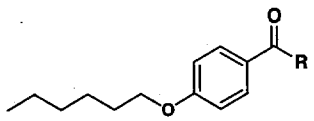
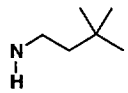
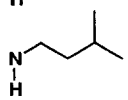
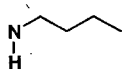
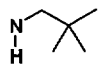
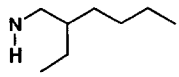
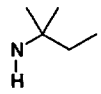
Supporting Information:

SAR of compounds synthesized by combinatorial methods:

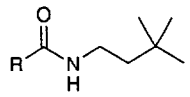
Table 1. Amine variations.

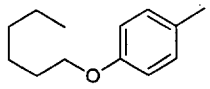
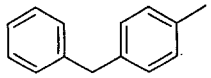
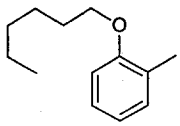
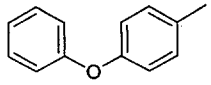
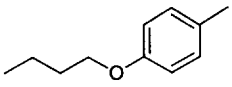
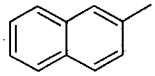
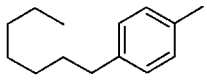
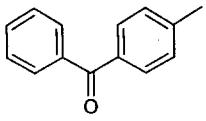
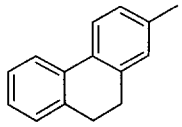


compd[a]	R	IC_{50} (μM)[b]	compd[a]	R	IC_{50} (μM)[b]
8		0.25	47		19
44		12	48		15
45		5.0	49		4.8
46		1.3			

[a] All compounds were prepared using Method A (see below) >97% by HPLC and gave satisfactory mass spectral analysis. [b] Molar concentration to inhibit 50% of the I_{Ks} current in guinea pig ventricular myocytes, n=2-5 at 2-4 concentrations.

Table 2. Acid variations.



compd[a]	R	IC_{50} (mM)[b]	compd[a]	R	IC_{50} (mM)[b]
8		0.25	54		>30
50		>3.0	55		>30
51		2.0	56		1.5
52		>30			
53		0.12	57		0.17

[a] All compounds were prepared using Method B (see below), >97% pure by HPLC and gave satisfactory mass spectral analysis. [b] Molar concentration to inhibit 50% of the I_{Ks} current in guinea pig ventricular myocytes n=2-5 at 2-4 concentrations.

Biology: Most compounds were first screened for I_{Ks} activity using *Xenopus* oocytes expressing the cloned I_{Ks} α-subunit, minK. Oocyte expression and two-microelectrode voltage clamp recordings were performed as described previously.[18] MinK currents were elicited by a 3s (0.1 Hz) voltage step from a holding potential of -80mV to +40 mV. Inhibition of minK current was determined by comparing current amplitude at the 3 s time point before and after adding compound. Microelectrodes (0.8 to 1.5 MΩ) were filled with 3M KCl. Bath solution contained 96 mM NaCl, 2 mM KCl, 1.8 mM $CaCl_2$, 2 mM $MgCl_2$, and 5 mM HEPES (pH 7.5).

Compounds that showed sufficient block of the minK conducted current in oocytes were then tested for block of native I_{Ks} in isolated guinea pig ventricular myocytes. Myocytes were isolated as described previously.[19] Ionic solutions and voltage-clamp procedures were designed to measure I_{Ks} in isolation from other currents[20]. I_{Ks} was activated by a 3 s step to +40 mV from a holding potential of -40 mV. I_{Ks} amplitude was measured at the 3 s time-point. I_{Kr} was activated by a 220 ms step to 0 mV from a holding potential of -40 mV. Deactivating tail currents were measured at -50 mV (1 s). I_{Kr} was defined as the dofetilide-sensitive deactivating tail current activated by a 0 mV command step. I_{Kr} bath solution contained 132 mM NaCl, 4 mM KCl, 1.2 mM $MgCl_2$, 1 mM $CaCl_2$, 10 mM glucose, and 10 mM HEPES (pH 7.4) plus 3 μM nisoldipine (~33 °C). The pipette solution contained 140 mM KCl, 10 mM HEPES, 5 mM EGTA, 1.0 mM KH_2PO_4, 5.0 mM ATP (pH 7.2).

Plasma levels of drugs were determined after multiplex oral dosing in rats. Plasma samples were collected at selected times after dosing by gavage as solutions in ethanol/poly(ethyleneglycol)-400/water (2:3:5) and assayed using LC/MS/MS methods. Assuming volumes of distribution of less than 20 L/kg (estimates of V_{ss} from previous studies of similar compounds have ranged from 2-16 L/kg) and elimination rates that are slow relative to absorption rates, compounds with oral bioavailability values >10% should exhibit plasma concentrations greater than 75 nM. Compounds which showed plasma concentrations >75 nM were then assayed for oral bioavailability individually.

Oral bioavailability was determined by standard methods. The study compound (30 μmol/kg) was administered to male rats as a solution (total volume: 0.75 mL for both routes) in ethanol/poly(ethyleneglycol)-400/water (2:3:5). Rats were dosed either intravenously (n = 4-6) by injection into the jugular vein, or orally (n = 4-6) by gavage. Serial blood samples were

obtained at 0, 5, 10, 20 and 40 minutes and at 1, 2, 4, 6, 8, 12, 24 and 28 hours after dosing. Plasma was prepared from each blood sample by centrifugation and analyzed by LC/MS. Pharmacokinetic parameters were calculated with standard model - independent methods. Areas under the curve (AUC) were calculated using Lagrange integration and were extrapolated to infinity with the *iv* elimination half-life. The systemic oral bioavailability was estimated by dividing the mean $AUC_{0-\infty}$ value for the oral doses by the mean $AUC_{0-\infty}$ value for the intravenous doses.

Chemistry Experimental details: ^{1}H and ^{13}C NMR spectra were recorded with a JEOL GXD 270 spectrometer at 270 and 68 MHz, respectively, or with a JEOL GSX 400 spectrometer at 400 and 100 MHz, respectively. Chemical shifts are reported in PPM downfield from tetramethylsilane. Column chromatography was conducted with silica gel 60 (35-37 μm, Merck). Reverse phase preparative high pressure chromatography was conducted with YMC Pack ODS-A C-18 columns either 20 x 100mm or 20 x 250 mm eluted with methanol/water with 0.1% trifluoroacetic acid. Ion exchange chromatography was performed on Varian strong cation exchange SPE cartridges (6 mL) which were pre-washed with methanol then equilibrated with the eluting solvent. Melting points (uncorrected) were obtained with a Thomas-Hoover apparatus. All solvents and commercially available chemicals were used without further purification.

General procedure for amide synthesis (Method A): The amine (1.0 eq) was dissolved in dichloromethane and triethylamine (2 eq) was added. A solution of 4-(hexyloxy)benzoyl chloride (1.0 eq) was added and the reaction was allowed to stand overnight. The reaction mixture was purified by either SCX resin cartridge, silica gel chromatography or

preparative reverse phase HPLC. The following compounds were synthesized using this procedure:

N-(3,3-Dimethylbutyl)-4-(hexyloxy)benzamide (8): mp 74-76°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.9 (s, 9H); 1.34 (m, 4H); 1.50 (m, 4H); 1.82 (m, 2H); 3.40 (m, 2H); 3.95 (t, J = 10 Hz, 2H); 6.6 (m, 1H); 6.85 (d, J = 12 Hz, 2H); 7.75 (d, J = 12 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 13.4, 22.0, 25.1, 28.5, 28.8, 29.3, 31.0, 36.1, 42.8, 67.5, 113.5, 126.3, 128.1, 161.0, 166.6. MS ($M+H^+$) 306. Anal calc'd for $C_{19}H_{31}NO_2$: C, 74.71; H, 10.23; N, 4.59. Found: C, 75.01; H, 10.40; N, 4.52.

(3-tert-Butylpyrrolidin-1-yl)-(4-hexyloxyphenyl)methanone (9): mp 77-78°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.85 (m, 12H); 1.27 (m, 4H); 1.40 (m, 2H); 1.61 (m, 3H); 1.75 (m, 2H); 1.80 (m, 1H); 1.9 (m, 1H); 3.4 (m, 2H); 3.90 (t, J = 5 Hz, 2H); 6.82 (d, J = 8 Hz, 2H); 7.42 (d, J = 8 Hz, 2H). ^{13}C NMR (68 MHz, $CDCl_3$): 14.6, 23.1, 26.3, 28.2, 29.7, 31.6, 32.1, 47-52 (br), 66.6, 114.5, 129.7, 162, 170. MS ($M+H^+$) 332. Anal calc'd for $C_{21}H_{33}NO_2 \cdot 0.58\ H_2O$: C, 73.76; H, 10.07; N, 4.10. Found: C, 73.77; H, 9.94; N, 3.95.

