Supplementary information for

Transmitting information along oligoparaphenylenes: 1,12- stereochemical control in a terphenyl tetracarboxamide.

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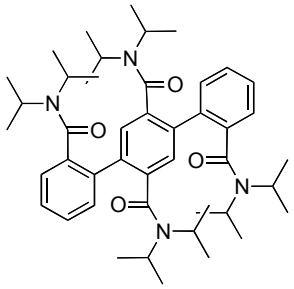
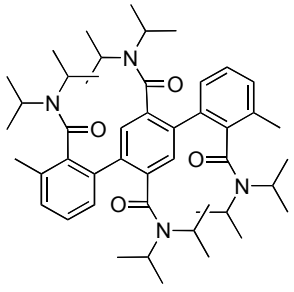
General experimental details have been reported previously.[1]

***N,N,N',N',N'',N'',N''',N'''*-Octaisopropyl-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide 3**



2-(*N,N*-Diisopropylcarboxamido)phenylboronic acid[2] (300 mg, 1.20 mmol), $Pd(PPh_3)_4$ (76 mg, 0.066 mmol), and Na_2CO_3 2M aqueous solution (15 mL) were added to a solution of 2,5-diiodo-*N,N,N',N'*-tetraisopropylterephthalamide[3] (260 mg, 0.44 mmol) in toluene (20 mL). The mixture was stirred at reflux overnight. The mixture was partitioned between AcOEt and saturated aqueous NH_4Cl aq, and the aqueous phase was extracted with AcOEt. The organic extracts were dried, filtered and the solvent was removed under reduced pressure. The crude product was purified by flash chromatography (Petrol to petrol:AcOEt 40%) to yield tetramide **3** (284 mg, 86%).
^{1}H-NMR ($CDCl_3$, 500 MHz) δ 0.38 (d, *J* = 6.5Hz, 3H), 0.81 (d, *J* = 6.5Hz, 3H), 0.97-1.10 (m, 9H), 1.13 (d, *J* = 6.5Hz, 3H), 1.16 (d, *J* = 6.5Hz, 3H), 1.22 (d, *J* = 6.5 Hz, 3H), 1.27 (d, *J* = 6.5 Hz, 3H), 1.30-1.30 (m, 3H), 1.35 (d, *J* = 6.5 Hz, 3H), 1.39 (d, *J* = 6.5 Hz, 3H), 1.40 (d, *J* = 6.5 Hz, 3H), 1.38-1.43 (m, 3H), 1.43 (d, *J* = 6.5 Hz, 3H), 1.53 (d, *J* = 6.5 Hz, 3H), 3.16 (septet, *J* = 6.5 Hz, 1H), 3.25-3.36 (m, 2H), 3.42 (septet, *J* = 6.5 Hz, 1H), 3.78 (septet, *J* = 6.5 Hz, 1H), 3.85-3.90 (m, 1H), 3.92 (septet, *J* = 6.5 Hz, 1H), 4.07-4.19 (m, 1H), 7.10 (br s, Hz, 1H), 7.13-7.18 (m, 3H), 7.20-7.25 (m, 5H), 7.40-7.72 (m, 1H). .^{13}C-NMR ($CDCl_3$, 75.5 MHz) δ 19.5 (CH3), 20.28 (CH3), 20.36 (CH3), 20.45 (CH3), 20.5 (CH3), 20.6 (CH3), 20.8 (CH3), 21.2 (CH3), 45.6 (CH), 45.8 (CH), 50.3 (CH), 50.6 (CH), 125.7 (CH), 126.5 (CH), 127.0 (CH), 127.2 (CH), 127.4 (CH), 127.8 (CH), 129.8 (Cq), 132.2 (CH), 134.9 (Cq), 136.1 (Cq), 136.5 (Cq), 137.5 (Cq), 137.9 (Cq), 138.0 (Cq), 138.2 (Cq), 168.9 (Cq), 169.4 (Cq), 170.1 (Cq).IR (film) 1635 cm^{-1}. HRMS Calcd for $C_{46}H_{66}N_4O_4Na$: 761.4976. Found 761.4969. Anal. Calcd for $C_{46}H_{66}N_4O_4 \cdot {}^5/_4CH_2Cl_2$: C, 67.16; H, 8.17; N, 6.63. Found: C, 67.16; H, 8.21; N, 6.47.

