Supporting Information

Kinetic Resolution of 1-(1-Alkynyl)cyclopropyl Ketones by Gold(I)-Catalyzed Asymmetric [4+3]Cycloaddition with Nitrones: Scope, Mechanism and Applications.

Yanqing Zhang and Junliang Zhang*

Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry, East China Normal University 3663 N. Zhongshan Road, Shanghai 200062 (P.R. China).





We also paid our attention on the asymmetric [4+3] annulation of 2-nonsubstituted cyclopropyl ketone 1q. After reacting with nitrone 2a under the optimized reaction conditions, heterobicyclic cycloadduct 3q is isolated in 75% yield with 82% ee, indicating the present reaction conditions are applicable to the 2-non-substituted cyclopropyl ketones [Eq (1)].



Figure 1. X-ray structure of (1*R*, 2*S*)-1k

General: All Lewis acid and ligand are commercially available. All reactions were carried out under nitrogen or argon atmosphere. All solvents were fresh distilled from calcium hydride. ¹H and ¹³C NMR spectra were obtained using a Bruker DPX-400 spectrometer in CDCl₃, Splitting patterns were designed as s (singlet), d (doublet), t (triplet), m (multiplet) and q (quartet). Compounds **1a-q** and **4** were prepared according to the procedure of literature¹. The data of compound **1a-1b**, **1e-1g**, **1m** and **1p** were consistent with those in the literature². Compounds **2a-2f** were synthesized according to the procedure of use synthesized according to the procedure of use synthesized according to the procedure of use synthesized according to the procedure of literature³. Compound **6** was synthesized according to the procedure of literature⁴. The data of compound **3p** and **5** were consistent with those in the literature.⁵

General procedure for kinetic resolution of ketone 1.

Conditions A (Small Scale) (Scale of 1/2 = 0.4/0.22 mmol): Me₂SAuCl (3.2 mg, 0.011mmol), (*S*)-MeO-dtbm-biphep (7.6 mg, 0.0066 mmol) and DCE (3 mL) was added to the dry Schlenk tube under Ar or N₂. After stirring for two hours, AgSbF₆ (3.7 mg, 0.011 mmol) was added to the mixture. The mixture was then stirred for another 15 mins at rt. To the resulting mixture was added activated molecular sieves 4Å (50 mg). The mixture was stirred for 30 minutes and then nitrone **2** (0.22 mmol,) and ketone **1** (0.4 mmol) were added. The resulting mixture was stirred at rt until the reaction was complete (monitored by TLC).The reaction was quenched by saturated NaCl. After standard work-up, the residue was purified by flash column chromatography on silica gel (hexanes/DCM/EA = 50:10:1).

Conditions B (large Scale) (Scale of 1/2 = 4.0/2.2 mmol): The procedure is same as the small scale with the use of Me₂SAuCl (32.0 mg, 0.11mmol), (*S*)-MeO-dtbm-biphep (76.0 mg, 0.066 mmol), DCE (15 mL), AgSbF₆ (37 mg, 0.11 mmol), activated molecular sieves 4Å (300 mg). nitrone **2a** (2.2 mmol) and ketone **1a** (4.0 mmol).

1. 1-((1R, 2S)-2-phenyl-1-(phenylethynyl)cyclopropyl)ethanone (1a).



¹H NMR (400 MHz, CDCl₃) δ 7.38 - 7.18 (m, 8 H), 7.16 - 7.08 (m, 2 H), 3.04 (t, *J* = 8.8 Hz, 1 H), 2.59 (s, 3 H), 2.20 (dd, *J* = 8.8, 4.0 Hz, 1 H), 1.86 (dd, *J* = 7.6, 4.0 Hz, 1 H).

Conditions A: the reaction under conditions A afforded the recovered **1a** in 43% yield with 92% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 230 nm: t_R = 7.45 min, t_R = 8.67 min.)

2. 1-((1*R*, 2*S*)-1-(naphthalen-1-ylethynyl)-2-phenylcyclopropyl)ethanone (1b).



¹H NMR (400 MHz, CDCl₃) δ 7.82 - 7.69 (m, 2 H), 7.53 - 7.28 (m, 10 H), 3.16 (t, *J* = 8.0 Hz, 1 H), 2.69 (s, 3 H), 2.26 (dd, *J* = 9.2, 3.2 Hz, 1 H), 1.99 (dd, *J* = 8.0, 4.4 Hz, 1 H).

Conditions B: The reaction under conditions B afforded the recovered **1b** in 34% yield with 95% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 220 nm: t_R = 9.42 min, t_R = 15.13 min.).

3. 1-((1*R*, 2*S*)-2-phenyl-1-(p-tolylethynyl)cyclopropyl)ethanone (1c).



Light yellow solid, m.p.27-30 °C. ¹H NMR (400 MHz, CDCl₃) δ 7.43 - 7.35 (m, 2 H), 7.35-7.26 (m, 3H), 7.12 - 7.10 (m, 4 H), 3.06 (T, *J* = 8.0 Hz, 1 H), 2.62 (s, 3 H), 2.34 (s, 3 H), 2.23 (t, *J* = 5.2, 4.0 Hz, 1 H), 1.87 (t, *J* = 4.0, 3.6 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 205.05, 138.05, 135.90, 131.18, 128.89, 128.63, 127.88, 127.14, 119.84, 86.47, 84.44, 39.06, 33.30, 29.57, 26.42, 21.38 ppm; MS (EI) m/z (%): 274 [M]⁺ (42.24), 215 (100); HRMS calcd for C₂₀ H₁₈O: 274.1358, found: 274.1357.

Conditions A: The reaction under conditions A afforded the recovered **1c** in 41% yield with 90% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 220 nm: t_R = 7.05 min, t_R = 8.45 min.).

4. 1-((1*R*, 2*S*)-1-((4-bromophenyl)ethynyl)-2-phenylcyclopropyl)ethanone (1d).



Light yellow solid, m.p.45-48 °C.¹H NMR (400 MHz, CDCl₃) δ 7.38 -7.31 (m, 4 H), 7.22 -7.29 (m, 3 H), 6.95 (d, J = 8.4 Hz, 2 H), 3.06 (t, J = 8.4 Hz, 1 H), 2.57 (s, 3 H), 2.20 (dd, J = 8.8, 4.0 Hz, 1 H), 1.86 (dd, J = 8.0, 4.4 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 204.45, 135.72, 132.72, 131.41, 128.65, 127.96, 127.29, 122.14, 121.85, 88.64, 83.27, 39.21, 33.23, 29.58, 26.35 ppm; MS (EI) m/z (%): 338 [M]⁺ (1.52), 43 (100); HRMS calcd for C₁₉H₁₅OBr: 338.0306, found: 338.0302.

Conditions B The reaction under conditions B afforded the recovered **1d** in 42% yield with 93% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 220 nm: t_R = 6.64 min, t_R = 7.75 min.).

5. 1-((1R, 2S)-1-(cyclohex-1-en-1-ylethynyl)-2-phenylcyclopropyl)ethanone (1e).



¹H NMR (400 MHz, CDCl₃) δ 7.35 - 7.18 (m, 5 H), 5.81 (s, 1 H), 2.94 (t, J = 8.4 Hz, 1 H), 2.51 (s, 3 H), 2.12 (dd, J = 9.2, 4.0 Hz, 1 H), 2.05 - 1.94 (m, 2 H), 1.91 - 1.82 (m, 2 H), 1.72 (dd, J = 7.6, 4.0 Hz, 1 H), 1.57 - 1.46 (m, 4 H).

Conditions A: The reaction under conditions A afforded the recovered **1e** in 41% yield with 35% ee.. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 230 nm: t_R = 5.43 min, t_R = 6.06 min.).

6. 1-((1*R*,2*S*)-1-(hex-1-yn-1-yl)-2-phenylcyclopropyl)ethanone (1f)



¹H NMR (400 MHz, CDCl₃) δ 7.36-7.11 (m, 5 H), 2.87 (t, *J* = 8.4 Hz, 1 H), 2.50 (s, 3 H), 2.08-2.04 (m, 2 H), 2.04-2.01 (m, 1 H), 1.64-1.66 (m, 1 H), 1.30-1.22 (m, 2 H), 1.21-1.11 (m, 2 H), 0.80 (t, *J* = 7.6 Hz, 3 H).

Conditions A: The reaction under conditions A afforded the recovered **1f** in 30% yield with 32% ee.. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 230 nm: t_R = 5.05 min, t_R = 5.35 min.).

7. 1-((1*R*,2*S*)-2-(4-methoxyphenyl)-1-(phenylethynyl)cyclopropyl)ethanone (1g).



¹H NMR (400 MHz, CDCl₃) δ 7.33 - 7.11 (m, 7 H), 6.94 - 6.83 (m, 2 H), 3.81 (s, 3 H), 2.99 (t, *J* = 8.4 Hz, 1 H), 2.58 (s, 3 H), 2.19 (t, *J* = 4.4 Hz, 1 H), 1.79 (dd, *J* = 8.4, 4.4 Hz, 1 H).

Conditions B: The reaction under conditions B afforded the recovered **1g** in 35% yield with 93% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 220 nm: t_R = 9.99 min, t_R = 10.30 min.).

8. 1-((1*R*,2*S*)-1-(phenylethynyl)-2-(p-tolyl)cyclopropyl)ethanone (1h).



Light yellow solid, m.p.46-48 °C. ¹H NMR (400 MHz, CDCl₃) δ 7.26 -7.20 (m, 3 H), 7.20 -7.1 (m, 6 H), 2.30 (t, *J* = 8.4 Hz, 1 H), 2.58 (s, 3 H), 2.36 (s, 3 H), 2.19 (dd, *J* = 6.9, 4.4 Hz, 1 H), 1.82 (dd, *J* = 8.4, 4.4 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 205.03, 136.87, 132.73, 131.29, 128.62, 128.46, 128.14, 127.92, 123.02, 87.46, 84.32, 39.20, 33.32, 29.61, 26.57, 21.13 ppm; MS (EI) m/z (%): 274 [M]⁺ (22.28), 215 (100); HRMS calcd for C₂₀ H₁₈O: 274.1358, found: 274.1357.

Conditions B: The reaction under conditions B afforded the recovered **1h** in 42% yield with 96% ee. The ee was determined by chiral HPLC (Daicel OJ-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 230 nm: t_R = 11.17 min, t_R = 12.04 min.).

