Supporting Information

S-Chiral Sulfinamides as Highly Enantioselective Organocatalysts

Dong Pei,[†] Zhouyu Wang,^{†,‡} Siyu Wei,[†] Yu Zhang,[†] Jian Sun^{†*}

[†] Natural Products Research Center, Chengdu Institute of Biology, Chinese Academy of Sciences, Chengdu, 610041, China

[‡] Department of Chemistry, Xihua University, Chengdu, 610039, China

Graduate School of Chinese Academy of Sciences, China

sunjian@cib.ac.cn

General: All starting materials were of the highest commercially available grade and used without further purification. All solvents used in the reactions were distilled from appropriate drying agents prior to use. Reactions were monitored by thin layer chromatography using silica gel HSGF254 plates. Flash chromatography was performed using silica gel HG/T2354-92. ¹H - and ¹³C NMR (300 or 600 and 75 or 150 MHz, respectively) spectra were recorded in CDCl₃. ¹H NMR chemical shifts are reported in ppm (δ) relative to tetramethylsilane (TMS) with the solvent resonance employed as the internal standard (CDCl₃, δ 7.26 ppm). Data are reported as follows: chemical shift, multiplicity (s = singlet, d = doublet, t = triplet, m = multiplet), coupling constants (Hz) and integration. ¹³C NMR chemical shifts are reported in ppm from tetramethylsilane (TMS) with the solvent resonance as the internal standard (CDCl₃, δ 77.0 ppm). ESIMS spectra were recorded on BioTOF Q. HPLC analyses were performed on PerkinElmer (Series 200 UV/VIS Detector and Series 200 Pump). Chiralpak OD-H, AD-H and OJ-H columns were purchased from Daicel Chemical Industries, LTD. All enantiomer ratios have been controlled by co-injections of the pure sample with the racemic substrates. All imines were prepared according to the general procedure.¹ Imines **5a**–**5t** and amines **6a**–**6t** are known compounds and their ¹H NMR data matched the literature data.¹ Chemical

¹ (a) Samec, J. S. M.; Bäckvall, J. E. *Chem. Eur. J.* **2002**, *8*, 2955. (b) Malkov, A. V.; Stoncius, S.; MacDougall, K. N.; Mariani, A.; McGeoch, G. D.; Kocovsky, P. *Tetrahedron* **2006**, *62*, 264. (c) Gawinecki, R. *Pol. J. Chem.* **1987**, *61*, 589. (d) Barluenga, A.; Aznar, F. *Synthesis* **1976**, 704. (e) Hansen, M. C.; Buchwald, S. L. *Org. Lett.* **2000**, *2*, 713. (f) Xiao, D. M.; Zhang, X. M. *Angew. Chem., Int. Ed.* **2001**, *40*, 3425. (g) Barluenga, J.; Fernández, M. A.; Aznar, F.; Valdés, C. *Chem. Eur. J.* **2004**, *10*, 494. (h) Periasamy, M.; Srinivas, G.; Bharath, P. *J. Org. Chem.*, **1999**, *64*, 4204. (i) Ozawa, F.; Okamoto, H.; Kawagishi, S.; Yamamoto, S.; Minami, T.; Yoshifuji, M. *J. Am. Chem. Soc.* **2002**, *124*, 10968. (j) Wang, Z.; Ye, X.; Wei, S.; Wu, P.; Zhang, A.; Sun, J. *Org. Lett.* **2006**, *8*, 999. (k) Wang, Z.; Cheng, M.; Wu, P.; Wei, S.; Sun, J. *Org. Lett.* **2006**, *8*, 3045.

yields refer to isolated pure substances.

Table I. Effect of Brønsted acidic additives in the hydrosilylation of **5a**^a

Entry	Catalyst	Additive	Yield (%)	Ee (%)
1	1	--	50	67
2 ^b	1	4-F-phenol	65	35
3	2a	--	47	49
4 ^c	2a	4-F-phenol	45	59
5 ^b	2a	4-F-phenol	39	70
6 ^b	2a	HCl	35	68
7 ^b	2a	<i>p</i> -TsOH	<5	nd
8 ^b	2a	2,4-dinitrobenzenesulfonic acid	<5	nd
9 ^b	2a	(CF ₃ SO ₂) ₂ NH	<5	nd
10	3d	--	47	44
11	3e	--	61	49
12 ^b	3d	4-F-phenol	<10	nd
13 ^b	3e	4-F-phenol	25	56

^a Reaction condition: 20 mol % catalyst, at –20 °C, with CH₂Cl₂ as solvent. ^b 100 mol % additive was added. ^c 20 mol % additive was added.

Figure. Nonlinear effect in the **4c** catalyzed hydrosilylation of **5a** (Reaction condition: 20 mol % catalyst, at $-20\text{ }^{\circ}\text{C}$, with CH_2Cl_2 as solvent)

Optimization of the reaction conditions:

Table II. Effects of reaction temperature, solvent, and catalyst loading on the performance of catalyst **4c** for the hydrosilylation of **5a**

Entry	Catalyst Loading (%)	Solvent	Temp ($^{\circ}\text{C}$)	Time (h)	Yield (%)	Ee (%)
1	20	CH_2Cl_2	0	24	81	89
2	20	CH_2Cl_2	-20	24	92	92
3	20	CH_2Cl_2	-40	24	68	86
4	20	CHCl_3	-20	24	71	70
5	20	$\text{ClCH}_2\text{CH}_2\text{Cl}$	-20	24	81	89
6	20	toluene	-20	24	70	92
7	10	CH_2Cl_2	-20	24	77	92
8	5	CH_2Cl_2	-20	48	70	91
9	2	CH_2Cl_2	-20	72	65	91

Scheme for the synthesis of 2a:

To a solution of (*R*)-**1** (242 mg, 2.0 mmol) in CH₂Cl₂ was added anhydrous CuSO₄ (640 mg, 4.0 mmol) followed by benzaldehyde (232 μ L, 2.2 mmol). The mixture was stirred at room temperature for 12 h. Upon completion, the reaction mixture was filtered through a pad of Celite, and the filter cake was washed well with CH₂Cl₂. The residue obtained after filtration was purified by chromatography (silica gel, PE : EtOAc = 7 : 1) to give pure (*R*)-*N*-benzylidene-*tert*-butanesulfinamide (380 mg, 91% yield).

To a solution of (*R*)-*N*-benzylidene-*tert*-butanesulfinamide (380 mg, 1.8 mmol) in MeOH (10 mL) was added NaBH₄ (68 mg, 1.8 mmol) at 0 °C. The mixture was stirred at the same temperature for 0.5 h. The reaction was quenched with acetone (2 mL). After the volatiles were evaporated, EtOAc and saturated aqueous ammonia chloride were introduced. The organic layer was separated, washed with brine, dried over anhydrous Na₂SO₄, and concentrated under vacuum. The residue was purified by chromatography (silica gel, PE : EtOAc = 2 : 1) to give the pure product.