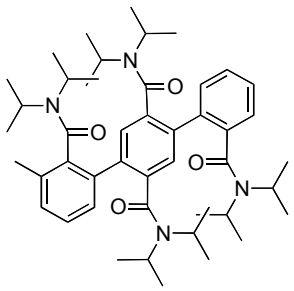
***N,N,N',N',N'',N'',N''',N'''*-Octaisopropyl-3,3''-dimethyl-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide 5**



To a solution of **3** (100 mg, 0.13 mmol) in dry THF (10 mL) was added *N,N,N',N'*-tetramethylethylenediamine (204 μL, 1.35 mmol) and the solution was cooled to –78 ºC under nitrogen and stirred for 5 min. *s*-Butyllithium (1.06 mL, 1.35 mmol, 1.28 M in hexanes) was added and the mixture was stirred for 1 h. Methyl iodide (168 μL, 2.70 mmol) was added and the mixture was stirred for 30 min. The solution was allowed to warm to room temperature and the mixture was

partitioned between AcOEt and H_2O. The aqueous phase was extracted with AcOEt, and the organic extracts were dried, filtered and the solvent was removed under reduced pressure. The crude product was purified by flash chromatography (Petrol to petrol:AcOEt 30%) to yield **5** (22 mg, 21%):
M.p. 278-280 ºC. ^{1}H-NMR ($CDCl_3$, 300 MHz) δ 0.66 (d, *J* = 6.6Hz, 6H), 1.02 (d, *J* = 6.6Hz, 6H), 1.31 (d, *J* = 6.9Hz, 18H), 1.36 (d, *J* = 6.6Hz, 6H), 1.45 (d, *J* = 6.9Hz, 6H), 1.51 (d, *J* = 6.9 Hz, 6H), 2.36 (s, 6H), 3.27 (septet, *J* = 6.9 Hz, 2H), 3.49 (septet, *J* = 6.9 Hz, 2H), 3.90 (septet, *J* = 6.6 Hz, 2H), 4.30 (septet, *J* = 6.6 Hz, 2H), 7.04 (d, *J* = 6.6 Hz, 1H), 7.05 (d, *J* = 6.6 Hz, 1H), 7.12-7.16 (m, 4H), 8.03 (s, 2H).
^{13}C-NMR ($CDCl_3$, 75.5 MHz) δ 19.3 (CH3), 19.9 (CH3), 20.1 (CH3), 20.2 (CH3), 20.4 (CH3), 20.88 (CH3), 20.92 (CH3), 21.2 (CH3), 22.7 (CH3), 45.7 (CH), 45.9 (CH), 50.9 (CH), 51.2 (CH), 126.5 (CH), 128.2 (CH), 129.2 (CH), 129.6 (CH), 134.3 (Cq), 134.7 (Cq), 137.2 (Cq), 137.3 (Cq), 138.1 (Cq), 168.7 (Cq), 169.6 (Cq).
IR (film) 1634cm^{-1}
HRMS Calcd for $C_{48}H_{71}N_4O_4$: 767.5470. Found 767.5474.

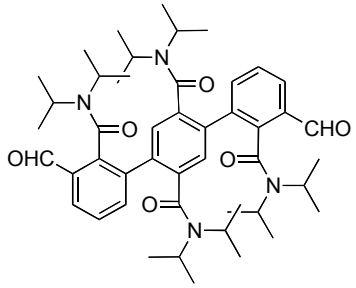
N,N,N',N',N'',N'',N''',N'''-Octaisopropyl-3-methyl-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide **4**



Also obtained from the reaction described above was **4** (45mg, 44%).

