Supporting Information for Total Synthesis of a Cytotoxic Acetogenin, Pyranicin

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$[\alpha]_D^{23} +47.0^\circ$ (*c* 1.37, CHCl₃); IR (neat) 3296, 3031, 2920, 2863, 1497, 1455, 1362, 1207, 1102, 1028, 737, 697 cm⁻¹; ¹H-NMR (300MHz, CDCl₃) δ 7.27-7.37 (10H, m), 4.47, 4.66 (2H, each d, *J* = 11.5 Hz), 4.44, 4.49 (2H, each d, *J* = 11.8 Hz), 3.79 (1H, m), 3.56-3.64 (2H, m), 2.48 (2H, dd, *J* = 2.8, 2.6 Hz), 2.02 (1H, t, *J* = 2.6 Hz), 1.88-2.00 (2H, m); ¹³C-NMR (75MHz, CDCl₃) δ 138.4, 138.3, 128.3, 127.8, 127.7, 127.0, 127.5, 80.9, 74.2, 72.9, 71.6, 70.2, 66.5, 34.4, 24.0; HRMS calcd for C₂₀H₂₂O₂Na [M+Na]⁺ 317.1517, found 317.1509.

$[\alpha]_D^{24} +21.1^\circ$ (*c* 1.01, CHCl₃); IR (neat) 3464, 2930, 2869, 1456, 1430, 1372, 1251, 1215, 1165, 1101, 1076, 909, 839, 739, 698 cm⁻¹; ¹H-NMR (270MHz, CDCl₃) δ 7.24-7.36 (10H, m), 4.61, 4.44 (2H, each d, *J* = 11.6 Hz), 4.43, 4.48 (2H, each d, *J* = 11.8 Hz), 3.88-4.02 (2H, m), 3.83 (1H, dd, *J* = 11.9, 3.3 Hz), 3.73 (1H, m), 3.65 (1H, dd, *J* = 11.9, 4.3 Hz), 3.52-3.64 (2H, m), 2.54-2.67 (1H, m), 2.40-2.50 (3H, m), 1.83-2.03 (m, 2H), 1.60 (1H, s), 1.41 (s, 6H); ¹³C-NMR (75MHz, CDCl₃) δ 138.3, 128.3, 127.8, 127.7, 127.6, 109.0, 81.5, 79.1, 76.9, 74.9, 74.4, 73.0, 71.5, 66.5, 62.4, 34.4, 27.1, 24.1, 23.3; HRMS calcd C₂₇H₃₄O₅Na [M+Na]⁺ 461.2304, found 461.2303.

$[\alpha]_D^{26} +26.6^\circ$ (*c* 1.01, CHCl₃); IR (neat) 3449, 2935, 2862, 1497, 1455, 1369, 1247, 1214, 1163, 1094, 1070, 906, 848, 737, 698 cm⁻¹; ¹H-NMR (300MHz, CDCl₃) δ 7.23-7.37 (10H, m), 4.45-4.54 (2H, each d, *J* = 11.6 Hz), 4.49 (2H, s), 3.84-3.90 (2H, m), 3.68-3.82 (2H, m), 3.52-3.62 (3H, m), 1.85 (1H, s), 1.83 (2H, q, *J* = 6.6 Hz), 1.37-1.60 (8H, m), 1.42 (3H, s), 1.41 (3H, s); ¹³C-NMR (75MHz, CDCl₃) δ 138.8, 138.4, 128.3, 128.2, 127.7, 127.6, 127.5, 127.4, 108.5, 81.4, 76.6, 76.0, 72.9, 71.1, 66.9, 62.0, 34.3, 33.9, 33.0, 27.3, 27.0, 26.1, 25.1; HRMS calcd C₂₇H₃₈O₅Na [M+Na]⁺ 465.2617, found 465.2614.