(*R*)-*N*-Benzyl-*tert*-butanesulfonamide (2a): White solid, yield: 92%; $[\alpha]_{\text{D}}^{25} = -50.9$ ($c = 0.54$, EtOAc); mp 64.0 – 65.0 °C; ¹H NMR (600 MHz, CDCl₃): δ = 1.26 (s, 9H), 3.46 (s, 1H), 4.25 (dd, $J = 7.92, 13.68$ Hz, 1H), 4.36 (dd, $J = 4.68, 13.68$ Hz, 1H), 7.29 (m, 1H), 7.34 (m, 4H); ¹³C NMR (150 MHz, CDCl₃): δ = 22.7, 49.5, 55.9, 127.7, 128.1, 128.6, 138.5; ESI HRMS exact mass calcd. for (C₁₁H₁₇NOS + Na)⁺, requires m/z 234.0923, found m/z 234.0915.

Scheme for the synthesis of 2b:

To a solution of Ti(O^{*i*}Pr)₄ (1.2 mL, 4.0 mmol) and diphenyl ketone (475 mg, 2.4 mmol) in toluene (10 mL) was added (*R*)-**1** (242 mg, 2.0 mmol). The reaction mixture was stirred at reflux for 8 h. After cooling down to room temperature, the mixture was poured into brine (10 mL) while rapidly stirring. The resulting suspension was filtered through a plug of Celite, and the filter cake was washed with EtOAc.

The filtrate was transferred to a separatory funnel where the organic layer was washed with brine. The brine layer was extracted once with a small volume of EtOAc, and the combined organic portions were dried over anhydrous Na₂SO₄ and concentrated. The resulting crude imine was dissolved in MeOH (10 mL) and cooled down to 0 °C. NaBH₄ (152 mg, 4.0 mmol) was introduced and the mixture was stirred at same temperature for 0.5 h. The reaction was then quenched with acetone (2 mL). After the volatiles were evaporated, EtOAc and saturated aqueous ammonia chloride were introduced. The organic layer was separated, washed with brine, dried over anhydrous Na₂SO₄, and concentrated under vacuum. The residue was purified by chromatography (silica gel, PE : EtOAc = 2 : 1) to give the pure product.

(*R*)-*N*-Benzhydryl-*tert*-butanesulfinamide (2b): White solid, yield: 65%; [α]_D²⁵ = -76.9 (c = 0.13, EtOAc); mp 95.0 – 97.0 °C; ¹H NMR (600 MHz, CDCl₃): δ = 1.26 (s, 9H), 3.71 (s, 1H), 5.64 (d, *J* = 2.46 Hz, 1H), 7.23 – 7.27 (m, 2H), 7.30 – 7.34 (m, 4H), 7.37 (m, 2H), 7.41 (m, 2H); ¹³C NMR (150 MHz, CDCl₃): δ = 22.7, 55.9, 62.2, 127.3, 127.7, 127.8, 127.9, 128.6, 128.9, 141.3, 142.7; ESI HRMS exact mass calcd. for (C₁₇H₂₁NOS + Na)⁺ requires m/z 310.1236, found m/z 310.1235.

Scheme for the synthesis of 3a–c and 4a–c:

The procedures for the synthesis of **3a–c** and **4a–c** are similar to that for the synthesis of **2b**

(*R*)-*N*-(2-Hydroxybenzyl)-*tert*-butanesulfinamide (3a): White solid, yield: 91%; [α]_D²⁵ = -69.6 (c = 0.29, EtOAc); mp 110.0 – 112.0 °C; ¹H NMR (600 MHz, CDCl₃): δ = 1.25 (s, 9H), 4.04 (t, *J* = 5.22 Hz, 1H), 4.26 (dd, *J* = 6.91, 13.38 Hz, 1H), 4.32 (dd, *J* = 4.8 Hz, *J* = 13.38 Hz, 1H), 6.82 (t, *J* = 7.38 Hz, 1H), 6.85 (d, *J* = 7.44 Hz, 1H), 7.13 (d, *J* = 7.5 Hz, 1H), 7.15 (t, *J* = 7.56 Hz, 1H), 8.38 (s, 1H); ¹³C NMR (150 MHz, CDCl₃): δ = 22.7, 46.5, 56.3, 116.8, 119.8, 123.9, 129.7, 129.8, 155.8; ESI HRMS exact mass calcd. for (C₁₁H₁₇NO₂S + Na)⁺ requires m/z 250.0872, found m/z 250.0862.

(*R*)-*N*-(3-Hydroxybenzyl)-*tert*-butanesulfinamide (3b): White solid, yield: 85%; [α]_D²⁵ = -52.6 (c = 0.19, EtOAc); mp 127.0 – 129.0 °C; ¹H NMR (600 MHz, CDCl₃): δ = 1.26 (s, 9H), 3.64 (dd, *J* = 5.34,

6.90 Hz, 1H), 4.19 (dd, $J = 7.26, 13.74$ Hz, 1H), 4.26 (dd, $J = 4.92, 13.80$ Hz, 1H), 6.79 (dd, $J = 1.92, 8.22$ Hz, 1H), 6.82 (d, $J = 7.44$ Hz, 1H), 6.85 (d, $J = 1.74$ Hz, 1H), 7.17 (t, $J = 7.86$ Hz, 1H), 7.53 (s, 1H); ^{13}C NMR (150 MHz, CDCl_3): $\delta = 22.7, 49.7, 56.3, 115.0, 115.2, 119.4, 129.8, 139.7, 156.9$; ESI HRMS exact mass calcd. for $(\text{C}_{11}\text{H}_{17}\text{NO}_2\text{S} + \text{Na})^+$ requires m/z 250.0872, found m/z 250.0877.

(*R*)-*N*-(4-Hydroxybenzyl)-*tert*-butanesulfinamide (3c): White solid, yield: 85%; $[\alpha]_{\text{D}}^{25} = -38.9$ ($c = 0.18$, EtOAc); mp 111.0 – 113.0 °C; ^1H NMR (600 MHz, CDCl_3): $\delta = 1.25$ (s, 9H), 3.49 (t, $J = 5.94$ Hz, 1H), 4.19 (dd, $J = 6.54, 13.62$ Hz, 1H), 4.26 (dd, $J = 5.58, 13.80$ Hz, 1H), 6.77 (d, $J = 11.28$ Hz, 2H), 6.99 (brs, 1H), 7.15 (d, $J = 8.40$ Hz, 2H); ^{13}C NMR (150 MHz, CDCl_3): $\delta = 22.7, 49.6, 56.1, 115.7, 129.5, 156.3$; ESI HRMS exact mass calcd. for $(\text{C}_{11}\text{H}_{17}\text{NO}_2\text{S} + \text{Na})^+$ requires m/z 250.0872, found m/z 250.0873.

