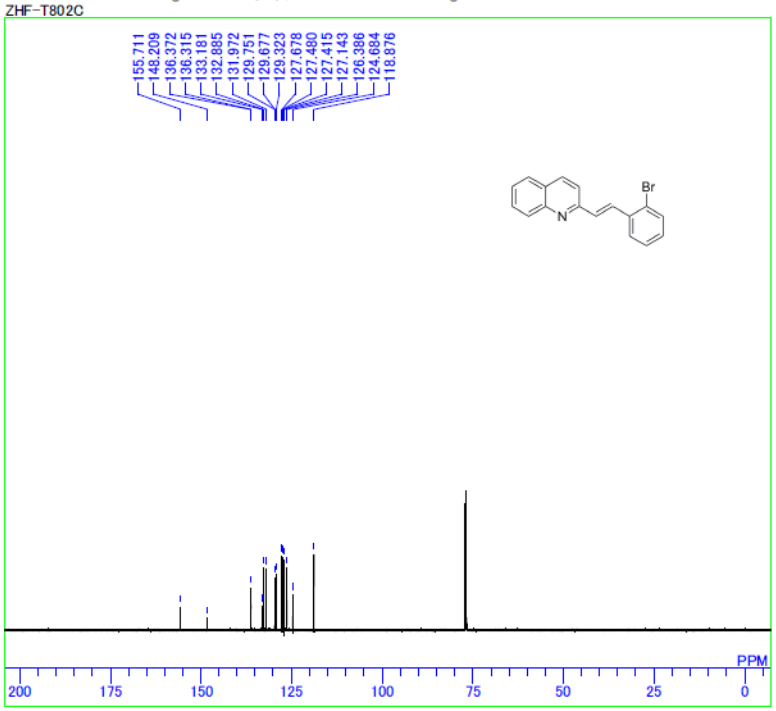
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1251
CSPED	12 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T802H



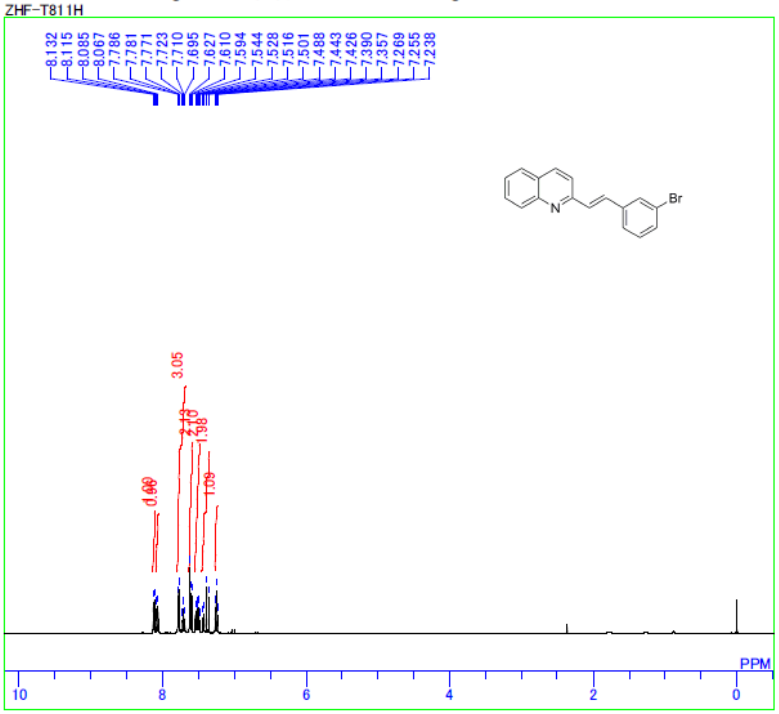
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	19
LKPHS	214
LKSIG	468
CSPED	4 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T802C.als
ZHF-T802C



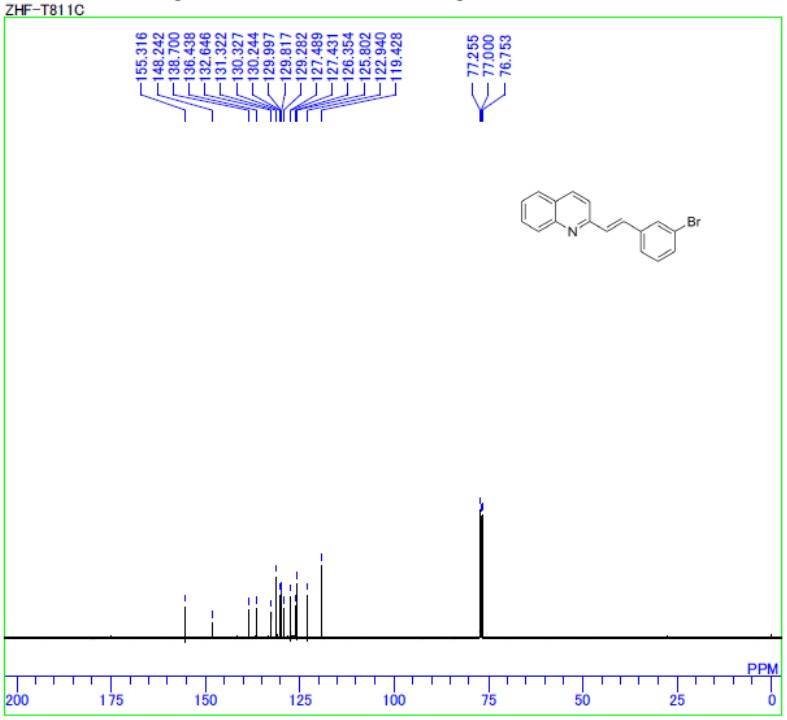
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	19
LKPHS	214
LKSIG	484
CSPED	16 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T811H.als
ZHF-T811H



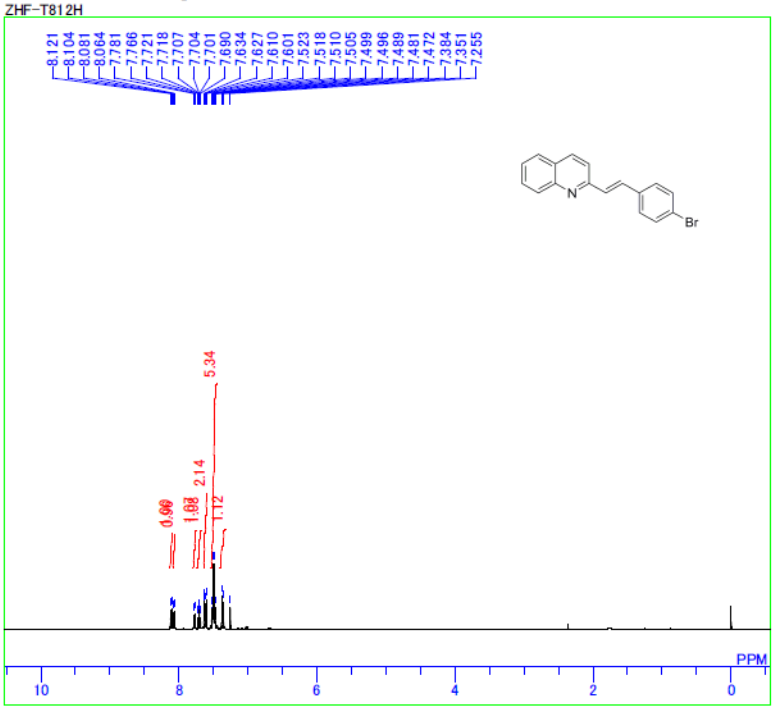
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	769
CSPED	5 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T811C.als
ZHF-T811C



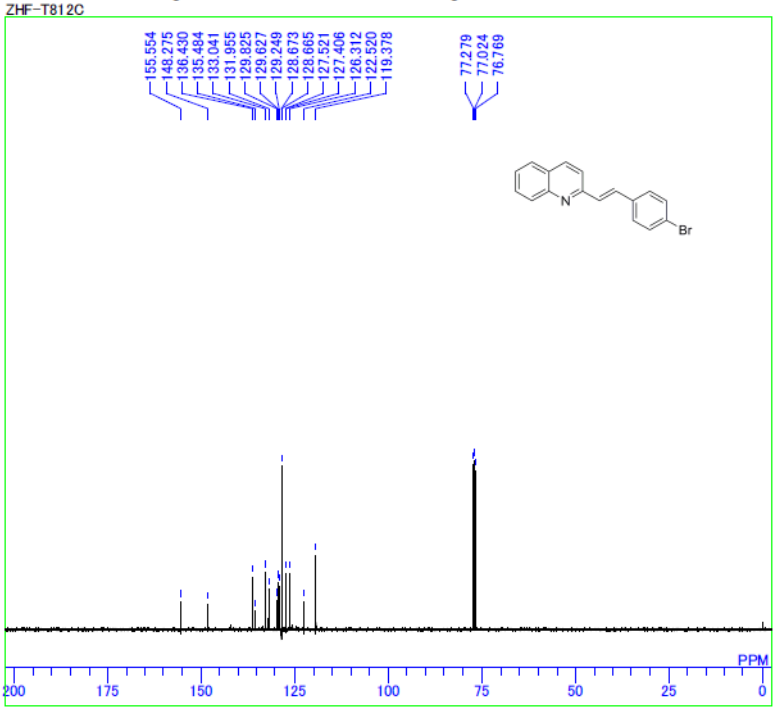
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	782
CSPED	11 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T812H



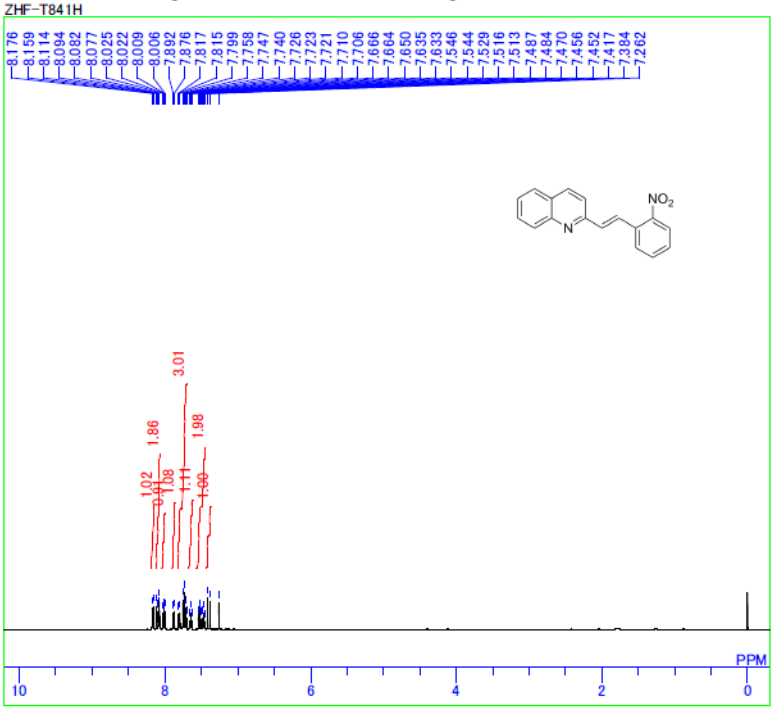
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1025
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T812C.als
ZHF-T812C



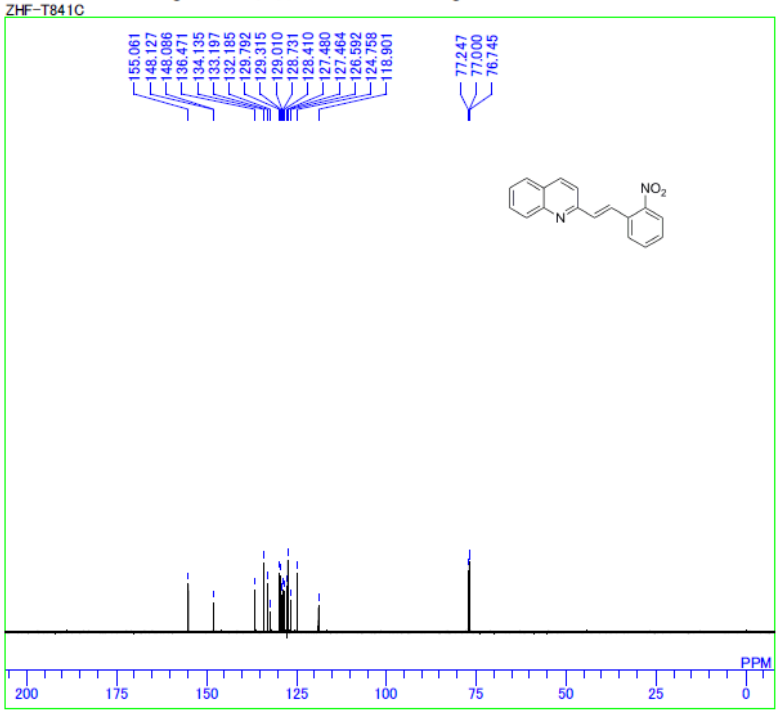
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1020
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃｰﾌﾞﾙ ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T841H.als
ZHF-T841H



