

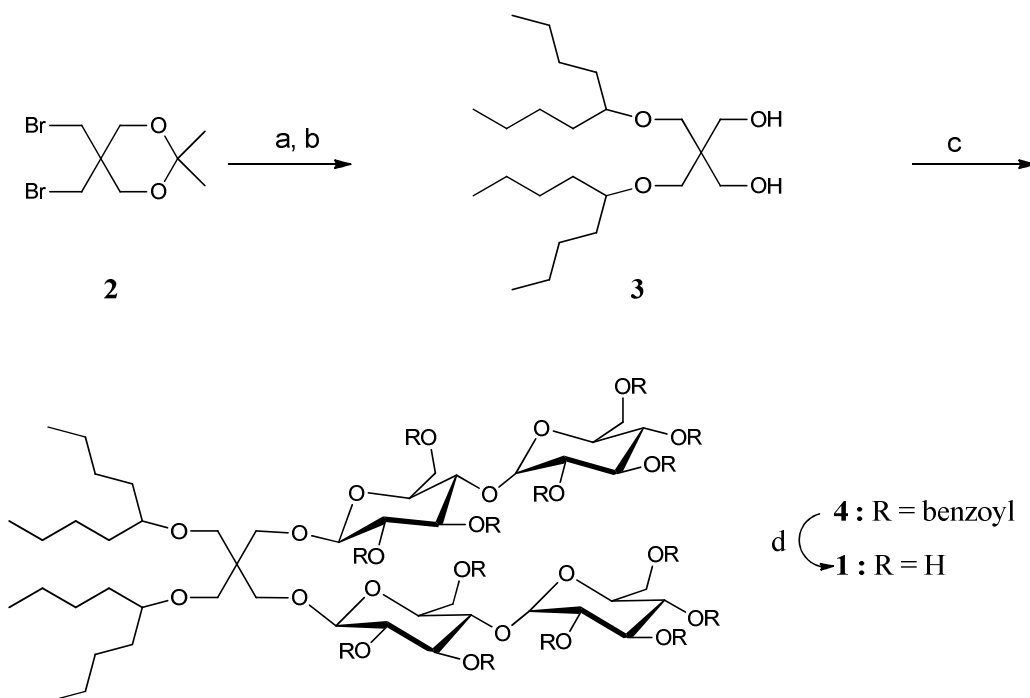
1 Supporting Information

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3 *Synthesis and characterization compound 1*

4 **Supplementary scheme 1**

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8 (a) 5-nonanol, NaH, DMF, 120°C; (b) *p*-TSA, MeOH, room temperature, 86% (in two steps); (c) perbenzoylated

9 maltosylbromide (2.4 equiv.), AgOTf, CH₂Cl₂, -45°C → room temperature, 90%; (d) NaOMe, MeOH, room

10 temperature, 90%.

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15 **NMR and MS data for MNG amphiphile 1 and precursors**

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17 **2,2-Bis-(1-butyl-pentyloxymethyl)-propane-1,3-diol (3)**

18 . **¹H NMR** (300 MHz, CDCl₃): δ 3.63 (d, *J* = 6.1 Hz, 4H), 3.53 (s, 4H), 3.22 (quin, *J* =
19 6.0 Hz, 2H), 2.98 (t, *J* = 6.1 Hz, 2H), 1.53-1.41 (m, 8H), 1.38-1.21 (m, 16H), 0.90 (t, *J* =
20 6.8 Hz, 12H); **¹³C NMR** (75 MHz, CDCl₃): δ 80.8, 71.6, 66.0, 44.7, 33.4, 27.7, 23.1,
21 14.3; **HRMS (ESI)**: calcd. for C₂₃H₄₈O₄Na [M+Na]⁺ 411.3445, found 411.3453.

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24 **Compound 4**

25 **¹H NMR** (300 MHz, CDCl₃): δ 8.06 (d, *J* = 8.4 Hz, 4H), 8.00-7.95 (m, 8H), 7.90 (d, *J* =
26 8.4 Hz, 4H), 7.83 (d, *J* = 8.4 Hz, 4H), 7.79 (d, *J* = 8.4 Hz, 4H), 7.71 (d, *J* = 8.4 Hz, 4H),
27 7.68-7.20 (m, 42H), 6.12 (t, *J* = 9.8 Hz, 2H), 5.68-5.58 (m, 4H), 5.39 (t, *J* = 9.8 Hz, 2H),
28 5.20-5.08 (m, 4H), 4.64-4.50 (m, 4H), 4.37-4.10 (m, 8H), 3.70 (d, *J* = 8.8 Hz, 2H), 3.41
29 (d, *J* = 7.7 Hz, 2H), 3.30 (d, *J* = 9.0 Hz, 2H), 3.17 (t, *J* = 8.8 Hz, 2H), 3.10-3.00 (m, 2H),
30 2.94-2.83 (m, 4H), 1.45-1.05(m, 24H), 0.90-0.70 (m, 12H); **¹³C NMR** (75 MHz, CDCl₃):
31 δ 166.3, 166.0, 165.9, 165.7, 165.2, 165.0, 140.0, 133.7, 133.6, 133.4, 133.3, 133.2,
32 130.2, 130.1, 130.0, 129.9, 129.8, 129.7, 129.6, 129.4 129.2, 129.1, 129.0, 128.9, 128.8,
33 128.6, 128.5, 101.8, 95.9, 79.7, 74.9, 72.4, 72.3, 72.2, 71.5, 69.9, 69.2, 69.1, 68.4, 66.4,
34 63.6, 62.7, 45.2, 33.6, 33.3, 27.7, 27.5, 23.1, 14.4, 14.3; **MS (MALDI-TOF)**: calcd. for
35 C₁₄₅H₁₄₄O₃₈Na [M+Na]⁺ 2516.7 found 2516.3.

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38 **Compound 1**

39 **¹H NMR** (300 MHz, CD₃OD): δ 5.18 (d, *J* = 3.7 Hz, 2H), 4.37 (d, *J* = 7.8 Hz, 2H),
40 3.98-3.81 (m, 8H), 3.76-3.58 (m, 10H), 3.54-3.43 (m, 8H), 3.43-3.36 (m, 2H), 3.32-3.20
41 (m, 6H), 1.60-1.28 (m, 24H), 1.00-0.93 (m, 12H); **¹³C NMR** (75 MHz, CD₃OD): δ 105.2,
42 103.1, 81.6, 78.0, 76.7, 75.3, 75.0, 74.9, 74.4, 71.7, 70.7, 68.9, 62.9, 62.3, 46.9, 29.0,
43 28.9, 24.2, 14.7; **HRMS (ESI)**: calcd. for C₄₇H₈₈O₂₄Na [M+Na]⁺ 1059.5558, found
44 1059.5521.

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