9. 1-((1R,2S)-2-(4-chlorophenyl)-1-(phenylethynyl)cyclopropyl)ethanone (1i).



Light yellow solid, m.p.44-47 °C.¹H NMR (400 MHz, CDCl₃) δ 7.29 - 7.35 (m, 2 H), 7.19 - 7.29 (m, 5 H), 7.11 - 7.19 (m, 2 H), 2.30 (t, *J* = 8.4 Hz, 1 H), 2.59 (s, 3 H), 2.19 (dd, *J* = 9.2, 4.0 Hz, 1 H), 1.79 (dd, *J* = 7.6, 4.0 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 204.71, 134.47, 133.02, 131.31, 129.93, 128.27, 128.18, 128.07, 122.67, 86.82, 84.68, 38.12, 33.15, 29.63, 26.60 ppm; MS (EI) m/z (%): 294 [M]⁺ (12.73), 43 (100); HRMS calcd for C₁₉ H₁₅OCl: 294.0811, found: 294.0810.

Condition B: The reaction under conditions B afforded the recovered **1i** in 44% yield with 97% ee. The ee was determined by chiral HPLC (Daicel OJ-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 230 nm: t_R = 18.58 min, t_R = 23.24 min.).

10. 1-((1*R*,2*R*)-2-(2-bromophenyl)-1-(phenylethynyl)cyclopropyl)ethanone(1j).



Oil.¹H NMR (400 MHz, CDCl₃) δ 7.63 (d, *J* = 7.6 Hz, 1 H), 7.36 - 7.27 (m, 1 H), 7.25 - 7.12 (m, 5 H), 7.02 - 6.93 (m, 2 H), 3.03 (t, *J* = 8.4 Hz, 1 H), 2.65 (s, 3 H), 2.26 (dd, *J* = 8.4, 4.0 Hz, 1 H), 1.88 (dd, *J* = 6.8, 4.0 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 205.00, 136.27, 132.36, 131.33, 129.57, 128.82, 128.08, 127.90, 127.45, 127.01, 122.83, 86.85, 83.16, 40.32, 32.17, 29.43, 25.59 ppm; MS (EI) m/z (%): 338 [M]⁺ (4.88), 43 (100); HRMS calcd for C₁₉ H₁₅OBr: 338.0306, found: 338.0303.

Conditions A: The reaction under conditions A afforded the recovered **1j** in 41% yield with 98% ee. The ee was determined by chiral HPLC (Daicel AD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 220 nm: t_R = 7.19 min, t_R = 7.69 min.).

11. 1-((1*R*,2*S*)-2-(4-bromophenyl)-1-(phenylethynyl)cyclopropyl)ethanone (1k).



Light yellow solid, m.p.69-72 °C.¹H NMR (400 MHz, CDCl₃) δ 7.52 - 7.42 (m, 2 H), 7.31 - 7.22 (m, 3 H), 7.20 - 7.10 (m, 4 H), 2.98 (t, *J* = 8.4 Hz, 1 H), 2.59 (s, 3 H), 2.18 (dd, *J* = 8.8, 4.0 Hz, 1 H), 1.79 (dd, *J* = 6.4, 4.0 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 204.63, 135.02, 131.32, 131.01, 130.28, 128.27, 128.18, 122.65, 121.13, 86.79, 84.73, 38.12, 33.11, 29.60, 26.53 ppm; MS (EI) m/z (%): 338 [M]⁺ (3.43), 43 (100); HRMS calcd for C₁₉H₁₅OBr: 338.0306, found: 338.0302.

Conditions A: The reaction under conditions A afforded the recovered **1k** in 42% yield with 98% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, $\lambda = 230$ nm: $t_R = 7.40$ min, $t_R = 7.90$ min.).

12. 1-((1*R*,2*R*)-2-butyl-1-(phenylethynyl)cyclopropyl)ethanone (11)



Oil. ¹H NMR (400 MHz, CDCl₃) δ 7.51-7.39 (m, 2 H), 7.38-7.28 (m, 3 H), 2.54 (s, 3 H), 1.83 (dd, J = 8.8, 3.2 Hz, 1 H), 1.80-1.69 (m, 1 H), 1.69-1.57 (m, 2 H), 1.54-1.34 (m, 4 H), 1.10 (dd, J = 7.2, 3.2 Hz, 1 H), 0.92 (t, J = 7.2 Hz, 3 H); ¹³C NMR (100 MHz, CDCl₃) δ 206.00, 131.50, 128.30, 127.98, 123.34, 88.27, 82.70, 35.08, 31.02, 30.01, 29.89, 29.45, 29.06, 22.41, 14.04 ppm; MS (EI) m/z (%): 240 [M]⁺ (31.11), 43(100); HRMS calcd for C₁₇H₂₀O: 240.1514, found: 240.1514.

Condition A: The reaction under conditions A afforded the recovered **11** in 43% yield with 27% ee. The ee was determined by chiral HPLC (Daicel OJ-3 column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 254 nm: t_R = 5.78 min, t_R = 6.29 min.).

13. Phenyl((1*R*,2*S*)-2-phenyl-1-(phenylethynyl)cyclopropyl)methanone(1m).



¹H NMR (400 MHz, CDCl₃) δ 8.16 - 8.02 (m, 2 H), 7.58 - 7.30 (m, 8 H), 7.24 - 7.30 (m, 3 H), 7.05 - 6.91 (m, 2 H), 3.04 (t, J = 7.6 Hz, 1 H), 3.02 (dd, J = 9.2, 4.8 Hz, 1 H), 1.96 (dd, J = 10.8, 4.8 Hz, 1 H). **Condition B:** The reaction under conditions B afforded the recovered **1m** in 37% yield with 99% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 220 nm: t_R = 6.35 min, t_R = 7.27 min.).

14. ((1R,2S)-2-(4-chlorophenyl)-1-(phenylethynyl)cyclopropyl)(phenyl)methanone (1n).



Light yellow solid, m.p.60-62 °C.¹H NMR (400 MHz, CDCl₃) δ 8.10 - 8.01 (m, 2 H), 7.60 - 7.50 (m, 1 H), 7.48 - 7.40 (m, 2 H), 7.40 - 7.33 (m, 2 H), 7.43 - 7.27 (m, 2 H), 7.24 - 7.12 (m, 3 H), 7.06 - 6.94 (m, 2 H), 3.00 (t, *J* = 8.4 Hz, 1 H), 2.50 (dd, *J* = 8.4, 4.8 Hz, 1 H), 1.90 (t, *J* = 6.0 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 196.42, 136.62, 134.48, 133.16, 132.69, 131.12, 129.95, 129.20, 128.23, 128.15, 127.98, 122.80, 87.74, 85.30, 36.84, 31.95, 23.81 ppm; MS (EI) m/z (%): 356 [M]⁺ (5.92), 105 (100); HRMS calcd for C₂₄H₁₇OCl: 356.0968, found: 356.0970.

Condition B: The reaction under conditions B afforded the recovered **1n** in 49% yield with 92% ee.. The ee was determined by chiral HPLC (Daicel AD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 220 nm: t_R = 8.71 min, t_R = 9.45 min.).

15. (4-chlorophenyl)((1*R*,2*S*)-2-phenyl-1-(phenylethynyl)cyclopropyl)methanone (10).



Light yellow solid, m.p.44-47 °C. ¹H NMR (400 MHz, CDCl₃) δ 8.08 - 7.98 (m, 2 H), 7.44 - 7.31 (m, 7 H), 7.22 - 7.12 (m, 3 H), 7.04 -6.94 (m, 2 H), 3.02 (t, *J* = 8.4 Hz, 1 H), 2.51 (dd, *J* = 9.2, 4.8 Hz, 1 H), 1.96 (t, *J* = 6.0 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 195.47, 138.92, 135.54, 135.03, 131.10, 130.67, 128.63, 128.26, 128.10, 127.96, 127.42, 122.79, 87.77, 85.13, 38.22, 31.99, 23.65 ppm; MS (EI) m/z (%): 356 [M]⁺ (2.47), 43 (100); HRMS calcd for C₂₄H₁₇OCl: 356.0968, found: 356.0967.

Condition A: The reaction under conditions A afforded the recovered **10** in 37% yield with 97% ee. The ee was determined by chiral HPLC (Daicel AD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 220 nm: t_R = 8.07 min, t_R = 8.80 min.).

16. 1-((1*R*,2*S*)-2-(4-methoxyphenyl)-1-((4-methoxyphenyl)ethynyl)cyclopropyl)ethanone (1p)



¹H NMR (400 MHz, CDCl₃) δ 7.20 (d, *J* = 8.4 Hz, 2 H), 7.10 (d, *J* = 8.8 Hz, 2 H), 6.88 (d, *J* = 8.4 Hz, 2 H), 6.76 (d, *J* = 8.8 Hz, 2 H). 3.81 (s, 3 H), 3.78 (s, 3 H), 2.96 (t, *J* = 8.4 Hz, 1 H), 2.57 (s, 3 H), 2.22-2.12 (m, 1 H), 1.79-1.72 (m, 1 H).

Condition A: The reaction under conditions A afforded the recovered **1p** in 39% yield with 68% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 99 : 1, 0.8 ml/min, λ = 230 nm: t_R = 26.81 min, t_R = 30.16 min.).

Condition B: The reaction under conditions B afforded the recovered **1p** in 24% yield with 87% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 230 nm: t_R = 13.90 min, t_R = 14.69 min.).

17. 1-(1-(phenylethynyl)cyclopropyl)ethanone (1q)



¹H NMR (400 MHz, CDCl₃) δ 7.39 - 7.46 (m, 2 H), 7.35 - 7.28 (m, 3 H), 2.56 (s, 3 H), 1.62 (dd, *J* = 2.4, 1.6 Hz, 2 H), 1.39 (t, *J* = 1.6 Hz, 2 H).

18. (15,45)-4,8-bis(4-methoxyphenyl)-6-methyl-1,2-diphenyl-1,2,4,5-tetrahydrofuro[3,4-

d][1,2]oxazepine (3p)



¹H NMR (400 MHz, CDCl₃) δ 7.30 (d, J = 8.4 Hz, 2 H), 7.26-7.22 (m, 5 H), 7.20-7.12 (m, 4 H), 6.92-6.80 (m, 7 H), 6.07 (s, 1 H), 5.03 (d, J = 10.4 Hz, 1 H), 3.81 (s, 3 H), 3.80 (s, 3 H), 3.19 (dd, J = 15.2, 11.2 Hz, 1 H), 2.97 (d, J = 15.2 Hz, 1 H), 2.33 (s, 3 H).

