Supporting Information for

Pd-Catalyzed Asymmetric Hydroalkylation of 1,3-Dienes: Access to Unnatural α-Amino Acid Derivatives Containing Vicinal Quaternary and Tertiary Stereogenic Centers

Zongpeng Zhang, Fan Xiao, Hui-Min Wu, Xiu-Qin Dong,* and Chun-Jiang Wang*

E-mail: xiuqindong@whu.edu.cn; cjwang@whu.edu.cn

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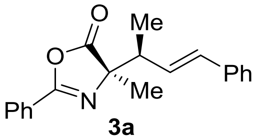
I. General Remarks

^1H NMR spectra were recorded on a Bruker 400 MHz spectrometer in $CDCl_3$. Chemical shifts are reported in ppm with the internal TMS signal at 0.0 ppm as a standard. ^{13}C NMR spectra were recorded on a Bruker 100 MHz spectrometer in $CDCl_3$. Chemical shifts are reported in ppm with the internal chloroform signal at 77.0 ppm as a standard. ^{19}F NMR spectra were recorded on a Bruker 376 MHz spectrometer in $CDCl_3$. Chemical shifts are reported in ppm with the internal CF_3COOH signal at -76.55 ppm. The data are reported as (s = single, d = double, t = triple, q = quarter, m = multiple or unresolved, brs = broad single, coupling constant(s) in Hz, integration). Commercially obtained reagents were used without further purification. All reactions were monitored by TLC with silica gel-coated plates. Enantiomeric ratios were determined by chiral-phase HPLC analysis in comparison with authentic racemic materials. Substrates **1** and **2** were prepared according to the literature procedure.[1,2] The absolute configuration of compound **7** was determined by comparing with the optical rotation of known chiral compound.[3] The absolute configuration of others were assigned by analogy.

II. General Procedure for Pd-Catalyzed Asymmetric Hydroalkylation of 1,3-Dienes with Azlactones

In an Ar-filled glovebox, to a vial equipped with a magnetic stirring rod was added successively: Pd-**L7** catalyst (0.01 mmol, 10 mol%), azalctone (0.15 mmol, 1.5 equiv.), CH_2Cl_2 (1 mL), 1,3-diene (0.10 mmol, 1.0 equiv.), and lastly Et_3N (0.3 mmol, 3.0 equiv.). Then $HBF_4 \cdot Et_2O$ (0.01 mmol in 1 mL DCM) was added dropwise to the solution. Once starting material was consumed (monitored by TLC), the organic solvent was removed by rotary evaporation. The dr value was determined by ^1H NMR analysis of the crude mixture and the residue was purified by column chromatography to give the product. Procedure for the alcoholysis with MeOH: After the reaction of 1,3-diene with azlactone was completed, MeOH (1 mL) and K_2CO_3 (0.5 mmol) were added, then the mixture was stirred at room temperature for 2 h. The solvent was removed by vacuo, and the residue was purified by column chromatography on silica column.

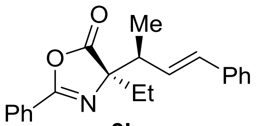
(*R*)-4-methyl-2-phenyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)oxazol-5(4H)-one (3a):



3a

Yield (92%); 28.1 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +119.8 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.04 (dd, *J* = 5.2, 3.3 Hz, 2H), 7.62-7.54 (m, 1H), 7.53-7.45 (m, 2H), 7.44-7.36 (m, 2H), 7.32 (t, *J* = 7.6 Hz, 2H), 7.25-7.20 (m, 1H), 6.54 (d, *J* = 15.9 Hz, 1H), 6.25 (dd, *J* = 15.9, 9.3 Hz, 1H), 2.91-2.65 (m, 1H), 1.50 (s, 3H), 1.05 (d, *J* = 6.8 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 180.9, 160.1, 136.9, 132.74, 132.65, 129.2, 128.8, 128.5, 128.0, 127.5, 126.3, 125.8, 72.4, 45.0, 22.6, 15.8. HRMS (ESI+) Calcd. For $C_{20}H_{20}NO_2$ ($[M+H]^+$): 306.1489, found: 306.1487. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AD-H, *i*-propanol/hexane = 2/98, flow rate 1.0 mL/min, λ = 220 nm); t_r = 4.65 and 5.15 min.

(*R*)-4-ethyl-2-phenyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)oxazol-5(4H)-one (3b):

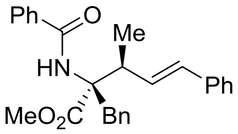


3b

Yield (85%); 27.1 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +87.8 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.06 (d, *J* = 7.2 Hz, 2H), 7.59 (t, *J* = 7.2 Hz, 1H), 7.50 (t, *J* = 7.2 Hz, 2H), 7.40 (d, *J* = 7.6 Hz, 2H), 7.31 (t, *J* = 7.6 Hz, 2H), 7.22 (d, *J* = 7.2 Hz, 1H), 6.52 (d, *J* = 15.9 Hz, 1H), 6.26 (dd, *J* = 15.9, 9.3 Hz, 1H), 2.84 (dq, *J* = 13.7, 6.8 Hz, 1H), 2.02 (dq, *J* = 14.9, 7.5 Hz, 1H), 1.90 (dq, *J* = 14.6, 7.4 Hz, 1H), 1.04 (d, *J* = 6.8 Hz, 3H), 0.80 (t, *J* = 7.4 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 180.5, 160.4, 136.9, 132.7, 132.3, 129.6, 128.8, 128.5, 128.0, 127.4, 126.3, 125.8, 77.2, 44.6, 29.3, 16.0, 8.1. HRMS (ESI+) Calcd. For

$C_{21}H_{22}NO_2$ ($[M+H]^+$): 320.1645, found: 320.1634. The product was analyzed by HPLC to determine the enantiomeric excess: >99% ee (Chiralpak ID, *i*-propanol/hexane = 2/98, flow rate 1.0 mL/min, λ = 254 nm); t_r = 4.24 and 4.71 min.

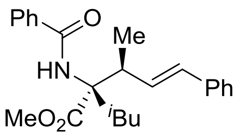
Methyl (2*R*,3*S*,*E*)-2-benzamido-2-benzyl-3-methyl-5-phenylpent-4-enoate (3c):



3c

Yield (82%); 33.8 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -40.6 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.62 (d, *J* = 7.3 Hz, 2H), 7.45 (t, *J* = 7.3 Hz, 1H), 7.36 (t, *J* = 7.6 Hz, 2H), 7.31-7.25 (m, 4H), 7.21-7.18 (m, 4H), 7.14-7.07 (m, 2H), 6.86 (s, 1H), 6.42 (d, *J* = 15.7 Hz, 1H), 6.17 (dd, *J* = 15.7, 9.2 Hz, 1H), 3.90 (d, *J* = 13.8 Hz, 1H), 3.87 (s, 3H), 3.53 (d, *J* = 13.7 Hz, 1H), 3.47 (dd, *J* = 15.5, 7.4 Hz, 1H), 1.34 (d, *J* = 7.0 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 172.7, 167.2, 137.0, 136.6, 135.4, 132.0, 131.4, 130.6, 130.0, 128.6, 128.5, 128.2, 127.4, 126.8, 126.3, 67.9, 52.6, 42.4, 37.1, 16.0. HRMS (ESI+) Calcd. For $C_{27}H_{28}NO_3$ ($[M+H]^+$): 414.2064, found: 414.2055. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 13.55 and 16.81 min.

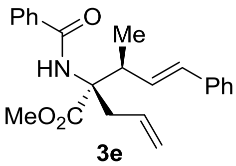
Methyl (2*R*,3*S*,*E*)-2-benzamido-2-isobutyl-3-methyl-5-phenylpent-4-enoate (3d):



3d

Yield (80%); 30.0 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -55.0 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.80-7.71 (m, 2H), 7.51-7.44 (m, 1H), 7.40 (dd, *J* = 15.1, 8.0 Hz, 3H), 7.25 (dd, *J* = 8.6, 1.8 Hz, 3H), 7.24-7.15 (m, 1H), 6.38 (d, *J* = 15.7 Hz, 1H), 6.02 (dd, *J* = 15.7, 9.1 Hz, 1H), 3.84 (s, 3H), 3.51 (dq, J = 14.2, 7.0 Hz, 1H), 2.77 (dd, J = 14.1, 4.3 Hz, 1H), 1.96 (dd, J = 14.1, 8.9 Hz, 1H), 1.66-1.57 (m, 1H), 1.21 (d, J = 7.0 Hz, 3H), 0.94 (d, J = 6.7 Hz, 3H), 0.78 (d, J = 6.6 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 174.5, 166.5, 137.2, 135.5, 131.7, 131.3, 130.8, 128.6, 128.4, 127.2, 126.8, 126.2, 67.0, 52.5, 43.5, 40.8, 25.0, 24.1, 21.9, 15.7. HRMS (ESI+) Calcd. For $C_{24}H_{30}NO_3$ ([M+H]$^+$): 380.2220, found: 320.2208. The product was analyzed by HPLC to determine the enantiomeric excess: 93% ee (Chiralpak AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 5.99 and 7.04 min.

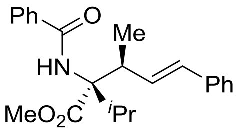
Methyl (2*R*,3*S*,*E*)-2-allyl-2-benzamido-3-methyl-5-phenylpent-4-enoate (3e):



3e

Yield (75%); 27.2 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -49.0 (c 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.76-7.69 (m, 2H), 7.50-7.44 (m, 1H), 7.41-7.36 (m, 2H), 7.35-7.32 (m, 2H), 7.31-7.26 (m, 2H), 7.24-7.18 (m, 1H), 7.05 (s, 1H), 6.47 (d, J = 15.7 Hz, 1H), 6.17 (dd, J = 15.7, 9.3 Hz, 1H), 5.67-5.63 (m, 1H), 5.17-5.03 (m, 2H), 3.84 (s, 3H), 3.41 (dd, J = 14.0, 7.6 Hz, 1H), 3.31 (dq, J = 14.0, 7.0 Hz, 1H), 2.95 (dd, J = 14.0, 7.0 Hz, 1H), 1.21 (d, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.1, 166.6, 137.0, 135.1, 132.8, 132.0, 131.4, 130.7, 128.6, 128.5, 127.4, 126.8, 126.3, 119.0, 66.9, 52.7, 42.9, 36.2, 15.8. HRMS (ESI+) Calcd. For $C_{23}H_{26}NO_3$ ([M+H]$^+$): 364.1907, found: 364.1902. The product was analyzed by HPLC to determine the enantiomeric excess: 99% ee (Chiralpak IE, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 29.77 and 30.78 min.

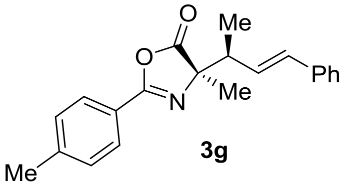
Methyl (2*R*,3*S*,*E*)-2-benzamido-2-isopropyl-3-methyl-5-phenylpent-4-enoate (3f):



3f

Yield (54%); 19.7 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -19.1 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.80 (d, *J* = 7.1 Hz, 2H), 7.49 (t, *J* = 7.2 Hz, 1H), 7.43 (t, *J* = 7.3 Hz, 2H), 7.35 (d, *J* = 7.5 Hz, 2H), 7.28 (d, *J* = 7.4 Hz, 2H), 7.22-7.16 (m, 2H), 6.47 (d, *J* = 15.8 Hz, 1H), 6.39 (dd, *J* = 15.8, 8.5 Hz, 1H), 3.86 (s, 3H), 3.83-3.74 (m, 1H), 3.10-3.03 (m, 1H), 1.18 (d, *J* = 6.9 Hz, 3H), 1.03 (d, *J* = 6.9 Hz, 6H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 174.1, 166.9, 137.5, 136.2, 131.6, 131.2, 131.0, 128.6, 128.4, 127.0, 126.8, 126.3, 72.2, 52.8, 40.4, 31.2, 18.4, 18.1, 16.7. HRMS (ESI+) Calcd. For $C_{23}H_{28}NO_3$ ($[M+H]^+$): 366.2064, found: 366.2054. The product was analyzed by HPLC to determine the enantiomeric excess: 97% ee (Chiralpak AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 6.60 and 9.39 min.

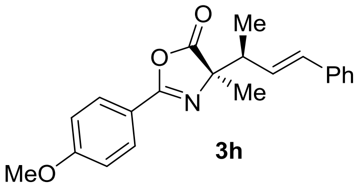
(*R*)-4-methyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)-2-(p-tolyl)oxazol-5(4H)-one (3g):



3g

Yield (89%); 28.4 mg; white solid; mp 84-86 °C; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +78.5 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.92 (d, *J* = 8.1 Hz, 2H), 7.40 (d, *J* = 7.4 Hz, 2H), 7.31 (t, *J* = 8.4 Hz, 4H), 7.23 (t, *J* = 7.4 Hz, 1H), 6.53 (d, *J* = 15.9 Hz, 1H), 6.25 (dd, *J* = 15.9, 9.3 Hz, 1H), 2.83-2.76 (m, 1H), 2.44 (s, 3H), 1.49 (s, 3H), 1.04 (d, *J* = 6.8 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 181.1, 160.2, 143.4, 136.9, 132.7, 129.5, 129.3, 128.5, 127.9, 127.5, 126.4, 123.0, 72.3, 45.1, 22.7, 21.7, 15.8. HRMS (ESI+) Calcd. For $C_{21}H_{22}NO_2$ ($[M+H]^+$): 320.1645, found: 320.1634. The product was analyzed by HPLC to determine the enantiomeric excess: 96% ee (Chiralpak AD-H, *i*-propanol/hexane = 3/97, flow rate 1.0 mL/min, λ = 254 nm); t_r = 4.86 and 5.70 min.

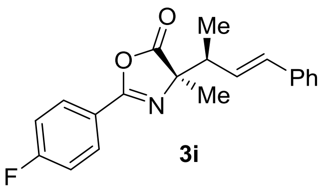
(*R*)-2-(4-methoxyphenyl)-4-methyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)oxazol-5(4H)-one (3h):



3h

Yield (90%); 30.1 mg; yellow oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +75.1 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.98 (d, *J* = 8.8 Hz, 2H), 7.40 (d, *J* = 7.5 Hz, 2H), 7.31 (t, *J* = 7.5 Hz, 2H), 7.25-7.19 (m, 1H), 6.99 (d, *J* = 8.8 Hz, 2H), 6.53 (d, *J* = 15.9 Hz, 1H), 6.25 (dd, *J* = 15.9, 9.3 Hz, 1H), 3.89 (s, 3H), 2.79 (dq, *J* = 13.8, 6.8 Hz, 1H), 1.49 (s, 3H), 1.04 (d, *J* = 6.8 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 181.2, 163.1, 159.8, 137.0, 132.6, 129.8, 129.4, 128.5, 127.4, 126.3, 118.2, 114.2, 72.2, 55.5, 45.1, 22.8, 15.8. HRMS (ESI+) Calcd. For $C_{21}H_{22}NO_3$ ($[M+H]^+$): 336.1594, found: 336.1586. The product was analyzed by HPLC to determine the enantiomeric excess: 98% ee (Chiralpak AD-H, *i*-propanol/hexane = 2/98, flow rate 1.0 mL/min, λ = 254 nm); t_r = 6.17 and 6.96 min.

(*R*)-2-(4-fluorophenyl)-4-methyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)oxazol-5(4H)-one (3i):

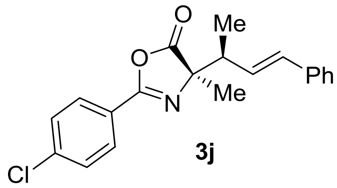


3i

Yield (87%); 28.1 mg; white solid; mp 74-76 °C; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +69.9 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.04 (ddd, *J* = 8.0, 5.0, 2.4 Hz, 2H), 7.40 (d, *J* = 7.3 Hz, 2H), 7.32 (t, *J* = 7.5 Hz, 2H), 7.24-7.21 (m, 1H), 7.20-7.14 (m, 2H), 6.53 (d, *J* = 15.9 Hz, 1H), 6.23 (dd, *J* = 15.9, 9.3 Hz, 1H), 2.80 (dq, *J* = 13.7, 6.8 Hz, 1H), 1.50 (s, 3H), 1.05 (d, *J* = 6.8

Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 180.7, 166.7, 164.2, 159.2, 136.9, 132.8, 130.4 (d, J = 9.1 Hz), 129.1, 128.5, 127.5, 126.3, 122.1 (d, J = 3.1 Hz), 116.1 (d, J = 21.3 Hz), 72.5, 45.0, 22.6, 15.8. ^{19}F NMR (376 MHz, $CDCl_3$) δ -105.45; HRMS (ESI+) Calcd. For $C_{20}H_{19}FNO_2$ ($[M+H]^+$): 324.1394, found: 324.1381. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AD-H, *i*-propanol/hexane = 1.5/98.5, flow rate 1.0 mL/min, λ = 254 nm); t_r = 5.49 and 6.20 min.

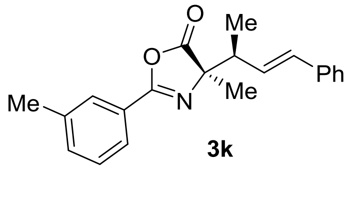
(*R*)-2-(4-chlorophenyl)-4-methyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)oxazol-5(4H)-one (3j):



3j

Yield (80%); 27.1 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_D$ = +101.9 (c 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.97 (d, J = 8.5 Hz, 2H), 7.47 (d, J = 8.5 Hz, 2H), 7.40 (d, J = 7.5 Hz, 2H), 7.32 (t, J = 7.5 Hz, 2H), 7.23 (d, J = 7.1 Hz, 1H), 6.53 (d, J = 15.9 Hz, 1H), 6.22 (dd, J = 15.9, 9.3 Hz, 1H), 2.80 (dq, J = 13.7, 6.8 Hz, 1H), 1.50 (s, 3H), 1.04 (d, J = 6.8 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 180.5, 159.3, 139.0, 136.8, 132.9, 129.3, 129.2, 129.0, 128.5, 127.5, 126.3, 124.3, 72.5, 45.0, 22.6, 15.8. HRMS (ESI+) Calcd. For $C_{20}H_{19}ClNO_2$ ($[M+H]^+$): 340.1099, found: 340.1104. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AD-H, *i*-propanol/hexane = 2/98, flow rate 1.0 mL/min, λ = 254 nm); t_r = 5.11 and 5.81 min.

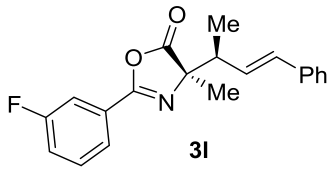
(*R*)-4-methyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)-2-(m-tolyl)oxazol-5(4H)-one (3k):



3k

Yield (78%); 24.9 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +87.2 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.88 (s, 1H), 7.86-7.77 (m, 1H), 7.40 (t, *J* = 7.1 Hz, 4H), 7.32 (t, *J* = 7.5 Hz, 2H), 7.22 (d, *J* = 7.3 Hz, 1H), 6.54 (d, *J* = 15.9 Hz, 1H), 6.25 (dd, *J* = 15.9, 9.3 Hz, 1H), 2.81 (dq, *J* = 13.8, 6.8 Hz, 1H), 2.43 (s, 3H), 1.50 (s, 3H), 1.05 (d, *J* = 6.8 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 181.0, 160.3, 138.7, 136.9, 133.5, 132.7, 129.3, 128.7, 128.5, 128.4, 127.5, 126.4, 125.7, 125.2, 72.3, 45.1, 22.7, 21.3, 15.8. HRMS (ESI+) Calcd. For $C_{21}H_{22}NO_2$ ($[M+H]^+$): 320.1645, found: 320.1634. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AD-H, *i*-propanol/hexane = 2/98, flow rate 1.0 mL/min, λ = 254 nm); t_r = 4.14 and 4.78 min.

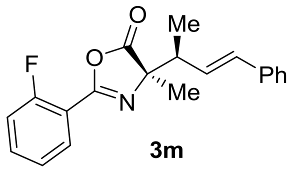
(*R*)-2-(3-fluorophenyl)-4-methyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)oxazol-5(4H)-one (3l):



3l

Yield (86%); 27.7 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +63.8 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.82 (d, *J* = 7.8 Hz, 1H), 7.75 (ddd, *J* = 9.2, 2.3, 1.6 Hz, 1H), 7.48 (td, *J* = 8.0, 5.6 Hz, 1H), 7.40 (d, *J* = 7.3 Hz, 2H), 7.35-7.26 (m, 3H), 7.23 (d, *J* = 7.3 Hz, 1H), 6.54 (d, *J* = 15.9 Hz, 1H), 6.23 (dd, *J* = 15.9, 9.3 Hz, 1H), 2.81 (dq, *J* = 13.7, 6.8 Hz, 1H), 1.50 (s, 3H), 1.05 (d, *J* = 6.8 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 180.5, 162.7 (d, *J* = 246.1 Hz), 159.1, 136.8, 132.9, 130.5 (d, *J* = 8.0 Hz), 129.0, 128.5, 127.9 (d, *J* = 8.4 Hz), 127.5, 126.3, 123.7 (d, *J* = 3.1 Hz), 119.7 (d, *J* = 21.3 Hz), 114.9 (d, *J* = 24.0 Hz), 72.6, 45.0, 22.6, 15.8. ^{19}F NMR (376 MHz, $CDCl_3$) δ -111.43; HRMS (ESI+) Calcd. For $C_{20}H_{19}FNO_2$ ($[M+H]^+$): 324.1394, found: 324.1388. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AD-H, *i*-propanol/hexane = 3/97, flow rate 1.0 mL/min, λ = 254 nm); t_r = 4.54 and 4.95 min.

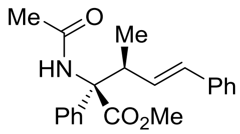
(*R*)-2-(2-fluorophenyl)-4-methyl-4-((*S*,*E*)-4-phenylbut-3-en-2-yl)oxazol-5(4H)-one (3m):



3m

Yield (75%); 24.2 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 20/1); $[\alpha]^{28}_{D}$ = +78.6 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.94-7.90 (m, 1H), 7.61-7.50 (m, 1H), 7.39 (d, *J* = 7.3 Hz, 2H), 7.31 (t, *J* = 7.6 Hz, 3H), 7.25-7.19 (m, 2H), 6.54 (d, *J* = 15.9 Hz, 1H), 6.22 (dd, *J* = 15.9, 9.3 Hz, 1H), 2.85-2.81 (m, 1H), 1.53 (s, 3H), 1.09 (d, *J* = 6.8 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 180.3, 161.5 (d, *J* = 258.8 Hz), 157.0 (d, *J* = 5.3 Hz), 136.8, 134.2 (d, *J* = 8.8 Hz), 132.9, 130.6, 128.9, 128.4, 127.5, 126.3, 124.3 (d, *J* = 3.8 Hz), 117.1 (d, *J* = 21.3 Hz), 114.4 (d, *J* = 10.0 Hz), 72.1, 44.9, 22.4, 15.6. ^{19}F NMR (376 MHz, $CDCl_3$) δ -108.51; HRMS (ESI+) Calcd. For $C_{20}H_{19}FNO_2$ ($[M+H]^+$): 324.1394, found: 324.1383. The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralpak AD-H, *i*-propanol/hexane = 2/98, flow rate 1.0 mL/min, λ = 254 nm); t_r = 5.20 and 6.16 min.

Methyl (2*R*,3*S*,*E*)-2-acetamido-3-methyl-2,5-diphenylpent-4-enoate (3n):

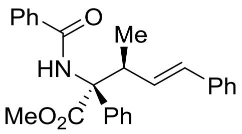


3n

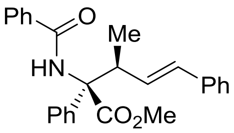
Yield (70%); 23.6 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -3.6 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) ^1H NMR (400 MHz, $CDCl_3$) δ 7.47 (dd, *J* = 5.3, 3.4 Hz, 2H), 7.37-7.31 (m, 2H), 7.31-7.27 (m, 5H), 7.24-7.19 (m, 1H), 6.48-6.44 (m, 2H), 6.03 (dd, *J* = 15.9, 8.2 Hz, 1H), 3.77 (s, 3H), 3.80-3.67 (m, 1H), 2.01 (s, 3H), 1.15 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 172.2, 169.1, 137.8, 137.1, 131.8, 130.3, 128.5, 128.0, 127.6, 127.4, 127.2, 126.3, 68.5, 52.7, 43.1, 23.8, 16.2. HRMS (ESI+) Calcd. For $C_{21}H_{24}NO_3$ ($[M+H]^+$):

338.1751, found: 338.1743. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AS-H, *i*-propanol/hexane = 5/95, flow rate 1.0 mL/min, λ = 254 nm); t_r = 17.76 and 25.21 min.

Methyl (2*S*,3*S*,*E*)-2-benzamido-3-methyl-2,5-diphenylpent-4-enoate (3o) and Methyl (2*R*,3*S*,*E*)-2-benzamido-3-methyl-2,5-diphenylpent-4-enoate (3o'):



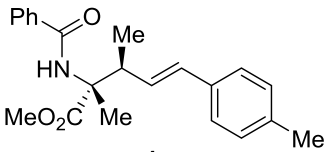
3o



3o'

Yield (85%); 33.9 mg; **3o**:**3o'** = 1.25:1, colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -2.2 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.81-7.76 (m, 2H), 7.58-7.48 (m, 3H), 7.47-7.41 (m, 2H), 7.39-7.26 (m, 7H), 7.24-7.17 (m, 1H), 6.57 (major) (d, *J* = 15.9 Hz, 0.55H), 6.52 (minor) (d, *J* = 15.9 Hz, 0.45H), 6.14 (minor) (dd, *J* = 15.9, 8.2 Hz, 0.45H), 6.02 (major) (dd, *J* = 15.9, 8.8 Hz, 0.55H), 3.81-3.76 (m, 1H), 3.80 (minor) (s, 1.35H), 3.77 (major) (s, 1.65H), 1.23 (minor) (d, *J* = 6.9 Hz, 1.35H), 1.19 (major) (d, *J* = 6.9 Hz, 1.65H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 172.5, 172.3, 166.3, 166.0, 137.8, 137.1, 136.9, 136.5, 134.6, 134.4, 132.1, 132.0, 131.7, 131.6, 130.53, 130.50, 128.7, 128.6, 128.58, 128.5, 128.1, 128.0, 127.7, 127.63, 127.58, 127.4, 127.2, 126.98, 126.96, 126.3, 68.6, 68.4, 53.0, 52.9, 43.7, 43.4, 16.5, 16.2. HRMS (ESI+) Calcd. For $C_{26}H_{26}NO_3$ ($[M+H]^+$): 400.1907, found: 400.1902. The product was analyzed by HPLC to determine the enantiomeric excess: 87% ee (major); 84% ee (minor) (Chiralpak AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r (major) = 15.98 and 18.84 min; t_r (minor) = 24.36 and 27.60 min.

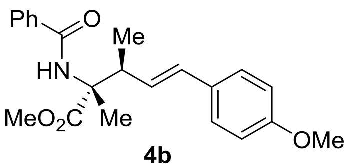
Methyl (2*R*,3*S*,*E*)-2-benzamido-2,3-dimethyl-5-(p-tolyl)pent-4-enoate (4a):



4a

Yield (82%); 28.8 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -71.9 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.71 (d, *J* = 7.3 Hz, 2H), 7.47 (t, *J* = 7.4 Hz, 1H), 7.38 (t, *J* = 7.5 Hz, 2H), 7.24 (s, 2H), 7.12 (d, *J* = 7.9 Hz, 2H), 6.82 (s, 1H), 6.49 (d, *J* = 15.8 Hz, 1H), 6.11 (dd, *J* = 15.8, 9.3 Hz, 1H), 3.78 (s, 3H), 2.99-2.92 (m, 1H), 2.33 (s, 3H), 1.79 (s, 3H), 1.21 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.3, 166.7, 137.5, 134.6, 134.0, 132.3, 131.5, 129.3, 129.0, 128.6, 126.9, 126.2, 62.5, 52.4, 45.3, 21.2, 20.7, 15.7. HRMS (ESI+) Calcd. For $C_{22}H_{26}NO_3$ ($[M+H]^+$): 352.1907, found: 352.1899. The product was analyzed by HPLC to determine the enantiomeric excess: 92% ee (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 7.97 and 8.58 min.

Methyl (2*R*,3*S*,*E*)-2-benzamido-5-(4-methoxyphenyl)-2,3-dimethylpent-4-enoate (4b):

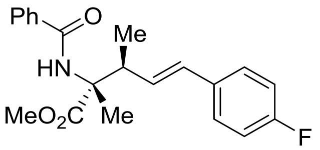


4b

Yield (90%); 33.0 mg; white solid; mp 120-122 ^{o}C; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -58.5 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.71 (d, *J* = 7.3 Hz, 2H), 7.47 (t, *J* = 7.3 Hz, 1H), 7.38 (t, *J* = 7.5 Hz, 2H), 7.30 (d, *J* = 8.6 Hz, 2H), 6.86-6.83 (m, 3H), 6.47 (d, *J* = 15.8 Hz, 1H), 6.02 (dd, *J* = 15.7, 9.3 Hz, 1H), 3.81 (s, 3H), 3.78 (s, 3H), 2.97-2.89 (m, 1H), 1.79 (s, 3H), 1.21 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.3, 166.7, 159.2, 134.6, 131.9, 131.5, 129.5, 128.6, 127.8, 127.5, 126.8, 114.0, 62.5, 55.3, 52.4, 45.3, 20.7, 15.8. HRMS (ESI+) Calcd. For $C_{22}H_{26}NO_4$ ($[M+H]^+$): 368.1856, found: 368.1848. The product was analyzed by HPLC to determine the enantiomeric excess: 97% ee

(Chiralpak AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 10.66 and 20.45 min.

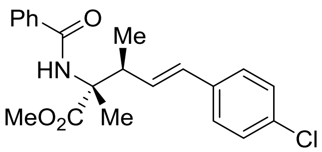
Methyl (2*R*,3*S*,*E*)-2-benzamido-5-(4-fluorophenyl)-2,3-dimethylpent-4-enoate (4c):



4c

Yield (82%); 29.1 mg; white solid; mp 94-96 °C; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -57.6 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.74-7.68 (m, 2H), 7.47 (dd, *J* = 8.4, 6.4 Hz, 1H), 7.38 (t, *J* = 7.5 Hz, 2H), 7.34-7.28 (m, 2H), 6.99 (t, *J* = 8.4 Hz, 2H), 6.87 (s, 1H), 6.47 (d, *J* = 15.8 Hz, 1H), 6.09 (dd, *J* = 15.8, 9.3 Hz, 1H), 3.78 (s, 3H), 3.04-2.96 (m, 1H), 1.80 (s, 3H), 1.21 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.4, 166.7, 162.2 (d, *J* = 245.3 Hz), 134.6, 132.9, 131.5, 131.1, 129.9 (d, *J* = 2.1 Hz), 128.5, 127.8 (d, *J* = 8.0 Hz), 126.8, 115.4 (d, *J* = 21.5 Hz), 62.7, 52.5, 45.0, 20.5, 15.7. ^{19}F NMR (376 MHz, $CDCl_3$) δ -114.41; HRMS (ESI+) Calcd. For $C_{21}H_{23}FNO_3$ ($[M+H]^+$): 356.1656, found: 356.1648. The product was analyzed by HPLC to determine the enantiomeric excess: 96% ee (Chiralpak ID-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 16.29 and 19.33 min.

Methyl (2*R*,3*S*,*E*)-2-benzamido-5-(4-chlorophenyl)-2,3-dimethylpent-4-enoate (4d):

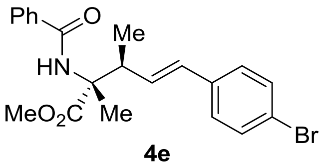


4d

Yield (71%); 26.3 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -71.4 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.75-7.68 (m, 2H), 7.50-7.44 (m, 1H), 7.38 (dd, *J* = 10.4, 4.7 Hz, 2H), 7.27 (d, *J* = 2.1

Hz, 4H), 6.86 (s, 1H), 6.45 (d, J = 15.8 Hz, 1H), 6.15 (dd, J = 15.8, 9.2 Hz, 1H), 3.79 (s, 3H), 3.07-2.99 (m, 1H), 1.80 (s, 3H), 1.21 (d, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.4, 166.7, 135.3, 134.6, 133.2, 131.6, 131.0, 130.9, 128.7, 128.6, 127.5, 126.8, 62.7, 52.5, 45.0, 20.5, 15.6. HRMS (ESI+) Calcd. For $C_{21}H_{23}ClNO_3$ ($[M+H]^+$): 372.1361, found: 356.1348. The product was analyzed by HPLC to determine the enantiomeric excess: 96% ee (Chiralpak AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 7.73 and 13.40 min.

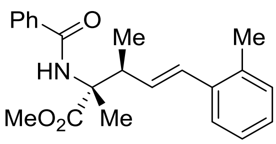
Methyl (2*R*,3*S*,*E*)-2-benzamido-5-(4-bromophenyl)-2,3-dimethylpent-4-enoate (4e):



4e

Yield (62%); 25.7 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -69.0 (c 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.70 (dd, J = 8.4, 7.0 Hz, 2H), 7.50-7.45 (m, 1H), 7.40 (dd, J = 15.6, 7.8 Hz, 4H), 7.21 (d, J = 8.5 Hz, 2H), 6.86 (s, 1H), 6.44 (d, J = 15.8 Hz, 1H), 6.17 (dd, J = 15.8, 9.2 Hz, 1H), 3.79 (s, 3H), 3.03 (dq, J = 14.0, 7.0 Hz, 1H), 1.80 (s, 3H), 1.21 (d, J = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.4, 166.7, 135.7, 134.6, 131.63, 131.56, 131.1, 131.0, 128.6, 127.8, 126.8, 121.3, 62.7, 52.5, 44.9, 20.5, 15.6. HRMS (ESI+) Calcd. For $C_{21}H_{23}BrNO_3$ ($[M+H]^+$): 416.0856, found: 416.0849. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak ID-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 17.58 and 19.11 min.

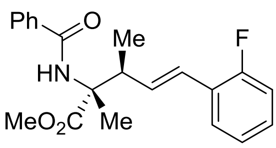
Methyl (2*R*,3*S*,*E*)-2-benzamido-2,3-dimethyl-5-(o-tolyl)pent-4-enoate (4f):



4f

Yield (50%); 17.5 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -57.3 (*c* 0.3, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.73 (d, *J* = 7.3 Hz, 2H), 7.47 (t, *J* = 7.3 Hz, 1H), 7.42-7.34 (m, 3H), 7.19-7.06 (m, 3H), 6.87 (s, 1H), 6.71 (d, *J* = 15.6 Hz, 1H), 6.01 (dd, *J* = 15.6, 9.4 Hz, 1H), 3.79 (s, 3H), 3.08-3.00 (m, 1H), 2.28 (s, 3H), 1.82 (s, 3H), 1.24 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.3, 166.6, 136.0, 135.1, 134.6, 131.7, 131.5, 130.4, 130.2, 128.6, 127.5, 126.8, 126.2, 126.0, 62.6, 52.5, 45.3, 20.6, 19.7, 15.8. HRMS (ESI+) Calcd. For $C_{22}H_{26}NO_3$ ($[M+H]^+$): 352.1907, found: 352.1898. The product was analyzed by HPLC to determine the enantiomeric excess: 97% ee (Chiralcel OD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 9.36 and 11.20 min.

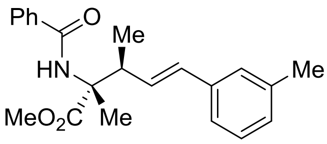
Methyl (2*R*,3*S*,*E*)-2-benzamido-5-(2-fluorophenyl)-2,3-dimethylpent-4-enoate (4g):



4g

Yield (74%); 26.2 mg; white solid; mp 90-92 °C; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -52.0 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.76-7.71 (m, 2H), 7.49-7.37 (m, 4H), 7.21 (tdd, *J* = 7.2, 5.2, 1.7 Hz, 1H), 7.11-6.99 (m, 2H), 6.85 (s, 1H), 6.68 (d, *J* = 16.0 Hz, 1H), 6.25 (dd, *J* = 15.9, 9.2 Hz, 1H), 3.79 (s, 3H), 3.06-2.98 (m, 1H), 1.80 (s, 3H), 1.23 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.3, 166.6, 160.0 (d, *J* = 247.2 Hz), 134.6, 132.9, 131.5, 128.6, 127.4 (d, *J* = 3.6 Hz), 126.9, 124.7 (d, *J* = 3.6 Hz), 124.2, 115.6 (d, *J* = 21.9 Hz), 62.5, 52.5, 45.5, 20.6, 15.5. ^{19}F NMR (376 MHz, $CDCl_3$) δ -118.56; HRMS (ESI+) Calcd. For $C_{21}H_{23}FNO_3$ ($[M+H]^+$): 356.1656, found: 356.1648. The product was analyzed by HPLC to determine the enantiomeric excess: 95% ee (Chiralpak AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 7.76 and 17.78 min.

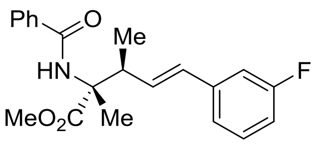
Methyl (2*R*,3*S*,*E*)-2-benzamido-2,3-dimethyl-5-(m-tolyl)pent-4-enoate (4h):



4h

Yield (85%); 29.8 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -66.8 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.72 (d, *J* = 7.4 Hz, 2H), 7.47 (t, *J* = 7.2 Hz, 1H), 7.38 (t, *J* = 7.6 Hz, 2H), 7.23-7.11 (m, 3H), 7.06 (d, *J* = 7.1 Hz, 1H), 6.83 (s, 1H), 6.49 (d, *J* = 15.8 Hz, 1H), 6.15 (dd, *J* = 15.8, 9.3 Hz, 1H), 3.79 (s, 3H), 3.01-2.93 (m, 1H), 2.34 (s, 3H), 1.80 (s, 3H), 1.22 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.3, 166.7, 138.1, 136.7, 134.6, 132.6, 131.5, 129.8, 128.54, 128.46, 128.4, 127.0, 127.0, 123.5, 62.5, 52.4, 45.2, 21.4, 20.6, 15.7. HRMS (ESI+) Calcd. For $C_{22}H_{26}NO_3$ ($[M+H]^+$): 352.1907, found: 352.1897. The product was analyzed by HPLC to determine the enantiomeric excess: 96% ee (Chiralpak AD-H, *i*-propanol/hexane = 5/95, flow rate 1.0 mL/min, λ = 254 nm); t_r = 13.22 and 14.68 min.

Methyl (2*R*,3*S*,*E*)-2-benzamido-5-(3-fluorophenyl)-2,3-dimethylpent-4-enoate (4i):

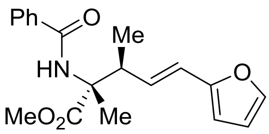


4i

Yield (84%); 29.8 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -65.8 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.76-7.67 (m, 2H), 7.51-7.44 (m, 1H), 7.39 (t, *J* = 7.5 Hz, 2H), 7.29-7.22 (m, 1H), 7.11 (d, *J* = 7.8 Hz, 1H), 7.05 (dd, *J* = 10.1, 2.1 Hz, 1H), 6.92 (td, *J* = 8.3, 2.0 Hz, 1H), 6.86 (s, 1H), 6.47 (d, *J* = 15.8 Hz, 1H), 6.18 (dd, *J* = 15.8, 9.2 Hz, 1H), 3.80 (s, 3H), 3.09-3.02 (m, 1H), 1.80 (s, 3H), 1.22 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.4, 166.7, 163.0 (d, *J* = 243.9 Hz), 139.1 (d, *J* = 7.7 Hz), 134.6, 131.6 (d, *J* = 8.0 Hz), 131.2 (d, *J* = 2.5 Hz), 130.0 (d, *J* = 8.4 Hz), 128.6, 126.8, 122.1 (d, *J* = 2.7 Hz), 114.3 (d, *J* = 21.4 Hz), 112.7 (d, *J* = 21.6 Hz), 62.7, 52.6, 44.8, 20.5, 15.6. ^{19}F NMR

(376 MHz, $CDCl_3$) δ -113.45; HRMS (ESI+) Calcd. For $C_{21}H_{23}FNO_3$ ($[M+H]^+$): 356.1656, found: 356.1645. The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralpak AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 7.87 and 13.54 min.

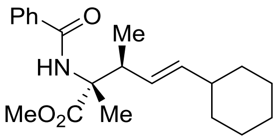
Methyl (2*R*,3*S*,*E*)-2-benzamido-5-(furan-2-yl)-2,3-dimethylpent-4-enoate (4j):



4j

Yield (86%); 28.1 mg; yellow oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -82.8 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.77-7.69 (m, 2H), 7.53-7.44 (m, 1H), 7.40 (t, *J* = 7.5 Hz, 2H), 7.33 (d, *J* = 1.3 Hz, 1H), 6.81 (s, 1H), 6.36-6.29 (m, 2H), 6.20 (d, *J* = 3.2 Hz, 1H), 6.10 (dd, *J* = 15.8, 9.1 Hz, 1H), 3.78 (s, 3H), 3.02-2.98 (m, 1H), 1.78 (s, 3H), 1.21 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.3, 166.7, 152.1, 141.9, 134.7, 131.4, 128.5, 128.4, 126.8, 120.7, 111.1, 107.6, 62.7, 52.4, 44.5, 20.5, 15.6. HRMS (ESI+) Calcd. For $C_{19}H_{22}NO_4$ ($[M+H]^+$): 328.1534, found: 328.1543. The product was analyzed by HPLC to determine the enantiomeric excess: 97% ee (Chiralpak AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 10.00 and 21.11 min.

Methyl (2*R*,3*S*,*E*)-2-benzamido-5-cyclohexyl-2,3-dimethylpent-4-enoate (4k):

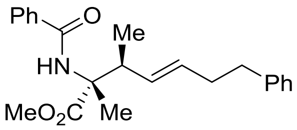


4k

Yield (55%); 28.1 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -15.2 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.75 (d, *J* = 7.3 Hz, 2H), 7.50 (d, *J* = 7.3 Hz, 1H), 7.42 (t, *J* = 7.5 Hz, 2H), 6.76 (s, 1H), 5.55 (dd, *J* = 15.4, 7.0 Hz, 1H), 5.35 (dd, *J* = 15.5, 9.1 Hz, 1H), 3.75 (s, 3H), 2.66-2.59

(m, 1H), 2.04-1.85 (m, 1H), 1.73 (s, 3H), 1.73-1.63 (m, 8H), 1.30-1.03 (m, 8H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.1, 166.5, 140.1, 134.6, 131.5, 128.5, 127.6, 126.9, 61.9, 52.2, 45.3, 40.7, 33.1, 33.0, 26.0, 25.9, 20.6, 15.7. HRMS (ESI+) Calcd. For $C_{21}H_{30}NO_3$ ($[M+H]^+$): 344.2220, found: 344.2212. The product was analyzed by HPLC to determine the enantiomeric excess: 86% ee (Chiralpak ID, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 230 nm); t_r = 11.25 and 19.41 min.

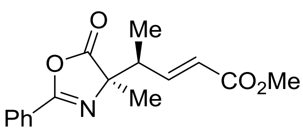
Methyl (2*R*,3*S*,*E*)-2-benzamido-2,3-dimethyl-7-phenylhept-4-enoate (4l):



4l

Yield (78%); 28.4 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_D$ = -13.1 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.76-7.69 (m, 2H), 7.50 (t, *J* = 7.3 Hz, 1H), 7.42 (t, *J* = 7.4 Hz, 2H), 7.29-7.22 (m, 2H), 7.16 (dd, *J* = 12.7, 7.2 Hz, 3H), 6.72 (s, 1H), 5.67-5.60 (m, 1H), 5.43 (dd, *J* = 15.3, 9.1 Hz, 1H), 3.74 (s, 3H), 2.75-2.62 (m, 3H), 2.38-2.35 (m, 2H), 1.71 (s, 3H), 1.08 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.2, 166.6, 141.5, 134.6, 132.9, 131.5, 130.8, 128.5, 128.33, 128.29, 126.8, 125.9, 62.0, 52.2, 45.0, 35.8, 34.2, 20.6, 15.7. HRMS (ESI+) Calcd. For $C_{23}H_{28}NO_3$ ($[M+H]^+$): 366.2064, found: 366.2055. The product was analyzed by HPLC to determine the enantiomeric excess: 93% ee (Chiralpak AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 210 nm); t_r = 7.99 and 9.27 min.

Methyl (*S*,*E*)-4-((*R*)-4-methyl-5-oxo-2-phenyl-4,5-dihydrooxazol-4-yl)pent-2-enoate (4m):

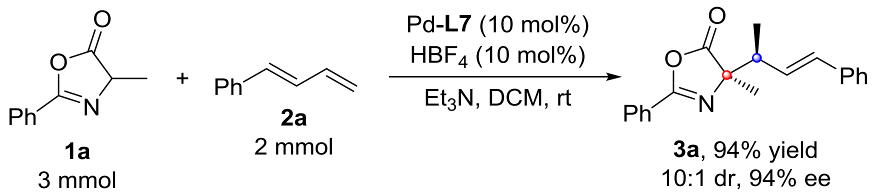


4m

Yield (82%); 23.5 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 10/1); $[\alpha]^{28}_{D}$ = +79.6 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 8.04-8.01 (m, 2H), 7.59-7.55 (m, 1H), 7.53-7.46 (m, 2H), 7.02 (dd, *J* = 15.7, 9.4 Hz, 1H), 5.98 (dd, *J* = 15.7, 0.7 Hz, 1H), 3.76 (s, 3H), 2.83-2.77 (m, 1H), 1.47 (s, 3H), 1.01 (d, *J* = 6.8 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 180.2, 166.4, 160.5, 147.4, 132.8, 128.8, 128.0, 125.6, 123.6, 71.6, 51.6, 43.8, 22.6, 15.0. HRMS (ESI+) Calcd. For $C_{16}H_{18}NO_4$ ($[M+H]^+$): 288.1230, found: 288.1222. The product was analyzed by HPLC to determine the enantiomeric excess: 87% ee (Chiralpak AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 5.64 and 6.08 min.

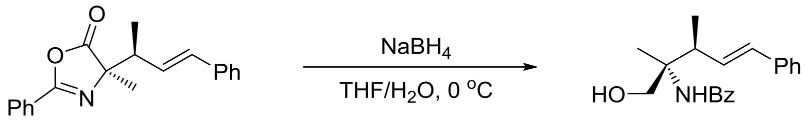
III. Synthetic Transformations

(1). Scale-up reaction



In an Ar-filled glovebox, to a vial equipped with a magnetic stirring rod was added successively: Pd-**L7** catalyst (0.2 mmol, 357 mg, 10 mol%), **1a** (3 mmol, 525 mg, 1.5 equiv.), CH_2Cl_2 (10 mL), **2a** (2 mmol, 260 mg, 1.0 equiv.), and lastly Et_3N (6 mmol, 606 mg, 3.0 equiv.). Then $HBF_4 \cdot Et_2O$ (0.2 mmol, 32.4 mg in 10 mL DCM) was added dropwise to the solution. Once starting material was consumed (monitored by TLC), the organic solvent was removed by rotary evaporation. The dr value was determined by ^1H NMR analysis of the crude mixture and the residue was purified by column chromatography (petroleum ether/ethyl acetate = 10/1) to give the product as a colorless oil (573 mg, 94%). The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralpak AD-H, *i*-propanol/hexane = 2/98, flow rate 1.0 mL/min, λ = 220 nm); t_r = 4.65 and 5.15 min.

(2). Reduction of 3a[4]

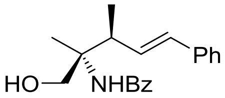


3a, 94% ee

5, 99% yield
>20:1 dr, 94% ee

To a solution of **3a** (0.2 mmol, 61 mg) in THF (1 mL) was added $NaBH_4$ (2 mmol, 10 equiv.) at 0 °C. Then, H_2O (1 mL) was added at the same temperature. The reaction mixture was allowed to stir at rt for 4 h. The solvent was removed by vacuo, and the residue was purified by column chromatography on silica column.

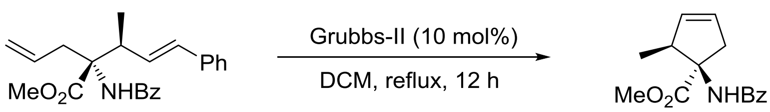
N-((2*R*,3*S*,*E*)-1-hydroxy-2,3-dimethyl-5-phenylpent-4-en-2-yl)benzamide (5):



5

Yield (99%); 61.8 mg; white solid; mp 110-112 °C; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 1/1); $[\alpha]^{28}_{D}$ = -75.3 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) δ 7.72 (dd, *J* = 5.2, 3.3 Hz, 2H), 7.53-7.47 (m, 1H), 7.45-7.35 (m, 4H), 7.31 (dd, *J* = 10.3, 4.7 Hz, 2H), 7.23 (ddd, *J* = 7.2, 3.8, 1.2 Hz, 1H), 6.58 (d, *J* = 16.0 Hz, 1H), 6.35-6.28 (m, 2H), 5.11 (s, 1H), 3.89 (d, *J* = 11.9 Hz, 1H), 3.77 (d, *J* = 11.9 Hz, 1H), 3.30-3.23 (m, 1H), 1.30 (s, 3H), 1.19 (d, *J* = 6.9 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 168.5, 137.2, 134.7, 131.72, 131.67, 130.6, 128.7, 128.5, 127.4, 126.8, 126.2, 68.4, 61.8, 40.5, 19.6, 14.0. HRMS (ESI+) Calcd. For $C_{20}H_{24}NO_2$ ($[M+H]^+$): 310.1802, found: 310.1796. The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralpak ID, *i*-propanol/hexane = 5/95, flow rate 1.0 mL/min, λ = 254 nm); t_r = 47.03 and 52.64 min.

(3) RCM reaction of 3e[5]

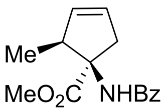


3e, 99% ee

6, 70% yield
>20:1 dr, 99% ee

A solution of **3e** (0.1 mmol, 36.3 mg) and Grubbs-II catalyst (0.01 mmol, 8.49 mg) in DCM (2 mL) was refluxed in oil bath under nitrogen for 12 h. The solvent was removed by vacuo, and the residue was purified by column chromatography on silica column.

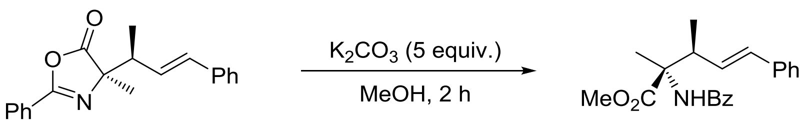
Methyl (1*R*,2*S*)-1-benzamido-2-methylcyclopent-3-ene-1-carboxylate (6):



6

Yield (70%); 18.1 mg; colourless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 3/1); $[\alpha]^{28}_{D}$ = -16.3 (*c* 1.0, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.80-7.75 (m, 2H), 7.54-7.49 (m, 1H), 7.47-7.40 (m, 2H), 6.66 (s, 1H), 5.70-5.63 (m, 2H), 3.75 (s, 3H), 3.47-3.34 (m, 1H), 3.29-3.24 (m, 1H), 2.83-2.77 (m, 1H), 1.15 (d, *J* = 7.3 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 174.0, 167.2, 134.0, 131.7, 128.6, 127.0, 126.9, 66.8, 52.7, 46.7, 43.6, 14.1. HRMS (ESI+) Calcd. For $C_{15}H_{18}NO_3$ ($[M+H]^+$): 260.1281, found: 260.1272. The product was analyzed by HPLC to determine the enantiomeric excess: 99% ee (Chiralpak AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 220 nm); t_r = 11.82 and 15.03 min.

(4) Alcoholysis of 3a

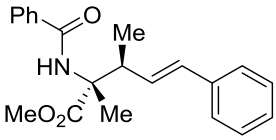


3a, 94% ee

7, 95% yield
>20:1 dr, 94% ee

MeOH (1 mL) and K_2CO_3 (0.5 mmol) were added to the solution of **3a** (0.1 mmol, 30.5 mg), then the mixture was stirred at room temperature for 2 h. The solvent was removed by vacuo, and the residue was purified by column chromatography on silica column.

Methyl (2*R*,3*S*,*E*)-2-benzamido-2,3-dimethyl-5-phenylpent-4-enoate (7):

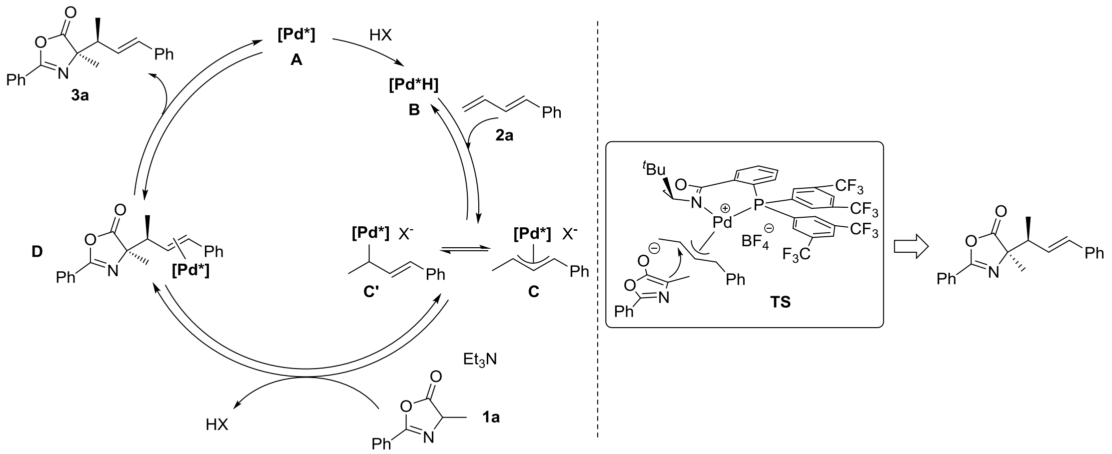


7

Yield (95%); 32.0 mg; colorless oil; (Flash column chromatography eluent, petroleum ether/ethyl acetate = 5/1); $[\alpha]^{28}_{D}$ = -65.4 (*c* 1.0, $CHCl_3$); ^1H NMR (400 MHz, $CDCl_3$) ^1H NMR (400 MHz, $CDCl_3$) δ 7.71 (dd, *J* = 5.2, 3.3 Hz, 2H), 7.48-7.43 (m, 1H), 7.41-7.33 (m, 4H), 7.33-7.28 (m, 2H), 7.26-7.20 (m, 1H), 6.86 (s, 1H), 6.52 (d, *J* = 15.8 Hz, 1H), 6.17 (dd, *J* = 15.8, 9.3 Hz, 1H), 3.78 (s, 3H), 3.03-2.96 (m, 1H), 1.80 (s, 3H), 1.22 (d, *J* = 7.0 Hz, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 173.3, 166.7, 136.7, 134.6, 132.4, 131.5, 130.1, 128.52, 128.50, 127.6, 126.8, 126.3, 62.5, 52.4, 45.1, 20.5, 15.6. HRMS (ESI+) Calcd. For $C_{21}H_{24}NO_3$ ($[M+H]^+$): 338.1751, found: 338.1739. The product was analyzed by HPLC to determine the enantiomeric excess: 94% ee (Chiralpak AS-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 254 nm); t_r = 8.32 and 17.15 min. The characterization data of compound **7** is in accordance with the reported data in the literature. [3]

IV. Proposed Catalytic Cycle

Based on the experimental observations and literature results,[6] a plausible reaction mechanism is proposed as follow. The chiral palladium complex **A** triggers the initial oxidative addition of Brønsted acid, affording hydrido-Pd(II) intermediate **B**, which undergoes migration insertion with **2a** to give a π-allyl-Pd complex **C**. In the presence of Et_3N, an intermolecular Tsuji-Trost allylation of intermediate **C** and azlactone proceeds to provide the final product **3a** with exclusive regioselectivity and high diastereo-/enantioselectivity and to regenerate the chiral palladium complex **A**, which was involved in the next catalytic cycle. The achieved high diastereoselectivity in this case can be ascribed to the substrate control, and similar phenomenon was also observed in previous Mo- or Ir-catalyzed asymmetric allylations of azlactones reported by Prof. Trost (*J. Am. Chem. Soc.* **2002**, *124*, 7256-7257) and Prof. Hartwig (*J. Am. Chem. Soc.* **2013**, *135*, 2068-2071), respectively. The stereochemical outcome of this reaction could be rationalized by the proposed transition state. Admittedly, the detailed mechanism of those asymmetric allylation reactions and the current Pd-catalyzed asymmetric hydroalkylation need to be further investigated.



