**Catalytic Asymmetric Simmons-Smith Cyclopropanation of Silyl Enol Ethers.
Efficient Synthesis of Optically Active Cyclopropanol Derivatives**

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Supporting Information

Spectroscopic data for dipeptide 2

$[\alpha]_D^{20} = -69.9$ (*c* 1.65, CHCl_3); IR (neat) 3310, 1698, 1638 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 8.00 (dd, $J = 7.2, 1.5$ Hz, 2H), 7.61-7.56 (m, 1H), 7.47 (t, $J = 7.5$ Hz, 2H), 5.56 (dd, $J = 8.7, 5.1$ Hz, 1H), 5.21 (d, $J = 9.3$ Hz, 1H), 4.35 (dd, $J = 9.3, 6.0$ Hz, 1H), 3.93-3.85 (m, 1H), 3.81-3.71 (m, 1H), 2.38-2.26 (m, 1H), 2.16-2.02 (m, 3H), 2.00-1.88 (m, 1H), 1.44 (s, 9H), 1.09 (d, $J = 6.9$ Hz, 3H), 0.96 (d, $J = 6.9$ Hz, 3H); ^{13}C NMR (75 MHz, CDCl_3) δ 197.6, 170.7, 155.8, 132.2, 133.5, 128.7, 128.4, 79.4, 61.2, 56.9, 47.5, 31.5, 29.3, 28.5, 25.2, 19.6, 17.6; Anal. Calcd. for $\text{C}_{21}\text{H}_{30}\text{N}_2\text{O}_4$: C, 67.35; H, 8.07; N, 7.48; Found: C, 67.50; H, 8.01; N, 7.51.

Representative catalytic asymmetric Simmons-Smith cyclopropanation and ligand recovery procedure (Table 1, Entry 1).

To a flame-dried and Ar-filled 5 mL-vial (Vial **A**) was added a solution of dipeptide **2** (112.4 mg, 0.30 mmol, 0.25 eq.) in freshly distilled CH₂Cl₂ (1.0 mL), followed by the addition of neat ZnEt₂ (37.0 mg, 31 μL, 0.30 mmol, 0.25 eq.). The solution was stirred at room temperature for 1 h. Upon cooling to 0 °C under Ar, CH₂I₂ (80.4 mg, 24 μL, 0.30 mmol, 0.25 eq.) was added dropwise, and then the solution was stirred at 0 °C for 0.5 h.

Simultaneously, to another flame-dried and Ar-filled 5 mL-vial (Vial **B**) was added freshly distilled CH_2Cl_2 (1.0 mL), followed by neat ZnEt_2 (148.2 mg, 123 μL , 1.2 mmol, 1.0 eq.). Upon cooling to $-78\text{ }^\circ\text{C}$ under Ar, CH_2I_2 (642.8 mg, 193 μL , 2.4 mmol, 2.0 eq.) was added dropwise. After the resulting mixture was stirred at this temperature for 1 h (a white precipitate formed), ethyl methoxyacetate (EMA) (141.8 mg, 141 μL , 1.2 mmol, 1.0 eq.) was added. The

reaction mixture was warmed to -50 °C and a homogeneous solution was formed, the reaction mixture was then cooled to -78 °C.

To the third flame-dried and Ar-filled 5 mL-vial (Vial **C**) was added I₂ (152.4 mg, 0.6 mmol, 0.5 eq.). Vacuum was applied for 10 seconds and then CH₂Cl₂ (0.5 mL) was added. After the mixture was cooled to 0 °C, neat ZnEt₂ (37.0 mg, 31 μL, 0.30 mmol, 0.25 eq.) was added. Upon stirring at 0 °C for 1h, the reaction mixture was cooled to -78 °C under Ar. The contents of Vial **A** and Vial **B** were then transferred to vial **C** via a cannula respectively, followed by the addition of (*Z*)-1-phenyl-1-(trimethylsilyloxy)-1-propene (247.5 mg, 1.2 mmol, 1.0 eq.). Upon warming to -40 °C and stirring at this temperature for 48 h, the reaction mixture was poured into hexanes (100 mL) and filtered. The filtrate was concentrated and purified by chromatography (silica gel, hexanes:ether = 6:1, v/v) to afford the cyclopropane as colorless liquid (261.0 mg, 99% yield, 93% ee).