Condition A: The reaction under conditions A afforded the recovered **3p** in 54% yield with 97% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 230 nm: t_R = 8.16 min, t_R = 8.78 min.).

Table 2, entry 2: The reaction afforded the recovered 3p in 87% yield with 91% ee.

The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 230 nm: t_R = 8.46 min, t_R = 9.13 min.).

Condition B: The reaction under conditions B afforded the recovered **3p** in 46% yield with 96% ee. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 230 nm: t_R = 8.76 min, t_R = 9.67 min.).

19. 6-methyl-1,2,8-triphenyl-1,2,4,5-tetrahydrofuro[3,4-d][1,2]oxazepine(3q).



Me₂SAuCl (6.4 mg, 0.02mmol), (*S*)-L₆ (15.2 mg, 0.012 mmol) and DCE (2 mL) was added to the dry Schlenk tube in glove box. After stirring for two hours, AgSbF₆ (7.4 mg, 0.002 mmol) was added to the mixture. The mixture was stirred for another 15 mins at rt. To the resulting solution was added activated molecular sieves 4Å MS (60 mg). The mixture was stirred for 30 minutes and then nitrone 2 (0.3 mmol, 59.1 mg) and ketone 1q (0.2 mmol, 36.9 mg) were added. The resulting mixture was then stirred under N₂ at rt until the reaction was complete after 87 hours (monitored by TLC). The reaction was quenched by saturated NaCl. After standard work-up, the residue was purified by flash column chromatography on silica gel (hexanes/DCM/EA = 50:10:1) to afford the pure product 3q (56.9 mg) in 75% yield with 82% ee.

Solid, m.p.127-130 °C. ¹H NMR (400 MHz, CDCl₃) δ 7.4 - 7.05 (m, 12 H), 6.96 - 6.82 (m, 3 H), 6.09 (s, 1 H), 4.25 (d, J = 11.6 Hz, 1 H), 4.01 (t, J = 12.0 Hz, 1 H), 3.04 (t, J = 12.0 Hz, 1 H), 2.68 (d, J = 15.2 Hz, 1 H), 2.32 (s, 3 H); ¹³C NMR (100 MHz, CDCl₃) δ 149.67, 147.10, 147.02, 138.00, 130.89, 128.77, 128.73, 128.52, 127.97, 127.46, 127.09, 125.81, 122.10, 121.25, 119.55, 116.12, 73.68, 67.06, 27.47, 11.72; MS (EI) m/z (%): 381 [M]⁺ (18.28), 77 (100); HRMS calcd for C₂₆H₂₃NO₂: 381.1729, found: 381.1724.

The ee was determined by chiral HPLC (Daicel AS-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 220 nm: t_R = 5.99 min, t_R = 6.51 min.).

20. 3-(2-methoxy-2-phenylethyl)-2-methyl-5-phenylfuran (4).



The reaction afforded the product **4** in 99% yield with 86% ee according to the procedure of reference. ¹H NMR (400 MHz, CDCl₃) δ 7.63 - 7.52 (m, 2 H), 7.37 - 7.15 (m, 8 H), 6.38 (s, 1 H), 4.24 (t, *J* = 6.4 Hz, 1 H), 3.24 (s, 3 H), 2.87 (dd, *J* = 14.4, 6.4 Hz, 1 H), 2.66 (dd, *J* = 14.4, 6.8 Hz, 1 H), 1.98 (s, 3 H). The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 220 nm: t_R = 6.40 min, t_R = 7.08 min.).

21. 1-(2,3,6-triphenyl-4-(phenylethynyl)-1,2-oxazinan-4-yl)ethanone (5).



The reaction of **1a** with nitrone **2a** under the catalysis of $Sc(OTf)_3$ afford the pure product **5** in 90% yield with d.r.= 11:1. The major isomer is with 72% ee.

¹H NMR (400 MHz, CDCl₃) δ 7.66 -7.29 (m, 12 H), 7.21 - 7.05 (m, 7 H), 6.88 - 6.76 (m, 1 H), 5.57 (d, J = 11.6 Hz, 1 H), 5.26 (s, 1 H), 3.02 (t, J = 13.2 Hz, 1 H), 2.35 (s, 3 H), 2.21 (d, J = 14.0 Hz, 1 H).

The ee was determined by chiral HPLC (Daicel AS-H column, hexanes : isopropanol = 80 : 20, 0.8 ml/min, λ = 220 nm: t_R = 7.02 min, t_R = 9.44 min.).

22. 1-Methyl-3,6-diphenyl-4-(p-tolyl)-6,7-dihydro-4H-furo[3,4-c]pyran (6).



The reaction of **1a** with aldehyde under the catalysis of gold(I) afforded compound **6** in 90% yield with 79% ee according to the procedure of [4+3] cycloaddition reaction.

White solid, m.p. 64-67 °C. ¹H NMR (400 MHz, CDCl₃) δ 7.50 - 6.57(m, 14 H), 6.03 (s, 1 H), 4.74 (d, J = 11.2 Hz, 1 H), 2.83 (d, J = 14.8 Hz, 1 H), 2.73 (dd, J = 14.8, 11.2 Hz, 1 H), 2.32 (s, 3 H), 2.24 (s, 3 H); ¹³C NMR (100 MHz, CDCl₃) δ 145.19, 144.89, 142.21, 137.79, 137.16, 130.70, 128.88 (2 C), 128.25, 127.77, 127.45, 126.13, 126.01, 125.23, 119.23, 117.66, 77.76, 76.88, 29.82, 21.15, 11.67; MS (EI) m/z (%): 380 [M]⁺ (14.05), 259 (100); HRMS calcd for C₂₇H₂₄O₂: 380.1776, found: 380.1778. The ee was determined by chiral HPLC (Daicel OD-H column, hexanes : isopropanol = 95 : 5, 0.8 ml/min, λ = 220 nm: t_R = 5.96 min, t_R = 6.87 min.).

23. 1-((1*R*,2*S*)-2-phenyl-1-(phenylethynyl)cyclopropyl)ethanone O-methyl oxime (7).



The reaction of **1a** with O-methylhydroxylamine hydrochloride under the sodium acetate afforded **7** in yield 95% with 96% ee.

Oil. ¹H NMR (400 MHz, CDCl₃) δ 7.38 - 7.01 (m, 10 H), 3.87 (s, 3 H), 2.67 (t, *J* = 7.6 Hz, 1 H), 2.16 (dd, *J* = 5.2, 2.8 Hz, 1 H), 2.13 (s, 3 H), 1.67 (dd, *J* = 4.4, 0.8 Hz, 1 H); ¹³C NMR (100 MHz, CDCl₃) δ 155.91, 137.19, 131.41, 128.56, 128.02, 127.83, 127.65, 126.64, 123.29, 88.64, 82.22, 61.57, 34.28, 26.53, 20.86, 13.86 ppm; MS (EI) m/z (%): 289 [M]⁺ (42.90), 215 (100); HRMS calcd for C₂₀H₁₉NO: 289.1467, found: 289.1468.

The ee was determined by chiral HPLC (Daicel OD-3 column, hexanes : isopropanol = 98 : 2, 0.8 ml/min, λ = 254 nm: t_R = 6.0 min, t_R = 8.06 min.).

References

- 1. J. Zhang, H.-G. Schmalz, Angew. Chem. 2006, 118, 6856; Angew. Chem. Int. Ed. 2006, 45, 6704.
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- 3. A. Dondoni, S. Franco, F. Junquera, F. Merchan, P. Merino, T. Tejero, *Synth. Commun.* 1994, 24, 2537.
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- 5. Y. Zhang, F. Liu, J. Zhang, Chem. Eur. J. 2010, 16, 6146.



2.01 6.73 2.02



1.05

1.04

1.01





	138.05 135.90 131.18 128.89 128.89 128.63 127.14 119.84	86.47 84.44 77.32 76.68	
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Me Me			



-0.000

zyq-4-61-1 H



























zyq-4-21-2 H











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zyq-5-102 H







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Acq. Operator :	Acq. Instrument : HPLC1200LC Loc
Acq. Instrument : HPLC1200LC Location : -	Injection Date : 2010-6-13 3:16:59 下年
Injection Date : 2011-5-20 2:39:39 P4	Acg. Method : C:\CHEM32\1\METHODS\JWHTEST.M
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Last changea : 2011-5-20 2:36:27 PH	(modified after loading)
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VD1A Waveendh=20 nm (ZHANG/ZYO-30-DD-H-98208 25 220 D)	VWD1 A, Wavelength=230 nm (JIANG/ZYQ-3-100-12-ODH-98208-230-20.D)
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olgnal 1: VWDI A, Wavelength-Z3U nm	‡ [min] [min] mAU *s [mAU] %
Dank DatTima Tima Width Byan Haight Byan	
f mini mini mili se mili s	1 7.636 BB 0.3745 1319.30237 56.46800 4.2
	2 8.975 BV 0.3314 2.97101e4 1363.54675 95.7
1 8.192 VV 0.4026 5.74661e4 2319.72485 50.2245	.
2 9.782 VV 0.4471 5.69523e4 2055.21533 49.7755	TOTALS : 3.1029484 1420.01475
Totals : 1.14418e5 4374.94019	

ample Name: 0 -----Acq. Operator : Acq. Instrument : HPLC1200LC Location : Vial 1 Injection Date : 2010-6-13 3:16:59 下午
 Acq. Method
 : C:\CHEM32\1\METHODS\JWHTEST.M

 Last changed
 : 2010-6-13 3:12:50 下年
 (modified after loading) Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-100-12-ODH-98208-230-20.D\DA.M (JWHTEST.M) Last changed : 2011-5-18 4:40:01 下午 VWD1 A, Wavelength=230 nm (JIANGIZYQ-3-100-12-0DH-98208-230-20.D) mAU 1200 **1a** 1000-800-600-400-200-8 n

Signal 1:	VWD1 A, N	Waveleng	gth=230	nm			
Peak RetTi	ime Type	Width	Are	a	Heig	ht	3
# [mir	1]	[min]	mAU	* 5	[mAU	1	