Scheme S1. Proposed catalytic cycle and rationale of the stereochemical outcome.

V. Reference

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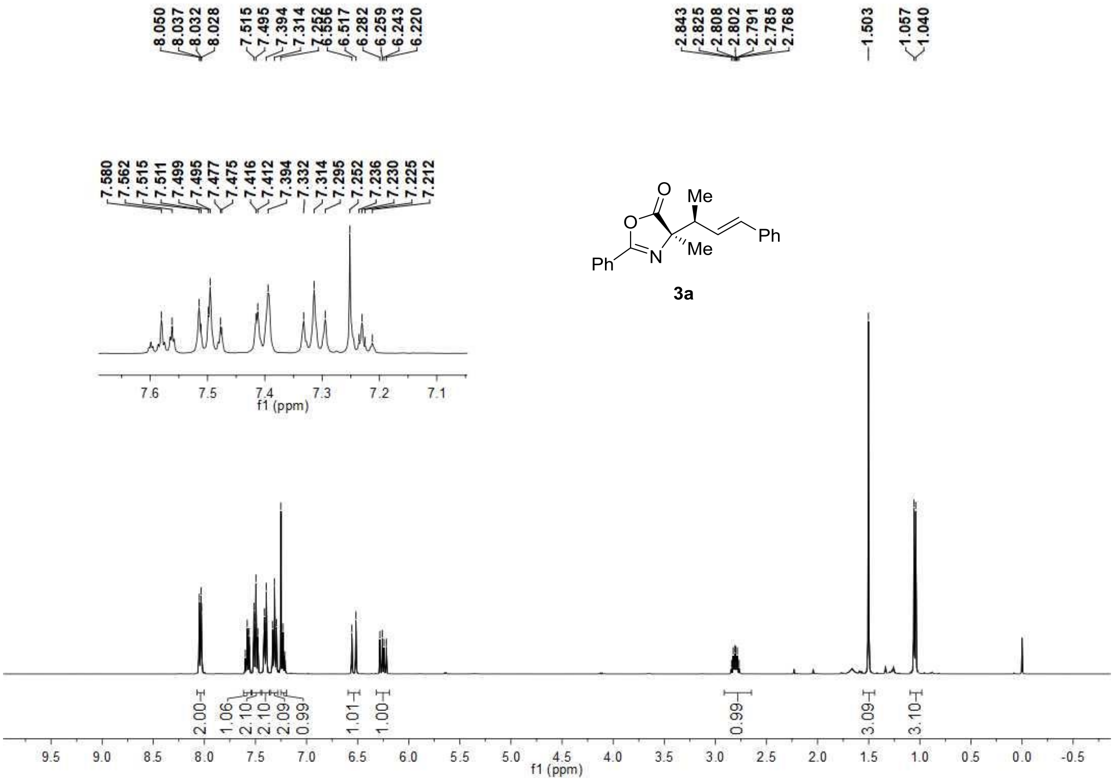
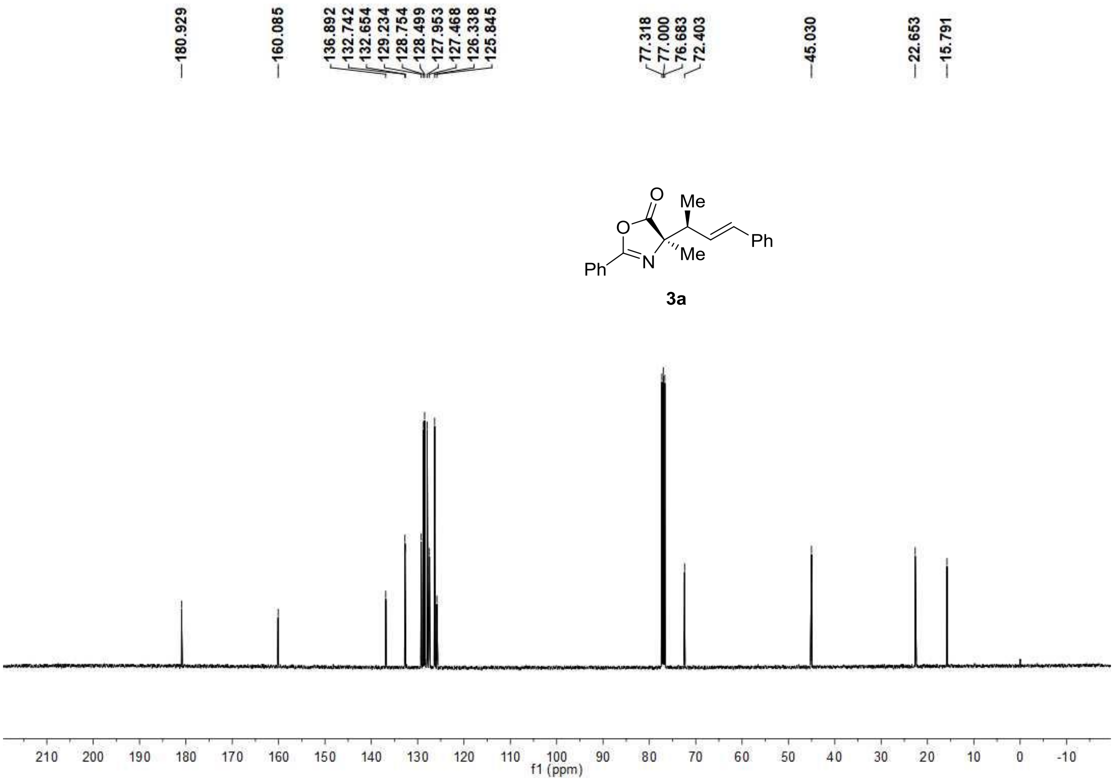
V. NMR and HPLC Spectra





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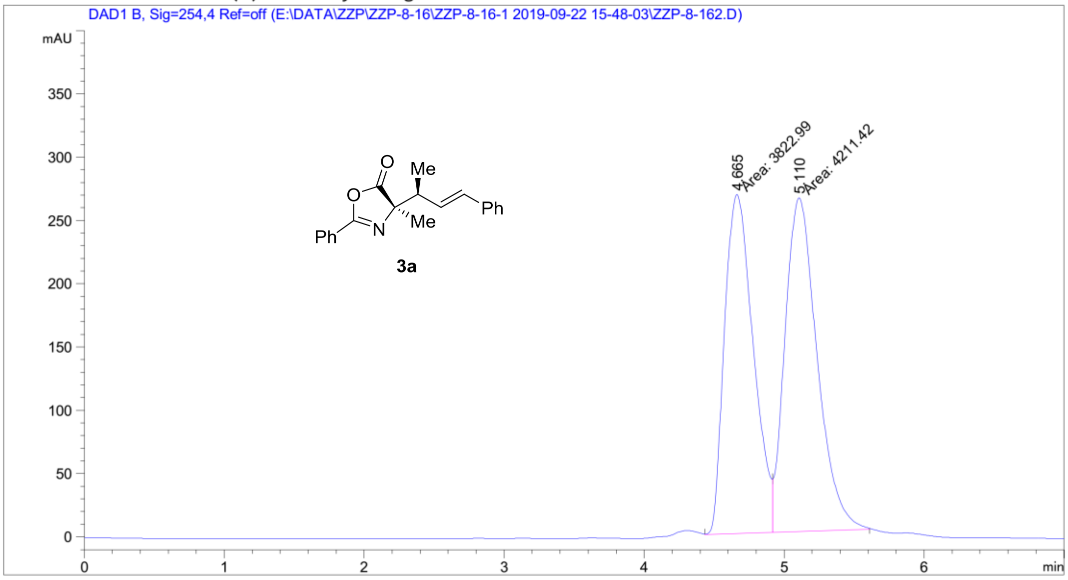

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Area Percent Report

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Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

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2	5.110	FM	0.2662	4211.41797	263.68408	52.4173

Totals : 8034.40698 531.41132

Data File E:\DATA\ZZP\ZZP-6-1\ZZP-6-1 2019-04-26 09-44-31\zzp-6-11.D
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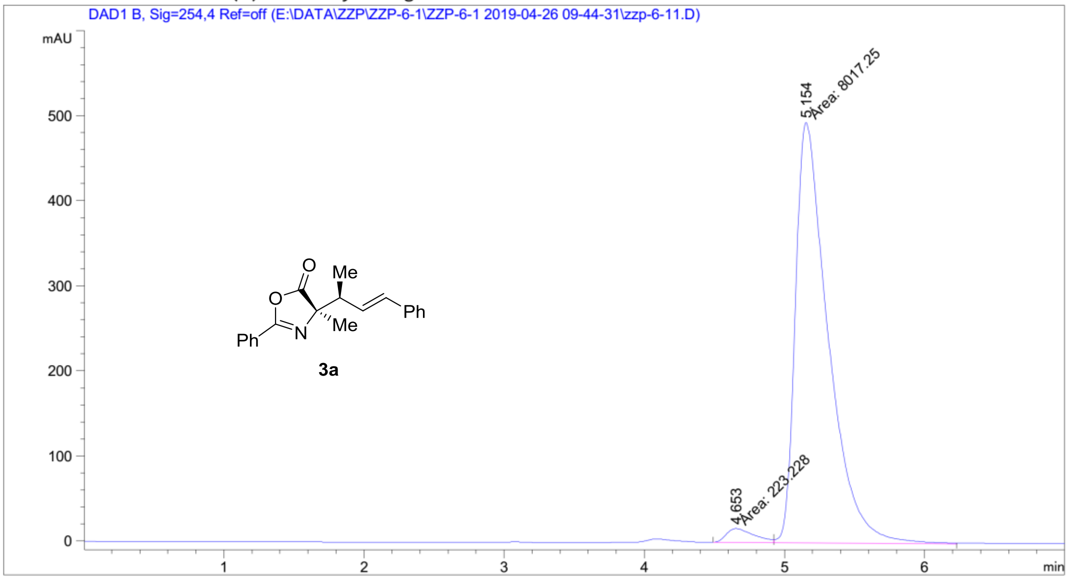

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Area Percent Report
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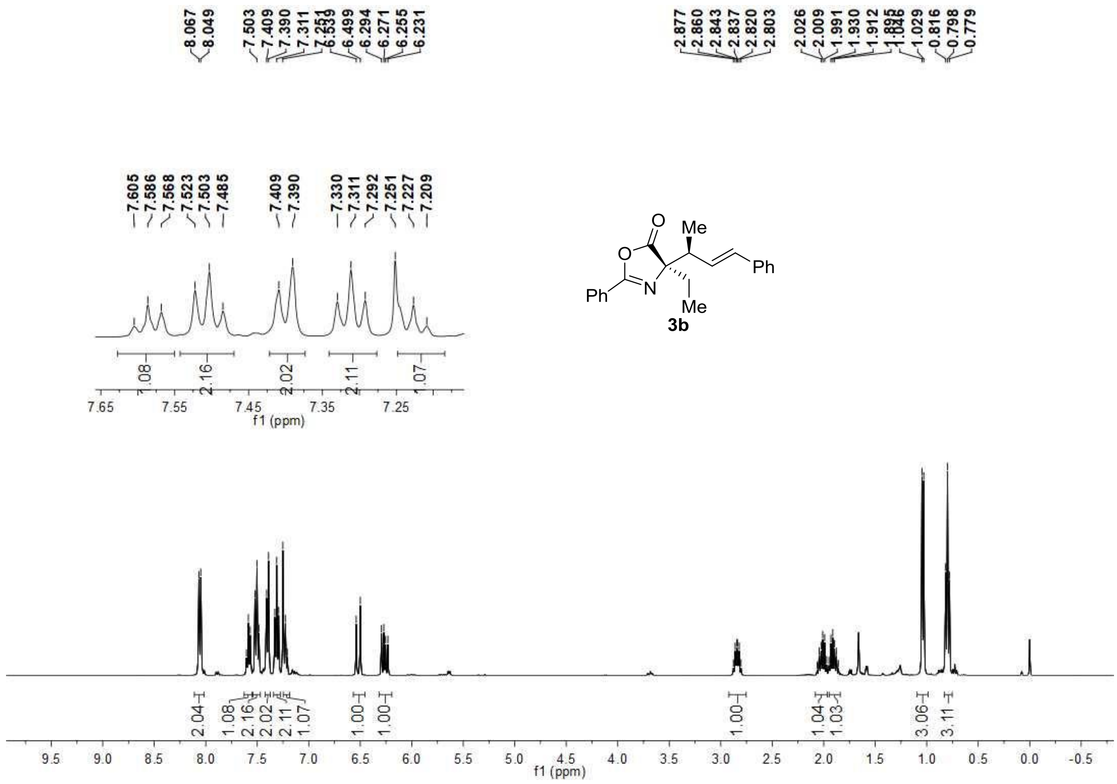
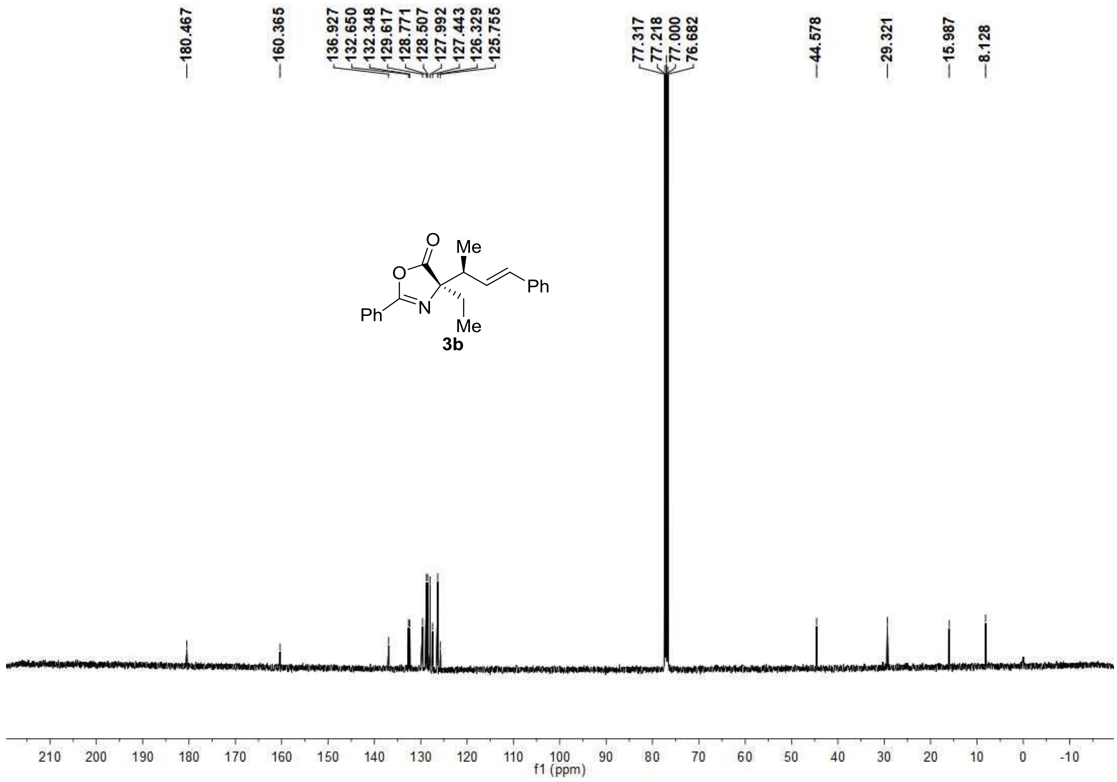
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.653	MF	0.2287	223.22818	16.26787	2.7089
2	5.154	FM	0.2705	8017.25293	494.06342	97.2911

Totals : 8240.48111 510.33129

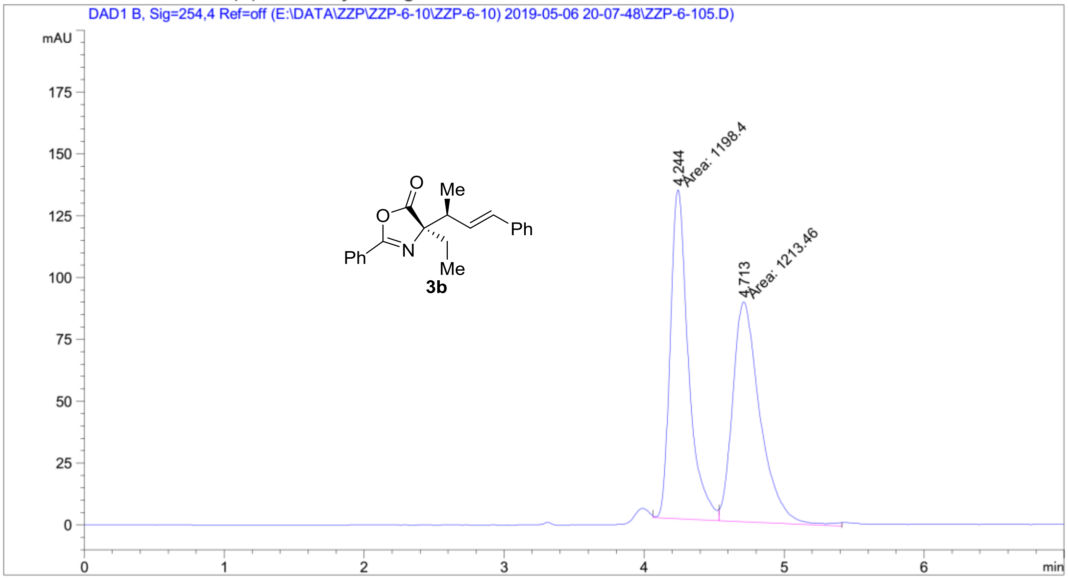

Me
Ph
O
O
N
Ph
Me
3b
f1 (ppm)
f1 (ppm)


Me
Ph
O
O
N
Ph
Me
3b
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-10\ZZP-6-10) 2019-05-06 20-07-48\ZZP-6-105.D
Sample Name: ZZP-6-8

===

Acq. Operator : SYSTEM Seq. Line : 6
Acq. Instrument : 1260 Location : 72
Injection Date : 5/6/2019 8:51:25 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-10\ZZP-6-10) 2019-05-06 20-07-48\ID-98-2,2UL,1.0ML,20MIN.M
Last changed : 5/6/2019 8:57:31 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-10\ZZP-6-10) 2019-05-06 20-07-48\ID-98-2,2UL,1.0ML,20MIN.M (Sequence Method)
Last changed : 9/10/2019 5:00:40 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

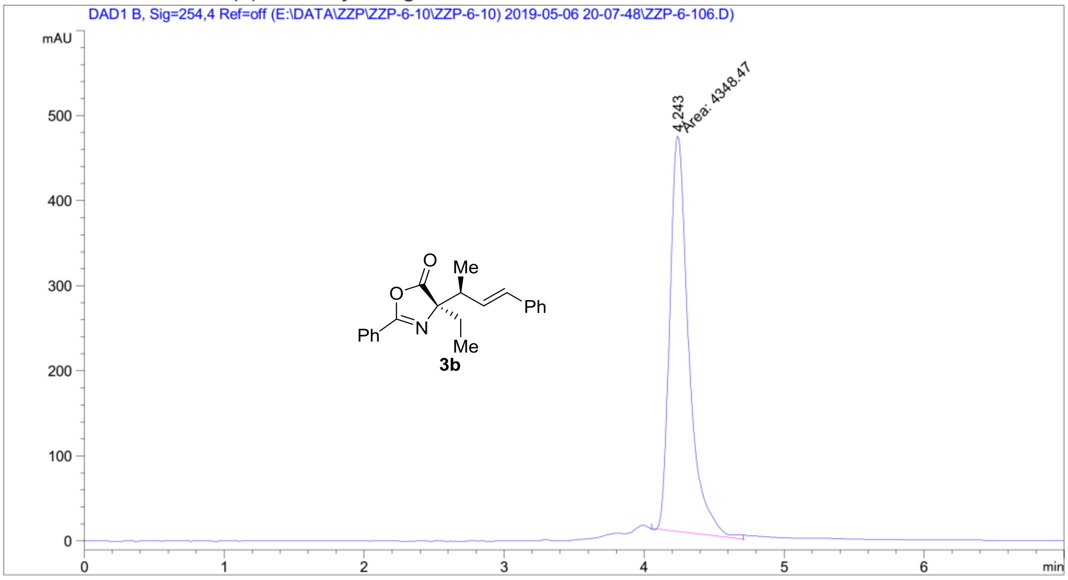
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.244	MF	0.1501	1198.40283	133.08110	49.6879
2	4.713	FM	0.2273	1213.45691	88.96022	50.3121

Totals : 2411.85974 222.04132

Data File E:\DATA\ZZP\ZZP-6-10\ZZP-6-10) 2019-05-06 20-07-48\ZZP-6-106.D
Sample Name: ZZP-6-10

===
Acq. Operator   : SYSTEM   Seq. Line :   7
Acq. Instrument : 1260   Location :   74
Injection Date : 5/6/2019 8:59:28 PM   Inj :   1
                                                Inj Volume : 3.000 µl
Acq. Method   : E:\DATA\ZZP\ZZP-6-10\ZZP-6-10) 2019-05-06 20-07-48\ID-98-2,3UL,1.0ML,10MIN.
                  M
Last changed   : 5/6/2019 8:21:51 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-6-10\ZZP-6-10) 2019-05-06 20-07-48\ID-98-2,3UL,1.0ML,10MIN.
                  M (Sequence Method)
Last changed   : 9/10/2019 5:03:45 PM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated



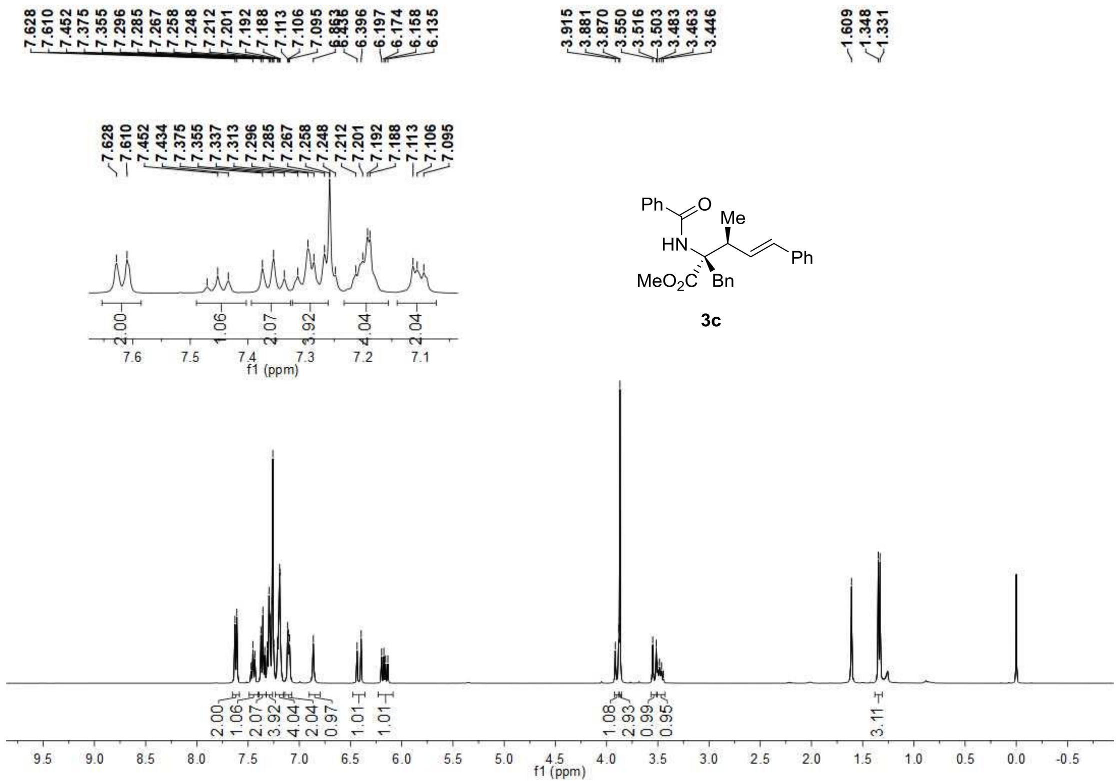
===
Area Percent Report
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

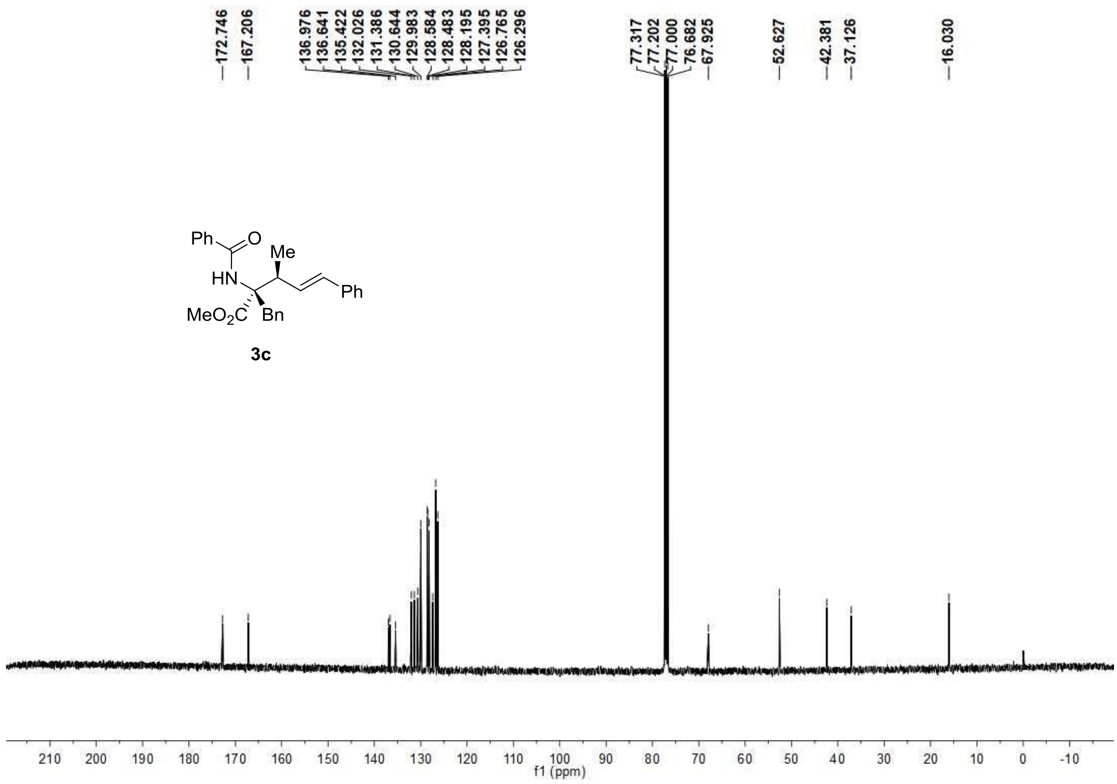
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.243	MM	0.1559	4348.47412	464.82629	100.0000

Totals : 4348.47412 464.82629



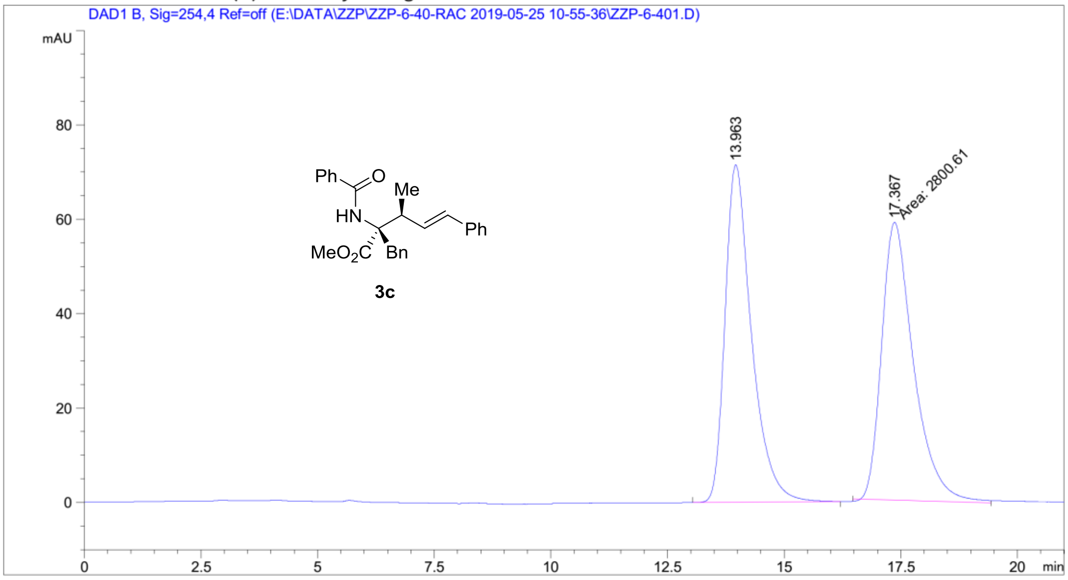
3c



3c

```
Data File E:\DATA\ZZP\ZZP-6-40-RAC 2019-05-25 10-55-36\ZZP-6-401.D
Sample Name: ZZP-6-40-RAC

=====================================================================
Acq. Operator   : SYSTEM                          Seq. Line :    2
Acq. Instrument : 1260                             Location :    41
Injection Date  : 5/25/2019 11:03:51 AM                 Inj :    1
                                                 Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-6-40-RAC 2019-05-25 10-55-36\AD,90-10,2UL,1ML,30MIN.M
Last changed    : 5/25/2019 11:24:04 AM by SYSTEM
                  (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-40-RAC 2019-05-25 10-55-36\AD,90-10,2UL,1ML,30MIN.M (
                  Sequence Method)
Last changed    : 9/10/2019 5:07:20 PM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
=====================================================================
                         Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 B, Sig=254,4 Ref=off
```

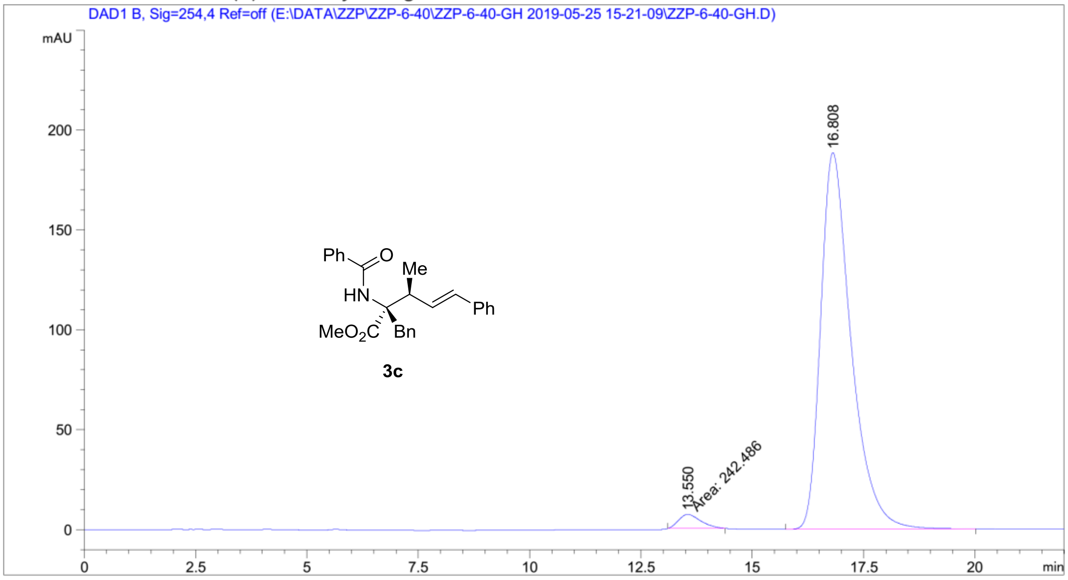
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	13.963	BB	0.5869	2825.18457	71.52072	50.2184
2	17.367	MM	0.7934	2800.61499	58.83350	49.7816

Totals : 5625.79956 130.35423

Data File E:\DATA\ZZP\ZZP-6-40\ZZP-6-40-GH 2019-05-25 15-21-09\ZZP-6-40-GH.D
Sample Name: ZZP-6-40-GH

===

Acq. Operator : SYSTEM Seq. Line : 1
Acq. Instrument : 1260 Location : 42
Injection Date : 5/25/2019 3:22:01 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-40\ZZP-6-40-GH 2019-05-25 15-21-09\AD,90-10,2UL,1ML,30MIN .M
Last changed : 5/25/2019 3:41:40 PM by SYSTEM (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-40\ZZP-6-40-GH 2019-05-25 15-21-09\AD,90-10,2UL,1ML,30MIN .M (Sequence Method)
Last changed : 9/10/2019 5:10:12 PM by SYSTEM (modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

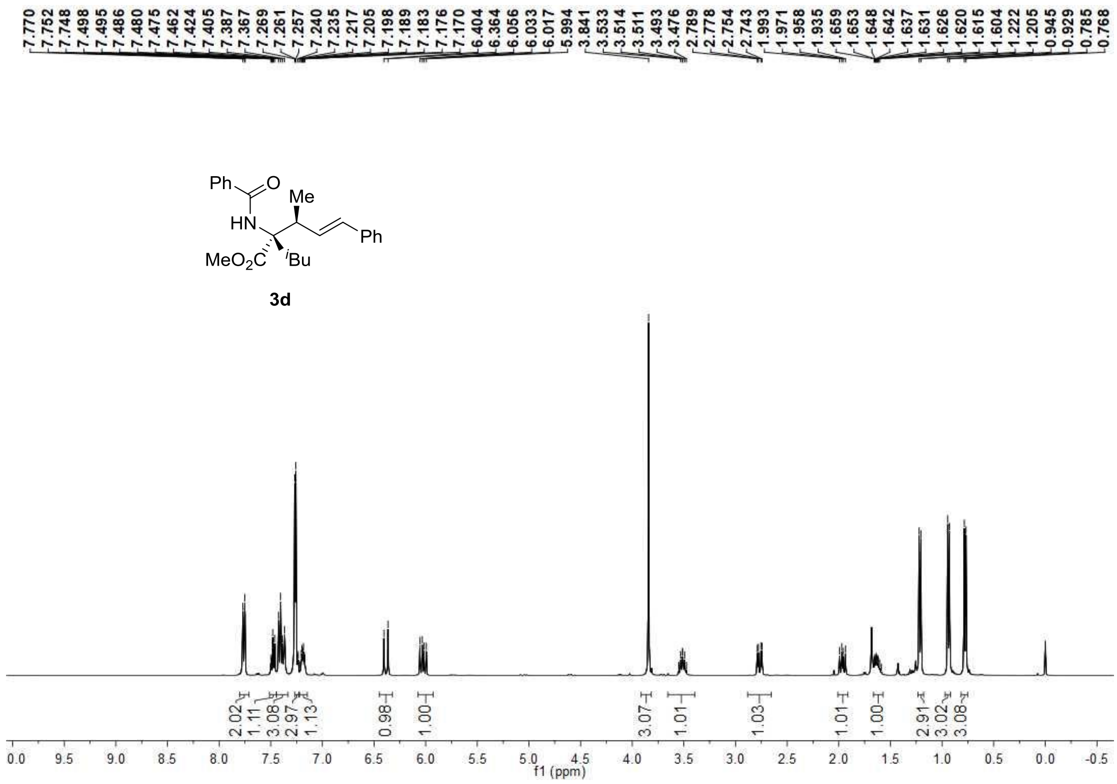
===

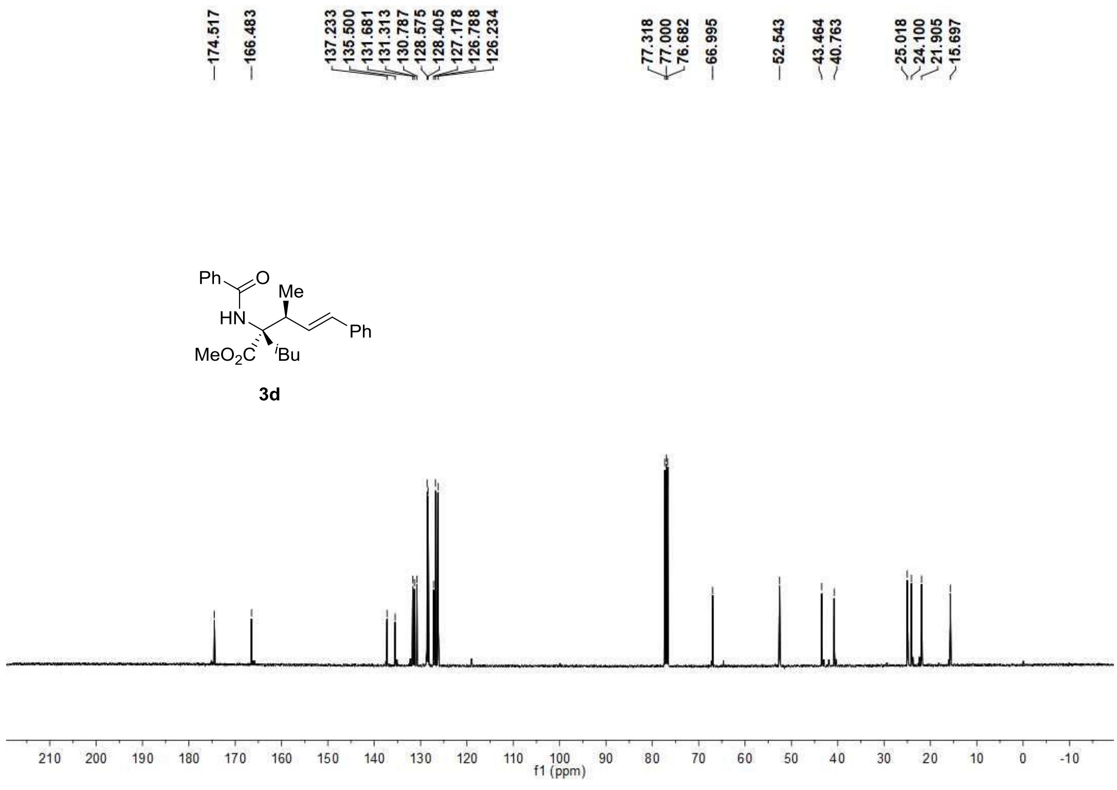
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	13.550	PP	0.5783	242.48613	6.98868	2.6410
2	16.808	BB	0.7094	8939.27051	188.44026	97.3590

Totals : 9181.75664 195.42894

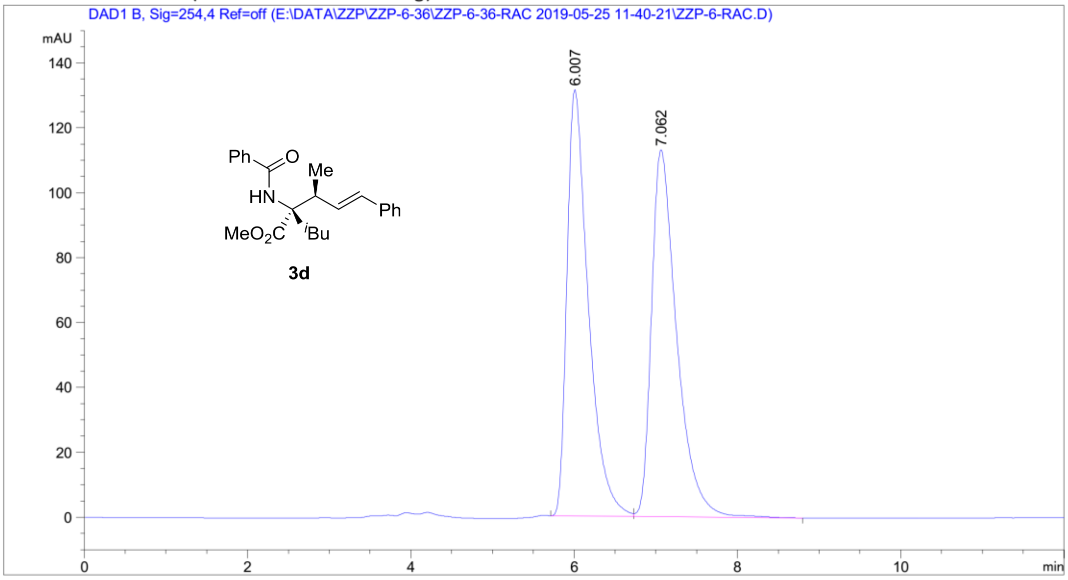




Data File E:\DATA\ZZP\ZZP-6-36\ZZP-6-36-RAC 2019-05-25 11-40-21\ZZP-6-RAC.D
Sample Name: ZZP-6-26

===

Acq. Operator : SYSTEM Seq. Line : 1
Acq. Instrument : 1260 Location : 72
Injection Date : 5/25/2019 11:41:16 AM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-36\ZZP-6-36-RAC 2019-05-25 11-40-21\AD,90-10,2UL,1ML,30MIN.M
Last changed : 5/25/2019 11:55:15 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-36\ZZP-6-36-RAC 2019-05-25 11-40-21\AD,90-10,2UL,1ML,30MIN.M (Sequence Method)
Last changed : 9/10/2019 5:19:46 PM by SYSTEM
(modified after loading)



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

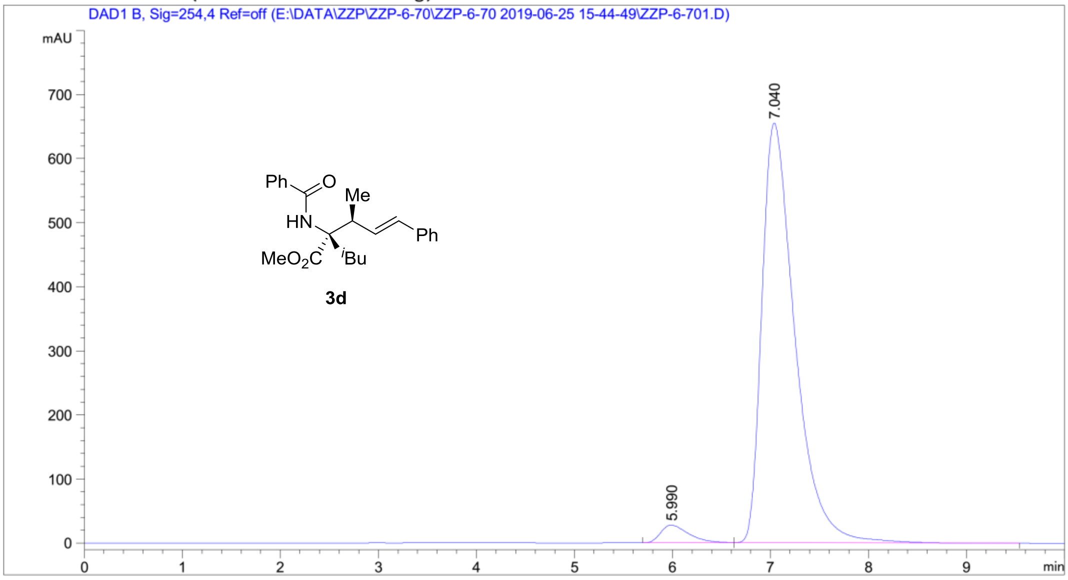
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.007	BV	0.2703	2392.03906	131.43437	49.6008
2	7.062	VB	0.3207	2430.54077	113.10798	50.3992

Totals : 4822.57983 244.54235

Data File E:\DATA\ZZP\ZZP-6-70\ZZP-6-70 2019-06-25 15-44-49\ZZP-6-701.D
Sample Name: ZZP-6-70

===
Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 81
Injection Date : 6/25/2019 3:56:58 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-70\ZZP-6-70 2019-06-25 15-44-49\AD,90-10,2UL,1ML,10MIN.M
Last changed : 6/25/2019 3:44:49 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-6-70\ZZP-6-70 2019-06-25 15-44-49\AD,90-10,2UL,1ML,10MIN.M
(Sequence Method)
Last changed : 9/10/2019 5:21:19 PM by SYSTEM
(modified after loading)



===
Area Percent Report
===

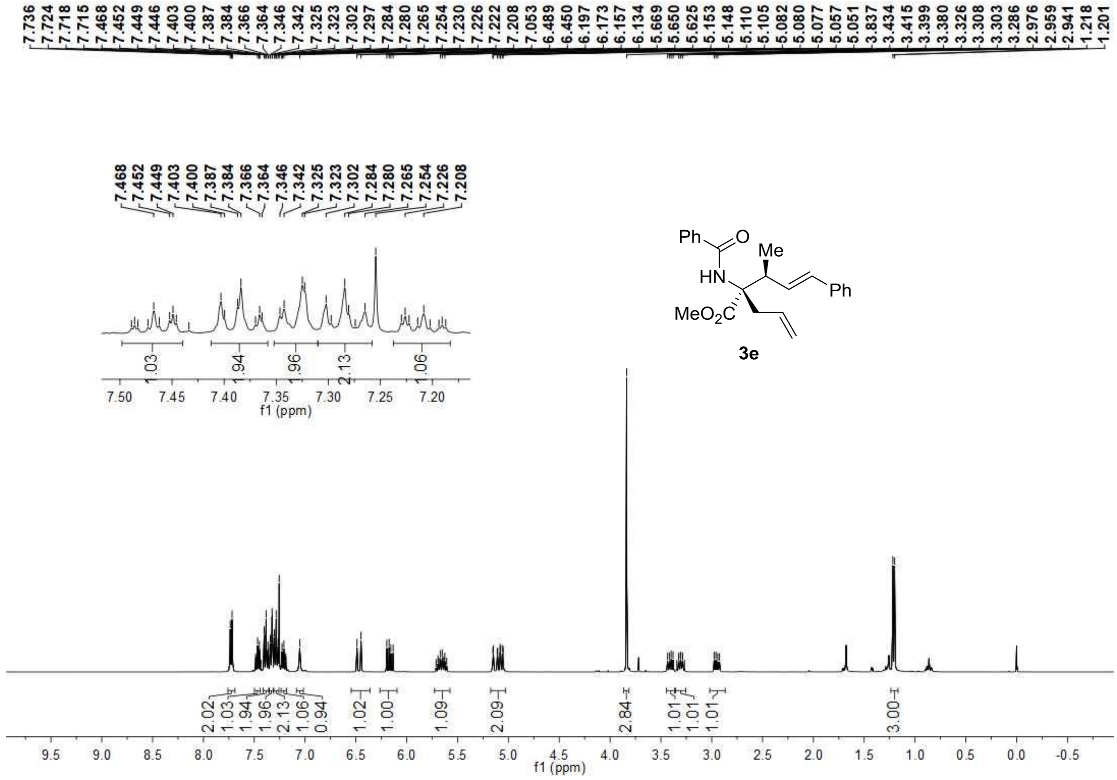
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

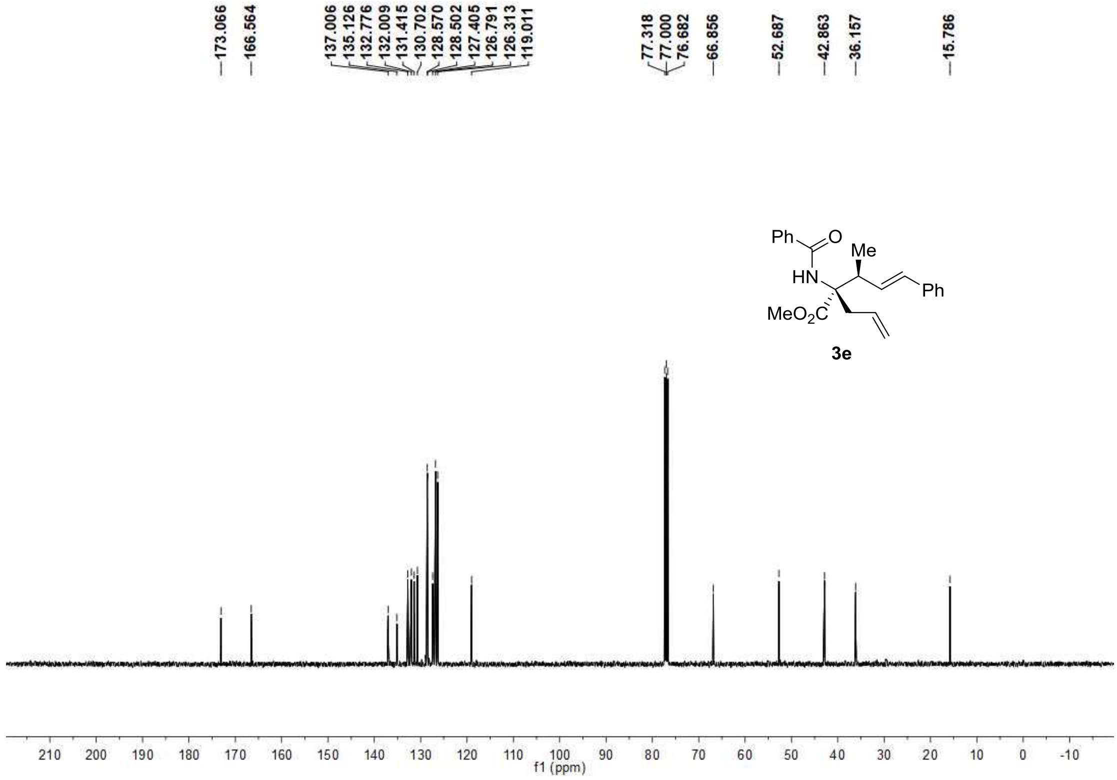
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.990	BV	0.3035	547.73846	27.60386	3.4401
2	7.040	VBA	0.3557	1.53745e4	655.31622	96.5599

Totals : 1.59223e4 682.92008

===

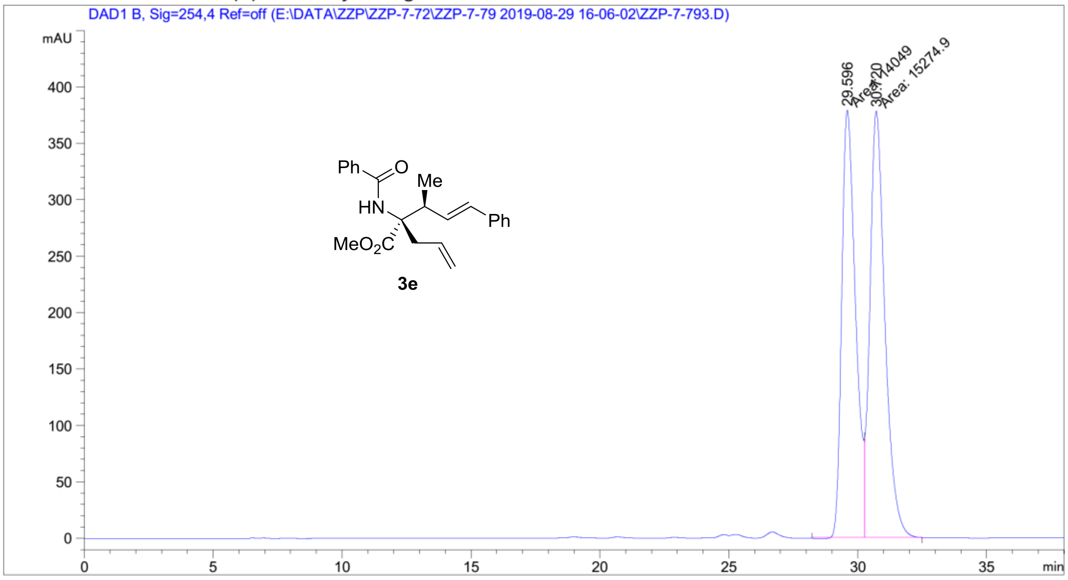

7.736 7.724 7.718 7.715 7.468 7.452 7.449 7.446 7.403 7.400 7.387 7.384 7.366 7.364 7.346 7.342 7.325 7.323 7.302 7.297 7.284 7.280 7.265 7.254 7.230 7.226 7.222 7.208 7.053 6.489 6.450 6.197 6.173 6.157 6.134 5.669 5.650 5.625 5.153 5.148 5.110 5.105 5.082 5.080 5.077 5.057 5.051 3.837 3.434 3.415 3.399 3.380 3.326 3.308 3.303 3.286 2.976 2.959 2.941 1.218 1.201
7.468 7.452 7.449 7.403 7.400 7.387 7.384 7.366 7.364 7.346 7.342 7.325 7.323 7.302 7.284 7.280 7.265 7.254 7.226 7.208
1.03 1.94 1.96 2.13 1.06
7.50 7.45 7.40 7.35 7.30 7.25 7.20
f1 (ppm)
Ph
O
Me
HN
Ph
MeO2C
3e
2.02 1.03 1.94 1.96 2.13 1.06 0.94 1.02 1.00 1.09 2.09 2.84 1.01 1.01 1.01 3.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)


