

**Asymmetric Construction of 3-Vinylidene-Pyrrolidine Derivatives  
Containing Allene Moiety via Ag(I)/TF-BiphamPhos-Catalyzed  
1,3-Dipolar Cycloaddition of Azomethine Ylides with Diethyl  
2-(3,3-Diphenylpropa-1,2-dienylidene) Malonate**

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**Supporting Information**

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## General Remarks

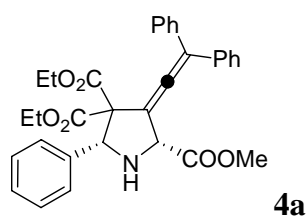
$^1\text{H}$  NMR spectra were recorded on a VARIAN Mercury 300 MHz spectrometer in chloroform- $d_3$ . Chemical shifts are reported in ppm with the internal TMS signal at 0.0 ppm as a standard. The data are reported as (s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet or unresolved, brs = broad singlet, coupling constant(s) in Hz, integration).  $^{13}\text{C}$  NMR spectra were recorded on a VARIAN Mercury 100 MHz spectrometer in chloroform- $d_3$ . Chemical shifts are reported in ppm with the internal chloroform signal at 77.0 ppm as a standard. Commercially obtained reagents were used without further purification. All reactions were monitored by TLC with silica gel-coated plates. Diastereomeric ratios were determined from crude  $^1\text{H}$  NMR or HPLC analysis. Enantiomeric ratios were determined by HPLC, using a chiralcel AD-H column, a chiralpak AS-H column with hexane and *i*-PrOH as solvents. The absolute configurations of the products were determined as (2*R*,5*R*) by X-ray diffraction analysis, and those of other adducts were deduced on the basis of these results. Catalyst **1a-e**<sup>1</sup> and diethyl 2-(3,3-diphenylpropa-1,2-dienylidene) malonate **2**<sup>2</sup> were prepared according to the literature.

## General Procedure for the synthesis of $\alpha$ -imino esters

To a suspension of the corresponding amino acid ester hydrochloride (12 mmol) and  $\text{MgSO}_4$  (16.0 mmol) in  $\text{CH}_2\text{Cl}_2$  (20 mL) was added  $\text{Et}_3\text{N}$  (2.0 mL, 14 mmol). The mixture was stirred at room temperature for 1h, and then the corresponding aldehyde (10.0 mmol) was added. The reaction was stirred at room temperature overnight, and then the resulting precipitate was removed by filtration. The filtrate was washed once with water (30 mL), the aqueous phase was extracted once with  $\text{CH}_2\text{Cl}_2$  (15 mL) and the combined organic phase was washed with brine 3 times, dried over  $\text{MgSO}_4$  and concentrated. The resulting iminoesters were used in 1,3-dipolar cycloadditions without further purification.

### General Procedure for Asymmetric 1,3-Dipolar Cycloaddition of Azomethine Ylides with diethyl 2-(3,3-diphenylpropa-1,2-dienylidene)malonate Catalyzed by Ag(I)/TF-BiphamPhos 1e Complex

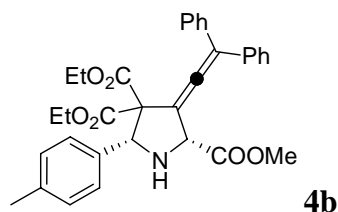
Under argon atmosphere (*S*)-TF-BiphamPhos **1e** (6.0 mg, 0.0075 mmol) and AgOAc (1.2 mg, 0.007 mmol) were dissolved in 2mL DCM, and stirred at room temperature for about 1h. Then, imine substrate (0.40 mmol), K<sub>2</sub>CO<sub>3</sub> (0.04 mmol) and diethyl 2-(3,3-diphenylpropa-1,2-dienylidene)malonate (0.23 mmol) were added sequentially. Once starting material was consumed (monitored by TLC), the mixture was filtered through celite and the filtrate was concentrated to dryness. The crude product was purified by column chromatography to give the corresponding cycloaddition product, which was then directly analyzed by chiral HPLC to determine the enantiomeric excess.



#### (2*R*,5*R*)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-5-phenylpyrrolidine-2,4,4-tricarboxylate

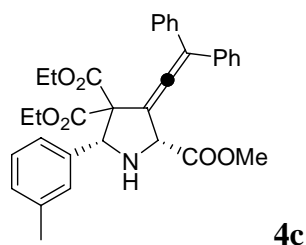
The title compound was prepared according to the general procedure as described above in 90% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -53.1$  (*c* 4.3, CHCl<sub>3</sub>); <sup>1</sup>H NMR (CDCl<sub>3</sub>, TMS, 300 MHz) δ 7.41-7.39 (m, 3H), 7.27-7.19 (m, 12H), 5.23 (s, 1H), 4.72 (s, 1H), 4.03-4.00 (m, 1H), 3.90-3.88 (m, 1H), 3.76-3.74 (m, 1H), 3.63-3.57 (m, 1H), 3.48 (s, 3H), 0.88-0.78 (m, 6H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, TMS, 100 MHz) δ 13.54, 13.64, 52.58, 61.64, 61.99, 62.09, 68.37, 68.69, 77.66, 107.24, 116.46, 127.04, 127.83, 127.97, 128.24, 128.30, 128.43, 128.54, 128.92, 135.47, 135.64, 135.96, 167.99, 168.49, 170.33, 200.63; IR (KBr) ν 3346, 3059, 2981, 1736, 1222, 1202, 770, 696 cm<sup>-1</sup>. HRMS Calcd. For C<sub>32</sub>H<sub>31</sub>NO<sub>6</sub>+H<sup>+</sup>: 526.2224, found 526.2238. The product was analyzed to determine the enantioselectivity of the reaction: 93% ee, determined by HPLC (Chiralcel AD-H,

*i*-propanol/hexane = 30/70, flow rate 1.0 mL/min,  $\lambda$  = 220 nm);  $t_r$  = 5.06 and 6.05 min.



**(2R,5R)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-5-p-tolylpyrrolidine-2,4,4-tricarboxylate**

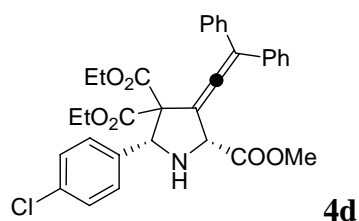
The title compound was prepared according to the general procedure as described above in 92% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -71.2$  (*c* 1.5,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.34-7.32 (m, 12H), 7.16-7.13 (m, 2H), 5.25 (s, 1H), 4.76 (s, 1H), 4.10-4.07 (m, 1H), 3.99-3.96 (m, 1H), 3.88-3.83 (m, 1H), 3.74-3.63 (m, 1H), 3.54 (s, 3H), 2.33 (s, 3H), 0.96-0.81 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.39, 13.51, 21.02, 29.60, 52.34, 61.43, 61.86, 68.24, 68.61, 107.31, 116.19, 126.79, 127.64, 127.79, 128.13, 128.25, 128.40, 128.80, 132.86, 135.45, 135.61, 137.71, 167.87, 168.39, 170.25, 200.44; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{33}\text{H}_{33}\text{NO}_6 + \text{H}^+$ : 540.2381, found 540.2394. The product was analyzed to determine the enantioselectivity of the reaction: 90% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda$  = 220 nm);  $t_r$  = 10.27 and 15.85 min.



**(2R,5R)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-5-m-tolylpyrrolidine-2,4,4-tricarboxylate**

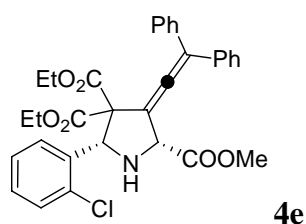
The title compound was prepared according to the general procedure as described above in 90% yield. It was purified by flash chromatography to afford yellow oil.

$[\alpha]_D^{25} = -53.5$  (*c* 0.7,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.34-7.19 (m, 13H), 7.12-7.09 (m, 1H), 5.25 (s, 1H), 4.77 (s, 1H), 4.13-4.07 (m, 1H), 3.99-3.93 (m, 1H), 3.88-3.82 (m, 1H), 3.72-3.62 (m, 1H), 3.55 (s, 3H), 2.35 (s, 3H), 0.96-0.87 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  12.40, 13.53, 21.42, 52.41, 61.45, 61.91, 68.33, 68.56, 107.16, 116.32, 124.16, 127.49, 127.69, 127.82, 128.05, 128.14, 128.30, 128.43, 128.86, 135.41, 135.58, 135.73, 137.68, 167.87, 168.31, 170.22, 200.52; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{33}\text{H}_{33}\text{NO}_6 + \text{H}^+$ : 540.2381, found 540.2388.. The product was analyzed to determine the enantioselectivity of the reaction: 92% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 8.93$  and 13.18 min.



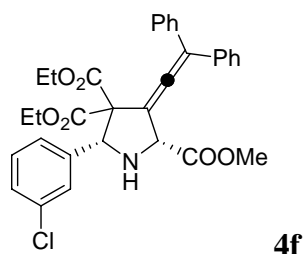
**(2*R*,5*R*)-4,4-diethyl 2-methyl 5-(4-chlorophenyl)-3-(2,2-diphenylvinylidene) pyrrolidine-2,4,4-tricarboxylate**

The title compound was prepared according to the general procedure as described above in 85% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -46.4$  (*c* 0.7,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.45-7.32 (m, 13H), 7.27-7.26 (m, 1H), 5.24 (s, 1H), 4.76 (s, 1H), 4.14-4.08 (m, 1H), 3.99-3.93 (m, 1H), 3.90-3.84 (m, 1H), 3.75-3.69 (m, 1H), 3.55 (s, 3H), 0.96-0.83 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.45, 52.40, 61.59, 61.80, 62.04, 67.60, 68.42, 106.91, 116.41, 127.73, 127.85, 128.13, 128.28, 128.43, 133.90, 134.69, 135.33, 135.48, 167.69, 168.33, 170.19, 200.53; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{32}\text{H}_{30}\text{ClNO}_6 + \text{H}^+$ : 560.1834, found 560.1841. The product was analyzed to determine the enantioselectivity of the reaction: 93% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 11.30$  and 15.26 min.



**(2*R*,5*S*)-4,4-diethyl 2-methyl 5-(2-chlorophenyl)-3-(2,2-diphenylvinylidene)  
pyrrolidine-2,4,4-tricarboxylate**

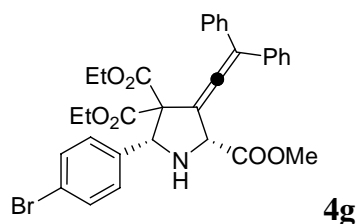
The title compound was prepared according to the general procedure as described above in 90% yield. It was purified by flash chromatography to afford yellow oil;  $[\alpha]_D^{25} = -131.8$  (*c* 1.6,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.60-7.57 (m, 1H), 7.44-7.20 (m, 13H), 5.75 (s, 1H), 4.79 (s, 1H), 4.12-4.06 (m, 1H), 4.03-3.95 (m, 1H), 3.89-3.83 (m, 1H), 3.69-3.62 (m, 1H), 3.58 (s, 3H), 1.01-0.84 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.28, 13.53, 29.57, 52.37, 61.43, 61.83, 62.04, 64.78, 68.27, 106.17, 116.53, 126.59, 127.67, 127.78, 128.22, 128.34, 128.60, 128.80, 129.17, 129.62, 134.39, 135.29, 135.65, 167.15, 167.98, 170.77, 200.93; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{32}\text{H}_{30}\text{ClNO}_6+\text{H}^+$ : 560.1834, found 560.1839. The product was analyzed to determine the enantioselectivity of the reaction: 92% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 10.18$  and 12.26 min.



**(2*R*,5*R*)-4,4-diethyl 2-methyl 5-(3-chlorophenyl)-3-(2,2-diphenylvinylidene)  
pyrrolidine-2,4,4-tricarboxylate**

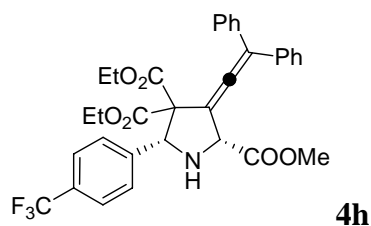
The title compound was prepared according to the general procedure as described above in 88% yield. It was purified by flash chromatography to afford yellow oil.

$[\alpha]_D^{25} = -50.9$  (*c* 1.7,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.49 (s, 1H), 7.40-7.26 (m, 13H), 5.23 (s, 1H), 4.76 (s, 1H), 4.15-4.09 (m, 1H), 4.00-3.96 (m, 1H), 3.94-3.86 (m, 1H), 3.77-3.71 (m, 1H), 3.55 (s, 3H), 0.94-0.83 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.45, 13.51, 29.60, 52.43, 61.65, 61.80, 62.07, 67.66, 68.45, 106.82, 116.50, 125.41, 127.24, 127.76, 127.88, 128.13, 128.22, 128.31, 128.43, 129.41, 134.11, 135.30, 135.52, 138.29, 167.66, 168.24, 170.16, 200.59; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{32}\text{H}_{30}\text{ClNO}_6+\text{H}^+$ : 560.1834, found 560.1840. The product was analyzed to determine the enantioselectivity of the reaction: 90% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 8.98$  and 12.93 min.



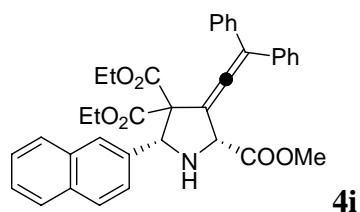
**(2*R*,5*R*)-4,4-diethyl 2-methyl 5-(4-bromophenyl)-3-(2,2-diphenylvinylidene)pyrrolidine-2,4,4-tricarboxylate**

The title compound was prepared according to the general procedure as described above in 89% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -31.3$  (*c* 2.1,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.49-7.46 (m, 2H), 7.39-7.26 (m, 12H), 5.24 (s, 1H), 4.78 (s, 1H), 4.14-4.07 (m, 1H), 3.99-3.95 (m, 1H), 3.93-3.84 (m, 1H), 3.76-3.70 (m, 1H), 3.55 (s, 3H), 0.96-0.80 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.45, 52.37, 61.59, 61.74, 62.01, 67.63, 68.33, 106.85, 116.41, 122.05, 127.70, 127.85, 128.10, 128.28, 128.40, 128.74, 131.18, 135.21, 135.45, 167.63, 168.27, 170.13, 200.53; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{32}\text{H}_{30}\text{BrNO}_6+\text{H}^+$ : 604.1329, found 604.1325. The product was analyzed to determine the enantioselectivity of the reaction: 91% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 12.50$  and 17.62 min.



**(2R,5R)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-5-(4-(trifluoromethyl)phenyl)pyrrolidine-2,4,4-tricarboxylate**

The title compound was prepared according to the general procedure as described above in 88% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -52.2$  (*c* 1.9,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.58-7.54 (m, 5H), 7.32-7.18 (m, 9H), 5.21 (s, 1H), 4.68 (s, 1H), 4.07-4.01 (m, 1H), 3.92-3.86 (m, 1H), 3.78-3.72 (m, 1H), 3.63-3.57 (m, 1H), 3.47 (s, 3H), 0.86 (t,  $J = 7.2$ , 3H), 0.77 (t,  $J = 7.2$ , 3H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.30, 13.48, 52.43, 61.63, 61.78, 62.14, 67.71, 68.47, 106.81, 116.59, 124.97, 125.02, 127.52, 127.79, 127.91, 128.14, 128.33, 128.40, 128.46, 135.27, 135.47, 140.41, 167.58, 168.30, 170.19, 200.59; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{33}\text{H}_{30}\text{F}_3\text{NO}_6 + \text{H}^+$ : 594.2098, found 594.2119. The product was analyzed to determine the enantioselectivity of the reaction: 93% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 8.75$  and 9.92 min.

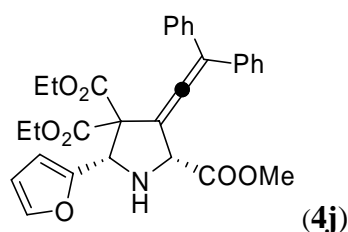


**(2R,5R)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-5-(naphthalen-2-yl)pyrrolidine-2,4,4-tricarboxylate**

The title compound was prepared according to the general procedure as described above in 85% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -24.8$  (*c* 1.6,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.92 (s, 1H), 7.82-7.79 (m, 3H), 7.63-7.48 (m, 1H), 7.48-7.26 (m, 11H), 5.44 (s, 1H), 4.82 (s, 1H),

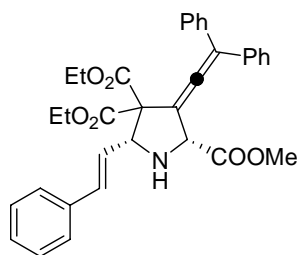


4.15-4.10 (m, 1H), 4.01-3.96 (m, 1H), 3.79-3.71 (m, 1H), 3.65-3.57 (m, 4H), 0.95 (t,  $J = 6.9$ , 3H), 0.73 (t,  $J = 7.2$ , 3H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.28, 13.51, 52.38, 61.43, 61.97, 68.41, 68.71, 107.31, 116.32, 125.23, 125.66, 126.01, 127.44, 127.67, 127.82, 128.01, 128.13, 128.28, 128.42, 132.97, 133.03, 133.61, 135.39, 135.58, 167.83, 168.45, 170.30, 200.49; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{36}\text{H}_{33}\text{NO}_6+\text{H}^+$ : 576.2381, found 576.2397. The product was analyzed to determine the enantioselectivity of the reaction: 91% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 9.38$  and 12.62 min.



**(2R,5S)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-5-(furan-2-yl)  
pyrrolidine-2,4,4-tricarboxylate**

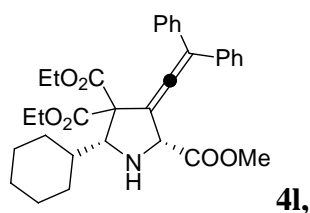
The title compound was prepared according to the general procedure as described above in 82% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -38.2$  ( $c$  1.4,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.38-7.33 (m, 10H), 6.44 (s, 1H), 6.36 (s, 1H), 5.20 (s, 1H), 4.71 (s, 1H), 4.09-3.93(m, 4H), 3.54(s, 3H), 1.09 (t,  $J = 6.9$ , 3H), 0.95 (t,  $J = 6.9$ , 3H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.56, 13.62, 52.41, 61.78, 61.97, 63.54, 67.05, 106.30, 108.70, 110.52, 116.36, 127.70, 127.84, 128.14, 128.20, 128.28, 128.40, 128.45, 135.42, 135.55, 142.22, 149.02, 167.69, 167.89, 170.02, 200.67; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{30}\text{H}_{29}\text{NO}_7+\text{H}^+$ : 516.2017, found 516.2027. The product was analyzed to determine the enantioselectivity of the reaction: 90% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 9.36$  and 10.93 min.