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HPLC1200LC 2011-5-21 2:02:57 下午



操作者:dell Timebase:U3000 序列:ZYQ

页码 1/1 2011-7-28 9:57 下午

75 zyq-4-1	40-3-ODH-955-08-254		
样品名:	zva-4-140-3-ODH-955-08-254	洪祥量:	20.0
瓶序号:	68	通道:	UV VIS 1
样品类型:	unknown	波长:	254
控制程序	程序文件-公用-08	带宽:	n.a.
定量方法	方法-公用	稀释因子	1.0000
记录时间:	2011-7-18 10:49	样品重量:	1.0000
运行时间 (min):	17.24	样品量:	1.0000



12-5	1本田町 町	== 右 称	mals ted	Part 101 424	相对哔曲板	作用重	天空
	min		mAU	mAU*min	%		
1	9.42	n.a.	3.858	1.182	2.31	n.a.	BMB*
2	15.13	n.a.	118.044	50.065	97.69	n.a.	BMB*
总和:			121.902	51.246	100.00	0.000	

DEFAULT/积分

Chromeleon (c) Dionex 1996-2006 版本 6.80 SR9a Build 2680 (163077) Chromeleon (c) Dionex 1996-2006 版本 6.80 SR9a Build 2680 (163077) Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-5-50-0DH-98208 25 220.D Sample Name: 0



Area Percent Report

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Sorted By		:	Sign	nal	
Multiplier		-	1.0	000	
Dilution		-	1.0	000	
Use Multiplier	õ	Dilution	Factor	with	ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Туре	Width	Area	Height	Area
+	[min]		[min]	mAU *s	[mAU]	.
1	6.624	BV	0.3735	1.50519e4	572.92896	49.8919
2	7.887	vv	0.4678	1.51172e4	542.54443	50.1081

Totals : 3.01691e4 1115.47339

HPLC1200LC 2011-5-21 2:39:11 下午

Data File C:\CHEM32\1\DATA\JIANG\2YQ-5-52-12-0DH-25-98208.D Sample Name: 0



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Multiplier		:	1.0	000	
Dilution		-	1.0	000	
Use Multiplier	ő	Dilution	Factor	with	ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Type	Width	Ar	ea	Hei	ght	Area	
+	[min]		[min]	mAU	* =	[mAU	1	÷	
1	7.051	MM	0.4081	2381.	70020	97.	25755	5.1214	
2	8.448	MM	0.5049	4.412	33e4	1456.	50232	94.8786	

Totals : 4.65050e4 1553.75986

HPLC1200LC 2011-5-18 3:41:18 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-66-ODH 95508-25-220.D Sample Name: 0

Acq. Operator	:	
Acq. Instrument	: HPLC1200LC	Location : Vial 1
Injection Date	: 2010-10-27 4:11:02 下午	
Acq. Method	: C:\CHEM32\1\METHODS\JWHTEST.M	
Last changed	: 2010-10-27 4:10:07 下午	
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Analysis Method	: C:\CHEM32\1\DATA\JIANG\ZYQ-4-66-	ODH 95508-25-220.D\DA.M (JWHTEST.M)
Last changed	: 2010-10-27 4:23:47 下午	
VWD1 A, Way	elength=220 nm (JIANG\ZYQ-4-66-ODH 95508-25-220.D)	
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Multiplier		-	1.0	000	
Dilution		-	1.0	000	
Use Multiplier	ő	Dilution	Factor	with	ISTD5

Signal 1: VWD1 A, Wavelength=220 nm

Peak	eak RetTime Type		Width	Area	Height	Area
ŧ	[min]		[min]	mAU *s	[mAU]	÷
1	6.772	vv	0.2661	8839.35938	476.03470	51.6729
2	8.021	vv	0.3123	8267.00293	420.62219	48.3271
Total				1.71064e4	896.65689	

HPLC1200LC 2011-5-19 4:57:52 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-9-2-ODH-95508-217.D Sample Name: 0



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Multiplier	=	1.0000
Dilution	=	1.0000
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Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Туре	Width	Az	ea	Heig	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	÷
1	7.153	101	0.2431	3708.	77197	254.2	25969	3.3373
2	8.398	м	0.3908	1.074	22e5	4581.0	31348	96.6627
Total	s :			1.111	31e5	4836.0	07317	

Totals :

HPLC1200LC 2011-5-18 3:46:16 下午

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Acq. Operator :	Terretion - The l
Acq. instrument : hPLC1200LC	Location : Vial 1
Injection Date : 2010-0-17 4:40:02 PH	TTOT M
Acq. Method : C:\Chimaz\1\MEIHODS\0WH	1251.8
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(modified after loading. Analysis Method - C-\CHEM22\1\DATA\JIANG\;) ZYO-257-ODH-95508-20-220 D\D& M (.TWHTEST M)
Last changed : 2011-5-19 4:57:12 下年	212 00, 05h 0000 10 100.5(5hhhh (0mh1201.h)
VWD1 A. Wavelength=230 nm (JIANG/ZYQ-357-ODH-95/	508-20-230 D)
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Signal 1: VWD1 A, Wavelength=230 nm	
Peak RetTime Type Width Area He	ight Area
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Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-108-12-ODH-95508-20-230.D Sample Name: 0

Acq. Operator : Acq. Instrument : HPLC1200LC Location : Vial 1 Injection Date : 2010-6-17 4:58:55 F4 Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M Last changed : 2010-6-17 5:00:45 F4 (modified after loading) Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-108-12-ODH-95508-20-230.D\DA.M (JWHTEST.M) Last changed : 2011-5-19 4:56:26 F4 WD1A.WaxWeigh=230 nm (JANG\ZYQ-3-108-12-ODH-95508-20-230.D\DA.M (JWHTEST.M) Last changed : 2011-5-19 4:56:26 F4 WD1A.WaxWeigh=230 nm (JANG\ZYQ-3-108-12-ODH-95508-20-230.D\DA.M (JWHTEST.M) Last changed : 2011-5-19 4:56:26 F4



 Area Percent Report

 Sorted By
 : Signal

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 Dilution
 : 1.0000

 Use Multiplier & Dilution Factor with ISTDs

 Signal 1: VWD1 A, Wavelength=230 nm

Totals : 8.56853e4 9020.21606

HPLC1200LC 2011-5-19 4:57:21 下午

Totals :

1 5.435 VV 0.1207 3.59999e4 4512.65771 49.4589

2 6.050 VV 0.1320 3.67877e4 4233.36475 50.5411

7.27876e4 8746.02246

Page 1 of 2

HPLC1200LC 2011-5-19 4:56:38 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-2841-ODH-95508-20-230.D Sample Name: 0

Acq. Operator :			
Acq. Instrument : HPLC120	DLC	Location : Vial 1	
Injection Date : 2010-6-	22 10:34:38 上午		
Acq. Method : C:\CHEM	32\1\METHODS\JWHTEST.M		
Last changed : 2010-6-	22 10:42:39 上午		
(modifi	ed after loading)		
Analysis Method : C:\CHEM	32\1\METHODS\JICONGBIN.M		
Last changed : 2012-2-	17 3:44:18 下午 by JCB		
(modifi-	ed after loading)		
VWD1 A, Wavelength=230 nm	(JIANG/ZYQ-2841-ODH-95508-20-230.0))	
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Multiplier	-	1.0000	
Dilution	-	1.0000	
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Signal 1: VWD1 A, Wavelength=230 nm

Peak ‡	RetTime [min]	Туре	Width [min]	Area mAU *:	Heig mAU	nt 1	Area 8
1	5.463	vv	0.0930	1.71090	4 2804.7	2192	42.3140
2	5.570	w	0.1142	2.33244	4 3041.1	9995	57.6860
Total	.5 :			4.04334	4 5845.9	2188	

HPLC1200LC 2012-2-17 3:49:49 下午 JCB

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-127-22-ODH-95508-20-230.D Sample Name: 0

Acq. Instrument : HPLC1200LC Injection Date : 2010-7-6 11:	Loc	and an a Wiley 1
Injection Date : 2010-7-6 11:		ation : Vial I
	54:00 上午	
Acq. Method : C:\CHEM32\1\	(ETHODS\JWHTEST.M	
Last changed : 2010-7-6 11:	52:57 上午	
(modified af	ter loading)	
Analysis Method : C:\CHEM32\1\	METHODS\JICONGBIN.M	
Last changed : 2012-2-17 3:	44:18 下午 by JCB	
(modified af	ter loading)	
VWD1 A, Wavelength=230 nm (JIANG	ZYQ-3-127-22-ODH-95508-20-230.D)	
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Dilution		=	1.00	000	
Use Multiplier	õ	Dilution	Factor	with	ISTD.

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Туре	Width	Ar	ea	Hei	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	8
1	5.049	vv	0.1016	1.942	68e4	2948.	13550	34.1265
2	5.350	vv	0.1392	3.749	90e4	4198.	16748	65.8735

Totals : 5.69258e4 7146.30298

HPLC1200LC 2012-2-17 3:47:52 下午 JCB

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-2032-ODH-90200-20-230.D

Sample Name: 0 _____ Acq. Operator : Acq. Instrument : HPLC1200LC Location : Vial 1 Injection Date : 2010-6-22 2:45:40 下午 Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M Last changed : 2010-6-22 2:56:39 下午 (modified after loading) Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-2832-ODH-98208-20-230.D\DA.M (JWHTEST.M) Last changed : 2011-5-26 9:43:57 下午 VWD1 A, Wavelength=230 nm (JIANG\ZYQ-2832-ODH-98208-20-230.D) mAU racemic -1g 3000-2500-2000-1500-1000-500------Area Percent Report _____ Signal Sorted By -1.0000 Multiplier :

Dilution : 1.0000 Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Type	Width	Ar	ea	Hei	ght	Area
+	[min]		[min]	mAU	* =	[mAU	1	8
1	10.175	BV	0.2208	4.474	19e4	3154.	29468	47.3307
2	10.544	vv	0.2570	4.978	84e4	2922.	55518	52.6693
Total	Ls :			9.453	03e4	6076.	84985	

HPLC1200LC 2011-5-26 9:44:51 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-150-2-0DH- 98208-25-220.D Sample Name: 0