173.066 166.564 137.006 135.126 132.776 132.009 131.415 130.702 128.570 128.502 127.405 126.791 126.313 119.011 77.318 77.000 76.682 66.856 52.687 42.863 36.157 15.786
Ph
O
Me
HN
Ph
MeO2C
3e
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-7-72\ZZP-7-79 2019-08-29 16-06-02\ZZP-7-793.D
Sample Name: ZZP-7-79-RAC

===

Acq. Operator : SYSTEM Seq. Line : 4
Acq. Instrument : 1260 Location : 43
Injection Date : 8/29/2019 5:06:35 PM Inj : 2
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-7-79\ZZP-7-79 2019-08-29 16-06-02\IE90-10,1ML,2UL,30MIN.M
Last changed : 8/29/2019 5:45:22 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-7-72\ZZP-7-79 2019-08-29 16-06-02\IE90-10,1ML,2UL,30MIN.M (
Sequence Method)
Last changed : 9/10/2019 5:26:13 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===
Area Percent Report
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

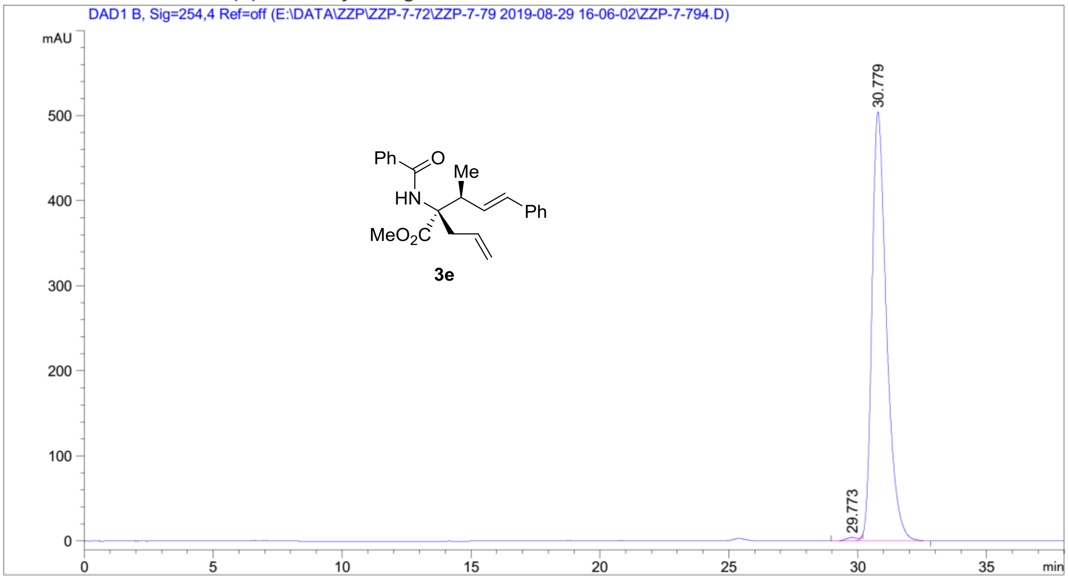
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	29.596	MF	0.6188	1.40490e4	378.40958	47.9097
2	30.720	FM	0.6741	1.52749e4	377.65997	52.0903

Totals : 2.93239e4 756.06955

Data File E:\DATA\ZZP\ZZP-7-72\ZZP-7-79 2019-08-29 16-06-02\ZZP-7-794.D
Sample Name: ZZP-7-79

===

Acq. Operator : SYSTEM   Seq. Line : 5
Acq. Instrument : 1260   Location : 44
Injection Date : 8/29/2019 5:46:16 PM   Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-7-79\ZZP-7-79 2019-08-29 16-06-02\IE90-10,1ML,2UL,30MIN.M
Last changed : 8/29/2019 5:45:42 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-7-72\ZZP-7-79 2019-08-29 16-06-02\IE90-10,1ML,2UL,30MIN.M (
Sequence Method)
Last changed : 9/10/2019 5:27:34 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

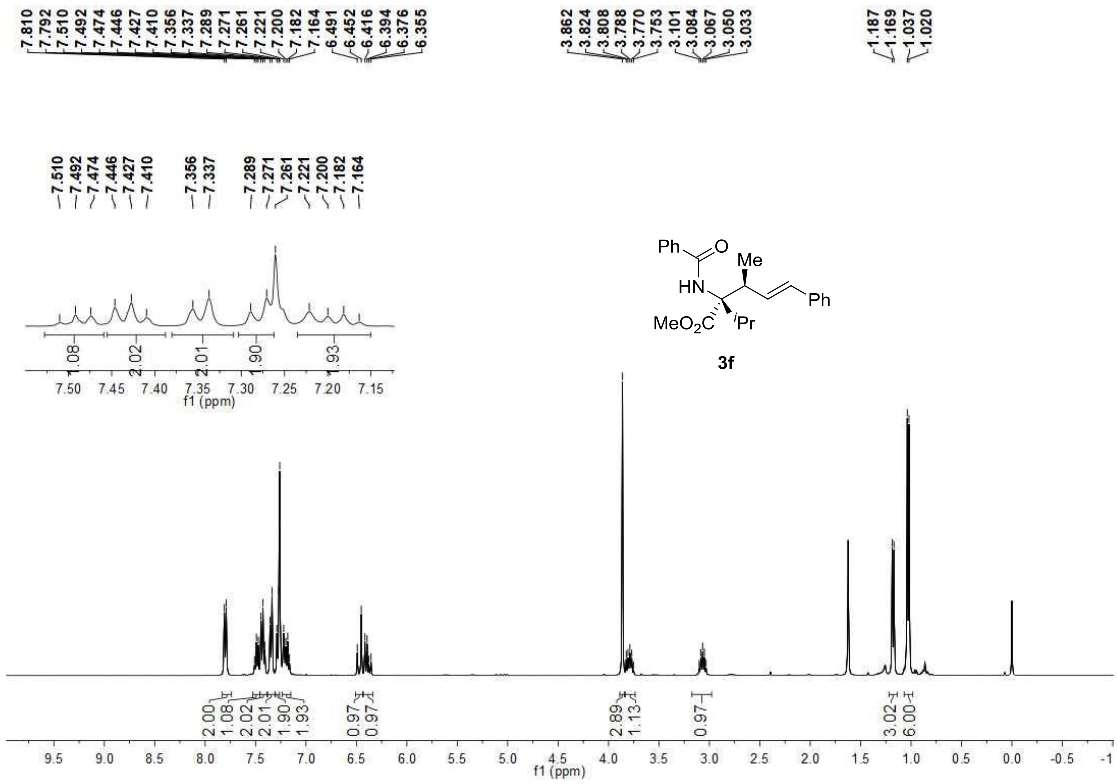
===

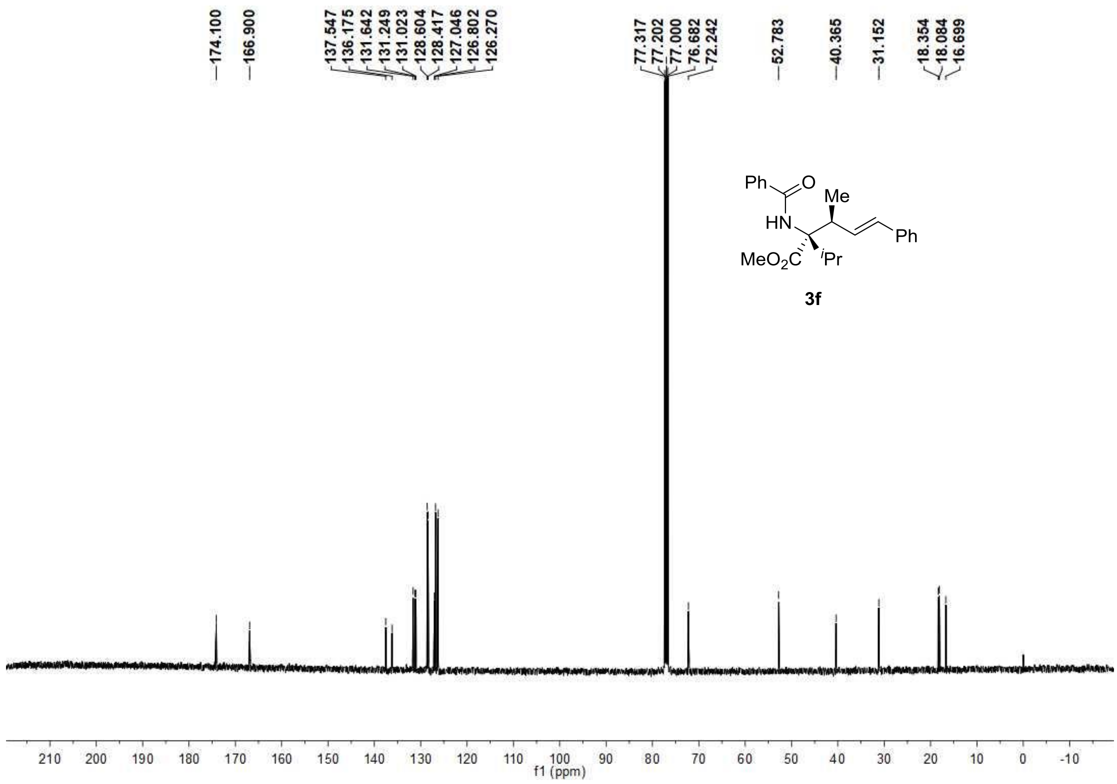
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	29.773	BV E	0.4401	121.78240	3.98937	0.6101
2	30.779	VB R	0.5931	1.98406e4	504.22745	99.3899

Totals : 1.99624e4 508.21681

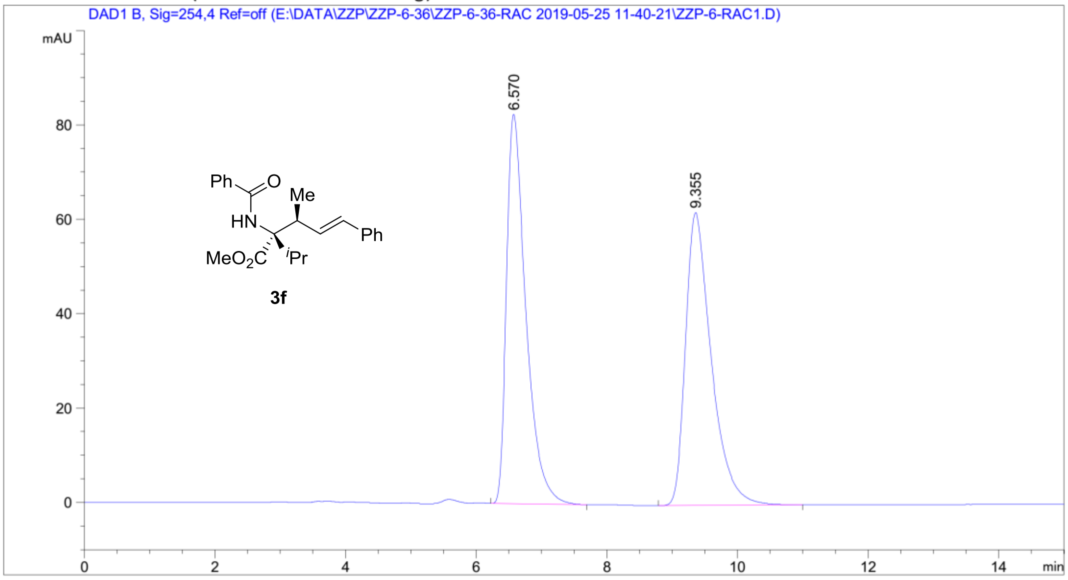

7.810
7.792
7.510
7.492
7.474
7.446
7.427
7.410
7.356
7.337
7.289
7.271
7.261
7.221
7.200
7.182
7.164
6.491
6.452
6.416
6.394
6.376
6.355
3.862
3.824
3.808
3.788
3.770
3.753
3.101
3.084
3.067
3.050
3.033
1.187
1.169
1.037
1.020
Ph
O
Me
HN
Ph
MeO_2C
^{i}Pr
3f
f1 (ppm)


174.100
166.900
137.547
136.175
131.642
131.249
131.023
128.604
128.417
127.046
126.802
126.270
77.317
77.202
77.000
76.682
72.242
52.783
40.365
31.152
18.354
18.084
16.699
Ph
O
Me
HN
Ph
MeO_2C
^{i}Pr
3f
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-36\ZZP-6-36-RAC 2019-05-25 11-40-21\ZZP-6-RAC1.D
Sample Name: ZZP-6-32

===

Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 73
Injection Date : 5/25/2019 11:56:08 AM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-36\ZZP-6-36-RAC 2019-05-25 11-40-21\AD,90-10,2UL,1ML,30MIN.M
Last changed : 5/25/2019 11:59:32 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-36\ZZP-6-36-RAC 2019-05-25 11-40-21\AD,90-10,2UL,1ML,30MIN.M (Sequence Method)
Last changed : 9/10/2019 5:29:58 PM by SYSTEM
(modified after loading)



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

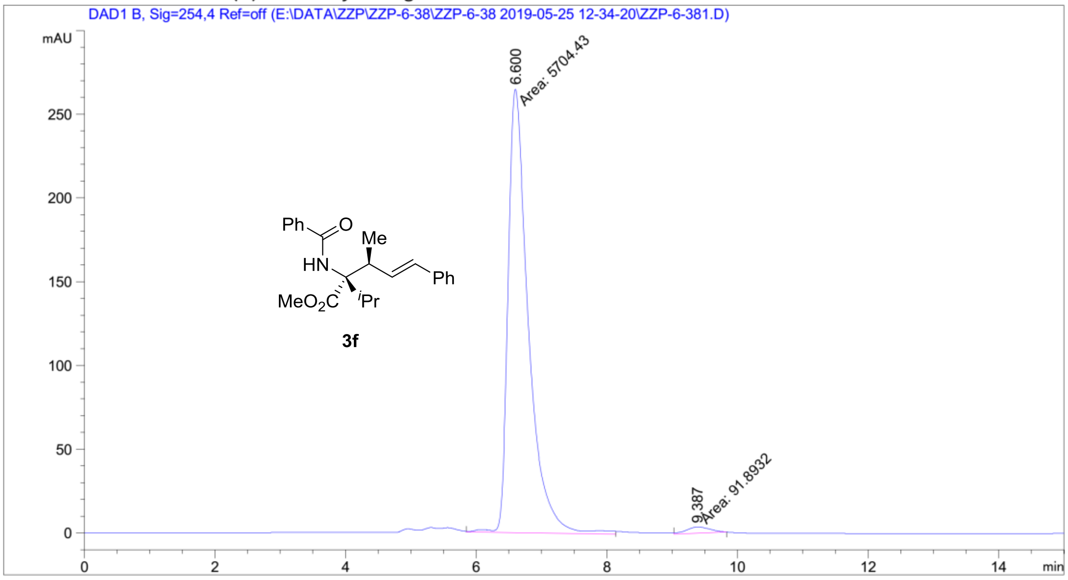
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.570	BB	0.3060	1698.43286	82.55064	49.9699
2	9.355	BB	0.4077	1700.48096	62.04781	50.0301

Totals : 3398.91382 144.59844

Data File E:\DATA\ZZP\ZZP-6-38\ZZP-6-38 2019-05-25 12-34-20\ZZP-6-381.D
Sample Name: ZZP-6-38-2

===

Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 62
Injection Date : 5/25/2019 12:45:54 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-38\ZZP-6-38 2019-05-25 12-34-20\AD,90-10,2UL,1ML,30MIN.M
Last changed : 5/25/2019 12:46:31 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-38\ZZP-6-38 2019-05-25 12-34-20\AD,90-10,2UL,1ML,30MIN.M
(Sequence Method)
Last changed : 9/10/2019 5:32:50 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

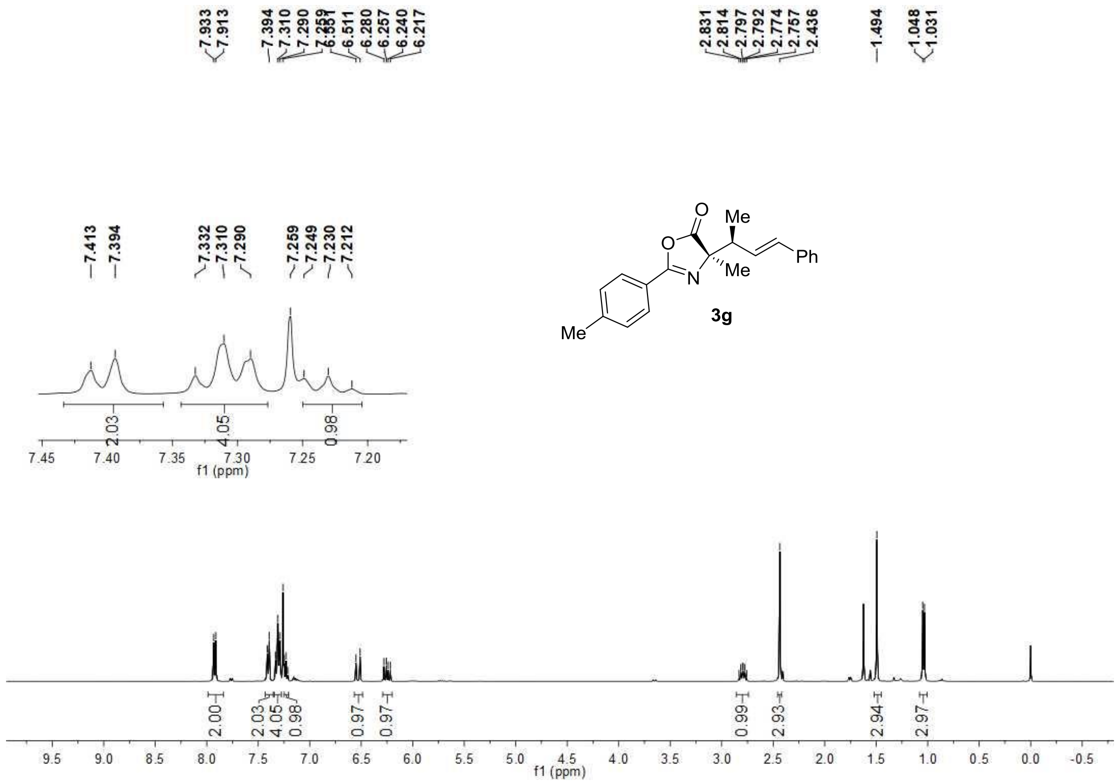
===

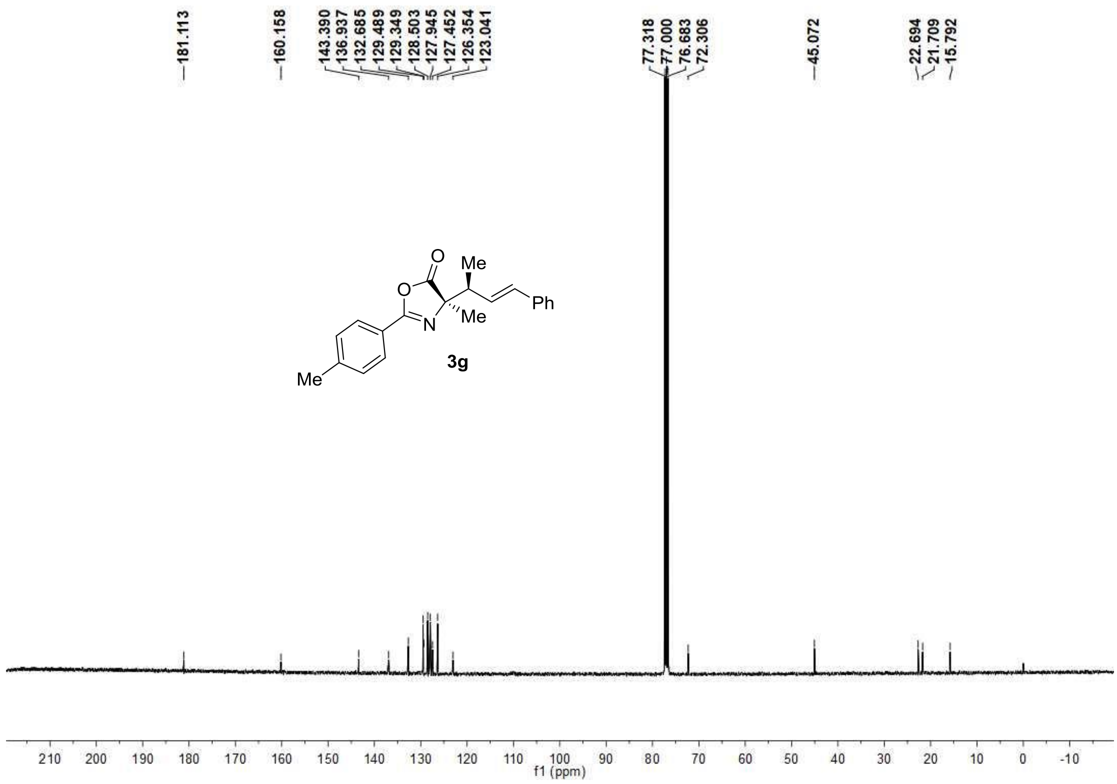
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.600	MM	0.3588	5704.43311	264.95068	98.4146
2	9.387	MP	0.4124	91.89323	3.71346	1.5854

Totals : 5796.32634 268.66414

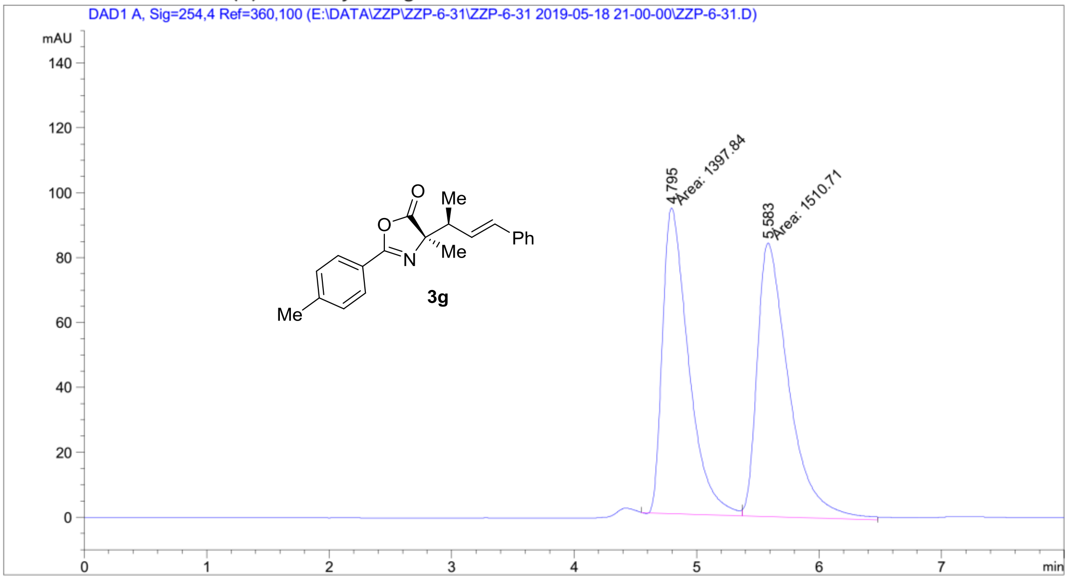

7.933
7.913
7.394
7.310
7.290
6.511
6.280
6.257
6.240
6.217
2.831
2.814
2.797
2.792
2.774
2.757
2.436
1.494
1.048
1.031
7.413
7.394
7.332
7.310
7.290
7.259
7.249
7.230
7.212
2.03
4.05
0.98
f1 (ppm)
O
Me
Ph
O
N
Me
Me
3g
2.00
2.03
4.05
0.98
0.97
0.97
0.99
2.93
2.94
2.97
f1 (ppm)


181.113
160.158
143.390
136.937
132.685
129.489
129.349
128.503
127.945
127.452
126.354
123.041
77.318
77.000
76.683
72.306
45.072
22.694
21.709
15.792
O
Me
Ph
O
N
Me
Me
3g
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-31\ZZP-6-31 2019-05-18 21-00-00\ZZP-6-31.D
Sample Name: ZZP-6-31-2

===

Acq. Operator : SYSTEM Seq. Line : 1
Acq. Instrument : 1260 Location : 64
Injection Date : 5/18/2019 9:01:32 PM Inj : 1
Inj Volume : 1.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-31\ZZP-6-31 2019-05-18 21-00-00\AD-97-3,1UL,1ML,10MIM.M
Last changed : 5/18/2019 9:09:59 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-31\ZZP-6-31 2019-05-18 21-00-00\AD-97-3,1UL,1ML,10MIM.M (Sequence Method)
Last changed : 9/10/2019 7:43:29 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===
Area Percent Report
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=254,4 Ref=360,100

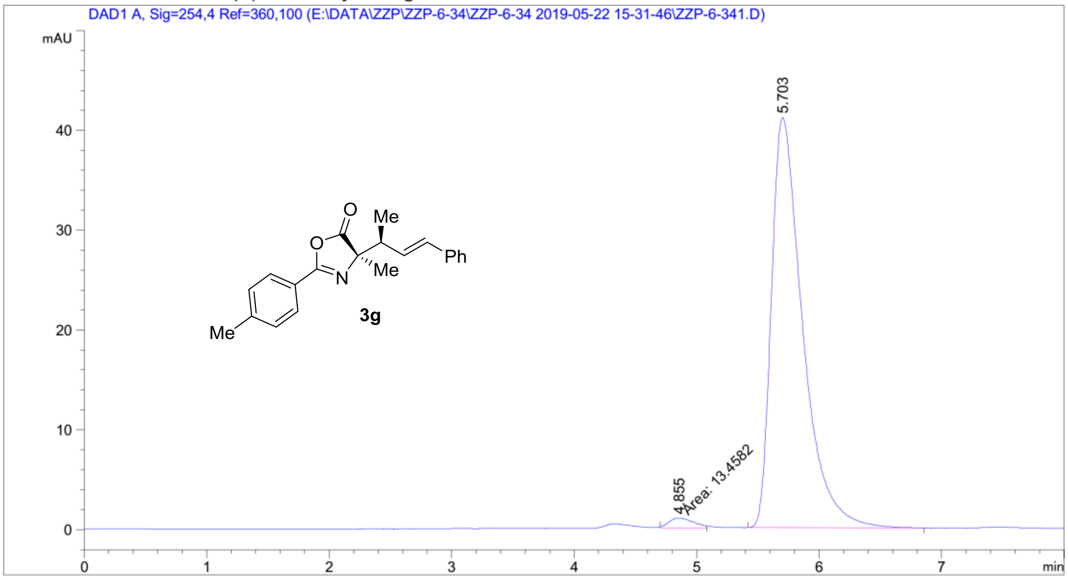
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.795	MF	0.2472	1397.84070	94.22900	48.0597
2	5.583	FM	0.2987	1510.71204	84.30472	51.9403

Totals : 2908.55273 178.53372

Data File E:\DATA\ZZP\ZZP-6-34\ZZP-6-34 2019-05-22 15-31-46\ZZP-6-341.D
Sample Name: ZZP-6-34-1

===

Acq. Operator : SYSTEM   Seq. Line : 2
Acq. Instrument : 1260   Location : 61
Injection Date : 5/22/2019 3:39:10 PM   Inj : 1
Inj Volume : 1.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-34\ZZP-6-34 2019-05-22 15-31-46\AD-97-3,1UL,1ML,10MIM.M
Last changed : 5/22/2019 3:47:16 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-34\ZZP-6-34 2019-05-22 15-31-46\AD-97-3,1UL,1ML,10MIM.M (Sequence Method)
Last changed : 9/10/2019 7:47:42 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

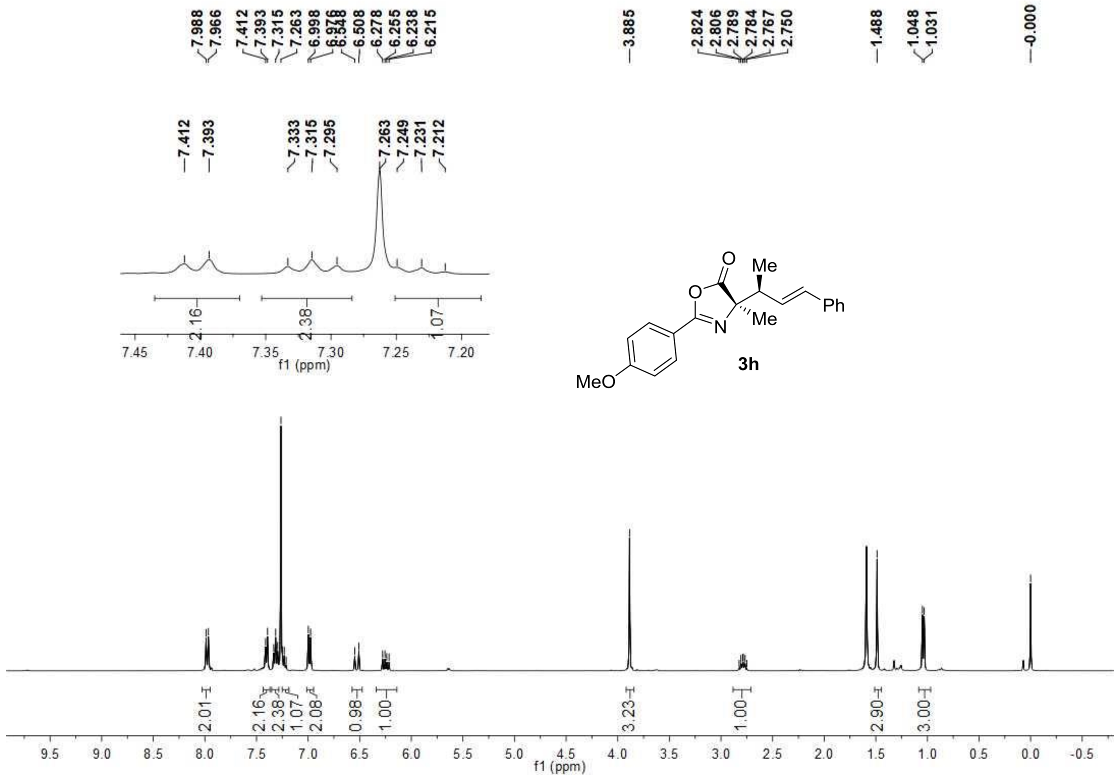
===

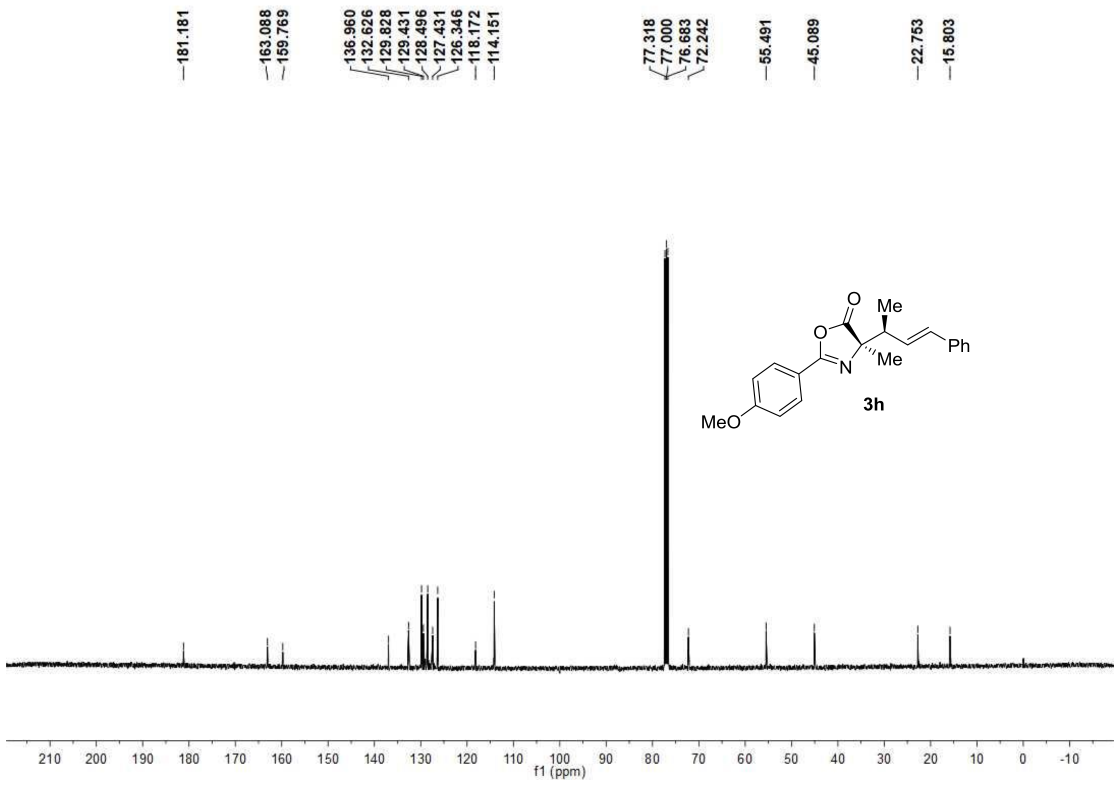
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=254,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.855	MM	0.2279	13.45818	9.84306e-1	1.8192
2	5.703	BB	0.2672	726.32715	41.10188	98.1808

Totals : 739.78533 42.08619

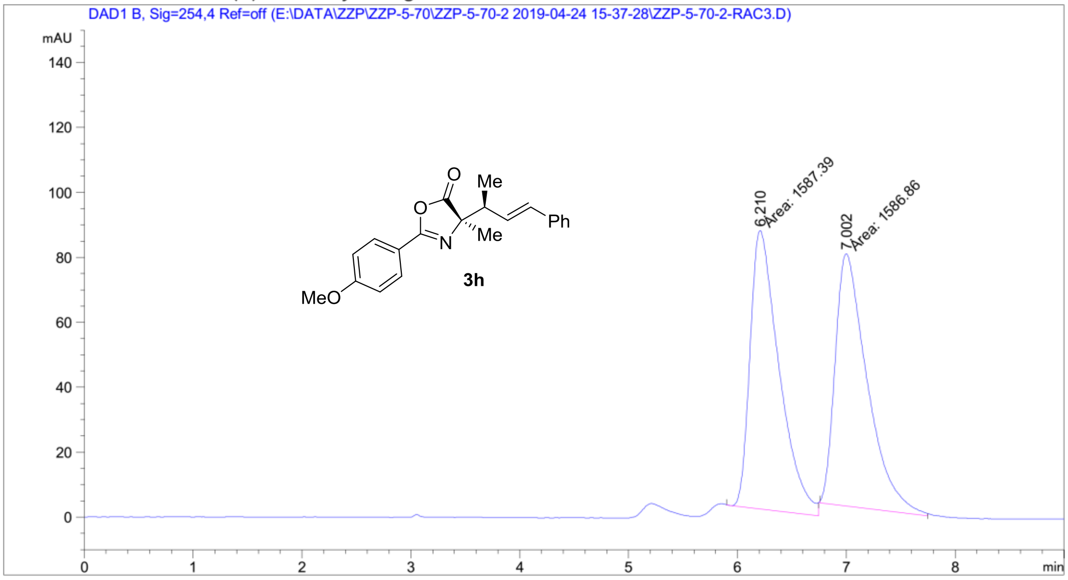

7.988
7.966
7.412
7.393
7.315
7.263
6.998
6.976
6.548
6.508
6.278
6.255
6.238
6.215
3.885
2.824
2.806
2.789
2.784
2.767
2.750
1.488
1.048
1.031
-0.000
7.412
7.393
7.333
7.315
7.295
7.263
7.249
7.231
7.212
2.16
2.38
1.07
f1 (ppm)
O
Me
O
N
Me
Ph
MeO
3h
2.01
2.16
2.38
1.07
2.08
0.98
1.00
3.23
1.00
2.90
3.00
f1 (ppm)


181.181
163.088
159.769
136.960
132.626
129.828
129.431
128.496
127.431
126.346
118.172
114.151
77.318
77.000
76.683
72.242
55.491
45.089
22.753
15.803
O
Me
O
N
Me
Ph
MeO
3h
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-5-70\ZZP-5-70-2 2019-04-24 15-37-28\ZZP-5-70-2-RAC3.D
Sample Name: ZZP-5-70-2

===

Acq. Operator : SYSTEM Seq. Line : 4
Acq. Instrument : 1260 Location : 61
Injection Date : 4/24/2019 4:14:29 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-5-70\ZZP-5-70-2 2019-04-24 15-37-28\AD-98-2,2UL,1.0ML,20MIN .M
Last changed : 4/24/2019 4:21:57 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-5-70\ZZP-5-70-2 2019-04-24 15-37-28\AD-98-2,2UL,1.0ML,20MIN .M (Sequence Method)
Last changed : 9/10/2019 7:24:10 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

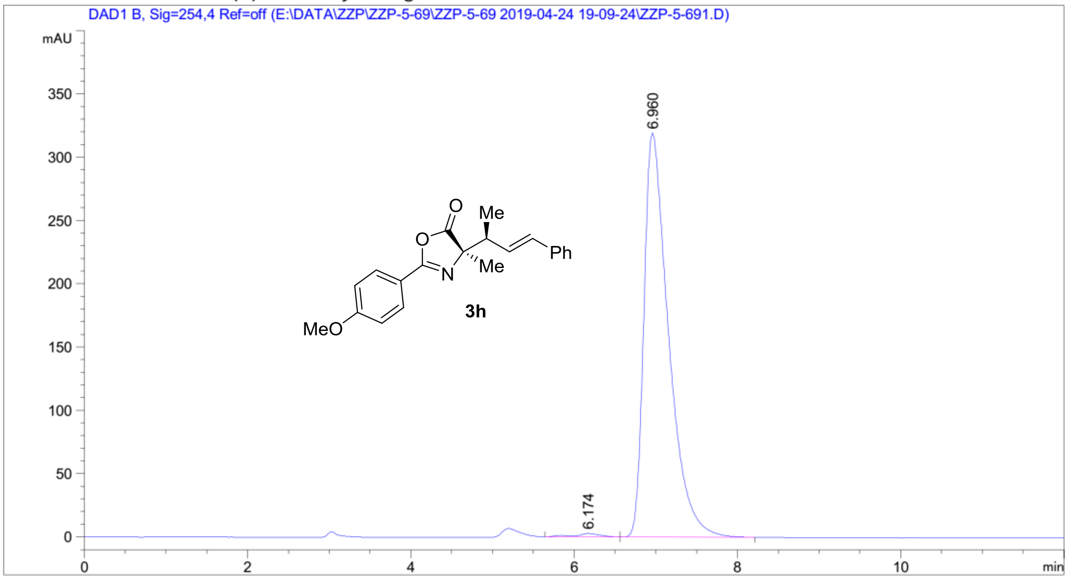
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.210	MM	0.3084	1587.38989	85.77534	50.0083
2	7.002	MM	0.3404	1586.86047	77.69465	49.9917

Totals : 3174.25037 163.46999

Data File E:\DATA\ZZP\ZZP-5-69\ZZP-5-69 2019-04-24 19-09-24\ZZP-5-691.D
Sample Name: ZZP-5-69-2

===

```
Acq. Operator   : SYSTEM                        Seq. Line :   2
Acq. Instrument : 1260                           Location :   62
Injection Date  : 4/24/2019 7:25:11 PM                Inj :   1
                                               Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-5-69\ZZP-5-69 2019-04-24 19-09-24\AD-98-2,2UL,1.0ML,20MIN.M
Last changed    : 4/24/2019 7:22:34 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-5-69\ZZP-5-69 2019-04-24 19-09-24\AD-98-2,2UL,1.0ML,20MIN.M
                  (Sequence Method)
Last changed    : 9/10/2019 7:30:12 PM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



===

Area Percent Report

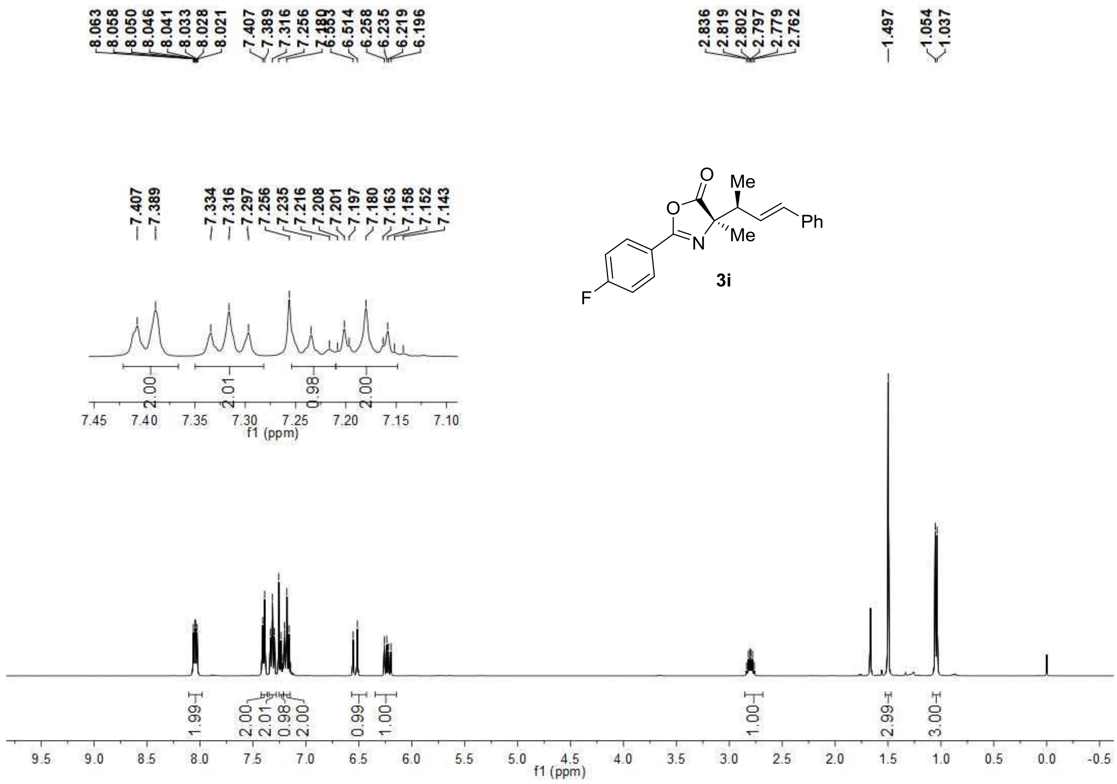
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

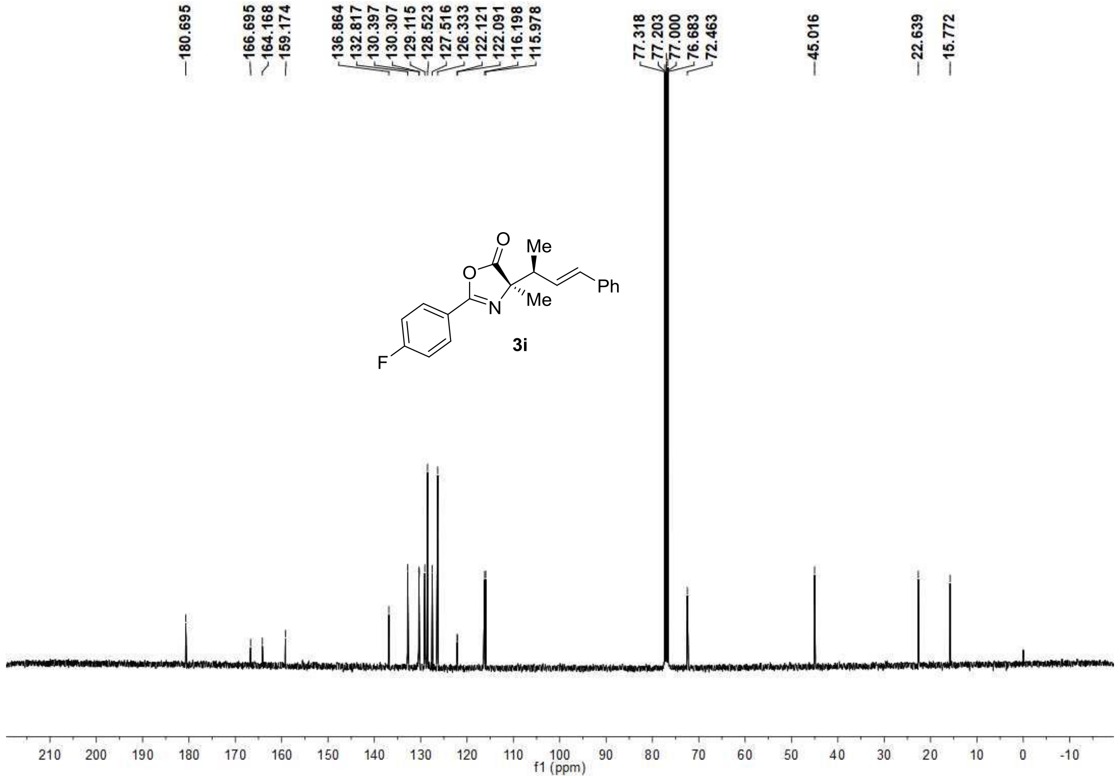
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.174	BB	0.2853	58.57859	2.74153	0.8707
2	6.960	BB	0.3119	6669.56201	319.02716	99.1293

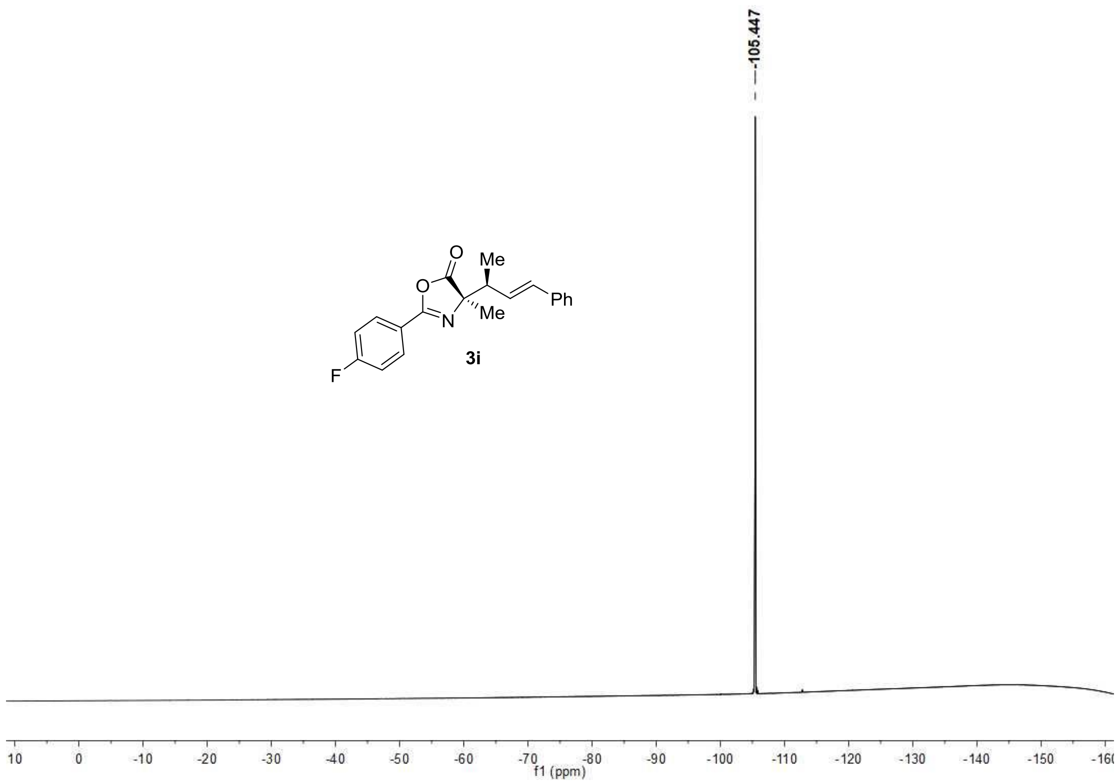
Totals : 6728.14060 321.76869



8.063
8.058
8.050
8.046
8.041
8.033
8.028
8.021
7.407
7.389
7.316
7.256
6.514
6.258
6.235
6.219
6.196
2.836
2.819
2.802
2.797
2.779
2.762
1.497
1.054
1.037
7.407
7.389
7.334
7.316
7.297
7.256
7.235
7.216
7.208
7.201
7.197
7.180
7.163
7.158
7.152
7.143
O
Me
Ph
O
N
Me
F
3i
2.00
2.01
0.98
2.00
7.45 7.40 7.35 7.30 7.25 7.20 7.15 7.10
f1 (ppm)
1.99
2.00
2.01
0.98
2.00
0.99
1.00
1.00
2.99
3.00
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)



180.695
166.695
164.168
159.174
136.864
132.817
130.397
130.307
129.115
128.523
127.516
126.333
122.121
122.091
116.198
115.978
77.318
77.203
77.000
76.683
72.463
45.016
22.639
15.772
O
Me
Ph
O
N
Me
F
3i
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)



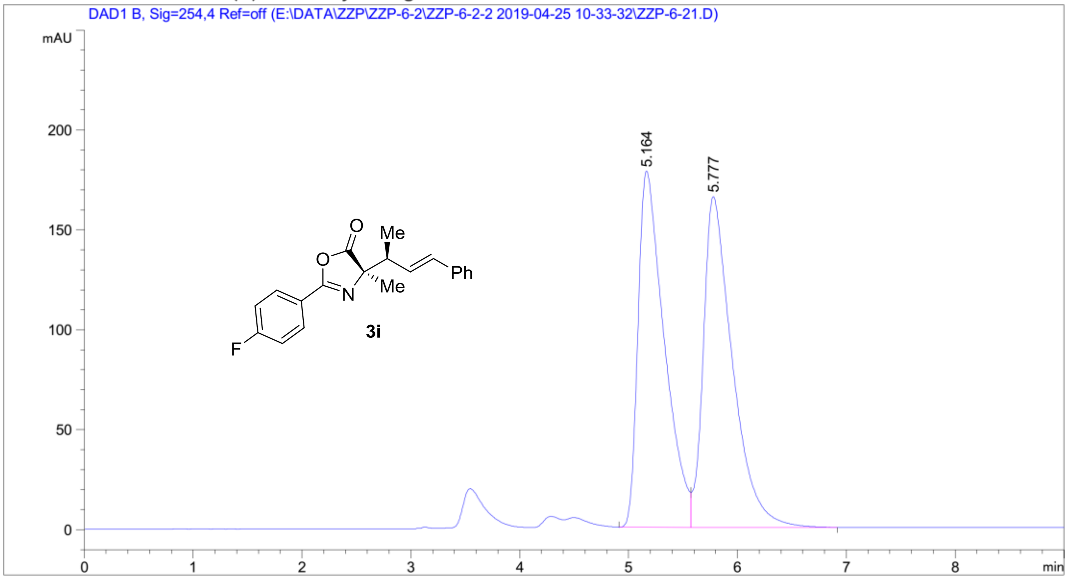
-105.447
O
O
N
Me
Me
Ph
F
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
f1 (ppm)

3i

Data File E:\DATA\ZZP\ZZP-6-2\ZZP-6-2-2 2019-04-25 10-33-32\ZZP-6-21.D
Sample Name: ZZP-6-2

===

Acq. Operator : SYSTEM   Seq. Line : 2
Acq. Instrument : 1260   Location : 61
Injection Date : 4/25/2019 10:45:26 AM   Inj : 1
                                                        Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-2\ZZP-6-2-2 2019-04-25 10-33-32\AD-98.5-1.5,2UL,1.0ML,
30MIN.M
Last changed : 4/25/2019 10:53:51 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-2\ZZP-6-2-2 2019-04-25 10-33-32\AD-98.5-1.5,2UL,1.0ML,
30MIN.M (Sequence Method)
Last changed : 9/10/2019 7:38:46 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

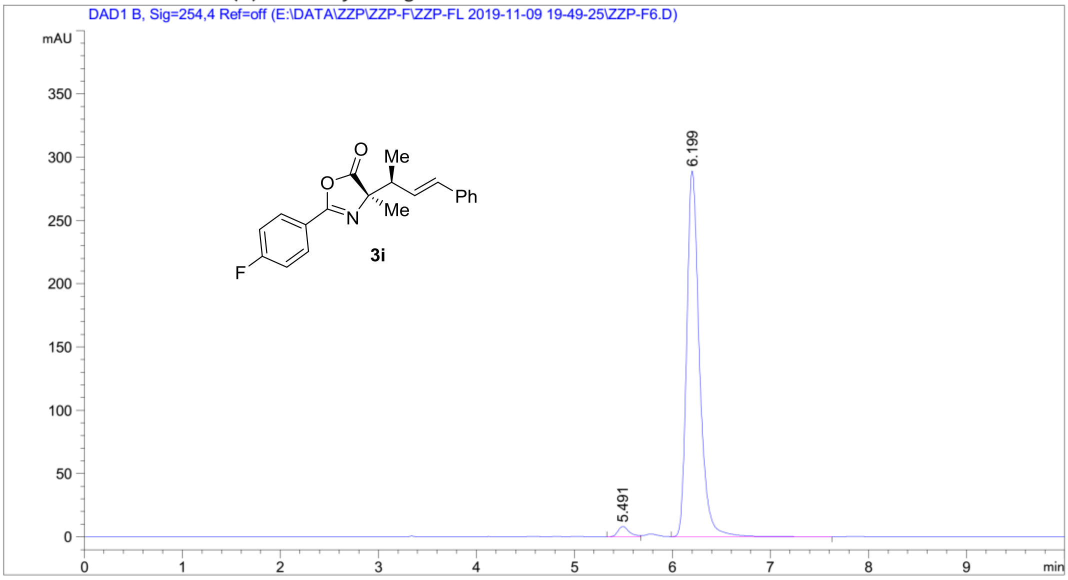
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.164	BV	0.2436	2987.37036	178.20671	49.2600
2	5.777	VB	0.2708	3077.12915	165.56377	50.7400

Totals : 6064.49951 343.77048

Data File E:\DATA\ZZP\ZZP-F\ZZP-FL 2019-11-09 19-49-25\ZZP-F6.D
Sample Name: ZZP-F-6

===

Acq. Operator : SYSTEM Seq. Line : 7
Acq. Instrument : 1260 Location : 46
Injection Date : 11/9/2019 8:56:04 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-F\ZZP-Fl 2019-11-09 19-49-25\AD-98.5-1.5,2UL,1.0ML,10MIN.M
Last changed : 11/9/2019 7:49:25 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-F\ZZP-Fl 2019-11-09 19-49-25\AD-98.5-1.5,2UL,1.0ML,10MIN.M
(Sequence Method)
Last changed : 11/20/2019 10:00:45 AM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



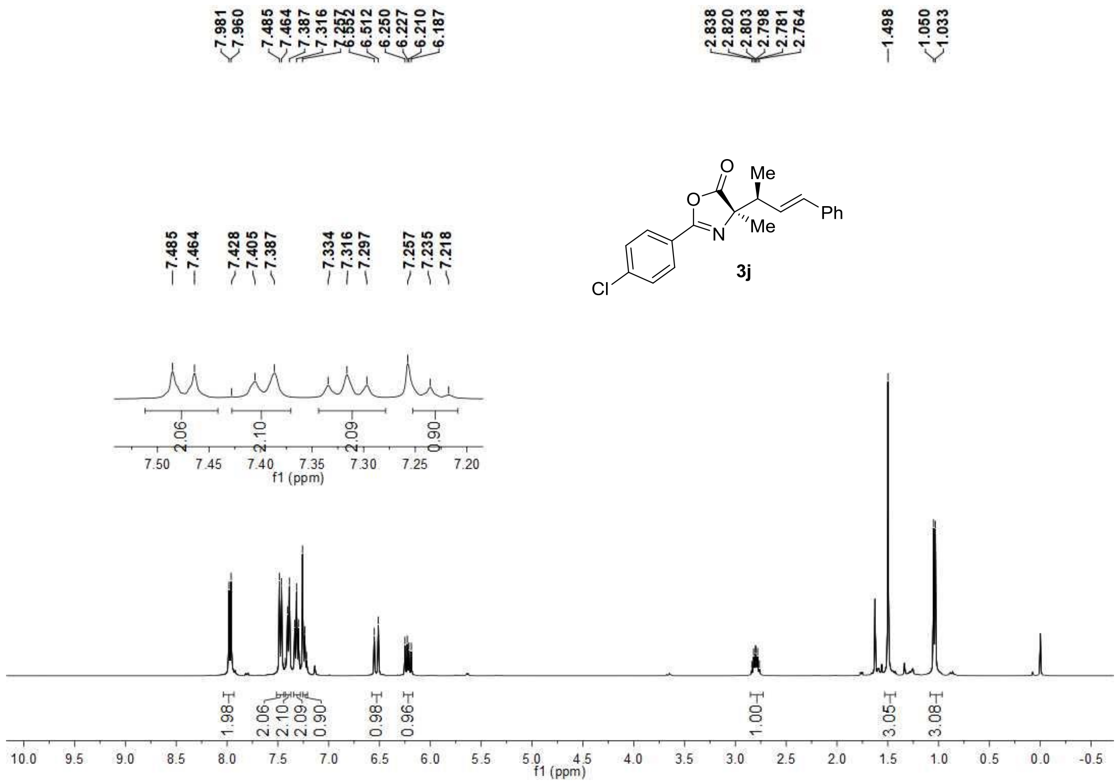
===
Area Percent Report
===

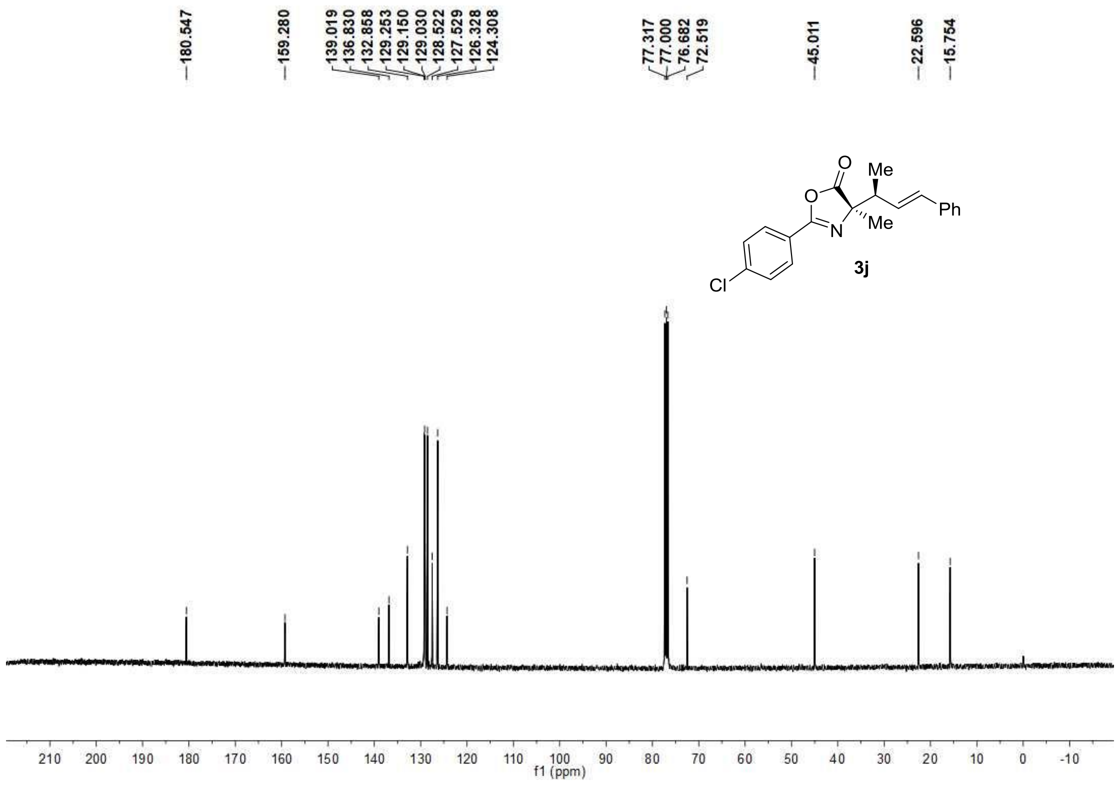
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.491	BV	0.1198	65.99379	8.20404	2.4674
2	6.199	VB	0.1353	2608.59082	289.15280	97.5326

Totals : 2674.58461 297.35684

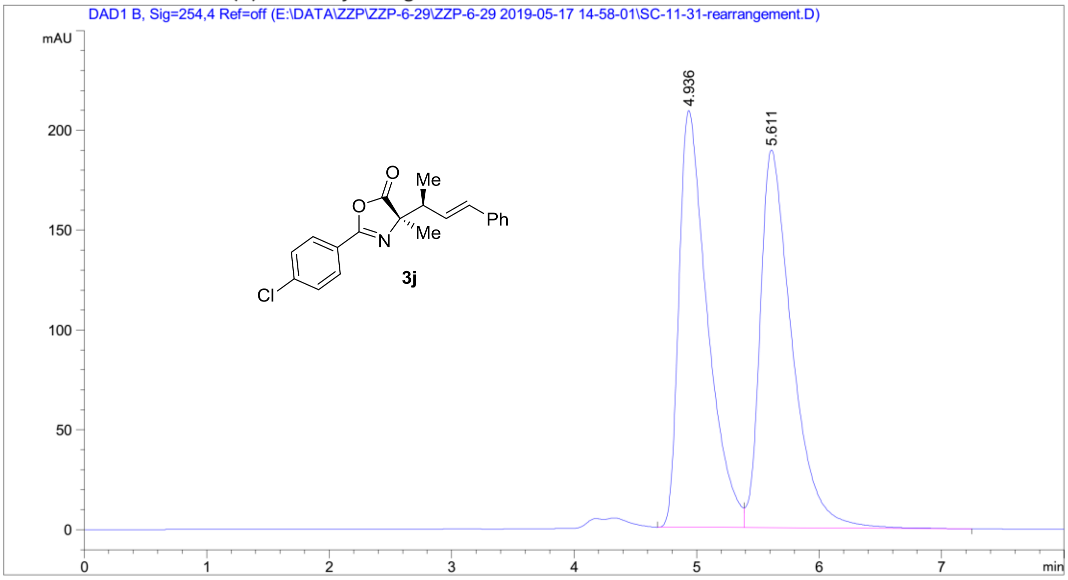




Data File E:\DATA\ZZP\ZZP-6-29\ZZP-6-29 2019-05-17 14-58-01\SC-11-31-rearrangement.D
Sample Name: ZZP-6-29-1

===