$[\alpha]_D^{22} +31.2^\circ$ (*c* 1.03, CHCl_3); IR (neat) 2935, 2861, 1456, 1368, 1241, 1215, 1176, 1096, 1028, 912, 875, 735, 697 cm^{-1} ; $^1\text{H-NMR}$ (270MHz, CDCl_3) δ 7.24-7.37 (10H, m), 5.84 (1H, ddd, $J = 16.8, 10.2, 6.6$ Hz), 5.07 (1H, ddd, $J = 16.8, 3.3, 1.7$ Hz), 4.98 (1H, ddd, $J = 10.2, 3.0, 1.0$ Hz), 4.47 (2H, s), 4.45, 4.52 (2H, each d, $J = 11.6$ Hz), 3.51-3.63 (5H, m), 2.02-2.18 (2H, m), 1.84 (2H, q, $J = 6.3$ Hz), 1.57 (3H, s), 1.38 (3H, s), 1.26-1.65 (10H, m); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 138.8, 138.4, 137.9, 128.2, 128.1, 127.6, 127.5, 127.4, 127.3, 114.7, 107.7, 80.6, 80.1, 75.9, 72.8, 71.0, 66.8, 34.3, 33.9, 32.7, 32.0, 30.1, 27.2, 26.2, 25.1; HRMS calcd $\text{C}_{30}\text{H}_{42}\text{O}_4\text{Na}$ $[\text{M}+\text{Na}]^+$ 489.2981, found 489.2982.

12 (ca. 2:1 of diastereomeric mixture)

IR (neat) 3482, 2936, 2861, 1456, 1363, 1205, 1157, 1101, 1043, 954, 737, 698 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 7.28-7.36 (10H, m), 5.03 (0.66H, dd, $J = 4.6, 1.7$ Hz), 4.98 (0.34H, brd, $J = 3.0$ Hz), 4.45, 4.52 (2H, each d, $J = 11.9$ Hz), 4.48 (2H, s), 4.03 (0.34H, q, $J = 5.6$ Hz), 3.97 (0.66H, q, $J = 6.0$ Hz), 3.52-3.64 (3H, m), 3.29-3.40 (1H, m), 3.36 (1H, s), 3.34 (2H, s), 1.81-2.05 (5H, m), 1.21-1.65 (10H, m); $^{13}\text{C-NMR}$ (75MHz, CDCl_3): δ 138.8, 138.4, 128.2, 127.7, 127.6, 127.4, 127.3, 105.1, 105.0, 83.7, 80.8, 76.0, 74.2, 73.6, 72.9, 71.0, 66.9, 54.8, 54.5, 34.3, 33.9, 33.7, 33.0, 32.2, 25.8, 25.7, 25.6, 25.2, 25.1; HRMS calcd $\text{C}_{27}\text{H}_{38}\text{O}_5\text{Na}$ $[\text{M}+\text{Na}]^+$ 465.2617, found 465.2625.

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$[\alpha]_D^{25} +6.3^\circ$ (*c* 1.06, CHCl_3); IR (neat) 3448, 3031, 2935, 2860, 1497, 1455, 1436, 1423, 1397, 1363, 1309, 1276, 1243, 1207, 1175, 1094, 1072, 1028, 947, 909, 867, 737, 698 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 7.28-7.36 (15H, m), 4.48, 4.63 (2H, each d, $J = 11.2$ Hz), 4.45, 4.51 (2H, each d, $J = 11.6$ Hz), 4.48 (2H, s), 4.07 (1H, t, $J = 6.7$ Hz), 3.50-3.62 (4H, m), 3.25 (1H, q, $J = 5.6$ Hz), 2.80-2.88 (4H, m), 2.29 (1H, brs), 1.78-1.90 (4H, m), 1.30-1.70 (12H, m); $^{13}\text{C-NMR}$ (75MHz, CDCl_3): δ 138.8, 138.4, 138.2, 128.3, 128.2, 128.1, 127.7, 127.6, 127.5, 127.4, 127.3, 82.1, 76.0, 72.8, 72.3, 72.0, 71.0, 66.8, 47.3, 34.2, 34.0, 33.0, 31.6, 30.2, 30.1, 25.8, 25.3, 25.1; HRMS calcd $\text{C}_{36}\text{H}_{48}\text{O}_4\text{S}_2\text{Na}$ $[\text{M}+\text{Na}]^+$ 631.2892, found 631.2894.