(*R*)-*N*-(2-Hydroxy-4-methoxybenzyl)-*tert*-butanesulfinamide (4a): White solid, yield: 92%; $[\alpha]_{\text{D}}^{25} = -86.8$ ($c = 0.14$, EtOAc); mp 101.0 – 103.0 °C; ^1H NMR (600 MHz, CDCl_3): $\delta = 1.25$ (s, 9H), 3.74 (s, 3H), 3.80 (t, $J = 5.34$ Hz, 1H), 4.12 (dd, $J = 7.14, 14.28$ Hz, 1H), 4.19 (dd, $J = 4.62, 13.62$ Hz, 1H), 4.27 (dd, $J = 6.36, 13.56$ Hz, 1H), 6.38 (d, $J = 8.34$ Hz, 1H), 6.44 (s, 1H), 7.01 (d, $J = 8.28$ Hz, 1H), 8.30 (s, 1H); ^{13}C NMR (150 MHz, CDCl_3): $\delta = 22.7, 45.9, 55.2, 56.2, 102.3, 105.7, 116.4, 130.4, 156.9, 160.9$; ESI HRMS exact mass calcd. for $(\text{C}_{12}\text{H}_{19}\text{NO}_3\text{S} + \text{Na})^+$ requires m/z 280.0978, found m/z 280.0972.

(*R*)-*N*-(5-*tert*-Butyl-2-hydroxybenzyl)-*tert*-butanesulfinamide (4b): light yellow liquid, yield: 90%; $[\alpha]_{\text{D}}^{25} = -43.4$ ($c = 0.14$, EtOAc); ^1H NMR (600MHz, CDCl_3): $\delta = 1.25$ (s, 9H), 1.28 (s, 9H), 4.10 (t, $J = 4.9$ Hz, 1H), 4.22 (dd, $J = 7.2, 13.2$ Hz, 1H), 4.34 (dd, $J = 4.6, 13.2$ Hz, 1H), 6.78 (d, $J = 8.4$ Hz, 1H), 7.12 (d, $J = 2.34$ Hz, 1H), 7.16 (dd, $J = 2.46, 8.4$ Hz, 1H), 8.21 (s, 1H); ^{13}C NMR (150 MHz, CDCl_3): $\delta = 21.7, 30.5, 32.9, 45.8, 55.2, 115.3, 122.1, 125.4, 125.7, 141.5, 152.3$; ESI HRMS exact mass calcd. for $(\text{C}_{15}\text{H}_{25}\text{NO}_2\text{S} + \text{Na})^+$ requires m/z 306.1498, found m/z 306.1487.

(*R*)-*N*-(5-Fluoro-2-hydroxybenzyl)-*tert*-butanesulfinamide (4c): White solid, yield: 92%; $[\alpha]_{\text{D}}^{25} = -77.3$ ($c = 0.17$, EtOAc); mp 112.0 – 115.0 °C; ^1H NMR (600 MHz, CDCl_3): $\delta = 1.26$ (s, 9H), 4.05 (brs, 1H), 4.21 (dd, $J = 5.34, 13.74$ Hz, 1H), 4.26 (dd, $J = 6.18, 13.74$ Hz, 1H), 6.74 (dd, $J = 4.74, 8.7$ Hz, 1H), 6.81 – 6.86 (m, 2H), 8.33 (brs, 1H); ^{13}C NMR (150 MHz, CDCl_3): $\delta = 22.6, 46.6, 56.4, 115.5, 115.6, 115.8, 115.9, 117.2, 117.3, 125.2, 151.6, 155.4, 156.9$; ESI HRMS exact mass calcd. for $(\text{C}_{11}\text{H}_{16}\text{FNO}_2\text{S} + \text{Na})^+$ requires m/z 268.0778, found m/z 268.0771.

Scheme for the synthesis of 3d

To a solution of **3a** (227 mg, 1.0 mmol) in DMF (5 mL) was added K_2CO_3 (276 mg, 2.0 mmol) followed by MeI (92 μL , 1.5 mmol). The mixture was stirred at room temperature for 6 h, and was then diluted with EtOAc. The organic layer was separated, washed with brine, dried over anhydrous Na_2SO_4 , and concentrated. The residue was purified by chromatography (silica gel, PE : EtOAc = 2 : 1) to give the pure product.

(R)-N-(2-Methoxybenzyl)-tert-butanefulfonamide (3d): light yellow liquid, yield: 90%; $[\alpha]_{\text{D}}^{25} = -36.3$ ($c = 0.37$, EtOAc); ^1H NMR (600 MHz, CDCl_3): $\delta = 1.21$ (s, 9H), 3.68 (s, 1H), 3.84 (s, 3H), 4.16 (dd, $J = 8.14, 13.74$ Hz, 1H), 4.42 (dd, $J = 5.22$ Hz, $J = 13.74$ Hz, 1H), 6.87 (d, $J = 8.1$ Hz, 1H), 6.92 (t, $J = 7.44$ Hz, 1H), 7.27 (t, $J = 7.44$ Hz, 1H), 7.28 (d, $J = 7.44$ Hz, 1H); ^{13}C NMR (150 MHz, CDCl_3): $\delta = 22.6, 45.5, 55.3, 55.8, 110.4, 120.6, 127.1, 128.9, 129.4, 157.4$; ESI HRMS exact mass calcd. for $(\text{C}_{12}\text{H}_{19}\text{NO}_2\text{S} + \text{Na})^+$ requires m/z 264.1029, found m/z 264.1017.

Scheme for the synthesis of 3e

To a solution of **3a** (114 mg, 0.5 mmol) in DMF (2 mL) was added K_2CO_3 (138 mg, 1.0 mmol) followed by acetic anhydride (94 μL , 1.0 mmol). The mixture was stirred at room temperature for 6 h, and was then diluted with diethyl ether. The organic layer was separated, washed with brine, dried over anhydrous Na_2SO_4 , and concentrated. The residue was purified by chromatography (silica gel, PE : EtOAc = 2 : 1) to give the pure product.

(R)-N-(2-Acetoxybenzyl)-tert-butanefulfonamide (3e): White solid, yield: 92%; $[\alpha]_{\text{D}}^{25} = -34.6$ ($c = 0.25$, EtOAc); mp 67.0 - 70.0 $^{\circ}\text{C}$; ^1H NMR (600 MHz, CDCl_3): $\delta = 1.22$ (s, 9H), 2.34 (s, 3H), 3.46 (brs, 1H), 4.13 (dd, $J = 8.4, 13.44$ Hz, 1H), 4.30 (dd, $J = 4.26, 13.44$ Hz, 1H), 7.07 (d, $J = 8.04$ Hz, 1H), 7.24 (t, $J = 7.56$ Hz, 1H), 7.33 (t, $J = 7.74$ Hz, 1H), 7.44 (d, $J = 7.62$ Hz, 1H); ^{13}C NMR (150 MHz, CDCl_3): $\delta = 21.0,$

22.6, 44.2, 55.9, 122.6, 126.4, 129.1, 130.2, 130.4, 148.9, 169.7; ESI HRMS exact mass calcd. for $(C_{13}H_{19}NO_3S + Na)^+$ requires m/z 292.0978, found m/z 292.0974.

General procedure for the synthesis of imines **5a**—**5t**:

A mixture of $NaHCO_3$ (50 mmol), amine (10 mmol), ketone (10 mmol) and activated molecular 4Å sieves (8.0 g) in anhydrous toluene (10 mL) was stirred at 80 °C for 12 h under an argon atmosphere, and then was filtered through celite. The filtrate was concentrated in vacuo. The crude product was subjected to distillation or recrystallization to give pure imine.