```
Acq. Operator   : SYSTEM                          Seq. Line :    1
Acq. Instrument : 1260                             Location :   92
Injection Date  : 5/17/2019 2:59:19 PM                  Inj :    1
                                                 Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-6-29\ZZP-6-29 2019-05-17 14-58-01\AD-98-2,2UL,1.0ML,20MIN.M
Last changed    : 5/17/2019 3:07:27 PM by SYSTEM
                  (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-29\ZZP-6-29 2019-05-17 14-58-01\AD-98-2,2UL,1.0ML,20MIN.M
                  (Sequence Method)
Last changed    : 9/10/2019 7:49:23 PM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



===
Area Percent Report
===

```
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 B, Sig=254,4 Ref=off

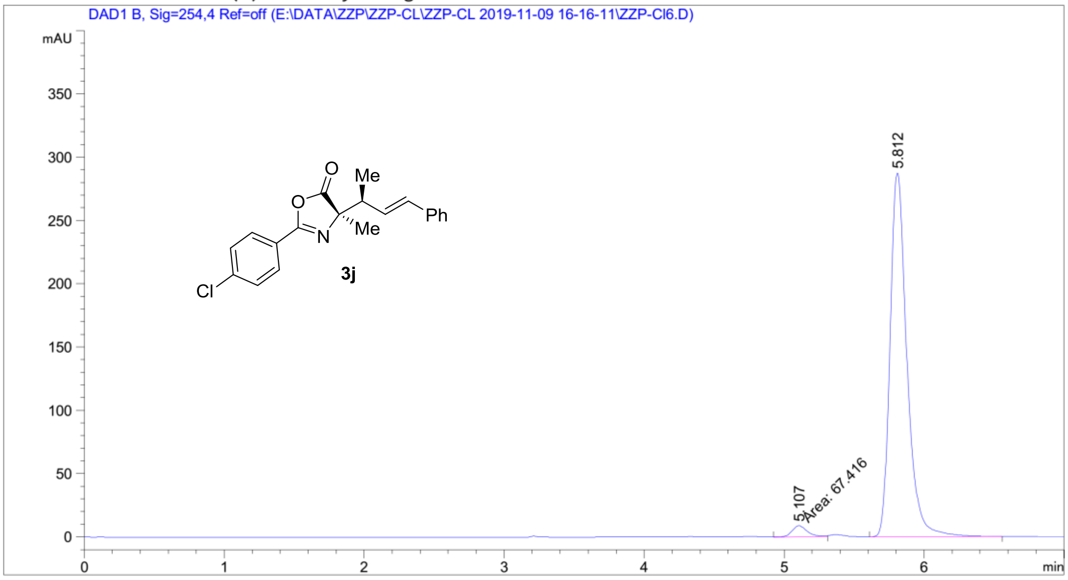
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.936	BV	0.2378	3362.96606	208.92862	49.5938
2	5.611	VB	0.2687	3418.05737	189.29442	50.4062

Totals : 6781.02344 398.22304

Data File E:\DATA\ZZP\ZZP-CL\ZZP-CL 2019-11-09 16-16-11\ZZP-Cl6.D
Sample Name: zzp-cl-6

===

Acq. Operator : SYSTEM Seq. Line : 7
Acq. Instrument : 1260 Location : 46
Injection Date : 11/9/2019 5:04:56 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-Cl\zzp-cl 2019-11-09 16-16-11\AD98-2,2UL,1ML,7MIN.M
Last changed : 11/9/2019 4:16:11 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-Cl\zzp-cl 2019-11-09 16-16-11\AD98-2,2UL,1ML,7MIN.M (Sequence Method)
Last changed : 11/20/2019 9:55:31 AM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



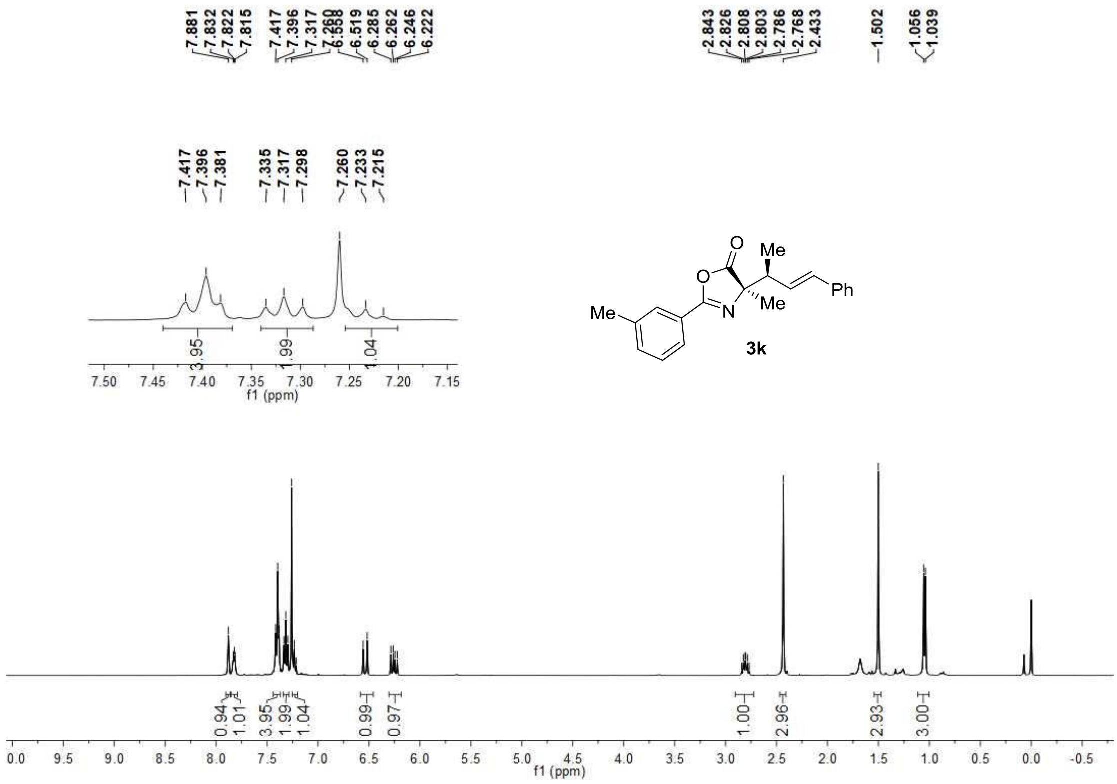
===
Area Percent Report
===

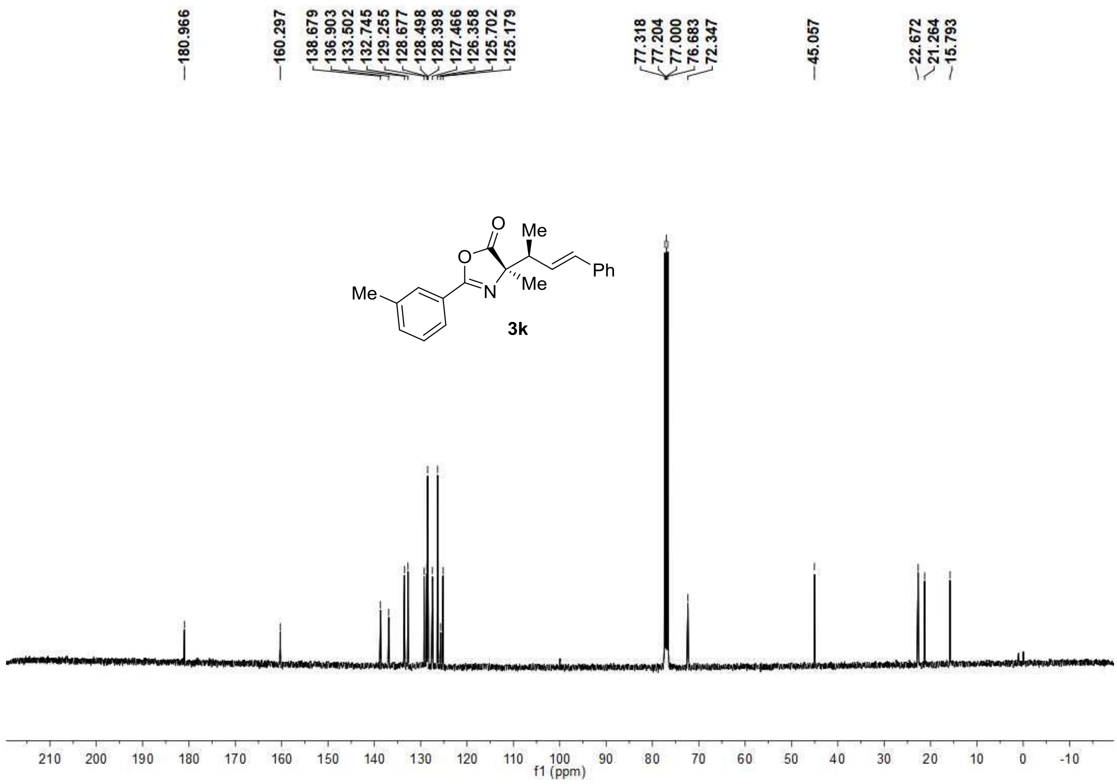
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.107	MM	0.1252	67.41597	8.97214	2.7347
2	5.812	BB	0.1273	2397.80884	287.62769	97.2653

Totals : 2465.22481 296.59982

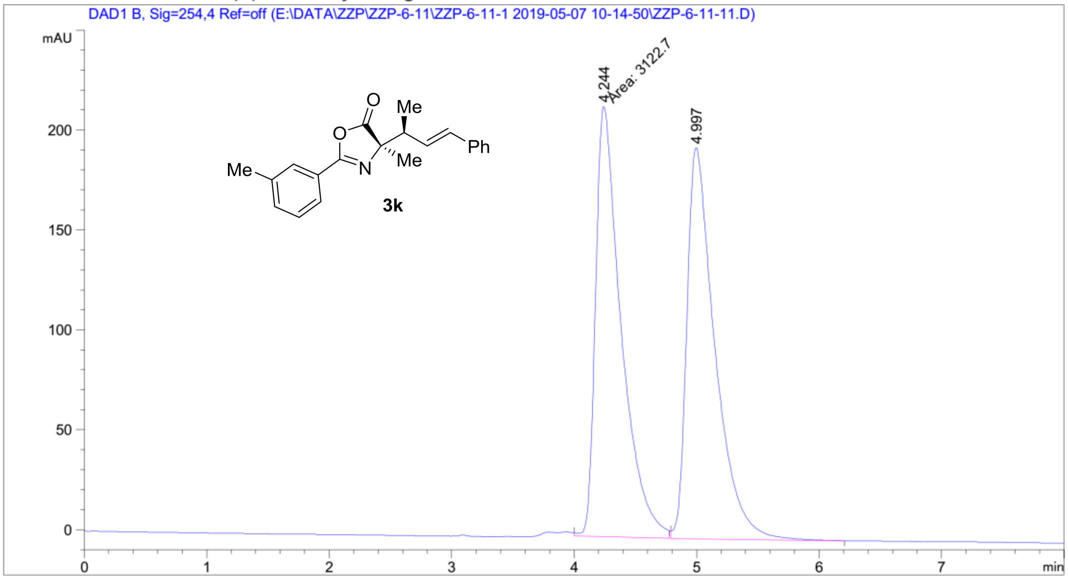

7.881
7.832
7.822
7.815
7.417
7.396
7.317
6.519
6.285
6.262
6.246
6.222
2.843
2.826
2.808
2.803
2.786
2.768
2.433
1.502
1.056
1.039
7.417
7.396
7.381
7.335
7.317
7.298
7.260
7.233
7.215
3.95
1.99
1.04
f1 (ppm)
O
O
N
Me
Me
Ph
Me
3k
0.94
1.01
3.95
1.99
1.04
0.99
0.97
1.00
2.96
2.93
3.00
f1 (ppm)


180.966
160.297
138.679
136.903
133.502
132.745
129.255
128.677
128.498
128.398
127.466
126.358
125.702
125.179
77.318
77.204
77.000
76.683
72.347
45.057
22.672
21.264
15.793
O
O
N
Me
Me
Ph
Me
3k
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-11\ZZP-6-11-1 2019-05-07 10-14-50\ZZP-6-11-11.D
Sample Name: ZZP-6-11-1

===

Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 63
Injection Date : 5/7/2019 10:23:46 AM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-11\ZZP-6-11-1 2019-05-07 10-14-50\AD-98-2,2UL,1.0ML,20MIN .M
Last changed : 5/7/2019 10:32:24 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-11\ZZP-6-11-1 2019-05-07 10-14-50\AD-98-2,2UL,1.0ML,20MIN .M (Sequence Method)
Last changed : 9/10/2019 5:35:09 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===
Area Percent Report
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

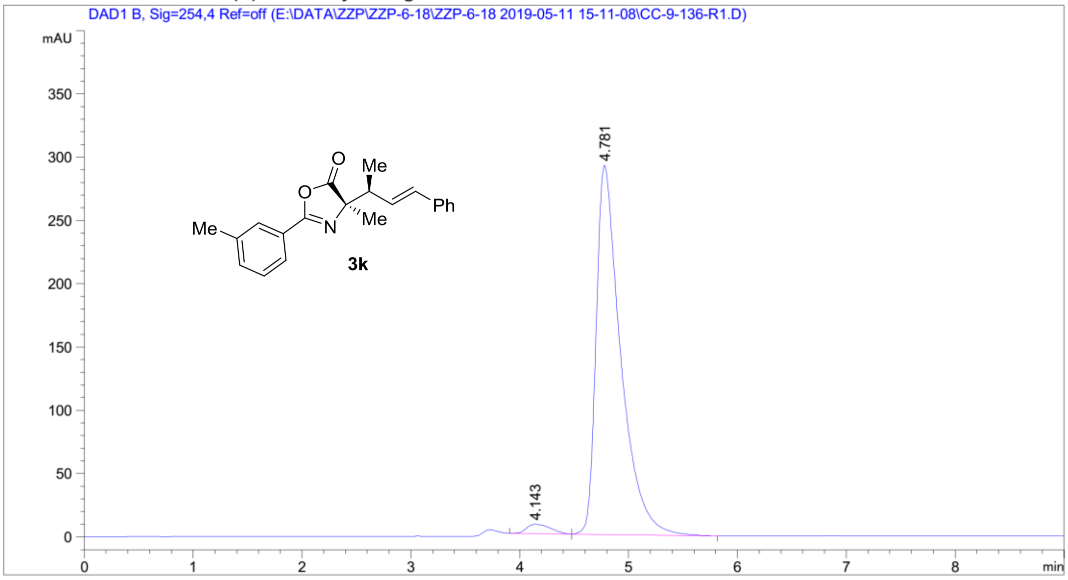
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.244	MM	0.2417	3122.70117	215.35159	50.0252
2	4.997	VB	0.2339	3119.55615	195.78053	49.9748

Totals : 6242.25732 411.13213

Data File E:\DATA\ZZP\ZZP-6-18\ZZP-6-18 2019-05-11 15-11-08\CC-9-136-R1.D
Sample Name: ZZP-6-18-1

===

Acq. Operator : SYSTEM   Seq. Line : 2
Acq. Instrument : 1260   Location : 61
Injection Date : 5/11/2019 3:18:29 PM   Inj : 1
                                          Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-18\ZZP-6-18 2019-05-11 15-11-08\AD98-2,2UL,1ML,7MIN.M
Last changed : 5/11/2019 3:17:53 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-18\ZZP-6-18 2019-05-11 15-11-08\AD98-2,2UL,1ML,7MIN.M (
Sequence Method)
Last changed : 9/10/2019 5:38:58 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

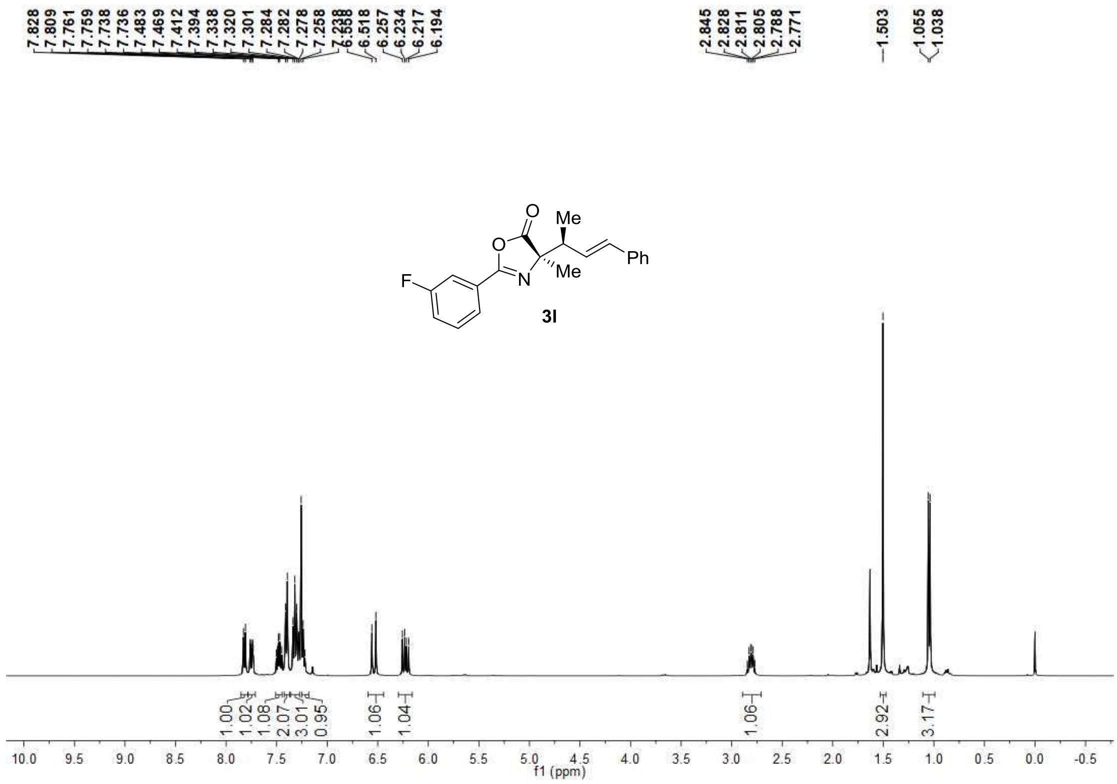
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

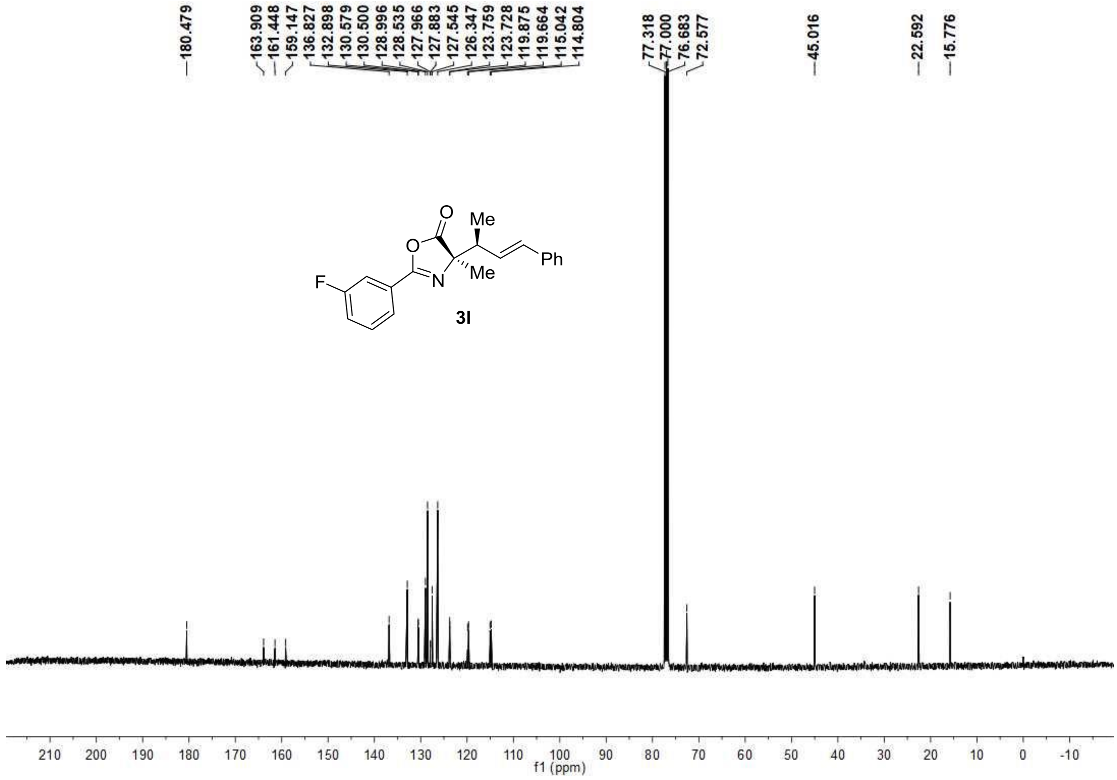
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.143	BB	0.2460	110.51006	7.16107	2.3603
2	4.781	BB	0.2288	4571.43604	291.73410	97.6397

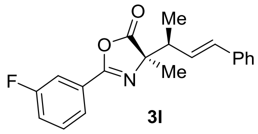
Totals : 4681.94610 298.89517



3l

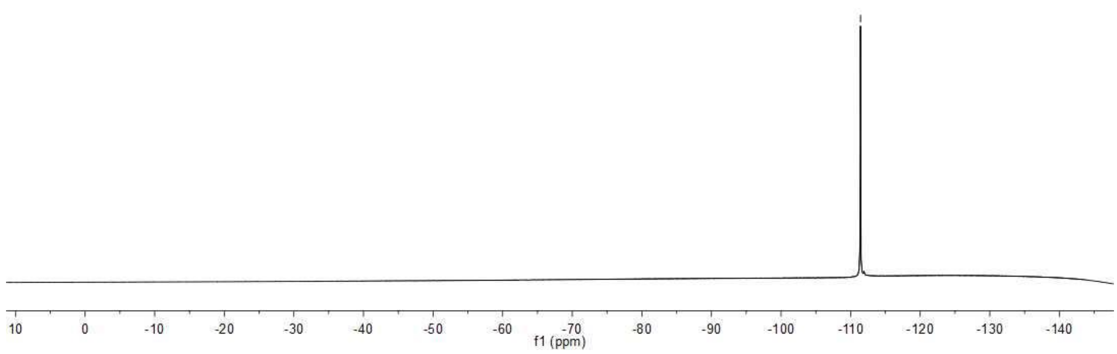


3l



O
O
Me
N
Me
Ph
F

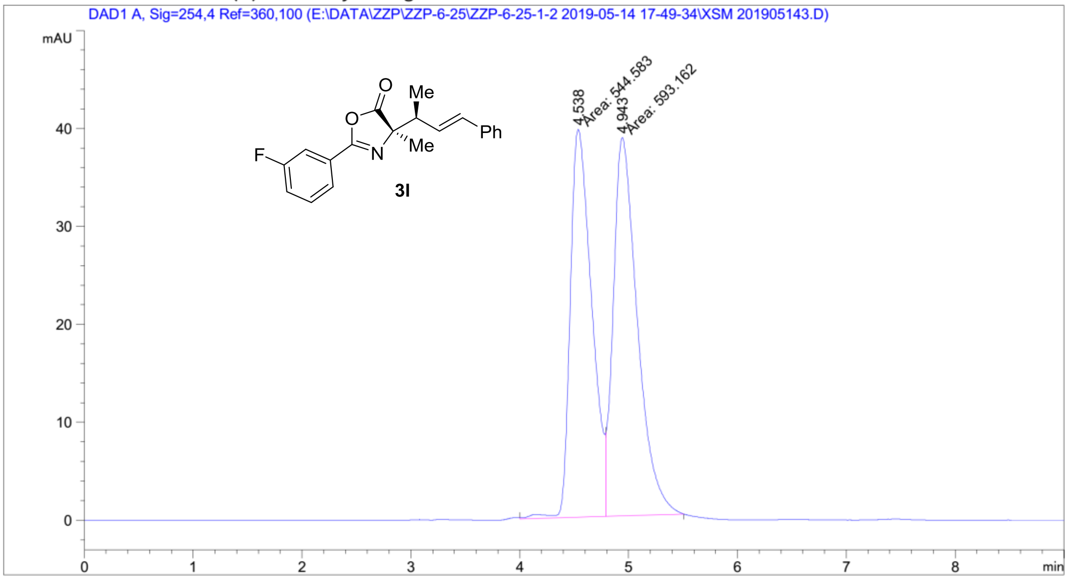
3l



-111.426
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
f1 (ppm)

```
Data File E:\DATA\ZZP\ZZP-6-25\ZZP-6-25-1-2 2019-05-14 17-49-34\XSM 201905143.D
Sample Name: ZZP-6-25-1

    =====================================================================
    Acq. Operator   : SYSTEM                          Seq. Line :    4
    Acq. Instrument : 1260                             Location :   61
    Injection Date  : 5/14/2019 6:24:08 PM                  Inj :    1
                                                     Inj Volume : 1.000 µl
    Acq. Method     : E:\DATA\ZZP\ZZP-6-25\ZZP-6-25-1-2 2019-05-14 17-49-34\AD-97-3,1UL,1ML,10MIM
                      .M
    Last changed    : 5/14/2019 5:49:34 PM by SYSTEM
    Analysis Method : E:\DATA\ZZP\ZZP-6-25\ZZP-6-25-1-2 2019-05-14 17-49-34\AD-97-3,1UL,1ML,10MIM
                      .M (Sequence Method)
    Last changed    : 9/10/2019 7:54:28 PM by SYSTEM
                      (modified after loading)
    Additional Info : Peak(s) manually integrated
```




```
    =====================================================================
                             Area Percent Report
    =====================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 A, Sig=254,4 Ref=360,100

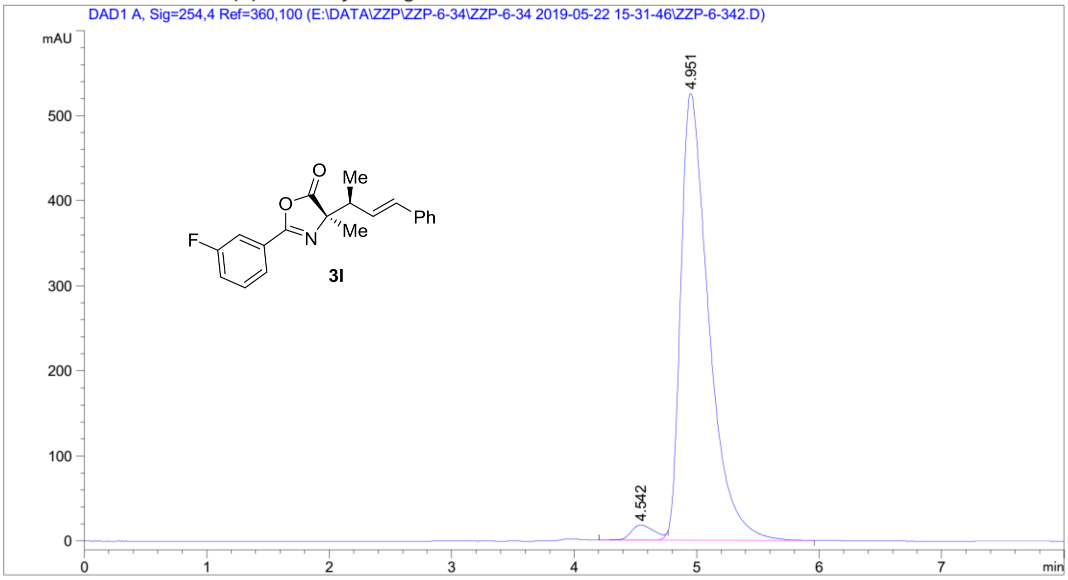
    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]        %
    ----|-------|----|-------|----------|----------|--------|
       1   4.538 MF    0.2292  544.58289   39.59743 47.8651
       2   4.943 FM    0.2559  593.16199   38.62579 52.1349

    Totals :                  1137.74487   78.22322
```

Data File E:\DATA\ZZP\ZZP-6-34\ZZP-6-34 2019-05-22 15-31-46\ZZP-6-342.D
Sample Name: ZZP-6-34-2

===

Acq. Operator : SYSTEM Seq. Line : 3
Acq. Instrument : 1260 Location : 62
Injection Date : 5/22/2019 3:48:44 PM Inj : 1
Inj Volume : 1.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-34\ZZP-6-34 2019-05-22 15-31-46\AD-97-3,1UL,1ML,10MIM.M
Last changed : 5/22/2019 3:47:16 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-6-34\ZZP-6-34 2019-05-22 15-31-46\AD-97-3,1UL,1ML,10MIM.M (Sequence Method)
Last changed : 9/10/2019 7:55:37 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

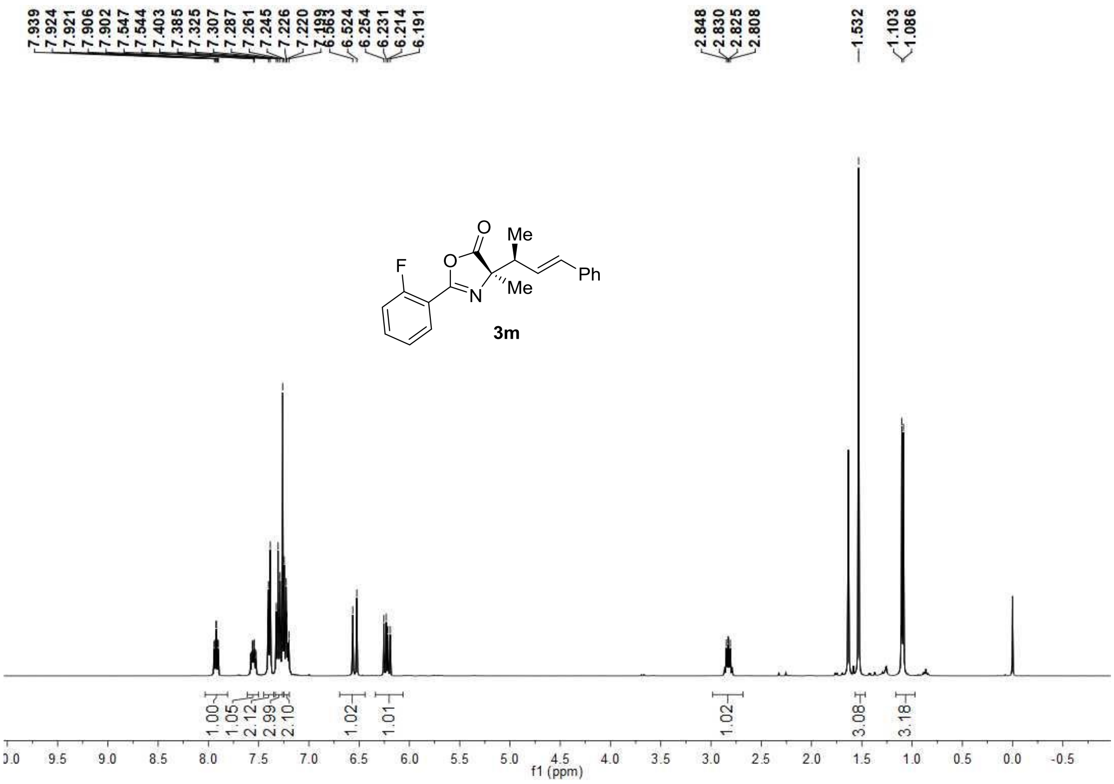
===

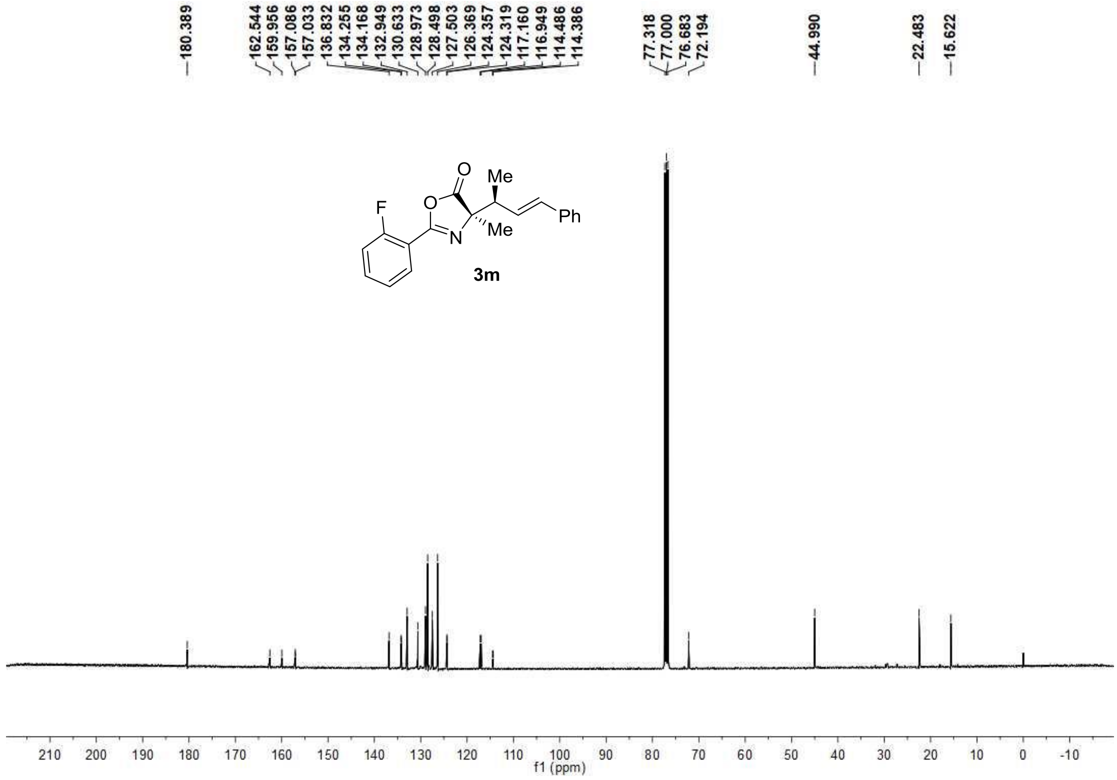
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

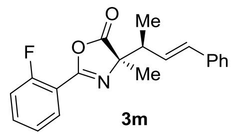
Signal 1: DAD1 A, Sig=254,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	4.542	BV E	0.1992	233.90845	17.80835	2.7354
2	4.951	VB R	0.2418	8317.37012	525.04761	97.2646

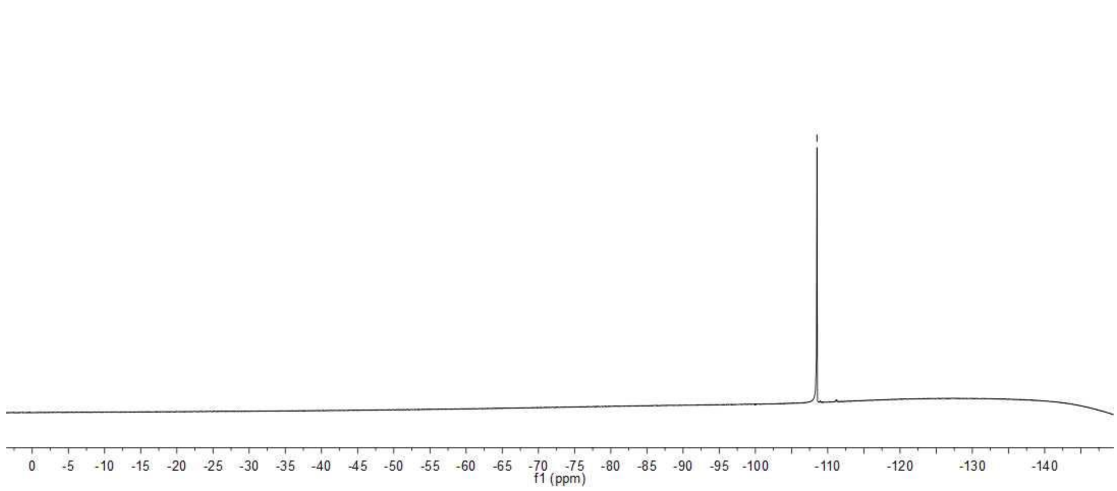
Totals : 8551.27856 542.85596


7.939
7.924
7.921
7.906
7.902
7.547
7.544
7.403
7.385
7.325
7.307
7.287
7.261
7.245
7.226
7.220
7.199
6.563
6.524
6.254
6.231
6.214
6.191
2.848
2.830
2.825
2.808
1.532
1.103
1.086
F
O
O
N
Me
Me
Ph
3m
1.00
1.05
2.12
2.99
2.10
1.02
1.01
1.02
3.08
3.18
f1 (ppm)


180.389
162.544
159.956
157.086
157.033
136.832
134.255
134.168
132.949
130.633
128.973
128.498
127.503
126.369
124.357
124.319
117.160
116.949
114.486
114.386
77.318
77.000
76.683
72.194
44.990
22.483
15.622
F
O
O
N
Me
Me
Ph
3m
f1 (ppm)


Me
Ph
F
O
O
N
Me

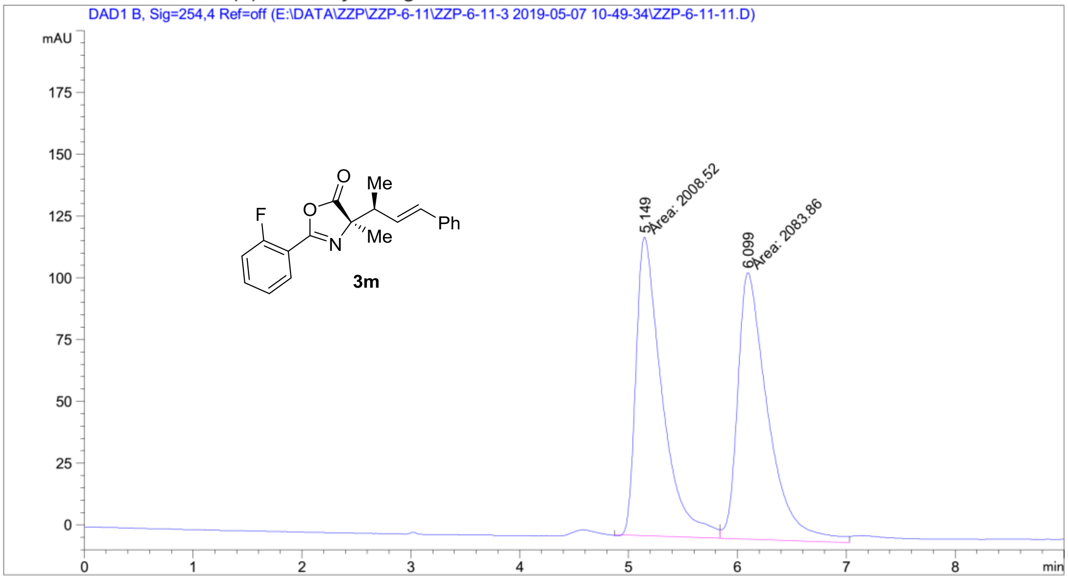
3m


-108.513
0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50 -55 -60 -65 -70 -75 -80 -85 -90 -95 -100 -110 -120 -130 -140
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-11\ZZP-6-11-3 2019-05-07 10-49-34\ZZP-6-11-11.D
Sample Name: ZZP-6-11-3

===

Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 42
Injection Date : 5/7/2019 10:59:37 AM Inj : 2
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-11\ZZP-6-11-3 2019-05-07 10-49-34\AD98-2,2UL,1ML,7MIN.M
Last changed : 5/7/2019 10:59:25 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-11\ZZP-6-11-3 2019-05-07 10-49-34\AD98-2,2UL,1ML,7MIN.M (
Sequence Method)
Last changed : 9/10/2019 5:36:34 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

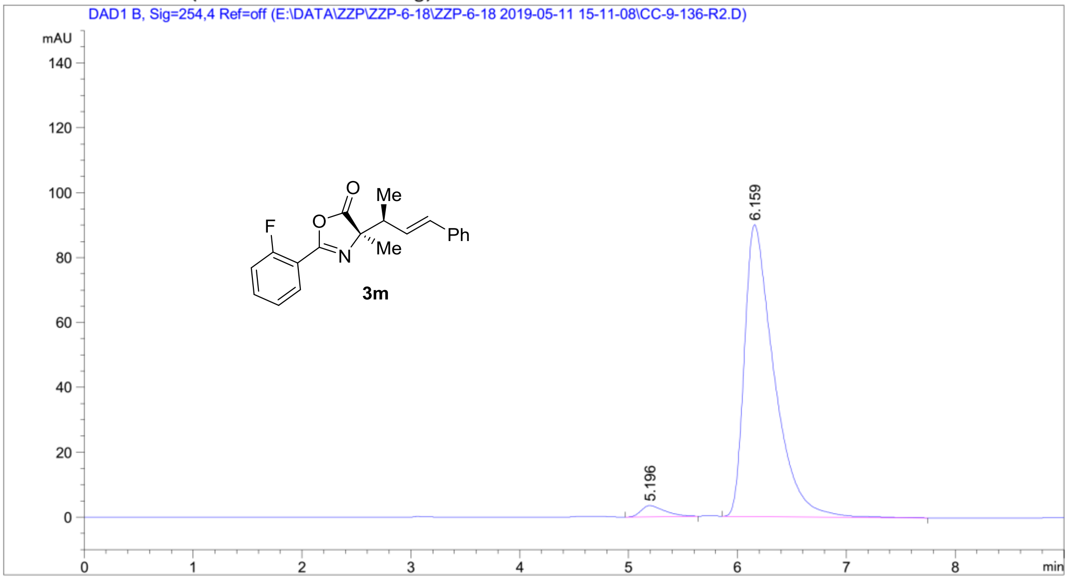
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.149	MF	0.2770	2008.51721	120.82961	49.0794
2	6.099	FM	0.3220	2083.86230	107.86211	50.9206

Totals : 4092.37952 228.69172

Data File E:\DATA\ZZP\ZZP-6-18\ZZP-6-18 2019-05-11 15-11-08\CC-9-136-R2.D
Sample Name: ZZP-6-18-2

===

Acq. Operator : SYSTEM   Seq. Line : 3
Acq. Instrument : 1260   Location : 62
Injection Date : 5/11/2019 3:29:21 PM   Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-18\ZZP-6-18 2019-05-11 15-11-08\AD98-2,2UL,1ML,7MIN.M
Last changed : 5/11/2019 3:17:53 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-6-18\ZZP-6-18 2019-05-11 15-11-08\AD98-2,2UL,1ML,7MIN.M (Sequence Method)
Last changed : 9/10/2019 5:40:04 PM by SYSTEM
(modified after loading)



===

Area Percent Report

===

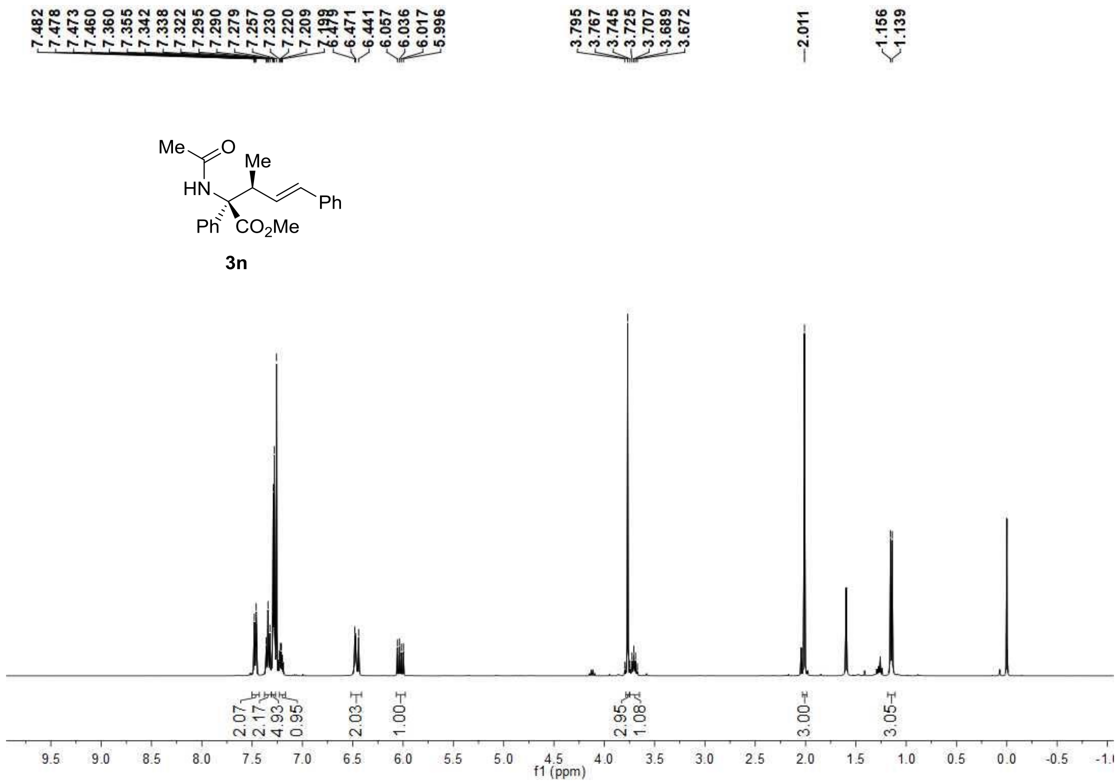
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

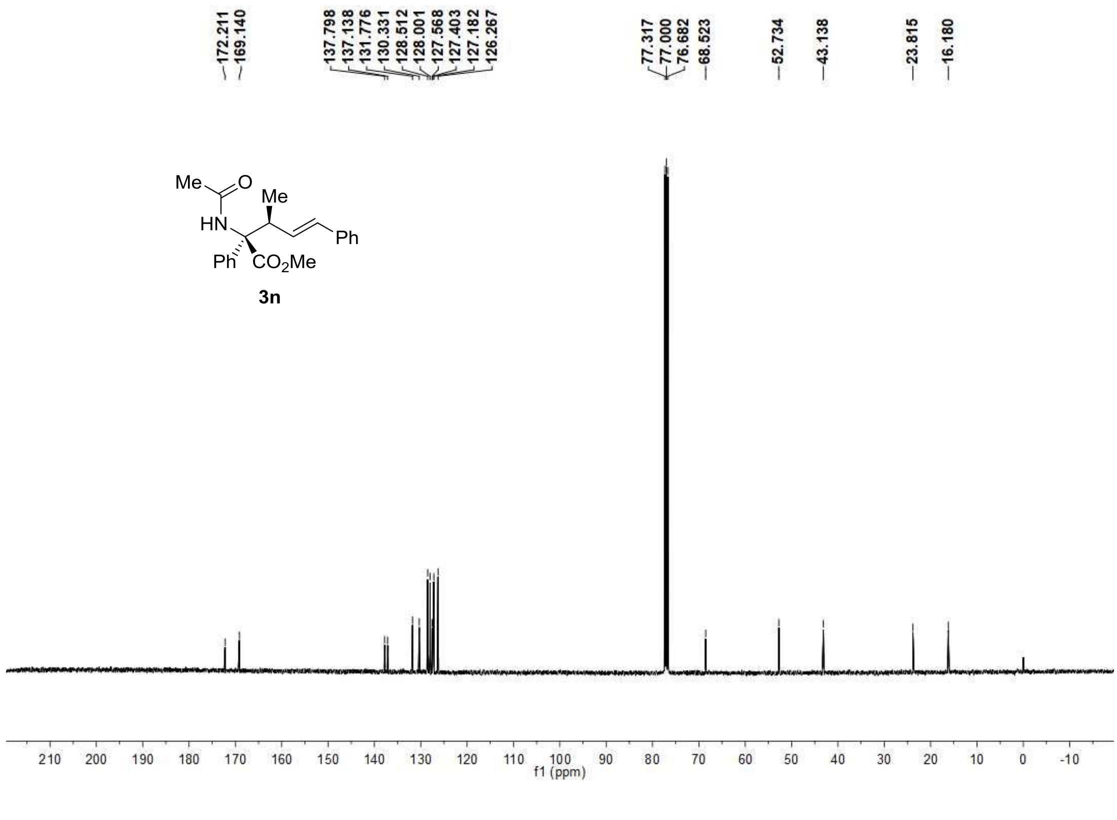
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.196	BB	0.2171	51.19048	3.44931	2.9350
2	6.159	BB	0.2756	1692.94031	89.93631	97.0650

Totals : 1744.13079 93.38562

===

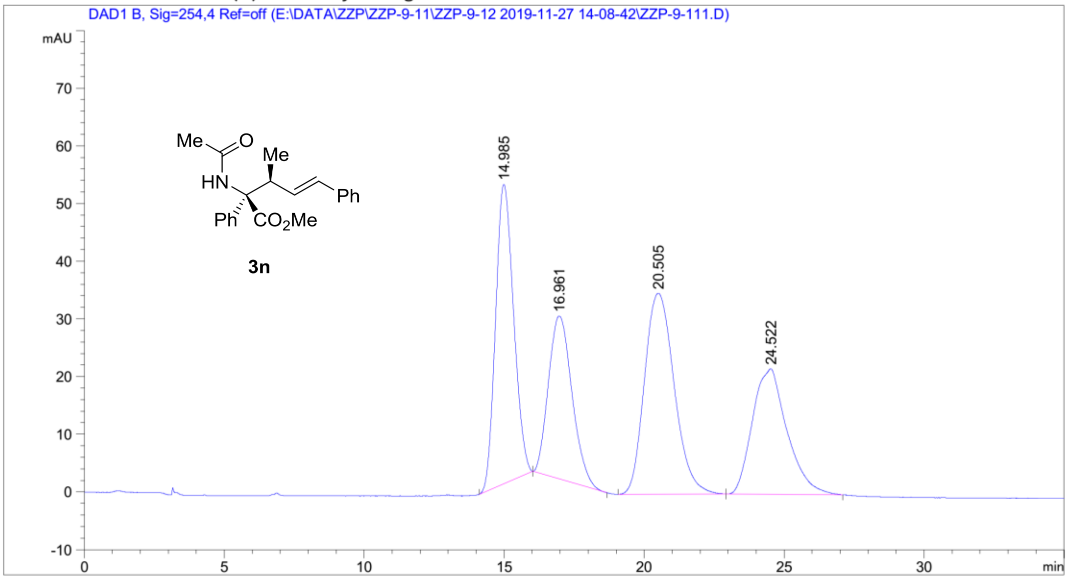

7.482 7.478 7.473 7.460 7.360 7.355 7.342 7.338 7.322 7.295 7.290 7.279 7.257 7.230 7.220 7.209 7.199 6.479 6.471 6.441 6.057 6.036 6.017 5.996
3.795 3.767 3.745 3.725 3.707 3.689 3.672
2.011
1.156 1.139
Me O HN Me Ph Ph CO2Me
3n
2.07 2.17 4.93 0.95 2.03 1.00 2.95 1.08 3.00 3.05
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 -1.0
f1 (ppm)


172.211 169.140
137.798 137.138 131.776 130.331 128.512 128.001 127.568 127.403 127.182 126.267
77.317 77.000 76.682 68.523
52.734
43.138
23.815
16.180
Me O HN Me Ph Ph CO2Me
3n
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-9-11\ZZP-9-12 2019-11-27 14-08-42\ZZP-9-111.D
Sample Name: ZZP-9-11

===

Acq. Operator : SYSTEM　　Seq. Line : 2
Acq. Instrument : 1260　　Location : 32
Injection Date : 11/27/2019 2:25:54 PM　　Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-9-11\ZZP-9-12 2019-11-27 14-08-42\AS,95-5,1ML,2UL,60MIN.M
Last changed : 11/27/2019 2:50:17 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-9-11\ZZP-9-12 2019-11-27 14-08-42\AS,95-5,1ML,2UL,60MIN.M (
Sequence Method)
Last changed : 11/29/2019 9:36:21 AM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

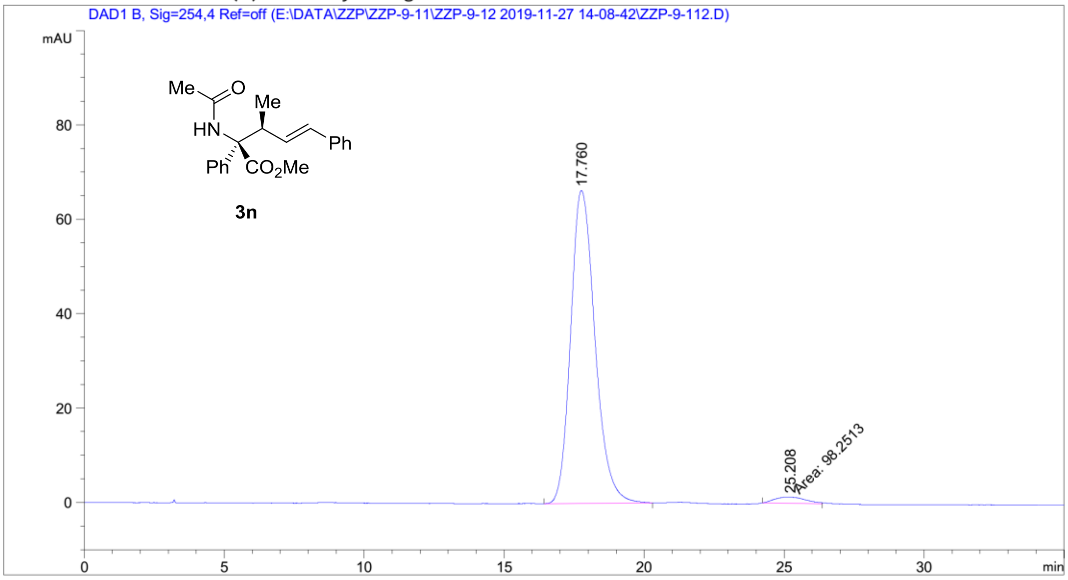
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	14.985	BB	0.6928	2325.13940	51.88815	27.5755
2	16.961	BB	0.8652	1658.62830	28.23995	19.6709
3	20.505	BB	1.0598	2575.21631	34.86258	30.5414
4	24.522	BB	1.0713	1872.90759	21.77895	22.2122

Data File E:\DATA\ZZP\ZZP-9-11\ZZP-9-12 2019-11-27 14-08-42\ZZP-9-112.D
Sample Name: ZZP-9-11-GH

===

Acq. Operator : SYSTEM Seq. Line : 3
Acq. Instrument : 1260 Location : 33
Injection Date : 11/27/2019 3:01:48 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-9-11\ZZP-9-12 2019-11-27 14-08-42\AS,95-5,1ML,2UL,60MIN.M
Last changed : 11/27/2019 2:50:17 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-9-11\ZZP-9-12 2019-11-27 14-08-42\AS,95-5,1ML,2UL,60MIN.M (Sequence Method)
Last changed : 11/29/2019 9:38:28 AM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



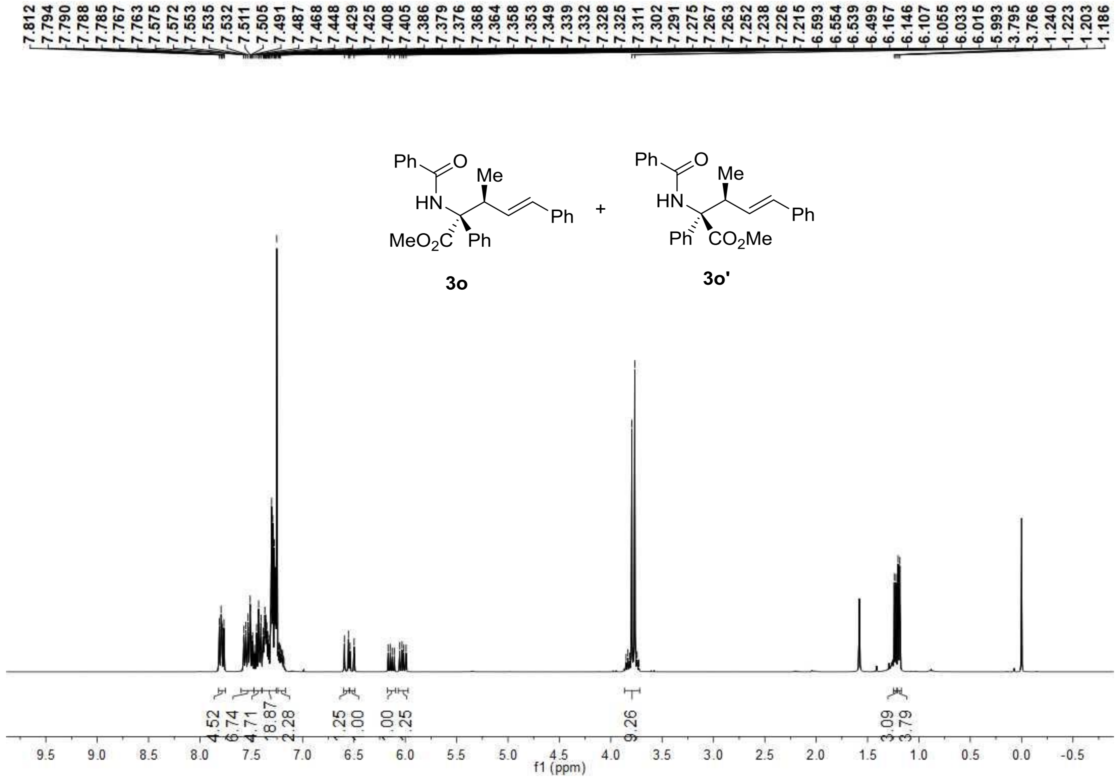
===
Area Percent Report
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

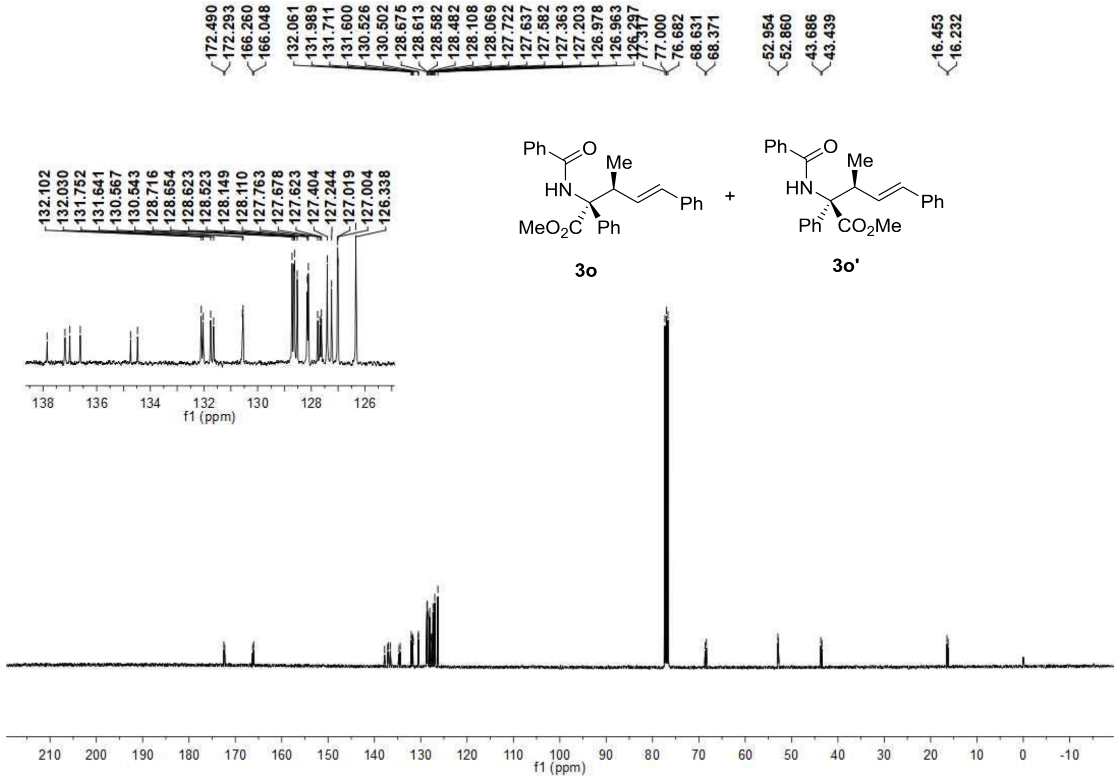
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	17.760	BB	0.9240	4010.64600	66.27621	97.6088
2	25.208	PM	1.2687	98.25127	1.29068	2.3912

Totals : 4108.89726 67.56690



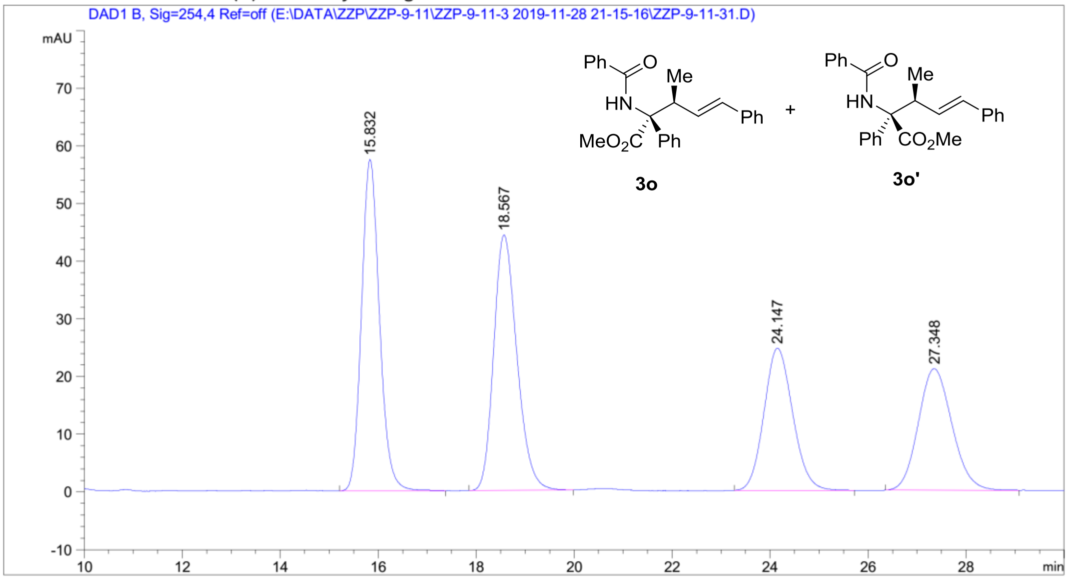
7.812 7.794 7.790 7.788 7.785 7.767 7.763 7.575 7.572 7.553 7.535 7.532 7.511 7.505 7.491 7.487 7.468 7.448 7.429 7.425 7.408 7.405 7.386 7.379 7.376 7.368 7.364 7.358 7.353 7.349 7.339 7.332 7.328 7.325 7.311 7.302 7.291 7.275 7.267 7.263 7.252 7.238 7.226 7.215 6.593 6.554 6.539 6.499 6.167 6.146 6.107 6.055 6.033 6.015 5.993 3.795 3.766 1.240 1.223 1.203 1.186
Ph
O
Me
HN
Ph
MeO2C
Ph
+
Ph
O
Me
HN
Ph
Ph
CO2Me
3o
3o'
4.52
6.74
4.71
18.87
2.28
1.25
1.00
1.00
1.25
9.26
3.09
3.79
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)



172.490 172.293 166.260 166.048
132.061 131.989 131.711 131.600 130.526 130.502 128.675 128.613 128.582 128.482 128.108 128.069 127.722 127.637 127.582 127.363 127.203 126.978 126.963 126.297
77.317 77.000 76.682 68.631 68.371
52.954 52.860 43.686 43.439
16.453 16.232
132.102 132.030 131.752 131.641 130.567 130.543 128.716 128.654 128.623 128.523 128.149 128.110 127.763 127.678 127.623 127.404 127.244 127.019 127.004 126.338
138 136 134 132 130 128 126
f1 (ppm)
Ph
O
Me
HN
Ph
MeO2C
Ph
+
Ph
O
Me
HN
Ph
Ph
CO2Me
3o
3o'
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