$[\alpha]_D^{24} +20.9^\circ$ (*c* 1.10, CHCl_3); IR (neat) 3032, 2939, 2862, 1706, 1638, 1455, 1369, 1322, 1285, 1207, 1133, 1095, 1072, 956, 832, 738, 698 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 9.75 (1H, brs), 7.48 (1H, d, $J=12.5$ Hz), 7.27-7.35 (15H, m), 5.27 (1H, d, $J=12.2$ Hz), 4.52 (2H, brs), 4.45, 4.50 (2H, each d, $J = 11.5$ Hz), 4.48 (2H, brs), 4.14 (2H, q, $J=7.3$ Hz), 3.91 (1H, m), 3.52-3.62 (3H, m), 3.40 (1H, m), 2.42-2.52 (2H, m), 1.79-2.05 (4H, m), 1.33-1.60 (8H, m), 1.26 (3H, t, $J=7.1$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 201.0, 167.8, 163.0, 138.9, 138.5, 137.9, 128.4, 128.3, 128.1, 127.9, 127.8, 127.7, 127.5, 127.4, 100.5, 97.7, 84.5, 80.1, 76.1, 73.1, 73.0, 71.2, 67.0, 59.7, 39.7, 34.4, 34.1, 30.1, 25.4, 25.3, 22.7; HRMS calcd $\text{C}_{38}\text{H}_{48}\text{O}_7\text{Na}$ $[\text{M}+\text{Na}]^+$ 639.3298, found 639.3296.

$[\alpha]_D^{25} +32.2^\circ$ (*c* 1.08, CHCl_3); IR (neat) 3447, 3031, 2938, 2861, 1735, 1455, 1368, 1305, 1260, 1186, 1094, 737, 698 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 7.26-7.33 (15H, m), 4.52, 4.65 (2H, each d, $J = 11.5$ Hz), 4.43, 4.51 (2H, each d, $J = 11.5$ Hz), 4.48 (2H, s), 4.11 (2H, q, $J = 7.3$ Hz), 3.51-3.62 (4H, m), 3.44 (1H, m), 3.36 (1H, m), 3.30 (1H, m), 2.82 (1H, dd, $J=4.6, 7.6$ Hz), 2.55 (1H, dd, $J=7.3, 7.6$ Hz), 2.15 (1H, m), 1.68-1.88 (4H, m), 1.26-1.66 (10H, m), 1.22 (3H, t, $J=7.1$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 172.2, 139.0, 138.9, 138.5, 128.4, 128.3, 128.2, 127.9, 127.7, 127.5, 127.4, 80.6, 79.7, 79.0, 76.2, 73.0, 72.9, 71.1, 70.5, 67.0, 60.6, 38.7, 34.4, 34.1, 32.9, 30.3, 26.4, 25.9, 25.3, 14.2; HRMS calcd for $\text{C}_{38}\text{H}_{51}\text{O}_7$ $[\text{M}+\text{H}]^+$ 619.3635, found 619.3637.

$[\alpha]_D^{25} +22.2^\circ$ (*c* 0.79, CHCl_3); IR (neat) 3423, 3032, 2940, 2862, 1713, 1363, 1206, 1094, 738, 698 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CD_3OD) δ 7.12-7.24 (15H, m), 4.38, 4.57 (2H, each d, $J = 11.5$ Hz), 4.30-4.40 (4H, m), 3.40-3.52 (4H, m), 3.35 (1H, m), 3.05-3.25 (3H, m), 2.78 (1H, dd, $J=2.6, 7.6$ Hz), 2.23 (1H, dd, $J=7.6, 9.7$ Hz), 1.94 (1H, m), 1.90 (1H, m), 1.67 (2H, q, $J=6.3$ Hz), 1.19-1.54 (11H, m); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 175.4, 138.8, 138.6, 138.2, 128.3, 128.2, 128.0, 127.8, 127.6, 127.5, 80.3, 79.2, 78.9, 76.1, 73.0, 72.6, 71.1, 69.9, 67.0, 37.9, 34.3, 34.0, 32.6, 30.1, 26.4, 25.4, 25.3; HRMS calcd for $\text{C}_{36}\text{H}_{45}\text{O}_7$ $[\text{M}-\text{H}]^+$ 589.3165, found 589.3125.