General procedure for the catalytic reduction of imines **5a**—**5t**.

Under an argon atmosphere, trichlorosilane (40 μ L, 0.4 mmol) was added dropwise to a stirred solution of imine **5** (0.20 mmol) and catalyst **4c** (9.8 mg, 0.04 mmol) in anhydrous CH_2Cl_2 at -20 °C. The mixture was allowed to stir at the same temperature for 24-48 h. The reaction was quenched with a saturated aqueous solution of $NaHCO_3$ and was extracted with EtOAc. The combined extracts was washed with brine and dried over anhydrous $MgSO_4$ and the solvents were evaporated. Purification by column chromatography (silica gel, hexane/EtOAc) afforded pure amine **6**. The ee values were determined using established HPLC techniques with chiral stationary phases.

6a: Light yellow oil; Yield: 92%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +40.6$ (c = 0.5, EtOAc); 1H NMR (300 MHz, $CDCl_3$): δ = 1.54 (d, J = 6.72 Hz, 3H), 4.05 (brs, 1H), 4.51 (q, J = 6.72 Hz, 1H), 6.53 (m, 2H), 6.66 (m, 1H), 7.08 - 7.14 (m, 2H), 7.26 - 7.40 (m, 5H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 99/1, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 11.60 min, minor enantiomer: t_R = 15.34 min; 92% ee.

6b: Yield: 93%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +16.0$ (c = 0.15, EtOAc); 1H NMR (600 MHz, $CDCl_3$): δ = 1.52 (d, J = 6.78 Hz, 3H), 4.06 (brs, 1H), 4.52 (q, J = 6.78 Hz, 1H), 6.47 (d, J = 7.92 Hz, 2H), 6.67 (t, J = 7.14 Hz, 1H), 7.10 (t, J = 7.68 Hz, 2H), 7.49 (d, J = 8.1 Hz, 2H), 7.57 (d, J = 8.1 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 90/10, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 9.37 min, minor enantiomer: t_R = 13.39 min; 92% ee.

6c: Yield: 94%, purification by flash chromatography (hexane/EtOAc = 95/5); $[\alpha]_D^{25}$ = +13.1 (c = 0.9, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.57 (d, J = 6.72 Hz, 3H), 4.19 (brs, 1H), 4.60 (q, J = 6.84 Hz, 1H), 6.48 (d, J = 7.72 Hz, 2H), 6.71 (t, J = 7.32 Hz, 1H), 7.13 (t, J = 7.30 Hz, 2H), 7.56 (d, J = 8.72 Hz, 2H), 8.19 (d, J = 8.90 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 85/15, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 20.24 min, minor enantiomer: t_R = 25.39 min; 90% ee.

6d: Light yellow solid; Yield: 92%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25}$ = +17.8 (c = 0.36, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.48 (d, J = 6.82 Hz, 3H), 4.00 (brs, 1H), 4.42 (q, J = 6.84 Hz, 1H), 6.46 (d, J = 7.50 Hz, 2H), 6.65 (t, J = 7.30 Hz, 1H), 7.09 (t, J = 8.52 Hz, 2H), 7.24 (d, J = 8.3 Hz, 2H), 7.43 (d, J = 8.32 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 95/5, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 12.48 min, minor enantiomer: t_R = 15.94 min; 92% ee.

6e: Yield: 98%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25}$ = +16.9 (c = 0.16, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.56 (d, J = 6.72 Hz, 3H), 3.84 (s, 3H), 4.07 (brs, 1H), 4.52 (q, J = 6.72 Hz, 3H), 6.59 (d, J = 8.44 Hz, 2H), 6.72 (t, J = 7.32 Hz, 1H), 6.93 (d, J = 8.64 Hz, 2H), 7.17 (t, J = 8.04 Hz, 2H), 7.35 (d, J = 8.58 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 98/2, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 12.81 min, minor enantiomer: t_R = 15.13 min; 93% ee.

6f: Yield: 96%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25}$ = +23.2 (c = 0.28, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.65 (d, J = 6.72 Hz, 3H), 4.19 (brs, 1H), 4.71 (q, J = 6.54 Hz, 1H), 6.63 (d, J = 8.32 Hz, 2H), 6.72 (t, J = 7.14 Hz, 1H), 7.16 (t, J = 8.12 Hz, 2H), 7.49 – 7.54 (m, 2H), 7.57 (d, J = 8.46 Hz, 1H), 7.96 - 7.89 (m, 4H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 98/2, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 16.11 min, minor enantiomer: t_R = 18.62 min; 90% ee.

6g: Yield: 91%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +30.0$ (c = 0.7, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.57 (d, J = 6.72 Hz, 3H), 3.89 (s, 3H), 4.12 (brs, 1H), 4.60 (q, J = 6.72 Hz, 1H), 6.55 (d, J = 8.20 Hz, 2H), 6.63 (t, J = 7.44 Hz, 1H), 7.06 – 7.13 (m, 4H), 7.46 (d, J = 8.40 Hz, 1H), 7.67 – 7.73 (m, 3H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 98/2, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 18.32 min, minor enantiomer: t_R = 22.46 min; 91% ee.

6h: Yield: 78%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +15.8$ (c = 0.6, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.00 – 1.08 (m, 2H), 1.11 (d, J = 6.42 Hz, 3H), 1.13 – 1.28 (m, 3H), 1.41 – 1.47 (m, 1H), 1.65 – 1.83 (m, 5H), 6.56 (d, J = 8.46 Hz, 2H), 6.62 – 6.64 (m, 1H), 7.13 – 7.16 (m, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OJ-H column (n-heptane/2-propanol = 99/1, flow rate = 0.5 ml/min, wavelength = 254 nm); minor enantiomer: t_R = 25.04 min, major enantiomer: t_R = 27.57 min; 74% ee.

6i: Light yellow oil; Yield: 78%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +29.7$ (c = 0.34, EtOAc); ^1H NMR (300 MHz, CDCl_3): δ = 0.92 (d, J = 6.78 Hz, 3H), 0.98 (d, J = 6.88 Hz, 3H), 1.11 (d, J = 6.48 Hz, 3H), 1.80 – 1.89 (m, 1H), 3.31 – 3.40 (m, 1H), 3.49 (brs, 1H), 6.57 – 6.68 (m, 3H), 7.14 – 7.26 (m, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OJ-H column (n-heptane/2-Propanol = 99/1, flow rate = 1.0 ml/min, wavelength = 254 nm); minor enantiomer: t_R = 11.41 min, major enantiomer: t_R = 12.29 min; 79% ee.