¹H-NMR ($CDCl_3$, 300 MHz) δ 0.64 (d, *J* = 6.6 Hz, 3H), 0.73 (d, *J* = 6.6 Hz, 3H), 0.97 (d, *J* = 6.6 Hz, 3H), 1.01 (d, *J* = 6.6 Hz, 3H), 1.18-1.38 (m, 24H), 1.44 (d, *J* = 6.9 Hz, 3H), 1.45 (d, *J* = 6.9 Hz, 3H), 1.52 (d, *J* = 6.9 Hz, 6H), 2.36 (s, 3H), 3.22-3.34 (m, 2H), 3.48 (septet, *J* = 6.6 Hz, 1H), 3.49 (septet, *J* = 6.9 Hz, 1H), 3.87 (septet, *J* = 6.6 Hz, 1H), 3.90 (septet, *J* = 6.9 Hz, 1H), 4.31 (septet, *J* = 6.6 Hz, 2H), 7.04-7.33 (m, 7H), 8.00 (d, *J* = 7.02 Hz, 2H).
¹³C-NMR ($CDCl_3$, 75,5 MHz) δ 19.4 (CH3), 19.8 (CH3), 19.89 (CH3), 19.93 (CH3), 20.1 (CH3), 20.2 (CH3), 20.4 (CH3), 20.5 (CH3), 20.9 (CH3), 21.0 (CH3), 21.2 (CH3), 21.8 (CH3), 22.6 (CH3), 45.6 (CH2), 45.77 (CH2), 45.78 (CH2), 45.9 (CH2), 50.87 (CH2), 50.93 (CH2), 51.0 (CH2), 51.1 (CH2), 126.59 (CH), 126.64 (CH), 127.1 (CH), 127.6 (CH), 128.1 (CH), 129.1 (CH), 129.3 (CH), 129.6 (CH), 130.5 (CH), 134.3 (Cq), 134.7 (Cq), 136.8 (Cq), 137.2 (Cq), 137.3 (Cq), 138.0 (Cq), 138.1 (Cq), 168.5 (Cq), 168.6 (Cq), 169.5 (Cq), 170.3 (Cq). IR (film) 1633 cm⁻¹. HRMS Calcd for $C_{47}H_{69}N_4O_4$: 753.5313. Found: 753.5310.

3,3''-Diformyl-*N,N,N',N',N'',N'',N''',N'''*-octaisopropyl-[1,1';4'',1'']terphenyl-2,2',5',2''-tetracarboxamide **7**

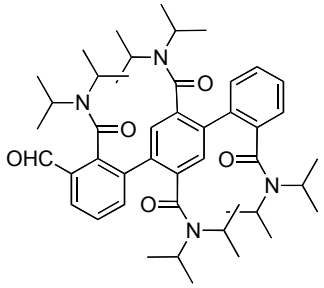


To a solution of **3** (332 mg, 0.45 mmol) in dry THF (60 mL) was added *N,N,N',N'*-tetramethylethylenediamine (0.7 mL, 4.64 mmol) and the solution was cooled at -78ºC under nitrogen and stirred for 5 min. *s*-Butyllithium (3.80 mL, 4.56 mmol, 1.2 M in hexanes) was added and the mixture was stirred for 1 h. Dry DMF (1 mL) was added and the mixture was stirred for 1h. The solution was allowed to warm to room temperature and stirred for 1h. The mixture was partitioned between AcOEt and H_2O and the aqueous phase was extracted with AcOEt. The organic extracts were dried, filtered and the solvent was removed under reduced pressure. The crude product was

purified by flash chromatography (Petrol to petrol:AcOEt 50%) to yield recovered starting material (73mg, 22%), **6** (130 mg, 38%), and **7** (72 mg, 20%).

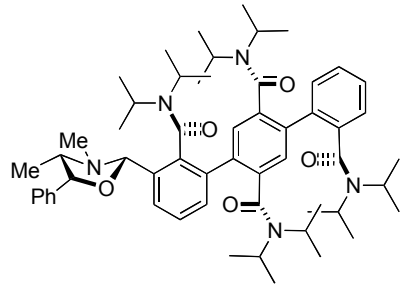
^{1}H-NMR ($CDCl_3$, 300 MHz) δ 0.71 (d, *J* = 6.6 Hz, 6H), 0.89 (d, *J* = 6.9 Hz, 6H), 0.90 (d, *J* = 6.9 Hz, 6H), 0.98 (d, *J* = 6.6 Hz, 6H), 1.30-1.36 (m, 12H), 1.44 (d, *J* = 6.9 Hz, 6H), 1.55 (d, *J* = 6.9 Hz, 6H), 3.35 (septet, *J* = 6.9 Hz, 2H), 3.51 (septet, *J* = 6.6 Hz, 2H), 3.89 (septet, *J* = 6.6 Hz, 2H), 4.33 (septet, *J* = 6.9 Hz, 2H), 7.42 (d, *J* = 7.2 Hz, 2H), 7.44 (d, *J* = 7.2 Hz, 2H), 7.95 (dd, *J* = 7.5 and 1.5 Hz, 2H), 8.10 (s, 2H), 10.16 (s, 2H). ^{13}C-NMR ($CDCl_3$, 75,5 MHz) δ 20.17 (CH3), 20.29 (CH3), 20.34 (CH3), 20.4 (CH3), 20.8 (CH3), 21.3 (CH3), 21.4 (CH3), 22.7 (CH3), 46.0 (CH2), 46.5 (CH2), 51.1 (CH2), 51.6 (CH2), 127.4 (CH), 128.0 (CH), 129.2 (CH), 133.2 (CH), 135.2 (Cq), 136.4 (Cq), 136.6 (Cq), 138.6 (Cq), 140.2 (Cq), 167.0 (Cq), 167.9 (Cq), 190.8 (CH). IR (film) 1631 cm^{-1}. HRMS Calcd for $C_{48}H_{66}N_4O_6Na$: 817.4875. Found: 817.4868.