```
Data File E:\DATA\ZZP\ZZP-9-11\ZZP-9-11-3 2019-11-28 21-15-16\ZZP-9-11-31.D
Sample Name: ZZP-9-11-3

=====================================================================
Acq. Operator   : SYSTEM                          Seq. Line :   2
Acq. Instrument : 1260                             Location :   47
Injection Date  : 11/28/2019 9:32:30 PM                 Inj :   1
                                                Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-9-11\ZZP-9-11-3 2019-11-28 21-15-16\AD,90-10,2UL,1ML,30MIN.
                  M
Last changed    : 11/28/2019 9:15:16 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-9-11\ZZP-9-11-3 2019-11-28 21-15-16\AD,90-10,2UL,1ML,30MIN.
                  M (Sequence Method)
Last changed    : 11/29/2019 9:40:42 AM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
=====================================================================
                         Area Percent Report
=====================================================================

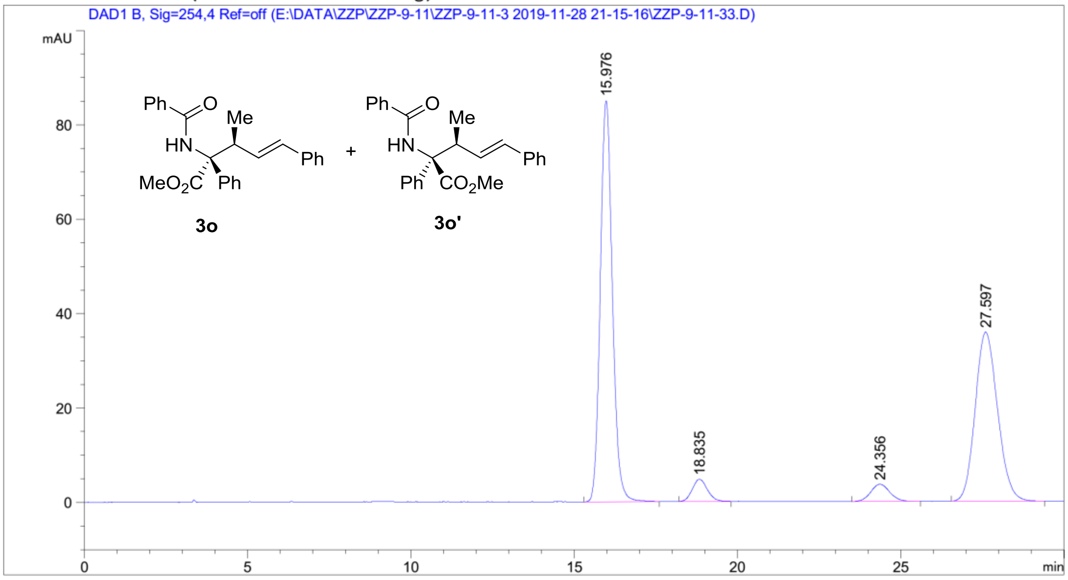
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 B, Sig=254,4 Ref=off
```

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	15.832	BB	0.3935	1463.89966	57.41402	29.7159
2	18.567	BB	0.5035	1455.96118	44.28938	29.5548
3	24.147	BB	0.6228	1003.15607	24.65083	20.3632
4	27.348	BB	0.6895	1003.29791	21.07263	20.3661

```
Data File E:\DATA\ZZP\ZZP-9-11\ZZP-9-11-3 2019-11-28 21-15-16\ZZP-9-11-33.D
Sample Name: ZZP-9-11-3-GH

    =====================================================================
    Acq. Operator   : SYSTEM                          Seq. Line :   4
    Acq. Instrument : 1260                             Location :   48
    Injection Date  : 11/28/2019 10:34:21 PM                Inj :   1
                                                     Inj Volume : 2.000 µl
    Acq. Method     : E:\DATA\ZZP\ZZP-9-11\ZZP-9-11-3 2019-11-28 21-15-16\AD,90-10,2UL,1ML,30MIN.
                      M
    Last changed    : 11/28/2019 9:15:16 PM by SYSTEM
    Analysis Method : E:\DATA\ZZP\ZZP-9-11\ZZP-9-11-3 2019-11-28 21-15-16\AD,90-10,2UL,1ML,30MIN.
                      M (Sequence Method)
    Last changed    : 11/29/2019 9:42:56 AM by SYSTEM
                      (modified after loading)
```



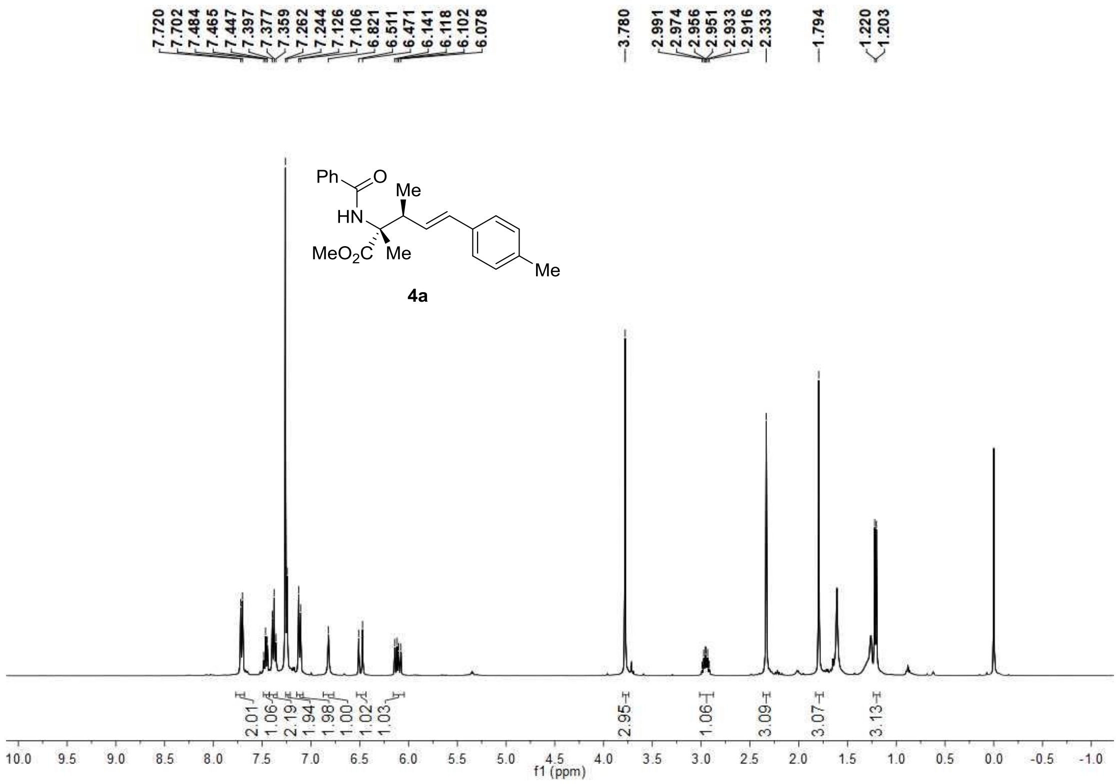

```
    =====================================================================
                             Area Percent Report
    =====================================================================

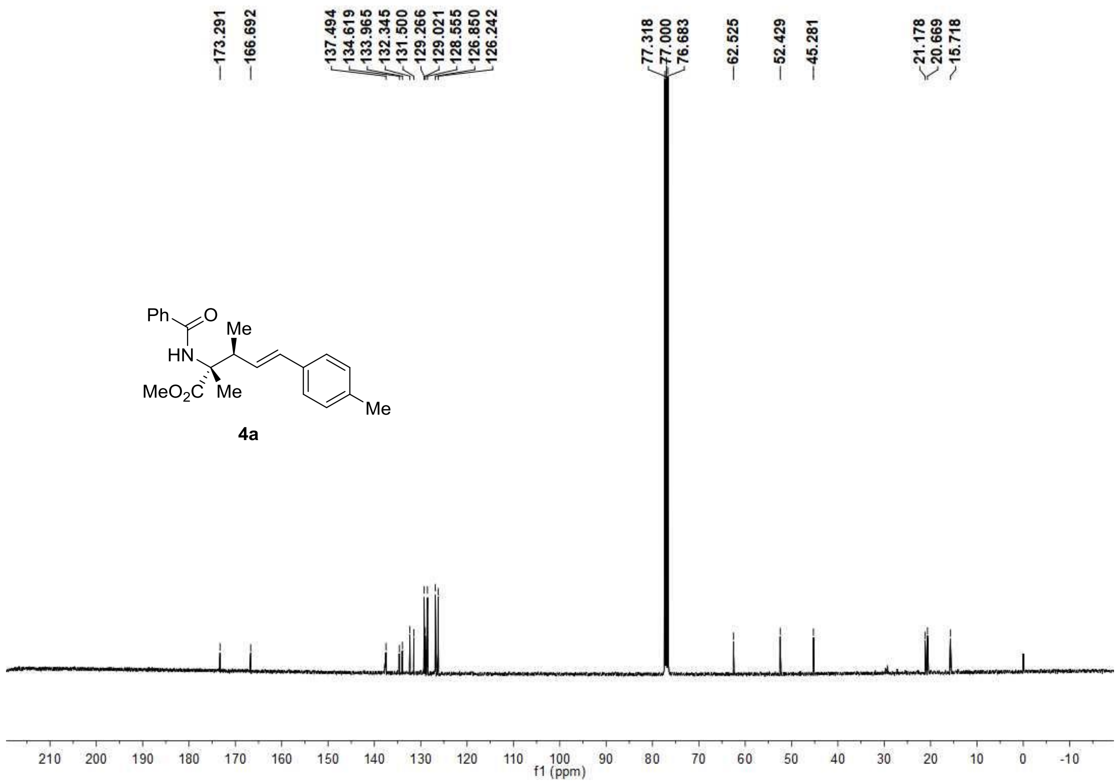
    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 B, Sig=254,4 Ref=off

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]        %
    ----|-------|----|-------|----------|----------|--------|
       1  15.976 BB    0.3922 2172.82910   85.00035 51.9735
       2  18.835 BB    0.4452  150.99010    4.69492  3.6116
       3  24.356 BB    0.4877  147.75714    3.63927  3.5343
       4  27.597 BB    0.7201 1709.07373   35.85708 40.8806

    Totals :                  4180.65007  129.19162
```

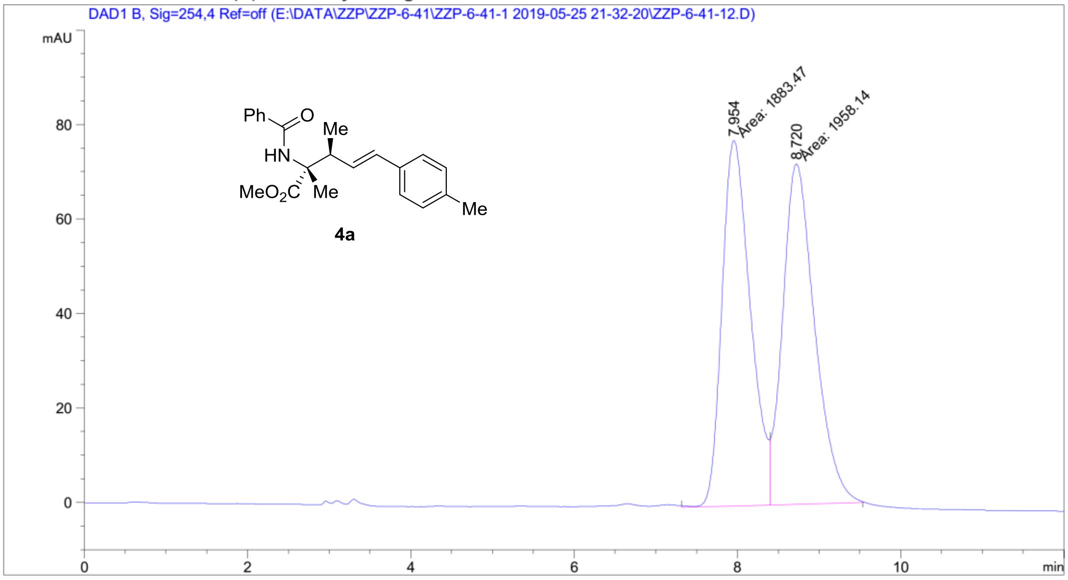

7.720 7.702 7.484 7.465 7.447 7.397 7.377 7.359 7.262 7.244 7.126 7.106 6.821 6.511 6.471 6.141 6.118 6.102 6.078
3.780
2.991 2.974 2.956 2.951 2.933 2.916 2.333
1.794
1.220 1.203
Ph O Me HN MeO2C Me Me
4a
2.01 1.06 2.19 1.94 1.98 1.00 1.02 1.03 2.95 1.06 3.09 3.07 3.13
f1 (ppm)


173.291
166.692
137.494 134.619 133.965 132.345 131.500 129.266 129.021 128.555 126.850 126.242
77.318 77.000 76.683
62.525
52.429
45.281
21.178 20.669 15.718
Ph O Me HN MeO2C Me Me
4a
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-1 2019-05-25 21-32-20\ZZP-6-41-12.D
Sample Name: ZZP-6-41-1

===

Acq. Operator : SYSTEM Seq. Line : 3
Acq. Instrument : 1260 Location : 61
Injection Date : 5/25/2019 9:51:01 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-1 2019-05-25 21-32-20\OD,90-10,2UL,1ML,30MIN.M
Last changed : 5/25/2019 10:00:44 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-1 2019-05-25 21-32-20\OD,90-10,2UL,1ML,30MIN.M (Sequence Method)
Last changed : 9/10/2019 8:05:14 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

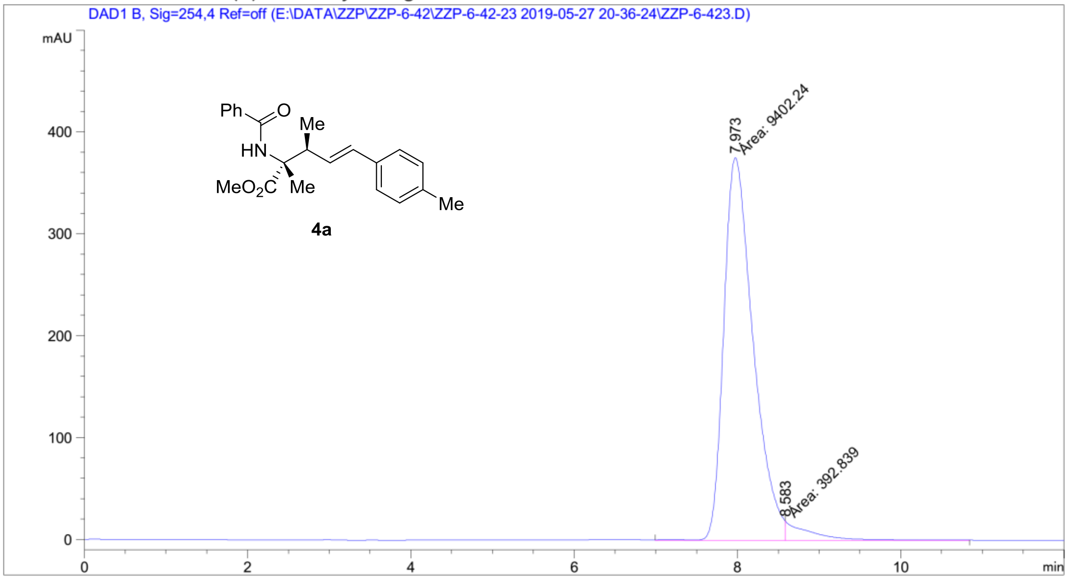
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.954	MF	0.4057	1883.46558	77.37347	49.0280
2	8.720	FM	0.4528	1958.14441	72.07433	50.9720

Totals : 3841.60999 149.44780

Data File E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\ZZP-6-423.D
Sample Name: ZZP-6-42-3

===

```
Acq. Operator   : SYSTEM                          Seq. Line :    4
Acq. Instrument : 1260                             Location :   62
Injection Date  : 5/27/2019 9:16:20 PM                  Inj :    1
                                                 Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\OD,90-10,2UL,1ML,30MIN
                  .M
Last changed    : 5/27/2019 9:26:15 PM by SYSTEM
                  (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\OD,90-10,2UL,1ML,30MIN
                  .M (Sequence Method)
Last changed    : 11/20/2019 10:10:20 AM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



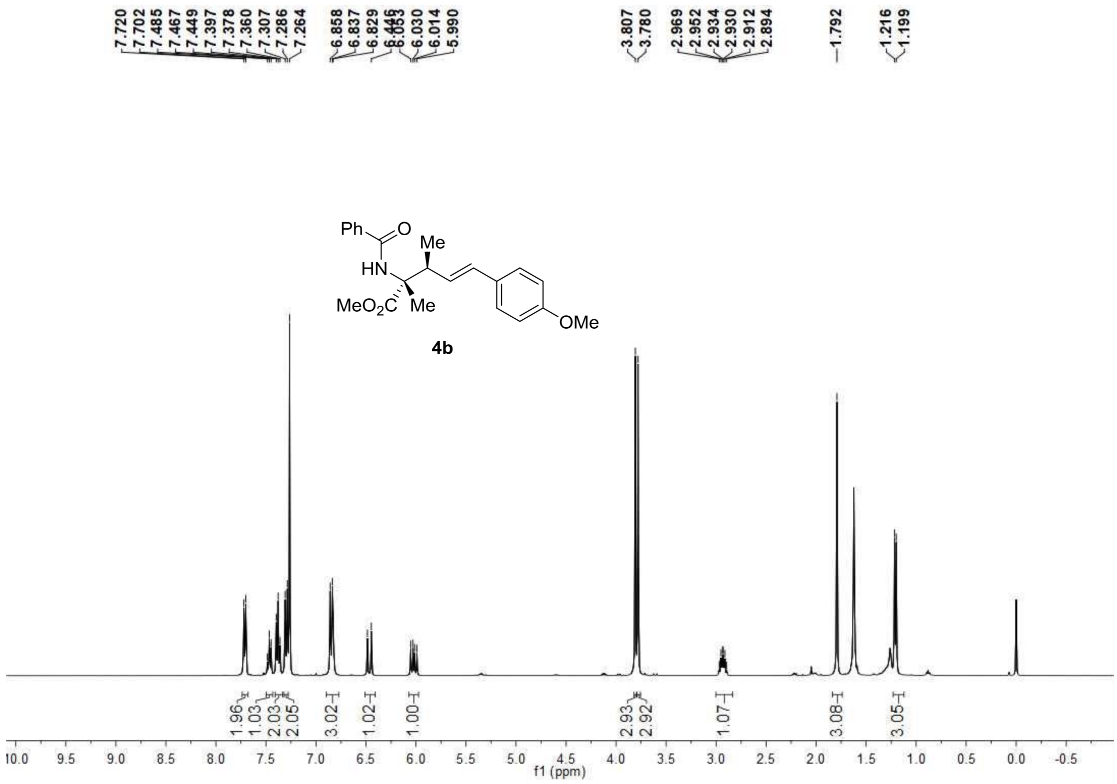
===
Area Percent Report
===

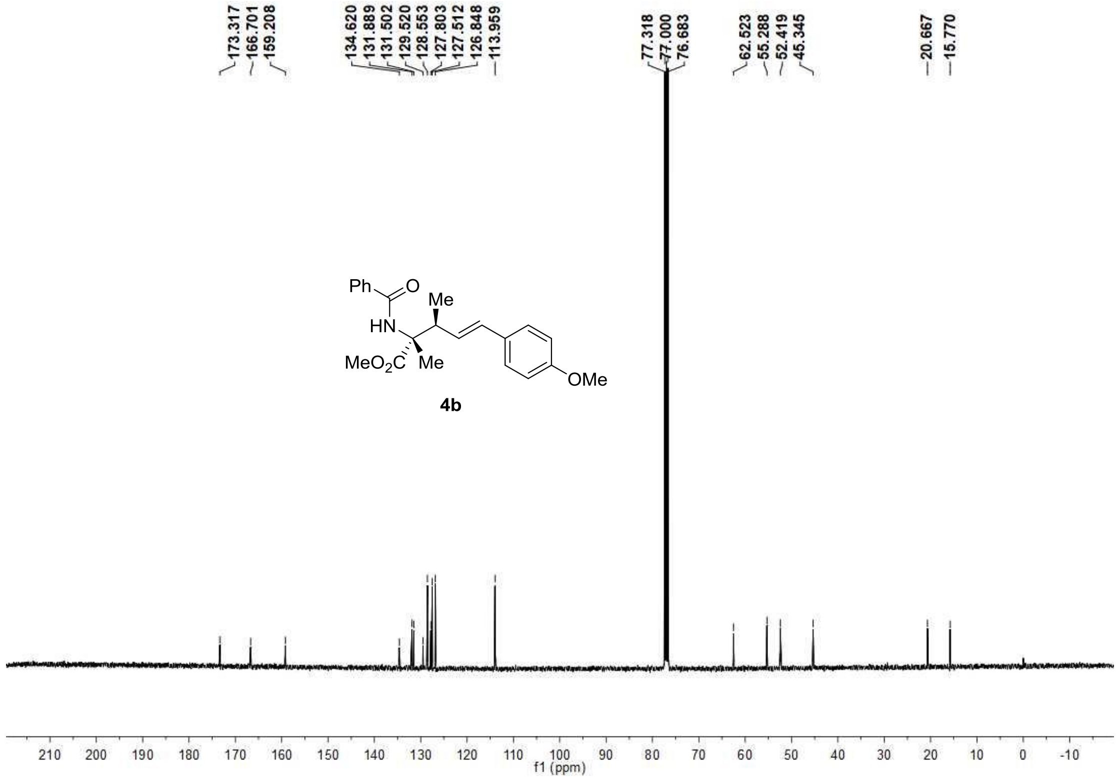
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.973	MF	0.4174	9402.24316	375.44598	95.9894
2	8.583	FM	0.3437	392.83899	19.04754	4.0106

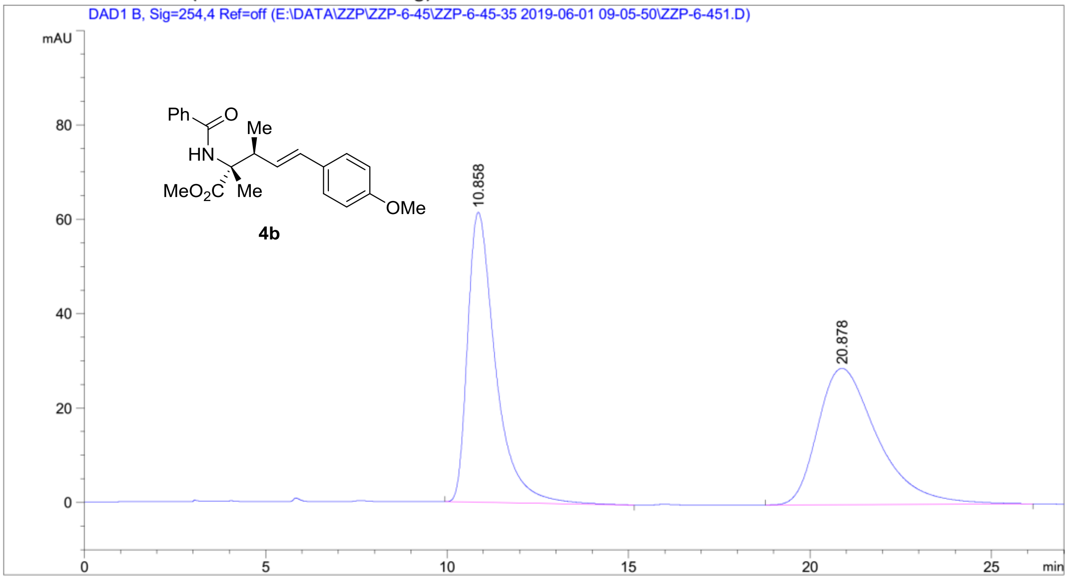
Totals : 9795.08215 394.49352





```
Data File E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-35 2019-06-01 09-05-50\ZZP-6-451.D
Sample Name: ZZP-6-45-3

    =====================================================================
    Acq. Operator   : SYSTEM                          Seq. Line :    2
    Acq. Instrument : 1260                             Location :   24
    Injection Date  : 6/1/2019 9:17:44 AM                   Inj :    1
                                                     Inj Volume : 2.000 µl
    Acq. Method     : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-35 2019-06-01 09-05-50\AS,90-10,2UL,1ML,20MIN
                      .M
    Last changed    : 6/1/2019 9:16:58 AM by SYSTEM
                      (modified after loading)
    Analysis Method : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-35 2019-06-01 09-05-50\AS,90-10,2UL,1ML,20MIN
                      .M (Sequence Method)
    Last changed    : 9/10/2019 8:14:34 PM by SYSTEM
                      (modified after loading)
```




```
    =====================================================================
                             Area Percent Report
    =====================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 B, Sig=254,4 Ref=off

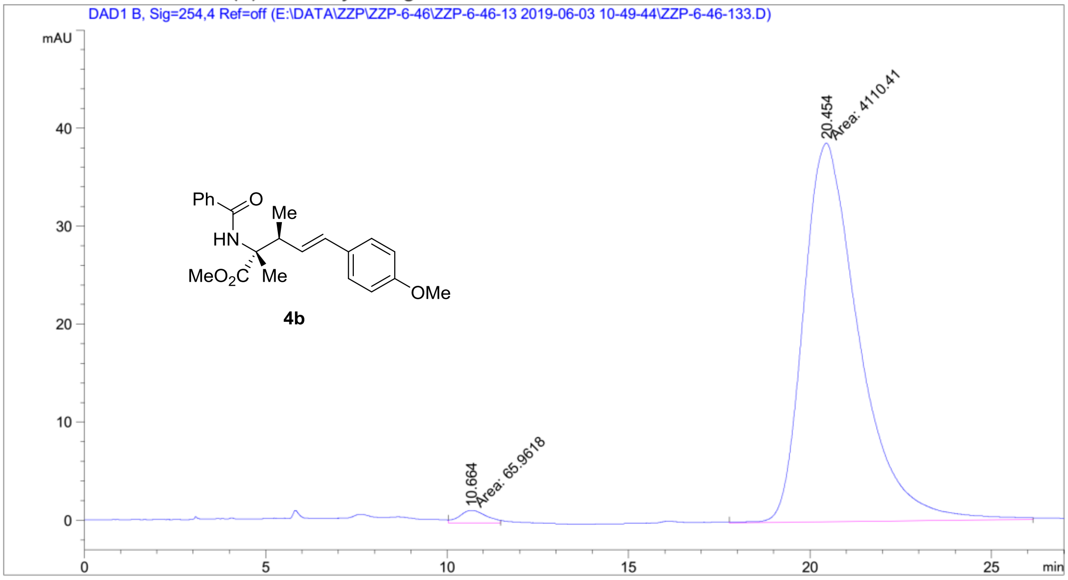
    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]        %
    ----|-------|----|-------|----------|----------|--------|
       1  10.858 BB    0.8048 3301.74585   61.45637  49.9615
       2  20.878 BB    1.5570 3306.82788   28.89760  50.0385

    Totals :                  6608.57373   90.35397
```

Data File E:\DATA\ZZP\ZZP-6-46\ZZP-6-46-13 2019-06-03 10-49-44\ZZP-6-46-133.D
Sample Name: ZZP-6-46-3

===

Acq. Operator : SYSTEM   Seq. Line : 4
Acq. Instrument : 1260   Location : 82
Injection Date : 6/3/2019 11:36:29 AM   Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-46\ZZP-6-46-13 2019-06-03 10-49-44\AS,90-10,2UL,1ML,20MIN .M
Last changed : 6/3/2019 11:36:51 AM by SYSTEM (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-46\ZZP-6-46-13 2019-06-03 10-49-44\AS,90-10,2UL,1ML,20MIN .M (Sequence Method)
Last changed : 9/10/2019 8:15:50 PM by SYSTEM (modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

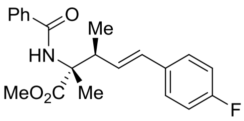
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

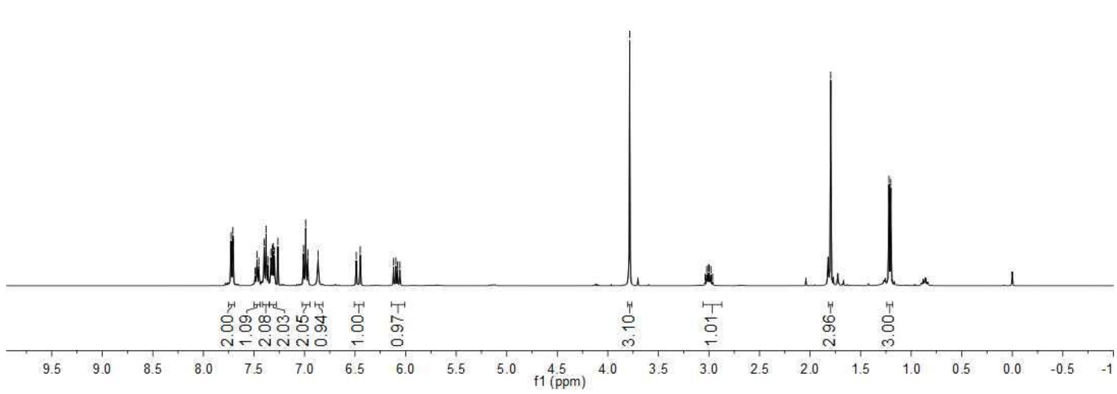
Signal 1: DAD1 B, Sig=254,4 Ref=off

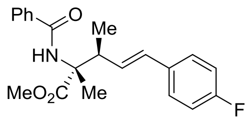
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	10.664	MM	0.8517	65.96181	1.29073	1.5794
2	20.454	MM	1.7732	4110.40674	38.63438	98.4206

Totals : 4176.36855 39.92512

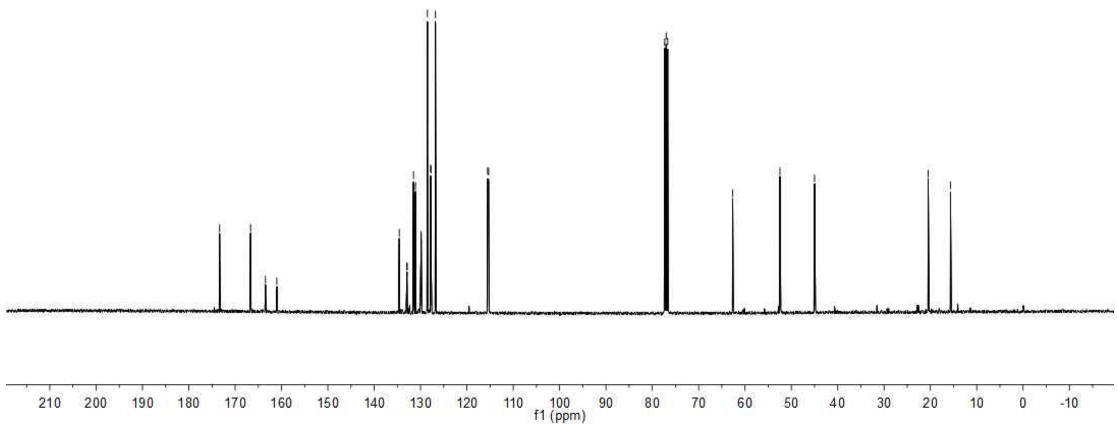


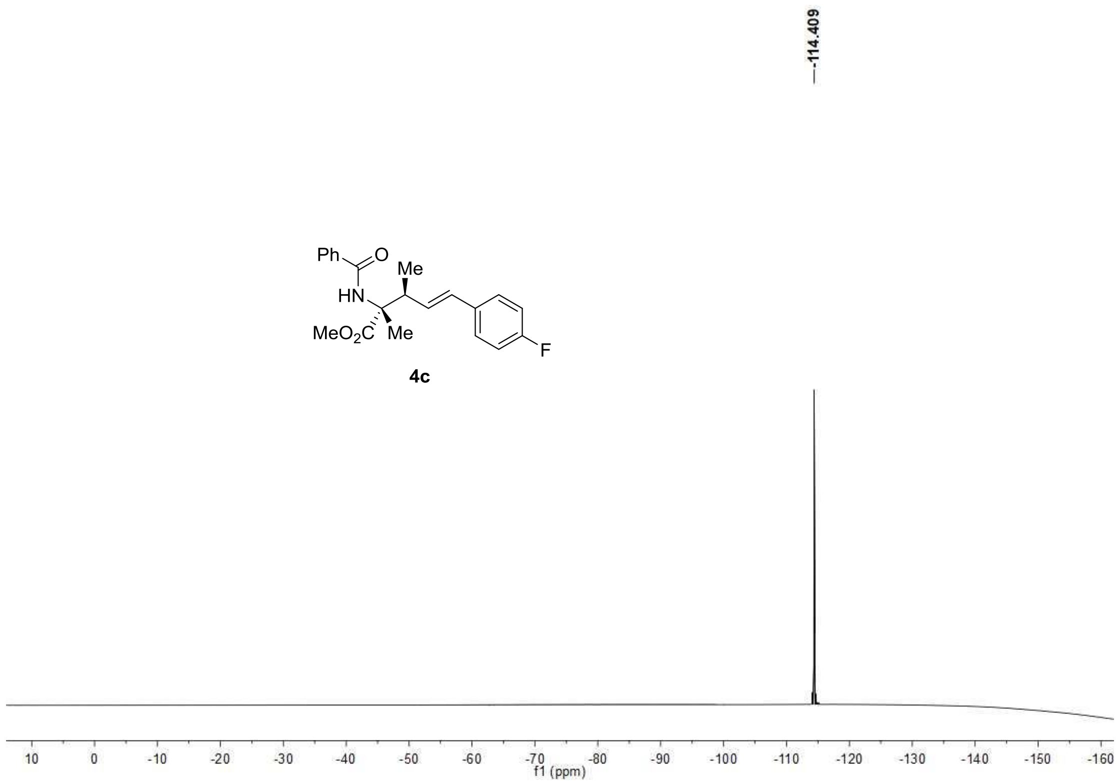
4c


7.726
7.708
7.705
7.470
7.451
7.400
7.380
7.362
7.332
7.318
7.310
7.302
7.297
7.264
7.010
6.988
6.967
6.449
6.119
6.096
6.080
6.057
3.784
3.039
3.021
3.004
2.999
2.981
2.964
1.796
1.219
1.202
2.00
1.09
2.08
2.03
2.05
0.94
1.00
0.97
3.10
1.01
2.96
3.00
f1 (ppm)



4c

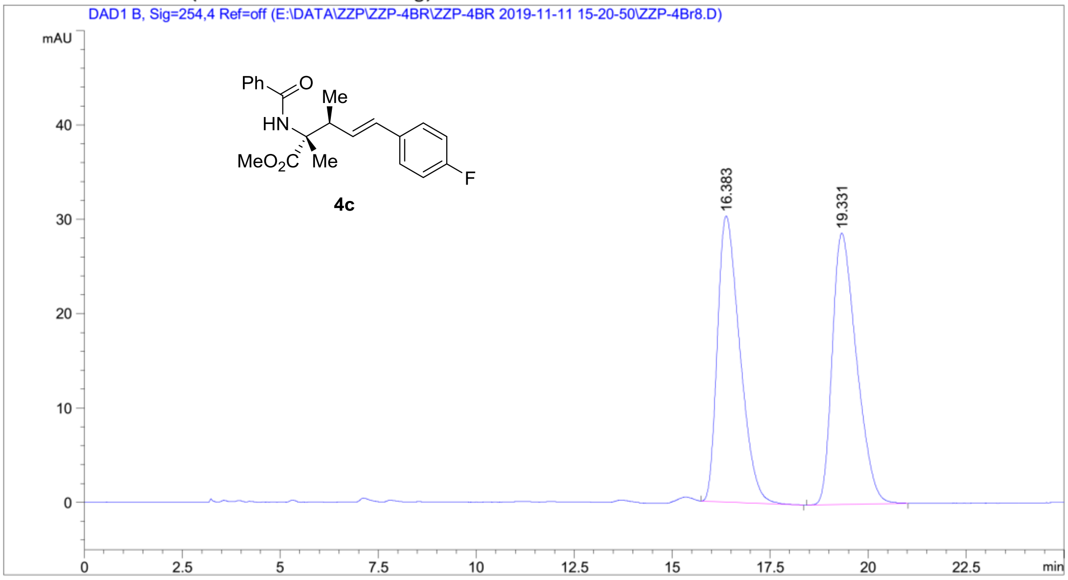

173.363
166.665
163.462
161.009
134.583
132.930
131.517
131.084
129.880
129.859
128.526
127.837
127.758
115.530
115.315
77.318
77.000
76.682
62.651
52.462
44.997
20.472
15.662
f1 (ppm)



-114.409
Ph
O
HN
Me
MeO2C
Me
F
4c
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-4BR\ZZP-4BR 2019-11-11 15-20-50\ZZP-4Br8.D
Sample Name: zzp-4f