6j: Colorless oil; Yield: 94%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +18.7$ (c = 0.62, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.51 (d, J = 6.73 Hz, 3H), 4.07 (brs, 1H), 4.44 (q, J = 6.69 Hz, 1H), 6.42 (d, J = 8.75 Hz, 2H), 7.02 (d, J = 8.73 Hz, 2H), 7.22 - 7.24 (m, 1H), 7.30 - 7.33 (m, 4H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OJ-H column (n-heptane/2-Propanol = 99/1, flow rate = 1.0 ml/min, wavelength = 254 nm); minor enantiomer: t_R = 13.27 min, major enantiomer: t_R = 17.98 min; 92% ee.

6k: Light yellow solid; Yield: 87%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +27.3$ (c = 0.7, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.50 (d, J = 6.66 Hz, 3H), 3.90 (brs, 1H), 4.45 (q, J = 6.66 Hz, 1H), 6.43 (d, J = 8.40 Hz, 2H), 6.43 (d, J = 8.04 Hz, 2H), 7.20 – 7.22 (m, 1H), 7.31 (t, J = 7.62 Hz, 2H), 7.36 (d, J = 7.26 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 99/1, flow rate = 1.0 ml/min, wavelength = 254 nm); minor enantiomer: t_R = 10.92 min, major enantiomer: t_R = 12.26 min; 91% ee.

6l: Yield: 97%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +20.8$ (c = 0.39, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.50 (d, J = 6.66 Hz, 3H), 3.68 (s, 3H), 4.40 (q, J = 6.66 Hz, 1H), 6.47 (d, J = 8.88 Hz, 2H), 6.69 (d, J = 8.88 Hz, 2H), 7.20 – 7.23 (m, 1H), 7.31 (t, J = 7.38 Hz, 2H), 7.36 (d, J = 7.2 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral AD-H column (n-heptane/2-propanol = 98/2, flow rate = 1.0 ml/min, wavelength = 254 nm); minor enantiomer: t_R = 11.71 min, major enantiomer: t_R = 12.84 min; 91% ee.

6m: Yield: 73%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +76.4$ (c = 0.5, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.55 (d, J = 6.66 Hz, 3H), 3.88 (s, 3H), 4.47 (q, J = 6.66 Hz, 1H), 4.63 (brs, 1H), 6.33 (d, J = 7.8 Hz, 1H), 6.60 (t, J = 7.8 Hz, 1H), 6.69 (t, J = 7.8 Hz, 1H), 6.76 (d, J = 7.8 Hz, 1H), 7.22 (t, J = 7.3 Hz, 1H), 7.31 (d, J = 7.44 Hz, 2H); 7.37 (d, J = 7.8 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 99/1, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 8.13 min, minor enantiomer: t_R = 10.75 min; 88% ee.

6n: Yield: 80%, purification by flash chromatography (hexane/EtOAc = 95/5); $[\alpha]_D^{25} = +16.5$ (c = 0.34, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.50 (d, J = 6.72 Hz, 3H), 3.69 (s, 3H), 4.45 (q, J = 6.72 Hz,

1H), 6.43 (d, J = 8.82 Hz, 2H), 6.68 (d, J = 9.0 Hz, 2H), 7.47 (d, J = 7.98 Hz, 2H), 7.56 (d, J = 8.04 Hz, 2H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 95/5, flow rate = 1.0 ml/min, wavelength = 254 nm); minor enantiomer: t_R = 13.48 min, major enantiomer: t_R = 15.55 min; 90% ee.

6o: Yield: 86%, purification by flash chromatography (hexane/EtOAc = 95/5); $[\alpha]_D^{25}$ = +14.3 (c = 0.6, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 1.56 (d, J = 6.66 Hz, 3H), 3.66 (s, 3H), 4.55 (q, J = 6.66 Hz, 1H), 6.50 (d, J = 8.7 Hz, 2H), 6.66 (d, J = 8.94 Hz, 2H), 7.47 (m, 2H), 7.49 (d, J = 8.52 Hz, 1H), 7.80 (m, 4H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral AD-H column (n-heptane/2-propanol = 95/5, flow rate = 1.0 ml/min, wavelength = 254 nm); major enantiomer: t_R = 12.71 min, minor enantiomer: t_R = 14.45 min; 88% ee.

6p: Yield: 84%, purification by flash chromatography (hexane/EtOAc = 95/5); $[\alpha]_D^{25}$ = +11.9 (c = 0.74, EtOAc); ^1H NMR (300 MHz, CDCl_3): δ = 0.96 (t, J = 7.39 Hz, 3H), 1.82 (m, 2H), 3.69 (s, 3H), 4.17 (t, J = 6.68 Hz, 1H), 6.49 (d, J = 8.96 Hz, 2H), 6.70 (d, J = 8.97 Hz, 2H), 7.24 (m, 1H), 7.31 (m, 4H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral AD-H column (n-heptane/2-propanol = 98/2, flow rate = 1.0 ml/min, wavelength = 254 nm); minor enantiomer: t_R = 11.05 min, major enantiomer: t_R = 12.17 min; 92% ee.

6q: Yield: 92%, purification by flash chromatography (2% EtOAc in hexane); $[\alpha]_D^{25}$ = +7.8 (c = 0.18, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 0.94 (t, J = 7.44 Hz, 3H), 1.81 (m, 2H), 4.05 (brs, 1H), 4.21 (t, J = 6.66 Hz, 1H), 6.50 (d, J = 8.4 Hz, 2H), 6.62 (t, J = 7.26 Hz, 1H), 7.07 (t, J = 8.46 Hz, 2H), 7.21 (m, 1H), 7.31 (m, 4H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-Propanol = 99/1, flow rate = 1.0 mL/min, wavelength = 254 nm); major enantiomer: t_R = 10.24 min, minor enantiomer: t_R = 12.80 min; 93% ee.

6r: Light yellow oil; Yield: 87%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25}$ = +14.1 (c = 0.34, EtOAc); ^1H NMR (600 MHz, CDCl_3): δ = 0.93 (t, J = 7.32 Hz, 3H), 1.31-1.49 (m, 2H),

1.75 (m, 1H), 4.07 (brs, 1H), 4.30 (t, $J = 6.78$ Hz, 1H), 6.50 (d, $J = 7.74$ Hz, 2H), 6.62 (t, $J = 7.08$ Hz, 1H), 7.07 (t, $J = 7.5$ Hz, 2H), 7.21 (m, 1H), 7.31 (m, 4H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 99/1, flow rate = 1.0 mL/min, wavelength = 254 nm); major enantiomer: $t_R = 8.30$ min, minor enantiomer: $t_R = 10.29$ min; 91% ee.

6s: Light yellow oil; Yield: 84%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +20.0$ (c = 0.44, EtOAc); ^1H NMR (600 MHz, CDCl_3): $\delta = 0.88$ (t, $J = 7.68$ Hz, 3H), 1.25 – 1.43 (m, 4H), 1.73 – 1.83 (m, 2H), 4.07 (brs, 1H), 4.28 (t, $J = 6.78$ Hz, 1H), 6.50 (d, $J = 7.74$ Hz, 2H), 6.61 (t, $J = 7.32$ Hz, 1H), 7.07 (t, $J = 7.14$ Hz, 2H), 7.21 (t, $J = 6.90$ Hz, 1H), 7.29 – 7.34 (m, 4H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 99/1, flow rate = 1.0 mL/min, wavelength = 254 nm); major enantiomer: $t_R = 7.47$ min, minor enantiomer: $t_R = 8.97$ min; 93% ee.