Acq. Operator :	:
Acq. Instrument :	: HPLC1200LC Location : Vial 1
Injection Date :	: 2010-11-23 1:50:04 下午
Acq. Method :	: C:\CHEM32\1\METHODS\JWHTEST.M
Last changed :	: 2010-11-23 2:08:27 下午
	(modified after loading)
Analysis Method :	: C:\CHEM32\1\DATA\JIANG\ZYQ-4-150-2-ODH- 98208-25-220.D\DA.M (JWHTEST.M)
Last changed :	: 2011-5-18 4:00:23 下午
VWD1 A, Wave	dength=220 nm (JIANGIZYQ-4-150-2-ODH- 98208-25-220.D)
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	Ig
3000-	0—
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		Area Fercent	t Keport		
Sorted By	:	Signal			
Multiplier	-	1.0000			
Dilution	:	1.0000			
		Factor with	h ISTDa		
Jse Multiplier (Bignal 1: VWD1)	A, Waveleng	gth=220 nm			
Use Multiplier Signal 1: VWD1 : Peak RetTime Tv	A, Waveleng	gth=220 nm Area	Height	Àrea	
Use Multiplier Signal 1: VWD1 ; Peak RetTime Tyy ‡ [min]	A, Waveleng Pe Width [min]	gth=220 nm Area mAU *s	Height [mAU]	Area 8	
Use Multiplier Signal 1: VWDI ; Peak RetTime Ty; ‡ [min] 	A, Waveleng pe Width [min]	ntes and a second secon	Height [mAU]	Àrea ۴	
Use Multiplier Signal 1: VWD1 : Peak RetTime Tyy ‡ [min] 	<pre>k, Waveleng pe Width [min] 0.1744</pre>	gth=220 nm Area mAU *s 2243.84375	Height [mAU] 200.31853	Area % 3.5649	

Page 1 of 2

HPLC1200LC 2011-5-18 4:00:33 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-137-0JH-98208---230.D Sample Name: 0

Acq. Ope	erator :
Acq. In:	strument : HPLC1200LC Location : Vial 1
Injectio	on Date : 2010-7-20 4:31:06 下午
Acq. Met	thod : C:\CHEM32\1\METHODS\JWHTEST.M
Last cha	anged : 2010-7-20 4:44:16 下午
	(modified after loading)
Analysi	Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-137-0JH-98208230.D\DA.M (JWHTEST.M)
Last cha	anged : 2011-5-19 4:54:56 下午
	VWD1 A, Wavelength=230 nm (JIANG/ZYQ-3-137-OJH-98208230.D)
mAU	recording 1b
1	racemic -III
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1	
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1 1	
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Area Percent Report

Sorted By		:	Sign	nal	
Multiplier		-	1.0	000	
Dilution		-	1.0	000	
Use Multiplier	ő	Dilution	Factor	with	ISTD:

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Type	Width	A	rea	Heig	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	÷
1	11.120	vv	0.2738	2.042	224e4	1144.2	20544	49.2574
2	12.038	VB	0.4326	2.10	382e4	719.9	99146	50.7426
Total				4.14	506e4	1864.1	19690	

HPLC1200LC 2011-5-19 4:55:02 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-1-2-OJH- 98208-25-220.D Sample Name: 0



Area Percent Report	

Sorted By	:	Signal	
Multiplier	-	1.0000	
Dilution	-	1.0000	
Use Multiplier &	Dilution	Factor with	ISTD:

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Type	Width	Area	Height	Area
+	[min]		[min]	mAU *s	[mAU]	8
1	11.593	vv	0.3863	5.01001e4	2004.06604	98.1796
2	13.082	VB	0.6211	928.94171	22.37971	1.8204

Totals : 5.10291e4 2026.44575

HPLC1200LC 2011-5-18 3:57:48 下午

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-3-136-0JH-98208-25-0.D Sample Name: 0

Acq. Operator :					
Acq. Instrument :	HPLC1200LC		Location :	-	
Injection Date :	2011-5-25 8:43:37	上午			
Acq. Method :	C:\CHEM32\1\METHOD	S\JWHTEST.M			
Last changed :	2011-5-24 11:34:50) 下午			
Analysis Method :	C:\CHEM32\1\DATA\2	ZHANG\ZYQ-3-13	6-0JH-98208-	25-0.D\DA.M (JW	HTEST.M)
Last changed :	2011-5-25 9:27:04	上午			
mAU 1	engin=250 nin (ZHANGAZTA-5-	130-03H-90200-23-0.D	,	5	
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0	5	10	15	20	25 m
0	5	10	15	20	25 m
	Area Percer	10 nt Report	15		25 m
	Area Percer	10 nt Report	15		25 m
Sorted By	Area Percer : Signal	10 nt Report	15	20	25 m
Sorted By Multiplier	Area Percer : Signal : 1.0000	10		20	25 m
Sorted By Multiplier Dilution	Area Percer : Signal : 1.0000 : 1.0000	10			25 m
Sorted By Multiplier Dilution Use Multiplier 6 1	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit	10 nt Report			
Sorted By Multiplier Dilution Use Multiplier 6 1	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit	10 nt Report			
Sorted By Multiplier Dilution Use Multiplier & S Signal 1: VWD1 A,	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit Wavelength=230 nm	10 nt Report			
Sorted By Multiplier Dilution Use Multiplier & S Signal 1: VWD1 A, Peak RetTime Type	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit Wavelength=230 nm Width Area	10 10 nt Report th ISTDs Height			
Sorted By Multiplier Dilution Use Multiplier 6 1 Signal 1: VWD1 A, Peak RetTime Type ‡ [min]	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit Wavelength=230 nm Width Area [min] mAU *s	tt Report the listDs Height [mAU]			
Sorted By Multiplier Dilution Use Multiplier 5 : Signal 1: VWD1 A, Peak RetTime Type ‡ [min]	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit Wavelength=230 nm Width Area [min] mAU *s	to report Report Height [mAU] 	Àrea •		<u>2</u> 5 m
Sorted By Multiplier Dilution Use Multiplier & I Signal 1: VWD1 A, Peak RetTime Type ‡ [min] 	Årea Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit Wavelength=230 nm Width Area [min] mAU *s 0.6944 1.73620e4	10 10 10 10 10 10 10 10 10 10	Area • • 50.2099		
Sorted By Multiplier Dilution Use Multiplier & 1 Signal 1: VWD1 A, Feak RetTime Type ‡ [min] 	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit Wavelength=230 nm Width Area [min] mAU *3 	10 10 10 10 10 10 10 10 10 10	Area * 50.2099 49.7901		<u>2</u> 5 m
Sorted By Multiplier Dilution Use Multiplier & 1 Signal 1: VWD1 A, Feak RetTime Type ‡ [min] 	Area Percer : Signal : 1.0000 : 1.0000 Dilution Factor wit Wavelength=230 nm Width Area [min] mAU *3 	10 10 10 10 10 10 10 10 10 10	Area * 50.2099 49.7901		25m

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-5-14-2-OJH-98208-25-0.D Sample Name: 0

		==
Acq. Operator	:	
Acq. Instrument	: HPLC1200LC Location : -	
Injection Date	: 2011-5-24 10:37:08 下午	
Acq. Method	: C:\CHEM32\1\METHODS\JWHTEST.M	
Last changed	: 2011-5-24 10:31:04 下午	
	(modified after loading)	
Analysis Method	: C:\CHEM32\1\DATA\ZHANG\ZYQ-5-14-2-OJH-98208-25-0.	D\DA.M (JWHTEST.M)
Last changed	: 2011-5-24 11:07:16 下午	
VWD1 A, Wa	avelength=230 nm (ZHANG\ZYQ-5-14-2-OJH-98208-25-0.D)	
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_____ Area Percent Report .

Sorted By	:	Signal	
Multiplier	-	1.0000	
Dilution	-	1.0000	
Use Multiplier &	Dilution	Factor with	ISTD:

Signal 1: VWD1 A, Wavelength=230 nm

Pea	k	RetTime	Туре	Width	A	rea	Hei	ght	Area
+		[min]		[min]	mAU	* 5	[mAU	1	8
	- 1								
	1	18.388	BB	0.6600	5.77	773e4	1329.	21130	98.4619
	2	22.759	BB	1.0977	902	.55243	12.	07564	1.5381

5.86799e4 1341.28694 Totals :

HPLC1200LC 2011-5-25 9:27:30 上午

Page lofl

Sample Name: 0			
Acq. Operator	Ξ		
Acq. Instrument	Ξ	HPLC1200LC	Location : Vial 1
Injection Date	:	2010-9-10 5:28:23 下午	

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-21-ADH-98208-230-25 .D

	-	c. (chimica (a (hibihobo (chinibot (hi		
Last changed	:	2010-9-10 5:36:04 下午		
		(modified after loading)		
Analysis Method	:	C:\CHEM32\1\DATA\JIANG\ZYQ-4-21-ADH-98208-230-25	.D\DA.M	(JWHTEST.M)
Last changed	:	2011-5-19 4:53:42 下午		



Area Fercent Report

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

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Type	Width	A	ea	Heig	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	8
1	7.167	vv	0.1386	1.928	310e4	2111.3	25195	49.5214
2	7.659	vv	0.1465	1.965	537e4	2028.4	46252	50.4786
Total				3.892	347e4	4139.7	71448	

HPLC1200LC 2011-5-19 4:53:48 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-125-32-ADH 98208-25-220.D Sample Name: 0



8

Sorted By	:	Signal		
Multiplier	:	1.0000		
Dilution	:	1.0000		
Use Multiplier	& Dilution	Factor with	ISTD.	