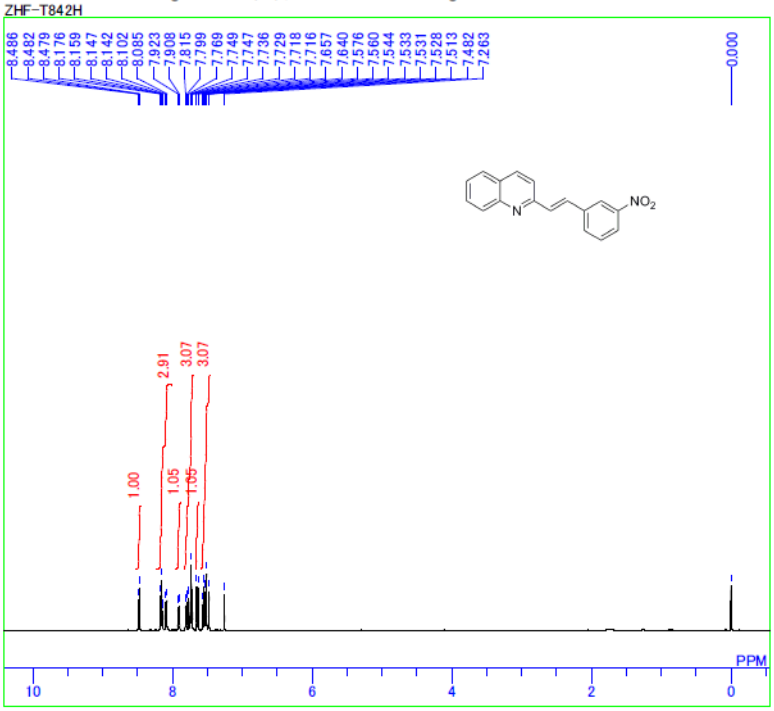
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1045
CSPED	4 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃｰﾌﾞﾙ ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T841C.als
ZHF-T841C



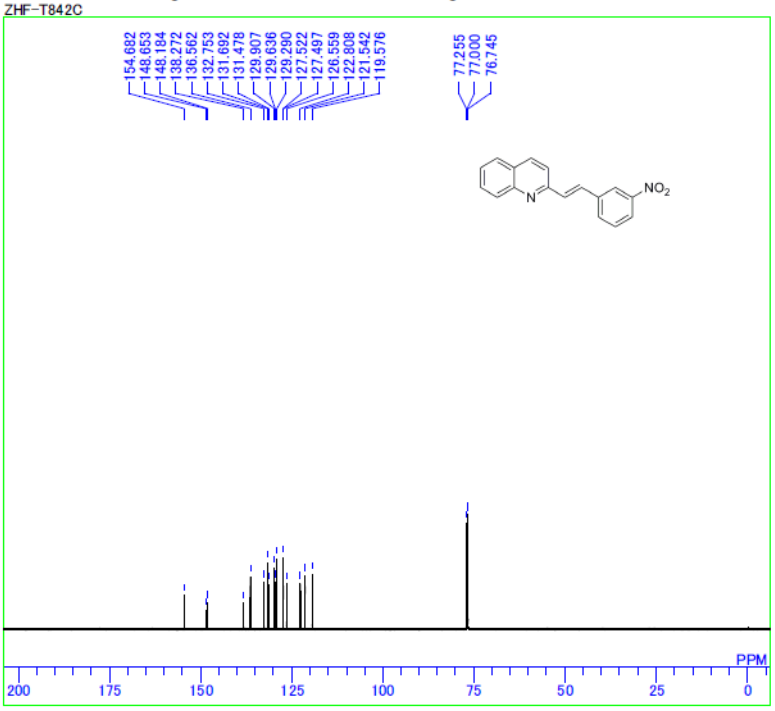
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	729
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T842H.als
ZHF-T842H



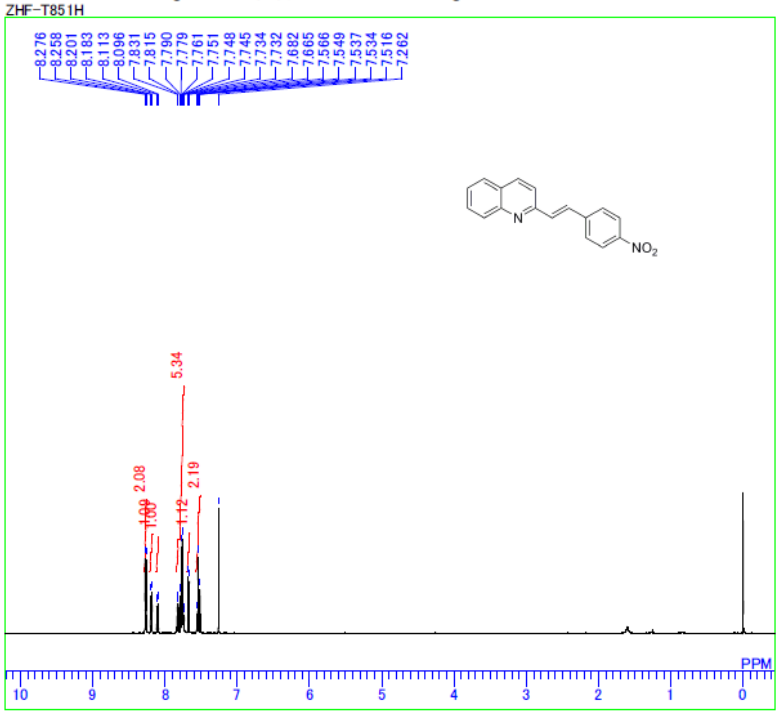
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	794
CSPED	4 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T842C.als
ZHF-T842C



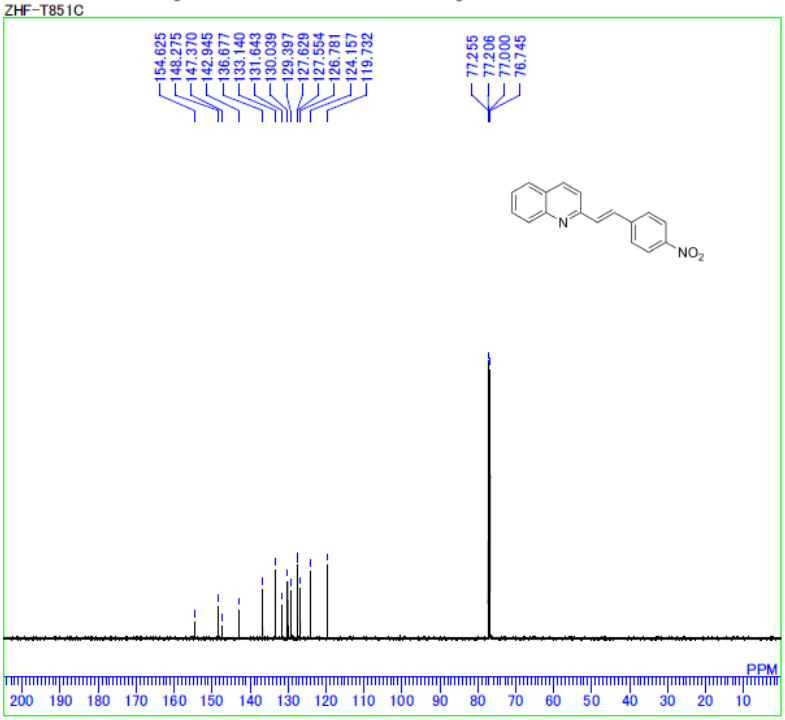
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.50 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	26
LKPHS	214
LKSIG	2963
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T851H.als
ZHF-T851H



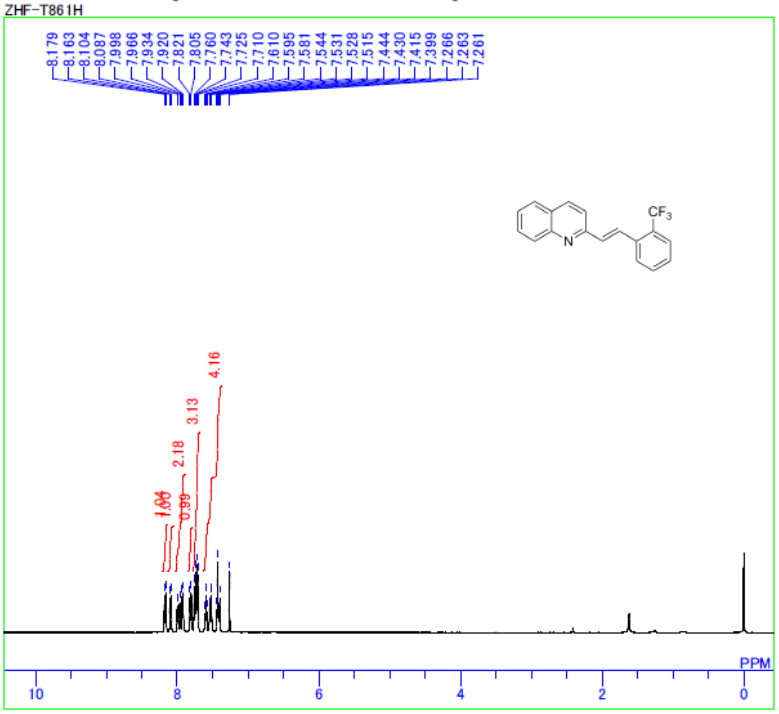
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	21
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1045
CSPED	8 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T851C.als
ZHF-T851C



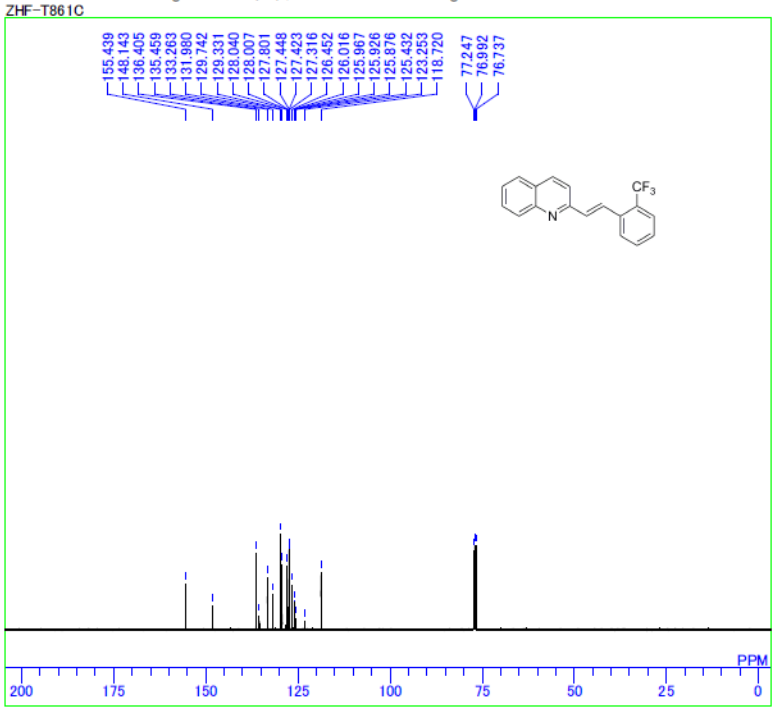
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPH
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1016
CSPED	14 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T861H.als
ZHF-T861H



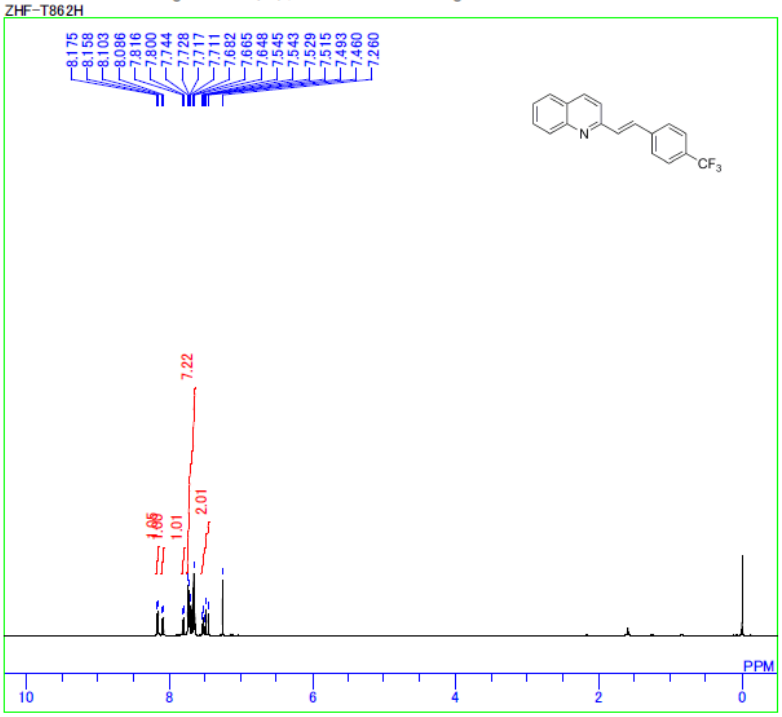
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.50 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	685
CSPED	3 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T861C.als
ZHF-T861C



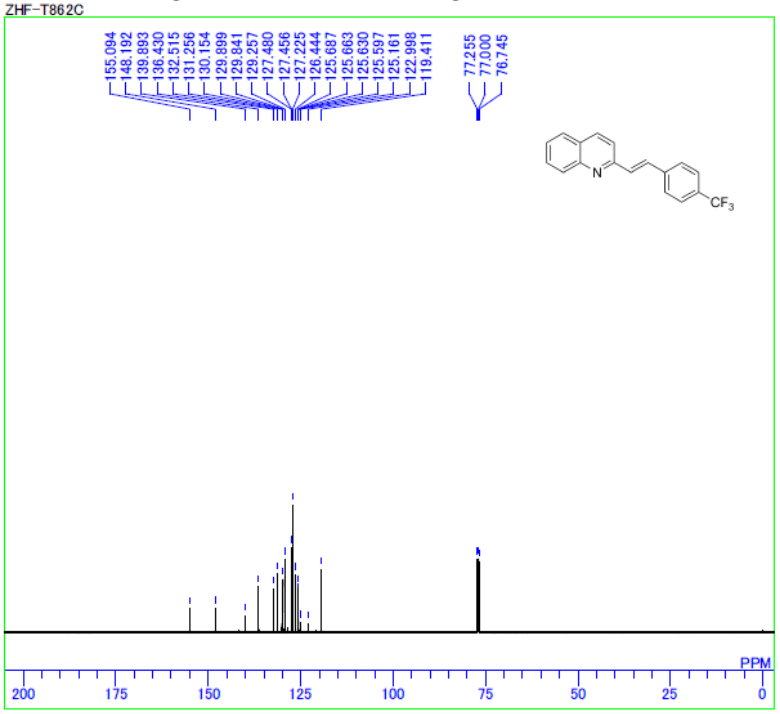
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.50 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	745
CSPED	12 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T862H.als
ZHF-T862H