**4k**

**(2R,5R,E)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-5-styrylpyrrolidine-2,4,4-tricarboxylate**

The title compound was prepared according to the general procedure as described above in 85% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -50.3$  (*c* 0.5,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.40-7.30 (m, 15H), 6.78 (d, *J* = 16.2, 1H), 6.38-6.31 (m, 1H), 4.74 (s, 1H), 4.35 (d, *J* = 5.4, 1H), 4.13-4.05 (m, 4H), 3.54 (s, 3H), 1.09 (t, *J* = 7.2, 3H), 0.99 (t, *J* = 7.2, 3H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.89, 14.24, 52.69, 62.11, 62.22, 62.43, 67.05, 67.28, 67.75, 106.69, 116.50, 124.49, 126.79, 127.96, 128.08, 128.42, 128.57, 128.70, 128.76, 129.07, 132.73, 135.85, 136.74, 168.22, 168.36, 170.46, 200.93; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{34}\text{H}_{33}\text{NO}_6 + \text{H}^+$ : 552.2381, found 552.2400. The product was analyzed to determine the enantioselectivity of the reaction: 91% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 30/70, flow rate 1.0 mL/min,  $\lambda$  = 220 nm);  $t_r$  = 12.68 and 19.14 min.

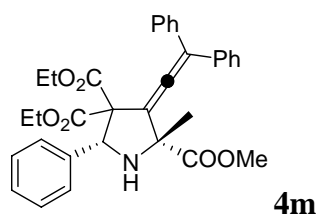


**4l,**

**(2R,5R)-4,4-diethyl 2-methyl 5-cyclohexyl-3-(2,2-diphenylvinylidene)pyrrolidine-2,4,4-tricarboxylate**

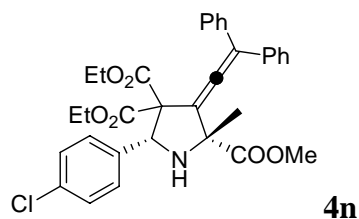
The title compound was prepared according to the general procedure as described above in 82% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -64.5$  (*c* 1.4,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.36-7.29 (m,

10H), 4.66 (s, 1H), 4.22-4.14 (m, 2H), 4.06-3.93 (m, 2H), 3.82 (d,  $J = 8.7$ , 1H), 3.51 (s, 3H), 2.05-1.65 (m, 11H), 0.90-0.74 (m, 6H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.62, 13.86, 14.04, 22.62, 26.03, 26.19, 29.29, 29.61, 30.99, 31.14, 31.86, 39.94, 52.21, 61.52, 61.66, 61.95, 66.48, 71.63, 109.08, 116.36, 127.61, 127.73, 128.25, 128.37, 135.61, 168.25, 168.59, 170.33, 199.49; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{32}\text{H}_{37}\text{NO}_6+\text{H}^+$ : 532.2694, found 532.2706. The product was analyzed to determine the enantioselectivity of the reaction: 88% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 6.08$  and 10.61 min.



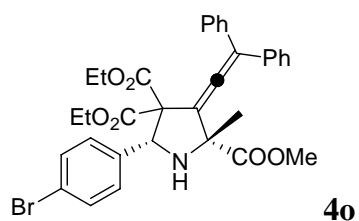
**(2*R*,5*R*)-4,4-diethyl 2-methyl 3-(2,2-diphenylvinylidene)-2-methyl-5-phenylpyrrolidine-2,4,4-tricarboxylate**

The title compound was prepared according to the general procedure as described above in 88% yield. It was purified by flash chromatography to afford colorless oil.  $[\alpha]_D^{25} = +20.0$  ( $c$  0.3,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.47-7.45 (m, 2H), 7.35-7.25 (m, 13H), 5.40 (s, 1H), 4.09-4.03 (m, 1H), 3.91-3.79 (m, 2H), 3.71-3.63 (m, 1H), 3.47 (s, 3H), 1.77 (s, 3H), 0.92-0.85 (m, 6H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.70, 22.93, 26.79, 29.94, 32.17, 52.93, 61.75, 62.20, 66.78, 67.97, 69.78, 113.02, 116.60, 127.21, 127.91, 128.06, 128.29, 128.48, 128.54, 128.79, 135.61, 136.03, 168.06, 168.76, 173.26, 201.20; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{33}\text{H}_{33}\text{NO}_6+\text{H}^+$ : 540.2381, found 540.2380. The product was analyzed to determine the enantioselectivity of the reaction: 93% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 5.09$  and 6.38 min.



**(2R,5R)-4,4-diethyl 2-methyl 5-(4-chlorophenyl)-3-(2,2-diphenylvinylidene)-2-methylpyrrolidine-2,4,4-tricarboxylate**

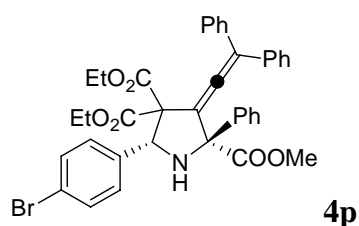
The title compound was prepared according to the general procedure as described above in 85% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -15.6$  (*c* 0.7,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.43-7.26 (m, 14H), 5.35 (s, 1H), 4.06-4.04 (m, 1H), 3.91-3.79 (m, 2H), 3.74-3.72 (m, 1H), 3.46 (s, 3H), 1.75 (s, 3H), 0.94-0.84 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , TMS, 100 MHz)  $\delta$  13.49, 26.61, 52.63, 61.57, 62.01, 65.90, 67.63, 69.45, 112.61, 116.41, 127.69, 127.82, 127.96, 127.99, 128.22, 128.28, 128.31, 128.34, 128.45, 128.53, 128.56, 129.01, 133.90, 134.69, 135.33, 135.48, 167.64, 168.51, 173.00, 200.93; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{33}\text{H}_{32}\text{ClNO}_6 + \text{H}^+$ : 574.1991, found 574.1983. The product was analyzed to determine the enantioselectivity of the reaction: 95% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda = 220$  nm);  $t_r = 5.05$  and 6.43 min.



**(2R,5R)-4,4-diethyl 2-methyl 5-(4-bromophenyl)-3-(2,2-diphenylvinylidene)-2-methylpyrrolidine-2,4,4-tricarboxylate**

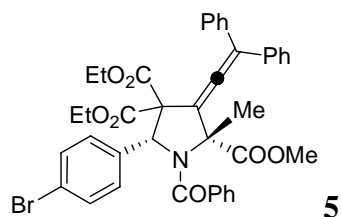
The title compound was prepared according to the general procedure as described above in 85% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = -16.1$  (*c* 1.0,  $\text{CHCl}_3$ );  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.48-7.45 (m, 2H), 7.37-7.26 (m, 12H), 5.33 (s, 1H), 4.06-4.03 (m, 1H), 3.92-3.84 (m, 2H), 3.72-3.71 (m, 1H), 3.46 (s, 3H), 1.75 (s, 3H), 0.94-0.83 (m, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ ,

TMS, 100 MHz)  $\delta$  13.46, 26.57, 52.60, 61.56, 62.00, 65.94, 67.60, 69.38, 112.58, 116.39, 122.04, 127.67, 127.81, 127.98, 128.25, 128.31, 128.49, 128.59, 128.75, 131.23, 135.21, 135.30, 135.44, 167.60, 168.47, 172.97, 200.91; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{33}\text{H}_{32}\text{BrNO}_6+\text{H}^+$ : 618.1486, found 618.1488. The product was analyzed to determine the enantioselectivity of the reaction: 96% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda$  = 220 nm);  $t_r$  = 6.03 and 8.03 min.



**(2R,5R)-4,4-diethyl 2-methyl 5-(4-bromophenyl)-3-(2,2-diphenylvinylidene)-2-phenylpyrrolidine-2,4,4-tricarboxylate**

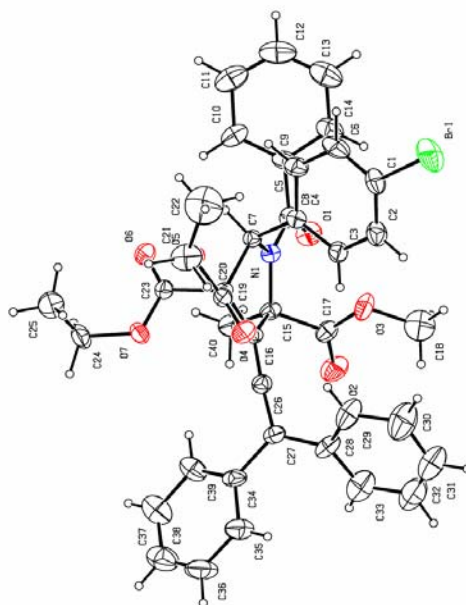
The title compound was prepared according to the general procedure as described above in 82% yield. It was purified by flash chromatography to afford yellow oil.  $[\alpha]_D^{25} = +46.4$  (*c* 1.7,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , TMS, 300 MHz)  $\delta$  7.58-7.56 (m, 2H), 7.47-7.35 (m, 17H), 4.97 (s, 1H), 4.13-4.10 (m, 1H), 4.03-4.00 (m, 1H), 3.80-3.77 (m, 1H), 3.67-3.61 (m, 1H), 3.48 (s, 3H), 0.96 (d,  $J$  = 6.9 Hz, 3H), 0.88 (d,  $J$  = 7.2 Hz, 3H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , TMS, 75 MHz)  $\delta$  13.40, 13.54, 53.05, 61.69, 62.03, 65.43, 69.89, 74.53, 110.18, 116.09, 121.90, 127.47, 127.75, 127.90, 127.96, 128.04, 128.19, 128.36, 128.39, 128.75, 128.86, 131.10, 135.26, 135.30, 135.39, 139.38, 168.02, 168.36, 171.06, 202.15; IR (KBr)  $\nu$  3338, 2981, 2925, 1736, 1254, 1201, 1050, 770, 696  $\text{cm}^{-1}$ . HRMS Calcd. For  $\text{C}_{38}\text{H}_{34}\text{BrNO}_6+\text{H}^+$ : 680.1642, found 680.1648. The product was analyzed to determine the enantioselectivity of the reaction: 96% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min,  $\lambda$  = 220 nm);  $t_r$  = 8.98 and 16.31 min.



**(2R,5R)-4,4-diethyl 2-methyl 1-benzoyl-5-(4-bromophenyl)-3-(2,2-diphenylvinylidene)-2-phenylpyrrolidine-2,4,4-tricarboxylate**

The compound **4o** (0.23mmol) was dissolved in 2mL CH<sub>2</sub>Cl<sub>2</sub> at room temperature, and then benzoyl chloride (0.46 mmol) and TEA (0.46 mmol) were added sequentially. Once starting material was consumed (monitored by TLC), It was purified by flash chromatography to afford white solid, 98% yield.  $[\alpha]_{\text{D}}^{25} = -193.4$  (*c* 1.0, CHCl<sub>3</sub>); <sup>1</sup>H NMR (CDCl<sub>3</sub>, TMS, 300 MHz) δ 7.55-7.53 (m, 2H), 7.45-7.16 (m, 10H), 7.01 (m, 2H), 6.01 (s 1H), 4.23-4.16 (m, 2H), 3.66-3.57 (m, 1H), 3.53 (s, 3H), 3.49-3.41 (m, 1H), 1.95 (s, 3H), 1.06 (t, *J* = 6.9 Hz, 3H), 0.68 (t, *J* = 7.2 Hz, 3H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, TMS, 75 MHz) δ 13.53, 13.89, 24.24, 52.76, 62.11, 63.45, 67.35, 67.85, 69.45, 106.66, 118.12, 122.45, 126.48, 128.34, 128.51, 128.68, 128.98, 129.74, 130.74, 131.21, 135.06, 135.34, 136.91, 164.93, 169.30, 169.89, 170.65, 202.73; IR (KBr) ν 3425, 1719, 1261 cm<sup>-1</sup>. HRMS Calcd. For C<sub>40</sub>H<sub>36</sub>BrNO<sub>7</sub>+Na<sup>+</sup>: 744.1567, found 744.1576. The product was analyzed to determine the enantioselectivity of the reaction: 96% ee, determined by HPLC (Chiralcel AD-H, *i*-propanol/hexane = 10/90, flow rate 1.0 mL/min, λ = 220 nm); t<sub>r</sub> = 7.80 and 9.87 min.

## The relative and absolute configuration of (2*R*,5*R*)-**5** were determined by X-ray diffraction analysis

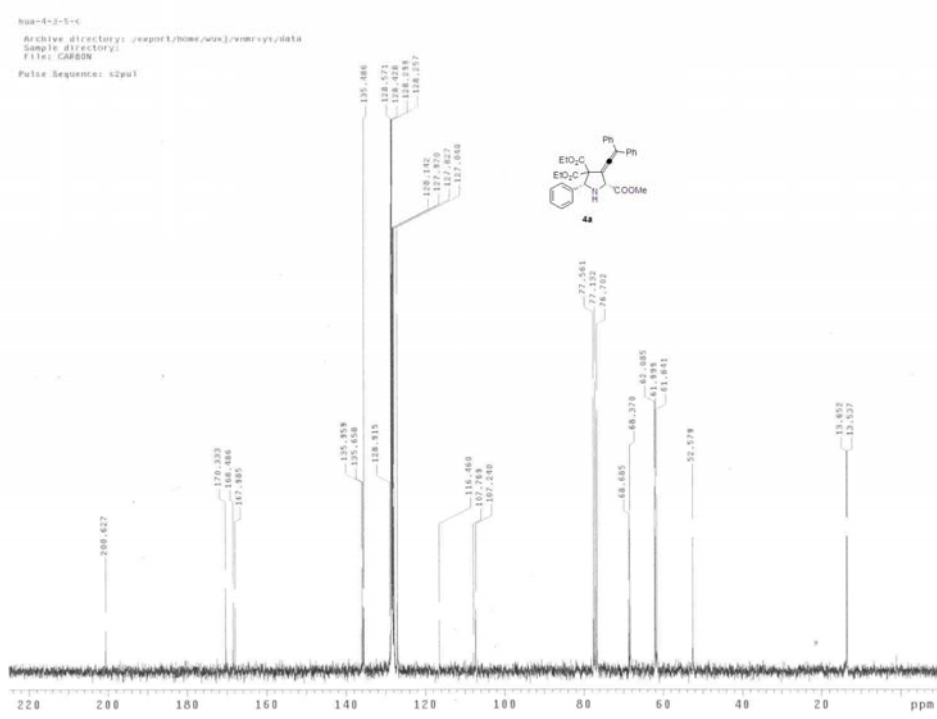
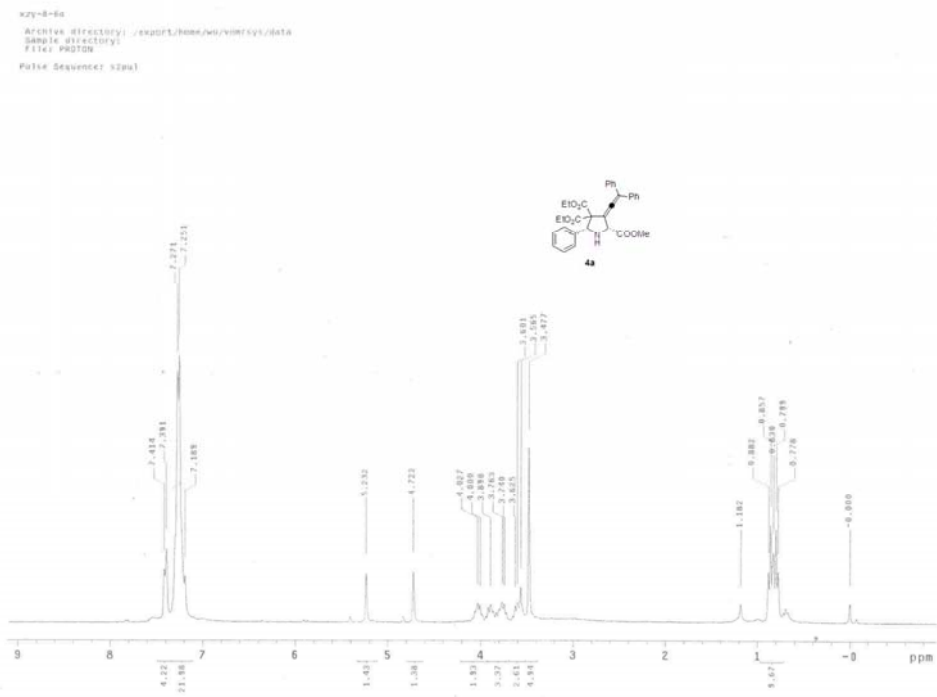


**Figure 1.** X-ray Structure of (2*R*,5*R*)-**5**

Crystal data for (2*R*,5*R*)-**5**: C<sub>40</sub>H<sub>36</sub>BrNO<sub>7</sub>,  $M_r = 722.60$ ,  $T = 293$  K, Orthorhombic, space group  $P2_12_12_1$ ,  $a = 13.323(2)$ ,  $b = 15.987(3)$ ,  $c = 17.448(3)$  Å,  $V = 3716.3(11)$  Å<sup>3</sup>,  $Z = 4$ , 3536 unique reflections, final  $R_1 = 0.0503$  and  $wR_2 = 0.1444$  for 4470 observed [ $I > 2\sigma(I)$ ] reflections. Flack  $\chi = 0.008(18)$  CCDC 809653 contains the supplementary crystallographic data for this paper. These data can be obtained free of charge via [www.ccdc.cam.ac.uk/conts/retrieving.html](http://www.ccdc.cam.ac.uk/conts/retrieving.html) (or from the Cambridge Crystallographic Data Centre, 12, Union Road, Cambridge CB21EZ, UK; fax: (+44) 1223-336-033; or [deposit@ccdc.cam.ac.uk](mailto:deposit@ccdc.cam.ac.uk)).

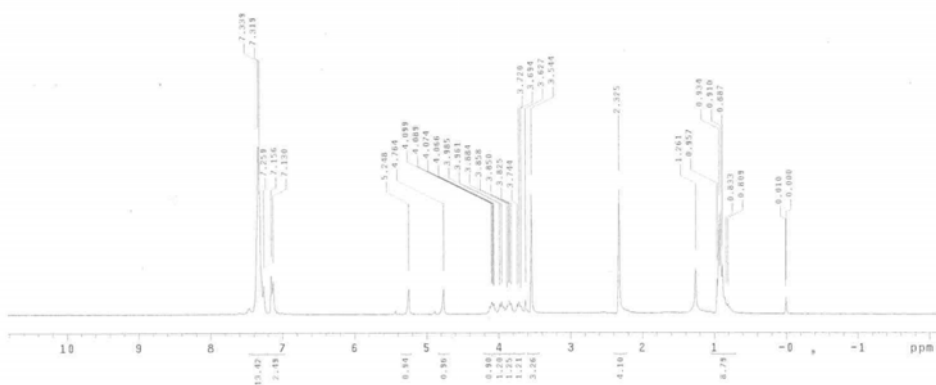
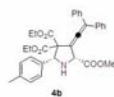
### Reference

1. Wang, C.-J.; Liang, G.; Xue, Z.-Y.; Gao, F *J. Am. Chem. Soc.* **2008**, *130*, 17250
2. (a) Ratts, K. W.; Partos, R. D. *J. Am. Chem. Soc.* **1969**, *91*, 6112. (b) Browne, N. R.; Brown, R. F. C.; Eastwood, F. W.; Fallon, G. D. *Aust. J. Chem.* **1987**, *40*, 1675.