Me

Area Percent Report

Signal 1: VWD1 A, Wavelength=220 nm

200-

Peak	RetTime	Type	Width	Az	ea	Hei	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	8
1	7.567	vv	0.1938	1.170	21e4	918.	26910	98.9672
2	8.090	vv	0.1848	122.	11980	9.	69614	1.0328

Totals : 1.18242e4 927.96524

L of 2 HPLC1200LC 2011-5-18 3:54:03 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-42-ODH-95508-230-25.D Sample Name: 0

	=		
Acq. Operator	:		
Acq. Instrument	:	HPLC1200LC	Location : Vial 1
Injection Date	-	2010-9-26 1:40:10 下午	
Acq. Method	:	C:\CHEM32\1\METHODS\JWHTEST.M	
Last changed	:	2010-9-26 1:28:56 下午	
		(modified after loading)	
Analysis Method	:	C:\CHEM32\1\DATA\JIANG\ZYQ-4-42-	ODH-95508-230-25.D\DA.M (JWHTEST.M)
Last changed	:	2011-5-27 9:20:57 上午	
VWD1 A, Wa	vel	ength=230 nm (JIANG\ZYQ-4-42-ODH-95508-230-25.D)
mAU			8 28
3500-		racemic - 1k	24 1
		D-	



-----Area Percent Report -----Sorted By Signal Multiplier 1.0000 : 1.0000 Dilution Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Туре	Width	A	rea	Heig	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	÷
1	7.381	w	0.1656	4.137	795e4	3866.2	21631	49.3073
2	7.867	vv	0.1776	4.254	422e4	3707.0	08105	50.6927
Total	5:			8.392	217e4	7573.2	29736	

HPLC1200LC 2011-5-27 9:21:41 上午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-74-22-ODH-95508-230-25.D Sample Name: 0

Acq. Operator	:	
Acq. Instrument	: HPLC1200LC	Location : Vial 1
Injection Date	: 2010-9-26 2:09:43 下午	
Acq. Method	: C:\CHEM32\1\METHODS\JWHTEST.M	
Last changed	: 2010-9-26 2:19:16 下午	
	(modified after loading)	
Analysis Method	A : C:\CHEM32\1\DATA\JIANG\ZYQ-4-74	4-22-ODH-95508-230-25.D\DA.M (JWHTEST.M)
Last changed	: 2011-5-18 3:50:02 下午	
VWD1 A, W	avelength=230 nm (JIANG\ZYQ-4-74-22-ODH-95508-230-	25.D)
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	Are	a Percent	Report
Sorted By	=	Signal	
Multiplier	-	1.0000	
Dilution	:	1.0000	
Use Multiplier	& Dilution Fa	ctor with	ISTD:

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	туре	Width	Ar	e 2	Hei	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	8
1	7.395	vv	0.1627	3.582	43e4	3386.	77246	98.8527
2	7.896	vv	0.1893	415.	77295	32.	03799	1.1473

3.62401e4 3418.81045 Totals :

HPLC1200LC 2011-5-18 3:50:12 下午

14 zyq-7	-86-0	J3-982-08-2	30				
*品名: ℃序号: *品类型: 控制程序: 注量方法: 注录时间: 注示时间 (min)	zyq 108 uni 程月 方名 201 : 11.:	-7-86-OJ3-982-(mown 序文件-公用-08 長-公用 2-2-21 20:06 59	08-230		进样量: 通道: 波长: 带宠: 稀释因子: 样品重量: 样品量:		20.0 UV_VIS_1 254 n.a. 1.0000 1.0000 1.0000
,100 ZYQ #114 mAU			zyq-7-86-0J3	-962-08-230			UV VIS 1 WVL:254 nm
875- 750- 625- 500- 375- 250- 125-	< Me—		- 11 Ph	2-64	547		
-100							miņ
0:0	1.3	2.5 3.8	5:0	6.3	7.5	8.8 10.0	11.6
序号 保留时 mir	†何 h	峰名称	峰高 mAU	峰面积 mAU*min	相对峰面和 %	胑 样品量	类型
1 6.0	1 n.a.		959.347	256.525	51.3	1 n.a	. BMb
和:	o n.a.		1841.043	499.939	100.0	0.000	

操作者:dell Timebase:U3000 序列:ZYQ

页码 1/1 2012-2-21 9:12 下午

117 zyq-7-89-2-OJ3-982-08-230					
样品名:	zyq-7-89-2-OJ3-982-08-230	进样量:	20.0		
瓶序号:	112	通道:	UV_VIS_1		
样品类型:	unknown	波长	254		
控制程序:	程序文件-公用-08	带宽:	n.a.		
定量方法:	方法-公用	稀释因子:	1.0000		
记录时间:	2012-2-21 21:00	样品重量:	1.0000		
<i>运行时间 (min):</i>	8.46	样品量:	1.0000		



序号	保留时间	峰名称	峰高	峰面积	相对峰面积	样品量	类型
	min		mAU	mAU*min	%		
1	5.78	n.a.	585.013	170.185	35.98	n.a.	BMb
2	6.29	n.a.	966.528	302.817	64.02	n.a.	bMB
总和:			1551.541	473.002	100.00	0.000	

DEFAULT/积分

Chromeleon (c) Dionex 1998-2006 版本 6.80 SR9a Build 2680 (163077)

Chromeleon (c) Dionex 1998-2008 版本 6.80 SR9a Build 2680 (163077) Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-99-1-ODH-95508-20-230.D Sample Name: 0



Sorted By	:	Signal
Multiplier	:	1.0000
Dilution	:	1.0000

Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak 1	RetTime	Type	Width	Az	ea	Heig	Int	Area
+	[min]		[min]	mAU	* 5	[mAU	1	-
1	6.945	vv	0.1547	4.213	29e4	4260.0	04150	49.2671
2	7.638	vv	0.1604	4.335	65e4	4230.0	2539	50.7329
Total				8.551	94e4	8490.0	6689	

HPLC1200LC 2011-5-19 4:52:10 下午

Page 1 of 2

HPLC1200LC 2011-5-18 4:02:23 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-139-2-ODH- 95505-25-220.D Sample Name: 0



Area Fercent 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	Type	Width	A:	rea	Hei	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	÷
1	6.869	vv	0.3167	390	.91742	16.	88459	0.7325
2	7.432	vv	0.1826	5.29	779e4	4497.	73779	99.2675

Totals : 5.33688e4 4514.62239

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-111-ADH 98208-25-220.D Sample Name: 0

Acg. Ope	rator :	
Acq. In:	strument : HPLC1200LC Locati	on : Vial 1
Injectio	on Date : 2010-11-5 11:31:55 上午	
Acq. Met	thod : C:\CHEM32\1\METHODS\JWHTEST.M	
Last cha	anged : 2010-11-5 11:24:51 上午	
	(modified after loading)	
Analysis	Method : C:\CHEM32\1\DATA\JIANG\ZYQ-4-111-ADH 9	8208-25-220.D\DA.M (JWHTEST.M)
Last cha	anged : 2010-11-5 11:43:51 上午	
	VWD1 A, Wavelength=220 nm (JIANG/ZYQ-4-111-ADH 98208-25-220.D)	
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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 1	RetTime	Type	Width	Az	ea	Hei	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	-
1	8.660	vv	0.1996	3.766	15e4	2898.	78833	49.2614
2	9.428	w	0.2439	3.879	09e4	2437.	70264	50.7386
Total	5 :			7.645	25e4	5336.	49097	

HPLC1200LC 2011-5-18 4:47:23 下午

Page 1 of 2

HPLC1200LC 2011-5-18 4:28:06 下午

Page 1 of 2

a File C:\CHEM32 mple Name: O	\1\DATA\JIANG\ZYQ-5-26-2-ADH-98208-25.D
bog Operator	
Acg. Instrument	: HPLC1200LC Location : -
Injection Date	: 2010-12-6 5:30:36 下午
Acq. Method	: C:\CHEM32\1\METHODS\JWHTEST.M
Last changed	: 2010-12-6 5:40:59 下午
-	(modified after loading)
Analysis Method	: C:\CHEM32\1\DATA\JIANG\ZYQ-5-26-2-ADH-98208-25.D\DA.M (JWHTEST.M
Last changed	: 2011-5-18 4:28:00 下午
VWD1 A, Wa	welength=220 nm (JIANG/ZYQ-5-26-2-ADH-98208-25.D)
mAU _	1n
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2000-	



Area	Percent	Report

Sorted By		:	Sigr	nal	
Multiplier	: 1.0000				
Dilution		=	1.00	000	
Use Multiplier a	ő	Dilution	Factor	with	ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Туре	Width	Area		Heig	ght	Area
+	[min]		[min]	mAU *	5	[mAU	1	-8
1	8.713	vv	0.4690	8.37276	e4	2953.0	33594	96.1716
2	9.452	VВ	0.3829	3332.98	975	119.7	77506	3.8284
Total	5:			8.70606	e4	3073.0	51100	

Data Fi	ile C:\	CHEM32\1\	DATA\JIANG\	ZYQ-4-109-A	DH 98208-25	-220.D
Sample	Name :	0				

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-11-5 10:29:09 上午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-11-5 10:40:20 上午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\2YQ-4-109-ADH 98208-25-220.D\DA.M (JWHTEST.M)
Last changed : 2011-5-23 8:21:47 下午
VWD1 A, Wavelength=220 nm (JIANG/ZYQ-4-109-ADH 98208-25-220.D)
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1400
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400-
200-

Area Percent Report

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

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Туре	Width	Area	He	ight	Area
+	[min]		[min]	mAU *s	[mAU	1	8
1	8.209	vv	0.1961	2.24793e	4 1771	.52808	47.7140
2	9.129	VB	0.2951	2.46333e	4 1276	.03247	52.2860

Totals : 4.71127e4 3047.56055

HPLC1200LC 2011-5-23 8:22:07 下午

Page 1 of 2

HPLC1200LC 2011-5-18 3:44:32 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-120-32-ADH 98208-25-220.D Sample Name: 0





Area	Percent	Report						

Sorted By		:	Sign	nal	
Multiplier		:	1.00	000	
Dilution		-	1.00	000	
Use Multiplier	ő	Dilution	Factor	with	ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Туре	Width	A	rea	Heig	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	÷
1	8.073	vv	0.1764	6631	.81982	576.4	45844	98.5452
2	8.795	VB	0.2996	97	90403	4.8	35007	1.4548

Totals : 6729.72385 581.30851

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-290-ODH-99108 25 220.D Sample Name: 0

Acg. Operator :	Acq. Operator :
Acq. Instrument : HPLC1200LC Location : -	Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2011-5-21 9:17:23 上午	Injection Date : 2010-7-16 12:01:13 下午
Acg. Method : C:\CHEM32\1\METHODS\JWHTEST.M	Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2011-5-21 9:49:09 上年	Last changed : 2010-7-16 12:02:51 下午
(modified after loading)	(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYO-290-0DH-99108 25 220.D\DA.M (JWHTEST.M)	Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-3-140-12ODH-9910823
Last changed : 2011-5-21 9:57:21 上年	Last changed : 2011-5-18 4:06:33 下午
VWD1A. Wavelength=230 nm (ZHANG/ZYG-290-DDH-99108 25 220.D)	VWD1 A, Wavelength=230 nm (JIANG/ZYQ-3-140-12ODH-99108230.D)
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Alex Percent Report	Area Percent Report
Sorted By : Signal	Sorted By : Signal
Multiplier : 1.0000	Multiplier : 1.0000
Dilution : 1.0000	Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs	Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Туре	Width	Area	Height	Area
+	[min]		[min]	mAU *s	[mAU]	÷
1	25.893	BB	0.7854	3.93517e4	764.60315	49.8927
2	29.023	BB	0.8922	3.95209e4	668.41833	50.1073