===
Acq. Operator   : SYSTEM   Seq. Line :   9
Acq. Instrument : 1260   Location :   31
Injection Date : 11/11/2019 5:50:29 PM   Inj :   1
                                               Inj Volume : 2.000 µl
Acq. Method   : E:\DATA\ZZP\ZZP-4Br\zzp-4br 2019-11-11 15-20-50\ID,90-10,2UL,1ML,20MIN.M
Last changed   : 11/11/2019 5:43:54 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-4Br\zzp-4br 2019-11-11 15-20-50\ID,90-10,2UL,1ML,20MIN.M (
                  Sequence Method)
Last changed   : 11/20/2019 10:22:40 AM by SYSTEM
                  (modified after loading)



===
Area Percent Report
===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

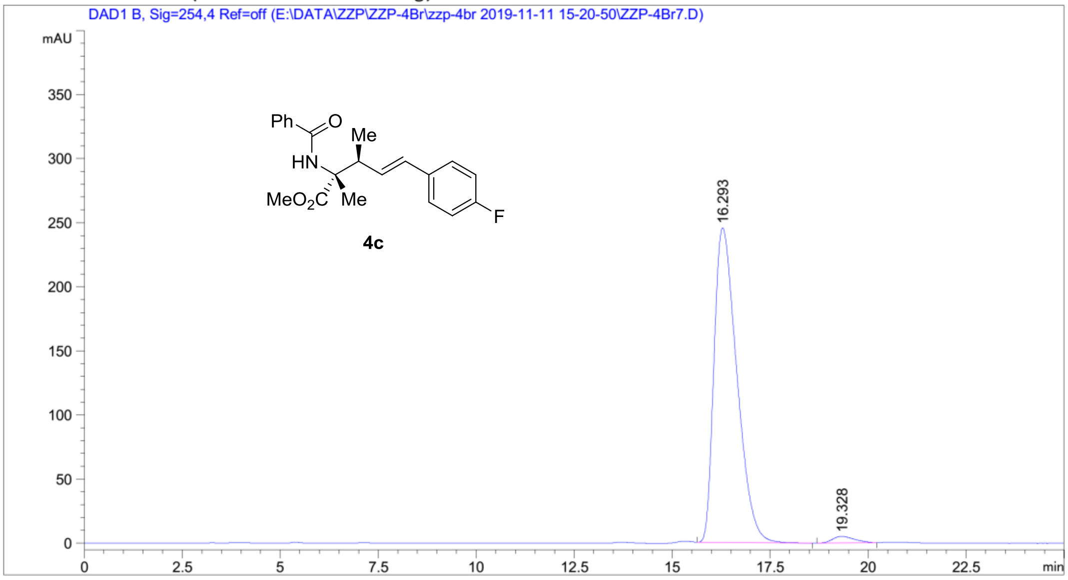
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	16.383	BB	0.6005	1206.50049	30.30393	49.3635
2	19.331	BB	0.6441	1237.61365	28.75495	50.6365

Totals : 2444.11414 59.05888

===

```
Data File E:\DATA\ZZP\ZZP-4Br\zzp-4br 2019-11-11 15-20-50\ZZP-4Br7.D
Sample Name: zzp-4f

=====================================================================
Acq. Operator   : SYSTEM                          Seq. Line :    8
Acq. Instrument : 1260                             Location :   33
Injection Date  : 11/11/2019 5:24:37 PM                 Inj :    1
                                               Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-4Br\zzp-4br 2019-11-11 15-20-50\ID,90-10,2UL,1ML,20MIN.M
Last changed    : 11/11/2019 5:43:54 PM by SYSTEM
                  (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-4Br\zzp-4br 2019-11-11 15-20-50\ID,90-10,2UL,1ML,20MIN.M (
                  Sequence Method)
Last changed    : 11/20/2019 10:23:37 AM by SYSTEM
                  (modified after loading)
```



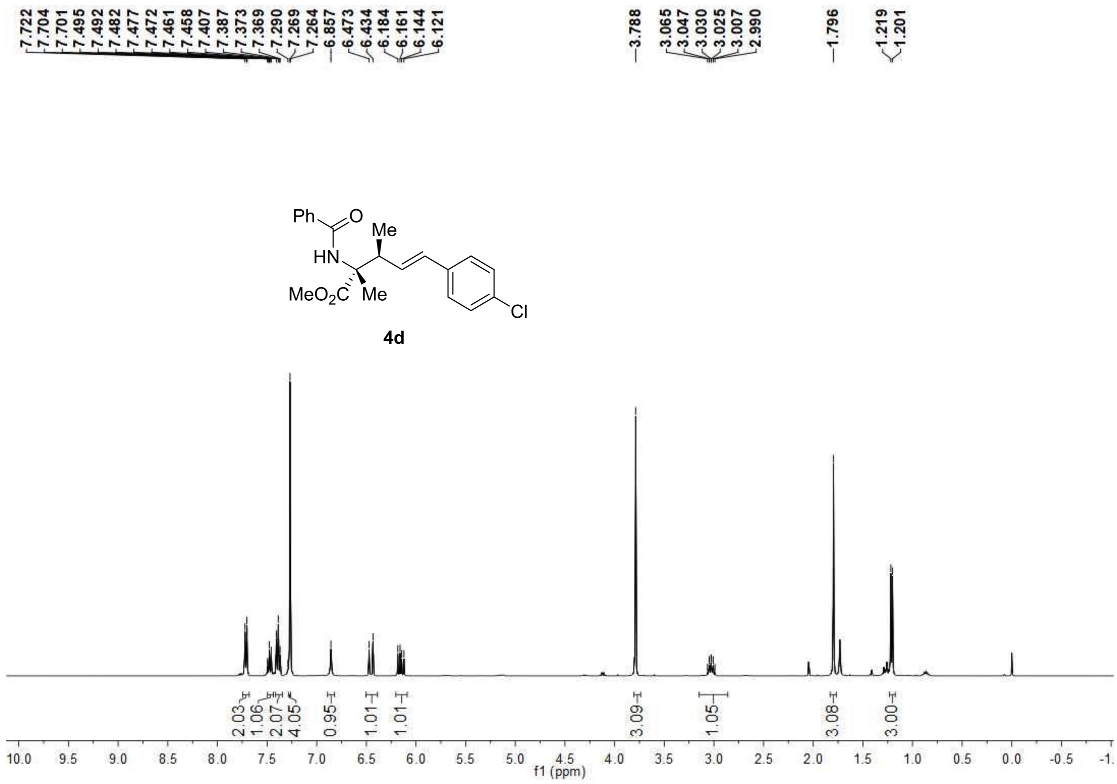

```
=====================================================================
                         Area Percent Report
=====================================================================

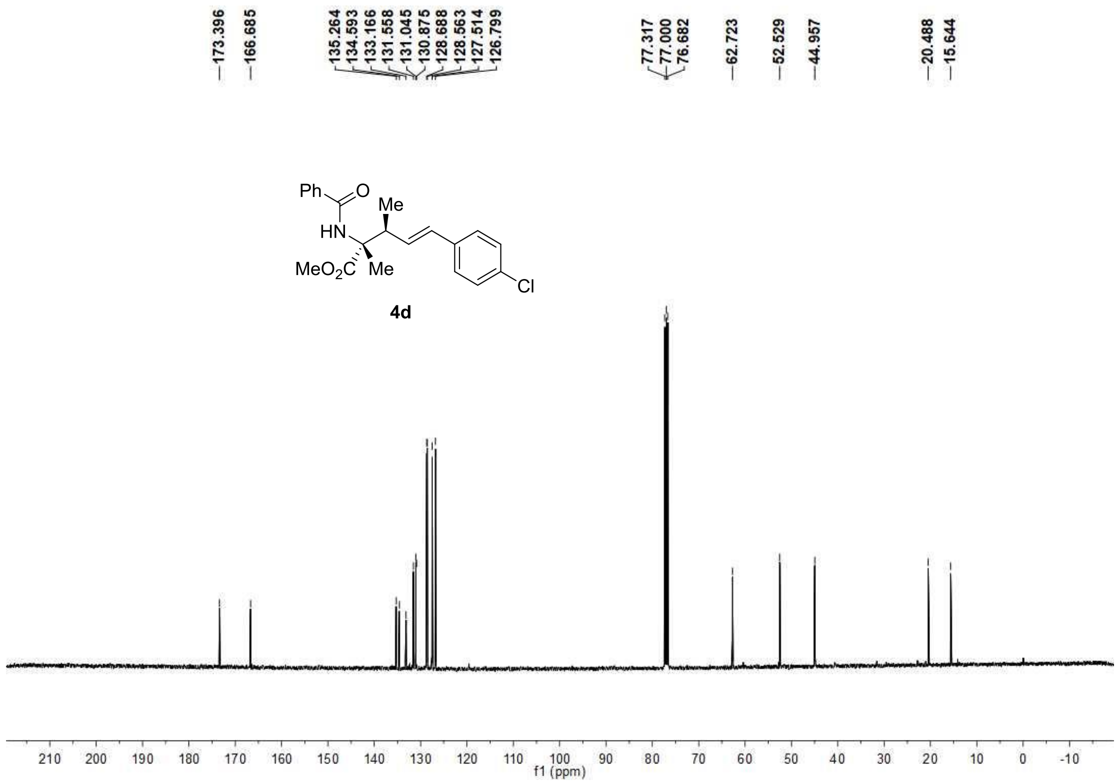
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 B, Sig=254,4 Ref=off
```

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	16.293	BB	0.6243	9936.77637	245.43620	98.0621
2	19.328	BB	0.5430	196.37254	5.12484	1.9379

```
Totals :                  1.01331e4   250.56104
```

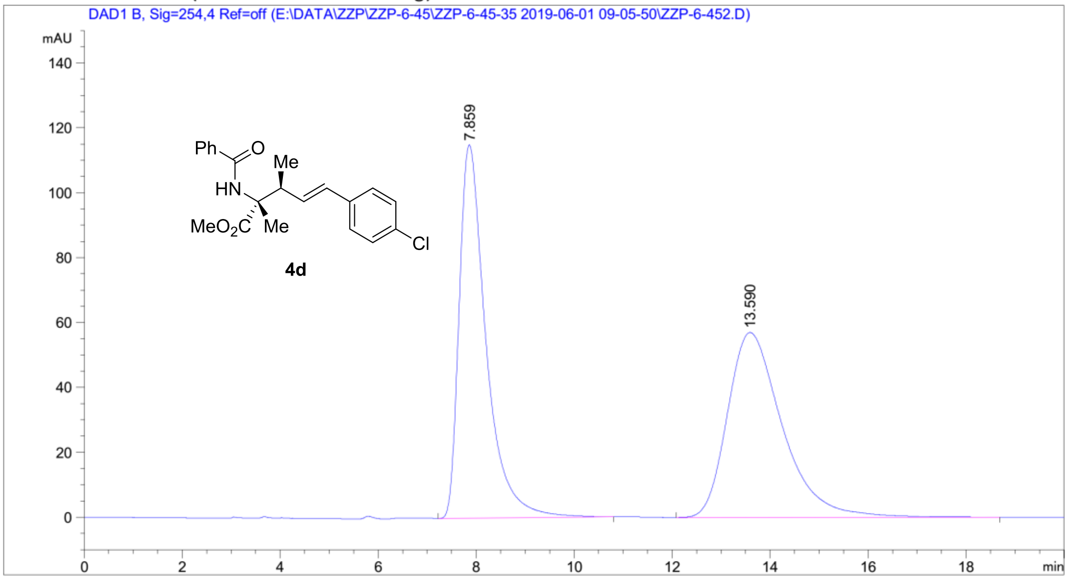

Ph
O
Me
HN
MeO2C
Me
Cl
4d


Ph
O
Me
HN
MeO2C
Me
Cl
4d

Data File E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-35 2019-06-01 09-05-50\ZZP-6-452.D
Sample Name: ZZP-6-45-4

===

Acq. Operator : SYSTEM Seq. Line : 3
Acq. Instrument : 1260 Location : 25
Injection Date : 6/1/2019 9:48:38 AM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-35 2019-06-01 09-05-50\AS,90-10,2UL,1ML,20MIN .M
Last changed : 6/1/2019 10:05:43 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-35 2019-06-01 09-05-50\AS,90-10,2UL,1ML,20MIN .M (Sequence Method)
Last changed : 9/10/2019 8:20:18 PM by SYSTEM
(modified after loading)



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

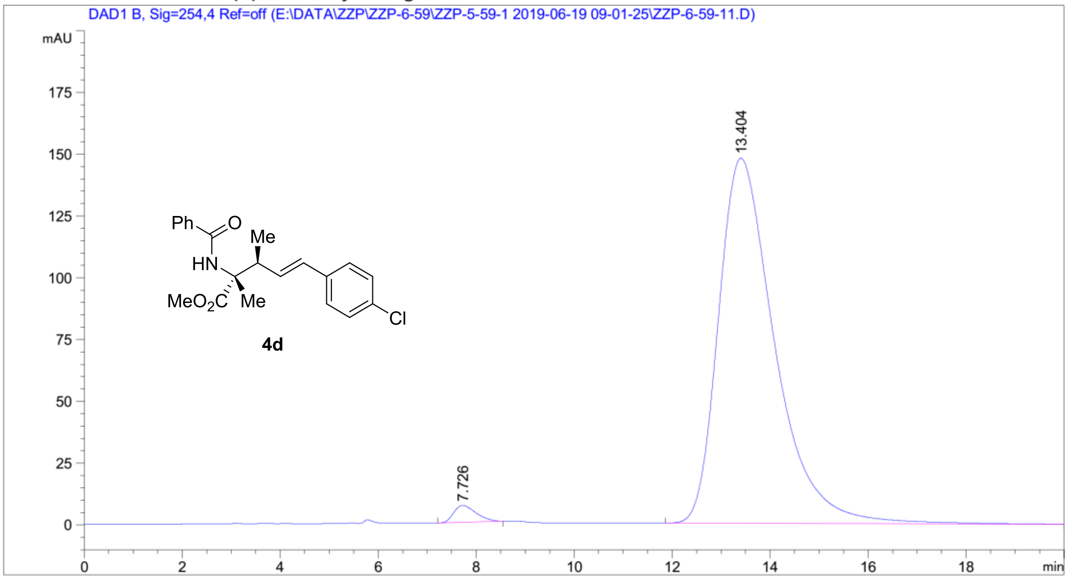
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.859	BB	0.5742	4382.24561	115.08514	49.7577
2	13.590	BB	1.1696	4424.93213	57.00348	50.2423

Totals : 8807.17773 172.08862

```
Data File E:\DATA\ZZP\ZZP-6-59\ZZP-5-59-1 2019-06-19 09-01-25\ZZP-6-59-11.D
Sample Name: ZZP-5-59-1

    =====================================================================
    Acq. Operator   : SYSTEM                          Seq. Line :    2
    Acq. Instrument : 1260                             Location :   51
    Injection Date  : 6/19/2019 9:13:38 AM                  Inj :    1
                                                     Inj Volume : 2.000 µl
    Acq. Method     : E:\DATA\ZZP\ZZP-6-59\ZZP-5-59-1 2019-06-19 09-01-25\AS,90-10,2UL,1ML,20MIN.
                      M
    Last changed    : 6/19/2019 9:01:25 AM by SYSTEM
    Analysis Method : E:\DATA\ZZP\ZZP-6-59\ZZP-5-59-1 2019-06-19 09-01-25\AS,90-10,2UL,1ML,20MIN.
                      M (Sequence Method)
    Last changed    : 9/10/2019 8:21:18 PM by SYSTEM
                      (modified after loading)
    Additional Info : Peak(s) manually integrated
```



4d

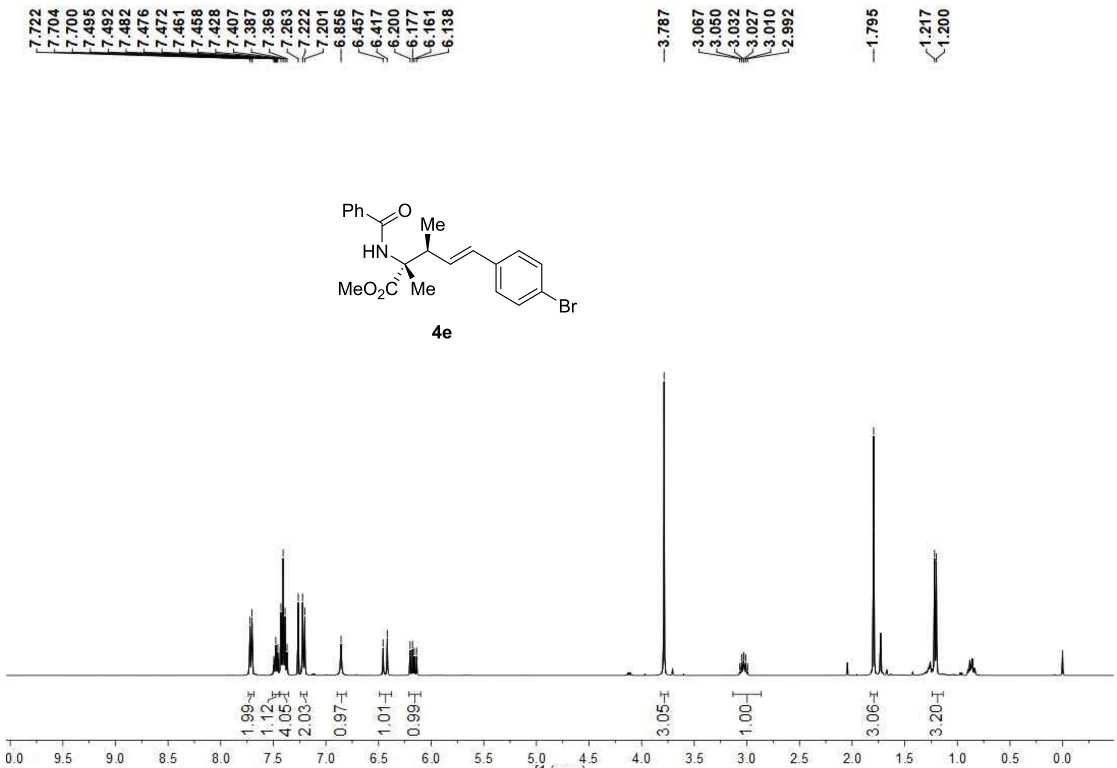
```
    =====================================================================
                             Area Percent Report
    =====================================================================

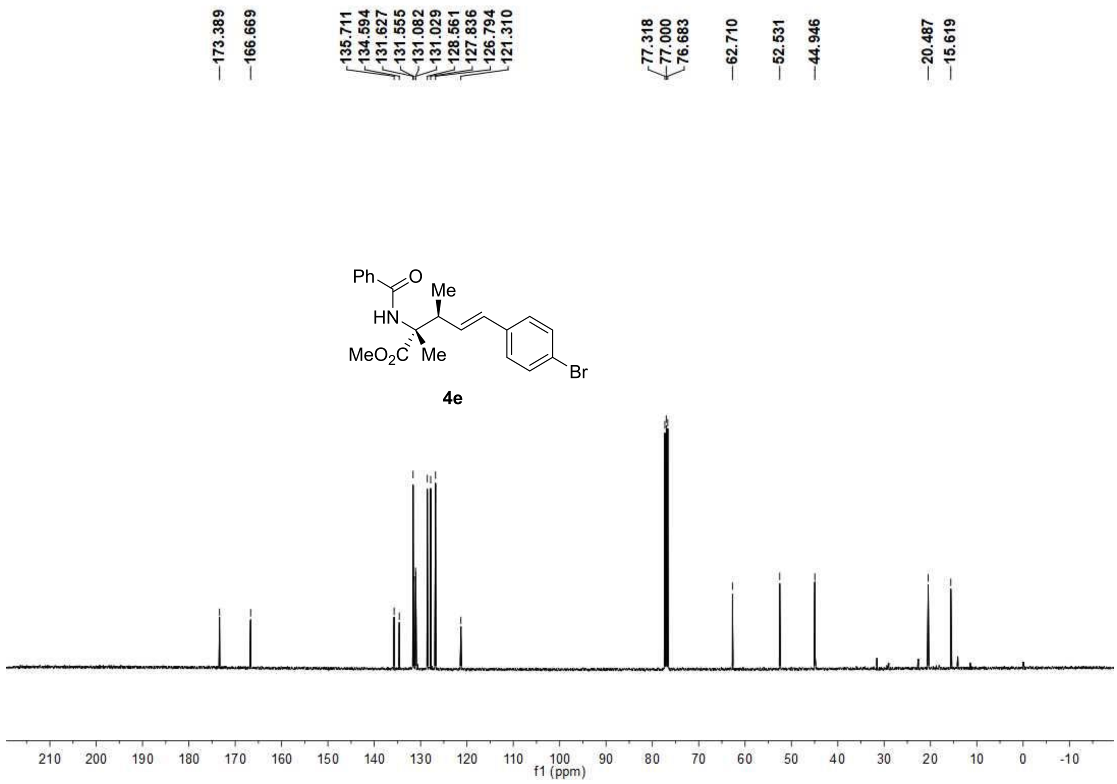
    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 B, Sig=254,4 Ref=off
```

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.726	BB	0.4821	216.48560	6.82393	1.8061
2	13.404	BBA	1.2058	1.17700e4	147.67722	98.1939

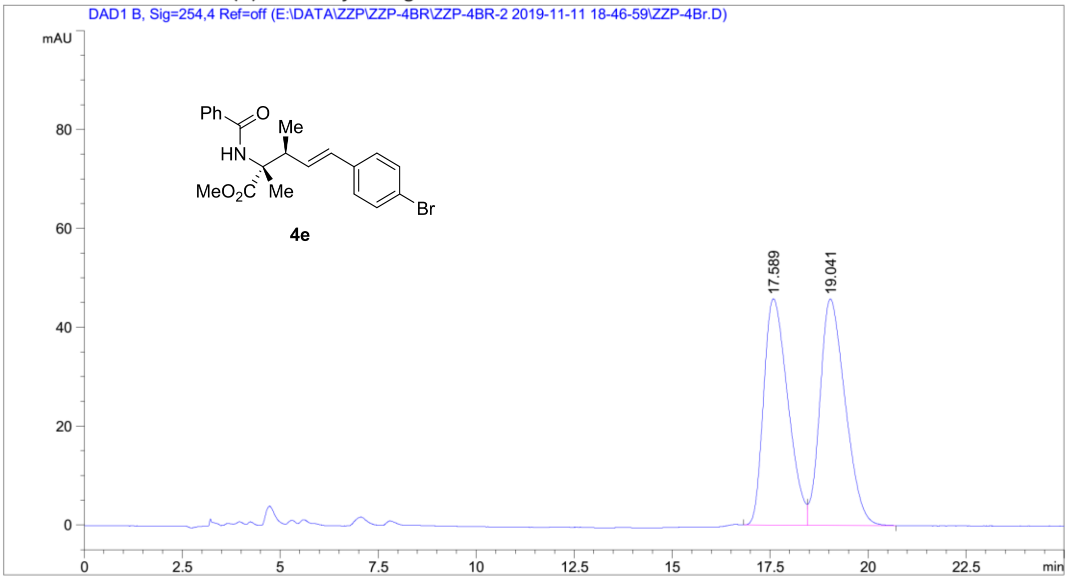
Totals : 1.19864e4 154.50114


7.722
7.704
7.700
7.495
7.492
7.482
7.476
7.472
7.461
7.458
7.428
7.407
7.387
7.369
7.263
7.222
7.201
6.856
6.457
6.417
6.200
6.177
6.161
6.138
3.787
3.067
3.050
3.032
3.027
3.010
2.992
1.795
1.217
1.200
Ph
O
Me
HN
MeO2C
Me
Br
4e
1.99
1.12
4.05
2.03
0.97
1.01
0.99
3.05
1.00
3.06
3.20
f1 (ppm)


173.389
166.669
135.711
134.594
131.627
131.555
131.082
131.029
128.561
127.836
126.794
121.310
77.318
77.000
76.683
62.710
52.531
44.946
20.487
15.619
Ph
O
Me
HN
MeO2C
Me
Br
4e
f1 (ppm)

```
Data File E:\DATA\ZZP\ZZP-4BR\ZZP-4BR-2 2019-11-11 18-46-59\ZZP-4Br.D
Sample Name: zzp-4Br

    =====================================================================
    Acq. Operator   : SYSTEM                          Seq. Line :   1
    Acq. Instrument : 1260                             Location :   32
    Injection Date  : 11/11/2019 6:47:58 PM                 Inj :   1
                                                     Inj Volume : 10.000 µl
    Acq. Method     : E:\DATA\ZZP\ZZP-4Br\zzp-4br-2 2019-11-11 18-46-59\ID90-10,1ML,2UL,30MIN.M
    Last changed    : 11/11/2019 6:47:08 PM by SYSTEM
                      (modified after loading)
    Analysis Method : E:\DATA\ZZP\ZZP-4Br\zzp-4br-2 2019-11-11 18-46-59\ID90-10,1ML,2UL,30MIN.M (
                      Sequence Method)
    Last changed    : 11/20/2019 10:14:40 AM by SYSTEM
                      (modified after loading)
    Additional Info : Peak(s) manually integrated
```




```
    =====================================================================
                             Area Percent Report
    =====================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 B, Sig=254,4 Ref=off

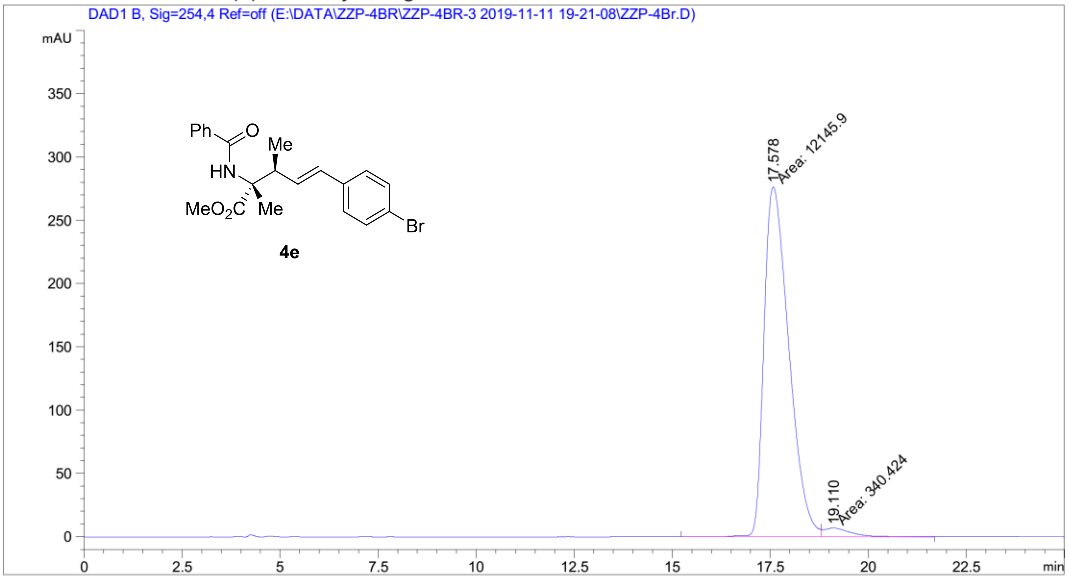
    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]        %
    ----|-------|----|-------|----------|----------|--------|
       1  17.589 BV    0.6684 1963.27124   45.77510  48.8656
       2  19.041 VB    0.6693 2054.42603   45.80133  51.1344

    Totals :                  4017.69727   91.57644
```

Data File E:\DATA\ZZP-4BR\ZZP-4BR-3 2019-11-11 19-21-08\ZZP-4Br.D
Sample Name: zzp-4Br

===

Acq. Operator   : SYSTEM   Seq. Line :   1
Acq. Instrument : 1260   Location :   31
Injection Date : 11/11/2019 7:22:04 PM   Inj :   1
                                                 Inj Volume : 2.000 µl
Acq. Method   : E:\DATA\ZZP-4Br\zzp-4br-3 2019-11-11 19-21-08\ID90-10,1ML,2UL,30MIN.M
Last changed   : 11/11/2019 7:21:08 PM by SYSTEM
Analysis Method : E:\DATA\ZZP-4Br\zzp-4br-3 2019-11-11 19-21-08\ID90-10,1ML,2UL,30MIN.M (Sequence Method)
Last changed   : 11/20/2019 10:18:27 AM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated



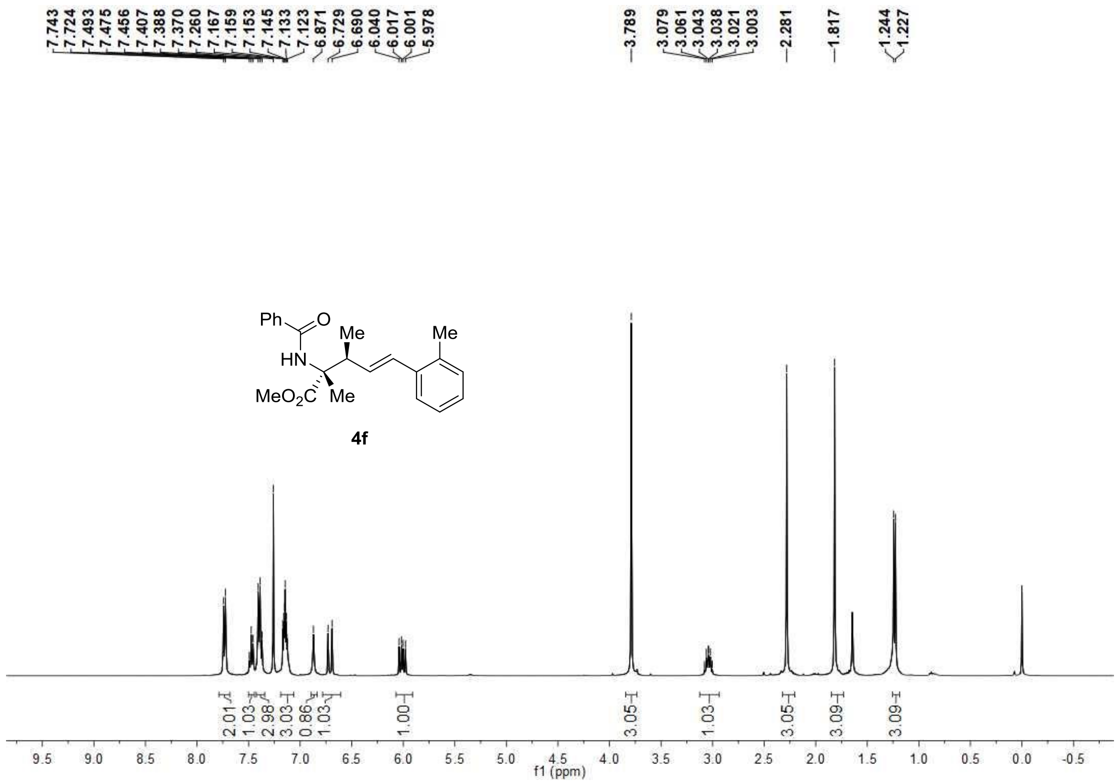
===
Area Percent Report
===

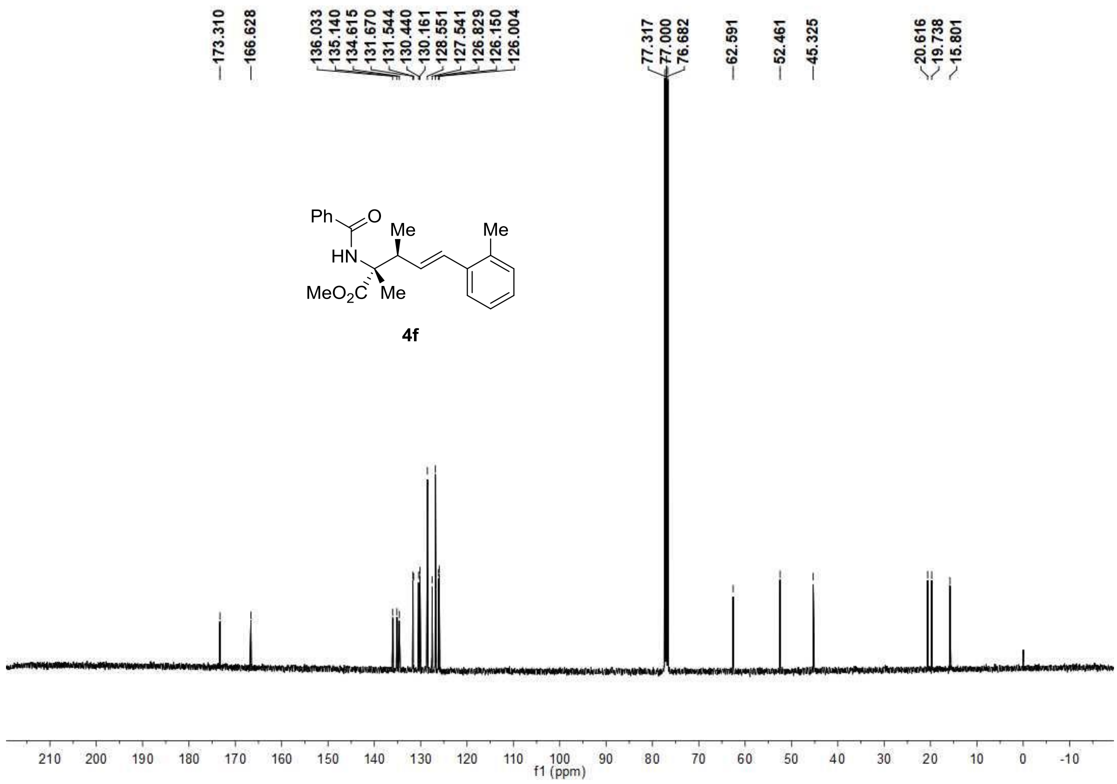
Sorted By   :   Signal
Multiplier   :   1.0000
Dilution   :   1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	17.578	MF	0.7326	1.21459e4	276.32147	97.2736
2	19.110	FM	0.8253	340.42383	6.87504	2.7264

Totals : 1.24863e4 283.19652

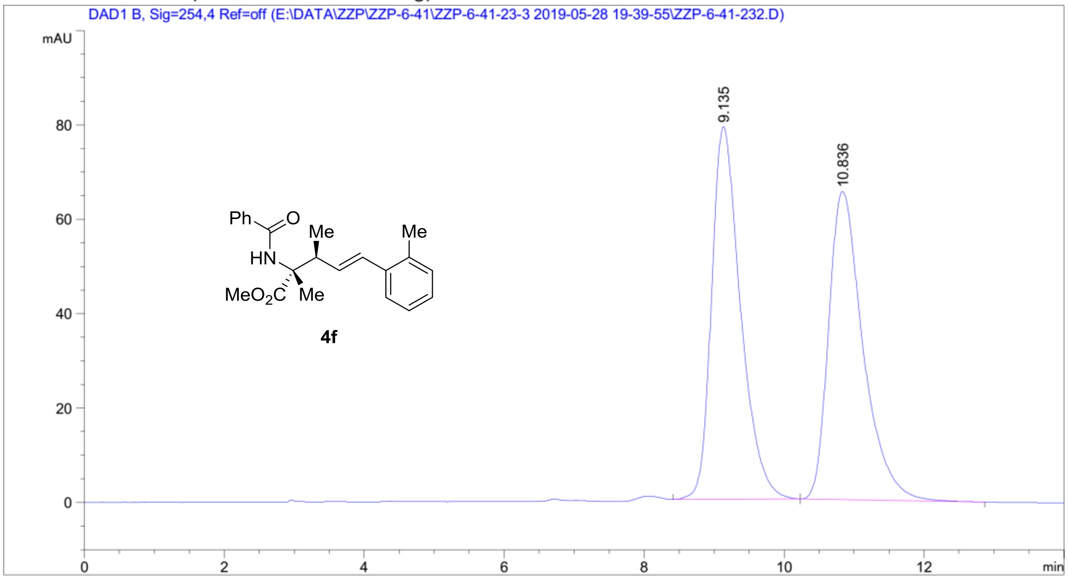

7.743 7.724 7.493 7.475 7.456 7.407 7.388 7.370 7.260 7.167 7.159 7.153 7.145 7.133 7.123 6.871 6.729 6.690 6.040 6.017 6.001 5.978
3.789 3.079 3.061 3.043 3.038 3.021 3.003 2.281 1.817 1.244 1.227
Ph
O
Me
Me
HN
MeO2C
Me
4f
2.01 1.03 2.98 3.03 0.86 1.03 1.00 3.05 1.03 3.05 3.09 3.09
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)


173.310 166.628 136.033 135.140 134.615 131.670 131.544 130.440 130.161 128.551 127.541 126.829 126.150 126.004
77.317 77.000 76.682 62.591 52.461 45.325 20.616 19.738 15.801
Ph
O
Me
Me
HN
MeO2C
Me
4f
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-23-3 2019-05-28 19-39-55\ZZP-6-41-232.D
Sample Name: ZZP-6-41-3

===

Acq. Operator : SYSTEM Seq. Line : 3
Acq. Instrument : 1260 Location : 62
Injection Date : 5/28/2019 8:09:16 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-23-3 2019-05-28 19-39-55\OD,90-10,2UL,1ML,30MIN.M
Last changed : 5/28/2019 8:08:18 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-23-3 2019-05-28 19-39-55\OD,90-10,2UL,1ML,30MIN.M (Sequence Method)
Last changed : 9/10/2019 8:39:04 PM by SYSTEM
(modified after loading)



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

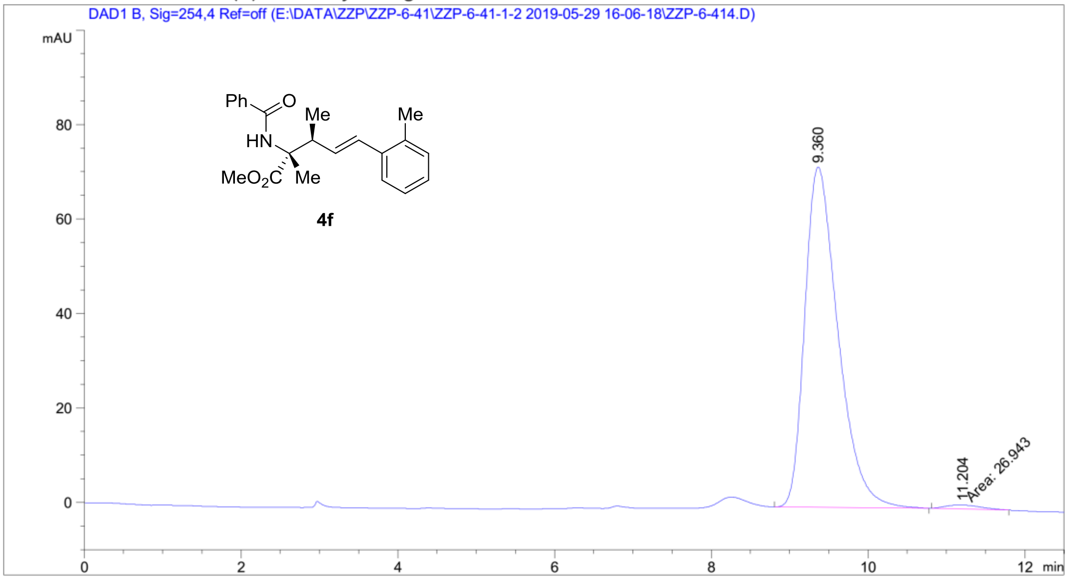
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	9.135	BB	0.4337	2272.83691	78.98444	50.4704
2	10.836	BB	0.5164	2230.47266	65.31155	49.5296

Totals : 4503.30957 144.29600

Data File E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-1-2 2019-05-29 16-06-18\ZZP-6-414.D
Sample Name: ZZP-6-42-1

===

Acq. Operator : SYSTEM   Seq. Line : 5
Acq. Instrument : 1260   Location : 61
Injection Date : 5/29/2019 5:14:08 PM   Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-1-2 2019-05-29 16-06-18\OD,90-10,2UL,1ML,30MIN.M
Last changed : 5/29/2019 5:26:48 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-41\ZZP-6-41-1-2 2019-05-29 16-06-18\OD,90-10,2UL,1ML,30MIN.M (Sequence Method)
Last changed : 9/10/2019 8:37:26 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

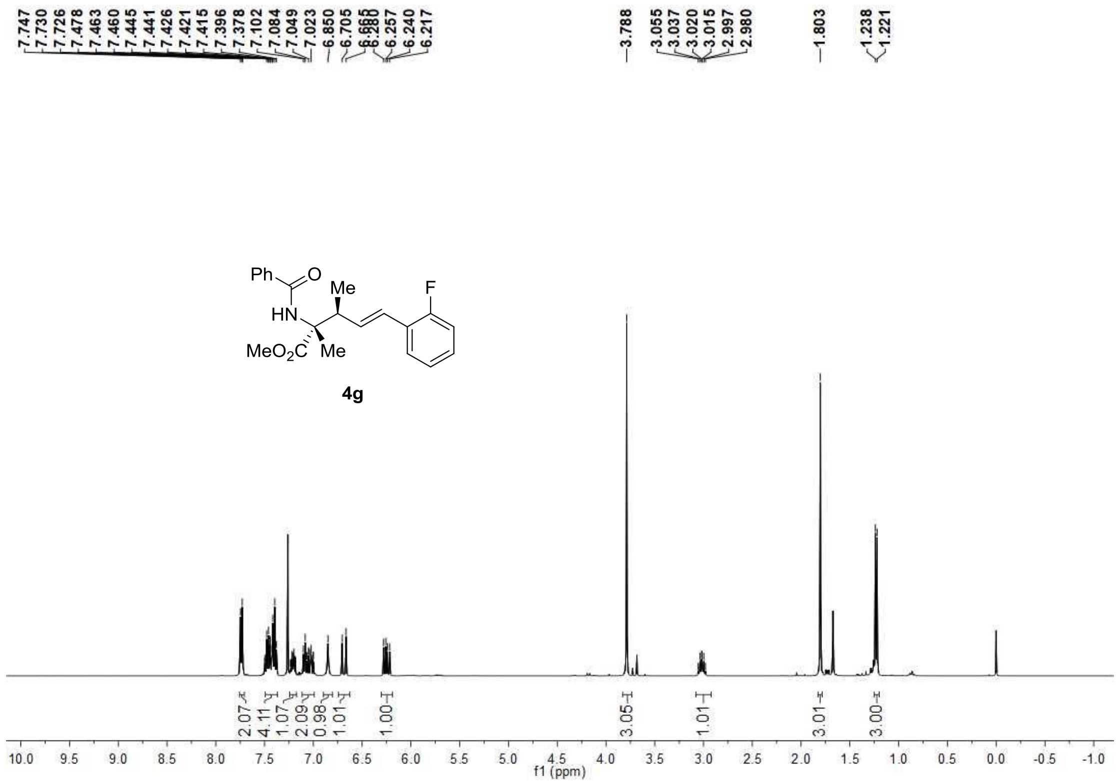
===

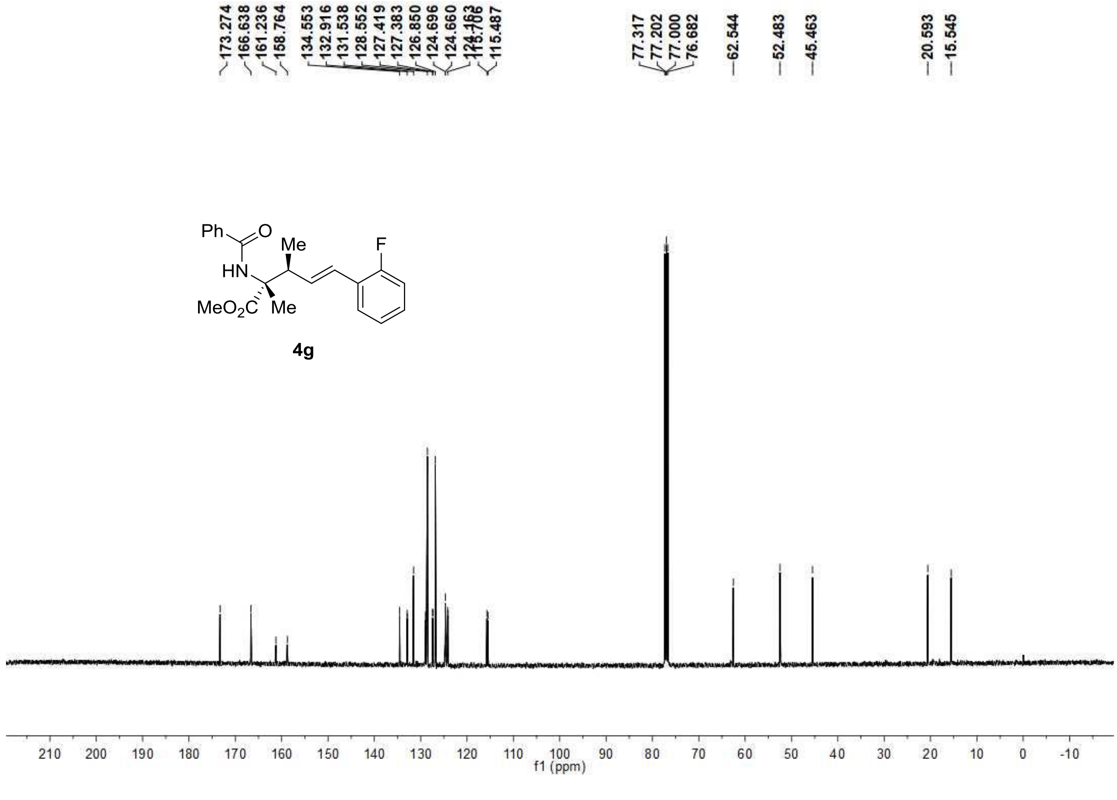
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

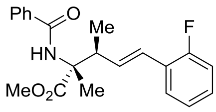
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	9.360	BB	0.4498	2123.67090	72.06597	98.7472
2	11.204	MM	0.5264	26.94297	8.53038e-1	1.2528

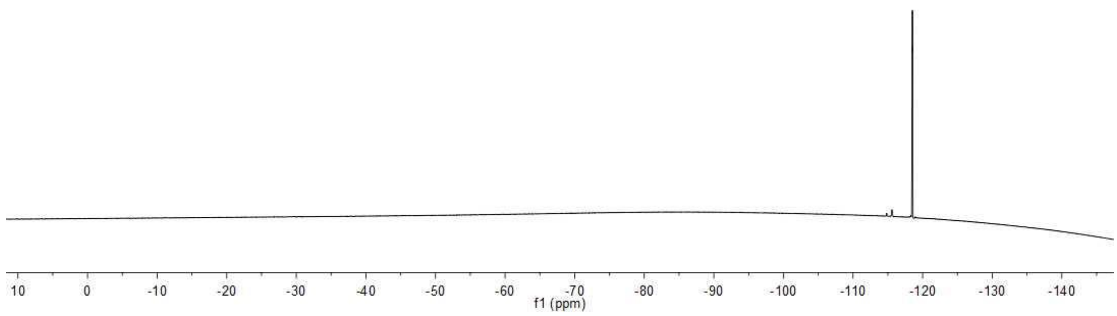
Totals : 2150.61387 72.91901


7.747
7.730
7.726
7.478
7.463
7.460
7.445
7.441
7.426
7.421
7.415
7.396
7.378
7.102
7.084
7.049
7.023
6.850
6.705
6.257
6.240
6.217
3.788
3.055
3.037
3.020
3.015
2.997
2.980
1.803
1.238
1.221
Ph
O
HN
Me
F
MeO2C
Me
4g
2.07
4.11
1.07
2.09
0.98
1.01
1.00
3.05
1.01
3.01
3.00
f1 (ppm)


173.274
166.638
161.236
158.764
134.553
132.916
131.538
128.552
127.419
127.383
126.850
124.696
124.660
115.706
115.487
77.317
77.202
77.000
76.682
62.544
52.483
45.463
20.593
15.545
Ph
O
HN
Me
F
MeO2C
Me
4g
f1 (ppm)



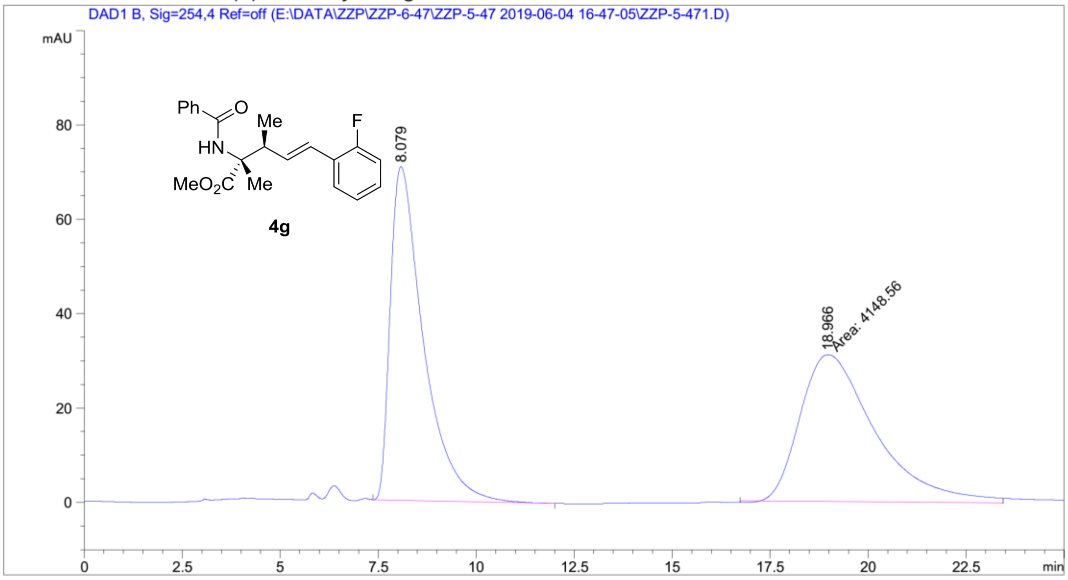
4g



Data File E:\DATA\ZZP\ZZP-6-47\ZZP-5-47 2019-06-04 16-47-05\ZZP-5-471.D
Sample Name: ZZP-6-47-1

===

Acq. Operator : SYSTEM   Seq. Line : 2
Acq. Instrument : 1260   Location : 53
Injection Date : 6/4/2019 4:59:23 PM   Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-5-47\ZZP-5-47 2019-06-04 16-47-05\AS,90-10,2UL,1ML,20MIN.M
Last changed : 6/4/2019 5:21:19 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-47\ZZP-5-47 2019-06-04 16-47-05\AS,90-10,2UL,1ML,20MIN.M
(Sequence Method)
Last changed : 9/10/2019 8:23:14 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

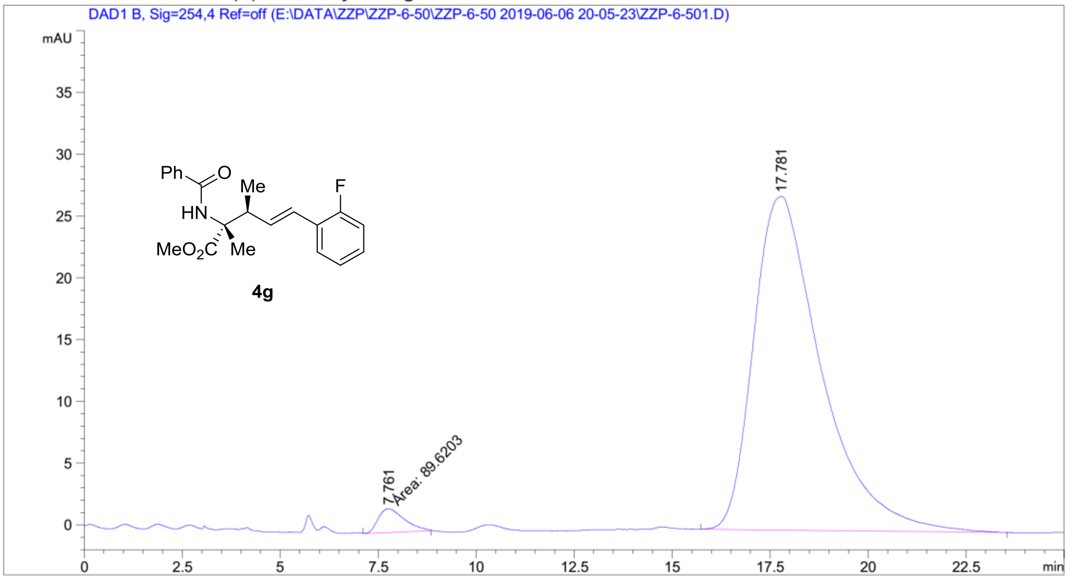
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.079	BB	0.8579	4156.84033	70.70460	50.0499
2	18.966	MM	2.2232	4148.55811	31.10066	49.9501

Totals : 8305.39844 101.80526

Data File E:\DATA\ZZP\ZZP-6-50\ZZP-6-50 2019-06-06 20-05-23\ZZP-6-501.D
Sample Name: ZZP-6-50-1