3-Formyl-*N,N,N',N',N'',N'',N''',N'''*-octaisopropyl-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide 6



^{1}H-NMR ($CDCl_3$, 300 MHz) δ 0.96 (d, *J* = 6.6 Hz, 3H), 0.99 (d, *J* = 6.6 Hz, 3H), 1.53-1.89 (m, 33H), 1.43 (d, *J* = 6.6 Hz, 3H), 1.49 (d, *J* = 6.3 Hz, 3H), 1.54 (d, *J* = 6.3 Hz, 3H), 3.30 (septet, *J* = 6.9 Hz, 1H), 3.32 (septet, *J* = 6.6 Hz, 1H), 3.49 (septet, *J* = 6.3 Hz, 2H), 3.81-3.97 (m, 2H), 4.24-4.38 (m, 2H), 7.21-7.36 (m, 5H), 7.40 (d, *J* = 7.8 Hz, 1H), 7.47 (d, *J* = 7.8 Hz, 1H), 7.94 (d, *J* = 7.5 Hz, 1H), 8.01-9.07 (m, 1H), 10.16 (s, 1H). ^{13}C-NMR ($CDCl_3$, 75,5 MHz) δ 19.8 (CH3), 19.9 (CH3), 20.1 (CH3), 20.2 (CH3), 20.4 (CH3), 20.5 (CH3), 20.8 (CH3), 21.0 (CH3), 21.1 (CH3), 21.8 (CH3), 22.2 (CH3), 23.8 (CH3), 45.6 (CH), 45.9 (CH), 46.0 (CH), 46.5 (CH), 50.4 (CH), 50.98 (CH), 51.00 (CH), 51.5 (CH), 125.9 (CH), 126.7 (CH), 127.2 (CH), 127.3 (CH), 127.7 (CH), 127.9 (CH), 128.9 (CH), 129.5 (CH), 130.5 (CH), 133.2 (Cq), 134.1 (Cq), 135.5 (Cq), 135.8 (Cq), 136.4 (Cq), 137.7 (Cq), 138.0 (Cq), 138.3 (Cq), 140.3 (Cq), 167.0 (Cq), 168.1 (Cq), 168.2 (Cq), 170.2 (Cq), 190.0 (CH). IR (film) 1632 cm^{-1}. HRMS Calcd for $C_{47}H_{66}N_4O_5Na$: 789.4925. Found: 789.4928.

***N,N,N',N',N'',N'',N''',N'''*-Octaisopropyl-3-[(2S,*4S,5R*)-3,4-dimethyl-5-phenyloxazolidin-2-yl]-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide 8**

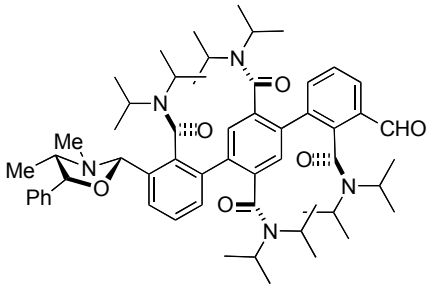


To a solution of **6** (90 mg, 0.12 mmol), in toluene (30 mL) was added (*1R*,*2S*)-(–)-ephedrine (75 mg, 0.45 mmol), and the solution was stirred at reflux under a Dean-Stark condenser for 48 h. The solvent was removed under reduced pressure and the crude product was purified by flash chromatography (Petrol to petrol:AcOEt 20% + 1% Et_3N) to yield **8** (84 mg, 78%).