Totals : 7.88725e4 1433.02148

HPLC1200LC 2011-5-21 9:58:11 上午

Page 1 of 2

HPLC1200LC 2011-5-18 4:06:46 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-140-12--ODH-99108---230.D Sample Name: 0



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

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Туре	Width	Area		Height		Area	
+	[min]		[min]	mAU	* 5	[mAU	1	÷	
1	26.809	vv	0.8192	4493	.11523	84.	98091	16.1108	
2	30.162	VВ	1.0515	2.33	957e4	343.	23669	83.8892	
Total	ls :			2.78	888e4	428.	21761		

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-290--ODH-98208 25 220.D Sample Name: 0



Area Percent Report

Sorted By		:	Sigr	ıal	
Multiplier		=	1.00	000	
Dilution	:	1.00	000		
Use Multiplier	ő	Dilution	Factor	with	ISTD5

Signal 1: VWD1 A, Wavelength=230 nm

Peak ‡	RetTime [min]	Туре	Width [min]	A1 mAU	:еа *э	Hei([mAU	ght]	Area %
1	13.641	BV VP3	0.5093	1.989	948e4	615.9	14226	48.9374
2	14.465	VDA	0.0277	2.070	oves	397.5	19230	51.0626
Total	ls :			4.065	537e4	1213.4	12834	

HPLC1200LC 2011-5-21 9:30:53 下午

Page 1 of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-138-2-ODH- 98206-25-220.D Sample Name: 0

Acq. Operator :				
Acq. Instrument : HPLC1200LC		Location : Vial 1		
Injection Date : 2010-11-16 4	:54:52 下午			
Acg. Method : C:\CHEM32\1\	METHODS \ JWHTEST . M			
Last changed : 2010-11-16 4	:55:46 下午			
(modified af	ter loading)			
Analysis Method : C:\CHEM32\1\	DATA\JIANG\ZYQ-4-13	8-2-ODH- 98206-25-220.1	D\DA.M (J	WHTEST.M)
Last changed : 2011-5-18 4:	05:40 下午			
VWD1 A, Wavelength=220 nm (JIANG	ZYQ-4-138-2-ODH- 98206-25-2	20.D)		
mAU -				8
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 	le 2. entry 3)			Ť
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	Signal					
	1.0000					
:	1.0000					
Dilution	Factor with	ISTDs				
	: : Dilution	: Signal : 1.0000 : 1.0000 Dilution Factor with	: Signal : 1.0000 : 1.0000 Dilution Factor with ISTDs			

 ‡	[min]		[min]	mAU	*=	[mAU	1	ہ ۱۱
1	13.904	vv	0.3251	663	28522	31.	38972	6.2729
2	14.694	VΒ	0.3555	9910	60156	431.3	22668	93.7271

Totals : 1.05739e4 462.61640

HPLC1200LC 2011-5-18 4:05:46 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-2092--ODH-95508-230.D Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : Vial 1
Injection Date : 2010-7-15 1:29:55 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2010-7-15 1:40:43 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\JIANG\ZYQ-2092ODH-95508-230.D\DA.M (JWHTEST.M)
Last changed : 2010-7-15 1:43:55 下午
VWD1 A, Wavelength=230 nm (JIANG/ZYQ-2092ODH-95508-230.D)
mAU
- racemic $-3p$
40-

_____ Area Percent Report -----

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

Signal 1: VWD1 A, Wavelength=230 nm

Peak	RetTime	Туре	Width	A	rea	Hei	ght	Area	
+	[min]		[min]	mAU	* 5	[mAU	1	8	
1	8.056	vv	0.2675	2430	.62061	139.	37289	47.2011	
2	8.778	vv	0.3330	2588	.22144	117.	37360	50.2616	
3	11.276	VB	0.3586	52	.07229	1.	95634	1.0112	
4	13.354	BBA	0.5832	78	.58978	1.	79644	1.5262	
Total	ls :			5149	.50411	260.	49927		

Totals :

HPLC1200LC 2011-5-25 5:16:10 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-3-140-11--ODH-95508-230.D Sample Name: 0



	Area Percent	Report	
Sorted By	: Signal		
Multiplier	: 1.0000		
Dilution	: 1.0000		
Use Multiplier &	Dilution Factor with	ISTDs	
Signal 1: VWD1 A,	Wavelength=230 nm		
Peak RetTime Type	Width Area	Height Area	
‡ [min]	[min] mAU *s	[mAU] %	
			1
1 8.163 VV	0.3480 207.04996	9.53283 1.4963	
2 8.775 VV	0.3212 1.36304=4	651.66498 98.5037	

Totals	:	1.38374e4	661.19781

Page 1 of 2

HPLC1200LC 2011-5-19 4:14:56 下午

Data D	File	C:\	CHEM32/1/DATA/JIANG/ZYQ-5-130-ODH-95508	25.D
Sampl	e Nam	e:	0	

Acq. Operator :		
Acq. Instrument :	HPLC1200LC	Location : -
Injection Date :	2011-4-20 11:56:11 上午	
Acq. Method :	C:\CHEM32\1\METHODS\JWHTEST.M	
Last changed :	2011-4-20 12:07:48 下午	
	(modified after loading)	
Analysis Method :	C:\CHEM32\1\DATA\JIANG\ZYQ-5-13	30-ODH-95508 25.D\DA.M (JWHTEST.M)
Last changed :	2011-5-26 11:21:45 上午	
VWD1 A, Wavel	ength=220 nm (JIANG\ZYQ-5-130-ODH-95508 25.D)	
mAU		179
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120	3n (Table 2 ontry 2)	, <u> </u>
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Area Percent Report

Sorted By		:	Sig	nal	
Multiplier		:	1.0	000	
Dilution		-	1.0	000	
Use Multiplier	6	Dilution	Factor	with	ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Type	Width	A:	rea	Heig	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	-8
1	8.757	ΒV	0.3312	174	74498	8.1	16423	4.6149
2	9.671	VB	0.3928	3611	76465	141.3	33167	95.3851
Total	s :			3786	50963	149.4	19590	

Data File C:\CHEM32\l\DATA\JIANG\ZYQ-4-138-1-ODH- 95508-25-220.D Sample Name: 0



	Area	a Fercent Report
Sorted By	:	Signal
Multiplier	:	1.0000
Dilution	:	1.0000
Use Multiplier &	Dilution Fac	ctor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak H	RetTime	Туре	Width	Az	ea	Hei	ght	Area
+	[min]		[min]	mAU	* 5	[mAU	1	8
-								
1	8.463	vv	0.4173	360.	03629	13.	82911	2.0752
2	9.125	vv	0.3489	1.698	92e4	749.	49902	97.9248
Totals				1.734	92e4	763.	32813	

HPLC1200LC 2011-5-26 11:22:05 上午

Page 1 of 2

HPLC1200LC 2011-5-31 2:34:05 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-4-76-ASH--98208-25-220.D

ple Name: 0	
Acq. Operator : Acq. Instrument : HPLC1200LC Location : Vial 1	Acq. Operator : Acq. Instrument : HPLC12 Injection Date : 2011-4
Injection Date : 2010-10-14 4:95:44 F中 Acq. Method : C:\CHEM32\1\METHOB\JWHTEST.M Last changed : 2010-10-14 4:56:39 下年	Acq. Method : C:\CH Last changed : 2011 (modi:
(modified Fiber Fording) Analysis Method : C:\CHEMS2\LDATA\JINKO\ZYQ-4-76-ASH98208-25-220.D\DA.M (JWHTEST.M) Last changed : 2011-5-26 8:50:47 上年	Analysis Method : C:\CH Last changed : 2011- VWD1A Wavelength-220
VWD1 A, Waxlength=220 nm (JANGi2YQ-4-76-A5H-98208-25-220.D) mAU	mAU - 600-
racemic - 3 q	500- 30
400	
	300 Me
	200-
100-	100-
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Area Percent Report	
Sorted By : Signal Multiplier : 1.0000	Sorted By : Multiplier : Dilution :
Dilution : 1.0000 Use Multiplier & Dilution Factor with ISTDs	Use Multiplier & Dilutio
Signal 1: VWD1 A, Wavelength=220 nm	Signal 1: VWD1 A, Wavel
Peak RetTime Type Width Area Height Area ‡ [min] [min] mAU *s [mAU] %	Peak RetTime Type Widt ‡ [min] [min
 1 5.664 VV 0.1849 7062.54932 589.49207 49.0189 2 6.158 VB 0.2451 7345.25781 458.53296 50.9811	1 5.985 VV 0.18 2 6.506 VB 0.23

HPLC1200LC 2011-5-26 8:52:06 上午

1.44078e4 1048.02502

Totals :

Page l of 2

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-126-AS H-98208 25.D Sample Name: 0



					=
	A	rea Percent	Report		
					=
Sorted By	:	Signal			
Multiplier	-	1.0000			
Dilution	-	1.0000			
Use Multiplier &	Dilution	Factor with	ISTD:		
Signal 1: VWD1 A,	. Waveleng	th=220 nm			
Peak RetTime Type	. Width	Area	Height	Area	