===

```
Acq. Operator   : SYSTEM                        Seq. Line :   2
Acq. Instrument : 1260                           Location :   65
Injection Date  : 6/6/2019 8:17:43 PM                 Inj :   1
                                              Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-6-50\ZZP-6-50 2019-06-06 20-05-23\AS,90-10,2UL,1ML,20MIN.M
Last changed    : 6/6/2019 8:33:38 PM by SYSTEM
                  (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-50\ZZP-6-50 2019-06-06 20-05-23\AS,90-10,2UL,1ML,20MIN.M
                  (Sequence Method)
Last changed    : 9/10/2019 8:26:40 PM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



===

Area Percent Report

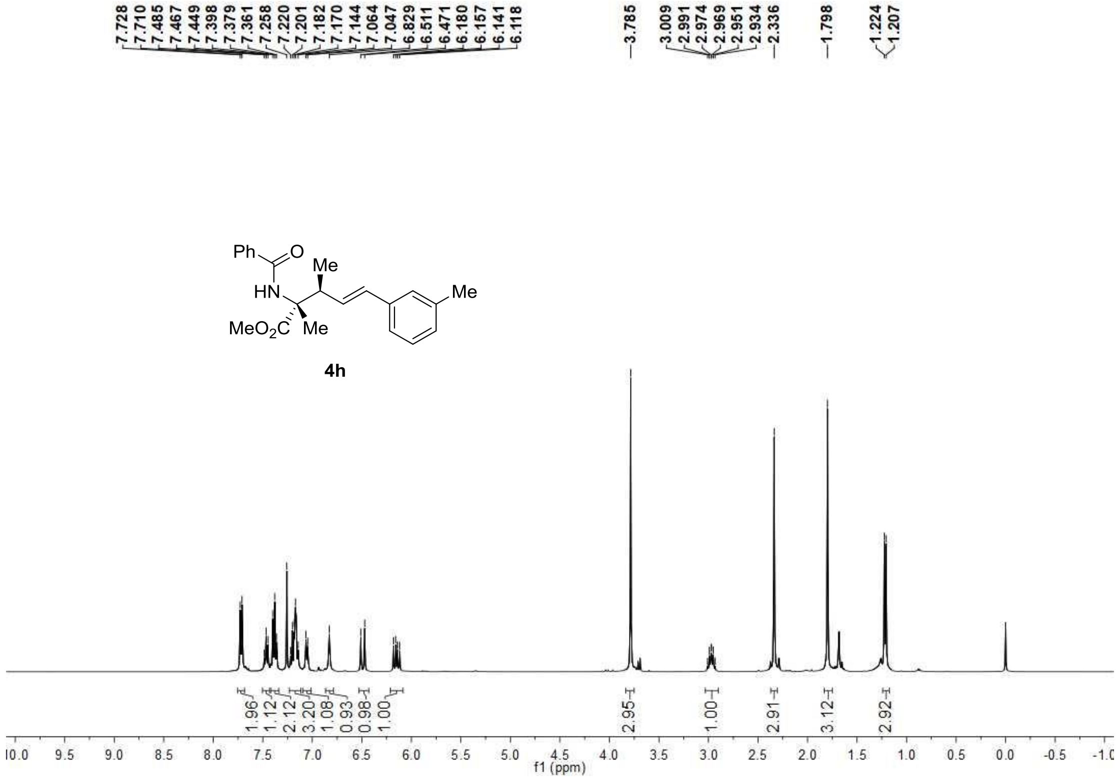
===

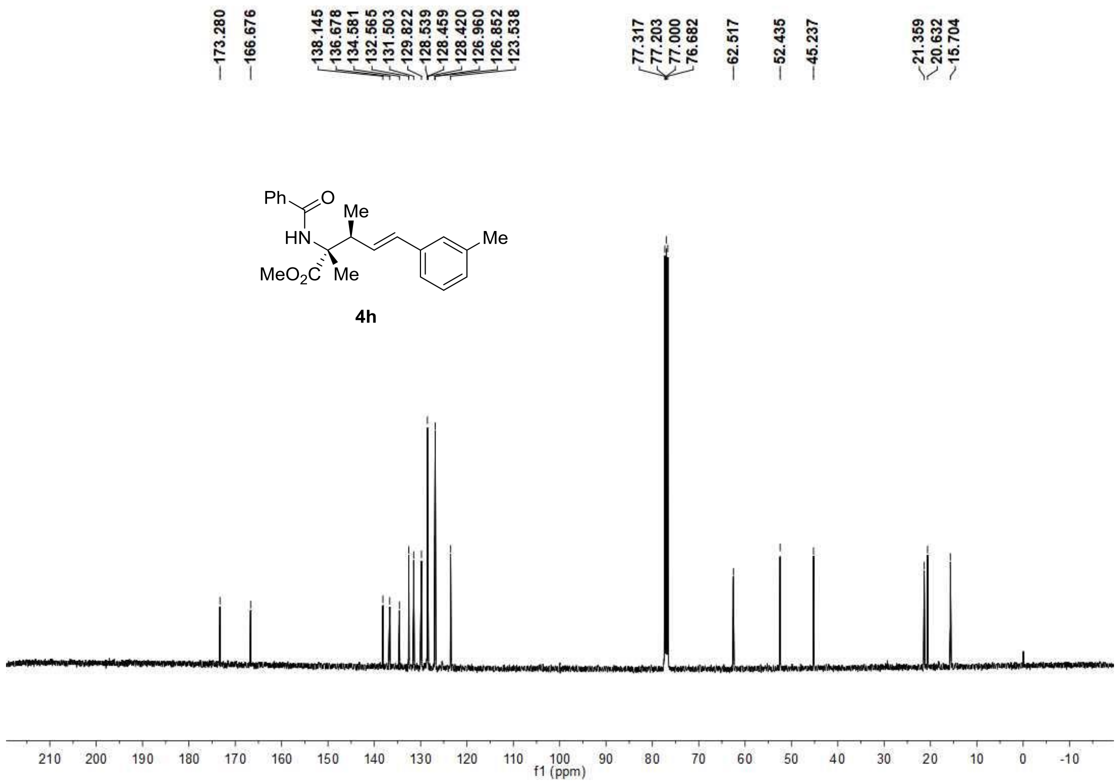
```
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.761	MM	0.7743	89.62027	1.92902	2.6923
2	17.781	BB	1.4826	3239.20337	26.98168	97.3077

Totals : 3328.82364 28.91070

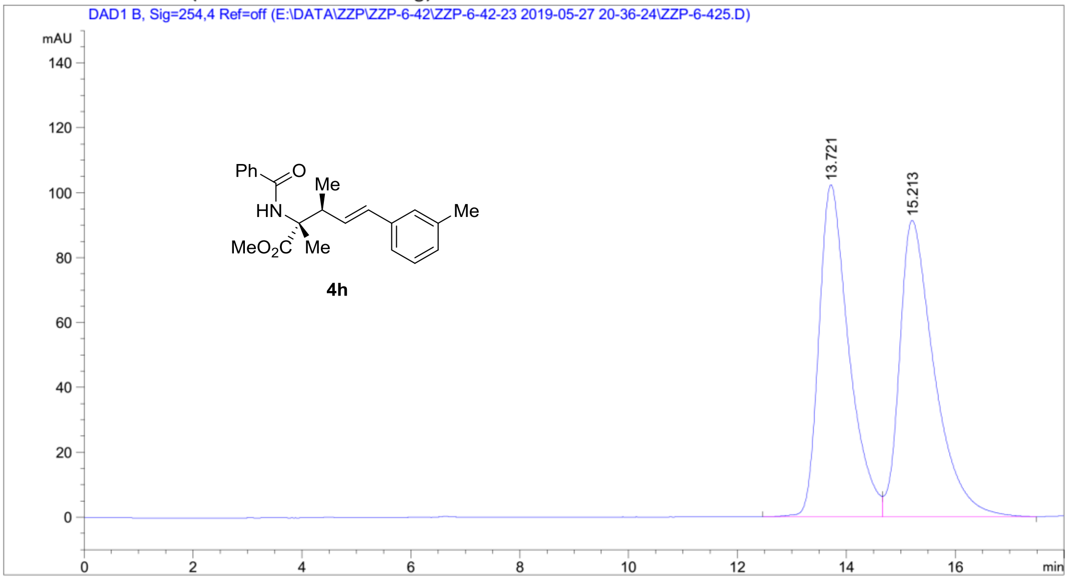

7.728
7.710
7.485
7.467
7.449
7.398
7.379
7.361
7.258
7.220
7.201
7.182
7.170
7.144
7.064
7.047
6.829
6.511
6.471
6.180
6.157
6.141
6.118
3.785
3.009
2.991
2.974
2.969
2.951
2.934
2.336
1.798
1.224
1.207
Ph
O
Me
HN
Me
MeO2C
Me
4h
1.96
1.12
2.12
3.20
1.08
0.93
0.98
1.00
2.95
1.00
2.91
3.12
2.92
f1 (ppm)


173.280
166.676
138.145
136.678
134.581
132.565
131.503
129.822
128.539
128.459
128.420
126.960
126.852
123.538
77.317
77.203
77.000
76.682
62.517
52.435
45.237
21.359
20.632
15.704
Ph
O
Me
HN
Me
MeO2C
Me
4h
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\ZZP-6-425.D
Sample Name: ZZP-6-41-2

===

Acq. Operator : SYSTEM Seq. Line : 6
Acq. Instrument : 1260 Location : 63
Injection Date : 5/27/2019 9:48:12 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\AD-95-5,2UL,1ML,20MIN.M
Last changed : 5/27/2019 9:46:37 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\AD-95-5,2UL,1ML,20MIN.M (Sequence Method)
Last changed : 9/10/2019 7:59:34 PM by SYSTEM
(modified after loading)



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

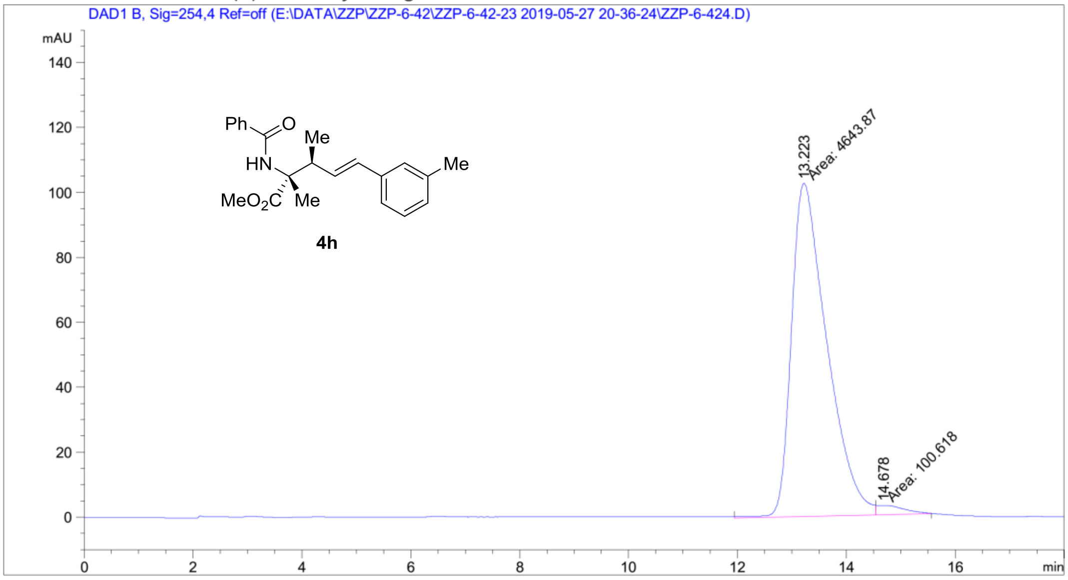
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	13.721	BV	0.5697	3910.41187	102.36488	49.1542
2	15.213	VB	0.6545	4044.98584	91.36078	50.8458

Totals : 7955.39771 193.72566

Data File E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\ZZP-6-424.D
Sample Name: ZZP-6-42-2

===

Acq. Operator : SYSTEM   Seq. Line : 5
Acq. Instrument : 1260   Location : 61
Injection Date : 5/27/2019 9:29:18 PM   Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\AD-95-5,2UL,1ML,20MIN.M
Last changed : 5/27/2019 9:46:37 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-42\ZZP-6-42-23 2019-05-27 20-36-24\AD-95-5,2UL,1ML,20MIN.M (Sequence Method)
Last changed : 9/10/2019 8:02:09 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

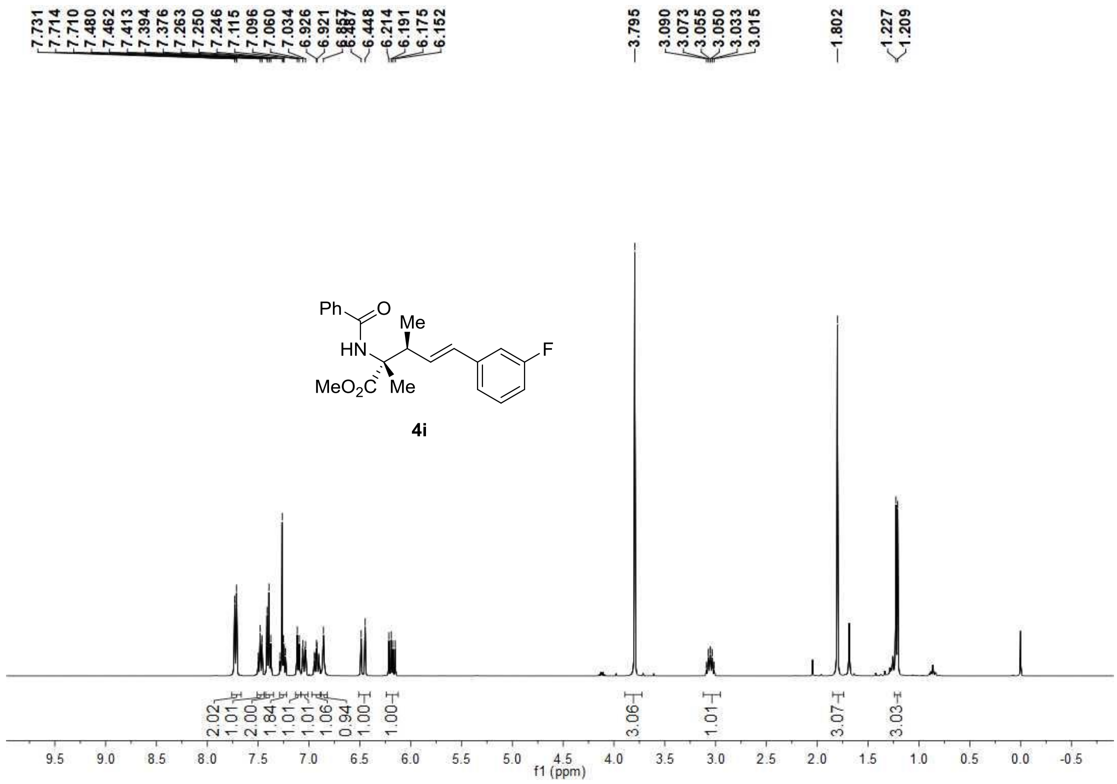
Area Percent Report

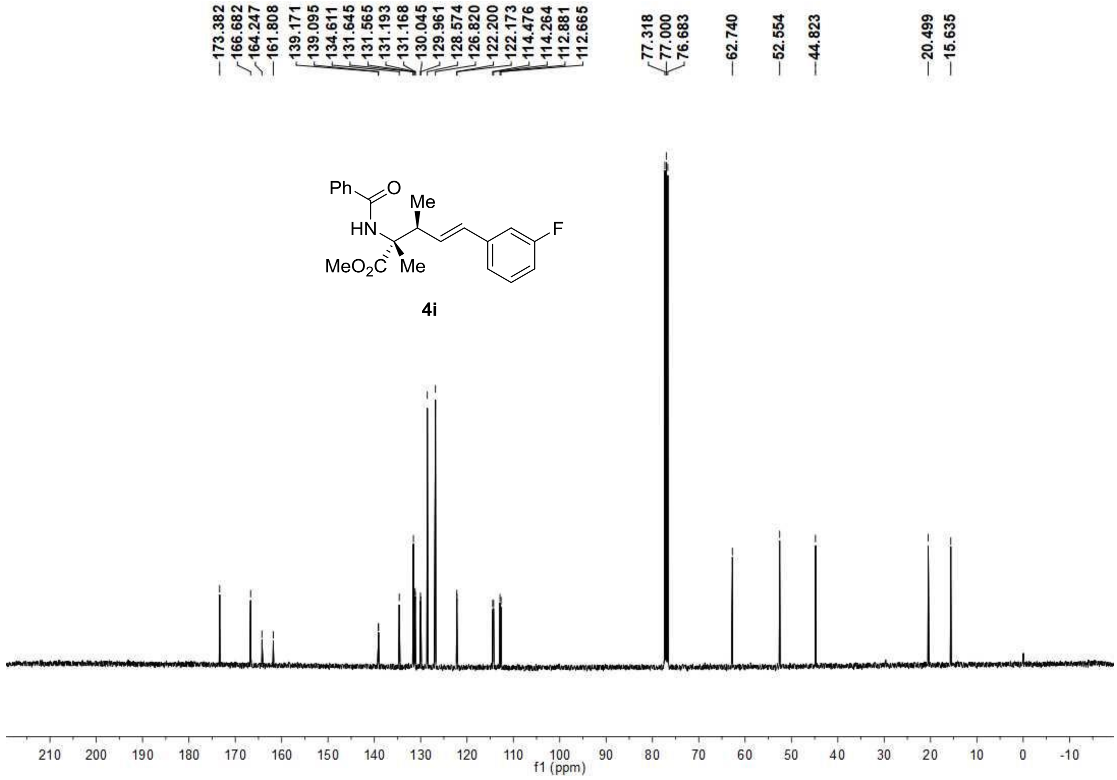
===

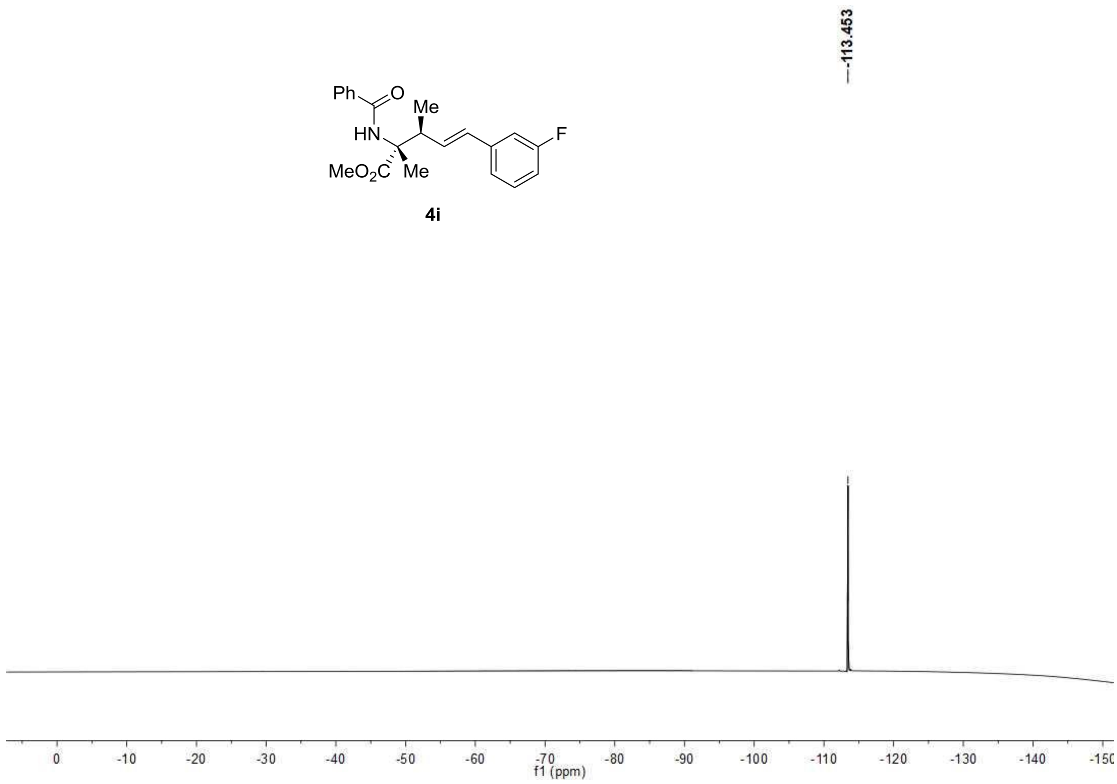
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	13.223	MF	0.7540	4643.86768	102.64550	97.8793
2	14.678	FM	0.5768	100.61829	2.90725	2.1207
Totals :				4744.48597	105.55275	


7.731
7.714
7.710
7.480
7.462
7.413
7.394
7.376
7.263
7.250
7.246
7.115
7.096
7.060
7.034
6.926
6.921
6.448
6.214
6.191
6.175
6.152
3.795
3.090
3.073
3.055
3.050
3.033
3.015
1.802
1.227
1.209
Ph
O
Me
HN
F
MeO2C
Me
4i
2.02
1.01
2.00
1.84
1.01
1.01
1.06
0.94
1.00
1.00
3.06
1.01
3.07
3.03
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)


173.382
166.682
164.247
161.808
139.171
139.095
134.611
131.645
131.565
131.193
131.168
130.045
129.961
128.574
126.820
122.200
122.173
114.476
114.264
112.881
112.665
77.318
77.000
76.683
62.740
52.554
44.823
20.499
15.635
Ph
O
Me
HN
F
MeO2C
Me
4i
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

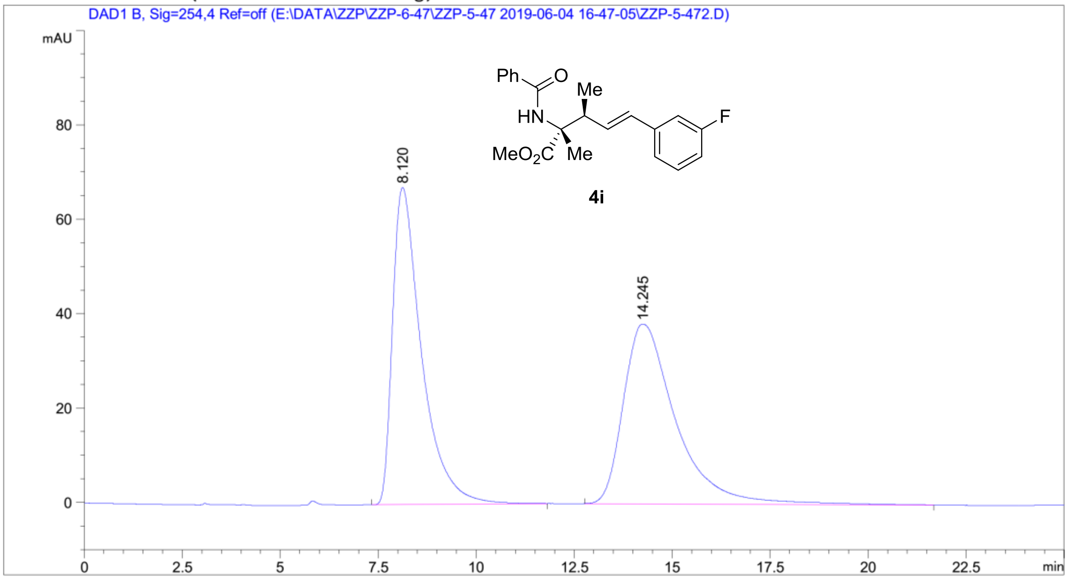


Ph
O
Me
HN
F
MeO2C
Me
4i
-113.453
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-47\ZZP-5-47 2019-06-04 16-47-05\ZZP-5-472.D
Sample Name: ZZP-6-47-2

===

Acq. Operator   : SYSTEM   Seq. Line :   3
Acq. Instrument : 1260   Location :   54
Injection Date : 6/4/2019 5:25:15 PM   Inj :   1
                                                 Inj Volume : 2.000 µl
Acq. Method   : E:\DATA\ZZP\ZZP-5-47\ZZP-5-47 2019-06-04 16-47-05\AS,90-10,2UL,1ML,20MIN.M
Last changed   : 6/4/2019 5:21:19 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-6-47\ZZP-5-47 2019-06-04 16-47-05\AS,90-10,2UL,1ML,20MIN.M
                  (Sequence Method)
Last changed   : 9/24/2019 6:08:53 PM by SYSTEM
                  (modified after loading)



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.120	BB	0.7629	3462.03076	67.22150	49.4527
2	14.245	BB	1.3475	3538.65649	38.10336	50.5473

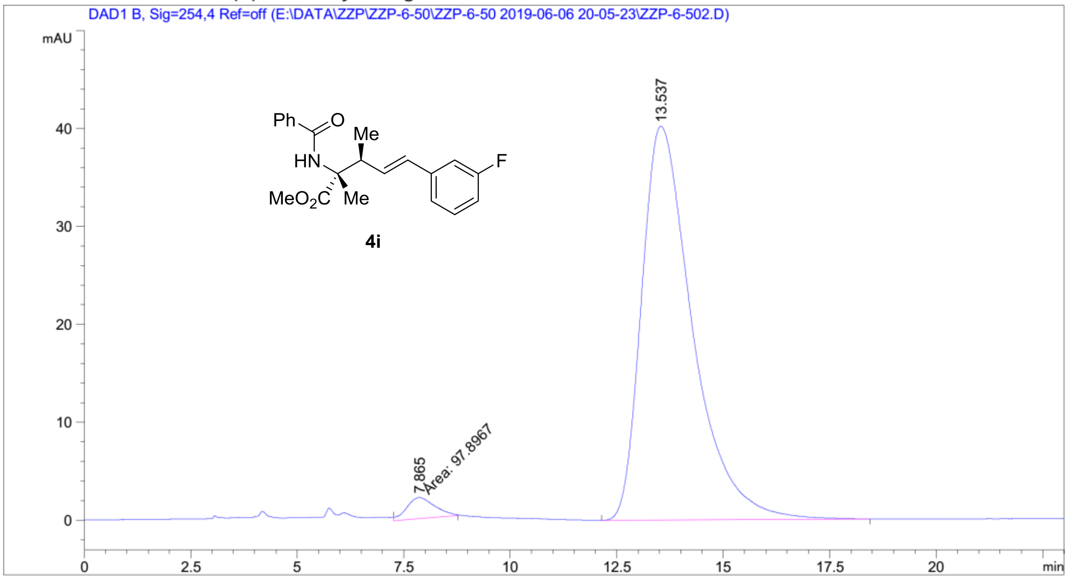
Totals : 7000.68726 105.32486

===

Data File E:\DATA\ZZP\ZZP-6-50\ZZP-6-50 2019-06-06 20-05-23\ZZP-6-502.D
Sample Name: ZZP-6-50-2

===

Acq. Operator : SYSTEM Seq. Line : 3
Acq. Instrument : 1260 Location : 66
Injection Date : 6/6/2019 8:43:37 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-50\ZZP-6-50 2019-06-06 20-05-23\AS,90-10,2UL,1ML,20MIN.M
Last changed : 6/6/2019 8:43:57 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-50\ZZP-6-50 2019-06-06 20-05-23\AS,90-10,2UL,1ML,20MIN.M
(Sequence Method)
Last changed : 9/10/2019 8:10:56 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



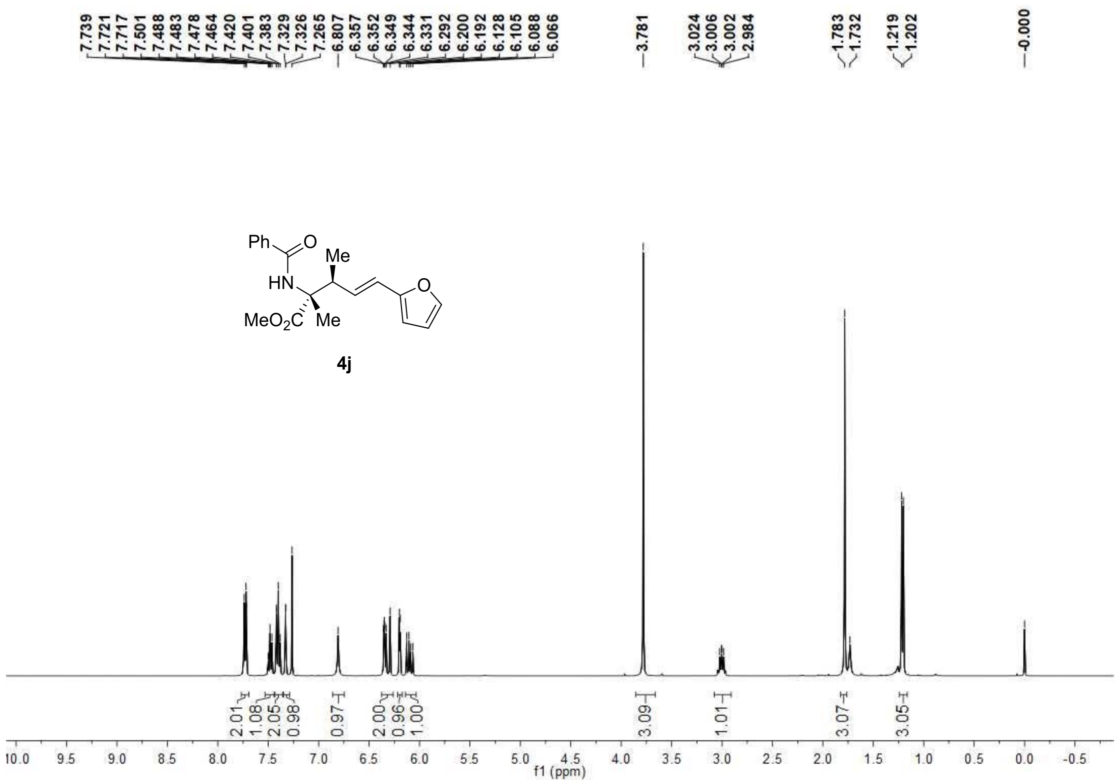
===
Area Percent Report
===

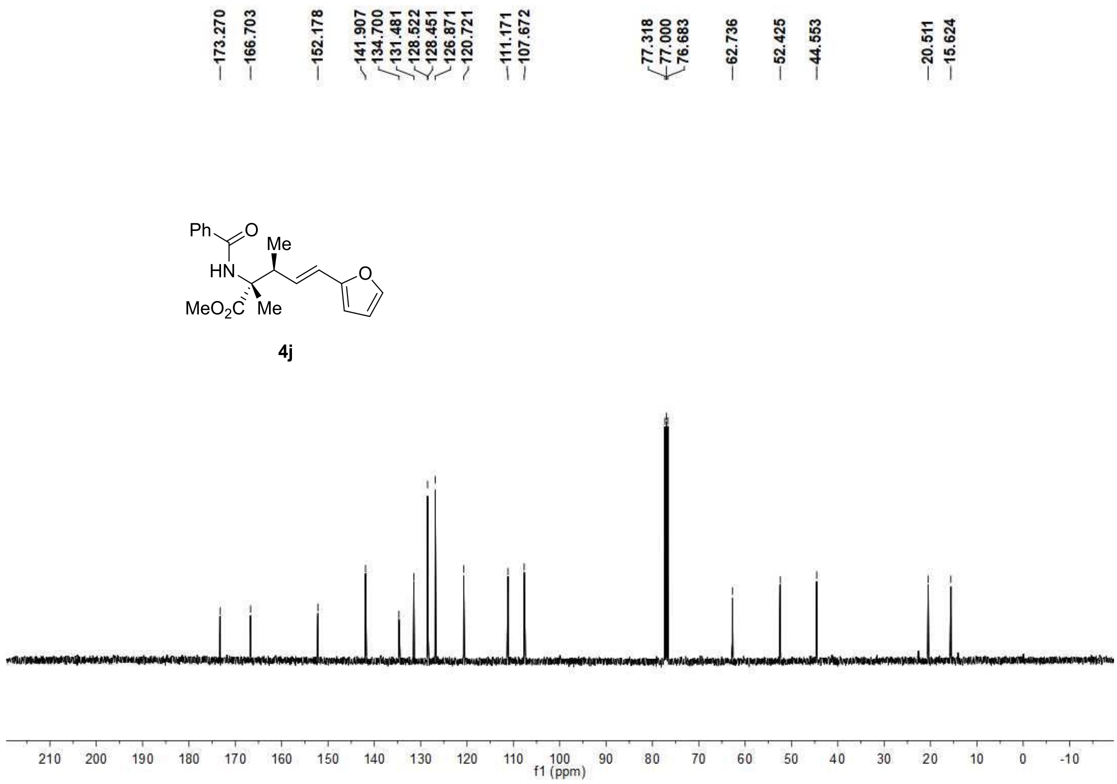
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.865	MM	0.7603	97.89665	2.14592	2.8456
2	13.537	BB	1.2137	3342.38647	40.21384	97.1544

Totals : 3440.28313 42.35976

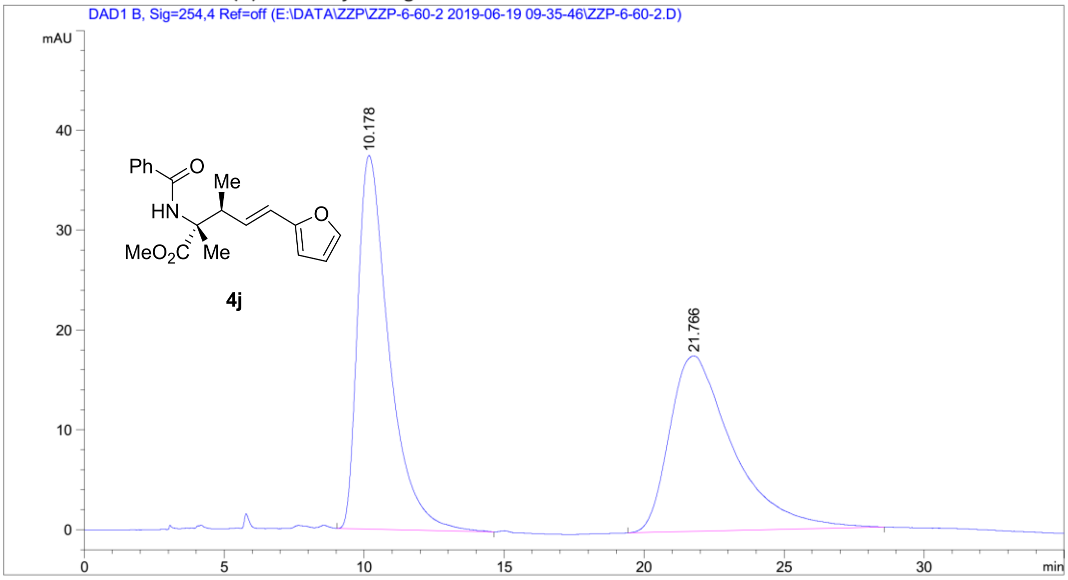

7.739
7.721
7.717
7.501
7.488
7.483
7.478
7.464
7.420
7.401
7.383
7.329
7.326
7.265
6.807
6.357
6.352
6.349
6.344
6.331
6.292
6.200
6.192
6.128
6.105
6.088
6.066
3.781
3.024
3.006
3.002
2.984
1.783
1.732
1.219
1.202
-0.000
Ph
O
Me
HN
O
MeO2C
Me
4j
2.01
1.08
2.05
0.98
0.97
2.00
0.96
1.00
3.09
1.01
3.07
3.05
f1 (ppm)


173.270
166.703
152.178
141.907
134.700
131.481
128.522
128.451
126.871
120.721
111.171
107.672
77.318
77.000
76.683
62.736
52.425
44.553
20.511
15.624
Ph
O
Me
HN
O
MeO2C
Me
4j
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-60-2 2019-06-19 09-35-46\ZZP-6-60-2.D
Sample Name: ZZP-6-60-2

===

Acq. Operator : SYSTEM Seq. Line : 1
Acq. Instrument : 1260 Location : 52
Injection Date : 6/19/2019 9:36:40 AM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-60-2 2019-06-19 09-35-46\AS,90-10,2UL,1ML,20MIN.M
Last changed : 6/19/2019 9:59:03 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-60-2 2019-06-19 09-35-46\AS,90-10,2UL,1ML,20MIN.M (
Sequence Method)
Last changed : 9/10/2019 9:15:16 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

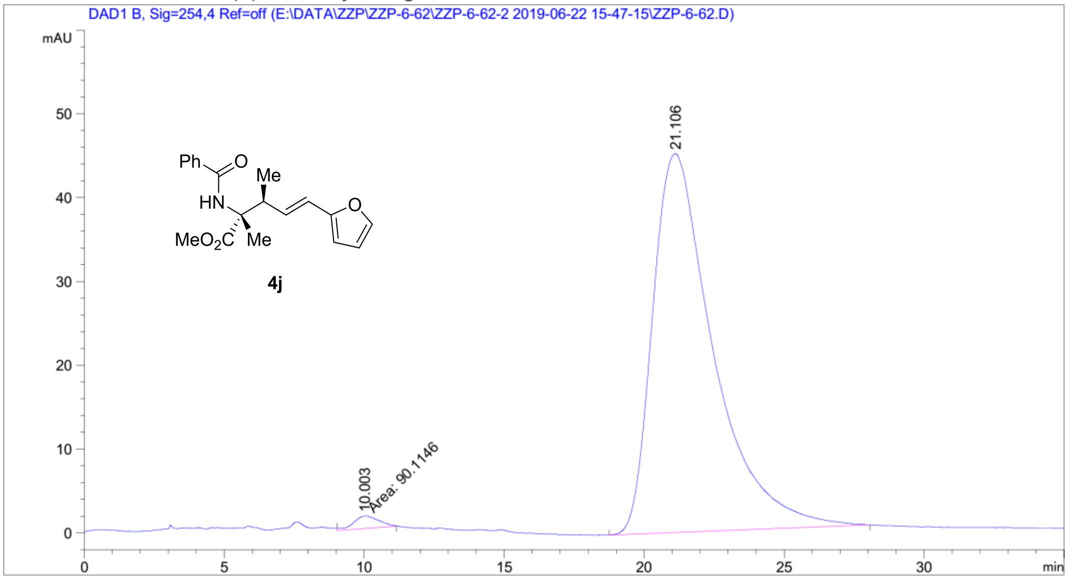
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	10.178	BB	1.1312	2910.35864	37.42667	51.2927
2	21.766	BB	1.8478	2763.66260	17.56326	48.7073

Totals : 5674.02124 54.98993

Data File E:\DATA\ZZP\ZZP-6-62\ZZP-6-62-2 2019-06-22 15-47-15\ZZP-6-62.D
Sample Name: ZZP-6-62

===

Acq. Operator : SYSTEM Seq. Line : 1
Acq. Instrument : 1260 Location : 82
Injection Date : 6/22/2019 3:48:32 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-62\ZZP-6-62-2 2019-06-22 15-47-15\AS,90-10,2UL,1ML,20MIN.M
Last changed : 6/22/2019 3:47:37 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-62\ZZP-6-62-2 2019-06-22 15-47-15\AS,90-10,2UL,1ML,20MIN.M (Sequence Method)
Last changed : 9/10/2019 9:16:52 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

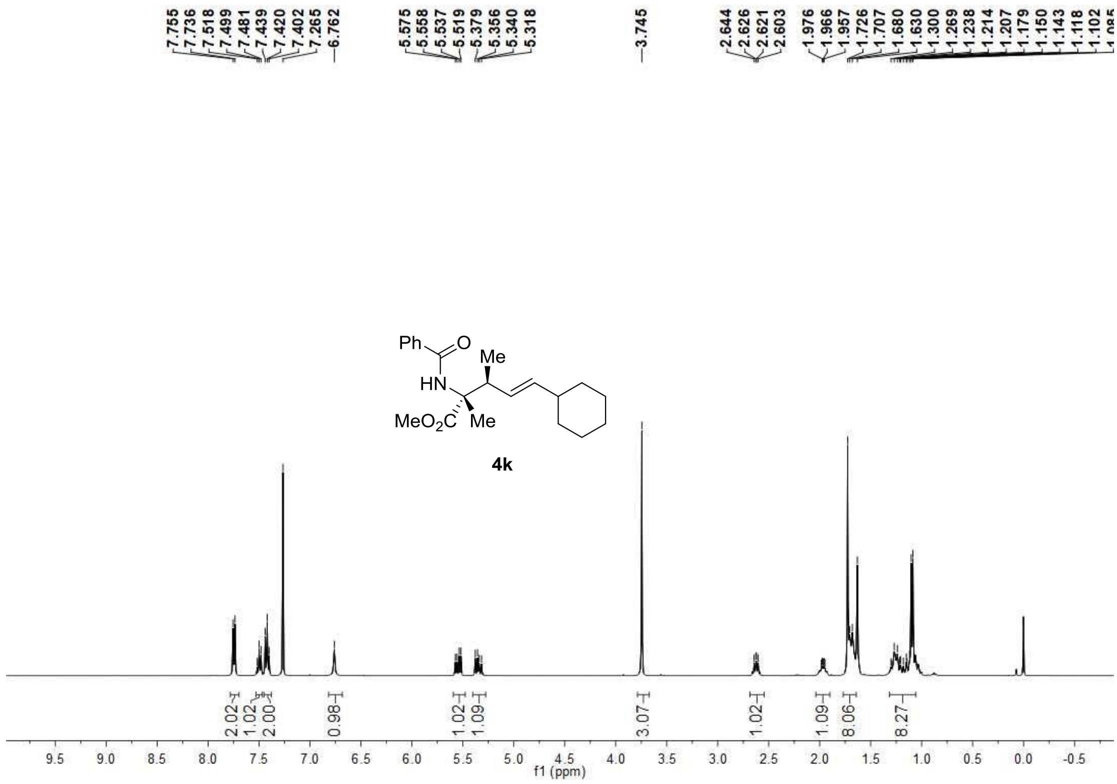
===

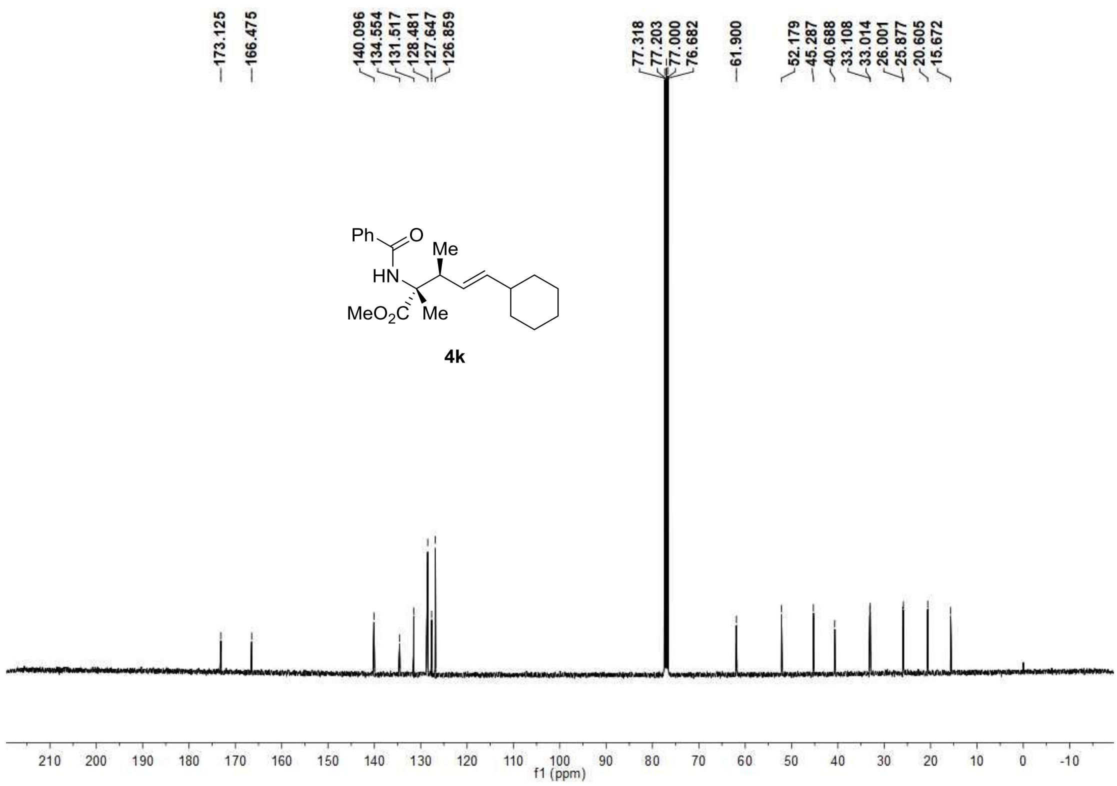
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	10.003	MP	1.0187	90.11457	1.47428	1.3047
2	21.106	BB	2.0351	6816.76123	45.20910	98.6953

Totals : 6906.87580 46.68338

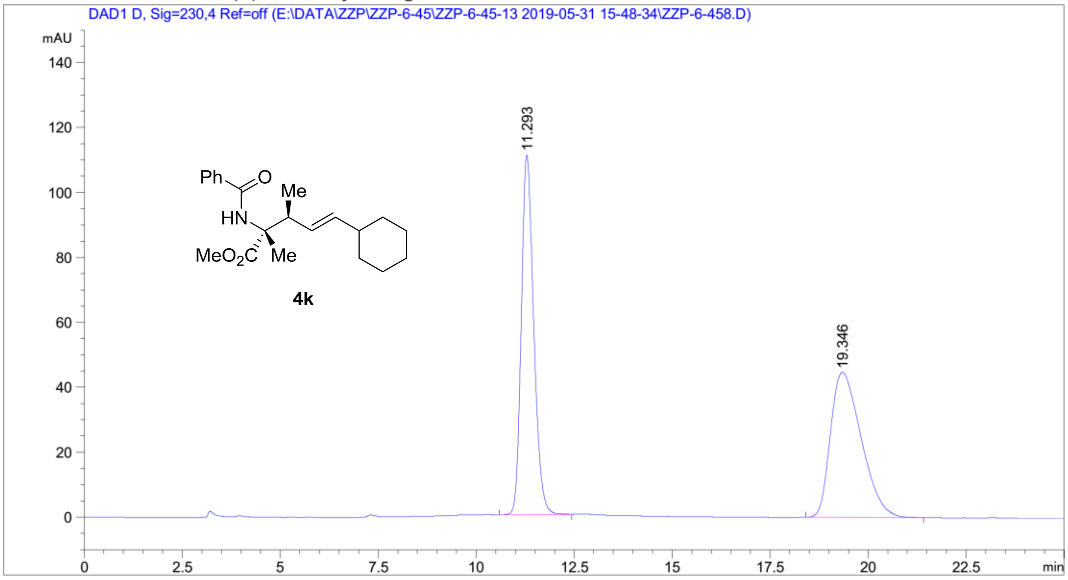

7.755
7.736
7.518
7.499
7.481
7.439
7.420
7.402
7.265
6.762
5.575
5.558
5.537
5.519
5.379
5.356
5.340
5.318
3.745
2.644
2.626
2.621
2.603
1.976
1.966
1.957
1.726
1.707
1.680
1.630
1.300
1.269
1.238
1.214
1.207
1.179
1.150
1.143
1.118
1.102
Ph
O
HN
Me
MeO2C
Me
4k
2.02
1.02
2.00
0.98
1.02
1.09
3.07
1.02
1.09
8.06
8.27
f1 (ppm)


173.125
166.475
140.096
134.554
131.517
128.481
127.647
126.859
77.318
77.203
77.000
76.682
61.900
52.179
45.287
40.688
33.108
33.014
26.001
25.877
20.605
15.672
Ph
O
HN
Me
MeO2C
Me
4k
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-13 2019-05-31 15-48-34\ZZP-6-458.D
Sample Name: ZZP-6-45-2

===

Acq. Operator : SYSTEM Seq. Line : 9
Acq. Instrument : 1260 Location : 23
Injection Date : 5/31/2019 5:43:40 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-13 2019-05-31 15-48-34\ID,90-10,2UL,1ML,20MIN .M
Last changed : 5/31/2019 5:49:53 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-13 2019-05-31 15-48-34\ID,90-10,2UL,1ML,20MIN .M (Sequence Method)
Last changed : 9/10/2019 9:04:55 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 D, Sig=230,4 Ref=off

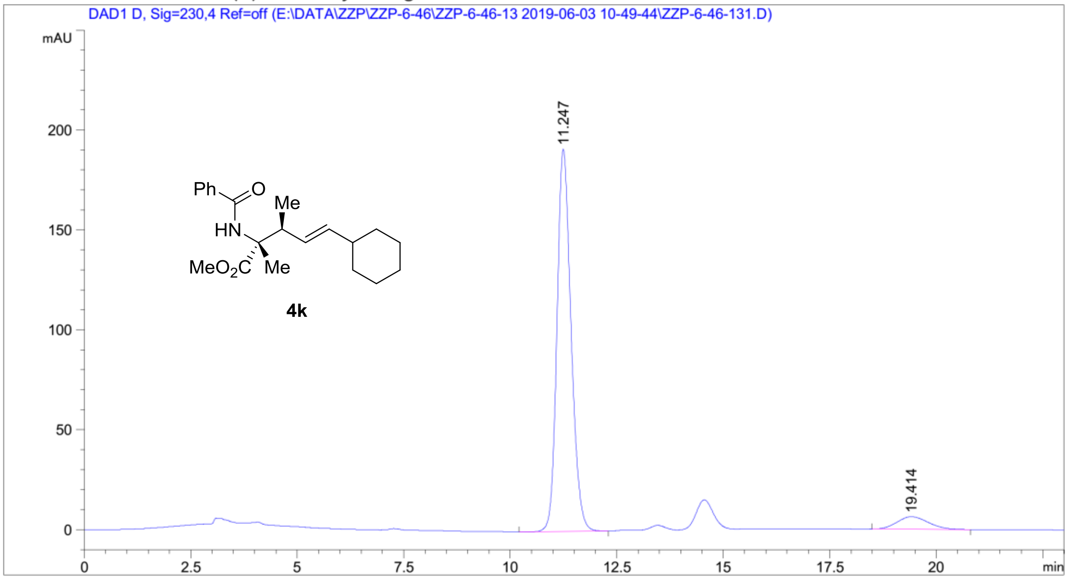
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	11.293	BB	0.3389	2437.98535	110.72532	49.9757
2	19.346	BB	0.8447	2440.35522	44.71667	50.0243

Totals : 4878.34058 155.44199

Data File E:\DATA\ZZP\ZZP-6-46\ZZP-6-46-13 2019-06-03 10-49-44\ZZP-6-46-131.D
Sample Name: ZZP-6-46-1

===

Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 81
Injection Date : 6/3/2019 10:59:30 AM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-46\ZZP-6-46-13 2019-06-03 10-49-44\ID90-10,1ML,2UL,30MIN.M
Last changed : 6/3/2019 11:20:59 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-46\ZZP-6-46-13 2019-06-03 10-49-44\ID90-10,1ML,2UL,30MIN.M (Sequence Method)
Last changed : 9/10/2019 9:06:29 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

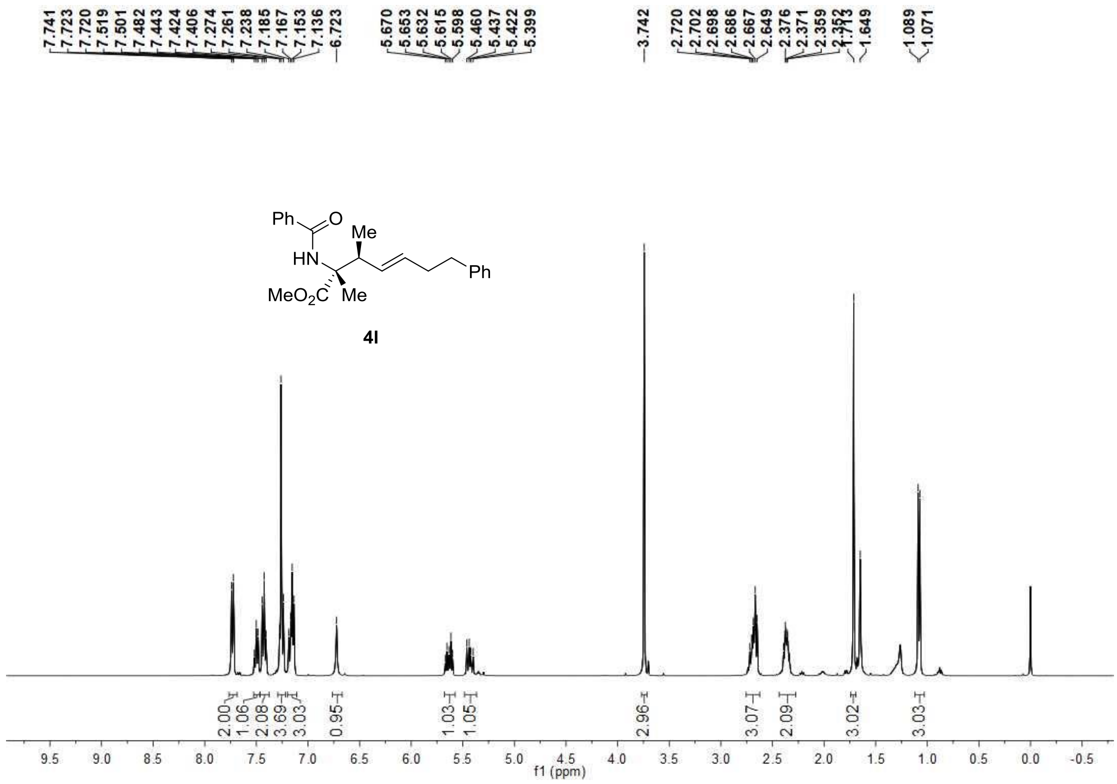
===

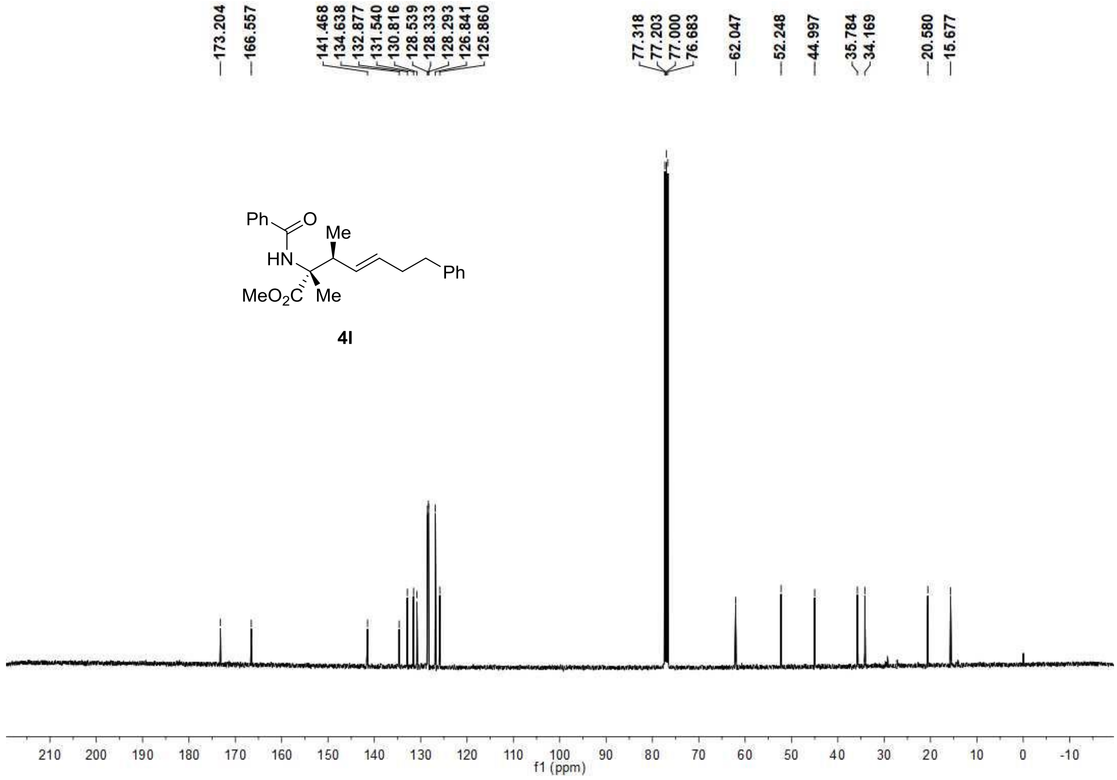
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 D, Sig=230,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	11.247	BB	0.3501	4394.93213	191.25177	93.1911
2	19.414	BB	0.7463	321.11188	6.28257	6.8089