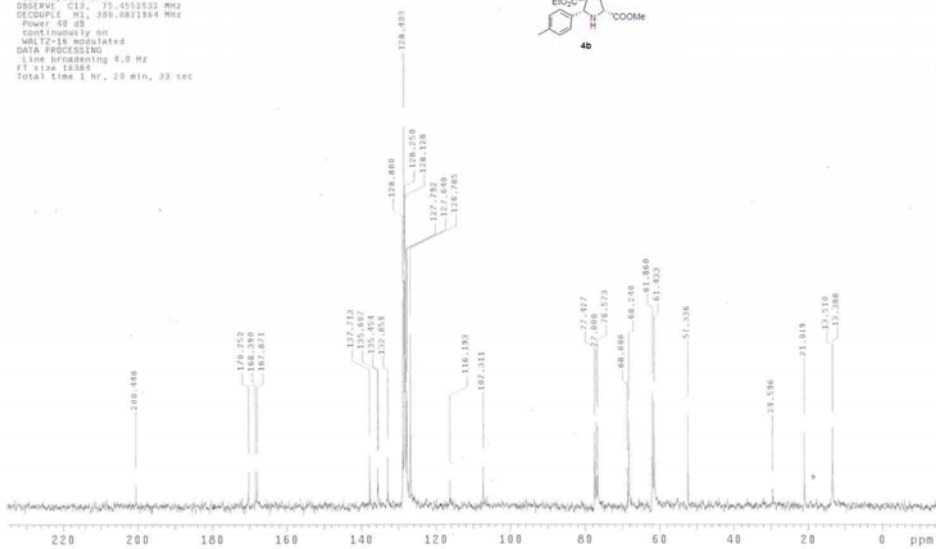
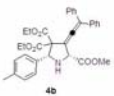




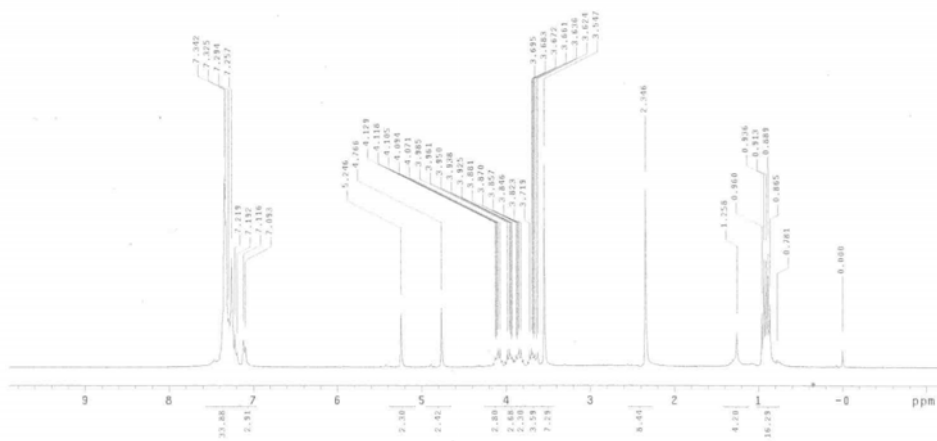
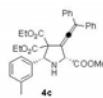
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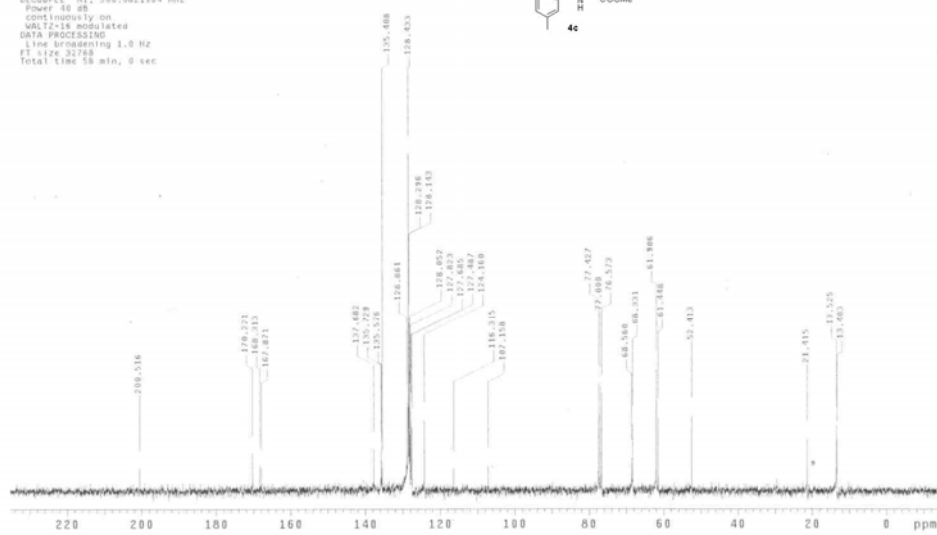
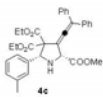
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 Ambient Temperature  
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 Pulse 20.0 degrees  
 Acq. time 0.400 sec  
 Width 16887.8 Hz  
 Line repetition  
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 DECOUPLE: H1, 300.6821884 MHz  
 Power 50 dB  
 Continuously on  
 WALTZ-16 modulated  
 DATA PROCESSING  
 Line broadening 4.0 Hz  
 FT size 16384  
 Total time 1 hr, 20 min, 33 sec



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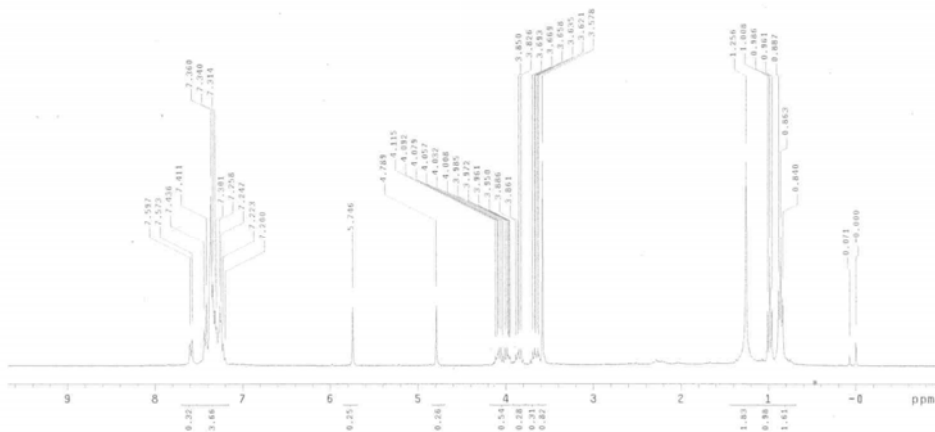
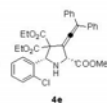


c13xzy-9-7a  
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 File: CARBON  
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 Solvent: CDCl3  
 Ambient temperature  
 Mercury-300MHz "mercury300"  
 Relax. delay 1.000 sec  
 Pulse 28.0 degrees  
 Acq. time 0.500 sec  
 Width 18867.0 Hz  
 256 F2/points  
 OBSERVE C13, 75.4552355 MHz  
 DECOUPLE H1, 300.9821854 MHz  
 Power 60 dB  
 continuously on  
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 DATA PROCESSING  
 Line broadening 1.0 Hz  
 FT size 32768  
 Total time 55 min, 0 sec

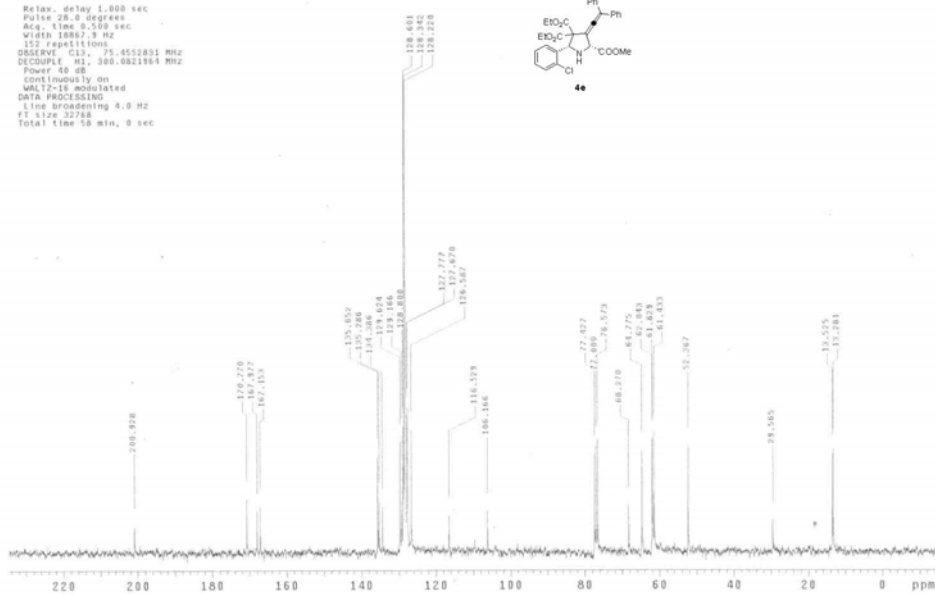
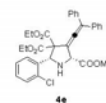




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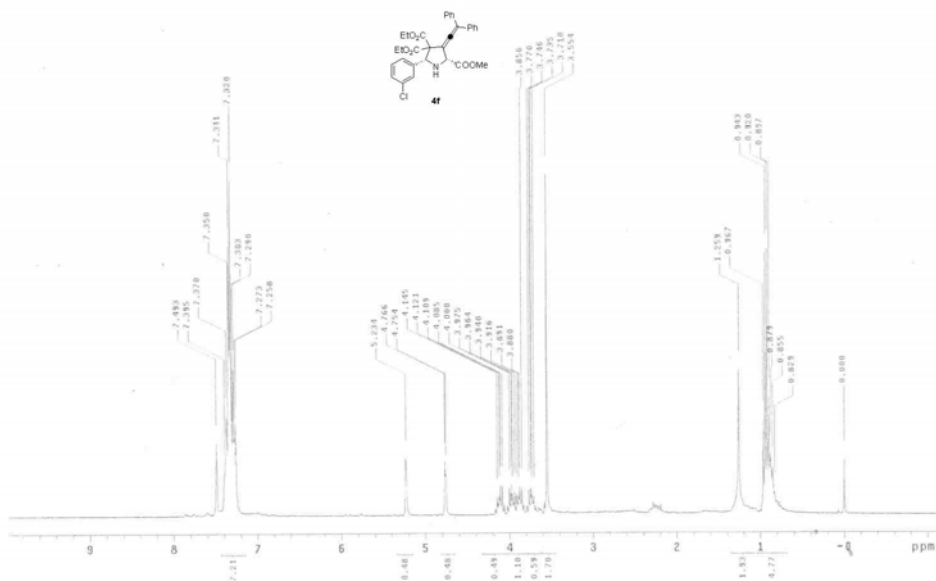


L13kzy-9-14c  
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 Sample directory:  
 File: CARBON  
 Pulse Sequence: s2pu1  
 Solvent: CDCl3  
 Ambient temperature  
 Mercury-20005 "mercury300"  
 Relax. delay 1.000 sec  
 Pulse 28.0 degrees  
 Acq. time 0.300 sec  
 Width 18887.3 Hz  
 152 repetitions  
 OBSERVE: C13, 75.4552851 MHz  
 DECOUPLE: H1, 399.6021964 MHz  
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 Total time 58 min, 0 sec



#zy-9-5b

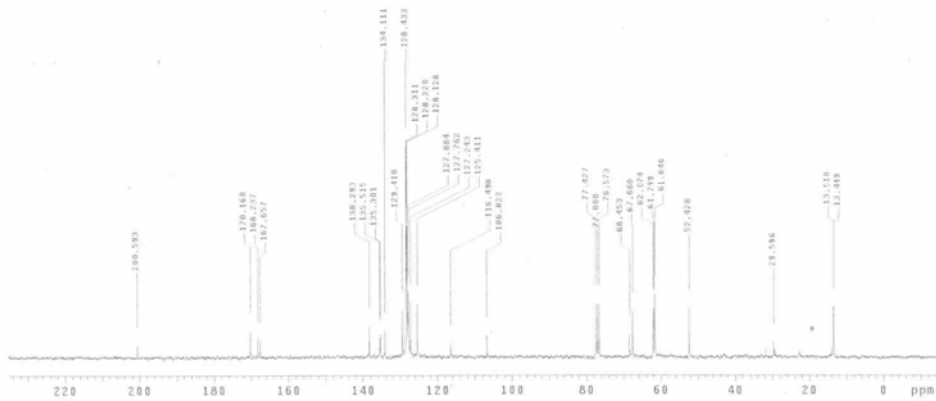
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c13zy-9-5b

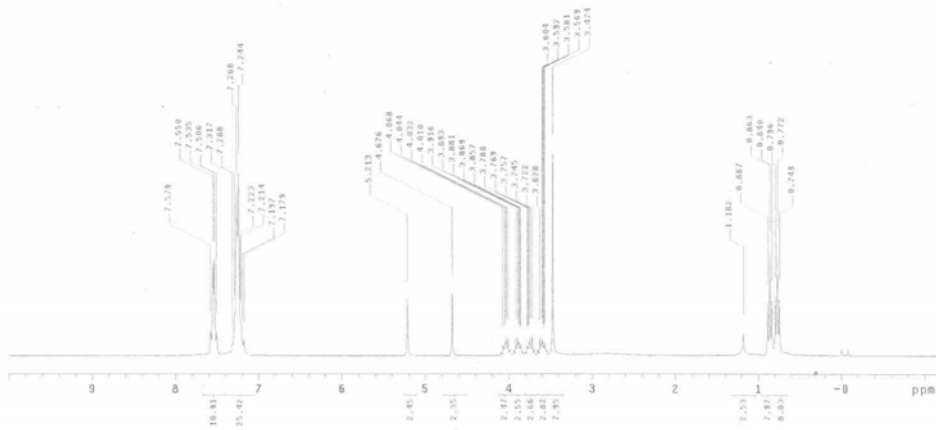
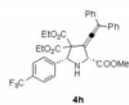
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 Pulse Sequence: s2pu1  
 Solvent: CDCl3  
 Ambient temperature  
 Mercury-3000B mercury3000

Relax delay 1.000 sec  
 Pulse 28.0 degrees  
 Acq. time 0.400 sec  
 Width 18867.9 Hz  
 200 repetitions  
 OBSERVE: C13, 75.452417 MHz  
 DECOUPLE: H1, 300.882164 MHz  
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 Continuously on  
 WALTZ-16 modulated  
 DATA PROCESSING  
 Line broadening 4.0 Hz  
 FT size 16384  
 Total time 1 hr, 20 min, 33 sec

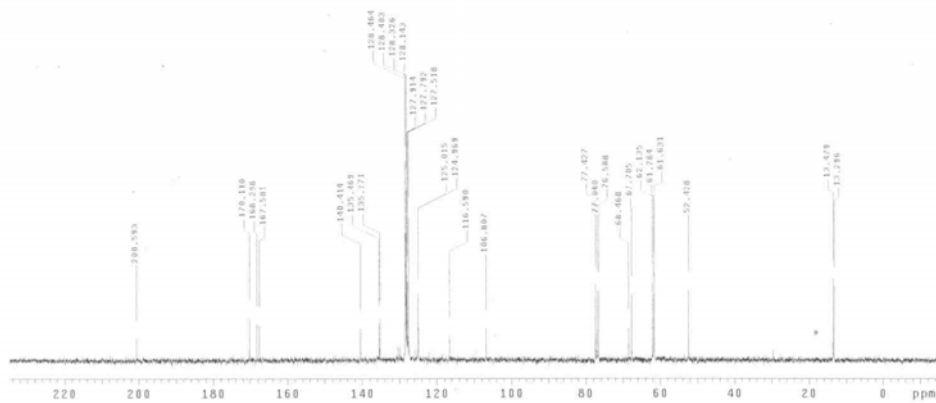
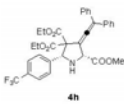




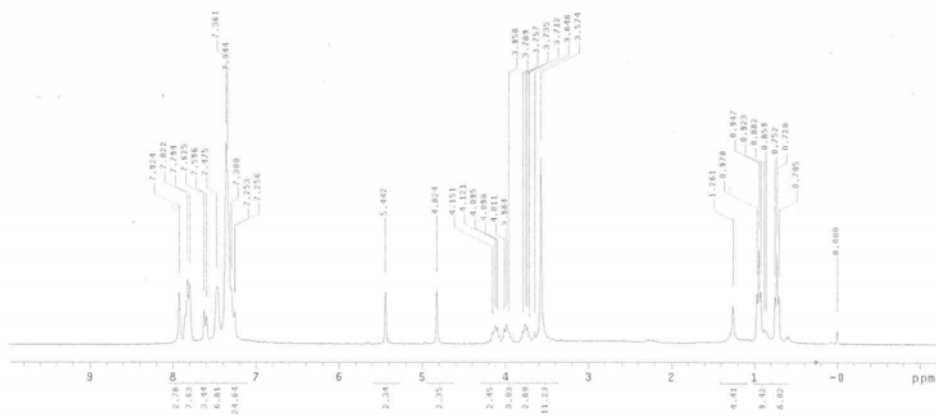
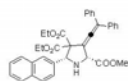
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 File: PROTDM  
 Pulse Sequence: k2pul