N-(3,3-Dimethylcyclopentyl)-4-hexyloxybenzamide (10): mp 82-83°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.95 (t, J = 6 Hz, 3H); 1.03 (s, 3H); 1.10 (s, 3H); 1.39 (m, 5H); 1.49 (m, 3H); 1.60 (m, 2H); 1.80 (m, 2H); 1.97 (m, 1H); 2.23 (m, 1H); 3.99 (t, J = 6 Hz, 2H); 4.52 (m, 1H); 6.45 (d, J = 5 Hz, 1H); 6.87 (d, J = 10 Hz, 2H); 7.75 (d, J = 10 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 13.9, 22.4, 25.5, 29.0, 29.2, 30.2, 31.4, 32.7, 37.8, 39.2, 48.0, 50.9, 69.0, 113.9, 126.8, 128.6, 161.4, 166.5. MS ($M+H^+$) 318. Anal calc'd for $C_{20}H_{31}NO_2$: C, 75.67; H, 9.84; N, 4.41. Found: C, 75.87; H, 10.10; N, 4.37

(+)-N-(2,2-Dimethylcyclopentylmethyl)-4-hexyloxybenzamide (11A): mp 68-69°. $[\alpha]_D$ (MeOH, c0.55) +21°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.87 (s, 3H); 0.93 (t, J = 6 Hz, 3H);

1.07 (s, 3H); 1.34 (m, 4H); 1.46 (m, 5H); 1.5-1.8 (m, 5H); 1.92 (m, 1H); 3.21 (m, 1H); 3.52 (m, 1H); 3.99 (t, J = 6 Hz, 2H); 6.20 (m, 1H); 6.87 (d, J = 11 Hz, 2H); 7.71 (d, J = 11 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 13.9, 21.2, 21.9, 22.5, 25.6, 28.5, 29.0, 29.3, 31.5, 40.4, 41.4, 42.0, 49.1, 68.1, 114.1, 126.9, 128.5, 161.5, 167.0. MS ($M+H^+$) 332. Anal calc'd for $C_{21}H_{33}NO_2$: C, 76.09; H, 10.03; N, 4.23. Found: C, 75.99; H, 10.11; N, 4.11.

(-)-N-(2,2-Dimethylcyclopentylmethyl)-4-hexyloxybenzamide (11B): mp 69-70°. $[\alpha]_D$ (MeOH, c0.55) –19°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.87 (s, 3H); 0.93 (t, J = 6 Hz, 3H); 1.07 (s, 3H); 1.34 (m, 4H); 1.46 (m, 5H); 1.5-1.8 (m, 5H); 1.92 (m, 1H); 3.21 (m, 1H); 3.52 (m,1H); 3.99 (t, J = 6 Hz, 2H); 6.20 (m, 1H); 6.87 (d, J = 11 Hz, 2H); 7.71 (d, J = 11 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 13.9, 21.2, 21.9, 22.5, 25.6, 28.5, 29.0, 29.3, 31.5, 40.4, 41.4, 42.0, 49.1, 68.1, 114.1, 126.9, 128.5, 161.5, 167.0. MS ($M+H^+$) 332. Anal calc'd for $C_{21}H_{33}NO_2$: C, 76.09; H, 10.03; N, 4.23. Found: C, 75.95; H, 10.12; N, 4.13.

N-(2,2-Dimethylcyclopentyl)-4-hexyloxybenzamide (12): mp 71-72°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.90 (t, J = 5 Hz, 3H); 0.93 (s, 3H); 1.07 (s, 3H); 1.36 (m, 4H); 1.46 (m, 3H); 1.52 (m, 2H); 1.68 (m, 2H); 1.80 (m, 2 H); 2.17 (m, 1H); 3.99 (t, J = 6 Hz, 2H); 4.18 (q, J = 10 Hz, 1H); 5.96 (d, J = 11 Hz, 1H); 6.90 (d, J = 11 Hz, 2H); 7.71 (d, J = 11 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 13.9, 19.9, 21.7, 22.5, 25.6, 27.3, 29.0, 30.8, 31.5, 39.1, 41.2, 58.4, 68.1, 114.1, 127.1, 128.5, 161.5, 166.8. MS ($M+H^+$) 318. Anal calc'd for $C_{20}H_{31}NO_2$: C, 75.67; H, 9.84; N, 4.41. Found: C, 75.53; H, 10.10; N, 4.35.

(+)-N-(2,2-Dimethylcyclohexylmethyl)-4-hexyloxybenzamide (13A): mp 117-118°. $[\alpha]_D$ (MeOH, c0.77) +23°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.89 (s, 3H); 0.93 (t, J = 6 Hz, 3H); 1.04 (s, 3H); 1.21 (m, 3H); 1.36 (m, 7H); 1.48 (m, 3H); 1.70 (m, 2H); 1.80 (m, 2H); 3.11 (m,

1H); 3.62 (m, 1H); 3.99 (t, J = 6 Hz, 2H); 6.10 (m, 1H); 6.90 (d, J = 11 Hz, 2H); 7.72 (d, J = 11 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 14.0, 20.0, 22.6, 25.6, 26.1, 26.4, 29.1, 30.5, 31.5, 32.8, 41.3, 41.8, 46.8, 68.1, 114.2, 126.9, 128.5, 161.6, 167.1. MS ($M+H^+$) 346. Anal calc'd for $C_{22}H_{35}NO_2 \cdot 0.50\ H_2O$: C, 74.53; H, 10.24; N, 3.95. Found: C, 74.57; H, 10.11; N, 3.89.

(-)-N-(2,2-Dimethylcyclohexyllmethyl)-4-hexyloxybenzamide (13B): mp 118-119°. $[\alpha]_D$ (MeOH, c0.62) -23°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.89 (s, 3H); 0.93 (t, J = 6 Hz, 3H); 1.04 (s, 3H); 1.21 (m, 3H); 1.36 (m, 7H); 1.48 (m, 3H); 1.70 (m, 2H); 1.80 (m, 2H); 3.11 (m, 1H); 3.62 (m, 1H); 3.99 (t, J = 6 Hz, 2H); 6.10 (m, 1H); 6.90 (d, J = 11 Hz, 2H); 7.72 (d, J = 11 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 14.0, 20.0, 22.6, 25.6, 26.1, 26.4, 29.1, 30.5, 31.5, 32.8, 41.3, 41.8, 46.8, 68.1, 114.2, 126.9, 128.5, 161.6, 167.1. MS ($M+H^+$) 346. Anal calc'd for $C_{22}H_{35}NO_2 \cdot 0.25\ H_2O$: C, 75.49; H, 10.22; N, 4.00. Found: C, 75.47; H, 10.15; N, 3.94.

N-(3,3-Dimethylcyclohexylmethyl)-4-hexyloxybenzamide (14): mp 89-91°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.85 (m, 11H); 1.10 (m, 1H); 1.3-1.6 (m, 10H); 1.8 (m, 4H); 3.24 (t, J = 10 Hz, 2H); 3.99 (t, J = 6 Hz, 2H); 6.21 (m, 1H); 6.90 (d, J = 11 Hz, 2H); 7.75 (d, J = 11 Hz, 2H). ^{13}C NMR (68 MHz, $CDCl_3$): 15.1, 23.0, 23.7, 25.9, 26.8, 30.2, 31.8, 32.0, 34.6, 35.2, 40.4, 45.1, 47.6, 69.3, 115.3, 128.1, 129.7, 162.8, 168.2. MS ($M+H^+$) 346. Anal calc'd for $C_{22}H_{35}NO_2$: C, 76.48; H, 10.21; N, 4.05. Found: C, 76.42; H, 10.27; N, 3.98.