Totals : 8340.04431 683.47712

HPLC1200LC 2011-5-26 8:48:53 上午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-101-0DH-98208 25.D Sample Name: 0

and, obergeen	
Acq. Instrument	: HPLC1200LC Location : -
Injection Date	: 2011-3-3 3:34:15 下午
Acq. Method	: C:\CHEM32\1\METHODS\JWHTEST.M
Last changed	: 2011-3-3 3:21:20 下午
	(modified after loading)
Analysis Method	: C:\CHEM32\1\DATA\JIANG\ZYQ-5-101-ODH-98208 25.D\DA.M (JWHTEST.M)
Last changed	: 2011-5-19 3:58:39 下午
VWD1 A, Wa	welength=220 nm (JIANG/ZYQ-5-101-ODH-96208 25.D)
mAU 2500	racemic -4
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	Area Percent Report
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Jorted By Aultivlier	
Sorted By Aultiplier	Area Percent Report : Signal : 1.0000 : 1.0000
Sorted By Multiplier Dilution Use Multiplier (Area Percent Report . Signal . 1.0000 . 5 Dilucion Factor with ISTDs
Sorted By Multiplier Dilution Use Multiplier (Area Percent Report : Signal : 1.0000 : 1.0000 : 1.0000
Sorted By Multiplier Dilution Use Multiplier A	Area Percent Report : Signal : 1.0000 : 1.0000 : 1.0000
Sorted By Multiplier Dilution Use Multiplier (Signal 1: VWD1 2	Area Percent Report : 3ignal : 1.0000 : 1.0000 : 1.0000 : 1.0000 : 1.0000 : 1.0000
Sorted By Multiplier Dilution Use Multiplier (Signal 1: VWD1 2 Peak RetTime Ty	Area Percent Report
Sorted By Multiplier Dilution Use Multiplier (Signal 1: VWD1 2 Feak RetTime Tyn # (min)	Area Percent Report : Signal : 1.0000 : 1.0000 6 Dilution Factor with ISTDs A, Wavelength=220 nm pe Width Area Height Area [min] mAU *s [mAU] *
Sorted By Multiplier Dilution Use Multiplier (Signal 1: VWD1 J Feak RetTime Tyy ‡ [min]	Area Percent Report : Signal : 1.0000 : 1.0000 : Dilution Factor with ISTDs A, Wavelength=220 nm pe Width Area Height Area [min] mAU *s [mAU] &
Sorted By Multiplier Dilution Use Multiplier / Signal 1: VWD1 2 Feak RetTime Tyy ‡ [min] 	Area Percent Report
Sorted By Multiplier Dilution Use Multiplier (Signal 1: VWDI 3 Peak RetTime Tyy ‡ [min] 	Area Percent Report . Signal . 1.0000 2 Dilution Factor with ISTDs A. Wavelength=220 nm pe Width Area Height Area [min] mAU *s [mAU] & . 0.2063 3.37003e4 2554.38672 48.8666 0.2155 3.52635e4 2528.82090 51.1334
Sorted By Multiplier Dilution Jse Multiplier (Bignal 1: VWD1 2 Feak RetTime Tyn # [min] 	Area Percent Report . Signal . 1.0000 2 1.0000 2 Dilution Factor with ISTDs A, Wavelength=220 nm pe Width Area Height Area [min] mAU *s [mAU] *

HPLC1200LC 2011-5-19 3:58:52 下午

HPLC1200LC 2011-5-19 3:59:10 下午

Sorted By

Totals :

Multiplier Dilution : Signal : 1.0000 : 1.0000

----|----|----|-----|------| 1 6.404 VV 0.1746 2.50045e4 2200.04956 93.0741 2 7.080 VV 0.2453 1860.64697 106.10714 6.9259

Height

2.68652e4 2306.15670

Area

8

Use Multiplier & Dilution Factor with ISTDs

[min] [min] mAU *s [mAU]

Signal 1: VWD1 A, Wavelength=220 nm Peak RetTime Type Width Area



Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-27722-ASH-802008-25-0.D Sample Name: 0

Acq. Operator	:					
Acq. Instrument	: HPLC1200LC		Location :	-		
Injection Date	: 2011-5-25 3:36:11	下午				
Acq. Method	: C:\CHEM32\1\METHO	DS\JWHTEST.M				
Last changed	: 2011-5-25 3:48:14	下午				
	(modified after 1	oading)				
Analysis Method	: C:\CHEM32\1\DATA\	ZHANG\ZYQ-277	22-ASH-80200	8-25-0.D\DA	.M (JWHTEST.M)	
Last changed	: 2011-5-25 4:01:37	下午				
máli	eengin-220 nin (2nANG/210-2)	//22-ASH-002000-234	(UL)			
	racemic -5		8			
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	Ph N O Ph					
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	Area Perce	nt Report				
Sorted By	: Signal					
Multiplier	: 1.0000					
Dilution	: 1.0000					
Use Multiplier &	Dilution Factor with	th ISTDs				
Signal 1: VWD1 A	, Wavelength=220 nm					
Peak RetTime Typ	e Width Area	Height	Area			
‡ [min]	[min] mAU *s	[mAU]	8			
	-	- -				
1 7.012 VV	0.4307 1.73013e4	548.38751	49.7609			
2 9.444 VB	0.8919 1.74675e4	303.87778	50.2391			
Totals :	3.47688e4	852.26529				

Data File C:\CHEM32\1\DATA\ZHANG\ZYQ-5-74--ASH-80208.D Sample Name: 0

Acq. Operator :
Acq. Instrument : HPLC1200LC Location : -
Injection Date : 2011-5-25 4:05:33 下午
Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M
Last changed : 2011-5-25 4:15:48 下午
(modified after loading)
Analysis Method : C:\CHEM32\1\DATA\ZHANG\ZYQ-5-74ASH-80208.D\DA.M (JWHTEST.M)
Last changed : 2011-5-25 4:20:37 下午
VWD1 A, Wavelength=220 nm (ZHANG/ZYQ-5-74-ASH-80208.D)
mAU E
5
500-1
400-1 Me Ph
300-
200-
1 1

Sorted By	:	Signal			
Multiplier	-	1.0000			
Dilution	-	1.0000			
Hee Multiplier 4	Dilution 1	Factor with	ISTDs		
Signal 1: VWD1 3	, Waveleng	th=220 nm			
Signal 1: VWD1 3	A, Waveleng	th=220 nm	Watala		
Signal 1: VWD1 3 Peak RetTime Typ), Waveleng)e Width	th=220 nm Area	Height	Area	
Signal 1: VWD1 2 Peak RetTime Tyy ‡ [min]	A, Waveleng Width	th=220 nm Area mAU *s	Height [mAU]	Area 8	

Totals : 4.33840e4 781.92546

HPLC1200LC 2011-5-25 4:02:09 下午

HPLC1200LC 2011-5-25 4:20:43 下午

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-102-0DH-95508 25.D Sample Name: 0

Acq. Operator : Acq. Instrument : HFLC1200LC Location : Injection Date : 2011-3-10 11:12:16 上年 Acq. Method : C:\CHEM32\1\METHODS\JWHTEST.M Last changed : 2011-3-10 11:21:23 上年 (modified after loading) Analysis Method : C:\CHEM32\1\DATA\JIMKG2YQ-5-102-ODH-95508 25.D\DA.M (JWHTEST.M) Last changed : 2011-5-19 3:55:36 下半



Dilution : 1.0000 Use Multiplier & Dilution Factor with ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Туре	Width	Az	ea	Hei	ght	Area	
+	[min]		[min]	mAU	* 5	[mAU	1	÷	
1	5.984	vv	0.1543	1.355	04e4	1341.	03833	49.7252	
2	6.970	VB	0.1882	1.370	02e4	1117.3	53821	50.2748	
Total				2.725	06e4	2458.	57654		

Data File C:\CHEM32\1\DATA\JIANG\ZYQ-5-114-ODH-95508 25.D Sample Name: 0



Area Percent Report

Sorted By		:	Sign	nal	
Multiplier		-	1.0	000	
Dilution		-	1.0	000	
Use Multiplier	ő	Dilution	Factor	with	ISTDs

Signal 1: VWD1 A, Wavelength=220 nm

Peak	RetTime	Туре	Width	Area	Height	Area
+	[min]		[min]	mAU *s	[mAU]	8
1	5.961	vv	0.1571	4597.64941	434.08902	10.5155
2	6.870	VB	0.2330	3.91251e4	2634.54517	89.4845

Totals : 4.37227e4 3068.63419

HPLC1200LC 2011-5-19 3:55:43 下午

Page 1 of 2

HPLC1200LC 2011-5-19 3:54:46 下午
97 zva-6-1	02-race-0.13-7030-(18-254			2011-	10-15 3:0
57 2yq-0-1	02-1408-000-1000-0	56-254				
品名:	zyq-6-102-race-OJ3-703(0-08-254		进样量:	2	0.0
序号:	91			通道:	U	V_VIS_1
品类型:	unknown			波长	2	54
制程序	程序文件-公用-08			带廊	n	.a.
量方法:	方法-公用			稀释因子:	1.	0000
录时间:	2011-10-15 14:37			样品重量:	1.	0000
行时间 (min):	6.84			样品量:	1.	0000
710 407	mun 5 4	00 rana 0 13 7	020.00.054			N/ 140 4
0_21Q #9/ _mAU	Zyq-0-1	uz-race-ous-/	030-08-254		w	/L:254 nm
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0.00	1.00 2.00	3.00	4.00	5.00	6.00	6.84
4号 保留时间	峰玄珠	峰高	峰面积	相对修而和	样品量	迷刑
	witr-471443/	mAU m	AU*min	1873 MEMURY %	TT HH III.	天里
1 5.71	n.a.	118.194	16.141	47.50	n.a.	BMb
2 5.95	n.a.	130.686	17.840	52.50	n.a.	bMB
和:		248.880	33.981	100.00	0.000	

操作者:dell Timebase:U3000 序列:ZYQ

页码 1/1 2011-10-15 3:07 下午

操作者:dell Timebase:U3000 序列:ZYQ

页码 1/1 2011-10-15 3:08 下午

99 zyq-6-102-OJ3-7030-08-254						
样品名:	zyq-6-102-OJ3-7030-08-254	进样量:	20.0			
瓶序号:	93	邇道:	UV_VIS_1			
样品类型:	unknown	波长	254			
控制程序:	程序文件-公用-08	带宽:	n.a.			
定量方法:	方法-公用	稀释因子:	1.0000			
记录时间:	2011-10-15 14:56	样品重量:	1.0000			
运行时间 (min):	11.49	样品量:	1.0000			



序号	保留时间		峰名称	峰高	峰面积	相对峰面积	样品量	类型
	min			mAU	mAU*min	%		
1	5.65	n.a.		27.641	2.888	1.99	n.a.	BMb
2	5.89	n.a.		1047.626	141.998	98.01	n.a.	bMB
总和:				1075.267	144.886	100.00	0.000	

DEFAULT/积分

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