The above filter cake was dissolved in ethyl acetate (25 mL), and saturated aq. NH₄Cl (20 mL) was added. The resulted mixture was stirred at room temperature for 30 min, and the organic layer was separated. The aqueous layer was extracted with ethyl acetate (25 mL). The combined organics were dried (Na₂SO₄), filtered, concentrated, and purified by flash chromatography (silica gel, hexanes:ether = 2:1, v/v) to give dipeptide **2** as white sticky solid (101.3 mg, 90%).

Table 1, Entry 1

Colorless liquid; $[\alpha]_D^{20} = +52.7$ (*c* 1.07, CHCl_3) (93% ee); IR (neat) 1603, 1450, 1251 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 7.32-7.23 (m, 4H), 7.20-7.16 (m, 1H), 1.34 (dd, *J* = 9.6, 5.4 Hz, 1H), 1.25 (d, *J* = 5.7 Hz, 3H), 1.04-0.93 (m, 1H), 0.76 (t, *J* = 6.6 Hz, 1H), 0.10 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 145.9, 128.1, 126.0, 124.8, 61.1, 23.2, 22.4, 13.2, 1.5.

Lorenz, J. C.; Long, J.; Yang, Z.; Xue, S.; Xie, Y.; Shi, Y. *J. Org. Chem.* **2004**, 69, 327.

Table 1, Entry 2

Colorless liquid; $[\alpha]_D^{20} = +44.3$ (*c* 1.26, CHCl_3) (93% ee); IR (neat) 1611, 1514 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 7.22-7.17 (m, 2H), 6.86-6.81 (m, 2H), 3.80 (s, 3H), 1.25 (dd, *J* = 9.6, 5.4 Hz, 1H), 1.24 (d, *J* = 6.0 Hz, 3H), 1.02-0.88 (m, 1H), 0.67 (t, *J* = 6.1 Hz, 1H), 0.07 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 158.1, 137.8, 126.7, 113.5, 61.1, 55.4, 22.0, 21.7, 13.2, 1.4; Anal. Calcd. for $\text{C}_{14}\text{H}_{22}\text{O}_2\text{Si}$: C, 67.15; H, 8.86; Found: C, 67.26; H, 8.96.

Kirihara, M.; Kakuda, H.; Tsunooka, M.; Shimajiri, A.; Takuwa, T.; Hatano, A. *Tetrahedron Lett.* **2003**, 44, 8513.

Table 1, Entry 3

Colorless liquid; $[\alpha]_D^{20} = +67.4$ (*c* 1.04, CHCl_3) (95% ee); IR (neat) 1251 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 7.82-7.69 (m, 4H), 7.49-7.40 (m, 2H), 7.36 (dd, *J* = 8.7, 1.8 Hz, 1H), 1.49 (dd, *J* = 9.6, 6.0 Hz, 1H), 1.30 (d, *J* = 6.0 Hz, 3H), 1.14-1.02 (m, 1H), 0.83 (t, *J* = 6.0 Hz, 1H), 0.12 (s,

9H); ^{13}C NMR (75 MHz, CDCl_3) δ 143.4, 133.3, 132.1, 127.9, 127.6, 126.1, 125.4, 123.9, 123.0, 61.4, 23.1, 22.3, 13.2, 1.5.

Kirihara, M.; Kakuda, H.; Tsunooka, M.; Shimajiri, A.; Takuwa, T.; Hatano, A. *Tetrahedron Lett.* **2003**, 44, 8513.

Table 1, Entry 4

Colorless liquid; $[\alpha]_{\text{D}}^{20} = -32.5$ (c 1.01, CHCl_3) (93% ee); IR (neat) 1488 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 7.64 (d, $J = 7.8\text{ Hz}$, 1H), 7.24 (t, $J = 7.2\text{ Hz}$, 1H), 7.11 (t, $J = 7.2\text{ Hz}$, 1H), 7.05 (d, $J = 7.2\text{ Hz}$, 1H), 2.64 (dd, $J = 16.5, 4.8\text{ Hz}$, 1H), 2.40 (td, $J = 13.5, 6.3\text{ Hz}$, 1H), 2.07-2.00 (m, 1H), 1.85-1.73 (m, 2H), 1.18 (dd, $J = 9.6, 5.7\text{ Hz}$, 1H), 1.02 (t, $J = 5.7\text{ Hz}$, 1H), 0.15 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 141.1, 132.4, 128.2, 126.2, 125.3, 125.1, 56.2, 26.4, 24.0, 18.7, 16.5, 1.5; Anal. Calcd. for $\text{C}_{14}\text{H}_{20}\text{OSi}$: C, 72.36; H, 8.67; Found: C, 72.34; H, 8.41.