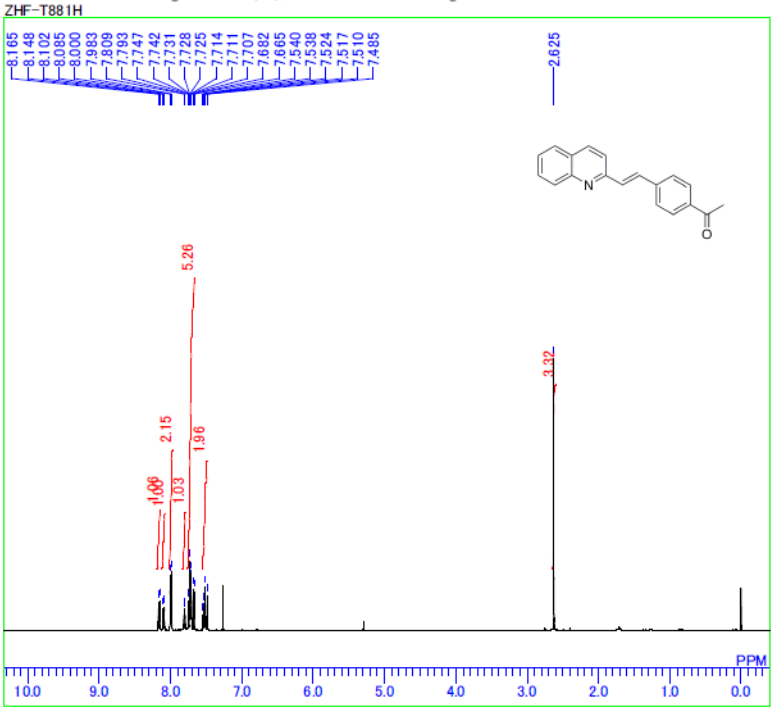
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	21
BF	0.50 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	25
LKPHS	214
LKSIG	2396
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T862C.als
ZHF-T862C



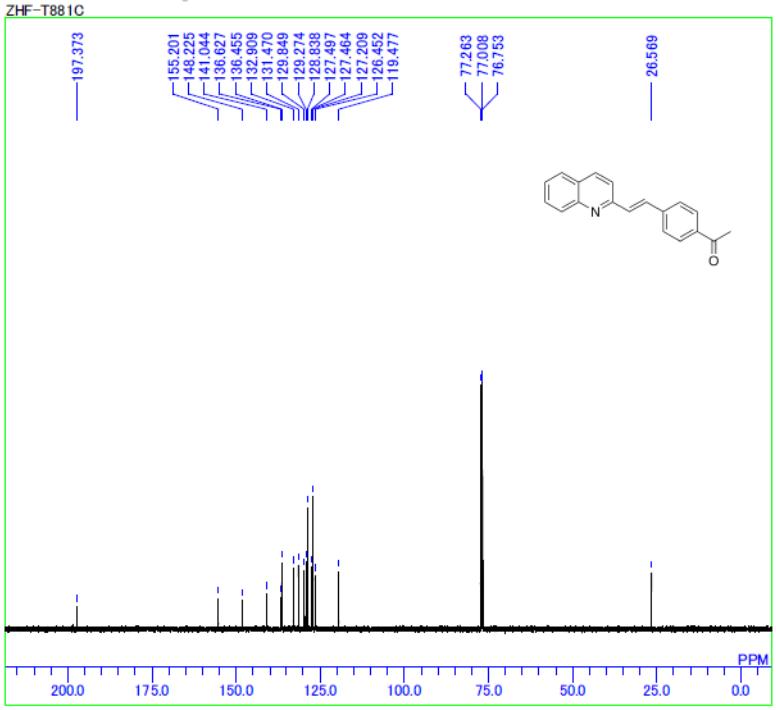
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.50 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	925
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T881H.als
ZHF-T881H



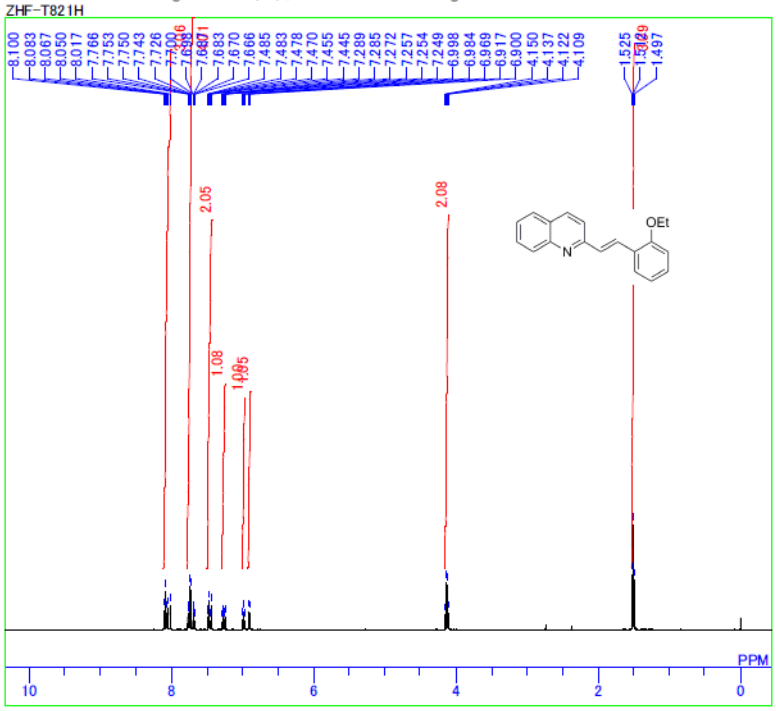
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	17
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	822
CSPED	4 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T881C



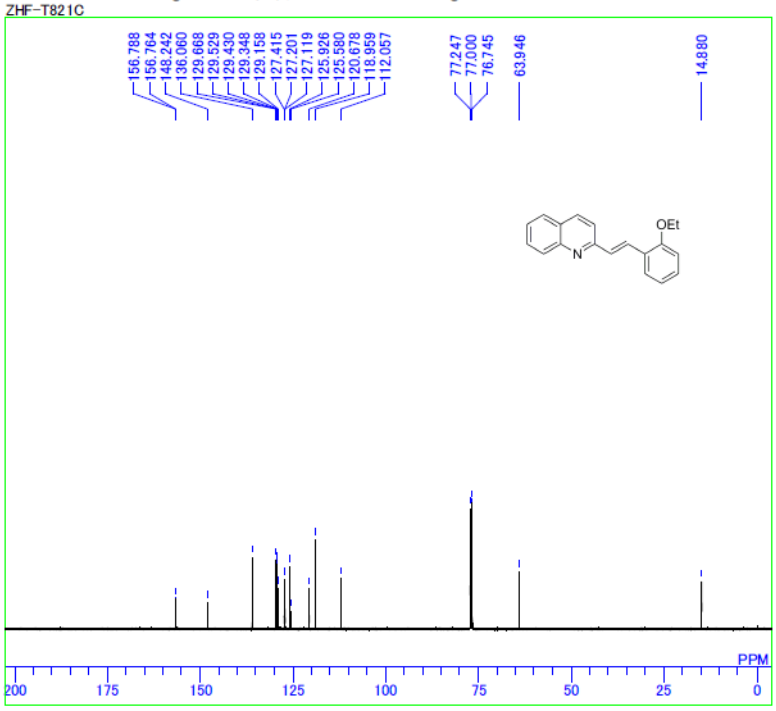
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	261
CSPED	0 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T821H.als
ZHF-T821H



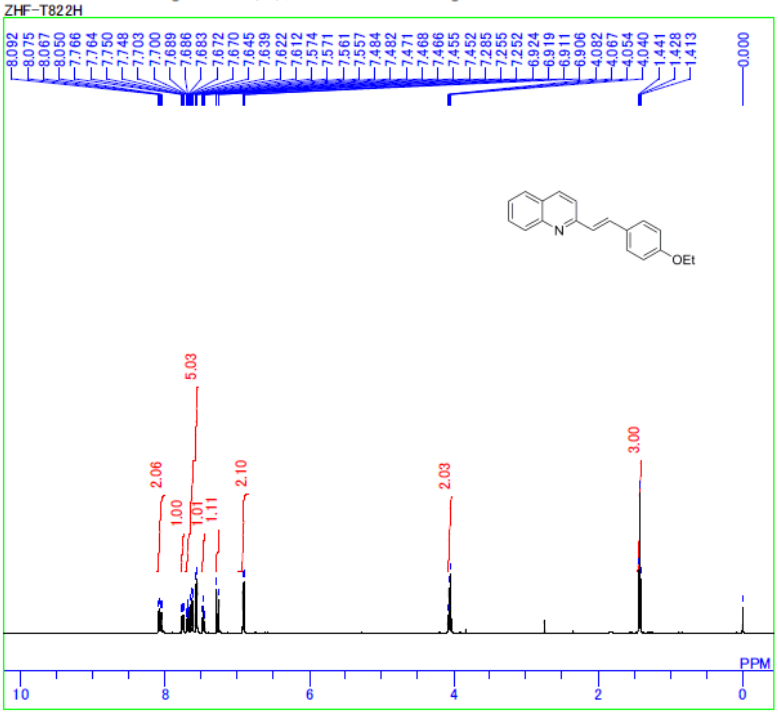
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	15
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	789
CSPED	8 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T821C.als
ZHF-T821C



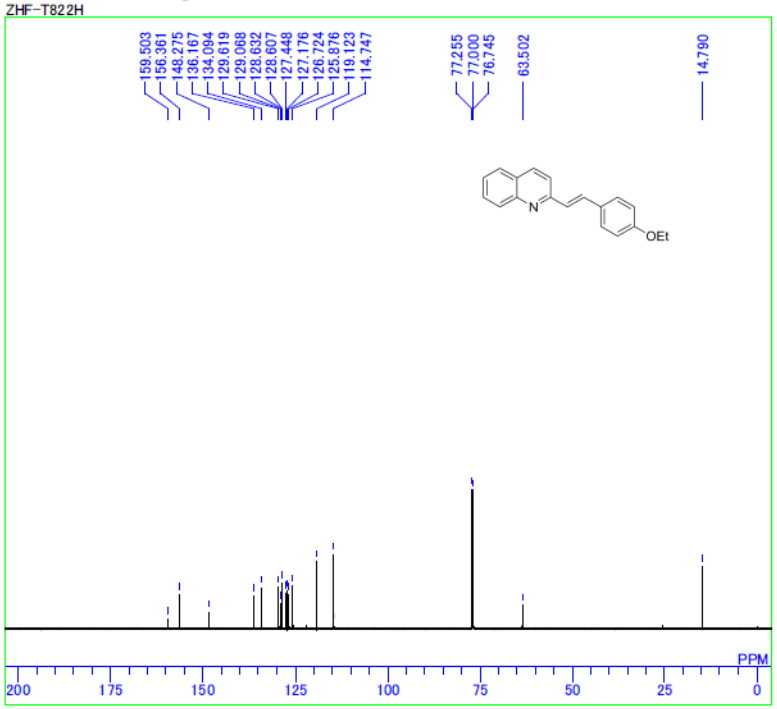
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	783
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T822H.als
ZHF-T822H



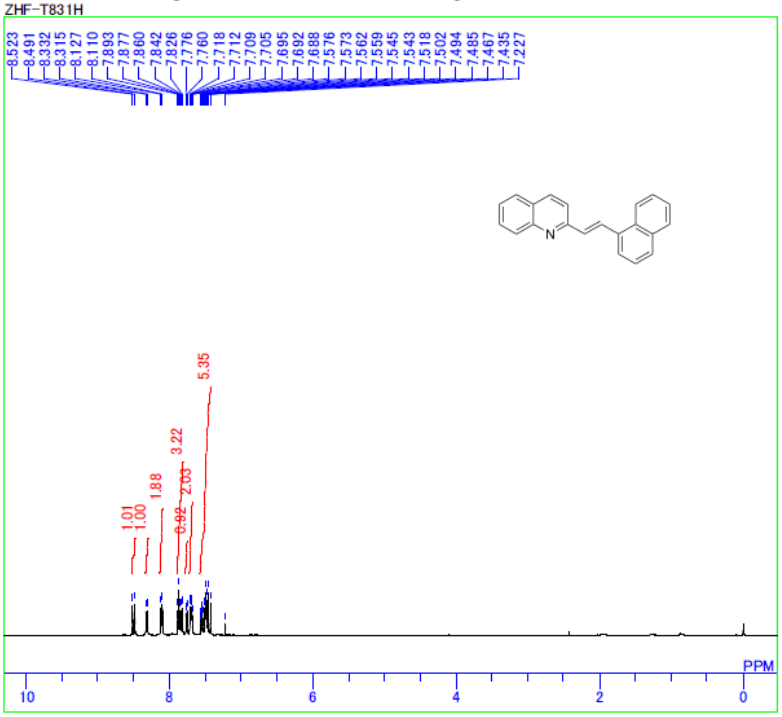
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	806
CSPED	3 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T822H