General procedure for amide synthesis (Method B): The acid (1.0 eq) was dissolved in dichloromethane and a solution of the amine (1.1 eq) was added. A solution of dimethylaminopyridine (0.1 eq) in dichlorormethane was added followed by addition of a solution of 1-[3-(dimethylamino)propyl]-3-ethylcarbodiimide hydrochloride (1.1 eq) in

dichloromethane. The reaction was allowed to stand overnight. The reaction was purified by either SCX resin cartridge, silica gel chromatography or preparative reverse phase HPLC. The following compounds were synthesized using this procedure:

N,N-Diethyl-2-[4-(1,1,3,3-tetramethylbutyl)phenoxy]acetamide (5): mp 38°. ^{1}H NMR (270 MHz, $CDCl_3$): 0.7 (s, 9H); 1.12 (t, J = 7 Hz, 3H); 1.20 (t, J = 7 Hz, 3H); 1.33 (s, 6H); 1.69 (s, 2H); 3.39 (q, J = 7 Hz, 4H); 4.64 (s, 2H); 6.86 (d, J = 9 Hz, 2H); 7.27 (d, J = 9 Hz, 2H). ^{13}C NMR (68 MHz, $CDCl_3$): 12.8, 14.3, 31.6, 31.7, 32.3, 37.9, 40.2, 41.6, 57.0, 67.8, 113.8, 127.1, 143.0, 155.8, 167.2. MS ($M+H^+$) 320. Anal calc'd for $C_{20}H_{33}NO_2$: C, 75.19; H, 10.41; N, 4.38. Found: C, 75.05; H, 10.51; N, 4.38.

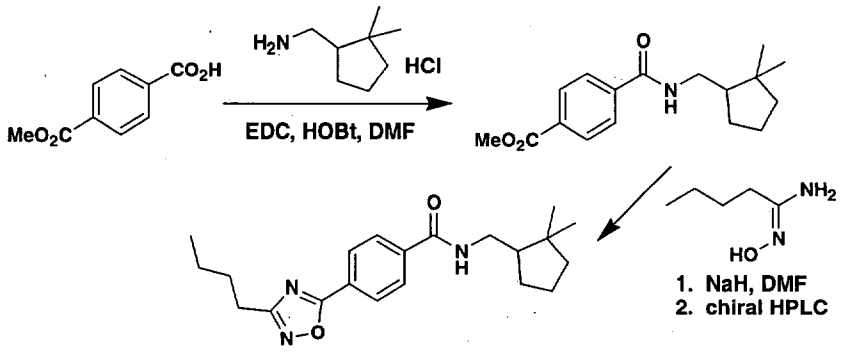
N-(2-Diethylaminoethyl)-4-hexyloxybenzamide (7): mp 59-60°. ^{1}H NMR (270 MHz, $CDCl_3$): 0.9 (m, 3H); 1.03 (t, J = 12 Hz, 6H); 1.35 (m, 4H); 1.45 (m, 2H); 1.75 (m, 2H); 2.55 (q, J = 12 Hz, 4H); 2.65 (t, J = 10 Hz, 2H); 3.47 (q, J = 5Hz, 2H); 4.00 (t, J = 7 Hz, 2H); 6.80 (s, 1H); 6.90 (d, J = 8 Hz, 2H); 7.1 (d, J = 8, Hz, 2H). ^{13}C NMR (68 MHz, $CDCl_3$): 8.8, 14.2, 22.6, 25.6, 29.1, 31.5, 35.3, 48.5, 52.9, 68.1, 114.2, 125.2, 129.5, 162.1, 167.5. MS ($M+H^+$) 321. Anal calc'd for $C_{19}H_{32}N_2O_2$: C, 71.21; H, 10.06; N, 8.74. Found: C, 71.21; H, 10.08; N, 8.81.

Biphenyl-4-carboxylic acid (3,3-dimethylbutyl)amide (15): mp 126-127°. ^{1}H NMR (270 MHz, $CDCl_3$): 0.98 (s, 9H); 1.55 (m, 2H); 3.50 (m, 2H); 6.35 (m, 1H); 7.4 (m, 3H); 7.6 (m, 4H); 7.85 (d, J = 12, Hz, 2H). ^{13}C NMR (68 MHz, $CDCl_3$): 29.4, 29.9, 36.7, 43.3, 127.1, 127.3, 127.9, 128.8, 133.5, 140.0, 144.0, 167.1. MS ($M+H^+$) 282. Anal calc'd for $C_{19}H_{23}NO$: C, 81.10; H, 8.24; N, 4.98. Found: C, 81.17; H, 8.19; N, 4.93.

N-(3,3-Dimethylbutyl)-4-indol-1-yl-benzamide (16): 4-Fluorobenzoic acid (280 mg, 2.00 mmol), 3,3-dimethylbutylamine (296 μL, 2.20 mmol) and 4-dimethylaminopyridine (24

mg, 0.20 mmol) were dissolved in 10 mL of dichloromethane and 3 mL of N, N-dimethylformamide. 1-(3-Dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride (EDC, 650 mg, 2.2 mmol) was added and the mixture stirred for 16 h. The reaction was diluted with ethyl acetate and washed with hydrochloric acid (1.0 M, aq.), sodium bicarbonate (sat'd., aq.) and sodium chloride (sat'd., aq.). The organic layer was dried over magnesium sulfate, filtered and the solvent removed to yield 328 mg of a white solid. Recrystallization from hexane provided 306 mg (68%) of white needles. mp 113-114°. ^{1}H NMR (400 MHz, $CDCl_3$): 0.90 (s, 9H); 1.42 (m, 2H); 3.38 (m, 2H); 6.37 (m, 1H); 7.0 (t, J = 9 Hz, 2H); 7.71 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 29.3, 29.9, 36.8, 43.2, 115.3, 115.5, 129.1, 129.2, 131.0, 163.3, 165.8, 166.4. MS ($M+H^+$) 224. Anal calc'd for $C_{13}H_{18}FNO$: C, 69.93; H, 8.12; N, 6.27; F, 8.51. Found: C, 69.92; H, 8.11; N, 6.26; F, 8.62. The fluorobenzamide (186 mg, 0.83 mmol) and indole (127 mg, 1.08 mmol) were dissolved in 8 mL of dimethylsulfoxide. 18-Crown-6 (66 mg, 0.25 mmol) and 37% by weight KF on basic alumina were added and the mixture was heated to 120° for 4 days. The reaction was cooled to room temperature, diluted with ethyl acetate and washed with sodium chloride (sat'd., aq.). The organic layer was dried over magnesium sulfate, filtered and the solvent removed to yield 922 mg of an orange oil. Purification by flash chromatography on silica gel eluting with 10% ethyl acetate, hexane provided 180 mg (67%) of a tan solid. mp 51-54°. ^{1}H NMR (400 MHz, $CDCl_3$): 1.05 (s, 9H); 1.62 (m, 2H); 3.58 (m, 2H); 6.25 (m, 1H); 6.79 (d, J = 3 Hz, 1H); 7.28 (m, 2H); 7.40 (d, J = 3 Hz, 1H); 7.61 (d, J = 10 Hz, 2H); 7.66 (d, J = 8 Hz, 1H); 7.77 (d, J = 8 Hz, 1H); 7.98 (d, J = 10 Hz, 2H). ^{13}C NMR (100 MHz, $CDCl_3$): 29.3, 30.0, 36.9, 43.4, 104.6, 110.4, 120.8, 121.3, 122.7, 123.6, 127.5, 128.4, 129.6, 132.4, 135.5, 142.3, 166.5. MS ($M+H^+$) 321. Anal calc'd for $C_{21}H_{24}N_2O$: C, 78.72; H, 7.55; N, 8.74. Found: C, 78.59; H, 7.41; N, 8.69.

4-(3-Butyl-1,2,4-oxadiazol-5-yl)-N-[(2,2-dimethylcyclopentyl)methyl]benzamide (19(S), 19(R))



A solution of *mono*-methylterephthalate (180 mg, 1.0 mmol) in 4 mL of dimethylformamide under argon at room temperature was treated with 2,2-dimethylcyclopentylmethylamine hydrochloride (163 mg, 1.0 mmol), 3-(3-dimethylamino)-propylethylcarbodiimide hydrochloride (297 mg, 1.0 mmol) and hydroxybenzotriazole monohydrate (135 mg, 1.0 mmol). After stirring overnight, the reaction mixture was diluted with ethyl acetate and washed with 10% citric acid, water and brine. The dried ($MgSO_4$) organic fraction was concentrated, and the residue was purified by flash chromatography on silica gel, eluting with 20% ethyl acetate, hexanes to give 282 mg (97 %) of 4-(methoxycarbonyl)-N-[(2,2-dimethylcyclopentyl)methyl]-benzamide. mp 80-81 °C. ^{1}H-NMR ($CDCl_3$): 8.08 (d, J = 8.2 Hz, 2H); 7.80 (d, J = 8.2 Hz, 2H); 6.16 (br s, 1H); 3.94 (s, 3H); 3.50-3.65 (m, 1H); 3.18-3.35 (m, 1H); 1,85-2.03 (m, 1H); 1.56-1.85 (m, 2H); 1.37-1.56 (m, 4H); 1.09 (s, 3H); 0.88 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 174.0, 173.9, 173.8, 166.6, 166.3, 138.8, 132.6, 129.8, 126.9, 52.4, 49.2, 42.1, 41.7, 40.6, 29.4, 28.6, 22.0, 21.3. MS ($M+H^+$) 290. A solution of 4-(methoxycarbonyl)-N-[(2,2-dimethylcyclopentyl)methyl]benzamide (56 mg, 0.20 mmol) and N-hydroxypentamidine (30 mg, 0.25 mmol) in 0.75 mL of dimethylformamide under argon at 0-5° was treated with sodium