^{1}H-NMR (C_6D_6, 300 MHz) δ 0.69 (d, *J* = 6.3 Hz, 6H), 0.73 (d, *J* = 6.3 Hz, 3H), 0.87 (d, *J* = 6.9 Hz, 3H), 0.92 (d, *J* = 6.6 Hz, 3H), 0.95 (d, *J* = 6.6 Hz, 3H), 1.10 (d, *J* = 6.6 Hz, 3H), 1.14 (d, *J* = 6.6 Hz, 3H), 1.29 (d, *J* = 6.6 Hz, 3H), 1.32 (d, *J* = 6.6 Hz, 3H), 1.54 (d, *J* = 6.9 Hz, 3H), 1.60 (d, *J* = 6.3 Hz, 3H), 1.55-1.61 (m, 3H), 1.64 (s, 3H), 1.65 (d, *J* = 6.3 Hz, 3H), 1.68 (d, *J* = 6.9 Hz, 3H), 1.76 (d, *J* = 6.6 Hz, 3H), 2.32 (s, 3H), 2.69 (dq, *J* = 8.4 and 6.6 Hz, 1H), 3.04 (septet, *J* = 6.6 Hz, 2H), 3.14 (septet, *J* = 6.6 Hz, 1H), 3.23 (septet, *J* = 6.9 Hz, 1H), 4.17 (septet, *J* = 6.3 Hz, 1H), 4.25-4.45 (m, 3H), 5.01 (d, *J* = 8.4 Hz, 1H), 5.27 (s, 1H), 7.09-7.20 (m, 6H), 7.27-7.30 (m, 1H), 7.34 (d, *J* = 7.8 Hz, 1H), 7.46 (d, *J* = 7.5 Hz, 1H), 7.49 (d, *J* = 7.5 Hz, 1H), 7.51 (d, *J* = 7.5 Hz, 1H), 8.38 (d, *J* =

7.5 Hz, 1H), 8.58 (s, 1H), 8.65 (s, 1H). ^{13}C-NMR (C_6D_6, 75,5 MHz) δ 15.8 (CH3), 20.18 (CH3), 20.28 (CH3), 20.33 (CH3), 20.36 (CH3), 20.41 (CH3), 20.49 (CH3), 20.55 (CH3), 20.69 (CH3), 20.76 (CH3), 20.86 (CH3), 20.93 (CH3), 22.3 (CH3), 23.2 (CH3), 36.5 (CH3), 45.9 (CH), 46.0 (CH), 46.1 (CH), 46.4 (CH), 51.07 (CH), 51.13 (CH), 51.2 (CH), 51.8 (CH), 64.3 (CH), 82.6 (CH), 94.7 (CH), 127.2 (CH), 127.4 (CH), 127.5 (CH), 128.1 (CH), 128.9 (CH), 130.0 (CH), 130.3 (CH), 130.9 (CH), 131.7 (CH), 135.0 (Cq), 135.3 (Cq), 136.7 (Cq), 138.0 (Cq), 138.2 (Cq), 138.9 (Cq), 139.3 (Cq), 139.5 (Cq), 140.1 (Cq), 140.4 (Cq), 168.6 (Cq), 168.7 (Cq), 168.9 (Cq), 170.1 (Cq). IR (film) 1632 cm^{-1}. HRMS Calcd for $C_{57}H_{80}N_5O_5$: 914.6154. Found: 914.6152.
For *ent*-**8**, $[\alpha]_D^{25}$ = +50 (c = 0.2).[4]

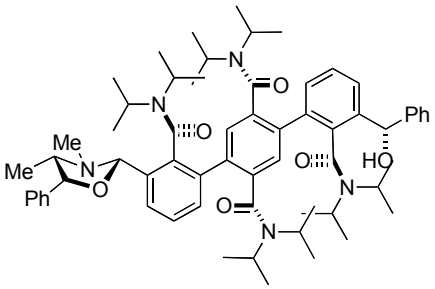
3-Formyl-*N,N,N',N',N'',N'',N''',N'''*-Octaisopropyl-3'-[(4S,5R)-3,4-dimethyl-5-phenyl-oxazolidin-2-yl]-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide 9



A solution of **8** (84 mg, 0.09 mmol) in dry THF (40 mL) was cooled to –78 ºC under nitrogen and stirred for 5 min. *s*-Butyllithium (0.75 mL, 0.9 mmol, 1.2 M in hexanes) was added and the mixture was stirred for 1 h. Dry DMF (1 mL) was added and the mixture was stirred for 1h. The solution was allowed to warm to room temperature, partitioned between AcOEt and H_2O, and the aqueous phase was extracted with AcOEt. The organic extracts were dried, filtered and the solvent was removed under reduced pressure. The crude product was purified by flash chromatography (Petrol to petrol:AcOEt 30%) to yield **9** (62 mg, 77%).