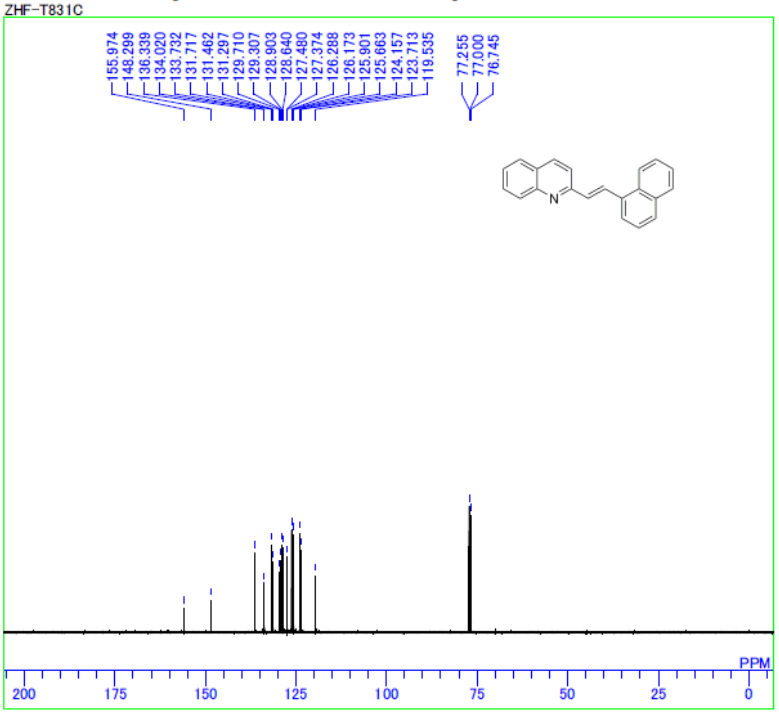
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	800
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T831H.als
ZHF-T831H



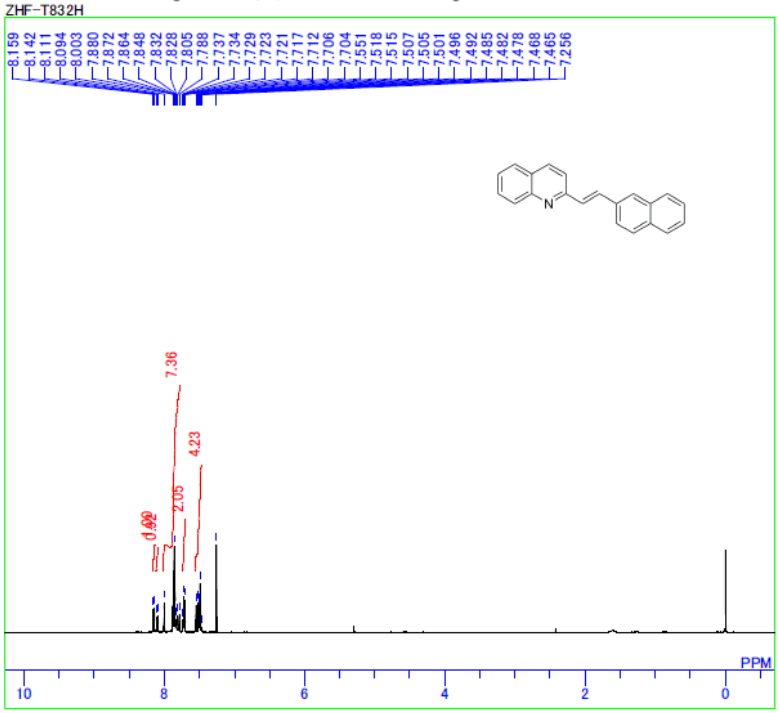
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	14
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	625
CSPED	7 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T831C.als
ZHF-T831C



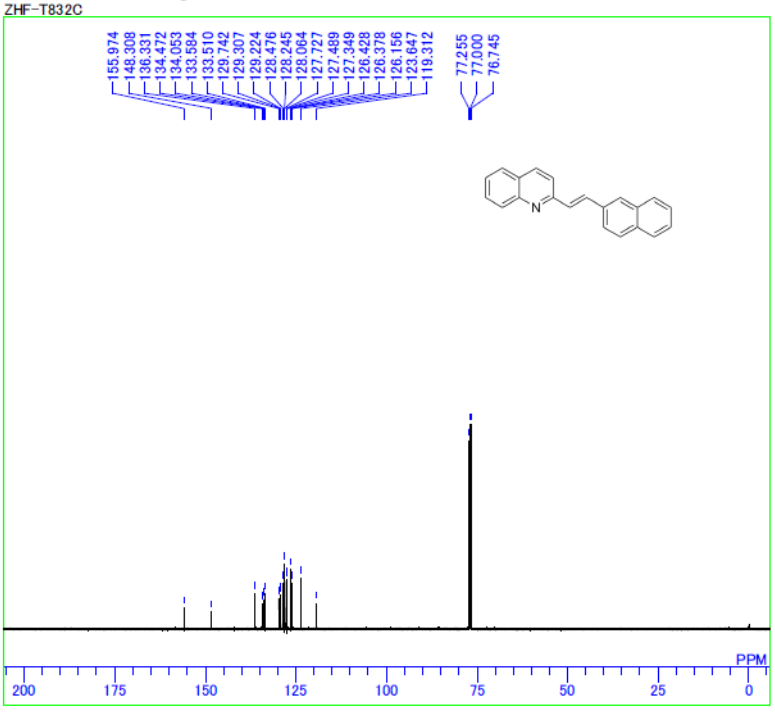
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	644
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T832H.als
ZHF-T832H



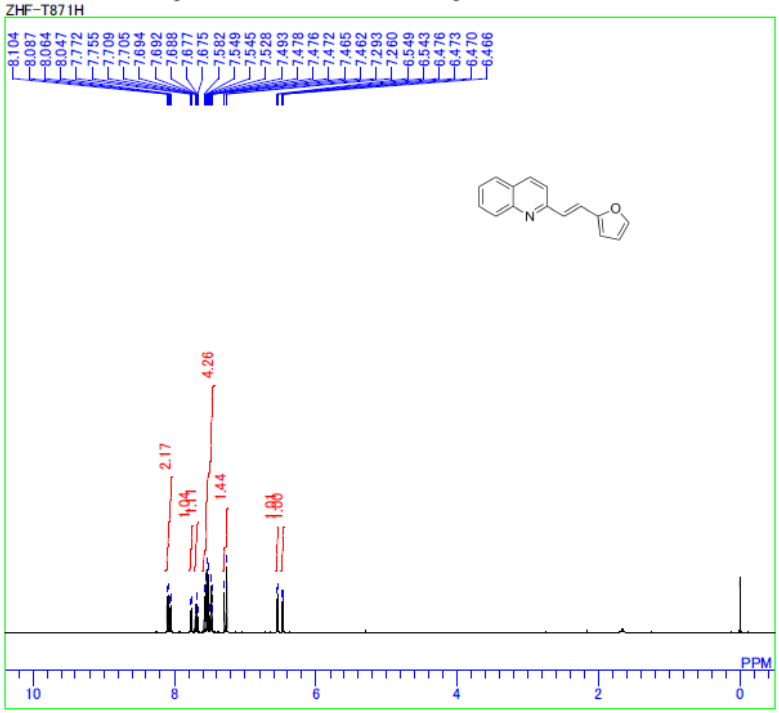
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1038
CSPED	14 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T832C



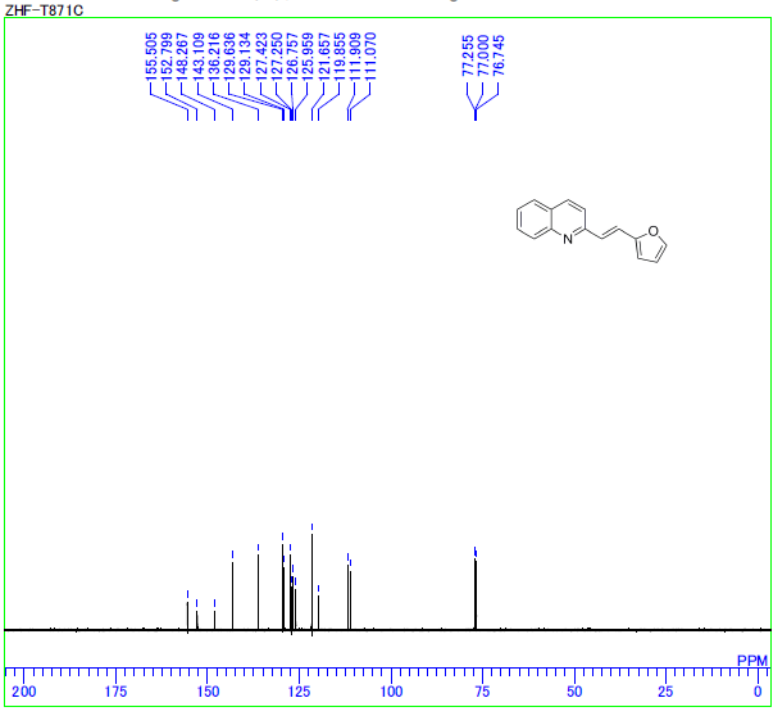
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7680
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	605
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T871H.als
ZHF-T871H



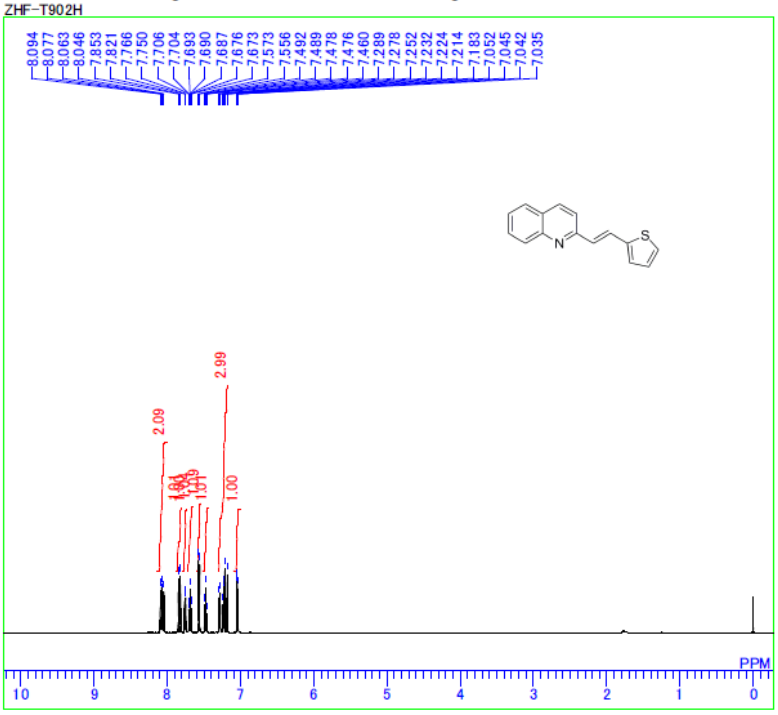
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	128
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	814
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T871C.als
ZHF-T871C



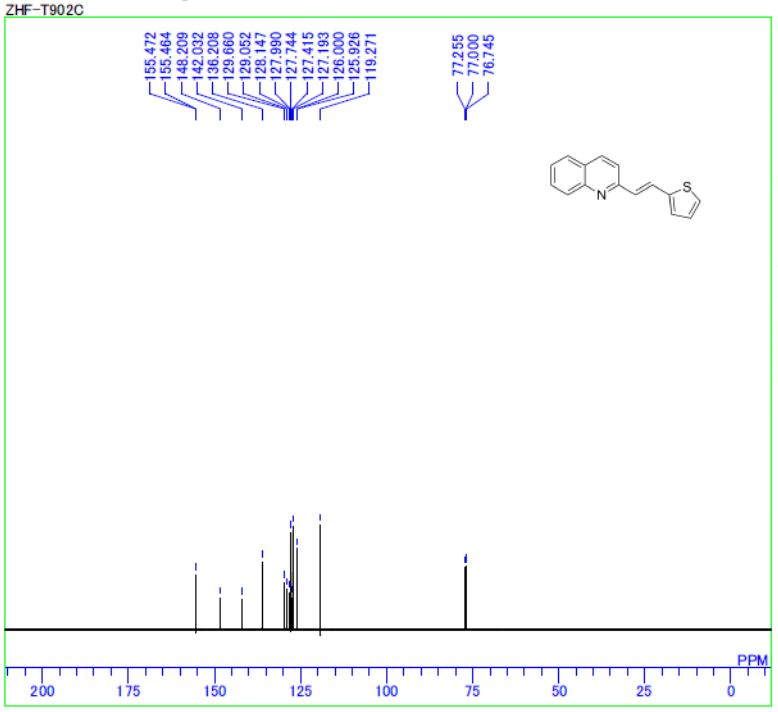
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	590
CSPED	12 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T902H.als
ZHF-T902H