$[\alpha]_D^{23} +36.5^\circ$ (*c* 0.52 CHCl_3); IR (neat) 3031, 2935, 2861, 1785, 1497, 1455, 1406, 1365, 1295, 1260, 1215, 1184, 1151, 1102, 1059, 1028, 975, 738, 698 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 7.26-7.36 (m, 15H), 4.54, 4.65 (2H, each d, $J = 11.5$ Hz), 4.44, 4.50 (2H, each d, $J = 11.5$ Hz), 4.48 (2H, s), 4.32 (1H, m), 4.21 (1H, m), 3.52-3.63 (3H, m), 3.45 (1H, m), 3.34 (1H, m), 2.66 (1H, dd, $J = 17.2, 4.0$ Hz), 2.55 (1H, brd, $J = 17.2$ Hz), 2.37 (1H, brd, $J = 16.2$ Hz), 1.72-1.85 (3H, m), 1.26-1.65 (10H, m); $^{13}\text{C-NMR}$ (75MHz, CDCl_3): δ 176.5, 139.3, 139.2, 138.9, 128.7, 128.2, 128.1, 127.9, 127.8, 81.4, 78.1, 77.9, 76.9, 76.6, 73.8, 73.7, 73.4, 71.5, 67.4, 39.4, 34.8, 34.5, 30.5, 26.2, 25.7, 25.4, 20.3, 14.8.; HRMS calcd for $\text{C}_{36}\text{H}_{44}\text{O}_6\text{Na}$ $[\text{M}+\text{Na}]^+$ 595.3036, found 595.3046.

IR (neat) 3448, 3031, 2925, 2855, 1455, 1363, 1206, 1096, 734, 697 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 7.27-7.34 (15H, m), 5.37-5.55 (2H, m), 4.56, 4.71 (2H, each d, $J = 11.3$ Hz), 4.44, 4.51 (2H, each d, $J = 11.5$ Hz), 4.48 (2H, s), 3.52-3.64 (3H, m), 3.45 (1H, m), 3.30-3.38 (2H, m), 2.25-2.35 (2H, m), 1.26-2.07 (32H, m), 0.88 (3H, t, $J = 6.6$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 138.6, 138.5, 138.1, 131.9, 127.9, 127.8, 127.5, 127.3, 127.1, 127.0, 124.6, 80.9, 80.2, 79.8, 75.8, 72.9, 72.6, 70.7, 66.6, 65.3, 40.0, 33.8, 32.3, 31.5, 30.4, 29.8, 29.5, 29.2, 29.1, 29.0, 28.9, 27.0, 25.4, 24.9, 22.2, 20.7, 13.7; HRMS calcd for $\text{C}_{46}\text{H}_{66}\text{O}_5\text{Na}$ $[\text{M}+\text{Na}]^+$ 721.4808, found 721.4813.