^{1}H-NMR (C_6D_6, 300 MHz) δ 0.61 (d, *J* = 6.6 Hz, 3H), 0.67 (d, *J* = 6.6 Hz, 3H), 0.71 (d, *J* = 6.6 Hz, 3H), 0.85 (d, *J* = 6.3 Hz, 3H), 0.93 (d, *J* = 6.6 Hz, 3H), 1.14 (d, *J* = 6.6 Hz, 3H), 1.16 (d, *J* = 6.6 Hz, 3H), 1.27 (d, *J* = 6.9 Hz, 3H), 1.29 (d, *J* = 6.9 Hz, 3H), 1.32-1.37 (m, 3H), 1.54 (s, 3H), 1.53-1.60 (m, 12H), 1.64 (d, *J* = 6.9 Hz, 3H), 1.76 (d, *J* = 6.6 Hz, 3H), 2.32 (s, 3H), 2.68 (dq, *J* = 8.4 and 6.6 Hz, 1H), 3.03 (septet, *J* = 6.9 Hz, 2H), 3.07 (septet, *J* = 6.9 Hz, 1H), 3.21 (septet, *J* = 6.9 Hz, 1H), 4.14 (septet, *J* = 6.3 Hz, 1H), 4.32 (septet, *J* = 6.3 Hz, 1H), 4.33 (septet, *J* = 6.3 Hz, 2H), 5.00 (d, *J* = 8.4 Hz, 1H), 5.26 (s, 1H), 6.95-7.12 (m, 3H), 7.19 (d, *J* = 7.8 Hz, 1H), 7.21 (d, *J* = 7.2 Hz, 1H), 7.31 (d, *J* = 7.5 Hz, 1H), 7.33 (d, *J* = 7.8 Hz, 1H), 7.49 (d, *J* = 7.2 Hz, 1H), 7.51 (d, *J* = 7.8 Hz, 1H), 7.98 (dd, *J* = 7.5 and 1.2 Hz, 1H), 8.39 (dd, *J* = 7.5 and 1 Hz, 1H), 8.60 (s, 1H), 8.69 (s, 1H), 10.55 (s, 1H). ^{13}C-NMR (C_6D_6, 75,5 MHz) δ 15.7 (CH3), 20.14 (CH3), 20.20 (CH3), 20.26 (CH3), 20.30 (CH3), 20.38 (CH3), 30.49 (CH3), 20.52 (CH3), 20.68 (CH3), 20.70 (CH3), 20.8 (CH3), 22.7 (CH3), 23.3 (CH3), 36.5 (CH3), 46.1 (CH), 46.2 (CH), 46.4 (CH), 46.7 (CH), 51.2 (CH), 51.3 (CH), 51.7 (CH), 51.8 (CH), 64.3 (CH), 82.5 (CH), 94.6 (CH), 127.4 (CH), 127.5 (CH), 127.8 (CH), 127.9 (CH), 128.6 (CH), 129.1 (CH), 130.1 (CH), 130.3 (CH), 131.8 (CH), 134.2 (Cq), 134.7 (Cq), 136.2 (Cq), 136.3 (CH), 136.8 (Cq), 137.0 (Cq), 138.9 (Cq), 139.1 (Cq), 139.4 (Cq), 139.9 (Cq), 140.3 (Cq), 141.4 (Cq), 167.1 (Cq), 168.5 (Cq), 168.6 (Cq), 170.0 (Cq), 190.3 (CH). IR (film) 1632 cm^{-1}. HRMS Calcd for $C_{58}H_{80}N_5O_6$: 942.6103. Found: 942.6125.
For *ent*-**9**, $[\alpha]_D^{25}$ = +26 (c = 0.2).[4]