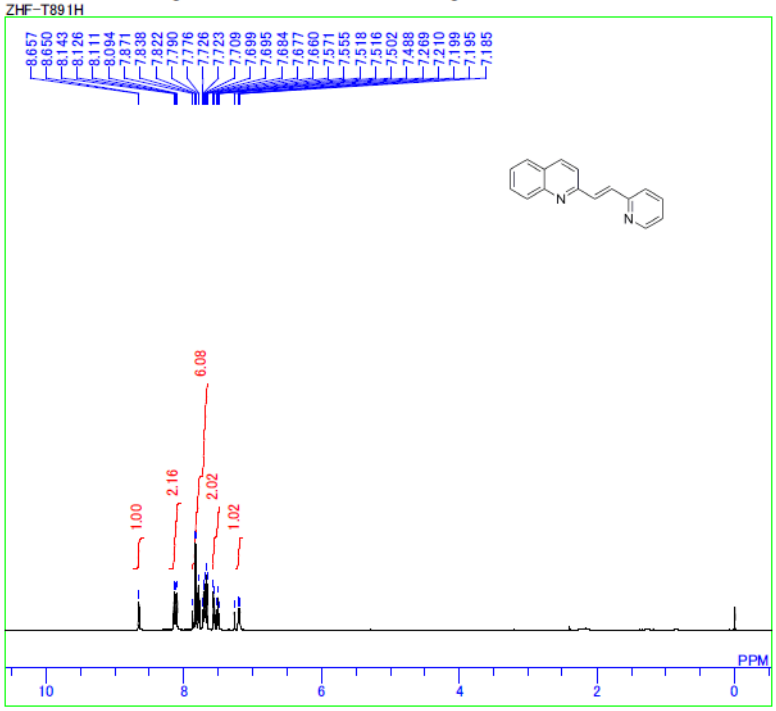
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	25
LKPHS	214
LKSIG	2337
CSPED	12 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T902C



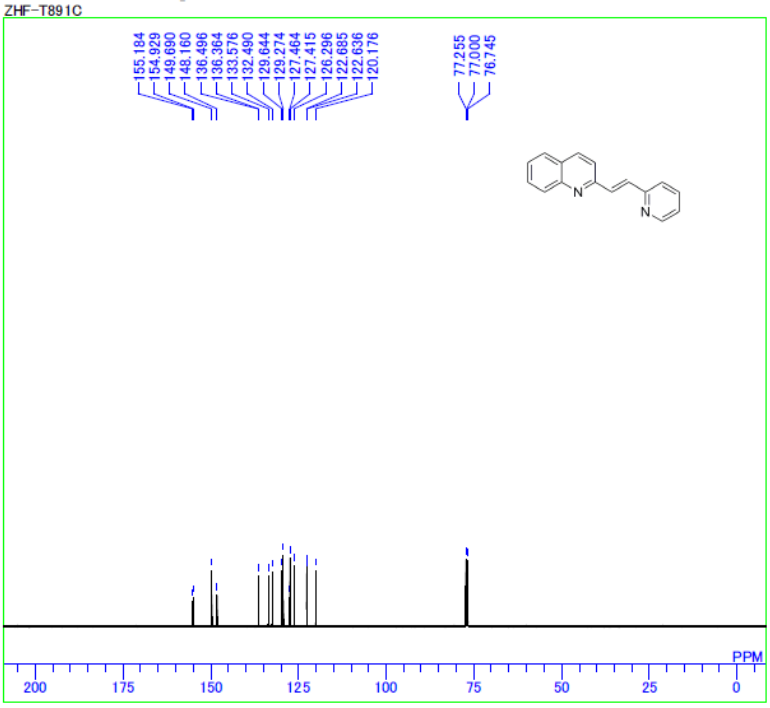
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1265
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T891H.als
ZHF-T891H



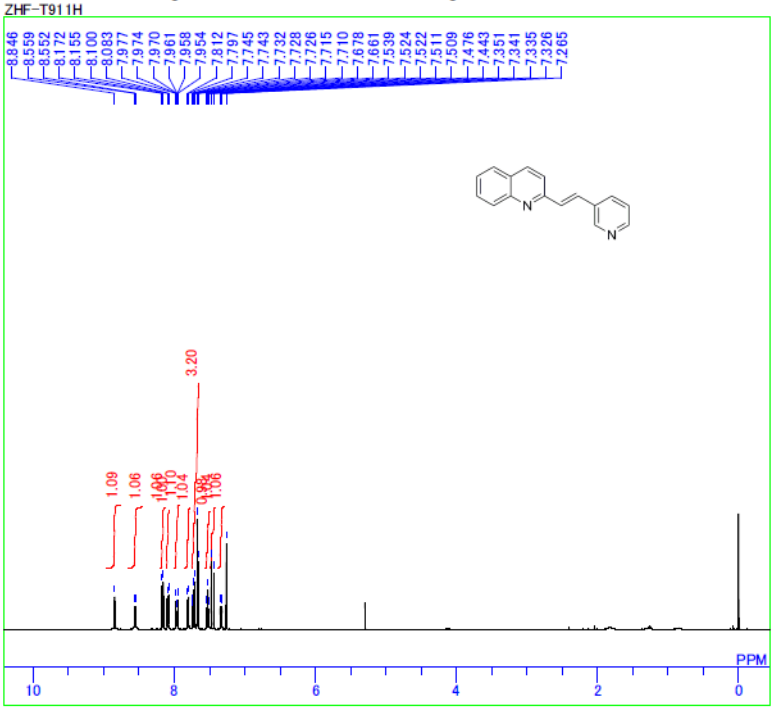
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	15
BF	0.50 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	26
LKPHS	214
LKSIG	2762
CSPED	16 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T891C



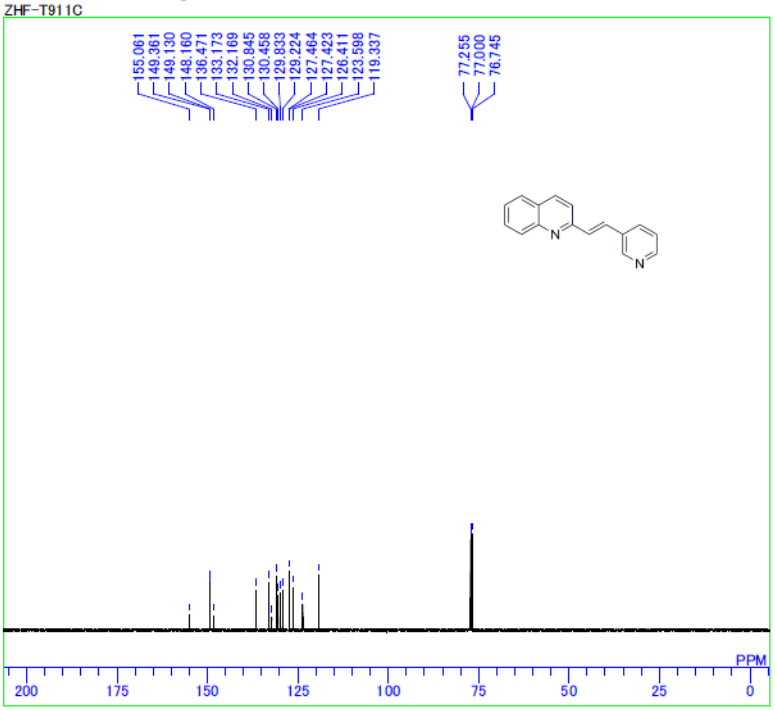
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.50 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	652
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T911H.als
ZHF-T911H



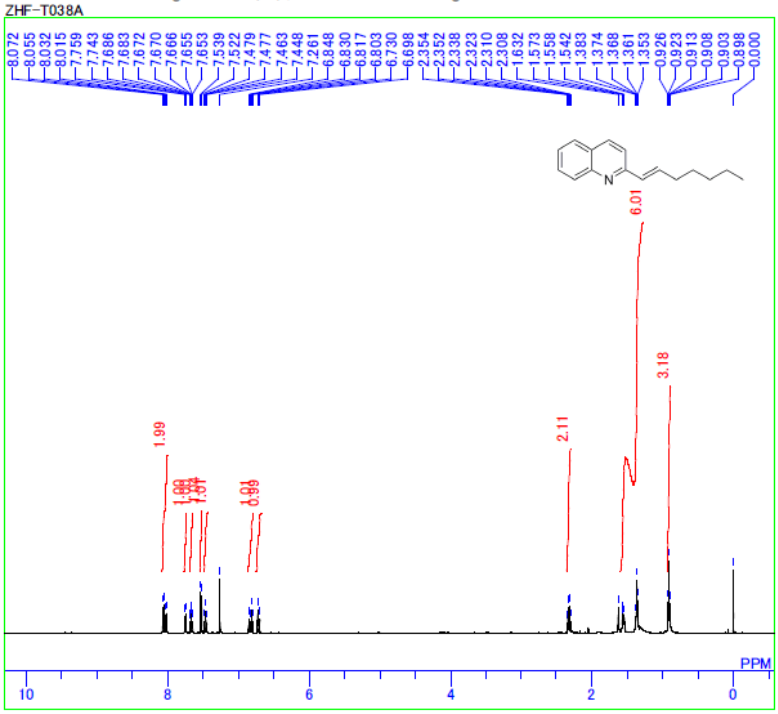
MENUF	non_th5atfTH5ATFG2_1ZHF-T911H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	18
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T911H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	598
CSPED	13 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T911C



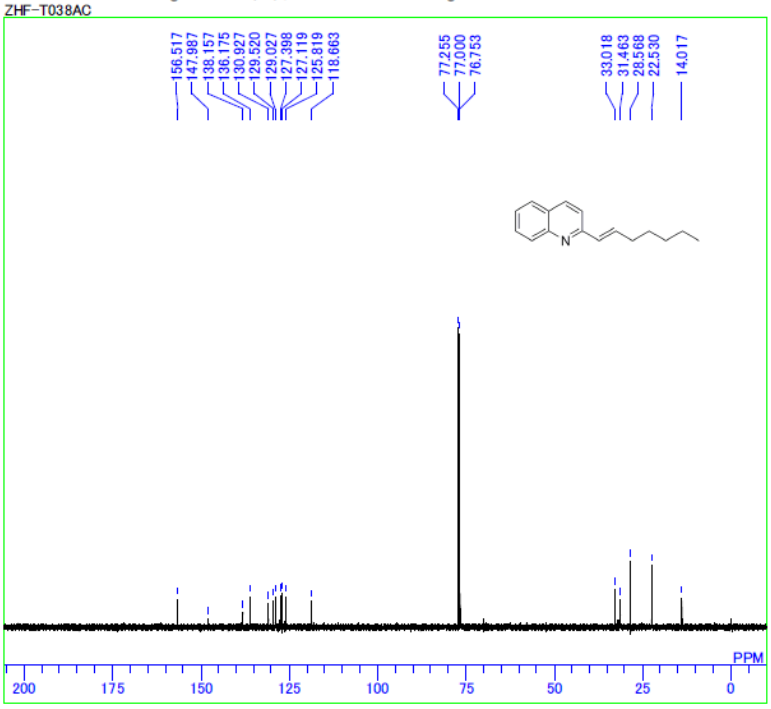
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T911C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2_1ZHF-T911C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	855
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T038A.als
ZHF-T038A



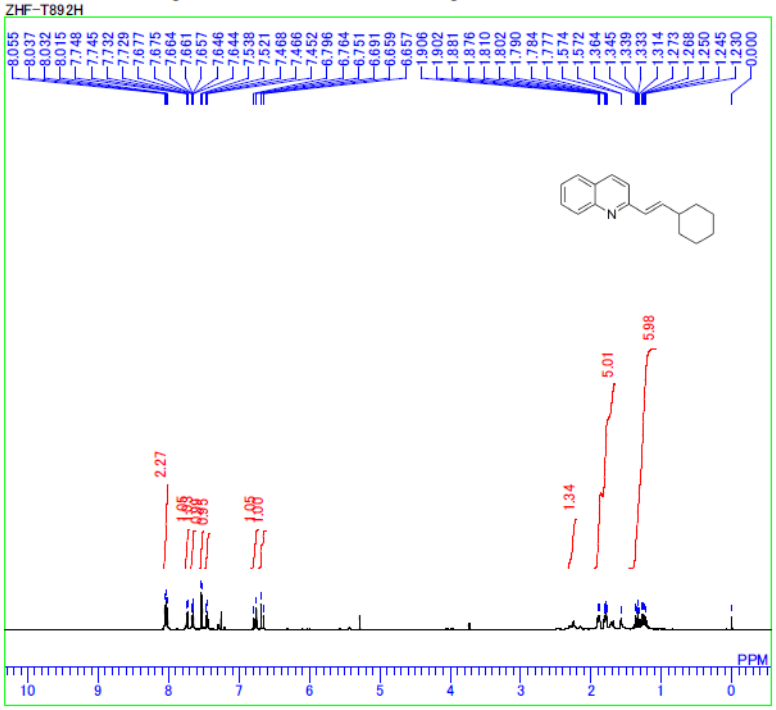
MENUF	non_th5atfTH5ATFG2_1ZHF-T038A
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	32
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T038A
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	208
LKSIG	815
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T038AC.als
ZHF-T038AC



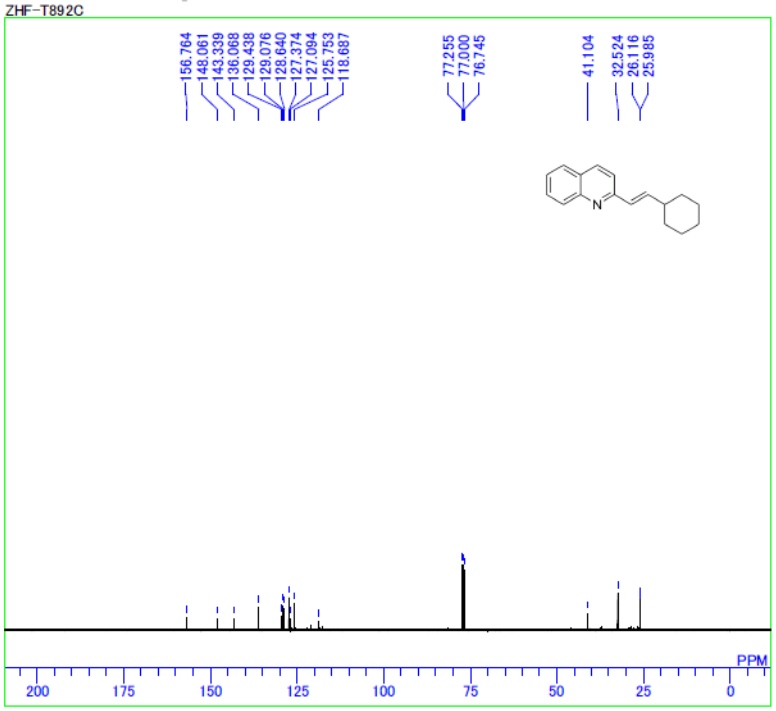
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	10240
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1040
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T892H.als
ZHF-T892H