hydride (18 mg, 60 % in oil, 0.44 mmol) and allowed to stir at room temperature for 3 h. The mixture was diluted with ethyl acetate then washed with water and brine. The organic fraction was dried ($MgSO_4$) and concentrated *in vacuo* to give 74 mg of a solid. Chiral chromatography on a 50x500 mm Chiralpak AD column, eluted with 10% 2-propanol, hexane at 50 mL/min. gave individual enantiomers, each >99 % optically pure. (S)-4-(3-Butyl-1,2,4-oxadiazol-5-yl)-N-[(2,2-dimethylcyclopentyl) methyl]benzamide (**19S**) 30.7 mg, (43 %). mp 74-76 °C. $[\alpha]_D$ ($CHCl_3$, c 0.11) +17°. ^{1}H NMR (400 MHz, $CDCl_3$): 8.18 (d, J = 8.2 Hz, 2H); 7.89 (d, J = 8.2 Hz, 2H); 6.21 (br s, 1H); 3.51-3.65 (m, 1H); 3.20-3.36 (m, 1H); 2.82 (t, J = 7.6 Hz, 2H); 1.86-2.04 (m, 1H); 1.56-1.86 (m, 5H); 1.35-1.56 (m, 5H); 1.10 (s, 3H); 0.97 (t, J = 7.3 Hz, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 174.9, 172.0, 166.8, 138.9, 128.7, 128.0, 127.1, 49.6, 42.5, 42.2, 41.0, 29.9, 29.6, 29.0, 26.3, 22.7, 22.5, 21.8, 14.1. MS ($M+H^+$) 356. Anal. calc'd. for $C_{21}H_{29}N_3O_2 \bullet 0.3C_6H_{14}$: C, 71.81; H, 8.78, N, 11.02. Found: C, 71.85; H, 8.69; N, 11.09. (R)-4-(3-Butyl-1,2,4-oxadiazol-5-yl)-N-[(2,2-dimethylcyclopentyl)methyl]-benzamide (**19R**) 30.9 mg (43 %). mp 74-76 °C. $[\alpha]_D$ ($CHCl_3$, c0.12) -20°. ^{1}H NMR (400 MHz, $CDCl_3$): 8.18 (d, J = 8.2 Hz, 2H); 7.89 (d, J = 8.2 Hz, 2H); 6.21 (br s, 1H); 3.51-3.65 (m, 1H); 3.20-3.36 (m, 1H); 2.82 (t, J = 7.6 Hz, 2H); 1.86-2.04 (m, 1H); 1.56-1.86 (m, 5H); 1.35-1.56 (m, 5H); 1.10 (s, 3H); 0.97 (t, J = 7.3 Hz, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 174.9, 172.0, 166.8, 138.9, 128.7, 128.0, 127.1, 49.6, 42.5, 42.2, 41.0, 29.9, 29.6, 29.0, 26.3, 22.7, 22.5, 21.8, 14.1. MS ($M+H^+$) 356. Anal. calc'd for $C_{21}H_{29}N_3O_2$: C, 70.96; H, 8.22, N, 11.82. Found: C, 70.71; H, 8.28; N, 11.69. The following compounds were synthesized using this procedure from the appropriate amine and hydroxyamidine:

N-(3,3-Dimethylbutyl)-4-(3-phenyl-[1,2,4]oxadiazol-5-yl)benzamide (17): mp 169-170°. ^{1}H NMR (400 MHz, $CDCl_3$): 8.27 (d, J = 7.6 Hz, 2H); 8.10-8.20 (m, 2H); 7.92 (d, J =

8.2 Hz, 2H); 7.45-7.55 (m, 3H); 6.24 (br s, 1H); 3.44-3.57 (m, 2H); 1.50-1.60 (m, 2H); 0.99 (s, 9H). ^{13}C NMR (100 MHz, $CDCl_3$): 169.0, 166.1, 138.4, 131.2, 128.8, 128.2, 127.5, 127.4, 126.5, 43.2, 36.9, 29.9, 29.3. MS ($M-H^-$) 348. Anal. calc'd for $C_{21}H_{23}N_3O_2$: C, 72.18; H, 6.63; N, 12.03. Found: C, 71.92; H, 6.63; N, 11.96.

4-(3-Butyl-[1,2,4]oxadiazol-5-yl)-N-(3,3-dimethylbutyl)benzamide (18): mp 95-97°. ^{1}H NMR (400 MHz, $CDCl_3$): 8.18 (d, J = 8.2 Hz, 2H); 7.90 (d, J = 8.8 Hz, 2H); 6.17 (br s, 1H); 3.43-3.56 (m, 2H); 2.82 (t, J = 7.6 Hz, 2H); 1.72-1.88 (m, 2H); 1.50-1.60 (m, 2H); 1.36-1.50 (m, 2H); 0.99 (s, 9H); 0.97 (t, J = 7.3 Hz, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 171.7, 166.4, 138.6, 128.4, 127.8, 126.9, 43.5, 37.2, 30.2, 29.6, 29.3, 26.0, 22.4, 13.8. MS ($M-H^-$) 328. Anal. calc'd for$C_{19}H_{27}N_3O_2$: C, 69.27; H, 8.26; N, 12.75. Found: C, 69.01; H, 8.29; N, 12.50.

(+)-N-(3,3-Dimethylbutyl)-4-(3-methyl-[1,2,4]oxadiazol-5-yl)benzamide (21A): mp 155-156 °. $[\alpha]_D$ ($CHCl_3$, c1.02) +22.8°. ^{1}H NMR (400 MHz, $CDCl_3$): 8.17 (d, J = 7.6 Hz, 2H); 7.89 (d, J = 7.6 Hz, 2H); 6.17 (br s, 1H); 3.50-3.65 (m, 1H); 3.20-3.35 (m, 1H); 2.49 (s, 3H); 1.85-2.00 (m, 1H); 1.35-.180 (m, 6H); 1.10 (s, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 175.7, 169.2, 167.4, 139.7, 129.4, 128.8, 127.7, 50.3, 43.2, 43.0, 41.7, 30.6, 29.7, 23.2, 22.5, 12.9. MS ($M+H^+$) 314. Anal. calc'd for $C_{18}H_{23}N_3O_2 \cdot 0.56\ H_2O$: C, 66.83; H, 7.52; N, 12.99. Found: C, 66.82; H, 7.01; N, 12.57.

(-)-N-(3,3-Dimethylbutyl)-4-(3-methyl-[1,2,4]oxadiazol-5-yl)benzamide (21B): mp 155-156°. $[\alpha]_D$ ($CHCl_3$, c1.00) -22.8°. ^{1}H NMR (400 MHz, $CDCl_3$): 8.17 (d, J = 7.6 Hz, 2H); 7.89 (d, J = 7.6 Hz, 2H); 6.17 (br s, 1H); 3.50-3.65 (m, 1H); 3.20-3.35 (m, 1H); 2.49 (s, 3H); 1.85-2.00 (m, 1H); 1.35-.180 (m, 6H); 1.10 (s, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 175.7, 169.2, 167.4, 139.7, 129.4, 128.8, 127.7, 50.3, 43.2, 43.0, 41.7, 30.6, 29.7, 23.2, 22.5,

12.9. MS ($M+H^+$) 314. Anal. calc'd for $C_{18}H_{23}N_3O_2$: C, 68.98; H, 7.40; N, 13.41. Found: C, 68.78; H, 6.85; N, 13.10.

(+)-N-(3,3-Dimethylbutyl)-4-(3-propyl-[1,2,4]oxadiazol-5-yl)benzamide (22A): mp 88-90°. $[\alpha]_D$ ($CHCl_3$, c0.49) +21°. ^1H NMR (400 MHz, $CDCl_3$): 8.18 (d, J = 8.2 Hz, 2H); 7.89 (d, J = 8.2 Hz, 2H); 6.20 (br s, 1H); 3.50-3.55 (m, 1H); 3.20-3.35 (m, 1H); 2.79 (t, J = 7.3 Hz, 2H); 1.40-2.00 (m, 9 H); 1.10 (s, 3H); 1.04 (t, J = 7.3 Hz, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 174.6, 171.5, 166.4, 138.6, 128.4, 127.7, 126.8, 49.3, 42.2, 41.9, 40.7, 29.6, 28.7, 28.1, 22.2, 21.4, 20.6, 13.8. MS ($M+H^+$) 342. Anal. calc'd for $C_{20}H_{27}N_3O_2$: C, 70.35; H, 7.97; N, 12.31. Found: C, 70.09; H, 7.91; N, 12.17.