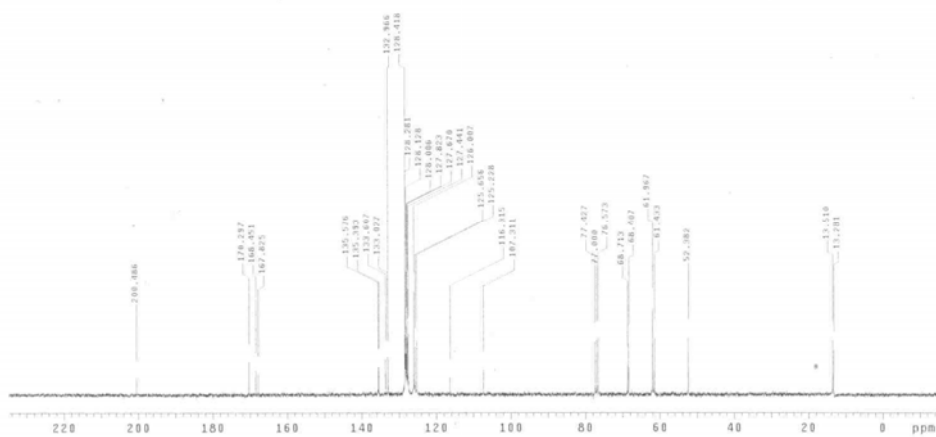
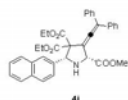
g10kzy-9-7c  
 Archive directory: /export/home/wu/vnmr/sys/data  
 Sample directory:  
 File: CARBON  
 Pulse Sequence: k2pul  
 Solvent: CDCl3  
 Ambient temperature  
 Mercury-3000S "mercury300"  
 Relax. delay 1.000 sec  
 Pulse 28.0 degrees  
 Acq. time 0.500 sec  
 Width 18882.8 Hz  
 IQ: magnetization  
 OBSERVE: CD, 75.4552787 MHz  
 DECOUPLE: H1, 99.621964 MHz  
 Power 40 dB  
 continuously on  
 WALTZ-16 modulated  
 DATA PROCESSING  
 Line broadening 1.0 Hz  
 FT size 32768  
 Total time 55 min, 0 sec



k2y-9-7d  
 Archive directory: /export/home/wu/vmr/sys/data  
 Sample directory:  
 File: PROTON  
 Pulse Sequence: s2pu1



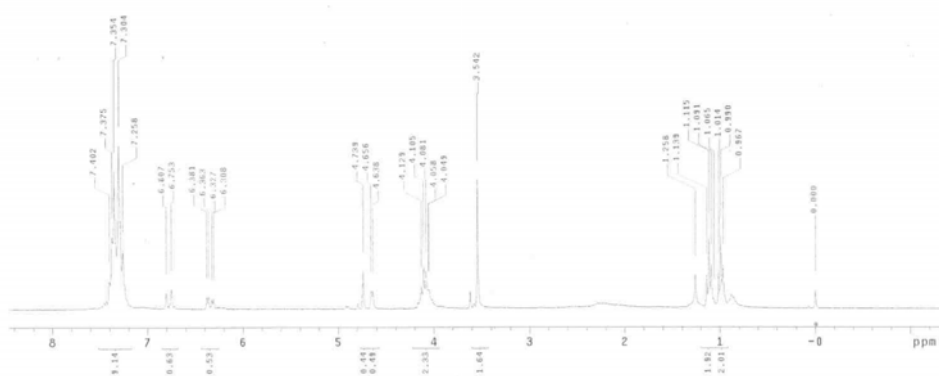
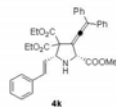
c12kzy-9-7d  
 Archive directory: /export/home/wu/vmr/sys/data  
 Sample directory:  
 File: CARBON  
 Pulse Sequence: s2pu1  
 Solvent: CDCl3  
 Ambient temperature  
 Mercury-300MS "mercury300"  
 Relax. delay 1.000 sec  
 Pulse 20.0 degrees  
 Acq. time 0.500 sec  
 Width 18867.3 Hz  
 132 repetitions  
 OBSERVE C13, 75.4552774 MHz  
 DECOUPLE H1, 399.0821984 MHz  
 Power 48 dB  
 continuously on  
 WALTZ-16 modulated  
 DATA PROCESSING  
 Line broadening 1.0 Hz  
 FT size 32788  
 Total time 58 min, 0 sec



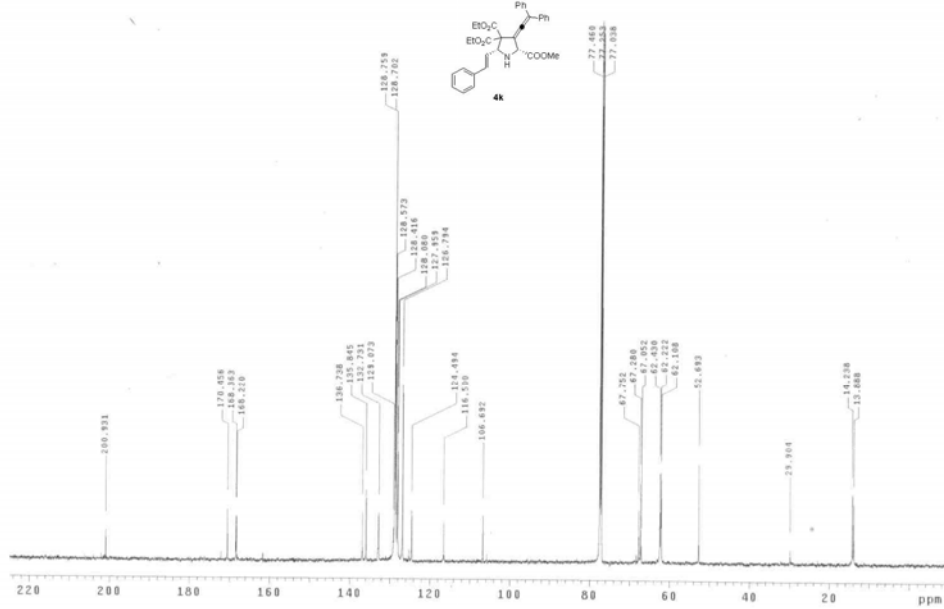
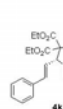




Kzy-9-19a  
Archive directory: /export/home/wu/vmrsys/data  
Sample directory:  
File: PROTON  
Pulse Sequence: s2pul

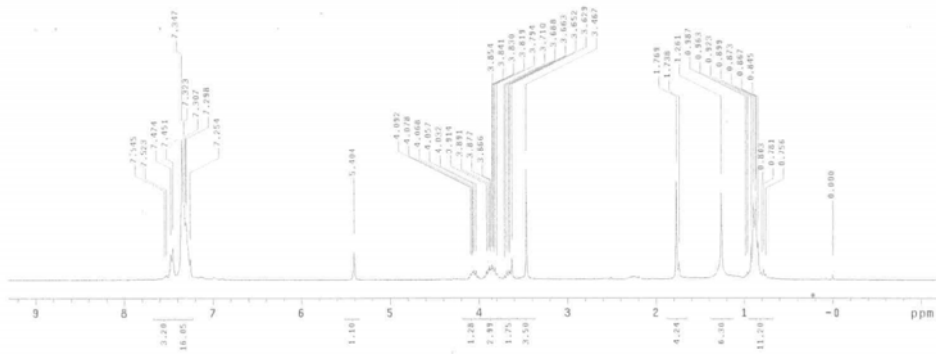
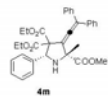


KZY-9-19A-C

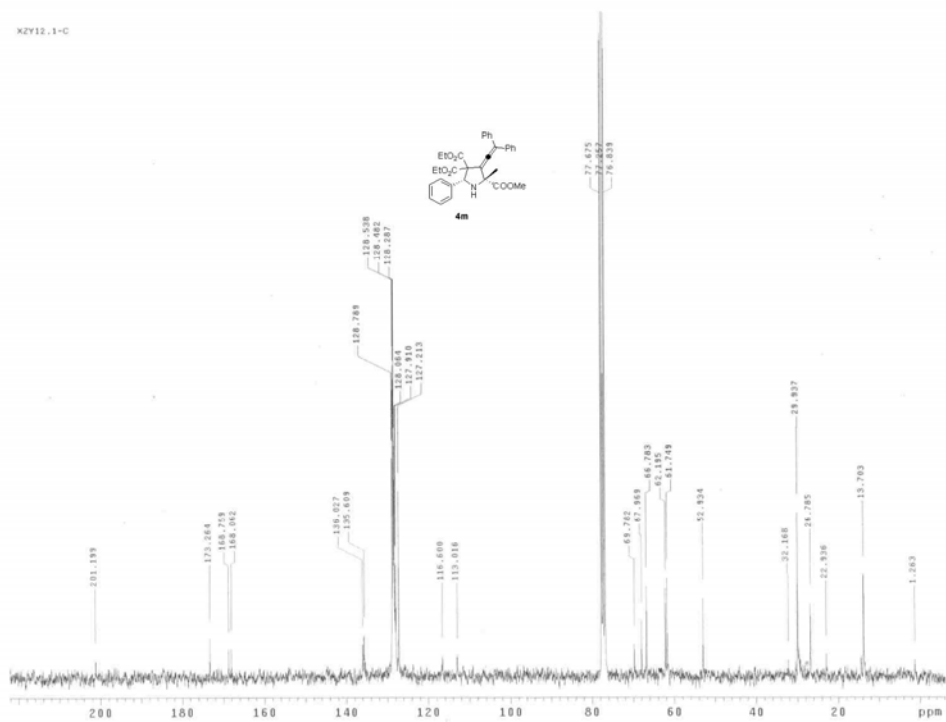
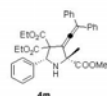




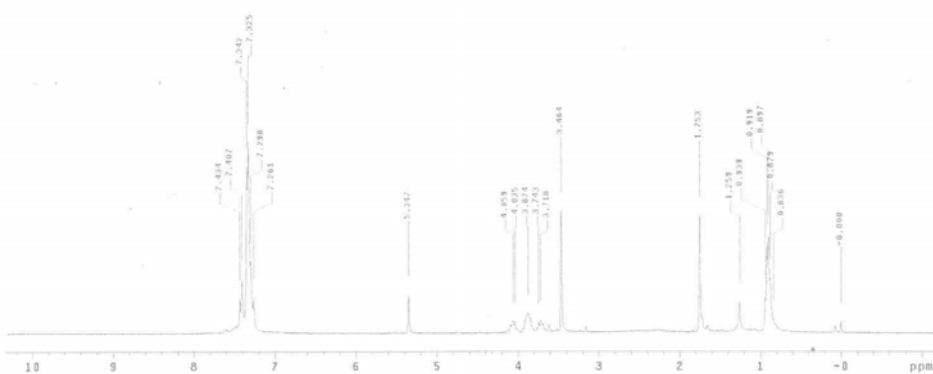
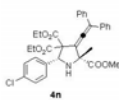
K2y-9-13a  
Archive directory: /export/home/wu/vnmr/sys/data  
Sample directory:  
File: PROTON  
Pulse Sequence: \*2pul



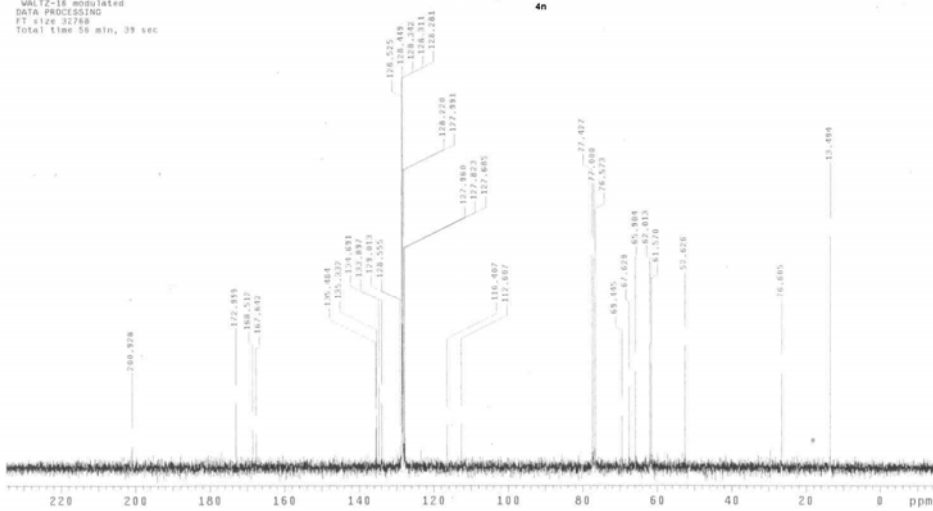
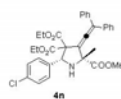
X2Y12\_1-C



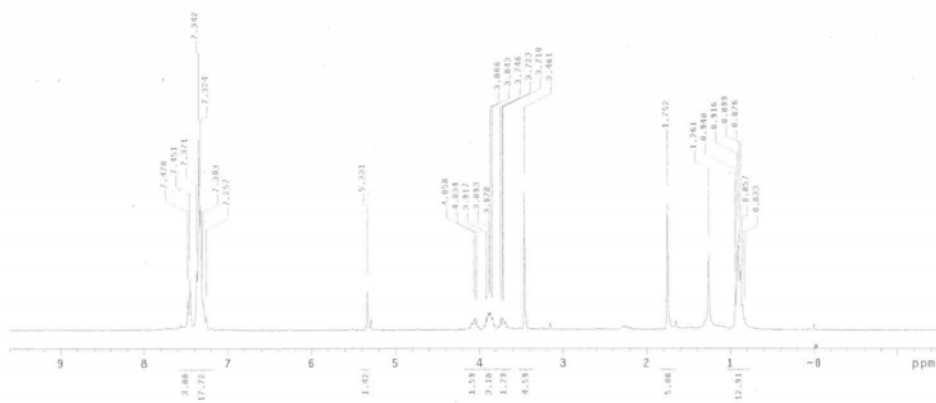
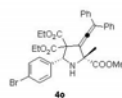
K2y-9-12a  
 Archive directory: /export/home/wu/vnmrsys/data  
 Sample directory:  
 File: PROTON  
 Pulse Sequence: s2pul  
 Solvent: CDCl3  
 Ambient temperature  
 Mercury-30000 "mercury300"  
 Relax: delay 1.000 sec  
 Pulse: 45.0 degrees  
 Acq: time 1.300 sec  
 Width 7002.8 Hz  
 # repetitions  
 OBSERVE F1: 300.0004880 MHz  
 DATA PROCESSING  
 FT size 32768  
 Total time 9 min, 23 sec



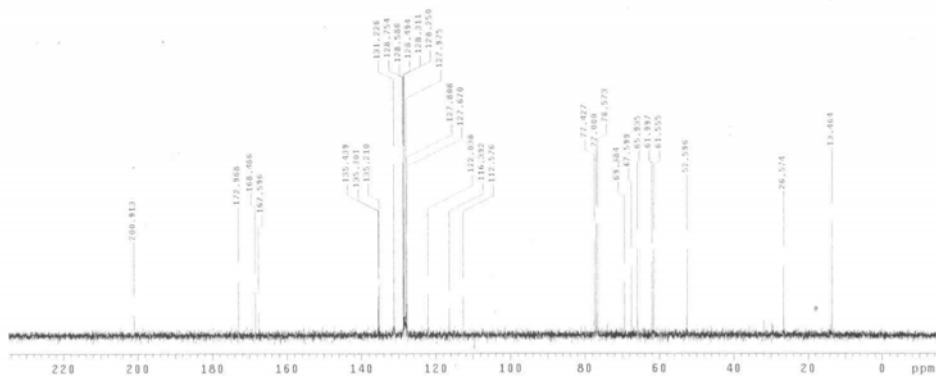
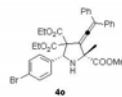
C12kzy-9-12a  
 Archive directory: /export/home/wu/vnmrsys/data  
 Sample directory:  
 File: CARBON  
 Pulse Sequence: s2pul  
 Solvent: CDCl3  
 Ambient temperature  
 Mercury-30000 "mercury300"  
 Relax: delay 1.000 sec  
 Pulse: 20.0 degrees  
 Acq: time 0.500 sec  
 Width 18882.3 Hz  
 328 repetitions  
 OBSERVE F1: 75.4552774 MHz  
 DECOUPLE F2: 300.0021964 MHz  
 Power 48 dB  
 continuously on  
 WALTZ-16 modulated  
 DATA PROCESSING  
 FT size 32768  
 Total time 56 min, 39 sec



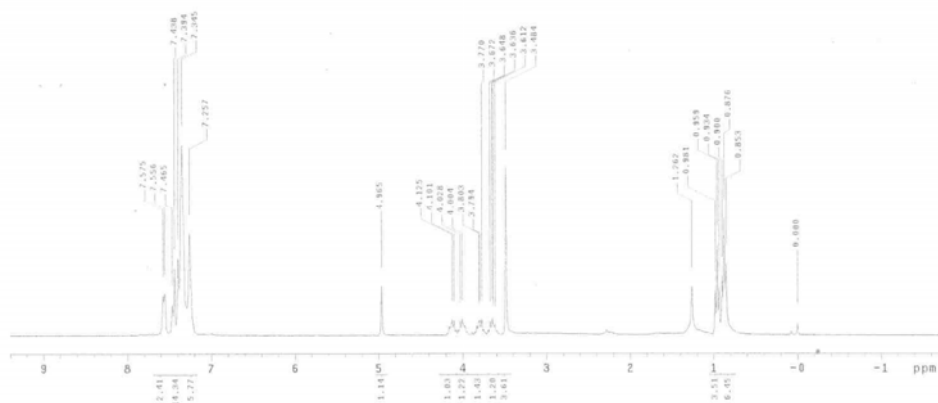
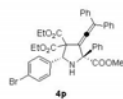
Kzy-1-9a  
 Archive directory: /export/home/wu/vnmr/sys/data  
 Sample directory:  
 File: PROTON  
 Pulse Sequence: v2pul



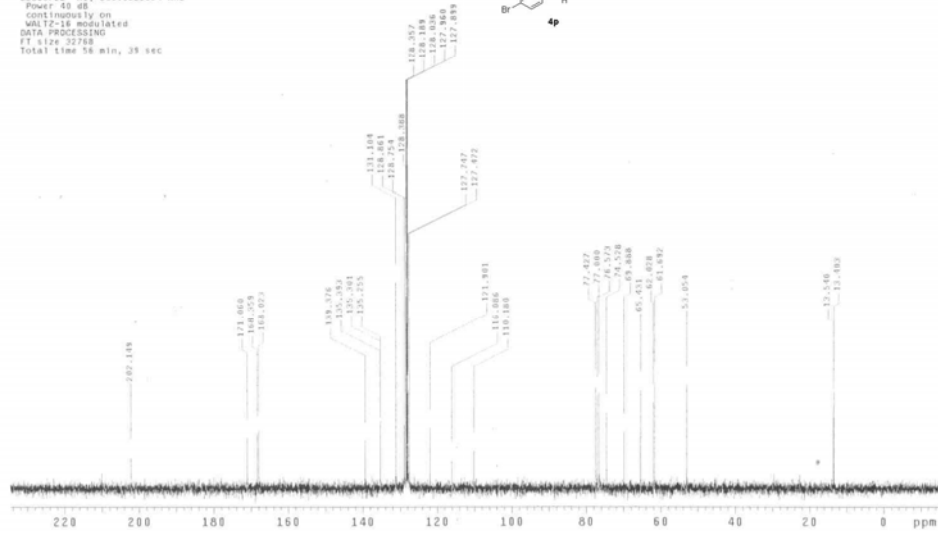
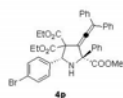
C13kzy-1-9a  
 Archive directory: /export/home/wu/vnmr/sys/data  
 Sample directory:  
 File: CARBON  
 Pulse Sequence: v2pul  
 Solvent: CDCl3  
 Ambient Temperature  
 Mercury-3000B "mercury300"  
 Relax. delay 1.000 sec  
 Pulse 20.0 degrees  
 Acq. time 6.500 sec  
 Width 16867.9 Hz  
 145 repetitions  
 OBSERVE C13, 75.552797 MHz  
 DECOUPLE H1, 300.9421864 MHz  
 Power 40 dB  
 continuously on  
 WALTZ-16 modulated  
 DATA PROCESSING  
 FT size 32768  
 Total time 56 min, 39 sec