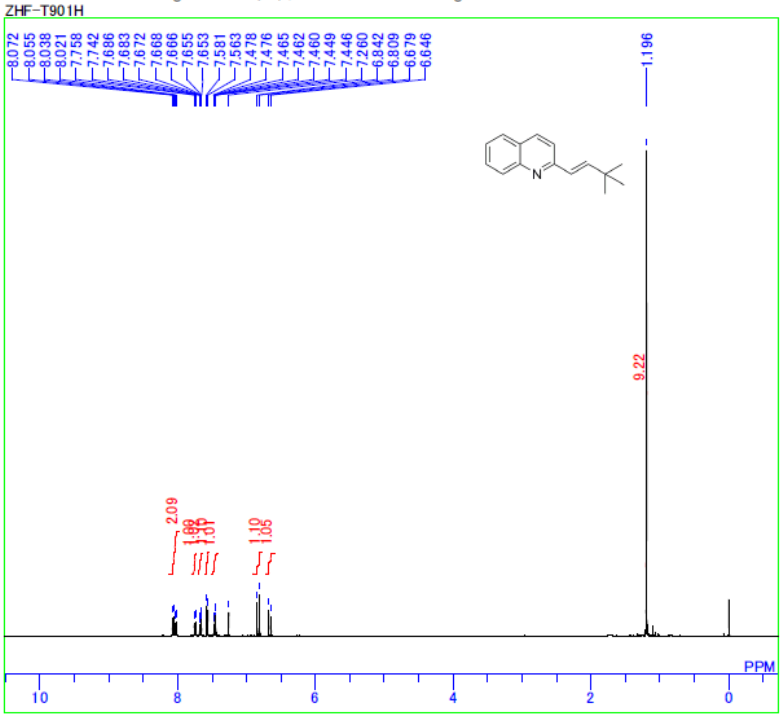
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	15
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	955
CSPED	13 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T892C



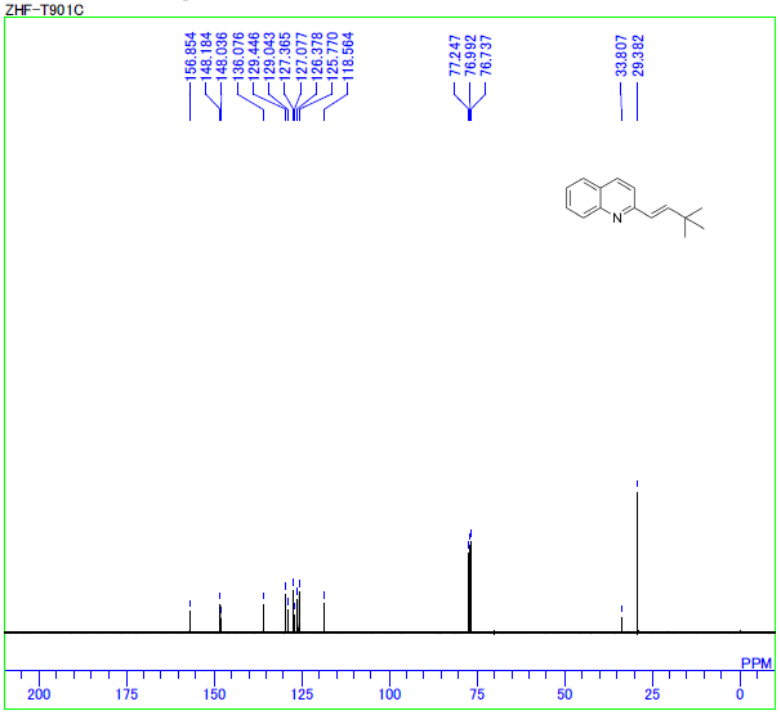
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	7560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	941
CSPED	13 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T901H.als
ZHF-T901H



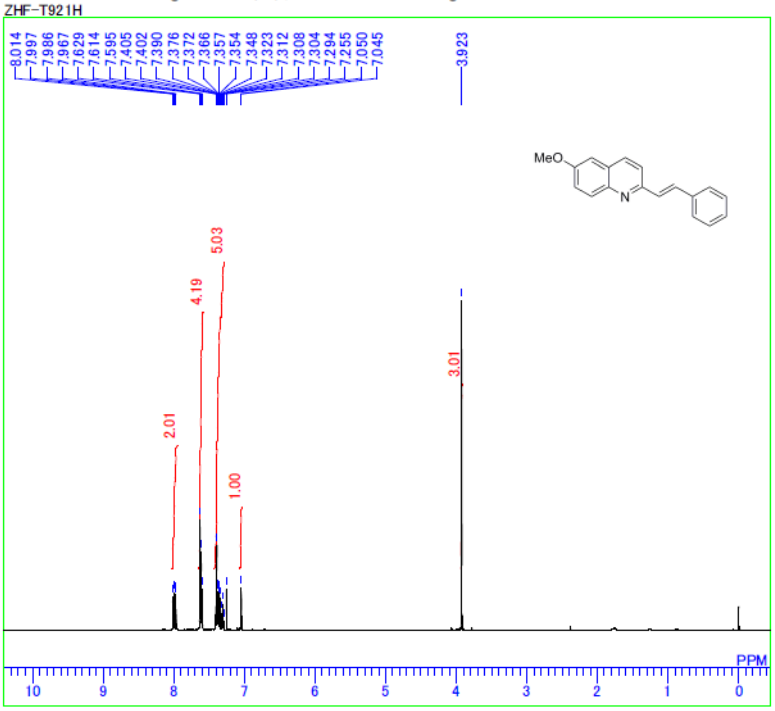
MENUF	non_th5atfTH5ATFG2
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1023
CSPED	14 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T901C



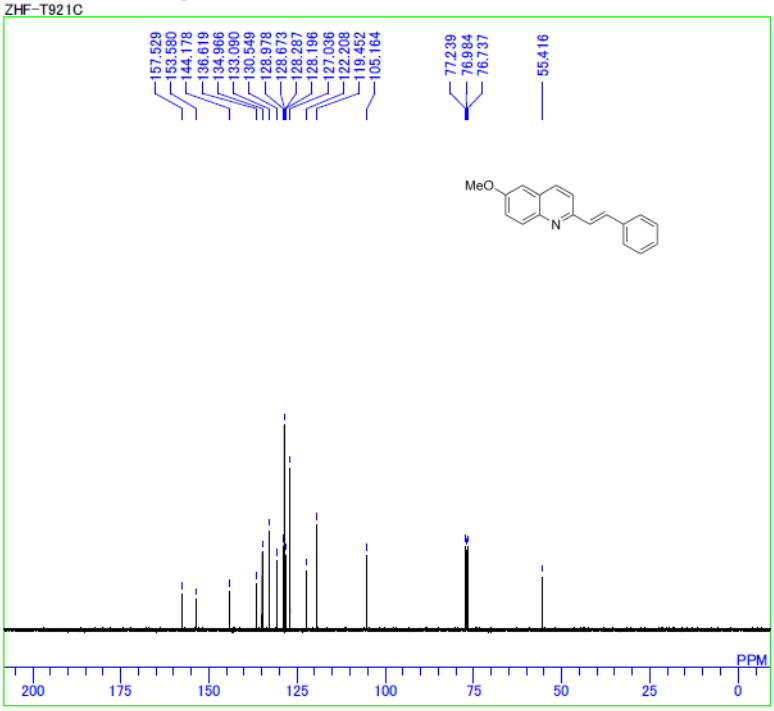
MENUF	bcm_th5atfTH5ATFG2
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAUL
SHMFL	TH5ATFG2
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	644
CSPED	0 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T921H.als
ZHF-T921H



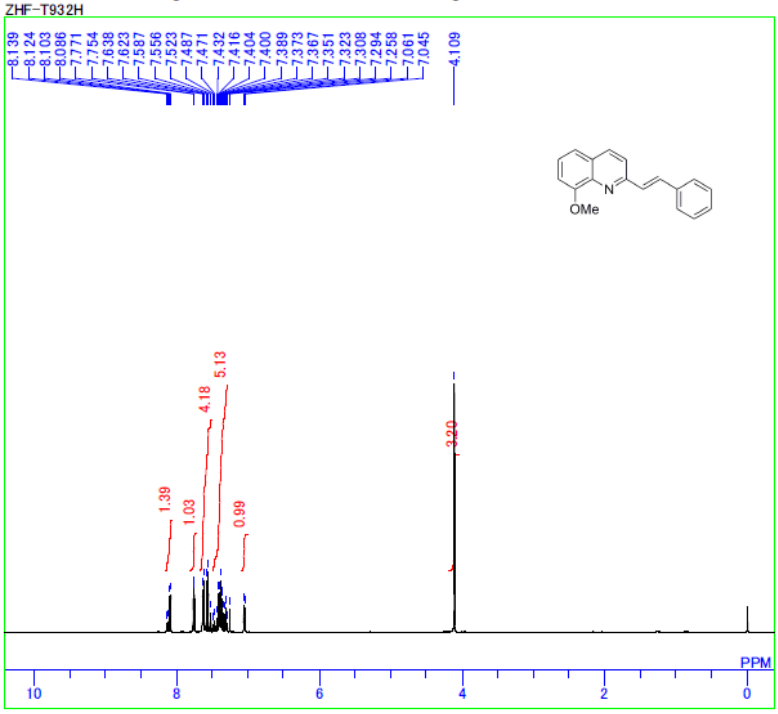
MENUF	non_th5atfTH5ATFG2_1ZHF-T921H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T921H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1308
CSPED	13 Hz
FILDC	
FILDF	

C:¥WINALPHA¥COMMON¥_DEFAULT.ALS
ZHF-T921C



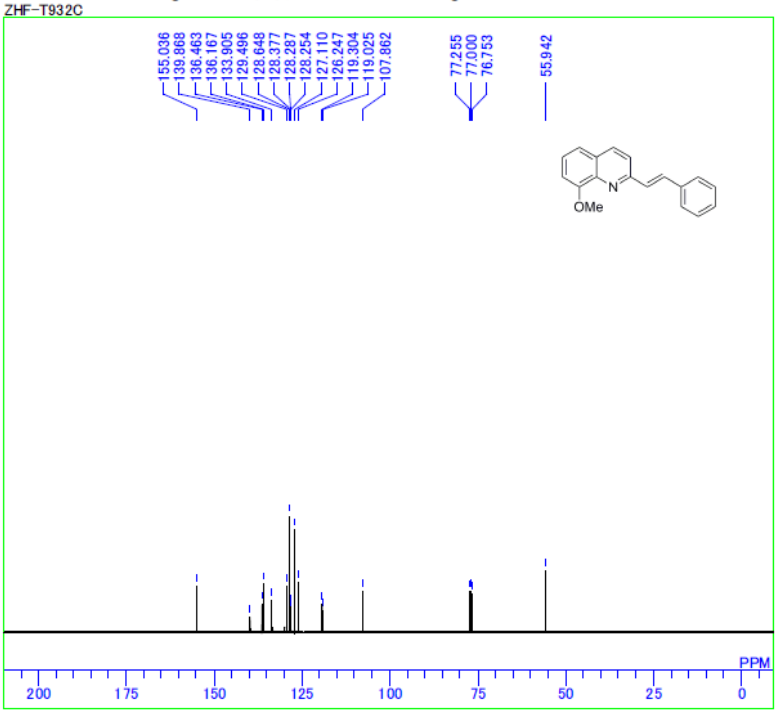
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T921C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥WINALPHA¥COMMON¥_DEFAULT
SHMFL	TH5ATFG2_1ZHF-T921C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	734
CSPED	12 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T932H.als
ZHF-T932H



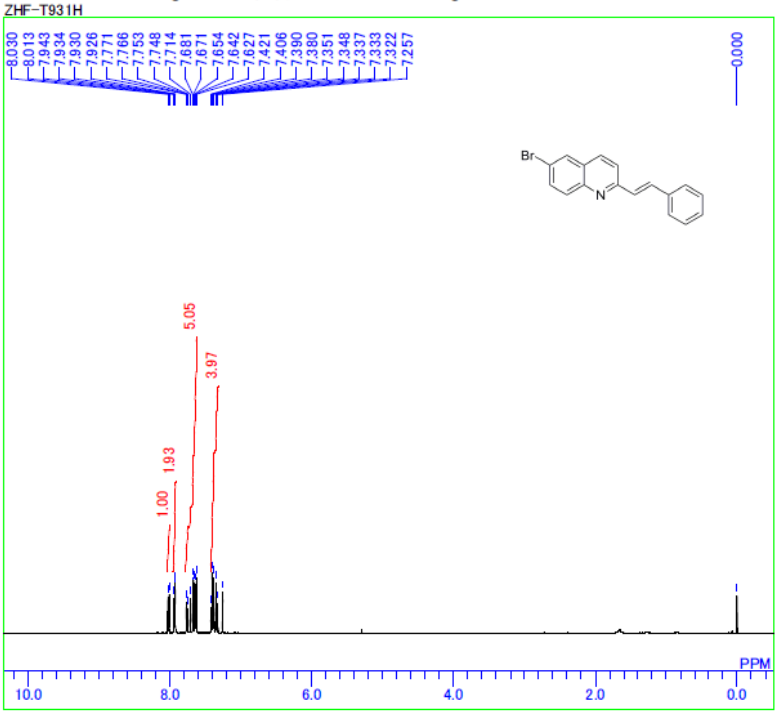
MENUF	non_th5atfTH5ATFG2_1ZHF-T932H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	16
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T932H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	904
CSPED	16 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T932C.als
ZHF-T932C