Totals : 4716.04401 197.53434

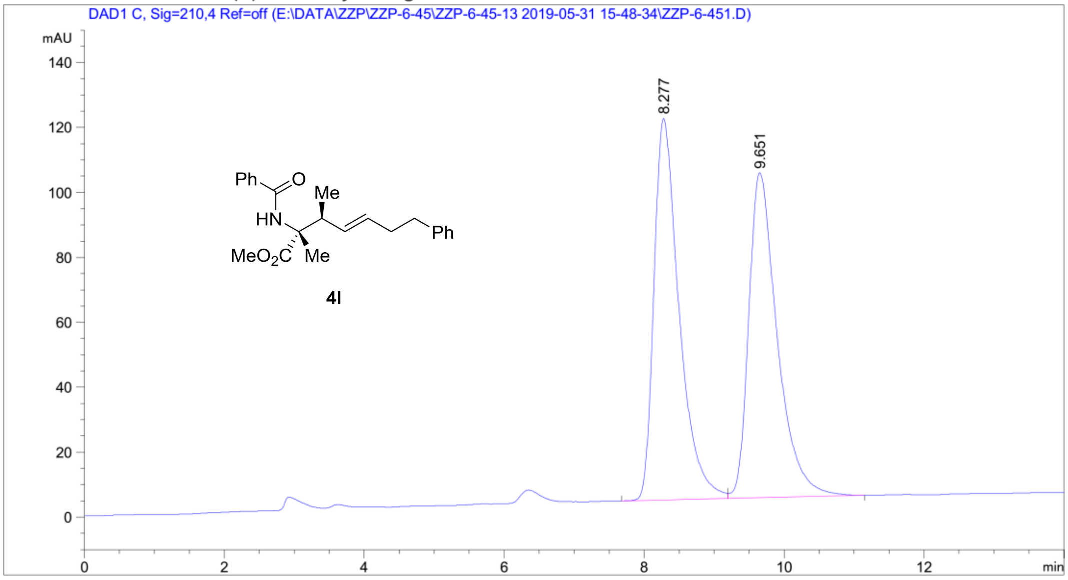

7.741 7.723 7.720 7.519 7.501 7.482 7.443 7.424 7.406 7.274 7.261 7.238 7.185 7.167 7.153 7.136 6.723
5.670 5.653 5.632 5.615 5.598 5.460 5.437 5.422 5.399
3.742
2.720 2.702 2.698 2.686 2.667 2.649 2.376 2.371 2.359 2.352 1.713 1.649
1.089 1.071
Ph O Me HN Ph MeO2C Me
4l
2.00 1.06 2.08 3.69 3.03 0.95 1.03 1.05 2.96 3.07 2.09 3.02 3.03
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)


173.204 166.557
141.468 134.638 132.877 131.540 130.816 128.539 128.333 128.293 126.841 125.860
77.318 77.203 77.000 76.683
62.047 52.248 44.997 35.784 34.169 20.580 15.677
Ph O Me HN Ph MeO2C Me
4l
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-13 2019-05-31 15-48-34\ZZP-6-451.D
Sample Name: ZZP-6-45-1

===

Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 22
Injection Date : 5/31/2019 4:00:50 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-13 2019-05-31 15-48-34\AD,90-10,2UL,1ML,30MIN.M
Last changed : 5/31/2019 4:16:16 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-6-45\ZZP-6-45-13 2019-05-31 15-48-34\AD,90-10,2UL,1ML,30MIN.M (Sequence Method)
Last changed : 9/10/2019 9:11:11 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

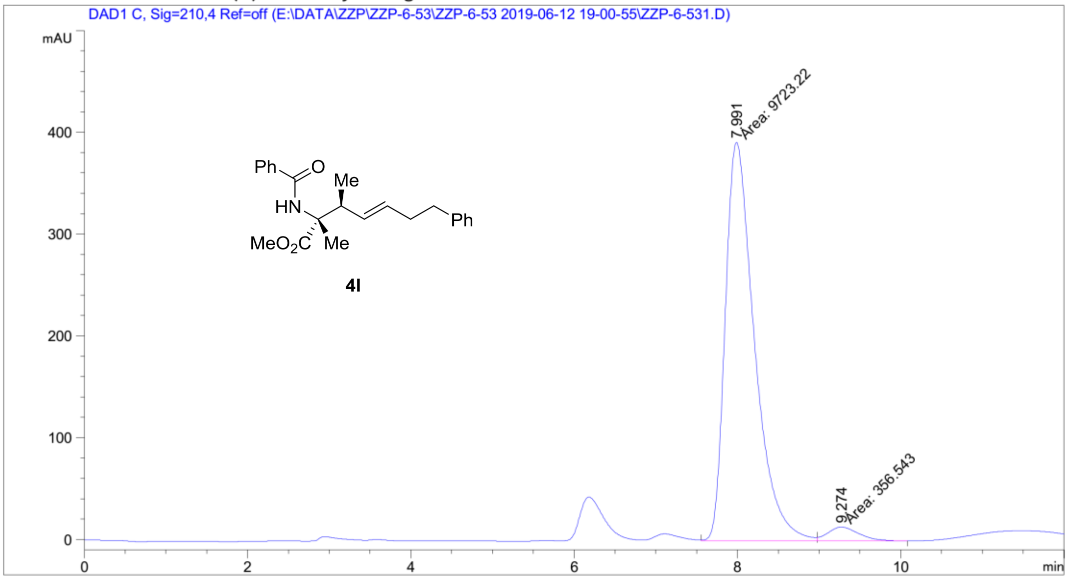
Signal 1: DAD1 C, Sig=210,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.277	BV	0.3750	2930.12817	117.45807	50.8356
2	9.651	VB	0.4223	2833.80078	100.10265	49.1644

Totals : 5763.92896 217.56072

```
Data File E:\DATA\ZZP\ZZP-6-53\ZZP-6-53 2019-06-12 19-00-55\ZZP-6-531.D
Sample Name: ZZP-6-53-2

    =====================================================================
    Acq. Operator   : SYSTEM                          Seq. Line :   2
    Acq. Instrument : 1260                             Location :   62
    Injection Date  : 6/12/2019 7:08:10 PM                  Inj :   1
                                                     Inj Volume : 2.000 µl
    Acq. Method     : E:\DATA\ZZP\ZZP-6-53\ZZP-6-53 2019-06-12 19-00-55\AD,90-10,2UL,1ML,30MIN.M
    Last changed    : 6/12/2019 7:20:12 PM by SYSTEM
                      (modified after loading)
    Analysis Method : E:\DATA\ZZP\ZZP-6-53\ZZP-6-53 2019-06-12 19-00-55\AD,90-10,2UL,1ML,30MIN.M
                      (Sequence Method)
    Last changed    : 9/10/2019 9:13:28 PM by SYSTEM
                      (modified after loading)
    Additional Info : Peak(s) manually integrated
```



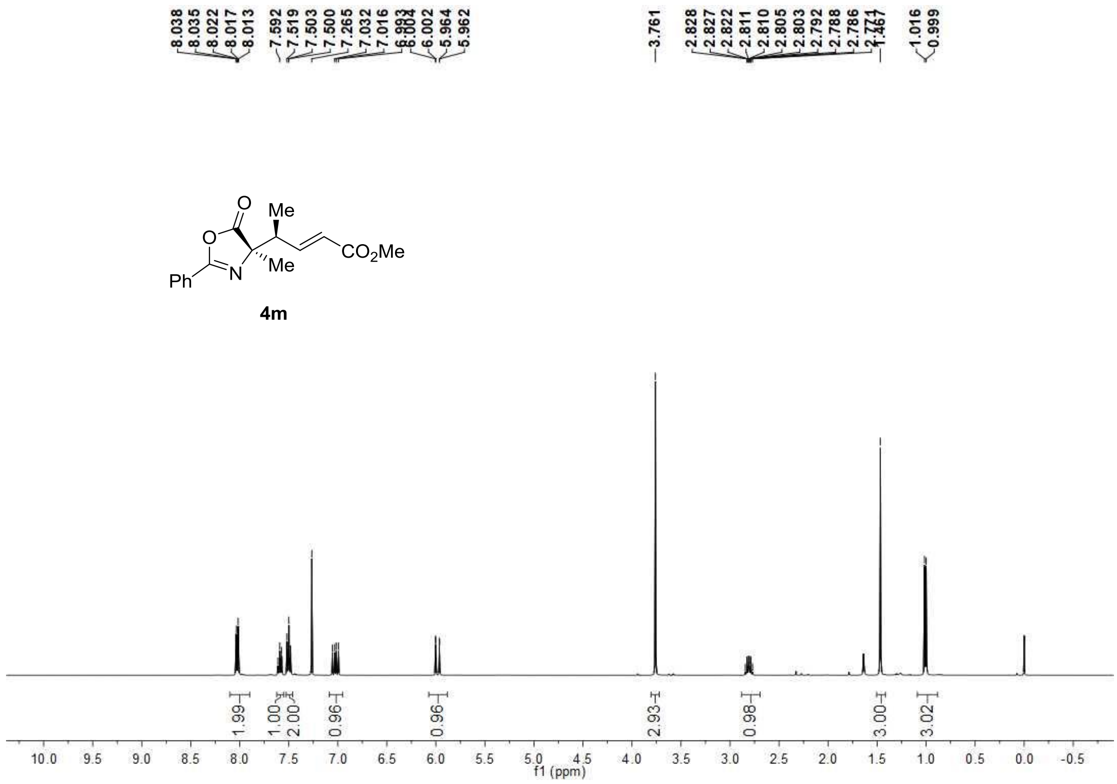

```
    =====================================================================
                             Area Percent Report
    =====================================================================

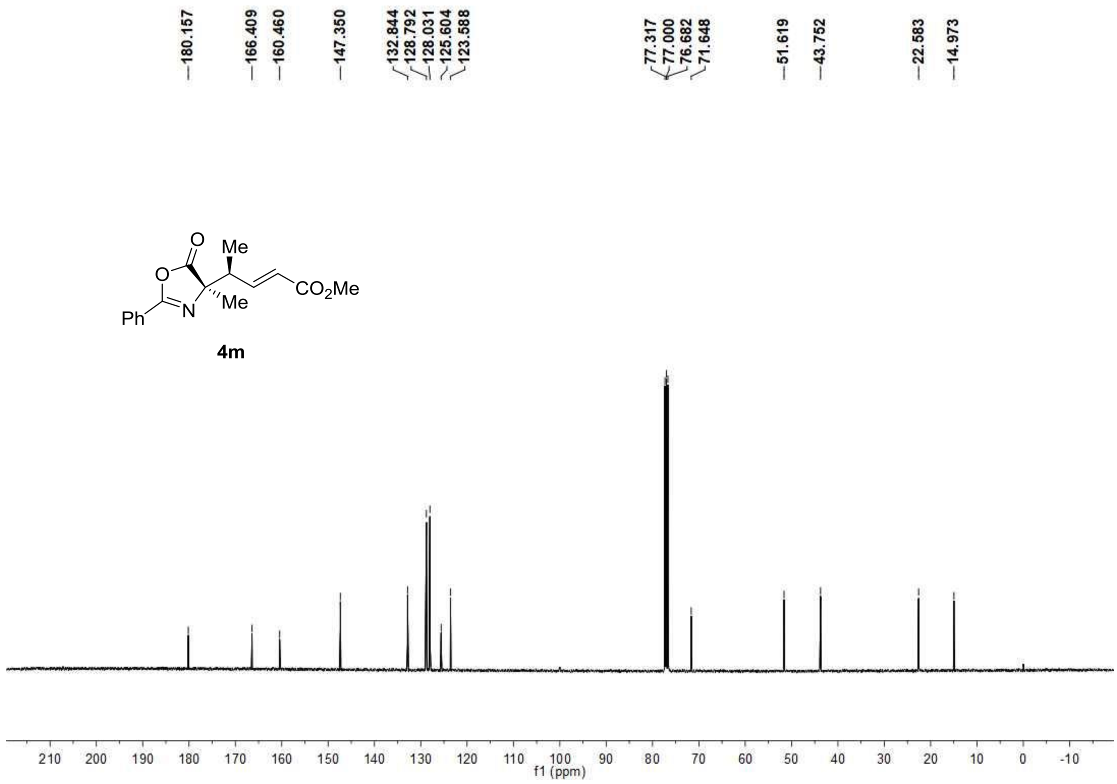
    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,4 Ref=off

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]        %
    ----|-------|----|-------|----------|----------|--------|
       1   7.991 MF    0.4139 9723.21973  391.51294  96.4628
       2   9.274 FM    0.4375  356.54272   13.58161   3.5372

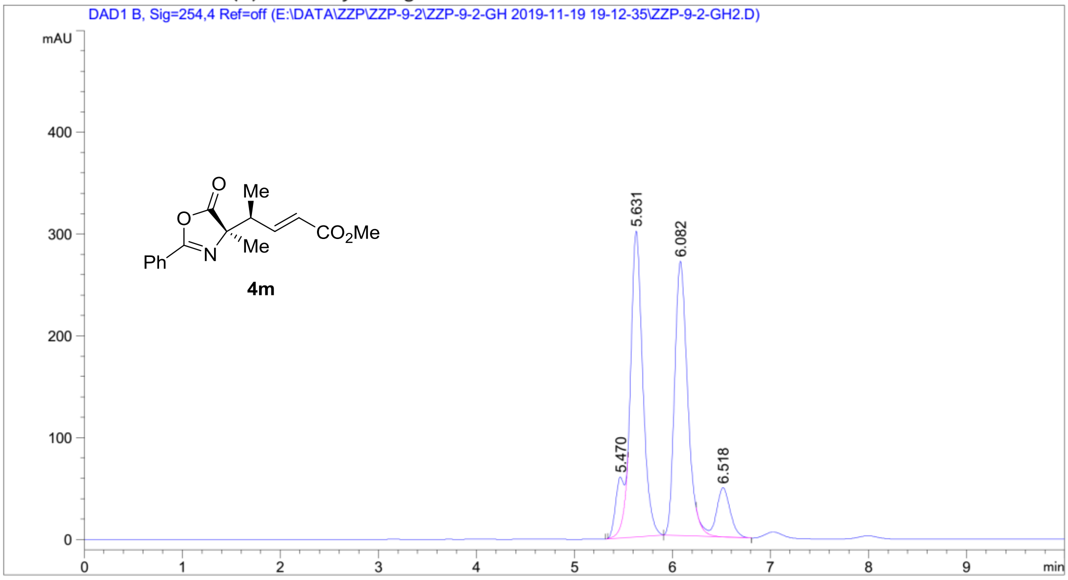
    Totals :                  1.00798e4  405.09455
```





```
Data File E:\DATA\ZZP\ZZP-9-2\ZZP-9-2-GH 2019-11-19 19-12-35\ZZP-9-2-GH2.D
Sample Name: ZZP-9-2-RAC

=====================================================================
Acq. Operator   : SYSTEM                          Seq. Line :   3
Acq. Instrument : 1260                             Location :   53
Injection Date  : 11/19/2019 7:35:39 PM                 Inj :   1
                                                 Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-9-2\ZZP-9-2-GH 2019-11-19 19-12-35\AS,90-10,2UL,1ML,10MIN.M
Last changed    : 11/19/2019 7:12:35 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-9-2\ZZP-9-2-GH 2019-11-19 19-12-35\AS,90-10,2UL,1ML,10MIN.M
                  (Sequence Method)
Last changed    : 11/29/2019 9:33:41 AM by SYSTEM
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
=====================================================================
                         Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 B, Sig=254,4 Ref=off
```

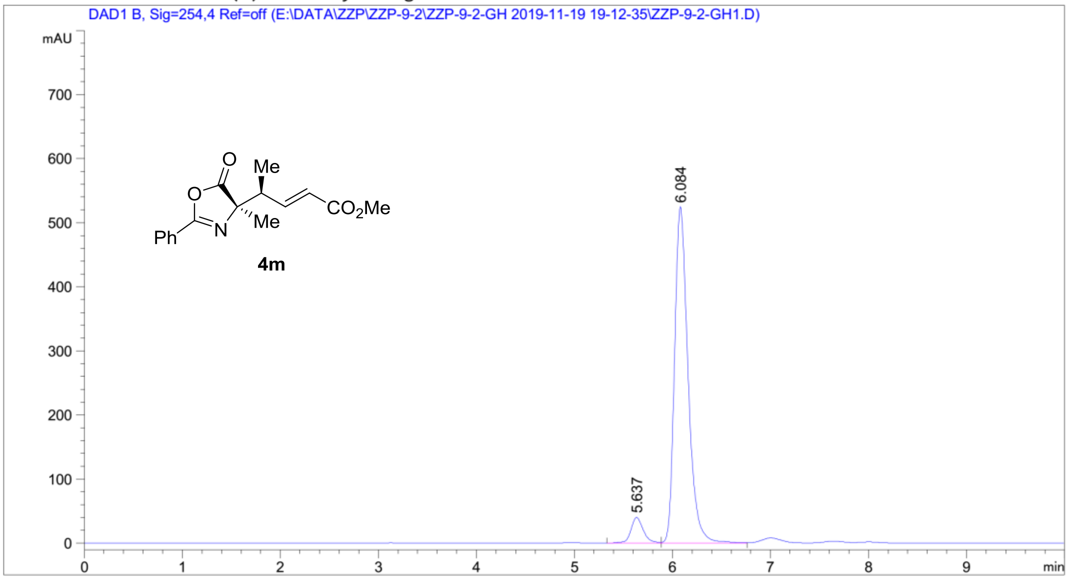
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.470	BV E	0.0880	279.41269	47.92768	4.7455
2	5.631	VB R	0.1308	2650.54663	300.73383	45.0162
3	6.082	BV R	0.1416	2486.04419	269.43274	42.2223
4	6.518	VB E	0.1500	471.98459	48.30260	8.0161

Totals : 5887.98810 666.39684

Data File E:\DATA\ZZP\ZZP-9-2\ZZP-9-2-GH 2019-11-19 19-12-35\ZZP-9-2-GH1.D
Sample Name: ZZP-9-2-GH

===

Acq. Operator : SYSTEM   Seq. Line : 2
Acq. Instrument : 1260   Location : 56
Injection Date : 11/19/2019 7:24:46 PM   Inj : 2
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-9-2\ZZP-9-2-GH 2019-11-19 19-12-35\AS,90-10,2UL,1ML,10MIN.M
Last changed : 11/19/2019 7:12:35 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-9-2\ZZP-9-2-GH 2019-11-19 19-12-35\AS,90-10,2UL,1ML,10MIN.M
(Sequence Method)
Last changed : 11/29/2019 9:34:42 AM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



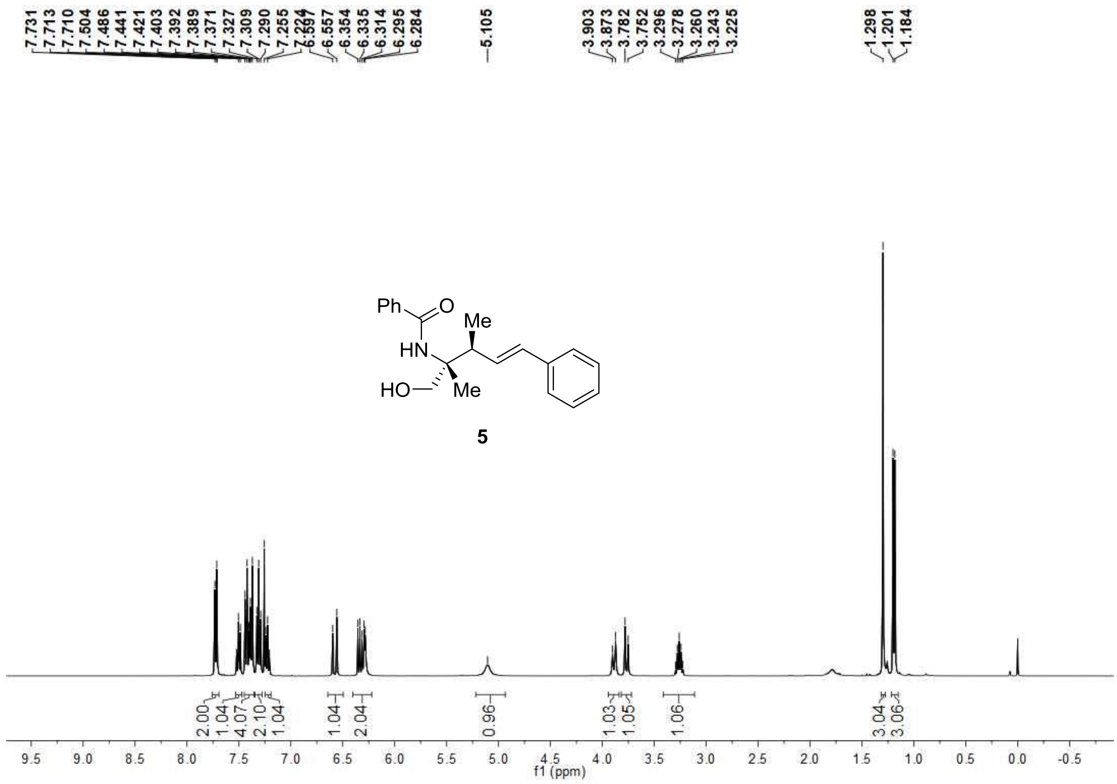
===
Area Percent Report
===

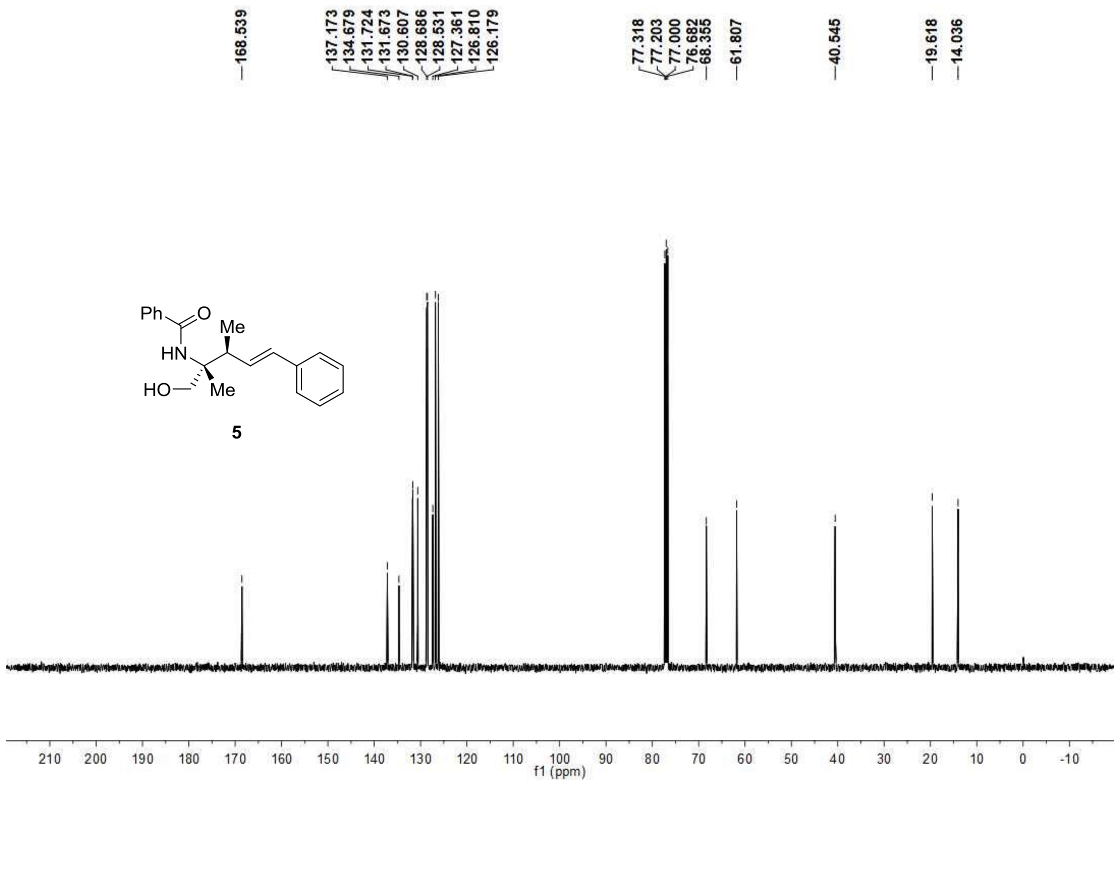
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.637	BV	0.1318	349.46179	40.05820	6.5368
2	6.084	VV	0.1451	4996.57764	524.82355	93.4632

Totals : 5346.03943 564.88175

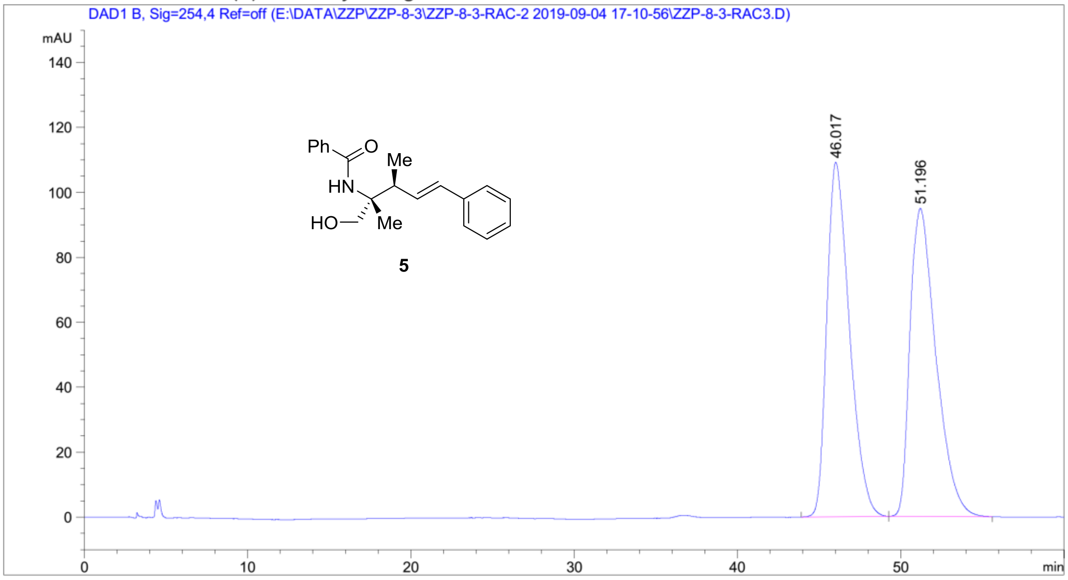

7.731
7.713
7.710
7.504
7.486
7.441
7.421
7.403
7.392
7.389
7.371
7.327
7.309
7.290
7.255
7.224
6.597
6.557
6.354
6.335
6.314
6.295
6.284
5.105
3.903
3.873
3.782
3.752
3.296
3.278
3.260
3.243
3.225
1.298
1.201
1.184
Ph
O
Me
HN
HO
Me
5
2.00
1.04
4.07
2.10
1.04
1.04
2.04
0.96
1.03
1.05
1.06
3.04
3.06
f1 (ppm)


168.539
137.173
134.679
131.724
131.673
130.607
128.686
128.531
127.361
126.810
126.179
77.318
77.203
77.000
76.682
68.355
61.807
40.545
19.618
14.036
Ph
O
Me
HN
HO
Me
5
f1 (ppm)

Data File E:\DATA\ZZP\ZZP-8-3\ZZP-8-3-RAC-2 2019-09-04 17-10-56\ZZP-8-3-RAC3.D
Sample Name: zzp-8-3-rac

===

Acq. Operator : SYSTEM Seq. Line : 4
Acq. Instrument : 1260 Location : 63
Injection Date : 9/4/2019 7:07:38 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-8-3\ZZP-8-3-RAC-2 2019-09-04 17-10-56\ID,95-5,2UL,1ML,20MIN.M
Last changed : 9/4/2019 7:08:05 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-8-3\ZZP-8-3-RAC-2 2019-09-04 17-10-56\ID,95-5,2UL,1ML,20MIN.M (Sequence Method)
Last changed : 9/10/2019 9:19:35 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



===

Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

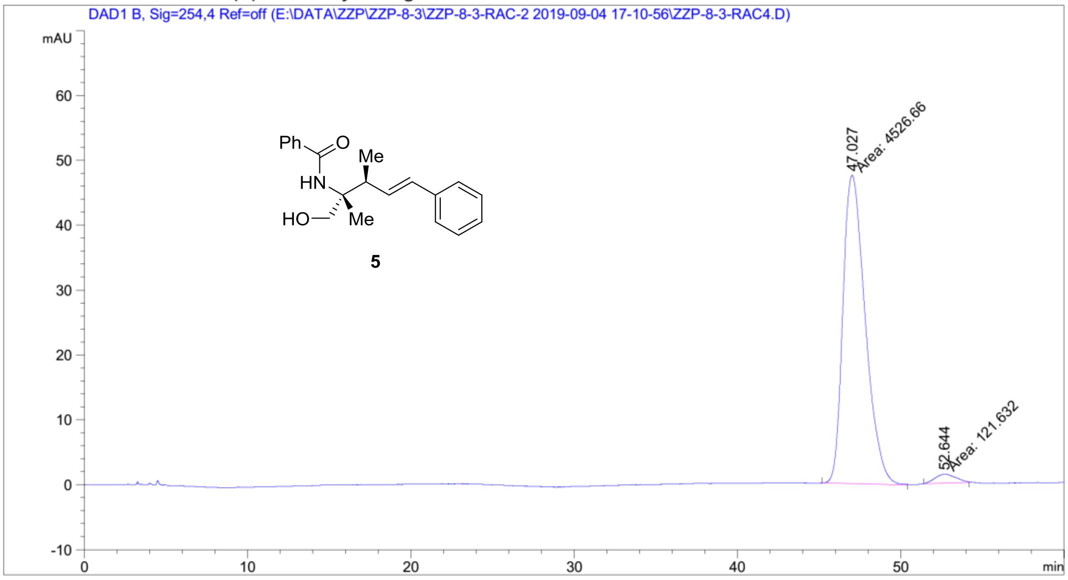
Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	46.017	BB	1.4743	1.04994e4	109.14314	49.9799
2	51.196	BB	1.6180	1.05079e4	94.88618	50.0201

Totals : 2.10073e4 204.02931

Data File E:\DATA\ZZP\ZZP-8-3\ZZP-8-3-RAC-2 2019-09-04 17-10-56\ZZP-8-3-RAC4.D
Sample Name: ZZP-8-3-GH

===
Acq. Operator   : SYSTEM   Seq. Line :   5
Acq. Instrument : 1260   Location :   66
Injection Date : 9/4/2019 8:08:34 PM   Inj :   1
                                               Inj Volume : 2.000 µl
Acq. Method   : E:\DATA\ZZP\ZZP-8-3\ZZP-8-3-RAC-2 2019-09-04 17-10-56\ID,95-5,2UL,1ML,20MIN .M
Last changed   : 9/4/2019 7:08:05 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-8-3\ZZP-8-3-RAC-2 2019-09-04 17-10-56\ID,95-5,2UL,1ML,20MIN .M (Sequence Method)
Last changed   : 9/10/2019 9:21:46 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



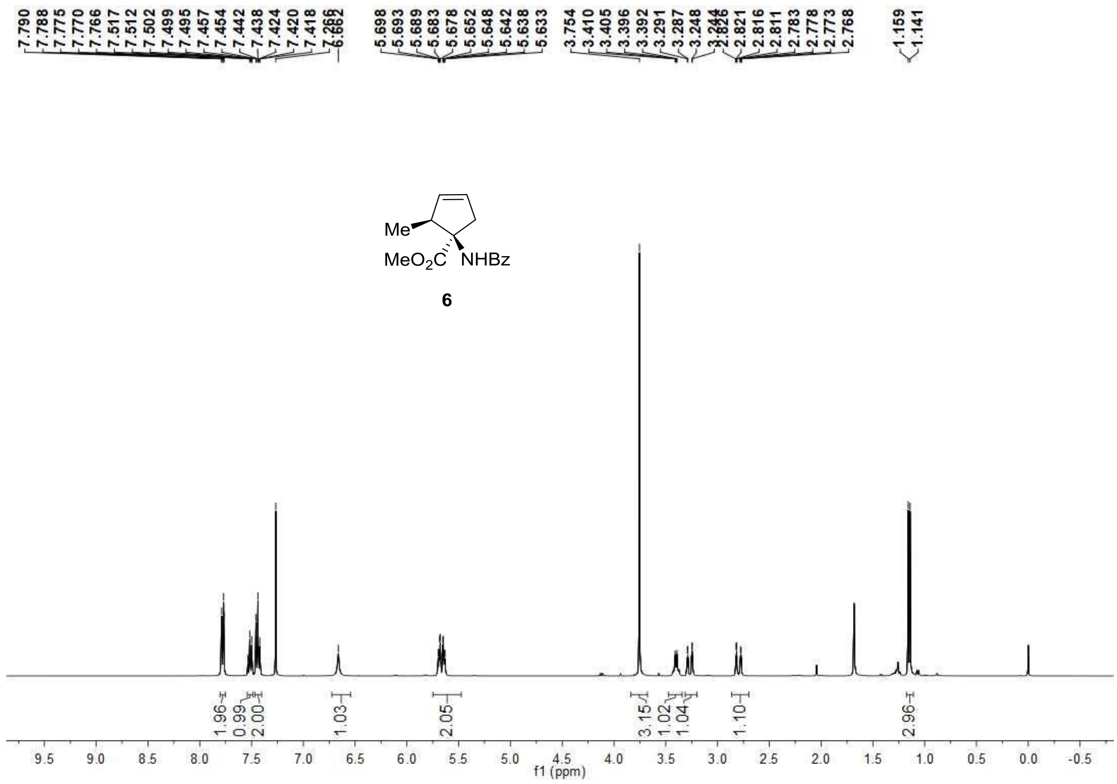
===
Area Percent Report
===

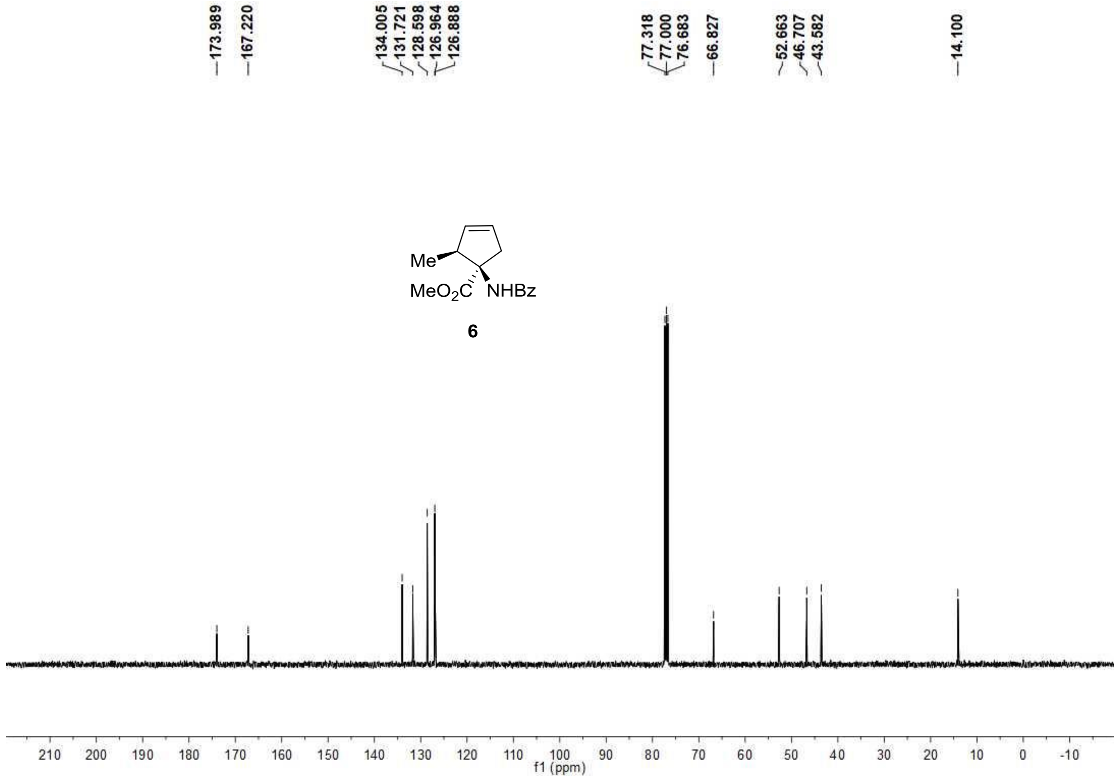
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	47.027	PM	1.5874	4526.65625	47.52705	97.3833
2	52.644	PM	1.4867	121.63187	1.36354	2.6167

Totals : 4648.28812 48.89059

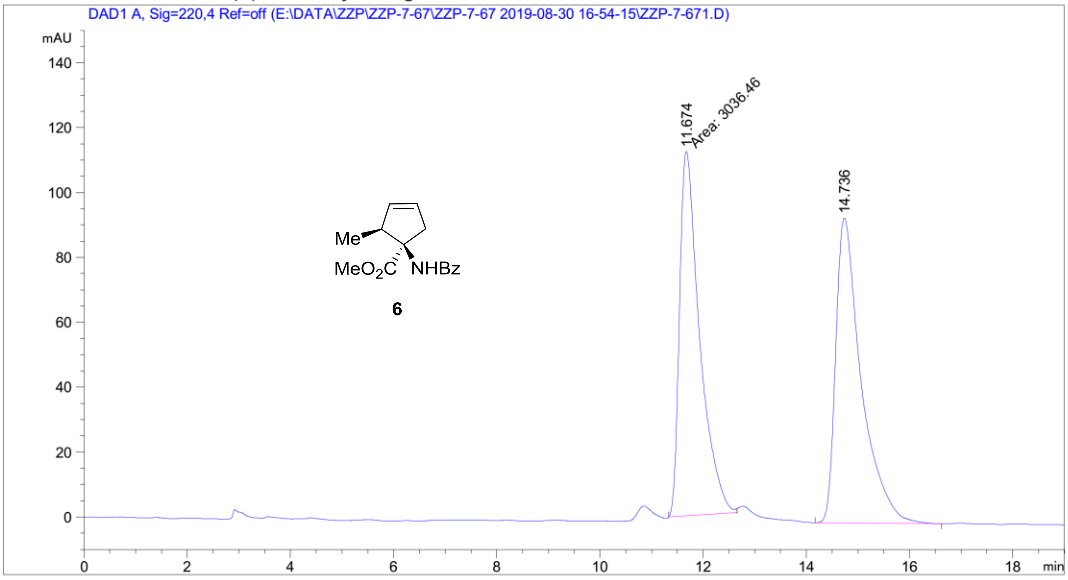




Data File E:\DATA\ZZP\ZZP-7-67\ZZP-7-67 2019-08-30 16-54-15\ZZP-7-671.D
Sample Name: ZZP-7-67

===

Acq. Operator : SYSTEM   Seq. Line : 2
Acq. Instrument : 1260   Location : 64
Injection Date : 8/30/2019 5:06:36 PM   Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-7-67\ZZP-7-67 2019-08-30 16-54-15\AD,90-10,2UL,1ML,30MIN.M
Last changed : 8/30/2019 5:24:04 PM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-7-67\ZZP-7-67 2019-08-30 16-54-15\AD,90-10,2UL,1ML,30MIN.M
(Sequence Method)
Last changed : 9/10/2019 9:25:28 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=220,4 Ref=off

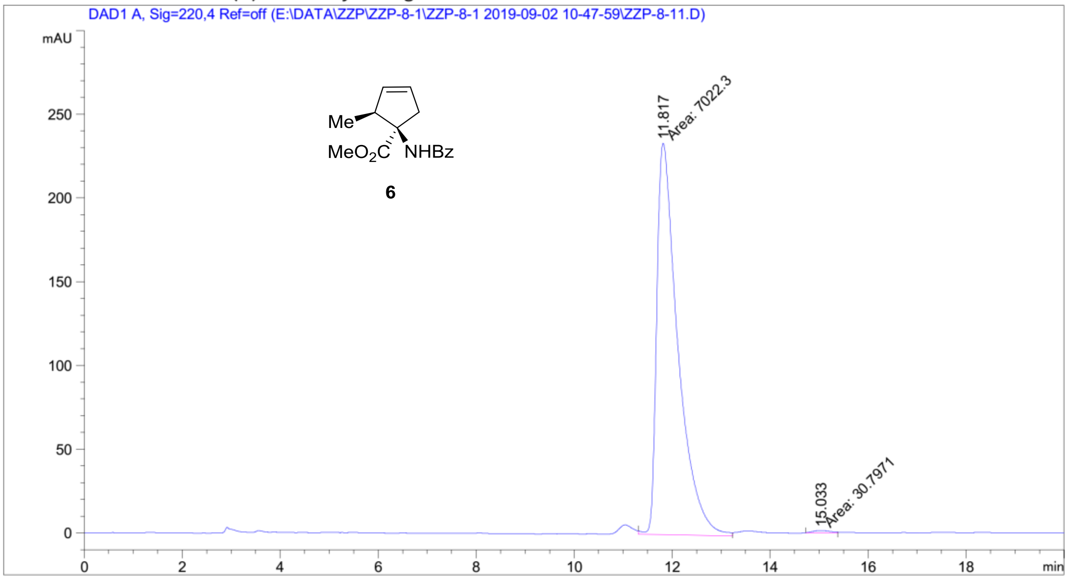
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	11.674	PM	0.4507	3036.45679	112.29697	48.5146
2	14.736	BB	0.5018	3222.39502	94.03548	51.4854

Totals : 6258.85181 206.33246

Data File E:\DATA\ZZP\ZZP-8-1\ZZP-8-1 2019-09-02 10-47-59\ZZP-8-11.D
Sample Name: ZZP-8-1

===

Acq. Operator : SYSTEM Seq. Line : 2
Acq. Instrument : 1260 Location : 61
Injection Date : 9/2/2019 11:00:09 AM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-8-1\ZZP-8-1 2019-09-02 10-47-59\AD,90-10,2UL,1ML,30MIN.M
Last changed : 9/2/2019 11:17:20 AM by SYSTEM
(modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-8-1\ZZP-8-1 2019-09-02 10-47-59\AD,90-10,2UL,1ML,30MIN.M (
Sequence Method)
Last changed : 9/10/2019 9:27:14 PM by SYSTEM
(modified after loading)
Additional Info : Peak(s) manually integrated



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Area Percent Report

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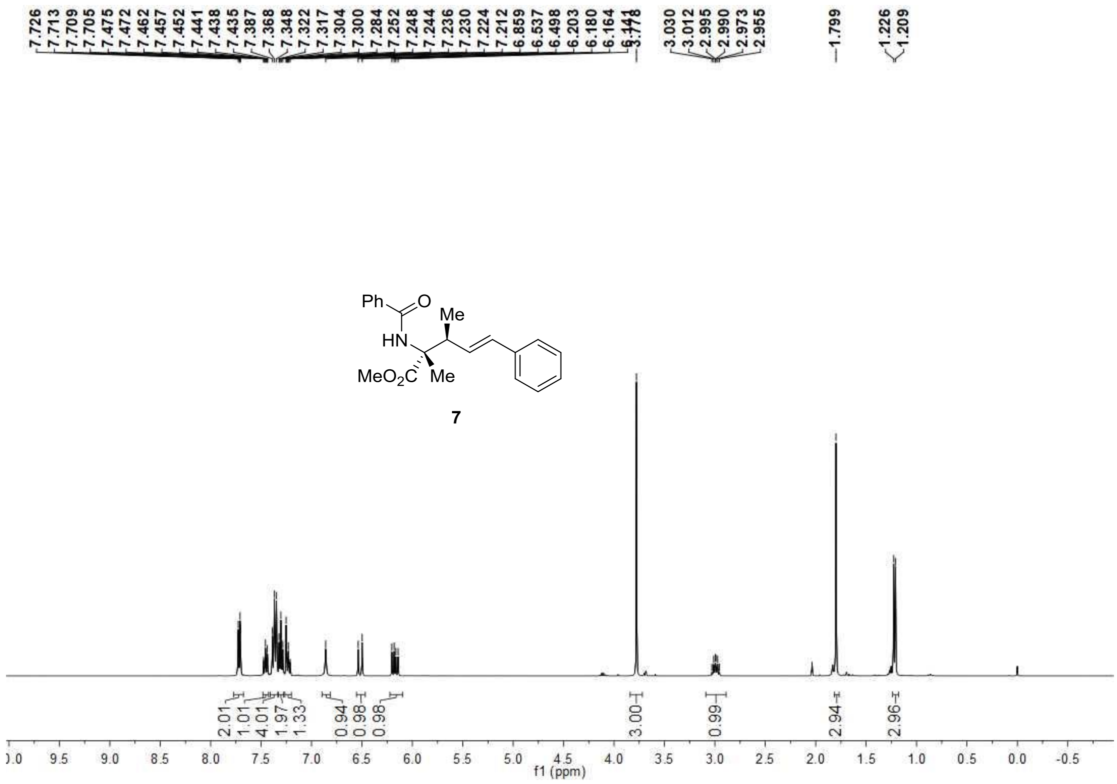
Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

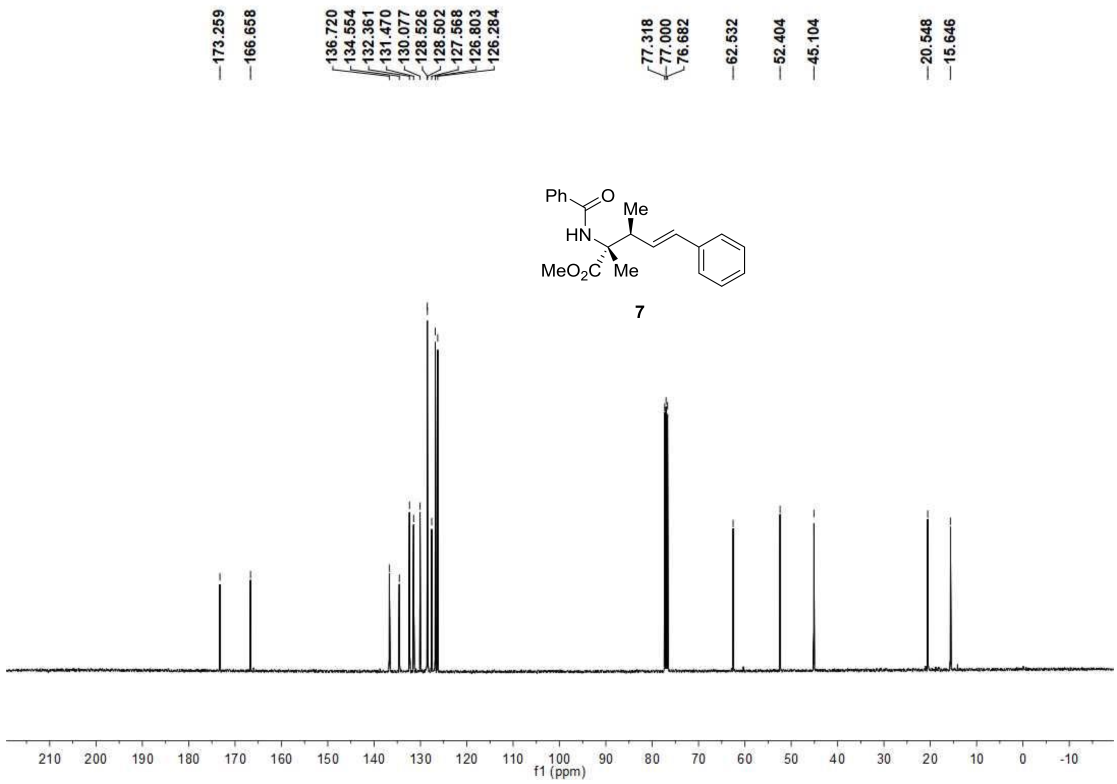
Signal 1: DAD1 A, Sig=220,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	11.817	MM	0.5005	7022.30371	233.82272	99.5634
2	15.033	MM	0.3799	30.79710	1.35119	0.4366

Totals : 7053.10081 235.17392



7



7

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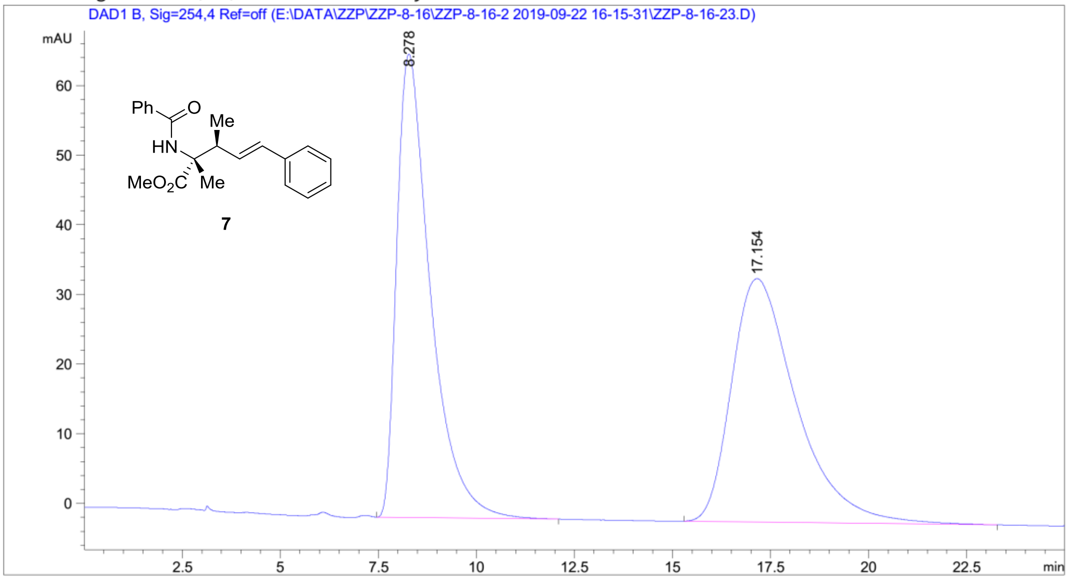
Data File E:\DATA\ZZP\ZZP-8-16\ZZP-8-16-2 2019-09-22 16-15-31\ZZP-8-16-23.D
Sample Name: ZZP-8-16-2

=====================================================================
Acq. Operator   : SYSTEM                        Seq. Line :   4
Acq. Instrument : 1260                           Location :   4
Injection Date  : 9/22/2019 4:41:28 PM                Inj :   1
                                               Inj Volume : 2.000 µl
Acq. Method     : E:\DATA\ZZP\ZZP-8-16\ZZP-8-16-2 2019-09-22 16-15-31\AS,90-10,2UL,1ML,20MIN.
                  M
Last changed    : 9/22/2019 5:02:24 PM by SYSTEM
                  (modified after loading)
Analysis Method : E:\DATA\ZZP\ZZP-8-16\ZZP-8-16-2 2019-09-22 16-15-31\AS,90-10,2UL,1ML,20MIN.
                  M (Sequence Method)
Last changed    : 9/22/2019 5:06:31 PM by SYSTEM
```

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=====================================================================
                         Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 B, Sig=254,4 Ref=off
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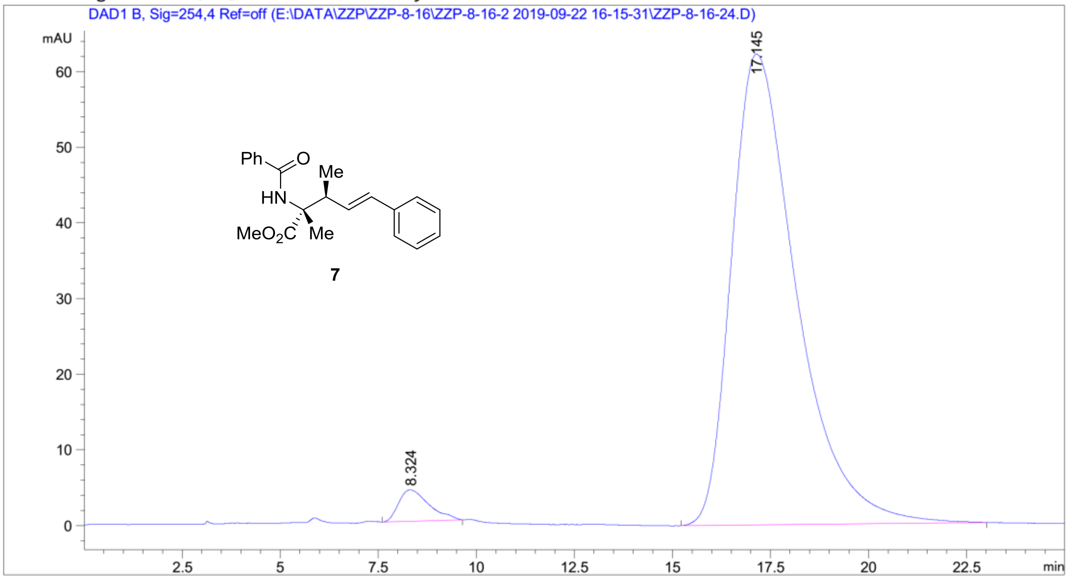
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.278	BB	0.8700	3980.96582	66.54219	49.7888
2	17.154	BB	1.4025	4014.73340	34.94067	50.2112

Totals : 7995.69922 101.48286

Data File E:\DATA\ZZP\ZZP-8-16\ZZP-8-16-2 2019-09-22 16-15-31\ZZP-8-16-24.D
Sample Name: ZZP-8-16-3

===

Acq. Operator : SYSTEM Seq. Line : 5
Acq. Instrument : 1260 Location : 5
Injection Date : 9/22/2019 5:07:22 PM Inj : 1
Inj Volume : 2.000 µl
Acq. Method : E:\DATA\ZZP\ZZP-8-16\ZZP-8-16-2 2019-09-22 16-15-31\AS,90-10,2UL,1ML,20MIN.M
Last changed : 9/22/2019 5:02:24 PM by SYSTEM
Analysis Method : E:\DATA\ZZP\ZZP-8-16\ZZP-8-16-2 2019-09-22 16-15-31\AS,90-10,2UL,1ML,20MIN.M (Sequence Method)
Last changed : 9/22/2019 5:06:31 PM by SYSTEM



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Area Percent Report

===

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.324	BB	0.6487	222.15175	4.13547	3.0037
2	17.145	BB	1.5344	7173.88672	62.25256	96.9963

Totals : 7396.03847 66.38803

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