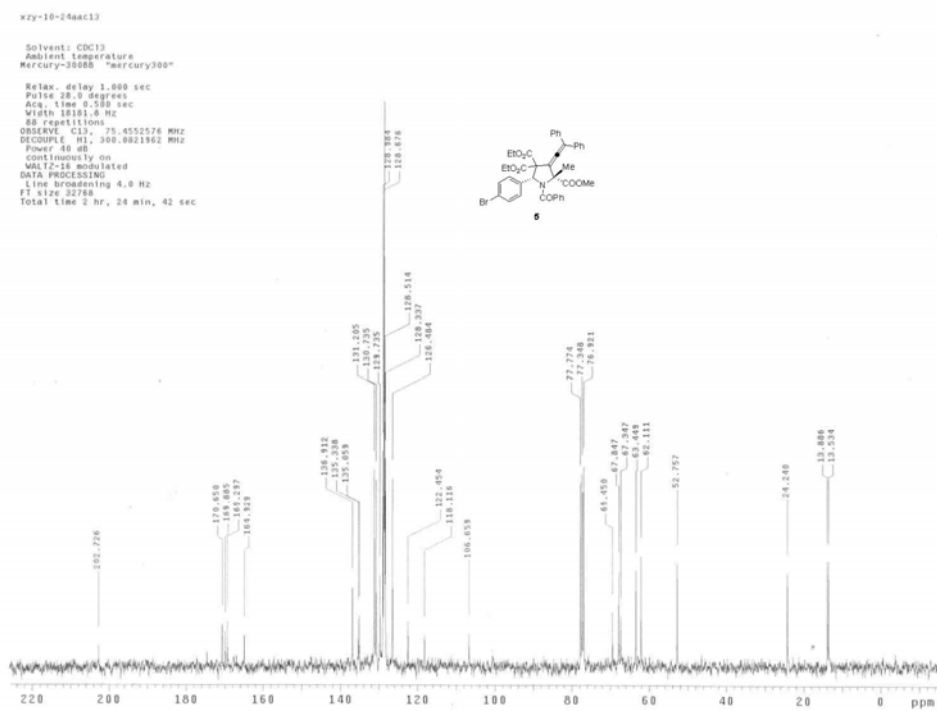
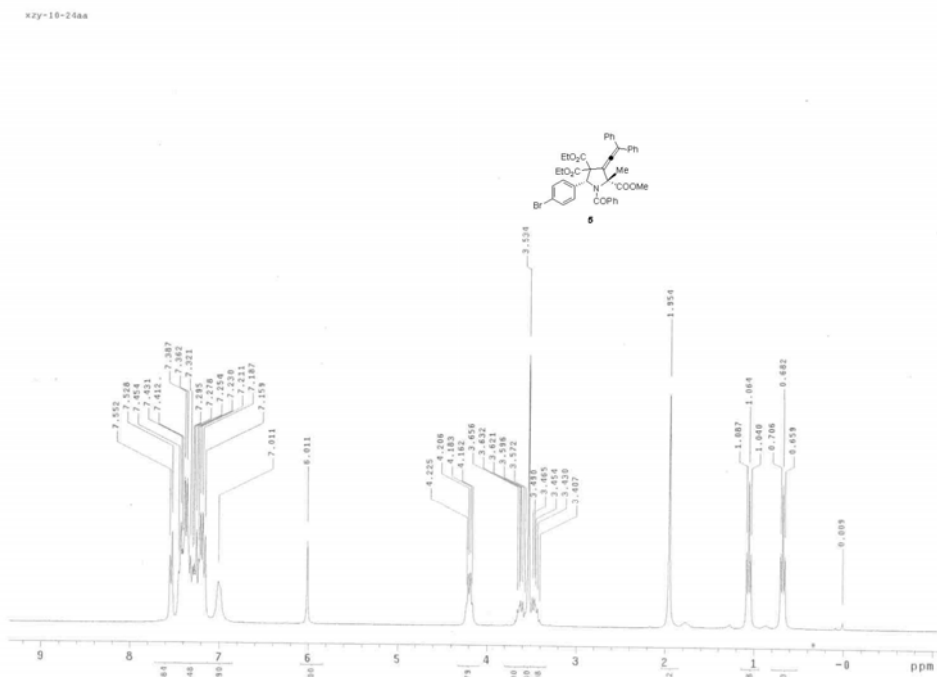


\*zy-3-8b  
 Archive directory: /export/home/wu/wmrcsys/data  
 Sample directory:  
 File: PROTON  
 Pulse Sequence: s2pul



c13zy-3-3b  
 Archive directory: /export/home/wu/wmrcsys/data  
 Sample directory:  
 File: CARBON  
 Pulse Sequence: s2pul  
 Solvent: CDCl3  
 Ambient Temperature  
 Mercury-3000B "mercury300"  
 Relax. delay 1.000 sec  
 Pulse 28.0 degrees  
 Acq. time 0.500 sec  
 Width 10867.3 Hz  
 104 repetitions  
 OBSERVE C13, 75.4552831 MHz  
 DECUPLE W1, 300.9821884 MHz  
 Power 50 dB  
 Continuously on  
 WALTZ-16 modulated  
 DATA PROCESSING  
 FT size 32768  
 Total time 56 min, 39 sec

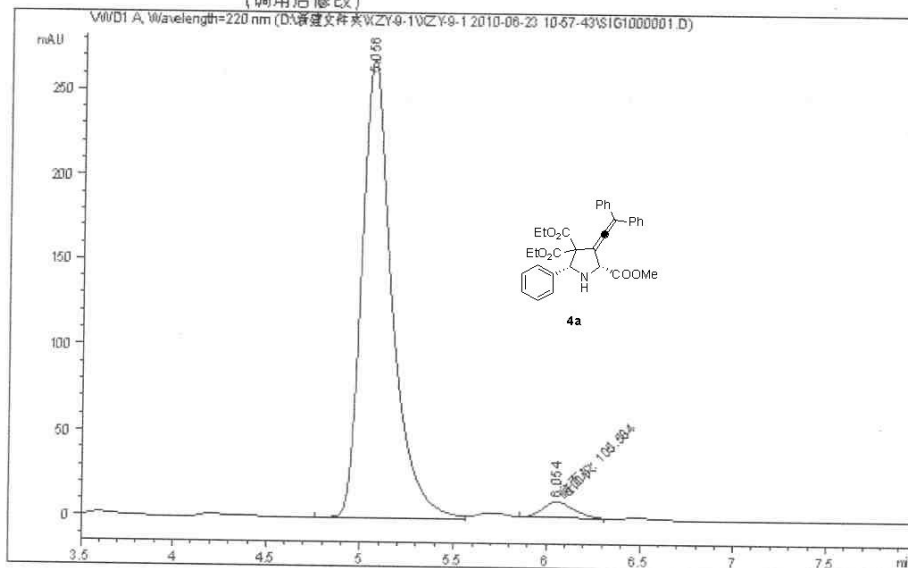






样品名称: XZY-9-1a

=====  
 操作者 : DXQ 序列行: 1  
 仪器 : Instrument 1 位置: 样品瓶 84  
 进样日期 : 2010-6-24 1:59:01 上午 进样次数: 1  
 进样量: 5 µl  
 采集方法 : D:\LC\XZY\DATA\XZY-9-1\XZY-9-1 2010-06-23 10-57-43\ADH30-70-10ML-220MM-10MIN.M  
 最后修改 : 2010-6-15 6:40:46 上午 : LTL  
 分析方法 : D:\新建文件夹\XZY-9-1\XZY-9-1 2010-06-23 10-57-43\SIG1000001.D\DA.M (ADH30-70-10ML-220MM-10MIN.M)  
 最后修改 : 2011-1-17 5:28:42 下午  
 (调用后修改)



=====  
 面积百分比报告  
 =====

排序 : 信号  
 乘数因子 : 1.0000  
 稀释因子 : 1.0000  
 内标使用乘数因子和稀释因子

信号 1: VWD1 A, Wavelength=220 nm

峰 #	保留时间 [min]	类型	峰宽 [min]	峰面积 mAU	峰高 [mAU]	峰面积 %
1	5.056	BV	0.1655	3010.45752	269.06342	96.6116
2	6.054	MM	0.1941	105.58423	9.06750	3.3884

总量 : 3116.04175 278.13091

=====  
 \*\*\* 报告结束 \*\*\*

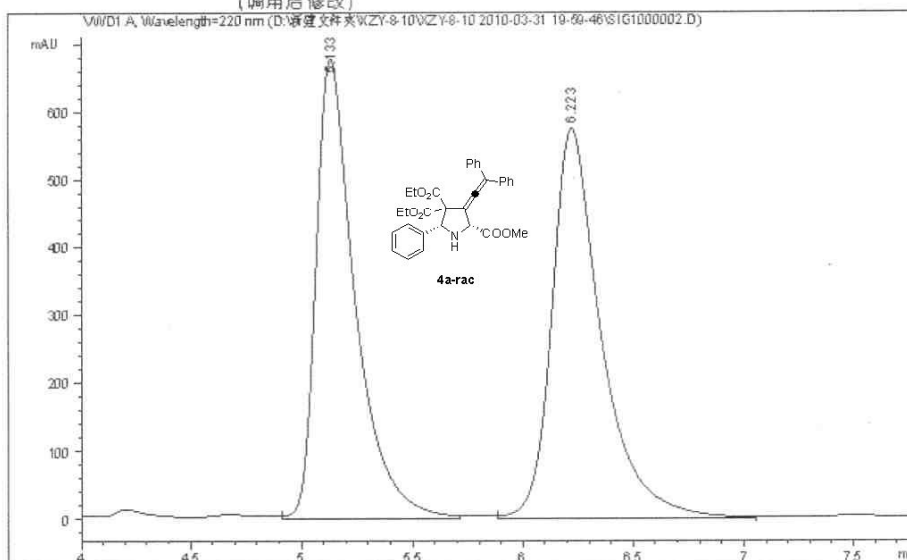
仪器 1 2011-1-17 5:28:48 下午

页 1/1

数据文件: D:\新建文件夹\XZY-8-10\XZY-8-10 2010-03-31 19-59-46\SIG1000002.D  
样品名称: xzy-8-10-RAC

```

=====
操作者      : LTL                      序列行:    2
仪器       : Instrument 1              位置:    样品瓶 2
进样日期   : 2010-4-1 12:12:10 下午   进样次数:    1
                                           进样量:    5 µl
采集方法   : D:\LC\XZY\DATA\XZY-8-10\XZY-8-10 2010-03-31 19-59-46\ADH30-70-10ML-
                220NM-20MIN.M
最后修改   : 2009-11-21 1:06:38 下午 : DXQ
分析方法   : D:\新建文件夹\XZY-8-10\XZY-8-10 2010-03-31 19-59-46\SIG1000002.D\DA.M (
                ADH30-70-10ML-220NM-20MIN.M)
最后修改   : 2011-1-17 5:25:05 下午
                (调用后修改)
=====
    
```



=====  
面积百分比报告  
=====

```

排序      :      信号
乘积因子   :      1.0000
稀释因子   :      1.0000
内标使用乘积因子和稀释因子
    
```

信号 1: VWD1 A, Wavelength=220 nm

峰 #	保留时间 [min]	类型	峰宽 [min]	峰面积 mAU *s	峰高 [mAU]	峰面积 %
1	5.133	VV	0.1810	8327.79004	678.71155	48.1274
2	6.223	VV	0.2300	8975.86328	575.44391	51.8726

总量: 1.73037e4 1254.15546

=====  
\*\*\* 报告结束 \*\*\*

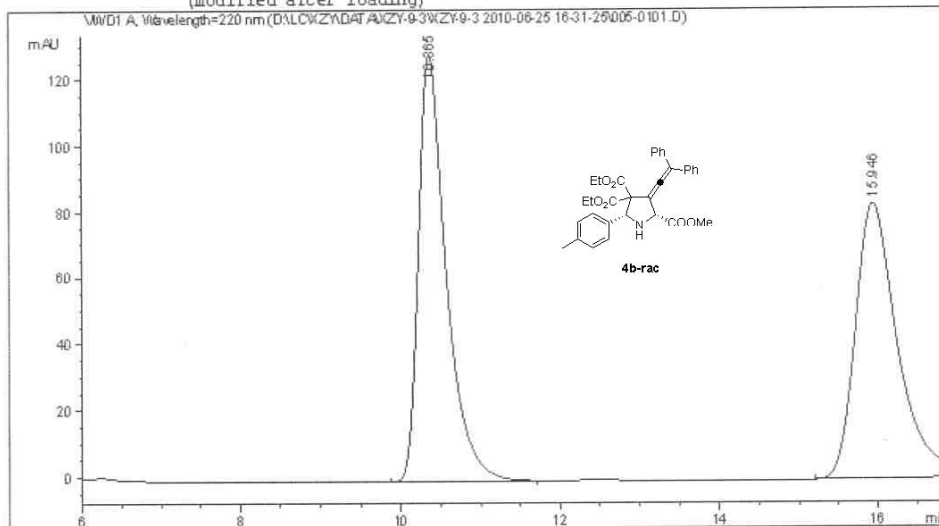


Data File D:\LC\XYZ\DATA\XYZY-9-3\XYZY-9-3 2010-06-25 16-31-25\005-0101.D  
 Sample Name: XYZY-9-3e

```

=====
Acq. Operator   : LTL                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 5
Injection Date  : 6/25/2010 4:32:56 PM              Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method     : D:\LC\XYZ\DATA\XYZY-9-3\XYZY-9-3 2010-06-25 16-31-25\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XYZ\DATA\XYZY-9-3\XYZY-9-3 2010-06-25 16-31-25\005-0101.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed    : 7/10/2010 3:38:40 PM by XZP
                  (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	10.365	EB	0.3581	3097.36401	128.64029	50.6314
2	15.946	BV	0.5464	3020.10718	83.09037	49.3686

Totals :                    6117.47119   211.73066

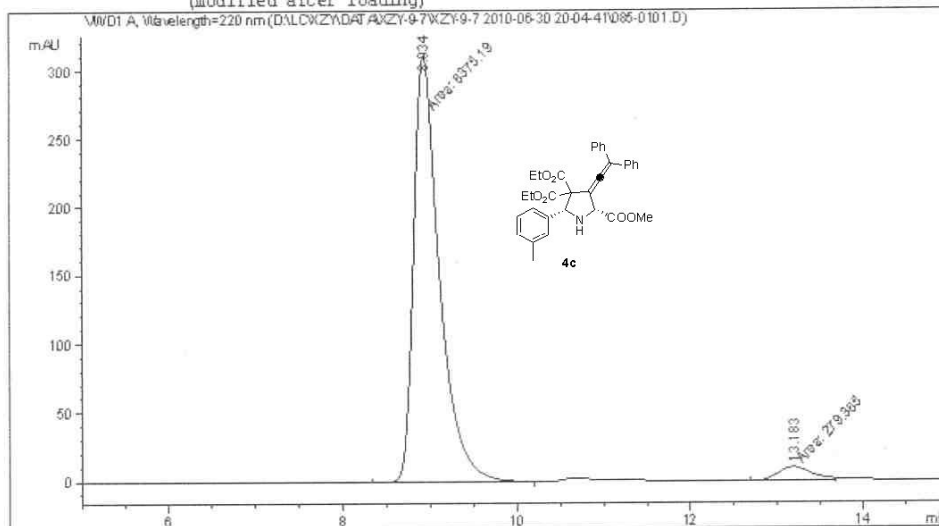
=====  
 \*\*\* End of Report \*\*\*

DATA FILE D:\LC\XYZY\DATA\XYZY-9-7\XYZY-9-7 2010-06-30 20-04-41\085-0101.D  
 Sample Name: xzy-9-7E

```

=====
Acq. Operator   : LTL                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 85
Injection Date  : 6/30/2010 8:05:57 PM              Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method    : D:\LC\XYZY\DATA\XYZY-9-7\XYZY-9-7 2010-06-30 20-04-41\ADH-10-90-220NAM-30.M
Last changed   : 6/25/2010 3:49:06 PM by LTL
Analysis Method: D:\LC\XYZY\DATA\XYZY-9-7\XYZY-9-7 2010-06-30 20-04-41\085-0101.D\DA.M (ADH-
10-90-220NAM-30.M)
Last changed   : 7/10/2010 3:58:28 PM by XZP
                (modified after loading)
    
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	8.934	MM	0.3424	6375.19141	310.27399	95.8019
2	13.183	MM	0.4684	279.36490	9.93954	4.1981
Totals :				6654.55630	320.21352	

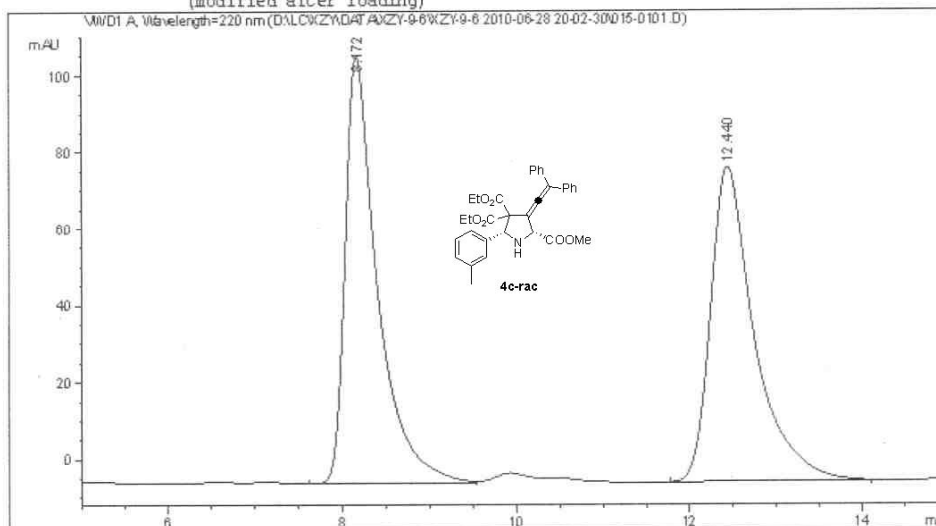
=====  
 \*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 3:58:32 PM XZP