mp 67-68 $^\circ\text{C}$ (hexane-EtOAc); $[\alpha]_D^{24} -9.8^\circ$ (*c* 1.05, CHCl_3); IR (KBr) 3542, 3313, 2920, 2850, 1466, 1373, 1345, 1262, 1217, 1148, 1089, 1047, 961, 912 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 4.62, 4.76 (2H, each d, $J = 6.9$ Hz), 3.78-3.92 (3H, m), 3.48-3.58 (2H, m), 3.39 (3H, s), 3.37 (1H, brdd, $J = 7.9, 4.9$ Hz), 3.18 (1H, m), 2.82 (1H, brs), 2.33 (2H, brs), 2.12 (1H, m), 1.21-1.73 (35H, m), 0.88 (3H, t, $J = 6.8$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 95.1, 81.1, 79.7, 73.7, 71.5, 70.9, 61.3, 55.6, 38.2, 37.5, 32.0, 31.8, 31.6, 29.5, 29.2, 27.3, 25.5, 25.4, 25.2, 22.6, 22.0, 14.0; HRMS calcd for $\text{C}_{27}\text{H}_{54}\text{O}_6\text{Na}$ $[\text{M}+\text{Na}]^+$ 497.3818, found 497.3827.

$[\alpha]_D^{23} -10.0^\circ$ (*c* 1.02, CHCl_3); IR (neat) 3475, 2927, 2856, 1464, 1429, 1111, 1086, 1039, 920, 824, 738, 702 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 7.68 (4H, m), 7.42 (6H, m), 4.77, 4.62 (2H, each d, $J=6.9$ Hz), 3.83-3.93 (3H, m), 3.56 (1H, brs), 3.52 (1H, m), 3.40 (3H, s), 3.36 (1H, brdd, $J=8.2, 5.6$ Hz), 3.28 (1H, m), 3.18 (1H, m), 2.80 (1H, brs), 2.12 (1H, m), 1.25-1.72 (35H, m), 1.05 (9H, s), 0.88 (3H, t, $J=6.8$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 135.5, 133.0, 132.9, 129.8, 127.7, 95.2, 81.3, 79.8, 73.8, 71.6, 71.1, 63.6, 55.7, 38.3, 37.4, 32.1, 31.9, 31.7, 29.6, 29.3, 27.4, 26.8, 25.6, 25.4, 22.6, 22.1, 19.0, 14.1; HRMS calcd for $\text{C}_{43}\text{H}_{72}\text{O}_6\text{SiNa}$ $[\text{M}+\text{Na}]^+$ 735.4996, found 735.4985.

$[\alpha]_D^{25} +29.7^\circ$ (*c* 0.15, CHCl_3); IR (neat) 3504, 2926, 2855, 1466, 1457, 1375, 1290, 1214, 1150, 1102, 1036, 918 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 4.80 (1H, d, $J=6.9$ Hz), 4.76 (1H, d, $J=6.9$ Hz), 4.68, 4.66 (2H, each d, $J=6.8$ Hz), 4.64 (1H, d, $J=6.9$ Hz), 4.61 (1H, d, $J=6.9$ Hz), 3.68-3.85 (3H, m), 3.50 (2H, m), 3.40 (3H, s), 3.39 (3H, s), 3.38 (3H, s), 3.28-3.48 (2H, m), 2.42 (1H, brs), 2.12 (1H, m), 1.35-1.82 (26H, m), 1.25 (s, 9H), 0.88 (3H, t, $J=6.3$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 97.1, 95.9, 95.1, 80.6, 80.1, 79.8, 76.5, 71.1, 59.9, 55.7, 36.6, 34.6, 31.9, 31.8, 30.5, 29.6, 29.3, 27.8, 25.7, 25.4, 22.7, 21.9, 14.1; HRMS calcd for $\text{C}_{31}\text{H}_{62}\text{O}_8\text{Na}$ $[\text{M}+\text{Na}]^+$ 585.4342, found 585.4344.