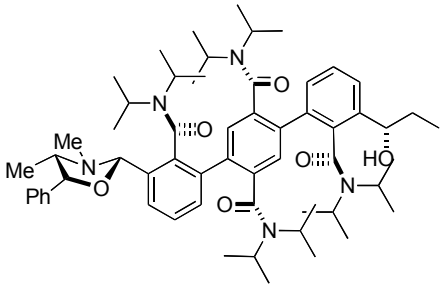
3-Hydroxybenzyl-*N,N,N',N',N'',N'',N''',N'''*-octoisopropyl-3'-[(*2S,4S,5R*)-3,4-dimethyl-5-phenyloxazolidin-2-yl]-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide 10 (R^2 = Ph)



A solution of **9** (10 mg, 0.011 mmol) in THF (10 mL) was cooled to –78°C under nitrogen and stirred for 5 min. Phenylmagnesium bromide (0.2 mL, 0.18 mmol, 0.9M in THF) was slowly added dropwise. The solution was stirred at –78 °C for 2 h, then allowed to gradually warm to room temperature, and quenched with saturated aqueous ammonium chloride solution (10 mL). The mixture was partitioned between AcOEt and H_2O, and the aqueous phase was extracted with AcOEt. The organic extracts were dried, filtered and the solvent was removed under reduced pressure. The crude product was purified by flash chromatography (Petrol to petrol:AcOEt 20% + Et_3N 1%) to yield **10** (10 mg, 98%) as a single diastereoisomer (by NMR).

M.p. 82-84 ºC. ^{1}H-NMR (C_6D_6, 300 MHz) δ 0.63 (d, *J* = 6.6 Hz, 3H), 0.67 (d, *J* = 6.3 Hz, 3H), 0.78 (d, *J* = 6.6 Hz, 3H), 0.77 (d, *J* = 6.6 Hz, 3H), 0.90 (d, *J* = 6.3 Hz, 3H), 0.93 (d, *J* = 6.3 Hz, 3H), 1.05 (d, *J* = 6.6 Hz, 3H), 1.14 (d, *J* = 6.3 Hz, 3H), 1.24 (d, *J* = 6.9 Hz, 3H), 1.28 (d, *J* = 6.9 Hz, 3H), 1.27-1.31 (m, 3H), 1.51 (d, *J* = 6.6 Hz, 3H), 1.56-1.58 (m, 3H), 1.58 (d, *J* = 6.6 Hz, 3H), 1.59 (d, *J* = 6.6 Hz, 3H), 1.68 (d, *J* = 6.9 Hz, 3H), 1.76 (d, *J* = 6.6 Hz, 3H), 2.31 (s, 3H), 2.67 (dq, *J* = 8.4 and 6.3 Hz, 1H), 2.98 (septet, *J* = 6.9 Hz, 1H), 3.02 (septet, *J* = 6.9 Hz, 1H), 3.10 (septet, *J* = 6.9 Hz, 1H), 3.23 (septet, *J* = 6.9 Hz, 1H), 4.26-4.32 (m, 1H), 4.29 (septet, *J* = 6.3 Hz, 1H), 4.30 (septet, *J* = 6.6 Hz, 1H), 4.45 (septet, *J* = 6.9 Hz, 1H), 4.99 (d, *J* = 8.4 Hz, 1H), 5.25 (s, 1H), 6.39 (s, 1H), 6.60 (dd, *J* = 7.5 and 1.2 Hz, 2H), 6.76 (ddd, *J* = 7.5, 1.2 and 0.9 Hz, 2H), 6.96-7.37 (m, 7H), 7.48 (d, *J* = 7.2 Hz, 1H), 7.50 (d, *J* = 7.2 Hz, 1H), 7.78 (d, *J* = 7.2 Hz, 2H), 8.41 (dd, *J* = 7.8 and 1.2 Hz, 1H), 8.46 (s, 1H), 8.69 (s, 1H). ^{13}C-NMR (C_6D_6, 75,5 MHz) δ 15.8 (CH3), 20.1 (CH3), 20.2 (CH3), 20.33 (CH3), 20.38 (CH3), 20.43 (CH3), 20.48 (CH3), 20.54 (CH3), 20.6 (CH3), 20.7 (CH3), 20.8 (CH3), 22.8 (CH3), 23.2 (CH3), 36.5 (CH3), 46.1 (CH), 46.2 (CH), 46.4 (CH), 46.8 (CH), 51.2 (CH), 51.3 (CH), 51.9 (CH), 52.0 (CH), 64.3 (CH), 73.0 (CH), 82.6 (CH), 94.6 (CH), 115.5 (CH), 120.2 (CH), 129.1 (CH), 129.8 (CH), 130.0 (CH), 130.3 (CH), 130.6 (CH), 131.9 (CH), 136.8 (Cq), 137.8 (Cq), 137.9 (Cq), 138.6 (Cq), 139.4 (Cq), 139.8 (Cq), 140.4 (Cq), 142.0 (Cq), 144.2 (Cq), 144.8 (Cq), 168.6 (Cq), 168.7 (Cq), 169.0 (Cq), 171.4 (Cq). IR (film) 3330, 1632 cm^{-1}. HRMS Calcd for $C_{64}H_{86}O_6N_5$: 1020.6573. Found: 1020.6581.
For *ent*-**10** (R^2 = Ph), $[\alpha]_D^{25}$ = +88 (c = 0.1).[4]