Page 1 of 1

Data File D:\LC\XZY\DATA\XZY-9-6\XZY-9-6 2010-06-28 20-02-30\015-0101.D  
Sample Name: xzy-9-6e

```
=====
Acq. Operator   : DXQ                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 15
Injection Date  : 6/28/2010 8:04:06 PM              Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method     : D:\LC\XZY\DATA\XZY-9-6\XZY-9-6 2010-06-28 20-02-30\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XZY\DATA\XZY-9-6\XZY-9-6 2010-06-28 20-02-30\015-0101.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed    : 7/10/2010 3:51:41 PM by XZP
                (modified after loading)
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	8.172	VB	0.3728	2852.59668	110.92521	50.0351
2	12.440	EB	0.5123	2848.59644	81.85322	49.9649

Totals : 5701.19312 192.77843

=====  
\*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 3:51:45 PM XZP

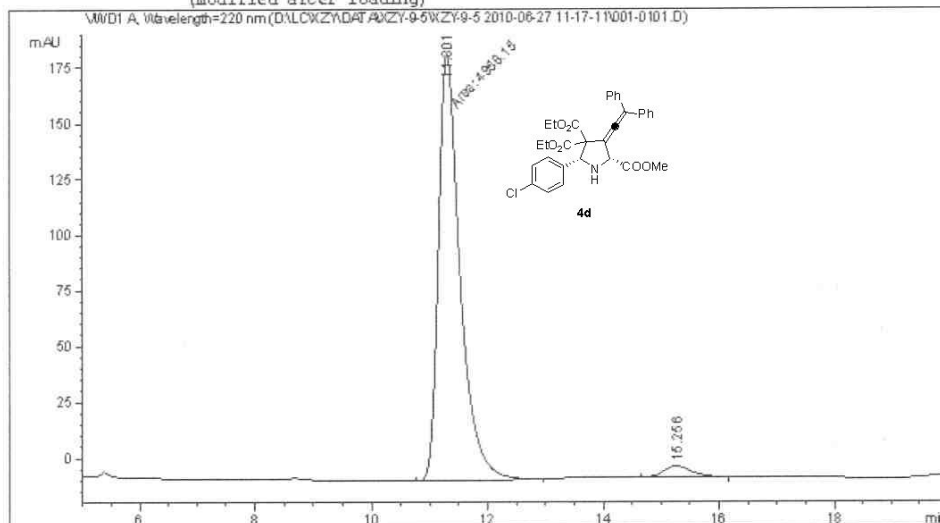
Page 1 of 1

Data File D:\LC\XZY\DATA\XZY-9-5\XZY-9-5 2010-06-27 11-17-11\001-0101.D  
 Sample Name: xzy-9-5a

```

=====
Acq. Operator   : DXQ                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 1
Injection Date  : 6/27/2010 11:18:24 AM             Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method     : D:\LC\XZY\DATA\XZY-9-5\XZY-9-5 2010-06-27 11-17-11\ADH-10-90-220NAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XZY\DATA\XZY-9-5\XZY-9-5 2010-06-27 11-17-11\001-0101.D\DA.M (ADH-
10-90-220NAM-30.M)
Last changed    : 7/10/2010 3:40:03 PM by XZP
                  (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU*s	Height [mAU]	Area %
1	11.301	MM	0.4329	4958.15137	190.87605	96.5894
2	15.256	EB	0.5217	175.07288	5.11464	3.4106

Totals :                      5133.22424    195.99069

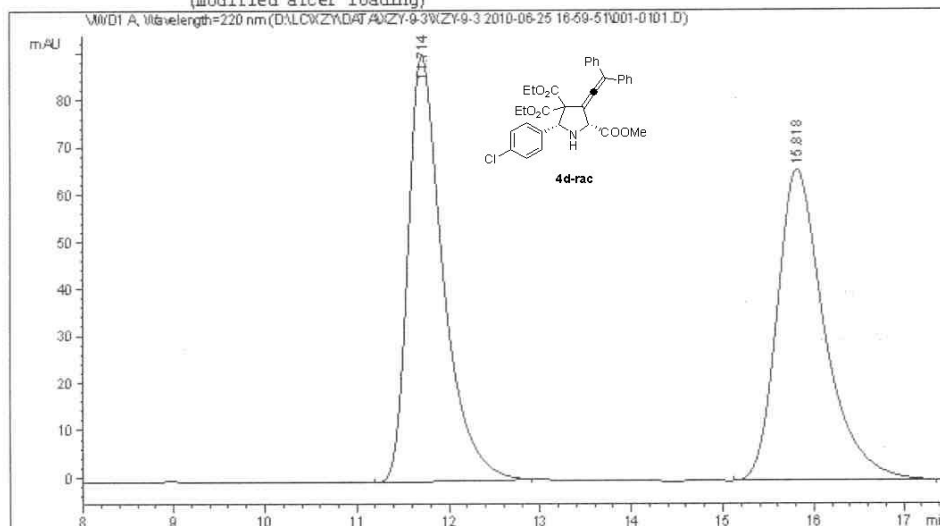
=====  
 \*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 3:40:07 PM XZP

Page 1 of 1

DATA FILE D:\LC\XZY\DATA\XZY-9-3\XZY-9-3 2010-06-25 16-59-51\001-0101.D  
Sample Name: xzy-9-3a

```
=====
Acq. Operator   : LTL                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 1
Injection Date  : 6/25/2010 5:01:06 PM              Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method    : D:\LC\XZY\DATA\XZY-9-3\XZY-9-3 2010-06-25 16-59-51\ADH-10-90-220NAM-30.M
Last changed   : 6/25/2010 3:49:06 PM by LTL
Analysis Method: D:\LC\XZY\DATA\XZY-9-3\XZY-9-3 2010-06-25 16-59-51\001-0101.D\DA.M (ADH-
10-90-220NAM-30.M)
Last changed   : 7/10/2010 3:30:46 PM by XZP
                (modified after loading)
=====
```



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

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

Signal 1: VMD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	11.714	EB	0.3956	2392.79663	90.15250	50.0689
2	15.818	EB	0.5417	2386.20850	65.91983	49.9311

Totals : 4779.00513 156.07233

=====  
\*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 3:30:50 PM XZP

Page 1 of 1









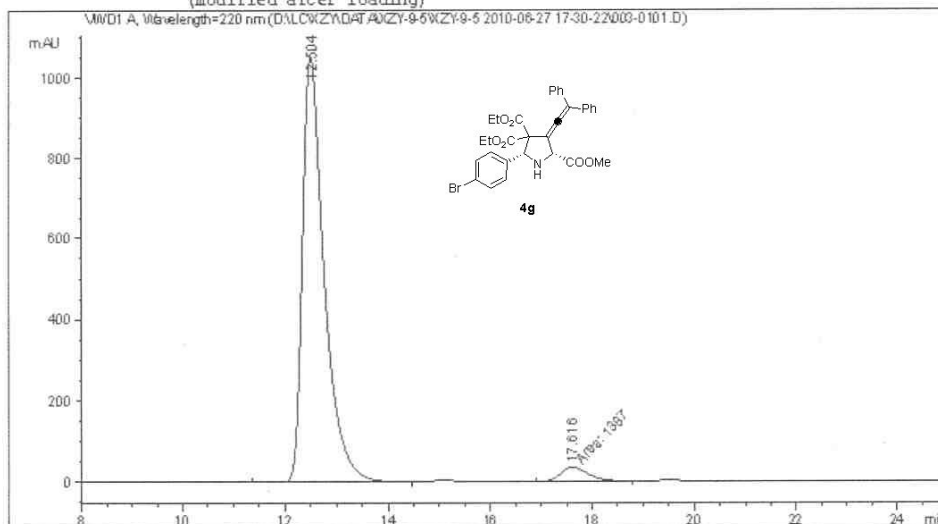


Data File D:\LC\XYZY\DATA\XYZY-9-5\XYZY-9-5 2010-06-27 17-30-22\003-0101.D  
 Sample Name: xzy-9-5c

```

=====
Acq. Operator   : DXQ                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 3
Injection Date  : 6/27/2010 5:31:50 PM              Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method    : D:\LC\XYZY\DATA\XYZY-9-5\XYZY-9-5 2010-06-27 17-30-22\ADH-10-90-22ONAM-30.M
Last changed   : 6/25/2010 3:49:06 PM by LTL
Analysis Method: D:\LC\XYZY\DATA\XYZY-9-5\XYZY-9-5 2010-06-27 17-30-22\003-0101.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed   : 7/10/2010 3:43:40 PM by XZP
                (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	12.504	BB	0.4334	3.06897e4	1052.46143	95.6760
2	17.616	MM	0.6434	1387.00439	35.92913	4.3240

Totals :                    3.20767e4   1088.39056

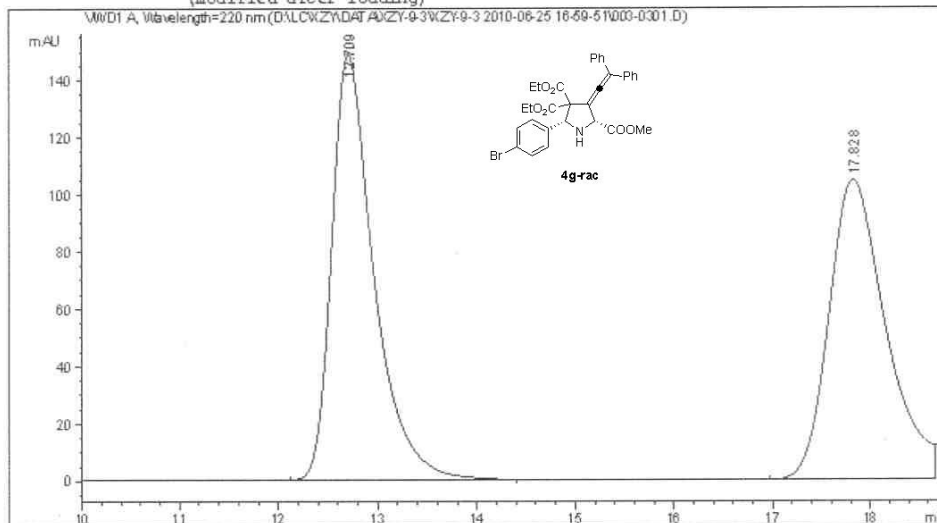
=====  
 \*\*\* End of Report \*\*\*

Data File D:\LC\XZY\DATA\XZY-9-3\XZY-9-3 2010-06-25 16-59-51\003-0301.D  
 Sample Name: xzy-9-3c

```

=====
Acq. Operator   : LTL                               Seq. Line :    3
Acq. Instrument : Instrument 1                       Location  : Vial 3
Injection Date  : 6/25/2010 6:04:03 PM             Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method     : D:\LC\XZY\DATA\XZY-9-3\XZY-9-3 2010-06-25 16-59-51\ADH-10-90-220NAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XZY\DATA\XZY-9-3\XZY-9-3 2010-06-25 16-59-51\003-0301.D\DA.M (ADH-
10-90-220NAM-30.M)
Last changed    : 7/10/2010 3:34:20 PM by XZP
                  (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	12.709	EB	0.4394	4376.91309	148.72948	50.9009
2	17.828	EV	0.6102	4221.97998	104.70638	49.0991

Totals : 8598.89307 253.43585

=====  
 \*\*\* End of Report \*\*\*

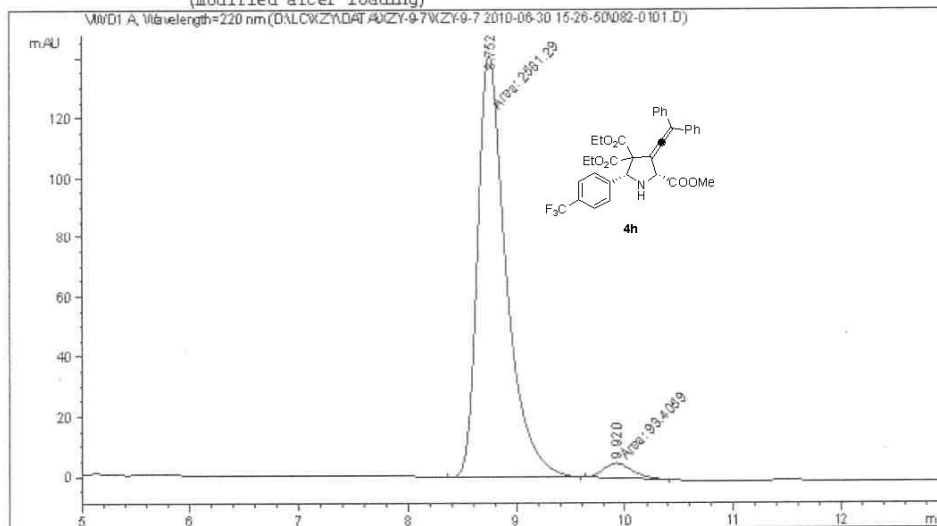
Instrument 1 7/10/2010 3:34:24 PM XZP

Page 1 of 1

USDA FILE D:\LC\XYZ\DATA\XYZ-9-7\XYZ-9-7 2010-06-30 15-26-50\082-0101.D  
 Sample Name: xzy-9-7C

```

=====
Acq. Operator   : LTL                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 82
Injection Date  : 6/30/2010 3:28:31 PM              Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method     : D:\LC\XYZ\DATA\XYZ-9-7\XYZ-9-7 2010-06-30 15-26-50\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XYZ\DATA\XYZ-9-7\XYZ-9-7 2010-06-30 15-26-50\082-0101.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed    : 7/10/2010 3:53:37 PM by XZP
                  (modified after loading)
    
```



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

```

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	8.752	MM	0.3051	2581.28760	141.00961	96.5078
2	9.920	MM	0.3149	93.40594	4.94408	3.4922

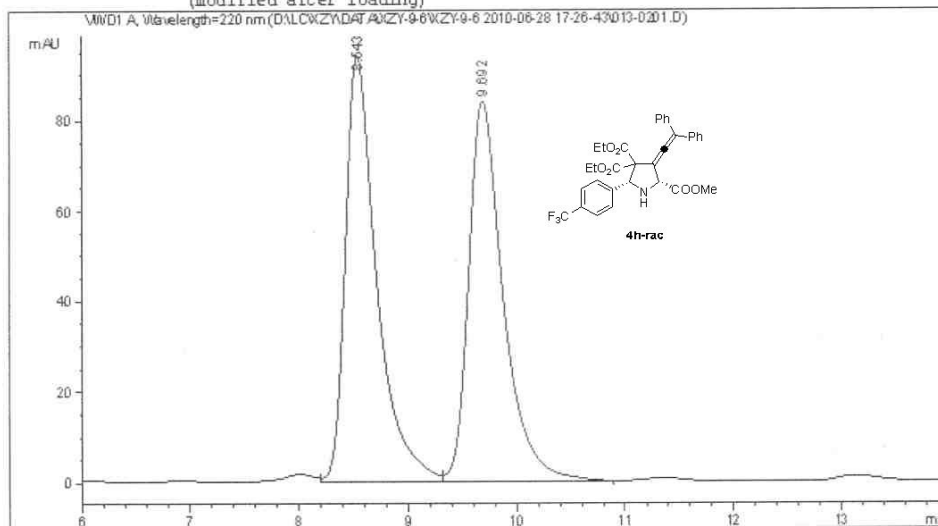
Totals : 2674.69353 145.95369

=====  
 \*\*\* End of Report \*\*\*

DATA FILE D:\LC\XYZY\DATA\XYZY-9-6\XYZY-9-6 2010-06-28 17-26-43\013-0201.D  
 Sample Name: xzy-9-6c

```

=====
Acq. Operator   : DXQ                               Seq. Line :    2
Acq. Instrument : Instrument 1                       Location  : Vial 13
Injection Date  : 6/28/2010 5:59:28 PM             Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method     : D:\LC\XYZY\DATA\XYZY-9-6\XYZY-9-6 2010-06-28 17-26-43\ADH-10-90-220NAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XYZY\DATA\XYZY-9-6\XYZY-9-6 2010-06-28 17-26-43\013-0201.D\DA.M (ADH-
10-90-220NAM-30.M)
Last changed    : 7/10/2010 3:49:16 PM by XZP
                  (modified after loading)
    
```



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

```

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

Signal 1: VMD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	8.543	VV	0.2972	1879.28027	94.03332	50.0727
2	9.692	VB	0.3329	1873.81970	84.04836	49.9273

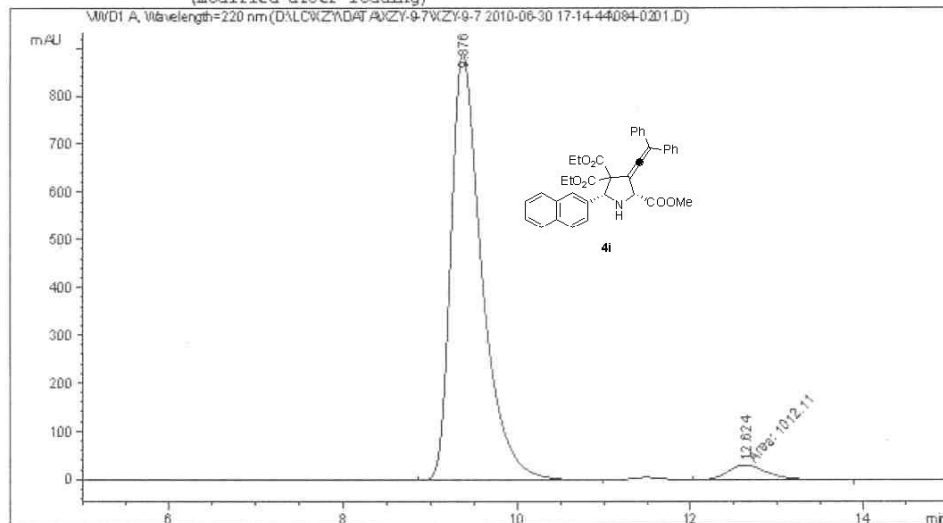
Totals : 3753.09998 178.08168

=====  
 \*\*\* End of Report \*\*\*



Data File D:\LC\XYZ\DATA\XYZY-9-7\XYZY-9-7 2010-06-30 17-14-44\084-0201.D  
Sample Name: XYZY-9-7D

```
=====
Acq. Operator   : LTL                               Seq. Line :    2
Acq. Instrument : Instrument 1                       Location  : Vial 84
Injection Date  : 6/30/2010 5:27:03 PM              Inj       :    1
                                                    Inj Volume: 5 µl
Acq. Method     : D:\LC\XYZ\DATA\XYZY-9-7\XYZY-9-7 2010-06-30 17-14-44\ADH-30-70-220NAM-30.M
Last changed    : 6/25/2010 10:42:51 AM by LTL
Analysis Method : D:\LC\XYZ\DATA\XYZY-9-7\XYZY-9-7 2010-06-30 17-14-44\084-0201.D\DA.M (ADH-
30-70-220NAM-30.M)
Last changed    : 7/10/2010 3:55:50 PM by XZP
(modified after loading)
=====
```