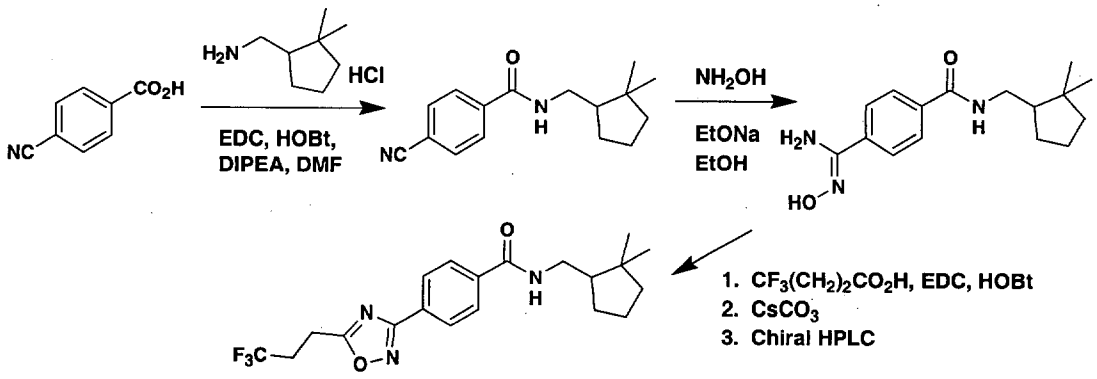
(-)-N-(3,3-Dimethylbutyl)-4-(3-propyl-[1,2,4]oxadiazol-5-yl)benzamide (22B): mp 88-90°. $[\alpha]_D$ ($CHCl_3$, c0.50) -21.6°. ^1H NMR (400 MHz, $CDCl_3$): 8.18 (d, J = 8.2 Hz, 2H); 7.89 (d, J = 8.2 Hz, 2H); 6.20 (br s, 1H); 3.50-3.55 (m, 1H); 3.20-3.35 (m, 1H); 2.79 (t, J = 7.3 Hz, 2H); 1.40-2.00 (m, 9 H); 1.10 (s, 3H); 1.04 (t, J = 7.3 Hz, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 174.6, 171.5, 166.4, 138.6, 128.4, 127.7, 126.8, 49.3, 42.2, 41.9, 40.7, 29.6, 28.7, 28.1, 22.2, 21.4, 20.6, 13.8. MS ($M+H^+$) 342. Anal. calc'd for $C_{20}H_{27}N_3O_2$: C, 70.35; H, 7.97; N, 12.31. Found: C, 70.14; H, 7.84; N, 12.09.

(+)-4-(3-Cyclopropylmethyl-[1,2,4]oxadiazol-5-yl)-N-(3,3-dimethylbutyl)benzamide (23A): mp 116-117°. $[\alpha]_D$ ($CHCl_3$, c 0.35) +17°. ^1H NMR (270 MHz, $CDCl_3$): 8.17 (d, J = 6.7 Hz, 2H); 7.87 (d, J = 6.7 Hz, 2H); 6.12-6.22 (br s, 1H); 3.52-3.61 (m, 1H); 3.20-3.28 (m, 1H); 2.70 (d, J = 7.2 Hz, 2H); 1.89-1.96 (m, 1H); 1.41-1.69 (m, 6H); 1.16-1.21 (m, 1H); 1.07 (s, 3H); 0.87 (s, 3H); 0.54-0.61 (m, 2H); 0.26-0.31 (m, 2H). ^{13}C NMR (68 MHz, $CDCl_3$): 174.5, 171.1, 166.3, 138.5, 128.3, 127.6, 126.8, 49.3, 42.1, 41.8, 40.6, 31.0, 29.5, 28.6, 22.1, 21.4, 8.8,

4.8. MS (M+H$^+$) 354. Anal. calc'd. for $C_{21}H_{27}N_3O_2$: C, 71.36; H, 7.70, N, 11.89. Found: C, 71.57; H, 7.81; N, 11.76.

(-)-4-(3-Cyclopropylmethyl-[1,2,4]oxadiazol-5-yl)-N-(3,3-dimethylbutyl)benzamide (23B): mp 116-117°. $[\alpha]_D$ ($CHCl_3$, c 0.33) -18°. ^{1}H NMR (270 MHz, $CDCl_3$): 8.17 (d, J = 6.7 Hz, 2H); 7.87 (d, J = 6.7 Hz, 2H); 6.12-6.22 (br s, 1H); 3.52-3.61 (m, 1H); 3.20-3.28 (m, 1H); 2.70 (d, J = 7.2 Hz, 2H); 1.89-1.96 (m, 1H); 1.41-1.69 (m, 6H); 1.16-1.21 (m, 1H); 1.07 (s, 3H); 0.87 (s, 3H); 0.54-0.61 (m, 2H); 0.26-0.31 (m, 2H). ^{13}C NMR (68 MHz, $CDCl_3$): 174.5, 171.1, 166.3, 138.5, 128.3, 127.6, 126.8, 49.3, 42.1, 41.8, 40.6, 31.0, 29.5, 28.6, 22.1, 21.4, 8.8, 4.8. MS (M+H$^+$) 354. Anal. calc'd. for $C_{21}H_{27}N_3O_2$: C, 71.36; H, 7.70, N, 11.89. Found: C, 71.29; H, 7.68; N, 11.78.

N-[(2,2-dimethylcyclopentyl)methyl]-4-[5-(3,3,3-trifluoropropyl)-1,2,4-oxadiazole-3-yl]benzamide (24A, 24B):



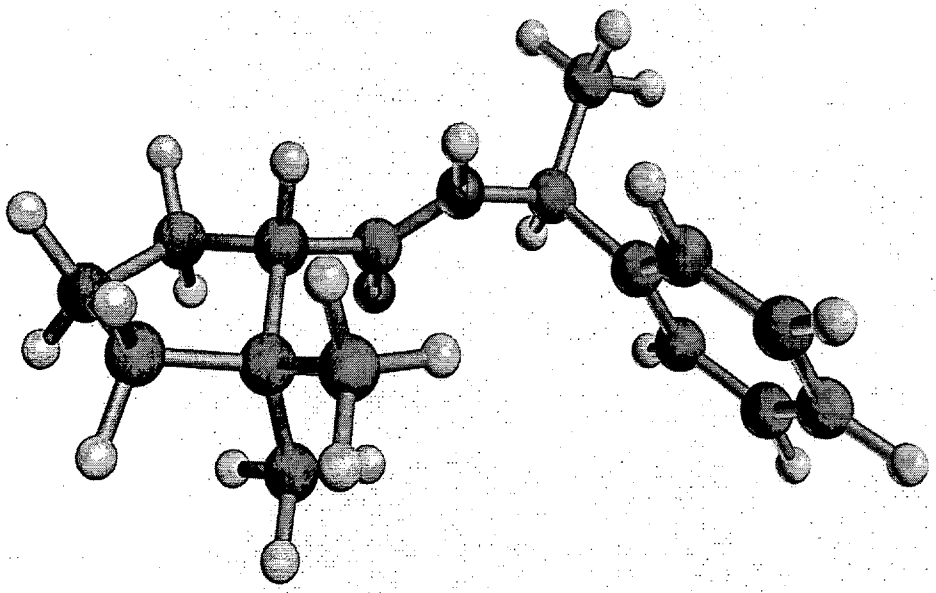
A mixture of 4-cyanobenzoic acid (1.47 g, 10.0 mmol), 2,2-dimethylcyclopentylmethylamine hydrochloride (1.64 mg, 10.0 mmol), 3-(3-dimethylamino)propylethylcarbodiimide hydrochloride (2.97 g, 10.0 mmol) and hydroxybenzotriazole monohydrate (1.35 g, 10.0 mmol) in 20 mL of dimethylformamide under argon at 0-5° C was treated with diisopropylethylamine (1.8 mL, 1.3g, 10 mmol). After 10 min the ice bath was removed and the reaction was stirred for 16 h at room temperature. The reaction mixture was diluted with ethyl acetate and washed