(a) Rubottom, G. M.; Lopez, M. I.; *J. Org. Chem.* **1973**, 38, 2097. (b) Murai, S.; Aya, T.; Sonada, N. *J. Org. Chem.* **1973**, 38, 4354. (c) Ryu, I.; Aya, T.; Otani, S.; Sonode, N. *J. Organomet. Chem.* **1987**, 321, 279.

Table 1, Entry 5

Colorless liquid; $[\alpha]_{\text{D}}^{20} = +9.8$ (c 0.98, CHCl_3) (96% ee); IR (neat) $1472, 1221\text{ cm}^{-1}$; ^1H NMR (300 MHz, CDCl_3) δ 7.40-7.37 (m, 1H), 7.24-7.16 (m, 2H), 7.10-7.07 (m, 1H), 3.37 (td, $J = 12.6, 7.2\text{ Hz}$, 1H), 2.55 (dd, $J = 12.9, 6.3\text{ Hz}$, 1H), 1.99-1.81 (m, 2H), 1.57-1.44 (m, 1H), 1.14 (dd, $J = 9.6, 4.8\text{ Hz}$, 1H), 1.10-0.97 (m, 1H), 0.76 (s, 9H), 0.54 (t, $J = 5.1\text{ Hz}$, 1H), 0.21-0.12 (m, 1H), 0.08 (s, 3H), -0.25 (s, 3H); ^{13}C NMR (75 MHz, CDCl_3) δ 140.5, 139.7, 130.0, 128.7, 128.3,

126.3, 59.6, 30.6, 27.1, 25.9, 25.2, 22.1, 20.0, 18.1, -3.2, -3.4; Anal. Calcd. for C₁₈H₂₈OSi: C, 74.94; H, 9.78; Found: C, 75.07; H, 9.91.

Table 1, Entry 6

Colorless liquid; $[\alpha]_D^{20} = +42.8$ (*c* 1.56, CHCl₃) (86% ee); IR (neat) 2230 cm⁻¹; ¹H NMR (300 MHz, CDCl₃) δ 7.41-7.37 (m, 2H), 7.32-7.28 (m, 3H), 1.25-1.17 (m, 5H), 0.92 (s, 9H), 0.60-0.56 (m, 1H), 0.29 (s, 3H), 0.26 (s, 3H); ¹³C NMR (75 MHz, CDCl₃) δ 131.4, 128.4, 128.0, 123.5, 93.2, 81.8, 49.8, 26.1, 24.7, 22.5, 18.4, 12.7, -3.4, -3.8; Anal. Calcd. for C₁₈H₂₆OSi: C, 75.46; H, 9.15; Found: C, 75.40; H, 8.89.

Iwasawa, N.; Matsuo, T.; Iwamoto, M.; Ikeno, T. *J. Am. Chem. Soc.* **1998**, *120*, 3903.

Table 1, Entry 7

Colorless liquid; $[\alpha]_D^{20} = +23.4$ (*c* 1.45, CHCl₃) (86% ee); IR (neat) 1472, 1247 cm⁻¹; ¹H NMR (300 MHz, CDCl₃) δ 2.18 (t, *J* = 6.9 Hz, 2H), 1.52-1.45 (m, 2H), 1.41-1.28 (m, 4H), 1.16-1.00 (m, 5H), 0.90 (t, *J* = 6.9 Hz, 3H), 0.89 (s, 9H), 0.42 (t, *J* = 3.9 Hz, 1H), 0.23 (s, 3H), 0.20 (s, 3H); ¹³C NMR (75 MHz, CDCl₃) δ 83.7, 82.0, 49.7, 31.4, 28.7, 26.1, 24.2, 22.5, 21.9, 19.1, 18.3, 14.3, 12.6, -3.4, -3.9; Anal. Calcd. for C₁₇H₃₂OSi: C, 72.79; H, 11.50; Found: C, 72.70; H, 11.52.