$[\alpha]_D^{25} +20.6^\circ$ (*c* 0.17, CHCl_3); IR (neat) 2926, 2854, 1465, 1457, 1375, 1313, 1215, 1150, 1101, 1039, 918 cm^{-1} ; $^1\text{H-NMR}$ (270MHz, CDCl_3) δ 4.61, 4.68, 4.76, 4.80 (4H, each d, $J=6.9$ Hz), 4.65, 4.67 (2H, each d, $J=6.6$ Hz), 3.45-3.65 (3H, m), 3.39 (3H, s), 3.38 (6H, s), 3.21-3.40 (4H, m), 1.98-2.16 (3H, m), 1.18-1.80 (33H, m), 0.88 (3H, t, $J=6.6$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 97.1, 95.8, 95.1, 80.6, 80.1,

79.7, 77.6, 71.1, 55.7, 38.7, 34.0, 31.9, 31.8, 30.5, 29.7, 29.6, 29.3, 27.8, 25.7, 25.4, 25.2, 22.7, 21.9, 14.1; HRMS calcd for C₃₁H₆₁O₇NaI [M+Na]⁺ 695.3360, found 695.3355.

$[\alpha]_D^{25} +1.6^\circ$ (*c* 1.01, CHCl₃); IR (neat) 3437, 2924, 2854, 1439, 1372, 1318, 1149, 1112, 1036, 917, 741, 724, 692 cm⁻¹; ¹H-NMR (300MHz, CDCl₃) δ 7.68-7.86 (15H, m), 4.79 (1H, d, *J* = 6.9 Hz), 4.75 (1H, d, *J* = 7.0 Hz), 4.70 (1H, d, *J* = 6.3 Hz), 4.65 (2H, d, *J* = 6.3 Hz), 4.60 (1H, d, *J* = 6.9 Hz), 4.05 (1H, m), 3.93 (1H, m), 3.63 (1H, m), 3.44-3.55 (2H, m), 3.27-3.40 (2H, m), 3.38 (3H, s), 3.34 (3H, s), 3.32 (3H, s), 2.09 (1H, m), 1.90 (1H, m), 1.24-1.75 (34H, m), 0.87 (3H, t, *J* = 6.8 Hz); ¹³C-NMR (75MHz, CDCl₃) δ 134.9, 133.3, 133.2, 130.4, 130.2, 128.0, 127.9, 118.1, 117.0, 96.8, 96.4, 94.7, 80.4, 79.6, 79.4, 77.5, 70.7, 55.5, 55.3, 34.1, 31.5, 31.4, 30.1, 29.2, 28.9, 27.4, 27.0, 25.2, 24.9, 24.6, 22.3, 21.5, 19.2, 18.5, 13.7; HRMS calcd for C₄₉H₇₆O₇PNaI [M+Na]⁺ 957.4271, found 957.4254.

IR (neat) 2928, 2856, 1760, 1464, 1429, 1373, 1318, 1209, 1104, 1040, 918, 823, 741, 704 cm⁻¹; ¹H-NMR (300MHz, CDCl₃) δ 7.62-7.68 (4H, m), 7.34-7.45 (6H, m), 6.91 (1H, brs), 5.20 (1H, ddd, *J* = 10.9, 7.2, 6.9 Hz), 5.29 (1H, ddd, *J* = 10.9, 6.9, 5.9 Hz), 4.87 (1H, brq, *J* = 6.6 Hz), 4.57, 4.80 (2H, each d, *J* = 6.9 Hz), 4.68, 4.76 (2H, each d, *J* = 6.9 Hz), 4.60, 4.62 (2H, each d, *J* = 6.6 Hz), 4.04 (1H, m), 3.44-3.58 (3H, m), 3.28-3.42 (2H, m), 3.39 (3H, s), 3.37 (3H, s), 3.34 (3H, s), 2.38-2.51 (2H, m), 1.19-2.18 (40H, m), 1.31 (3H, d, *J* = 6.9 Hz), 1.05 (9H, s), 0.88 (3H, t, *J* = 6.8 Hz); ¹³C-NMR (75MHz, CDCl₃): δ 173.8, 151.3, 135.8, 133.9, 130.8, 130.4, 129.7, 128.3, 127.6, 125.8, 97.1, 95.3, 95.1, 80.7, 80.0, 79.8, 77.4, 71.4, 71.1, 55.7, 55.4, 36.1, 34.4, 32.1, 31.9, 31.8, 31.6, 30.6, 29.6, 29.3, 27.8, 27.0, 25.7, 25.4, 23.0, 22.7, 21.9, 19.3, 18.9, 14.1; HRMS calcd for C₅₇H₉₂O₁₀SiNa [M+Na]⁺ 987.6357, found 987.6344.