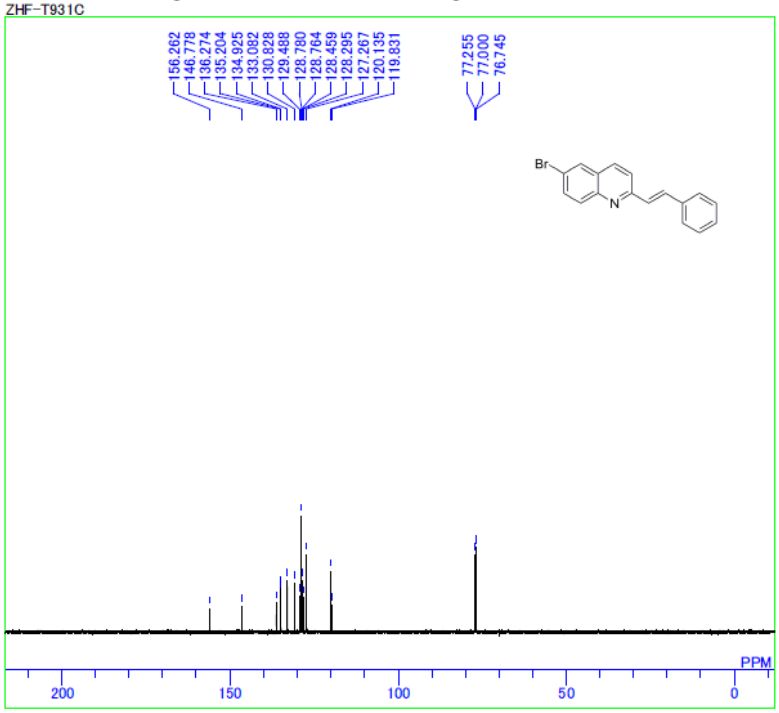
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T932C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T932C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	809
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T931H.als
ZHF-T931H



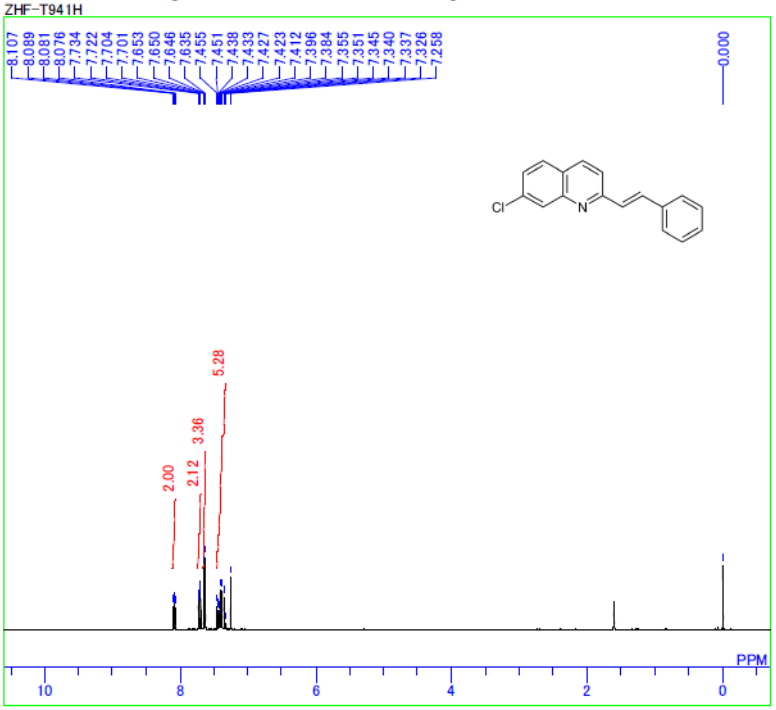
MENUF	non_th5atfTH5ATFG2_1ZHF-T931H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	17
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T931H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1009
CSPED	12 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T931C.als
ZHF-T931C



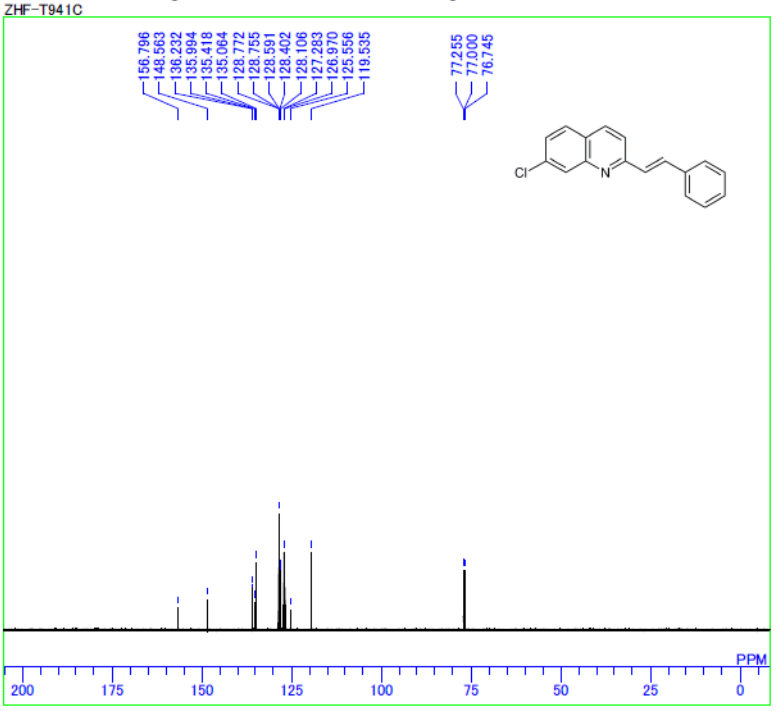
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T931C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T931C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1111
CSPED	14 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T941H.als
ZHF-T941H



MENUF	non_th5atfTH5ATFG2_1ZHF-T941H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	32
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	20
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T941H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1019
CSPED	11 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T941C.als
ZHF-T941C



MENUF	bcm_th5atfTH5ATFG2_1ZHF-T941C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T941C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1675
CSPED	14 Hz
FILDC	
FILDF	

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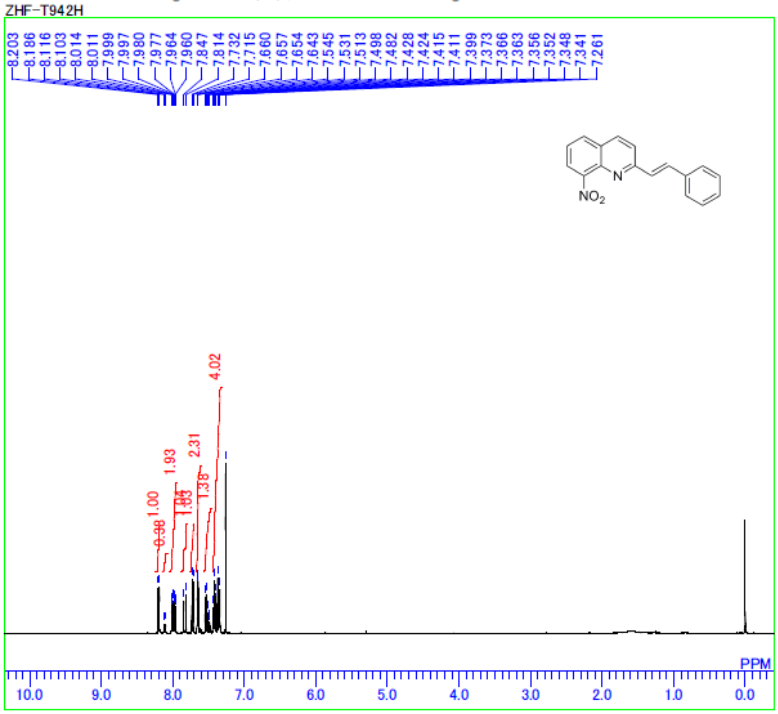
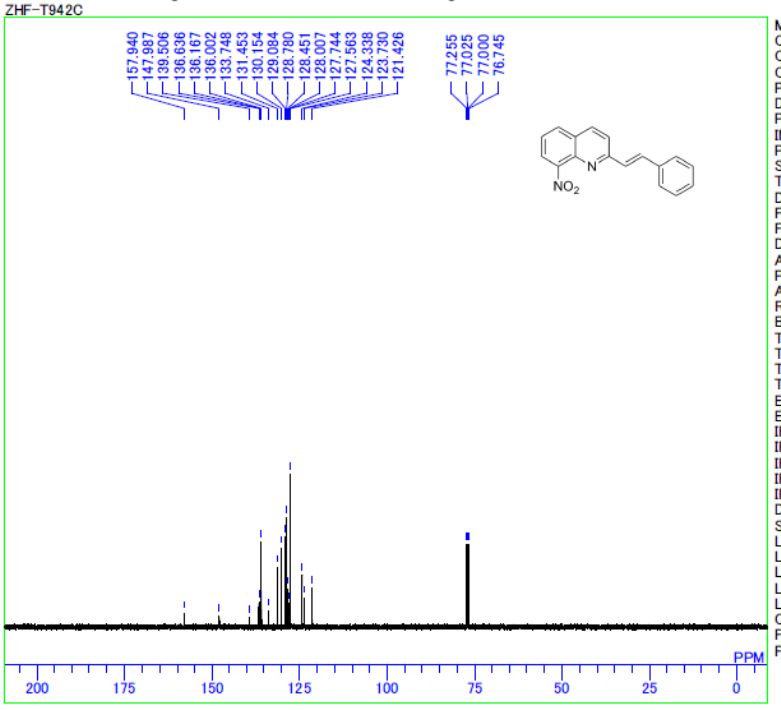
ZHF-T942H



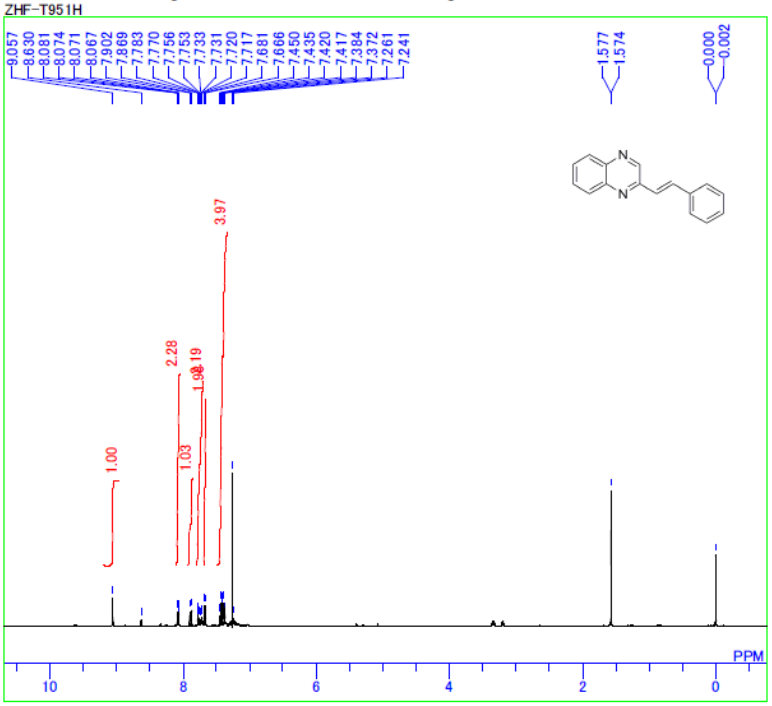
MENUF	non_th5atfTH5ATFG2_1ZHF-T942H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	22
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T942H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1812
CSPED	1 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T942C.als
ZHF-T942C



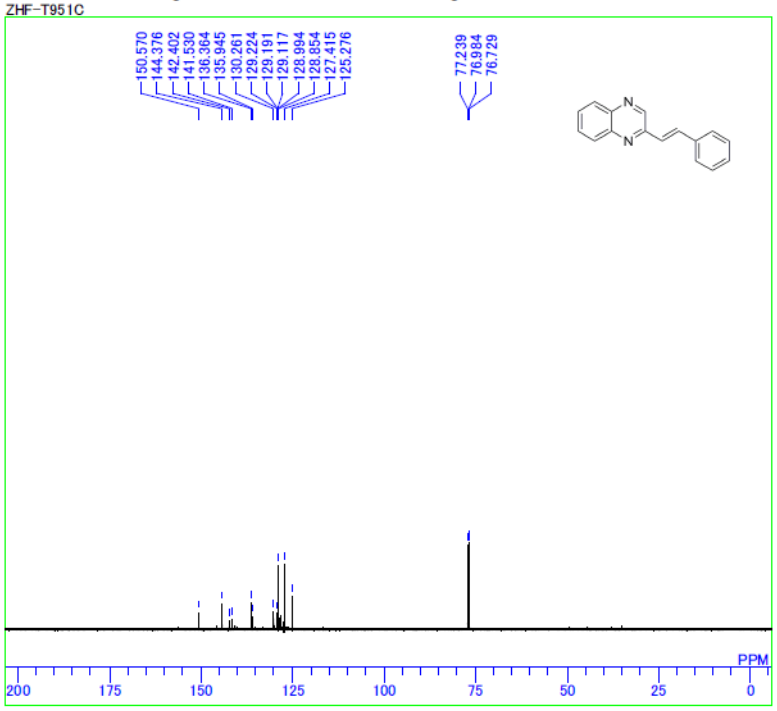
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T942C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T942C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	25
LKPHS	214
LKSIG	2202
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T951H.als
ZHF-T951H