6t: Light yellow oil; Yield: 82%, purification by flash chromatography (hexane/EtOAc = 98/2); $[\alpha]_D^{25} = +7.9$ (c = 0.34, EtOAc); ^1H NMR (300 MHz, CDCl_3): $\delta = 0.94$ (d, $J = 6.23$ Hz, 3H), 0.99 (d, $J = 6.09$ Hz, 3H), 1.57 – 1.62 (m, 1H), 1.65 – 1.74 (m, 2H), 4.04 (brs, 1H), 4.38 (t, $J = 7.54$ Hz, 1H), 6.52 (d, $J = 7.60$ Hz, 2H), 6.63 (t, $J = 7.32$ Hz, 1H), 7.06 – 7.11 (m, 2H), 7.22 – 7.37 (m, 5H); in agreement with the literature data.

The enantiomers were analyzed by HPLC using a chiral OD-H column (n-heptane/2-propanol = 99/1, flow rate = 1.0 mL/min, wavelength = 254 nm); major enantiomer: $t_R = 7.28$ min, minor enantiomer: $t_R = 8.08$ min; 86% ee.

The NMR spectra of 2a

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: wpc-15-35 solvent: CDCL3 spectrum: 1H

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: PA-1 solvent: CDCL3 spectrum: 13C

The NMR spectra of **2b**

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: wpc-15-34 solvent: CDCl3 spectrum: 1H

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: PA-2 solvent: CDCl3 spectrum: 13C

The NMR spectra of 3a

The NMR spectra of **3b**

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p942 solvent: CDCl₃ spectrum: 1H

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p060919-1 solvent: CDCl₃ spectrum: 13C

The NMR spectra of 3c

The NMR spectra of 3d

The NMR spectra of **3e**

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p749 solvent: CDCL3 spectrum: 1H

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p749 solvent: CDCL3 spectrum: 13C

The NMR spectra of 4a

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p818 solvent: CDCL3 spectrum: 1H

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p940 solvent: CDCL3 spectrum: 13C

The NMR spectra of 4b

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p823 solvent: CDCl3 spectrum: 1H

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p941 solvent: CDCl3 spectrum: 13C

The NMR spectra of 4c

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p824 solvent: CDCl3 spectrum: 1H

Bruker Avance 600 probe: 13C-1H DUL TE: 300K sample: p824 solvent: CDCl3 spectrum: 13C

The HPLC spectra of 6a

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : wzy-cnm5-11
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-15 9:57:53
 Data Acquisition Time : 2006-4-7 10:21:07
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\cmn\Ph-CH(NH-Ph)-CH3\2006\060407-5-11.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060407-5-11.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.731	2222855.26	147140.73	50.67
2	15.879	2164447.39	103426.12	49.33
		4387302.65	250566.85	100.00

Missing Component Report
 Component Expected Retention (Calibration File)

All components were found

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd825-2
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-6-13 13:23:07
 Data Acquisition Time : 2006-6-13 13:04:27
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph)-CH3\060613-825-2.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060613-825-2.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.602	12000233.56	765237.63	96.00
2	15.337	500044.08	25154.18	4.00
		12500277.64	790391.81	100.00

Missing Component Report
 Component Expected Retention (Calibration File)

PE series200 0.001

The HPLC spectra of 6b

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2005-11-2 9:52:16
 Data Acquisition Time : 2005-11-2 9:30:03
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wzy\4-CF3)Ph-CH(NH-Ph)-CH3\051102-9-3-2xx.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\051102-9-3-2xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	9.623	3932457.03	289134.89	49.77
2	14.010	3968977.67	190546.55	50.23
	7901434.70	479681.44		100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd914-2
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-20 20:54:51
 Data Acquisition Time : 2006-7-20 20:34:41
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\4-CF3)Ph-CH(NH-Ph)-CH3\060720-914-2.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060720-914-2.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	9.370	8570379.10	635216.59	95.89
2	13.387	367675.69	20216.73	4.11
	8938054.79	655433.32		100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

The HPLC spectra of 6c

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-16 18:05:39
 Data Acquisition Time : 2006-8-16 17:26:30
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd(4-NO2)Ph-CH(NH-Ph)-CH3\060816-xx.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060816-xx-20060816-172225.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	19.927	30800754.92	984599.78	50.23
2	24.246	30513386.13	793328.98	49.77
		61314141.05	1.78e+06	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd919-4
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-26 11:00:36
 Data Acquisition Time : 2006-7-26 10:24:38
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd(4-NO2)Ph-CH(NH-Ph)-CH3\060726-919-4.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060726-919-4.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	20.237	26681772.68	838012.72	94.91
2	25.393	1431008.60	37645.49	5.09
		28112781.28	875658.21	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

The HPLC spectra of 6d

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : wzy3-45-5
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-15 9:41:45
 Data Acquisition Time : 2005-3-24 10:47:36
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wzy\4-Br)Ph-CH(NH-Ph)-CH3\050324-3-45-5xx.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\050324-3-45-5xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.922	3630753.99	214972.16	49.82
2	16.262	3647636.98	148610.19	50.18
	7288390.97	363582.35	100.00	

Missing Component Report

Component Expected Retention (Calibration File)

PE serie200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd914-4
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-20 20:02:20
 Data Acquisition Time : 2006-7-20 19:44:47
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\4-Br)Ph-CH(NH-Ph)-CH3\060720-914-4.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060720-914-4.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	12.480	7737746.75	517550.05	95.80
2	15.940	338819.29	17381.72	4.20
	8076566.04	534931.77	100.00	

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

The HPLC spectra of 6e

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : wzy3-45-3xx
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-15 9:43:37
 Data Acquisition Time : 2005-3-23 13:09:11
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wzy\4-O-CH3)Ph-CH(NH-Ph)-CH3\050323-3-45-3xx.rst
 Sequence File : C:\PenExe\TeWS\Ver6.2.1\Examples\050323-3-45-3xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	12.765	14833497.85	764882.61	49.84
2	15.804	14931585.70	602761.86	50.16
		29765083.55	1.37e+06	100.00

Missing Component Report

Component	Expected Retention (Calibration File)
PE serie200	0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd914-1
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-20 19:43:00
 Data Acquisition Time : 2006-7-20 19:25:50
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\4-O-CH3)Ph-CH(NH-Ph)-CH3\060720-914-1.rst
 Sequence File : C:\PenExe\TeWS\Ver6.2.1\Examples\060720-914-1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	12.810	2477751.75	147688.75	96.63
2	15.133	86321.58	4332.20	3.37
		2564073.33	152020.94	100.00