$[\alpha]_D^{25}$ -3.6° (*c* 0.34, CHCl_3); IR (neat) 2928, 2856, 1760, 1465, 1429, 1375, 1318, 1210, 1149, 1104, 1040, 918, 823, 741, 704, 689 cm^{-1} ; $^1\text{H-NMR}$ (300MHz, CDCl_3) δ 7.60-7.68 (4H, m), 7.34-7.43 (6H, m), 6.91 (brs, 1H), 4.88 (1H, brq, $J = 6.6$ Hz), 4.81, 4.61 (2H, each d, $J = 6.6$ Hz), 4.76, 4.69 (2H, each d, $J = 6.9$ Hz), 4.62 (2H, brs), 4.02 (1H, ddd, $J = 11, 5.6, 5.2$ Hz), 3.29-3.52 (5H, m), 3.39 (3H, s), 3.38 (3H, s), 3.35 (3H, s), 2.43 (2H, brd, $J = 4.3$ Hz), 2.12 (1H, brd, $J = 13.4$ Hz), 1.31 (3H, d, $J = 6.6$ Hz), 1.25-1.71 (43H, m), 1.04 (9H, s), 0.88 (3H, t, $J = 6.8$ Hz); $^{13}\text{C-NMR}$ (75MHz, CDCl_3) δ 173.9, 151.2, 135.9, 135.8, 134.0, 130.6, 129.7, 127.6, 97.1, 95.3, 95.1, 80.7, 80.0, 79.8, 77.4, 71.7, 71.1, 55.7, 55.4, 36.4, 34.3, 34.2, 31.9, 31.8, 30.6, 29.7, 29.6, 29.3, 27.8, 27.0, 25.7, 25.5, 25.2, 24.9, 22.7, 21.9, 19.3, 18.9, 14.1; HRMS calcd for $\text{C}_{57}\text{H}_{94}\text{O}_{10}\text{SiNa}$ $[\text{M}+\text{Na}]^+$ 989.6514, found 989.6521.

mp 82-83 $^\circ\text{C}$ (hexane-EtOAc); $[\alpha]_D^{24}$ $+19.5^\circ$ (*c* 0.55, CHCl_3); IR (KBr) 3483, 2918, 2851, 1753, 1464, 1319, 1276, 1237, 1210, 1085, 849 cm^{-1} ; $^1\text{H-NMR}$ (400MHz, CDCl_3) δ 7.18 (1H, d, $J = 1.3$ Hz), 5.06 (1H, qd, $J = 6.8, 1.3$ Hz), 3.85 (1H, m), 3.61 (2H, m), 3.44 (1H, m), 3.34 (1H, dd, $J = 7.8, 5.4$ Hz), 3.19 (1H, ddd, $J = 11, 7.2, 2.4$ Hz), 2.52 (1H, ddd, $J = 15, 2.0, 1.5$ Hz), 2.40 (1H, br dd, $J = 15, 8.2$ Hz), 1.25-2.04 (48H, m), 1.43 (3H, d, $J = 6.9$ Hz), 0.88 (3H, t, $J = 6.6$ Hz); $^{13}\text{C-NMR}$ (100MHz, CDCl_3) δ 174.6, 151.9, 131.2, 81.2, 80.0, 78.0, 74.0, 71.8, 69.9, 66.1, 37.3, 33.4, 32.2, 31.9, 31.6, 30.5, 29.7, 29.6, 29.5, 29.3, 25.6, 25.5, 25.4, 25.3, 22.7, 21.6, 19.1, 14.1; HRMS calcd for $\text{C}_{35}\text{H}_{64}\text{O}_7\text{Na}$ $[\text{M}+\text{Na}]^+$ 619.4550, found 619.4553.