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

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU*s	Height [mAU]	Area %
1	9.376	EE	0.3718	2.21678e4	890.86017	95.6337
2	12.624	MM	0.5435	1012.11017	31.03508	4.3663

Totals : 2.31799e4 921.89524

=====  
\*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 3:55:54 PM XZP

Page 1 of 1

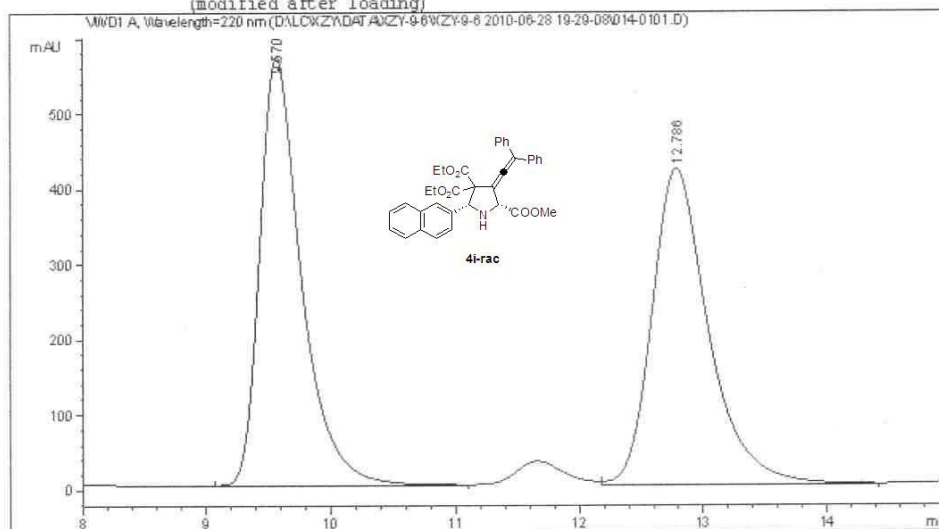
Data File D:\LC\XYZY\DATA\XYZY-9-6\XYZY-9-6 2010-06-28 19-29-08\014-0101.D  
 Sample Name: xzy-9-6d

```

=====
Acq. Operator   : DXQ                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 14
Injection Date  : 6/28/2010 7:30:34 PM              Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method    : D:\LC\XYZY\DATA\XYZY-9-6\XYZY-9-6 2010-06-28 19-29-08\ADH-30-70-22ONAM-30.M
Last changed   : 6/28/2010 7:29:15 PM by DXQ
                (modified after loading)

Analysis Method: D:\LC\XYZY\DATA\XYZY-9-6\XYZY-9-6 2010-06-28 19-29-08\014-0101.D\DA.M (ADH-
                30-70-22ONAM-30.M)
Last changed   : 7/10/2010 3:50:40 PM by XZP
                (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area %s	Height [mAU]	Area %
1	9.570	EB	0.3475	1.31528e4	567.58905	49.8182	
2	12.786	VB	0.4760	1.32488e4	419.73871	50.1818	

Totals : 2.64016e4 987.32776

Instrument 1 7/10/2010 3:50:44 PM XZP

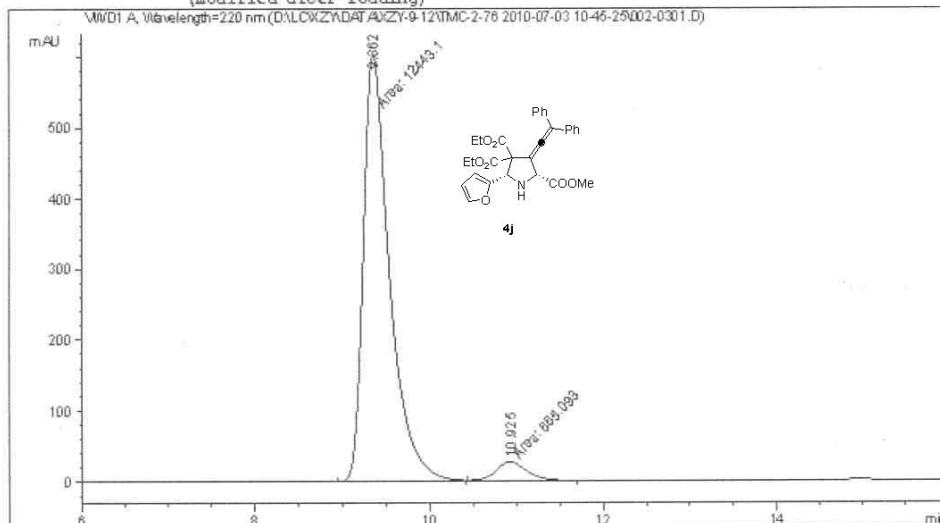
Page 1 of 1

Data File D:\LC\XYZ\DATA\XYZY-9-12\TMC-2-76 2010-07-03 10-45-25\002-0301.D  
 Sample Name: XYZY-9-12C

```

=====
Acq. Operator   : TMC                      Seq. Line :    3
Acq. Instrument : Instrument 1              Location  : Vial 2
Injection Date  : 7/3/2010 12:19:50 PM     Inj       :    1
                                           Inj Volume: 5 µl

Acq. Method     : D:\LC\TMC\DATE\TMC-2-76\TMC-2-76 2010-07-03 10-45-25\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XYZ\DATA\XYZY-9-12\TMC-2-76 2010-07-03 10-45-25\002-0301.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed    : 7/6/2010 10:52:57 AM by TMC
                  (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	9.362	MM	0.3436	1.24431e4	603.49316	94.9261
2	10.925	MM	0.4131	665.09320	26.83401	5.0739

Totals : 1.31082e4 630.32718

=====  
 \*\*\* End of Report \*\*\*

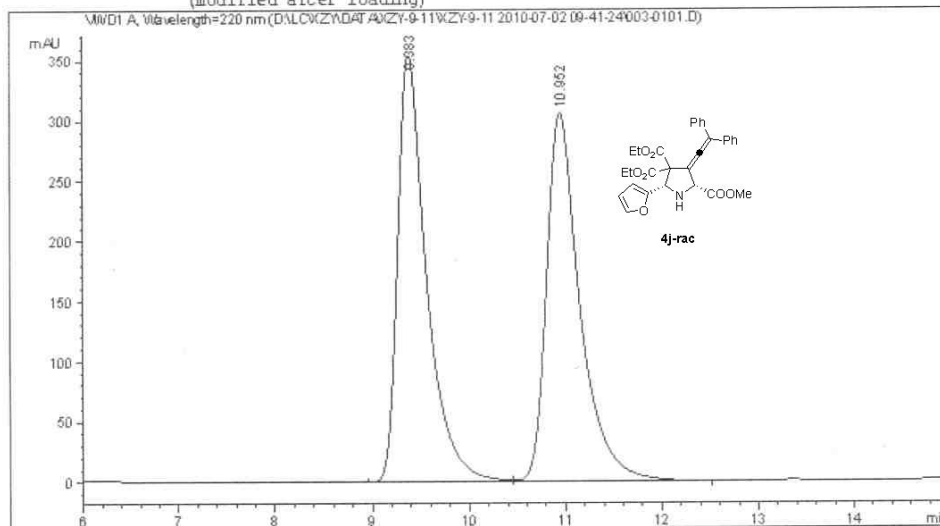
Instrument 1 7/6/2010 10:53:01 AM TMC

Page 1 of 1

DATA FILE D:\LC\XYZ\DATA\XYZ-9-11\XYZ-9-11 2010-07-02 09-41-24\003-0101.D  
 Sample Name: xzy-9-11C

```

=====
Acq. Operator   : TMC                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 3
Injection Date  : 7/2/2010 9:43:11 AM      Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\XYZ\DATA\XYZ-9-11\XYZ-9-11 2010-07-02 09-41-24\ADH-10-90-22ONAM-30.M
Last changed   : 6/25/2010 3:49:06 PM by LTL
Analysis Method: D:\LC\XYZ\DATA\XYZ-9-11\XYZ-9-11 2010-07-02 09-41-24\003-0101.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed   : 7/10/2010 4:09:17 PM by XZP
                (modified after loading)
    
```



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

```

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

Signal 1: WMD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	9.383	EV	0.3072	7341.60010	354.46844	49.8463
2	10.952	VB	0.3592	7386.87305	305.55832	50.1537
Totals :				1.47285e4	660.02676	

=====  
 \*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 4:09:20 PM XZP

Page 1 of 1

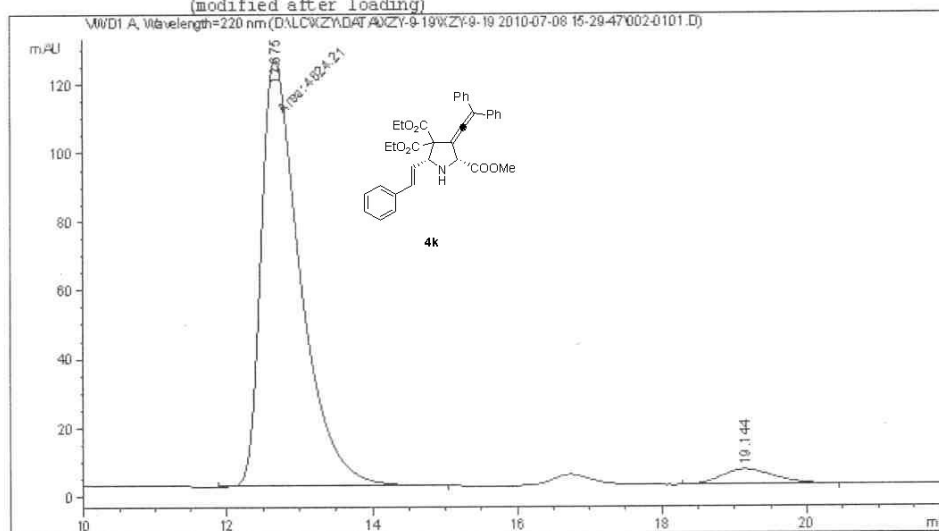
Data File D:\LC\XZY\DATA\XZY-9-19\XZY-9-19 2010-07-08 15-29-47\002-0101.D  
 Sample Name: XZY-9-19A

```

=====
Acq. Operator   : LTL                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 2
Injection Date  : 7/8/2010 3:31:20 PM              Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method    : D:\LC\XZY\DATA\XZY-9-19\XZY-9-19 2010-07-08 15-29-47\ADH-30-70-220NAM-30.M
Last changed   : 7/8/2010 3:30:50 PM by LTL
                (modified after loading)

Analysis Method: D:\LC\XZY\DATA\XZY-9-19\XZY-9-19 2010-07-08 15-29-47\002-0101.D\DA.M (ADH-
                30-70-220NAM-30.M)
Last changed   : 7/10/2010 4:42:26 PM by XZP
                (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area %s	Height [mAU]	Area %
1	12.675	MM	0.6215	4624.20752	124.01562	95.2943	
2	19.144	EB	0.7606	228.34738	4.46961	4.7057	

Totals : 4852.55490 128.48523

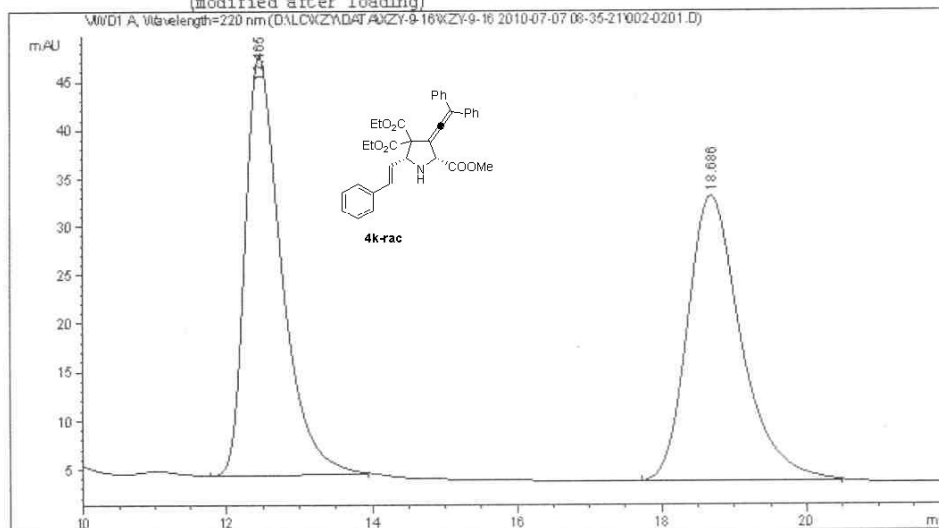
Instrument 1 7/10/2010 4:42:30 PM XZP

Page 1 of 1

DATA FILE D:\LC\XYZ\DATA\XYZ-9-16\XYZ-9-16 2010-07-07 08-35-21\002-0201.D  
 Sample Name: XYZ-9-16A

```

=====
Acq. Operator   : LTL                      Seq. Line :    2
Acq. Instrument : Instrument 1              Location  : Vial 2
Injection Date  : 7/7/2010 8:47:45 AM      Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\XYZ\DATA\XYZ-9-16\XYZ-9-16 2010-07-07 08-35-21\ADH-30-70-22ONAM-30.M
Last changed   : 7/7/2010 9:11:16 AM by LTL
                (modified after loading)
Analysis Method: D:\LC\XYZ\DATA\XYZ-9-16\XYZ-9-16 2010-07-07 08-35-21\002-0201.D\DA.M (ADH-
                30-70-22ONAM-30.M)
Last changed   : 7/10/2010 4:40:41 PM by XZP
                (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: WVD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	12.465	VB	0.5214	1504.99255	43.20853	50.0831
2	18.686	EB	0.7722	1499.99890	29.50649	49.9169

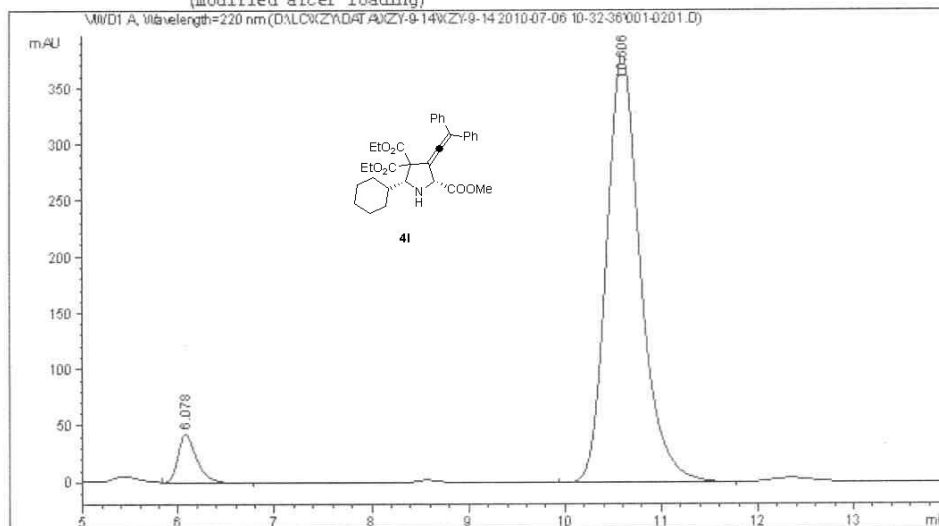
Totals : 3004.99146 72.71502

Data File D:\LC\XZY\DATA\XZY-9-14\XZY-9-14 2010-07-06 10-32-36\001-0201.D  
 Sample Name: XZY-9-14B

```

=====
Acq. Operator   : LTL                               Seq. Line :    2
Acq. Instrument : Instrument 1                       Location  : Vial 1
Injection Date  : 7/6/2010 10:44:58 AM              Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method    : D:\LC\XZY\DATA\XZY-9-14\XZY-9-14 2010-07-06 10-32-36\ADH-10-90-220NAM-30.M
Last changed   : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XZY\DATA\XZY-9-14\XZY-9-14 2010-07-06 10-32-36\001-0201.D\DA.M (ADH-
10-90-220NAM-30.M)
Last changed   : 7/10/2010 4:36:45 PM by XZP
                (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	6.078	VB	0.2064	600.05847	43.40543	6.0508
2	10.606	BB	0.3738	9316.99023	379.49207	93.9492

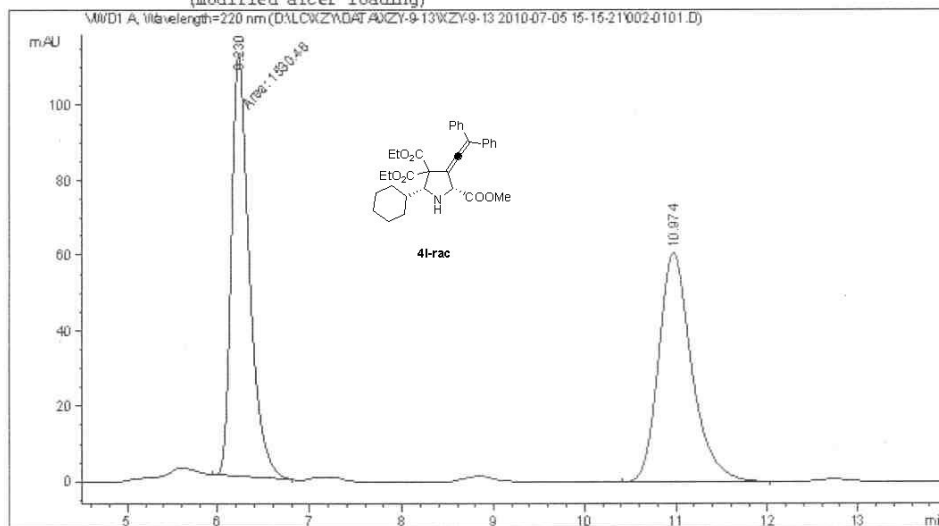
Totals :                      9917.04871    422.89750