Missing Component Report

Component	Expected Retention (Calibration File)
PE series200	0.001

The HPLC spectra of 6f

Page 1 of 1

Software Version : 6.2.1.0.104:0104

Sample Name : wzy3-45-4xx

Instrument Name : HPLC

Rack/Vial : 0/0

Sample Amount : 1.000000

Cycle : 1

Date : 2006-8-15 9:49:46

Data Acquisition Time : 2005-3-23 14:06:19

Channel : A

Operator : manager

Dilution Factor : 1.000000

Result File : D:\LC\wzy\NaP-CH(NH-Ph)-CH3\050323-3-45-4xx.rst

Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\050323-3-45-4xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	15.415	10972120.19	697598.28	49.91
2	18.627	19042830.69	641615.40	50.09
	38014950.88	1.34e+06	100.00	

Missing Component Report

Component Expected Retention (Calibration File)

PE serie200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104

Sample Name : pd1008-4

Instrument Name : HPLC

Rack/Vial : 0/0

Sample Amount : 1.000000

Cycle : 1

Date : 2006-8-29 15:51:32

Data Acquisition Time : 2006-8-29 15:29:09

Channel : A

Operator : manager

Dilution Factor : 1.000000

Result File : D:\LC\pd\NaP-CH(NH-Ph)-CH3\060829-re1008-4.rst

Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060829-re1008-4.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	16.106	7091669.20	291390.26	94.78
2	18.622	396503.49	15575.06	5.22
	7482172.69	306965.32	100.00	

Missing Component Report

Component Expected Retention (Calibration File)

PE serie200 0.001

The HPLC spectra of 6g

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : wzy3-45-1xx
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-15 9:47:04
 Data Acquisition Time : 2005-3-23 15:32:56
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wzy\6-O-CH3\NaP-2-CH(NH-Ph)-CH3\050323-3-45-1xx.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\050323-3-45-1xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	18.212	7677535.53	223330.64	49.91
2	23.781	7706089.65	176569.60	50.09
		15383625.18	399900.24	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE serie200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd914-8
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-20 19:24:06
 Data Acquisition Time : 2006-7-20 18:57:30
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\6-O-CH3\NaP-2-CH(NH-Ph)-CH3\060720-914-8.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060720-914-8.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	18.317	1257846.22	46083.44	95.48
2	22.462	59566.82	1846.17	4.52
		1317413.04	47929.62	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

The HPLC spectra of 6h

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-17 12:17:53
 Data Acquisition Time : 2006-8-17 11:46:13
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\cyclohexane-CH(NH-Ph)-CH3\060817-xx.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060817-xx-20060817-112657.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	25.469	38802444.51	982078.85	49.97
2	28.039	3885889.46	879252.53	50.03
Total		77661339.97	1.86e+06	100.00

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd905-6
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-4 14:52:50
 Data Acquisition Time : 2006-7-4 14:18:43
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\cyclohexane-CH(NH-Ph)-CH3\060704-905-6.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060704-905-6.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	25.036	5502387.45	124244.11	13.05
2	27.372	36656122.94	728176.77	86.95
Total		42158510.39	852420.88	100.00

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

The HPLC spectra of 6i

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2005-12-9 12:03:22
 Data Acquisition Time : 2005-12-9 11:45:51
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wzy\CH3)2CH-CH(NH-Ph)-CH3\051209-xx.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\051209-xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	10.126	4071384.72	249188.98	50.05
2	10.979	4062742.86	227372.81	49.95
	8134127.58	476561.79		100.00

Missing Component Report
 Component Expected Retention (Calibration File)

PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd1019-2
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-9-4 17:35:46
 Data Acquisition Time : 2006-9-4 17:01:42
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\CH3)2CH-CH(NH-Ph)-CH3\060904-1019-2.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060904-1019-2.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.407	1322155.17	76973.81	10.68
2	12.290	11055539.41	590622.85	89.32
	12377694.59	673596.66		100.00

Missing Component Report
 Component Expected Retention (Calibration File)

PE series200 0.001

The HPLC spectra of 6j

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-17 9:22:58
 Data Acquisition Time : 2006-8-16 15:23:31
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-4-Cl)-CH3\060816-xx.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060816-xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.947	11954245.05	788281.71	50.38
2	16.045	11775444.38	572269.83	49.62
		23729689.42	1.36e+06	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd1028-4
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-9-14 17:53:48
 Data Acquisition Time : 2006-9-14 17:29:36
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-4-Cl)-CH3\060914-1028-4.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060914-1028-4.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	13.268	1128897.93	62813.94	4.06
2	17.973	26623006.27	1.06e+06	95.94
		27751014.20	1.13e+06	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

The HPLC spectra of 6k

Page 1 of 1

Software Version : 6.2.1.0.104:0104
Sample Name :
Instrument Name : HPLC
Rack/Vial : 0/0
Sample Amount : 1.000000
Cycle : 1

Date : 2006-8-15 12:06:50
Data Acquisition Time : 2006-8-15 11:48:44
Channel : A
Operator : manager
Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-PH-4-CH3)-CH3\060815-xx.rst
Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060815-xx-20060815-114737.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	10.981	9560937.19	691963.93	49.98
2	12.384	9569005.72	598780.41	50.02
		19129942.91	1.29e+06	100.00

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
Sample Name : pd914-5
Instrument Name : HPLC
Rack/Vial : 0/0
Sample Amount : 1.000000
Cycle : 1

Date : 2006-7-20 18:16:30
Data Acquisition Time : 2006-7-20 18:00:21
Channel : A
Operator : manager
Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-PH-4-CH3)-CH3\060720-914-5.rst
Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060720-914-5.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	10.922	421894.09	30850.02	4.47
2	12.263	9006752.67	559553.64	95.53
		9428646.75	590403.66	100.00

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

The HPLC spectra of 6l

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-17 10:31:13
 Data Acquisition Time : 2006-8-17 10:05:57
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-4-OMe)-CH3\060817-xx.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060817-xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.647	14630623.72	1.04e+06	50.03
2	12.717	14614926.83	956504.83	49.97
		29245550.55	2.00e+06	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd925-3
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-2 11:47:40
 Data Acquisition Time : 2006-8-2 11:20:53
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-4-OMe)-CH3\060802-925-3.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060802-925-3.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.710	499824.25	35163.29	4.50
2	12.837	10401177.05	664306.96	95.50
		11101001.30	699470.25	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

The HPLC spectra of 6m

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-22 17:36:59
 Data Acquisition Time : 2006-8-22 17:21:25
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-2-OMe)-CH3\060822-xx.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060822-xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	8.180	12487669.82	1.22e+06	49.77
2	11.388	12601399.86	870545.46	50.23
		25089069.67	2.09e+06	100.00

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd1019-6
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-9-4 15:24:25
 Data Acquisition Time : 2006-9-4 15:09:58
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-2-OMe)-CH3\060904-1019-6.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060904-1019-6.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	8.129	7173359.43	697589.20	94.02
2	10.754	456459.99	34172.23	5.98
		7629819.41	731761.42	100.00

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

The HPLC spectra of 6n

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : PD921-1
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-14 9:27:55
 Data Acquisition Time : 2006-7-26 11:58:05
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd(4-CF3)Ph-CH(NH-Ph-4-OCH3)-CH3\060726-921-1.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060726-921-1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	13.713	3665873.97	189328.13	50.14
2	15.988	3644977.07	164199.59	49.86
	7310851.05	353527.72	100.00	