3-(1-Hydroxypropyl)-*N,N,N',N',N'',N'',N''',N'''*-octoisopropyl-3'-[(*2S,4S,5R*)-3,4-dimethyl-5-phenyloxazolidin-2-yl]-[1,1';4',1'']terphenyl-2,2',5',2''-tetracarboxamide 10 (R^2 = Et)



A solution of **9** (93 mg, 0.099 mmol) in THF (10 mL) was cooled to –78°C under nitrogen and stirred for 5 min. Ethylmagnesium bromide (0.25 mL, 0.5 mmol, 2M in THF) was slowly added dropwise. The solution was stirred at–78°C for 2 h, then allowed to gradually warm to room temperature, and quenched with saturated aqueous ammonium chloride solution (10 mL). The mixture was partitioned between AcOEt and H_2O, and the aqueous phase was extracted with AcOEt. The organic extracts were dried, filtered and the solvent was removed under reduced pressure to yield **10 (R^2 = Et)** (93 mg, 97%) as a single diastereoisomer (by NMR).

M.p. 162-164 ºC. ^{1}H-NMR (C_6D_6, 300 MHz) δ 0.66 (d, *J* = 6.6 Hz, 3H), 0.69 (d, *J* = 6.6 Hz, 3H), 0.65-0.75 (m, 6H), 0.85-0.95 (m, 9H), 1.04-1.08 (m, 3H), 1.16 (d, *J* = 6.6 Hz, 3H), 1.16-1.19 (m, 3H), 1.30 (d, *J* = 6.9 Hz, 3H), 1.32 (d, *J* = 6.9 Hz, 3H), 1.34 (d, *J* = 6.9 Hz, 3H), 1.58 (d, *J* = 6.6 Hz, 3H), 1.59 (d, *J* = 6.6 Hz, 3H), 1.62 (d, *J* = 6.9 Hz, 3H), 1.67 (d, *J* = 6.6 Hz, 3H), 1.77 (d, *J* = 6.6 Hz, 3H), 1.90 (m, 1H), 2.21 (m, 1H), 2.32 (s, 3H), 2.69 (dq, *J* = 8.5 and 6.6 Hz, 1H), 3.03 (septet, *J* = 6.6 Hz, 2H), 3.13 (septet, *J* = 6.9 Hz, 1H), 3.24 (septet, *J* = 6.6 Hz, 1H), 4.22-4.37 (m, 4H), 4.92 (dd, *J* = 8.8 and 4.7 Hz, 1H), 5.01 (d, *J* = 8.5 Hz, 1H), 5.26 (s, 1H), 7.10-7.14 (m, 2H), 7.19 (d, *J* = 7.5 Hz, 1H), 7.22 (d, *J* = 7.2 Hz, 1H), 7.33 (dd, *J* = 7.8 and 7.6 Hz, 1H), 7.39 (d, *J* = 7.5 Hz, 1H), 7.48-7.52 (m, 3H), 7.53 (d, *J* = 7.9 Hz, 1H), 8.39 (d, *J* = 7.9 Hz, 1H), 8.42 (s, 1H), 8.69 (s, 1H). IR (film) 3386, 1632 cm^{-1}. HRMS Calcd for $C_{60}H_{86}O_6N_5$: 972.6573. Found: 972.6568.
For *ent*-**10** (R^2 = Et), $[\alpha]_D^{25}$ = +49.3 (c = 0.3).[4]

References:

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4. Optical rotation determined using a sample made from (*1S,2R*)-(+)-ephedrine. The compound as shown in the paper is *laevorotatory*.