with 10% citric acid, water and brine. The dried ($MgSO_4$) organic fraction was concentrated to give 2.5 g of 4-(cyano)-N-[(2,2-dimethylcyclopentyl)methyl]benzamide as a white solid. Crystallization from ethyl acetate/hexane gave 2.07 g of product. Additional product was obtained from the mother liquors by flash chromatography on silica gel (20% ethyl acetate, hexane) for a total of 2.44 g (93 %). mp 156-158.5°. MS ($M+H^+$) 257. Anal. calc'd. for $C_{16}H_{20}N_2O$: C, 74.97; H, 7.86, N, 10.93. Found: C, 74.87; H, 7.99; N, 10.79. To freshly prepared sodium ethoxide in ethanol (from 36 mg, (1.6 mmol) sodium metal in 3 mL of absolute ethanol) was added hydroxylamine hydrochloride (102 mg, 1.47 mmol) and two drops of water, followed by 4-(cyano)-N-[(2,2-dimethylcyclopentyl)methyl]benzamide (378 mg, 1.47 mmol). After stirring for two days at room temperature, the mixture was cooled in an ice bath, and the solids were filtered and washed with a small amount of cold ethanol. The combined filtrate and washings were concentrated and the residue redissolved in ethanol, cooled in an ice bath, and the solids filtered and washed with a small amount of cold ethanol. The combined filtrate and washings were concentrated *in vacuo* to give 430 mg (100%) of (4-N-hydroxyamidinyl)-2,2-dimethylcyclopentylmethyl benzamide as a white solid. mp 70-85°. ^1H NMR (400 MHz, $CDCl_3$): 7.54 (d, J = 5.9 Hz, 2H); 7.41 (d, J = 5.9 Hz, 2H); 6.55-6.75 (br s, 1H); 5.05-5.35 (br s, 2H); 3.30-3.50 (m, 1H); 3.05-3.25 (m, 1H); 1,25-1.90 (m, 7H); 0.98 (s, 3H); 0.78 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 167.3, 152.7, 136.3, 134.6, 127.3, 126.2, 77.3, 49.1, 42.2, 41.8, 40.6, 29.5, 28.6, 22.1, 21.4. MS ($M-H^-$) 288. A solution of (4-N-hydroxyamidinyl)-2,2-dimethylcyclopentylmethylbenzamide (290 mg, 1.0 mmol) and ethyl 4,4,4-trifluorobutyrate (200 mg, 1.17 mmol) in 3 mL of dimethylformamide under argon at room temperature was treated with sodium hydride (50 mg, 60 % in mineral oil, 1.25 mmol). After stirring for 16 h, the reaction mixture was diluted with ethyl acetate and washed with water and brine, dried ($MgSO_4$)

and concentrated to give 250 mg. Flash chromatography on silica gel, eluting with 20% ethyl acetate, hexane gave 220 mg of racemic product. Chiral chromatography on 50x500 mm Chirapak AD column, eluting with 15% 2-propanol, hexane at 50 mL/min. provided the individual enantiomers. (+)-N-[(2,2-dimethylcyclopentyl)methyl]-4-[5-(3,3,3-trifluoropropyl)-1,2,4-oxadiazole-3-yl]-benzamide (**24A**) 88.7 mg (22.4 %). mp 116-118°. $[\alpha]_D$ ($CHCl_3$, c0.88) +17°. ^1H NMR (400 MHz, $CDCl_3$): 8.13 (d, J = 8.2 Hz, 2H); 7.86 (d, J = 8.8 Hz, 2H); 6.13 (br s, 1H); 3.50-3.65 (m, 1H); 3.15-3.35 (m, 3H); 2.65-2.85 (m, 2H); 1.95-2.00 (m, 1H); 1.35-1.80 (m, 6H); 1.10 (s, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 178.1, 168.9, 167.6, 138.4, 128.6, 128.4, 77.0, 50.2, 43.1, 42.7, 41.5, 31.6, 30.4, 29.6, 23.0, 22.3, 22.1, 21.0. MS ($M+H^+$) 396. Anal. calc'd. for $C_{20}H_{24}F_3N_3O_2$: C, 60.75; H, 6.12, N, 10.63; F, 14.41. Found: C, 60.57; H, 6.22; N, 10.48; F, 14.02. (-)-N-[(2,2-dimethylcyclopentyl)methyl]-4-[5-(3,3,3-trifluoropropyl)-1,2,4-oxadiazole-3-yl]benzamide (**24B**) 86.2 mg (21.8 %). mp 116-118°. $[\alpha]_D$ ($CHCl_3$, c0.96) -17°. ^1H NMR (400 MHz, $CDCl_3$): 8.13 (d, J = 8.2 Hz, 2H); 7.86 (d, J = 8.8 Hz, 2H); 6.13 (br s, 1H); 3.50-3.65 (m, 1H); 3.15-3.35 (m, 3H); 2.65-2.85 (m, 2H); 1.95-2.00 (m, 1H); 1.35-1.80 (m, 6H); 1.10 (s, 3H); 0.89 (s, 3H). ^{13}C NMR (100 MHz, $CDCl_3$): 178.1, 168.9, 167.6, 138.4, 128.6, 128.4, 77.0, 50.2, 43.1, 42.7, 41.5, 31.6, 30.4, 29.6, 23.0, 22.3, 22.1, 21.0. MS ($M+H^+$) 396. Anal. calc'd. for $C_{20}H_{24}F_3N_3O_2$: C, 60.75; H, 6.12, N, 10.63; F, 14.41. Found: C, 60.87; H, 6.21; N, 10.45; F, 14.10.

Crystallographic data and details of refinement:

Compound **38**:



Temperature, °C	-30
Solvent	CCl_4/hexanes
a, angstrom	6.901(1)
b, angstrom	9.827(2)
c, angstrom	21.699(5)
V, angstrom^3	1471.5(9)
Space Group	$P2_12_12_1$
d_{obs}, g-cm^{-3}	1.08 (@ 22EC)
d_{calc}, g-cm^{-3}	1.107 (@ -30EC)
Formula	$C_{16}H_{23}NO$
Fw	245.37
Z	4
Habit	colorless rods

m, cm^{-1}	5.0
Instrument	CAD4/Rigaku Rotating Anode
λ, Angstrom	1.5418
2θmax, °	140
N_{ref}[a]	1660
N_{uni}[b]	1660
N_{obs}[c]	1460
N_{var}[d]	164
ERRWT[e]	2.14
R	0.042
R_w	0.059
$R_{enatiomer}$	0.042
$R_{w\ enatiomer}$	0.059

[a]Total number of measured reflections within (2q)max. [b]Total number of symmetry-independent measured reflections. [c]Total number of "observed" reflections with I≥3s(I) used in least-squares refinement. [d]Number of variables in least-squares refinements. [e]Error in an observation of unit weight.

Table of Positional Parameters and Their Estimated Standard Deviations for compound **51** at -30°C.

Atom	x	y	z	B(A2)
O1	0.0456(3)	0.9565(2)	0.71764(7)	3.93(4)

C1	0.1273(4)	0.7491(2)	0.66443(9)	2.85(4)
C2	0.3519(4)	0.7340(2)	0.6616(1)	3.49(5)
C3	0.3751(6)	0.6823(4)	0.5953(1)	6.53(8)
C4	0.2213(6)	0.7503(4)	0.5568(1)	7.07(9)
C5	0.0716(5)	0.8082(3)	0.6013(1)	4.50(6)
C6	0.0552(4)	0.8306(2)	0.71876(9)	2.62(4)
N7	0.0083(3)	0.7571(2)	0.76859(7)	2.87(3)
C8	-0.0442(4)	0.8179(2)	0.82766(9)	2.76(4)
C9	-0.2350(4)	0.7583(3)	0.8507(1)	3.89(5)
C10	0.1144(3)	0.8000(2)	0.87535(9)	2.62(4)
C11	0.1784(4)	0.9097(2)	0.9101(1)	3.70(5)
C12	0.3138(4)	0.8924(3)	0.9567(1)	4.46(6)
C13	0.3865(4)	0.7667(3)	0.9694(1)	4.25(6)
C14	0.3275(4)	0.6558(3)	0.9343(1)	4.23(5)
C15	0.1927(4)	0.6723(2)	0.8875(1)	3.29(4)
C16	0.4272(5)	0.6275(3)	0.7070(1)	4.96(6)
C17	0.4565(5)	0.8672(3)	0.6727(2)	6.85(9)
H11	0.058	0.651	0.671	3.7*
H31	0.519	0.719	0.578	7.8*
H32	0.374	0.575	0.593	7.8*
H41	0.272	0.825	0.526	7.8*
H42	0.146	0.669	0.529	7.8*
H51	-0.076	0.781	0.589	5.3*
H52	0.083	0.919	0.602	5.3*
H71	0.012	0.654	0.765	3.7*
H81	-0.060	0.926	0.821	3.5*
H91	-0.274	0.806	0.894	4.9*
H92	-0.350	0.779	0.818	4.9*
H93	-0.222	0.651	0.858	4.9*
H111	0.120	1.010	0.900	4.6*
H121	0.363	0.982	0.983	5.5*
H131	0.487	0.754	1.008	5.1*
H141	0.389	0.556	0.943	5.3*