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd925-1
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-3 11:12:32
 Data Acquisition Time : 2006-8-3 10:47:52
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd(4-CF3)Ph-CH(NH-Ph-4-OCH3)-CH3\060803-925-1.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060803-925-1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	13.476	329718.88	17640.08	5.18
2	15.549	6040644.48	277474.52	94.82
	6370363.36	295114.60	100.00	

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

The HPLC spectra of 60

Page 1 of 1

Software Version : 6.2.1.0.104:0104

Sample Name : HPLC

Rack/Vial : 0/0

Sample Amount : 1.000000

Cycle : 1

Date : 2006-8-17 14:55:45

Data Acquisition Time : 2006-4-21 16:21:15

Channel : A

Operator : manager

Dilution Factor : 1.000000

Result File : D:\LC\wzy\NaP-CH(NH-Ph-4-OCH3)-CH3\060421-xx-ad5.rst

Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060421-xx-ad5-20060421-161903.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	12.721	9655269.92	574268.81	49.93
2	14.552	9682265.40	505840.02	50.07
	19337535.32	1.08e+06	100.00	

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104

Sample Name : PD934-1

Instrument Name : HPLC

Rack/Vial : 0/0

Sample Amount : 1.000000

Cycle : 1

Date : 2006-8-9 17:31:34

Data Acquisition Time : 2006-8-9 17:09:32

Channel : A

Operator : manager

Dilution Factor : 1.000000

Result File : D:\LC\pd\NaP-CH(NH-Ph-4-OCH3)-CH3\060809-934-1.rst

Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060809-934-1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	12.705	10131034.13	635625.41	94.03
2	14.447	642980.72	39901.57	5.97
	10774034.85	671526.98	100.00	

Missing Component Report

Component Expected Retention (Calibration File)

PE series200 0.001

The HPLC spectra of 6p

Page 1 of 1

Software Version : 6.2.1.0.104:0104
Sample Name : zy20-1
Instrument Name : HPLC
Rack/Vial : 0/0
Sample Amount : 1.000000
Cycle : 1

Date : 2006-8-18 11:15:53
Data Acquisition Time : 2006-8-18 10:54:11
Channel : A
Operator : manager
Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-4-OMe)-C2H5\060818-zy20-1.rst
Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060818-zy20-1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	10.978	5305338.72	380248.61	49.95
2	12.130	5316024.04	341588.84	50.05
		10621362.76	721837.45	100.00

Missing Component Report

Component	Expected Retention (Calibration File)
PE series200	0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
Sample Name : pd1019-5
Instrument Name : HPLC
Rack/Vial : 0/0
Sample Amount : 1.000000
Cycle : 1

Date : 2006-9-4 10:59:00
Data Acquisition Time : 2006-9-4 10:40:55
Channel : A
Operator : manager
Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph-4-OMe)-C2H5\060904-re1019-5.rst
Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060904-re1019-5.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	11.047	145095.24	10439.27	4.24
2	12.170	3279068.78	209964.41	95.76
		3424964.02	220403.68	100.00

Missing Component Report

Component	Expected Retention (Calibration File)
PE series200	0.001

The HPLC spectra of 6q

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : wzy3-45-6xx
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-4-10 17:13:23
 Data Acquisition Time : 2005-3-23 16:45:57
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wzy\Ph-CH(NH-Ph)-C2H5\050323-3-45-6xx.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\050323-3-45-6xx.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	8.412	16817618.78	1.34e+06	50.72
2	10.531	16342099.70	1.09e+06	49.28
		33159718.48	2.44e+06	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE serie200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd1025-1
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-9-11 13:25:38
 Data Acquisition Time : 2006-9-11 11:46:19
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph)-C2H5\060911-1025-1.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060911-1025-1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	10.235	20089785.61	1.36e+06	96.39
2	12.802	751289.98	44372.46	3.61
		20832075.60	1.41e+06	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE serie200 0.001

The HPLC spectra of 6r

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-8-16 16:26:40
 Data Acquisition Time : 2006-8-16 16:11:20
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph)-C3H7\060816-xx.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060816-xx-20060816-160844.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	8.291	2938020.74	276204.59	50.05
2	10.204	2932712.58	230408.71	49.95
	5870733.32	506613.31		100.00

Missing Component Report

Component	Expected Retention (Calibration File)
PE series200	0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd905-2
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-4 10:19:58
 Data Acquisition Time : 2006-7-4 10:05:35
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph)-C3H7\060704-905-2.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060704-905-2.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	8.305	8085791.66	699221.67	95.56
2	10.293	376073.34	27919.91	4.44
	8461865.00	727141.58		100.00

Missing Component Report

Component	Expected Retention (Calibration File)
PE series200	0.001

The HPLC spectra of 6s

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-1-6 20:58:08
 Data Acquisition Time : 2006-1-6 20:45:21
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wpc\Ph-CH(NH-Ph)-C4H9\060106-13-31xx-od1.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060106-13-31xx-od1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	6.699	3572063.35	378090.26	49.66
2	8.226	3621282.74	310642.22	50.34
		7193346.09	688732.47	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd908-7
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-11 16:55:31
 Data Acquisition Time : 2006-7-11 16:38:17
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph)-C4H9\060711-908-7.rst
 Sequence File : C:\PenExe\TcWS\Ver6.2.1\Examples\060711-908-7.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	7.470	10243362.77	906321.96	96.45
2	8.967	377019.61	32098.73	3.55
		10620382.37	938420.69	100.00

Missing Component Report
 Component Expected Retention (Calibration File)
 PE series200 0.001

The HPLC spectra of 6t

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name :
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2005-12-30 10:22:07
 Data Acquisition Time : 2005-12-30 10:05:46
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\wzy\Ph-CH(NH-Ph)-CH2CH(CH3)2\051230-10-7-1xx-od1.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\051230-10-7-1xx-od1.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	6.993	778866.83	78190.52	49.87
2	7.923	783072.74	69990.38	50.13
	1561939.57	148180.89	100.00	

Missing Component Report

Component	Expected Retention (Calibration File)
PE series200	0.001

Page 1 of 1

Software Version : 6.2.1.0.104:0104
 Sample Name : pd905-5
 Instrument Name : HPLC
 Rack/Vial : 0/0
 Sample Amount : 1.000000
 Cycle : 1
 Date : 2006-7-4 11:11:42
 Data Acquisition Time : 2006-7-4 10:58:48
 Channel : A
 Operator : manager
 Dilution Factor : 1.000000

Result File : D:\LC\pd\Ph-CH(NH-Ph)-CH2CH(CH3)2\060704-905-5.rst
 Sequence File : C:\PenExe\Tc\WS\Ver6.2.1\Examples\060704-905-5.seq

DEFAULT REPORT

Peak #	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1	7.275	1165221.52	110969.03	92.82
2	8.082	90084.15	8015.28	7.18
	1255305.67	118984.30	100.00	

Missing Component Report

Component	Expected Retention (Calibration File)
PE series200	0.001