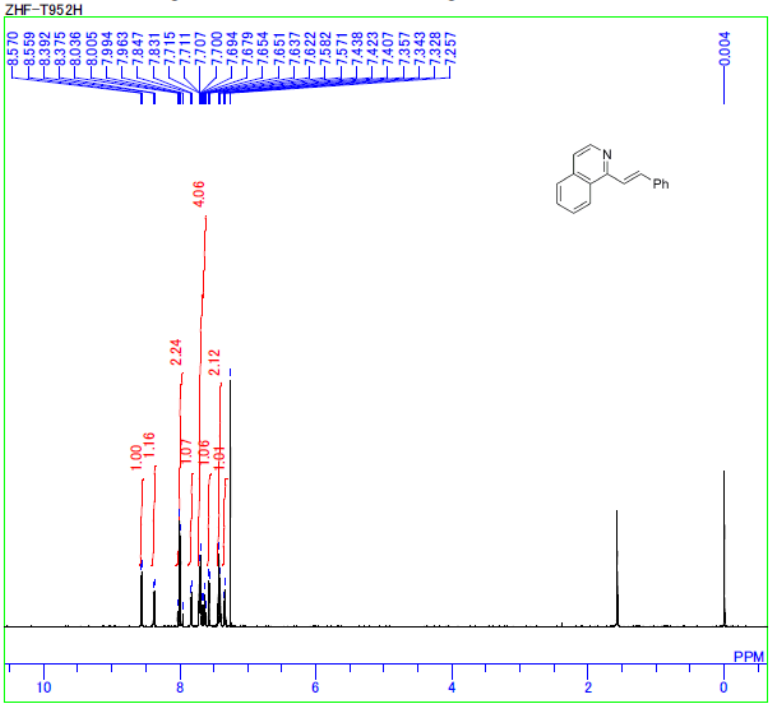
MENUF	non_th5atfTH5ATFG2_1ZHF-T951H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	24
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T951H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	604
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T951C.als
ZHF-T951C



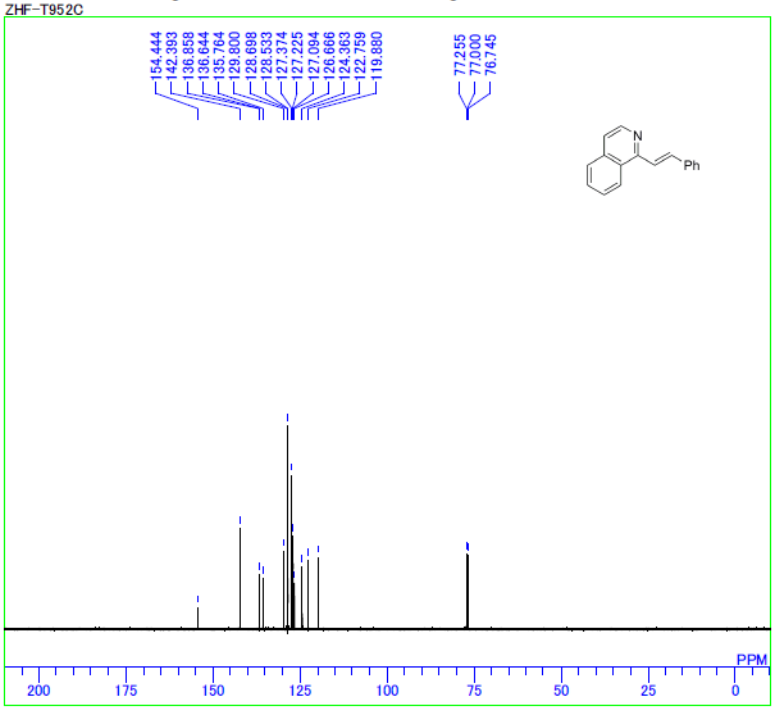
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T951C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T951C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	968
CSPED	12 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T952H.als
ZHF-T952H



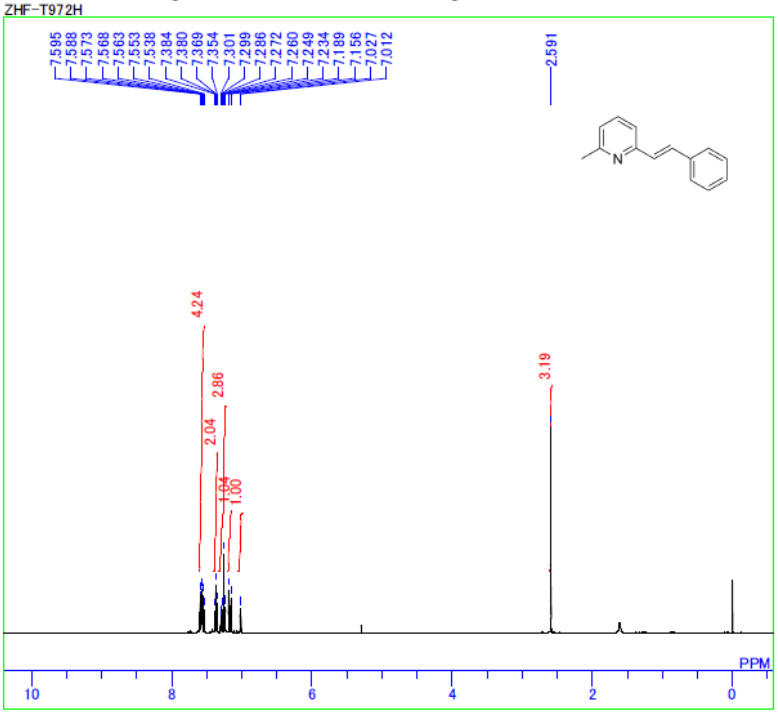
MENUF	non_th5atfTH5ATFG2_1ZHF-T952H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	23
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T952H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	22
LKPHS	214
LKSIG	1023
CSPED	13 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾃﾞｽｸﾄｯﾌﾟ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T952C.als
ZHF-T952C



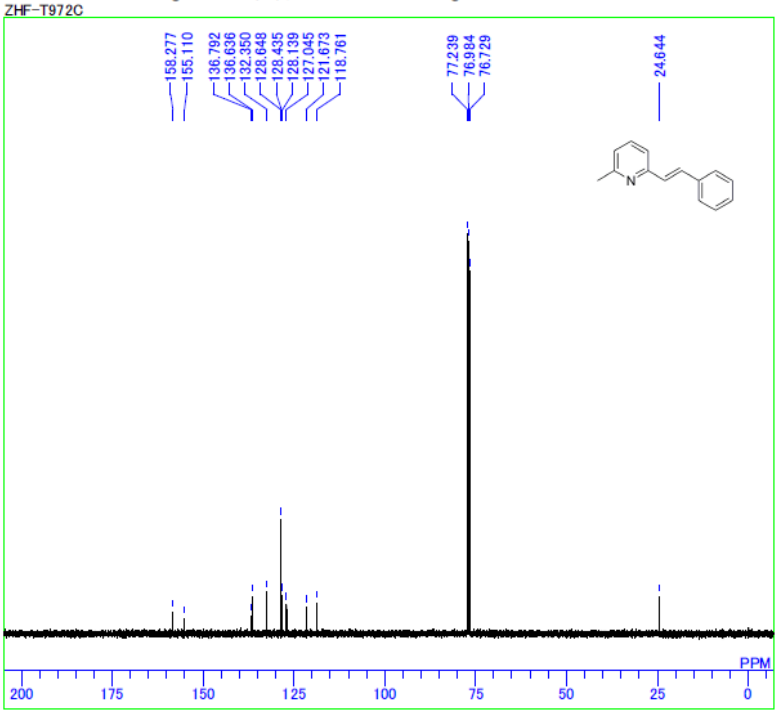
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T952C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	2560
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA
SHMFL	TH5ATFG2_1ZHF-T952C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	24
LKPHS	214
LKSIG	1365
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T972H.als
ZHF-T972H



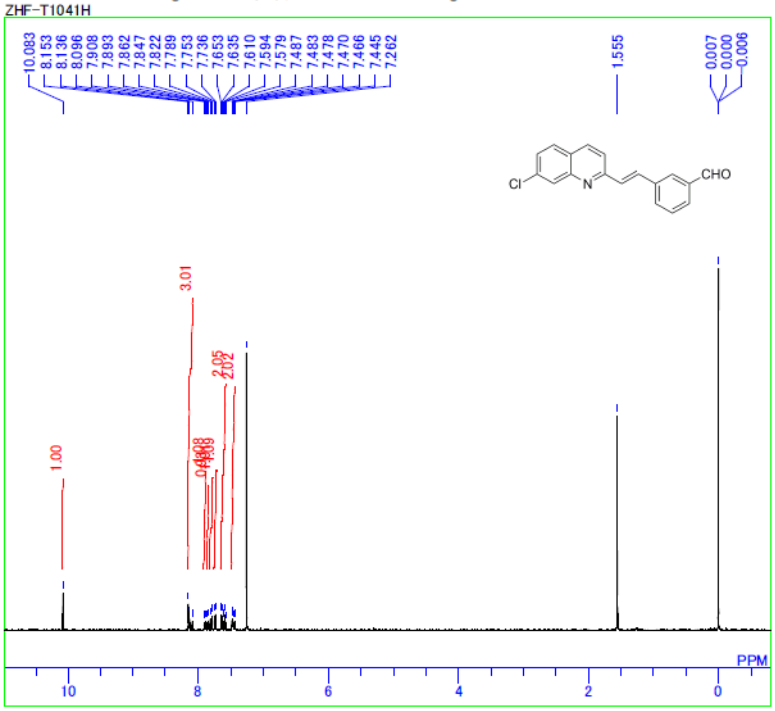
MENUF	non_th5atfTH5ATFG2_1ZHF-T972H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	32
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	21
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T972H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	607
CSPED	15 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T972C.als
ZHF-T972C



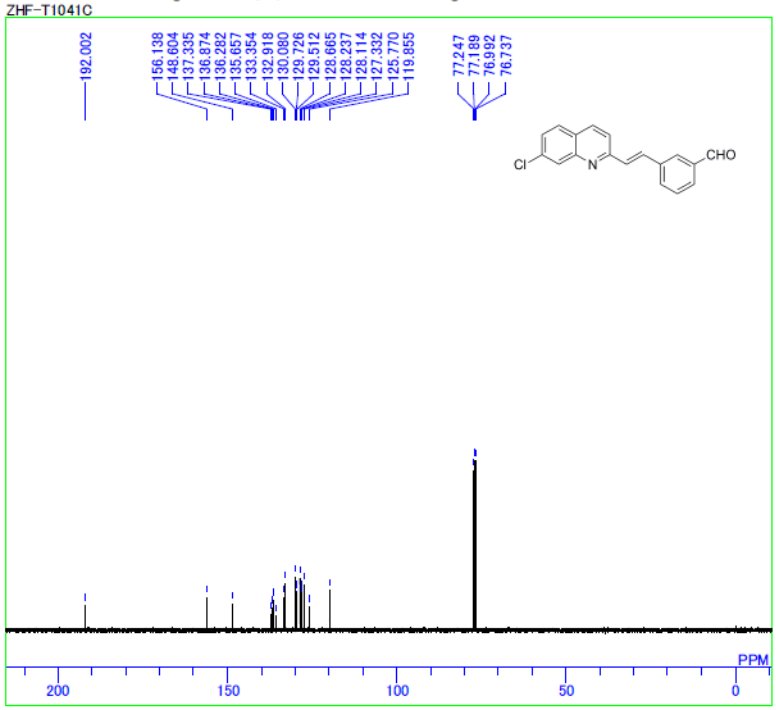
MENUF	bcm_th5atfTH5ATFG2_1ZHF-T972C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T972C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	20
LKPHS	214
LKSIG	601
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1041H.als
ZHF-T1041H



MENUF	non_th5atfTH5ATFG2_1ZHF-T1041H
OBNUC	1H
OBFRQ	500.00 MHz
OBFIN	162410.00 Hz
PW1	6.40 usec
DEADT	56.80 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	16384
SAMPO	16384
TIMES	16
DUMMY	1
FREQU	10000.00 Hz
FILTR	5000 Hz
DELAY	40.00 usec
ACQTM	1.6384 sec
PD	2.0000 sec
ADBIT	16
RGAIN	26
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1041H
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	23
LKPHS	214
LKSIG	1272
CSPED	17 Hz
FILDC	
FILDF	

C:¥Documents and Settings¥ALPHA¥ﾄﾞｷｭﾒﾝﾄ¥UozumiG¥Haifeng zhou¥Zhou¥ZHF-T1041C.als
ZHF-T1041C



MENUF	bcm_th5atfTH5ATFG2_1ZHF-T1041C
OBNUC	13C
OBFRQ	125.65 MHz
OBFIN	127958.00 Hz
PW1	5.75 usec
DEADT	10.00 usec
PREDL	0.20000 msec
INIWT	10.0000 msec
POINT	32768
SAMPO	32768
TIMES	5120
DUMMY	1
FREQU	33898.30 Hz
FILTR	16950 Hz
DELAY	11.80 usec
ACQTM	0.9667 sec
PD	1.0000 sec
ADBIT	16
RGAIN	27
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	SINGL
EXPCM	Single pulse
IRNUC	1H
IRFRQ	500.00 MHz
IRFIN	162410.00 Hz
IRRPW	50 usec
IRATN	511
DFILE	C:¥Documents and Settings¥ALPHA¥
SHMFL	TH5ATFG2_1ZHF-T1041C
LKFIN	70334.0 Hz
LKLEV	180
LGAIN	21
LKPHS	214
LKSIG	733
CSPED	12 Hz
FILDC	
FILDF	