Table 1, Entry 8

Colorless liquid; $[\alpha]_{\text{D}}^{20} = -11.0$ (c 1.38, CHCl_3) (93% ee); IR (neat) 1218 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 7.43-7.39 (m 2H), 7.32-7.28 (m, 3H), 1.28-1.17 (m, 5H), 0.90 (s, 9H), 0.68 (dd, $J = 5.4, 3.6\text{ Hz}$, 1H), 0.25 (s, 3H), 0.24 (s, 3H); ^{13}C NMR (75 MHz, CDCl_3) δ 131.5, 128.4, 128.0, 123.5, 90.0, 84.8, 52.5, 26.0, 25.3, 23.1, 18.0, 15.4, -3.6; Anal. Calcd. for $\text{C}_{18}\text{H}_{26}\text{OSi}$: C, 75.46; H, 9.15; Found: C, 75.64; H, 8.83.

Iwasawa, N.; Matsuo, T.; Iwamoto, M.; Ikeno, T. *J. Am. Chem. Soc.*, **1998**, *120*, 3903.

Table 1, Entry 9

Colorless liquid; $[\alpha]_{\text{D}}^{20} = -3.6$ (c 1.37, CHCl_3) (93% ee); IR (neat) 2237 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 2.22 (t, $J = 6.9\text{ Hz}$, 2H), 1.56-1.47 (m, 2H), 1.43-1.26 (m, 4H), 1.10 (d, $J = 2.4\text{ Hz}$, 3H), 1.09-1.01 (m, 2H), 0.90 (t, $J = 6.9\text{ Hz}$, 3H), 0.86 (s, 9H), 0.48-0.45 (m, 1H), 0.19 (s, 3H), 0.18 (s, 3H); ^{13}C NMR (75 MHz, CDCl_3) δ 85.1, 80.3, 52.3, 31.3, 28.8, 26.0, 24.6, 22.5, 22.2, 19.1, 18.0, 15.3, 14.3, -3.7; Anal. Calcd. for $\text{C}_{17}\text{H}_{32}\text{OSi}$: C, 72.79; H, 11.50; Found: C, 72.96; H, 11.58.

Table 1, Entry 10

Colorless liquid; $[\alpha]_{\text{D}}^{20} = -75.1$ (c 1.29, CHCl_3) (92% ee); IR (neat) 1456 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 6.12 (d, $J = 10.2\text{ Hz}$, 1 H), 5.37 (dd, $J = 10.2, 7.8\text{ Hz}$, 1H), 2.01-1.92 (m, 1H), 1.88-1.78 (m, 1H), 1.66-1.53 (m, 2H), 1.52-1.46 (m, 1H), 0.98 (dd, $J = 9.9, 5.1\text{ Hz}$, 1H), 0.76 (t,

$J = 6.0$ Hz, 1H), 0.16 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 133.6, 121.6, 54.3, 23.4, 20.6, 18.2, 17.8, 1.5.

Rinderhagen, H.; Mattay, J. *Chem. Eur. J.* **2004**, *10*, 851.

Table 1, Entry 11

Colorless liquid; $[\alpha]_{\text{D}}^{20} = +14.1$ (c 0.61, CHCl_3) (72% ee); IR (neat) 1471 cm^{-1} ; ^1H NMR (300 MHz, CDCl_3) δ 2.16-2.08 (m, 1H), 2.05-1.96 (m, 1H), 1.93-1.83 (m, 1H), 1.56-1.45 (m, 1H), 1.39 (dd, $J = 13.8, 6.9$ Hz, 1H), 1.29-1.20 (m, 2H), 1.14-0.99 (m, 2H), 0.86 (s, 9H), 0.82-0.76 (m, 1H), 0.30 (t, $J = 5.7$ Hz, 1H), 0.11 (s, 6H); ^{13}C NMR (75 MHz, CDCl_3) δ 56.4, 32.7, 26.1, 24.9, 22.2, 21.8, 19.8, 19.1, 18.0, -3.0, -3.1; Anal. Calcd. for $\text{C}_{13}\text{H}_{26}\text{OSi}$: C, 68.96; H, 11.57; Found: C, 69.20; H, 11.39.