H151	0.144	0.585	0.860	4.1*
H161	0.581	0.621	0.704	5.7*
H162	0.385	0.656	0.753	5.7*
H163	0.362	0.530	0.696	5.7*
H171	0.610	0.855	0.670	7.4*
H172	0.412	0.940	0.635	7.4*
H173	0.415	0.912	0.716	7.4*

Starred atoms were refined isotropically. Parameters without errors were not refined. Anisotropically refined atoms are given in the form of the isotropic equivalent displacement parameter defined as:(4/3) * [a2*B(1,1) + b2*B(2,2) + c2*B(3,3) + ab(cos gamma)*B(1,2) ac(cos beta)*B(1,3) + bc(cos alpha)*B(2,3)]

Table of General Displacement Parameter Expressions - U's

Name	U(1,1)	U(2,2)	U(3,3)	U(1,2)	U(1,3)	U(2,3)
O1	0.080(1)	0.0262(7)	0.0436(8)	0.0045(9)	0.0127(9)	0.0038(7)
C1	0.048(1)	0.0301(9)	0.0305(9)	0.001(1)	-0.0021(9)	-0.0006(9)
C2	0.047(1)	0.040(1)	0.046(1)	0.007(1)	0.003(1)	-0.001(1)
C3	0.097(2)	0.101(2)	0.051(1)	0.043(2)	0.015(2)	-0.003(2)
C4	0.123(3)	0.109(2)	0.036(1)	0.048(2)	0.014(2)	0.007(2)
C5	0.079(2)	0.061(1)	0.030(1)	0.022(2)	-0.003(1)	0.003(1)
C6	0.042(1)	0.0274(9)	0.0298(8)	0.002(1)	-0.0021(9)	0.0020(8)
N7	0.056(1)	0.0260(8)	0.0274(7)	0.0015(9)	-0.0003(8)	-0.0008(7)
C8	0.047(1)	0.0294(9)	0.0286(9)	0.004(1)	0.001(1)	-0.0020(8)
C9	0.039(1)	0.060(1)	0.050(1)	-0.001(1)	0.000(1)	0.001(1)
C10	0.037(1)	0.034(1)	0.0281(9)	-0.0028(9)	0.0040(9)	0.0024(9)
C11	0.061(1)	0.037(1)	0.042(1)	-0.010(1)	-0.002(1)	-0.001(1)
C12	0.059(1)	0.066(2)	0.044(1)	-0.022(1)	-0.006(1)	-0.005(1)

C13	0.036(1)	0.088(2)	0.037(1)	-0.001(1)	-0.000(1)	0.003(1)
C14	0.050(1)	0.065(1)	0.046(1)	0.022(1)	-0.002(1)	0.001(1)
C15	0.047(1)	0.042(1)	0.036(1)	0.010(1)	-0.001(1)	-0.002(1)
C16	0.055(1)	0.060(2)	0.074(2)	0.010(1)	-0.014(1)	0.010(1)
C17	0.055(2)	0.053(2)	0.152(3)	-0.012(2)	0.020(2)	-0.000(2)

The form of the anisotropic displacement parameter is: exp [-2PI2{h2a2U(1,1) + k2b2U(2,2) + l2c2U(3,3) + 2hkabU(1,2) + 2hlacU(1,3) + 2klbcU(2,3)}] where a,b, and c are reciprocal lattice constants.

Table of Bond Distances in Angstroms

Atom 1	Atom 2	Distance	Atom 1	Atom 2	Distance
O1	C6	1.239(3)	N7	C8	1.460(3)
C1	C2	1.558(4)	C8	C9	1.525(3)
C1	C5	1.536(3)	C8	C10	1.516(3)
C1	C6	1.510(3)	C10	C11	1.387(3)
C2	C3	1.534(4)	C10	C15	1.392(3)
C2	C16	1.527(4)	C11	C12	1.387(4)
C2	C17	1.514(4)	C12	C13	1.362(4)
C3	C4	1.507(5)	C13	C14	1.391(4)
C4	C5	1.525(5)	C14	C15	1.387(4)
C6	N7	1.340(3)			

Table of Bond Angles in Degrees

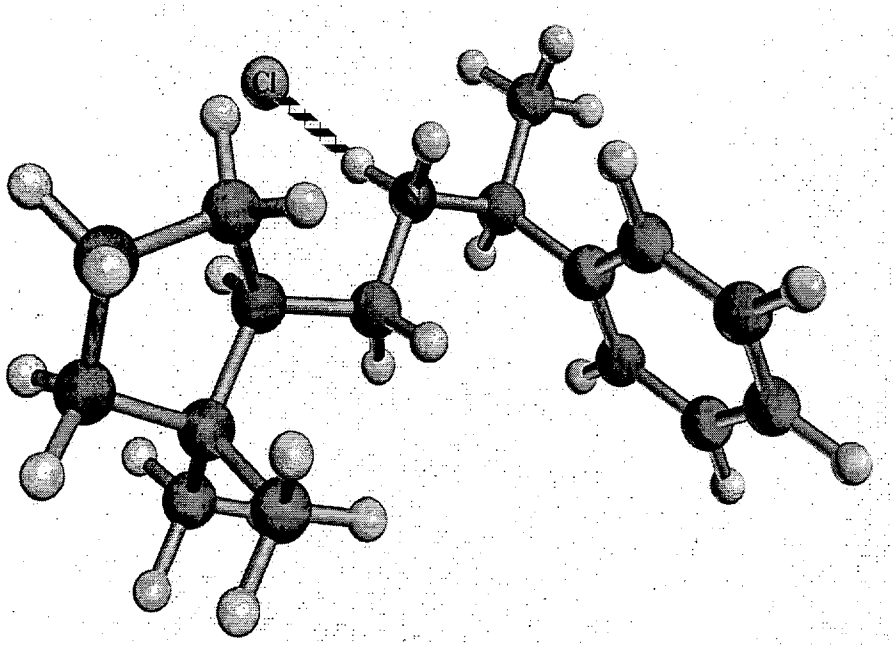
Atom 1	Atom 2	Atom 3	Angle	Atom 1	Atom 2	Atom 3	Angle
C2	C1	C5	104.5(2)	C1	C6	N7	115.1(2)
C2	C1	C6	114.1(2)	C6	N7	C8	123.2(2)
C5	C1	C6	114.4(2)	N7	C8	C9	110.2(2)

C1	C2	C3	99.9(2)	N7	C8	C10	111.9(2)
C1	C2	C16	112.2(2)	C9	C8	C10	110.8(2)
C1	C2	C17	112.7(2)	C8	C10	C11	120.7(2)
C3	C2	C16	110.0(2)	C8	C10	C15	120.9(2)
C3	C2	C17	112.7(3)	C11	C10	C15	118.3(2)
C16	C2	C17	109.1(2)	C10	C11	C12	121.1(2)
C2	C3	C4	107.4(3)	C11	C12	C13	120.5(3)
C3	C4	C5	106.9(2)	C12	C13	C14	119.4(2)
C1	C5	C4	104.7(2)	C13	C14	C15	120.4(3)
O1	C6	C1	122.1(2)	C10	C15	C14	120.3(2)
O1	C6	N7	122.7(2)				

Numbers in parentheses are estimated standard deviations in the least significant digits.

Orthorhombic crystals from carbontetrachloride and hexanes. a= 6.901(1), b= 9.827(2), c=21.699(5) angstrom; space group= $P2_12_12_1$, Z=4; d_{calc}=1.107 g-cm^{-3}(@-30 °C), d_{obs}=1.08 g-cm^{-3}(@22 °C). R= 0.042 for 1460 observed intensities ($I \geq 3s(I)$).

Amine hydrochloride from LAH reduction of compound **39.**



Crystallographic Data and Details of Refinement at -28°C.