=====  
 \*\*\* End of Report \*\*\*

Data File D:\LC\XYZY\DATA\XYZY-9-13\XYZY-9-13 2010-07-05 15-15-21\002-0101.D  
 Sample Name: D

```

=====
Acq. Operator   : TMC                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 2
Injection Date  : 7/5/2010 3:16:43 PM      Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\XYZY\DATA\XYZY-9-13\XYZY-9-13 2010-07-05 15-15-21\ADH-10-90-220NAM-40.M
Last changed    : 7/1/2010 3:47:07 PM by thl
Analysis Method : D:\LC\XYZY\DATA\XYZY-9-13\XYZY-9-13 2010-07-05 15-15-21\002-0101.D\DA.M (ADH-
10-90-220NAM-40.M)
Last changed    : 7/10/2010 4:16:48 PM by XZP
                  (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	6.230	MM	0.2281	1530.46021	111.81427	49.9319
2	10.974	EB	0.3804	1534.63538	60.80120	50.0681

Totals :                    3065.09558   172.61547

=====  
 \*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 4:16:51 PM XZP

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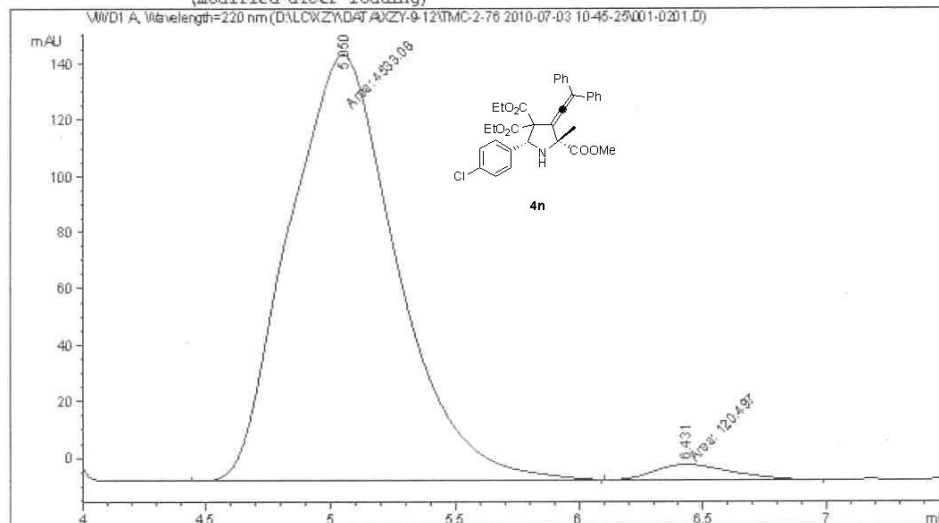


Data File D:\LC\XZY\DATA\XZY-9-12\TMC-2-76 2010-07-03 10-45-25\001-0201.D  
 Sample Name: XZY-9-12A

```

=====
Acq. Operator   : TMC                      Seq. Line :    2
Acq. Instrument : Instrument 1              Location  : Vial 1
Injection Date  : 7/3/2010 11:48:21 AM     Inj       :    1
                                           Inj Volume: 5 µl

Acq. Method     : D:\LC\TMC\DATE\TMC-2-76\TMC-2-76 2010-07-03 10-45-25\ADH-10-90-220NAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XZY\DATA\XZY-9-12\TMC-2-76 2010-07-03 10-45-25\001-0201.D\DA.M (ADH-
10-90-220NAM-30.M)
Last changed    : 12/2/2010 10:18:38 AM by dxq
                  (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	5.050	MM	0.4994	4533.07764	151.27065	97.4107
2	6.431	MM	0.3636	120.49709	5.52310	2.5893

Totals : 4653.57472 156.79374

\*\*\* End of Report \*\*\*

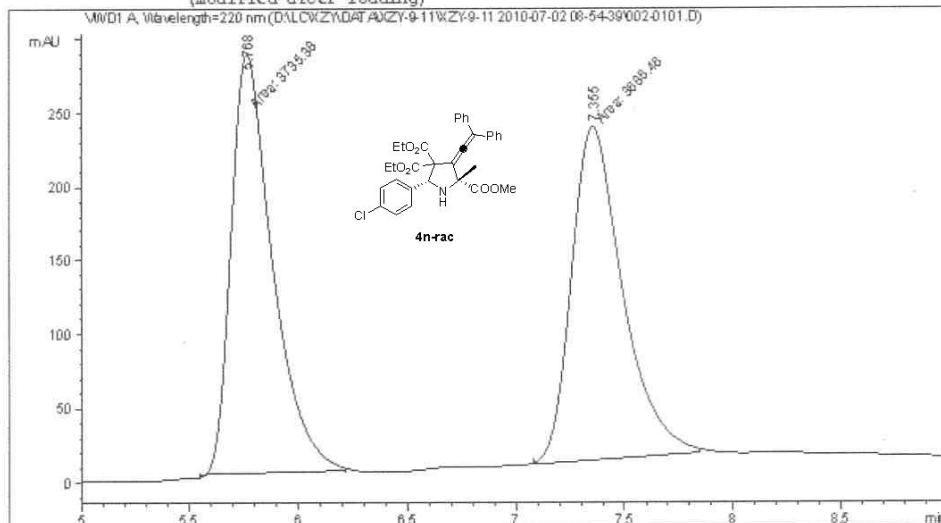
Instrument 1 12/2/2010 10:18:42 AM dxq

Page 1 of 1

Data File D:\LC\XZY\DATA\XZY-9-11\XZY-9-11 2010-07-02 08-54-39\002-0101.D  
 Sample Name: xzy-9-11A

```

=====
Acq. Operator   : TMC                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 2
Injection Date  : 7/2/2010 8:56:00 AM      Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method    : D:\LC\XZY\DATA\XZY-9-11\XZY-9-11 2010-07-02 08-54-39\ADH-10-90-220NAM-30.M
Last changed   : 6/25/2010 3:49:06 PM by LTL
Analysis Method: D:\LC\XZY\DATA\XZY-9-11\XZY-9-11 2010-07-02 08-54-39\002-0101.D\DA.M (ADH-10-90-220NAM-30.M)
Last changed   : 7/10/2010 4:08:11 PM by XZP
                (modified after loading)
    
```



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

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU*s	Height [mAU]	Area %
1	5.768	MM	0.2199	3735.38379	283.09082	50.3296
2	7.355	MM	0.2724	3686.45801	225.51962	49.6704

Totals :                      7421.84180   508.61044

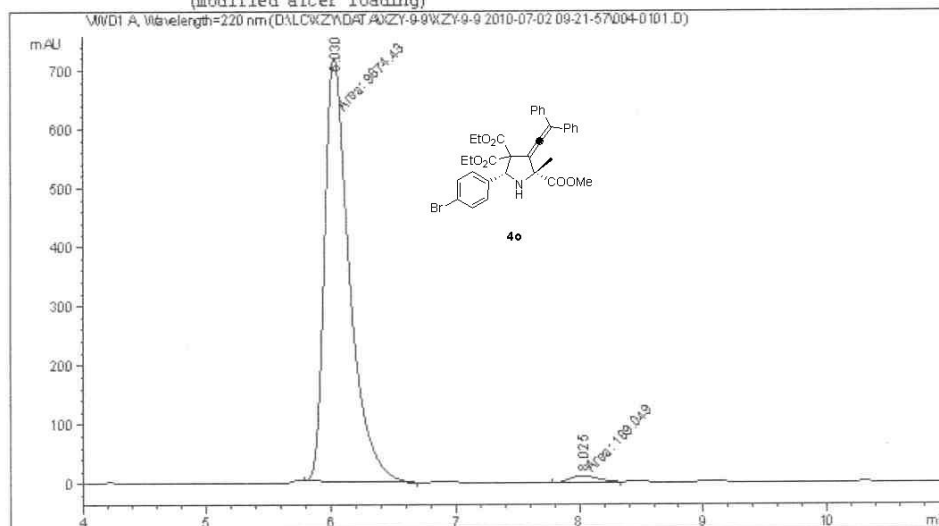
=====  
 \*\*\* End of Report \*\*\*

Data File D:\LC\XZY\DATA\XZY-9-9\XZY-9-9 2010-07-02 09-21-57\004-0101.D  
 Sample Name: xzy-9-9A

```

=====
Acq. Operator   : TMC                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 4
Injection Date  : 7/2/2010 9:23:17 AM      Inj       :    1
                                           Inj Volume: 5 µl

Acq. Method     : D:\LC\XZY\DATA\XZY-9-9\XZY-9-9 2010-07-02 09-21-57\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XZY\DATA\XZY-9-9\XZY-9-9 2010-07-02 09-21-57\004-0101.D\DA.M (ADH-
                  10-90-22ONAM-30.M)
Last changed    : 7/10/2010 4:05:05 PM by XZP
                  (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU*s	Height [mAU]	Area %
1	6.030	MM	0.2289	9874.43164	718.97186	98.1214
2	8.025	MM	0.2651	189.04898	11.88515	1.8786

Totals : 1.00635e4 730.85701

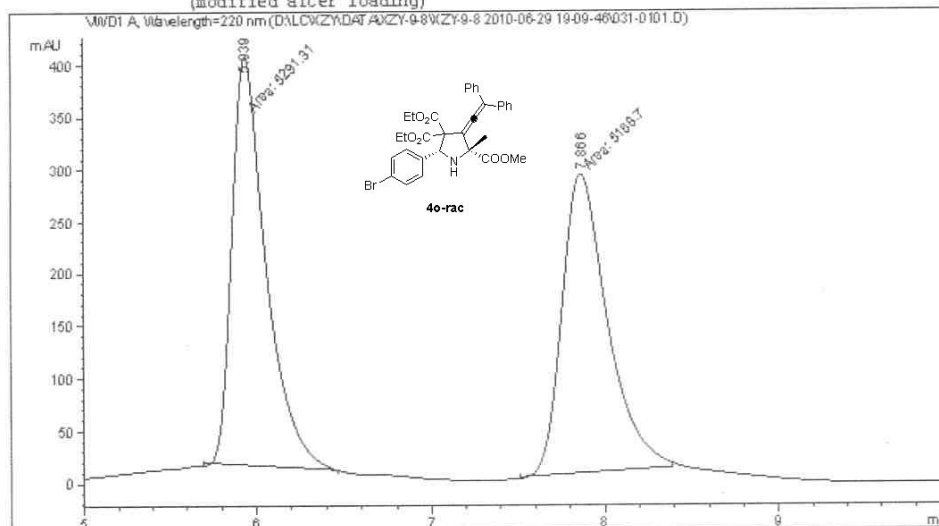
\*\*\* End of Report \*\*\*

Data File D:\LC\XYZY\DATA\XYZY-9-8\XYZY-9-8 2010-06-29 19-09-46\031-0101.D  
 Sample Name: xzy-9-8a

```

=====
Acq. Operator   : DXQ                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 31
Injection Date  : 6/29/2010 7:11:04 PM              Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method     : D:\LC\XYZY\DATA\XYZY-9-8\XYZY-9-8 2010-06-29 19-09-46\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XYZY\DATA\XYZY-9-8\XYZY-9-8 2010-06-29 19-09-46\031-0101.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed    : 7/10/2010 4:00:38 PM by XZP
                  (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU	Height [mAU]	Area %
1	5.939	MM	0.2266	5291.31348	389.24362	50.5861
2	7.866	MM	0.3010	5168.69629	286.20123	49.4139

Totals : 1.04600e4 675.44485

\*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 4:00:41 PM XZP

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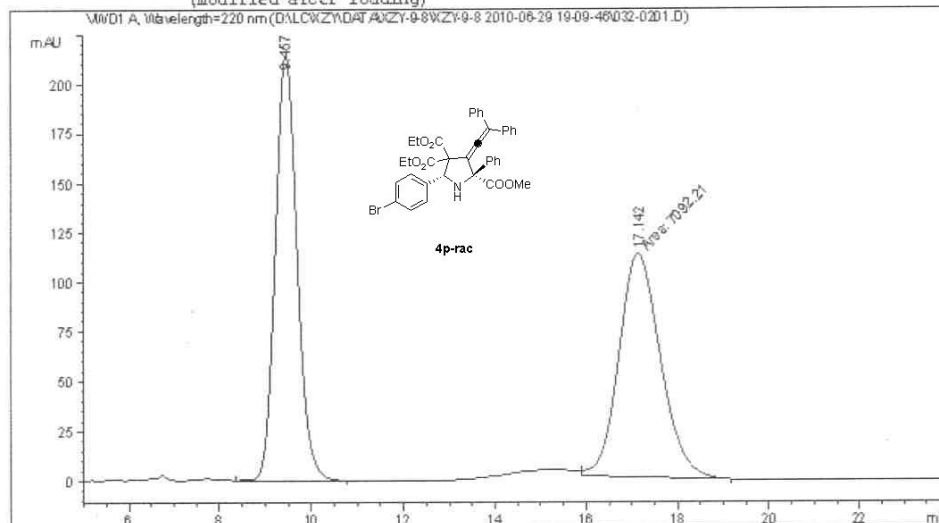


Data File D:\LC\XZY\DATA\XZY-9-8\XZY-9-8 2010-06-29 19-09-46\032-0201.D  
 Sample Name: xzy-9-8c

```

=====
Acq. Operator   : DXQ                               Seq. Line :    2
Acq. Instrument : Instrument 1                       Location  : Vial 32
Injection Date  : 6/29/2010 7:42:40 PM             Inj       :    1
                                                    Inj Volume: 5 µl

Acq. Method     : D:\LC\XZY\DATA\XZY-9-8\XZY-9-8 2010-06-29 19-09-46\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XZY\DATA\XZY-9-8\XZY-9-8 2010-06-29 19-09-46\032-0201.D\DA.M (ADH-
10-90-22ONAM-30.M)
Last changed    : 7/10/2010 4:02:40 PM by XZP
                  (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU*s	Height [mAU]	Area %
1	9.457	VB	0.5112	7065.18848	214.36914	49.9046
2	17.142	MM	1.0520	7092.20654	112.36008	50.0954

Totals : 1.41574e4 326.72923

\*\*\* End of Report \*\*\*

Instrument 1 7/10/2010 4:02:44 PM XZP

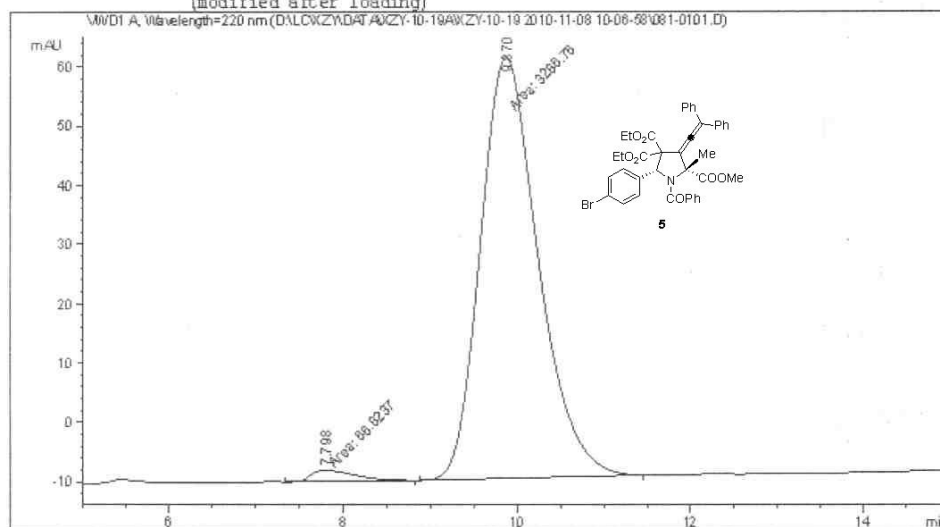
Page 1 of 1



Data File D:\LC\XYZY\DATA\XYZY-10-19A\XYZY-10-19 2010-11-08 10-06-58\081-0101.D  
 Sample Name: XYZY-10-19A

```

=====
Acq. Operator   : TMC                      Seq. Line :    1
Acq. Instrument : Instrument 1              Location  : Vial 81
Injection Date  : 11/8/2010 10:08:19 AM    Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\XYZY\DATA\XYZY-10-19A\XYZY-10-19 2010-11-08 10-06-58\ADH-10-90-22ONAM-30.M
Last changed    : 6/25/2010 3:49:06 PM by LTL
Analysis Method : D:\LC\XYZY\DATA\XYZY-10-19A\XYZY-10-19 2010-11-08 10-06-58\081-0101.D\DA.M (ADH-10-90-22ONAM-30.M)
Last changed    : 12/2/2010 10:12:28 AM by dxq
                  (modified after loading)
    
```



Area Percent Report

```

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	7.798	MM	0.5771	66.82367	1.92987	1.9926
2	9.870	MM	0.7718	3286.75952	70.97200	98.0074

Totals : 3353.58319 72.90187

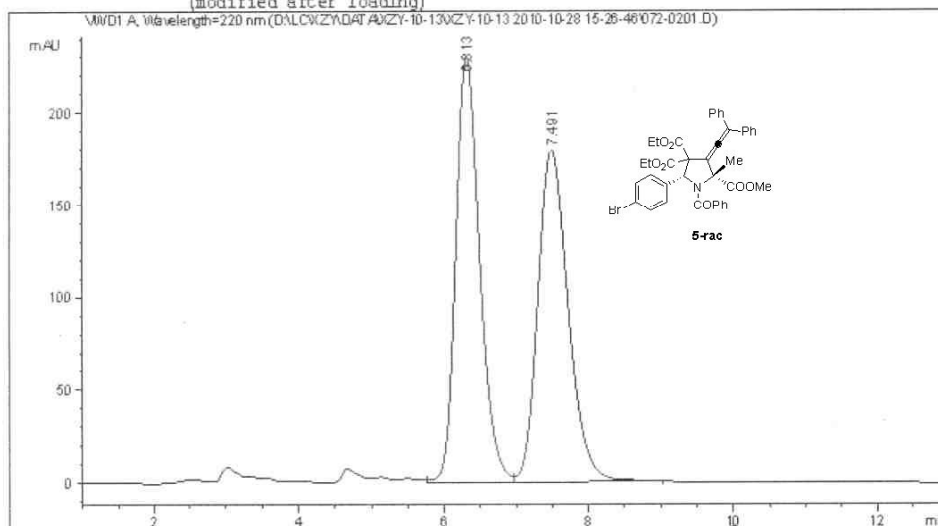
Instrument 1 12/2/2010 10:12:32 AM dxq

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Data File D:\LC\XYZY\DATA\XYZY-10-13\XYZY-10-13 2010-10-28 15-26-46\072-0201.D  
 Sample Name: XYZY-10-13A

```

=====
Acq. Operator   : TMC                      Seq. Line :    2
Acq. Instrument : Instrument 1              Location  : Vial 72
Injection Date  : 10/28/2010 3:39:20 PM    Inj       :    1
                                           Inj Volume: 5 µl
Acq. Method     : D:\LC\XYZY\DATA\XYZY-10-13\XYZY-10-13 2010-10-28 15-26-46\ADH-10-90-220NAM-85.M
Last changed    : 7/29/2010 7:59:04 PM by dxq
Analysis Method : D:\LC\XYZY\DATA\XYZY-10-13\XYZY-10-13 2010-10-28 15-26-46\072-0201.D\DA.M (ADH-10-90-220NAM-85.M)
Last changed    : 12/2/2010 10:05:51 AM by dxq
                  (modified after loading)
    
```



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

```

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

Signal 1: WMD1 A, Wavelength=220 nm

Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Height [mAU]	Area %
1	6.313	VV	0.3561	5296.59766	229.93907	50.3274
2	7.491	VB	0.4499	5227.67480	178.99007	49.6726

Totals :                      1.05243e4    408.92914

Instrument 1 12/2/2010 10:05:56 AM dxq

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