(a) Ikura, K.; Ryu, I.; Ogawa, A.; Kambe, N.; Sonoda, N. *Tetrahedron Lett.* **1989**, *30*, 6887. (b) Ikura, K.; Ryu, I.; Kambe, N. Sonoda, N. *J. Am. Chem. Soc.* **1992**, *114*, 1520.

Table 1, Entry 12

Colorless liquid; $[\alpha]_{\text{D}}^{20} = +3.9$ (c 1.21, CHCl_3) (89% ee); IR (neat) $1473, 1428, 1360\text{ cm}^{-1}$; ^1H NMR (300 MHz, CDCl_3) δ 7.72-7.67 (m, 4H), 7.45-7.34 (m, 6H), 1.90-1.70 (m, 2H), 1.55-1.19 (m, 4H), 1.04 (s, 9H), 0.95-0.83 (m, 1H), 0.77 (ddd, $J = 9.3, 6.0, 1.5$ Hz, 1H), 0.36 (t, $J = 5.1$ Hz, 1H); ^{13}C NMR (75 MHz, CDCl_3) δ 135.9, 129.6, 129.5, 127.5, 66.6, 34.0, 27.2, 26.6, 24.2, 21.2, 19.2, 15.0; HRMS calcd. for $\text{C}_{22}\text{H}_{28}\text{OSi}$ (M^+): 336.1909; Found: 336.1900.

**The chromatograms for the determination of enantiomeric excess of cyclopropanes
(Table 1)**

Table 1, Entry 1

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 85 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		20.771	49.6259
2		21.371	50.3741
Totals			100.0000

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		20.756	3.3818
2		21.386	96.6182
Totals			100.0000

Table 1, Entry 2

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 70 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		306.631	50.2149
2		314.163	49.7851
Totals			100.0000

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		306.521	3.2779
2		314.563	96.7221
Totals			100.0000

Table 1, Entry 3

HPLC Conditions: Column: Chiralcel OD (Column No. OD00CE-DL010), Chiral Technologies, Inc.

Eluent: Hexanes/IPA (99/1); Flow Rate: 1.0mL/min; Detection: UV254

Racemate

Peak No	Peak Name	Ret. Time (min)	Result ()
1		9.104	49.6770
2		10.876	50.3230
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Result ()
1		9.377	2.5251
2		10.954	97.4749
Totals			100.0000

Table 1, Entry 4

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 140 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Result ()
1		8.296	49.8483
2		8.552	50.1517
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Result ()
1		8.201	3.5868
2		8.472	96.4132
Totals			100.0000

Table 1, Entry 5

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 140 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		13.778	49.9359
2		17.519	50.0641
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		13.654	97.9801
2		18.004	2.0199
Totals			100.0000

Table 1, Entry 6

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 120 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		56.039	50.0781
2		57.827	49.9219
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		55.364	93.1798
2		57.908	6.8202
Totals			100.0000

Table 1, Entry 7

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 100 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		31.313	49.6698
2		32.531	50.3302
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		31.391	92.7614
2		32.998	7.2386
Totals			100.0000

Table 1, Entry 8

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 120 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		47.088	50.3874
2		52.669	49.6126
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		46.429	96.3546
2		53.099	3.6454
Totals			100.0000

Table 1, Entry 9

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 90 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		55.889	50.1724
2		60.279	49.8276
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		55.042	96.2806
2		60.831	3.7194
Totals			100.0000

Table 1, Entry 10

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 70 °C; Carrier: Helium, head pressure 30 psi; Detection: FID 250 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		13.097	49.7521
2		13.792	50.2479
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		13.118	4.1404
2		13.698	95.8596
Totals			100.0000

Table 1, Entry 11

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 50 °C; Carrier: Helium, head pressure 20 psi; Detection: FID 200 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		138.291	49.9608
2		153.546	50.0392
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		136.989	85.8947
2		155.883	14.1053
Totals			100.0000

Table 1, Entry 12

GC Conditions: Column: Chiraldex B-DM (Cat No. 77023), Advanced Separation Technologies, Inc..

Oven: 50 °C; Carrier: Helium, head pressure 20 psi; Detection: FID 200 °C

Racemate

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		48.292	49.9713
2		54.046	50.0287
Totals			100.0000

Chiral Cyclopropane

Peak No	Peak Name	Ret. Time (min)	Minutes Result ()
1		47.042	94.3275
2		55.134	5.6725
Totals			100.0000