Temperature, °C	-28
Solvent	Methanol
a, Å	7.217(1)
b, Å	11.757(2)
c, Å	18.607(2)
V, $Å^3$	1578.8(7)
Space Group	$P2_12_12_1$
dobs, $g\text{-}cm^{-3}$	1.116 (@ 22°C)
dcalc, $g\text{-}cm^{-3}$	1.127 (@ -28°C)
Formula	$C_{16}H_{26}N^+ \bullet Cl^-$

fw	267.85
Z	4
Habit	colorless rods
μ, cm-1	20.2
Instrument	CAD4/sealed x-ray tube
λ, Å	1.5418
2θmax, °	140
Nref[a]	1739
Nuni[b]	1739
Nobs[c]	1635
Nvar[d]	164
ERRWT[e]	2.34
R	.040
R_w	.059
$R_{enatiomer}$	.052
$R_{w\ enatiomer}$	.077

[a]Total number of measured reflections within (2θ)max. [b]Total number of symmetry-independent measured reflections. [c]Total number of "observed" reflections with $I \geq 3\sigma(I)$ used in least-squares refinement. [d]Number of variables in least-squares refinements. [e]Error in an observation of unit weight.

Table of Positional Parameters and Their Estimated Standard Deviations at -28°C.

Atom	x	y	z	B(A2)
Cl1	0.98077(9)	0.87984(5)	0.49146(4)	3.50(1)
C1	0.9660(4)	0.6158(2)	0.3598(1)	2.67(4)
C2	1.0505(4)	0.5573(2)	0.2928(1)	2.74(4)
C3	0.9490(4)	0.6198(3)	0.2319(1)	3.54(5)
C4	0.7517(5)	0.6420(4)	0.2593(2)	4.91(8)
C5	0.7605(5)	0.6300(4)	0.3414(2)	5.04(7)
C6	1.0029(4)	0.5536(2)	0.4299(1)	2.89(5)
N7	0.9203(3)	0.6139(2)	0.4927(1)	2.62(4)
C8	0.9949(4)	0.5742(2)	0.5645(1)	2.84(4)
C9	0.8930(4)	0.6363(3)	0.6246(1)	3.56(5)
C10	0.9835(4)	0.4458(2)	0.5717(1)	3.00(5)
C11	1.1455(5)	0.3862(3)	0.5881(2)	4.17(6)
C12	1.1354(7)	0.2680(3)	0.5972(2)	5.63(8)
C13	0.9705(8)	0.2109(3)	0.5881(2)	5.84(9)
C14	0.8132(6)	0.2699(3)	0.5714(2)	4.68(7)
C15	0.8180(4)	0.3879(3)	0.5632(1)	3.51(5)
C16	1.2587(5)	0.5726(4)	0.2879(2)	5.03(8)
C17	1.0022(7)	0.4311(2)	0.2896(2)	4.99(8)
H11	1.034	0.697	0.369	3.7*
H31	1.020	0.698	0.219	4.6*
H32	0.946	0.567	0.184	4.6*
H41	0.707	0.728	0.244	6.2*
H42	0.654	0.582	0.237	6.2*
H51	0.681	0.560	0.360	6.5*
H52	0.708	0.708	0.368	6.5*
H61	0.944	0.469	0.427	3.8*
H62	1.151	0.547	0.438	3.8*
H71	0.947	0.697	0.488	3.6*
H72	0.783	0.602	0.492	4.0*
H81	1.141	0.593	0.569	3.8*
H91	0.946	0.607	0.676	4.4*

H92	0.914	0.726	0.619	4.4*
H93	0.747	0.617	0.621	4.4*
H111	1.275	0.431	0.593	5.4*
H121	1.261	0.222	0.611	7.2*
H141	0.679	0.224	0.563	6.1*
H151	0.693	0.436	0.550	4.6*
H161	1.311	0.529	0.239	6.4*
H162	1.296	0.661	0.284	6.4*
H163	1.327	0.535	0.334	6.4*
H171	1.059	0.393	0.242	6.1*
H172	1.052	0.388	0.337	6.1*
H173	0.850	0.422	0.288	6.1*

Starred atoms were refined isotropically. Parameters without errors were not refined. Anisotropically refined atoms are given in the form of the isotropic equivalent displacement parameter defined as: (4/3) * [a2*B(1,1) + b2*B(2,2) + c2*B(3,3) + ab(cos gamma)*B(1,2) + ac(cos beta)*B(1,3) + bc(cos alpha)*B(2,3)]

Table of General Displacement Parameter Expressions - U's

Name	U(1,1)	U(2,2)	U(3,3)	U(1,2)	U(1,3)	U(2,3)
C11	0.0340(3)	0.0394(3)	0.0596(3)	-0.0009(3)	-0.0048(3)	0.0025(3)
C1	0.036(1)	0.033(1)	0.032(1)	0.001(1)	0.003(1)	0.002(1)
C2	0.036(1)	0.034(1)	0.033(1)	0.001(1)	0.002(1)	-0.000(1)
C3	0.049(1)	0.052(1)	0.034(1)	0.009(1)	0.004(1)	0.007(1)
C4	0.048(2)	0.097(3)	0.041(1)	0.017(2)	-0.002(1)	0.011(2)
C5	0.042(1)	0.105(2)	0.044(1)	0.025(2)	0.004(1)	0.011(2)
C6	0.041(1)	0.039(1)	0.030(1)	0.006(1)	0.001(1)	-0.0003(9)
N7	0.0302(9)	0.035(1)	0.0345(9)	-0.0008(8)	0.0025(8)	0.0001(9)
C8	0.039(1)	0.039(1)	0.030(1)	-0.000(1)	-0.000(1)	-0.0022(9)

C9	0.051(2)	0.048(1)	0.037(1)	-0.001(1)	0.006(1)	-0.009(1)
C10	0.048(1)	0.041(1)	0.025(1)	0.005(1)	0.000(1)	0.0013(9)
C11	0.054(2)	0.061(2)	0.043(1)	0.017(2)	-0.003(1)	0.004(1)
C12	0.091(3)	0.058(2)	0.065(2)	0.031(2)	0.002(2)	0.011(2)
C13	0.127(3)	0.041(1)	0.053(2)	0.009(2)	0.016(2)	0.010(1)
C14	0.085(2)	0.046(2)	0.047(1)	-0.010(2)	0.008(2)	0.006(1)
C15	0.051(2)	0.041(1)	0.041(1)	-0.006(1)	0.003(1)	0.005(1)
C16	0.038(1)	0.107(3)	0.046(1)	0.005(2)	0.007(1)	-0.009(2)
C17	0.106(3)	0.037(1)	0.046(1)	0.002(2)	0.002(2)	-0.004(1)

The form of the anisotropic displacement parameter is: exp [-2PI2{h2a2U(1,1) + k2b2U(2,2) + l2c2U(3,3) + 2hkabU(1,2) + 2hlacU(1,3) + 2klbcU(2,3)}] where a,b, and c are reciprocal lattice constants.

Table of Bond Distances in Angstroms

Atom 1	Atom 2	Distance	Atom 1	Atom 2	Distance
C1	C2	1.548(3)	N7	C8	1.513(3)
C1	C5	1.531(4)	C8	C9	1.524(4)
C1	C6	1.519(3)	C8	C10	1.518(4)
C2	C3	1.536(4)	C10	C11	1.397(5)
C2	C16	1.516(4)	C10	C15	1.384(4)
C2	C17	1.526(4)	C11	C12	1.401(5)
C3	C4	1.535(5)	C12	C13	1.377(7)
C4	C5	1.535(4)	C13	C14	1.367(7)
C6	N7	1.491(3)	C14	C15	1.395(4)

Table of Bond Angles in Degrees

Atom 1	Atom 2	Atom 3	Angle	Atom 1	Atom 2	Atom 3	Angle
C2	C1	C5	104.5(2)	C6	N7	C8	113.8(2)
C2	C1	C6	114.1(2)	N7	C8	C9	109.2(2)
C5	C1	C6	114.4(2)	N7	C8	C10	111.4(2)
C1	C2	C3	101.2(2)	C9	C8	C10	112.7(2)
C1	C2	C16	112.8(2)	C8	C10	C11	118.3(3)
C1	C2	C17	111.9(2)	C8	C10	C15	121.7(3)
C3	C2	C16	111.8(2)	C11	C10	C15	120.0(3)
C3	C2	C17	109.1(2)	C10	C11	C12	118.7(3)
C16	C2	C17	109.8(3)	C11	C12	C13	120.9(4)
C2	C3	C4	106.2(2)	C12	C13	C14	119.9(3)
C3	C4	C5	106.0(3)	C13	C14	C15	120.6(4)
C1	C5	C4	105.8(2)	C10	C15	C14	119.9(3)
C1	C6	N7	112.0(2)				