SUPPORTING INFORMATION FOR:

Emulsifying Properties of an Homologous Series of Medium- and Long-chain *D*-Maltotriose Esters and their Impacts on the Viabilities of Selected Cell Lines

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6′′-*O*-Decanoylmaltotriose, **2**. Yield: 76% of a ca. 1:1 mixture of α- and β-anomers. ^{1}H NMR (600 MHz, DMSO-d_6) δ (α-anomer) 6.34 (dd, J = 4.7 and 0.9 Hz, 1H), 5.58 (dd, J = 6.2 and 4.3 Hz, 2H), 5.49 (d, J = 3.3 Hz, 2H), 5.31 (d, J = 3.3 Hz, 1H), 5.15 (d, J = 5.9 Hz, 2H), 5.03–5.01 (m, 2H), 4.91 (t, J = 4.1 Hz, 1H), 4.53–4.48 (m, 3H), 4.27 (d, J = 2.0 Hz, 1H), 4.25 (d, J = 1.9 Hz, 1H), 4.01 (dd, J = 11.7 and 6.6 Hz, 2H), 3.68–3.67 (m, 2H), 3.61 (dd, J = 7.3 and 5.9 Hz, 4H), 3.57 (s, 1H), 3.24 (td, J = 6.2 and 3.1 Hz, 2H), 3.21–3.16 (m, 2H), 3.05 (dddd, J = 10.1, 8.8, 5.9 and 1.2 Hz, 2H), 2.30 (t, J = 7.4 Hz, 2H), 1.53–1.49 (m, 2H), 1.24 (m, J = 4.1 Hz, 12H), 0.87–0.84 (t, J = 7.0 Hz, 3H). ^{13}C NMR (150 MHz, DMSO-d_6) δ (α-anomer) 172.9, 101.0(3), 101.0(1), 100.5, 96.8, 92.1, 80.5, 80.1, 80.0, 76.3, 75.0, 74.3, 72.9, 71.9, 70.3, 63.5, 60.6, 60.5, 60.4, 33.3, 31.2, 29.0, 28.9, 28.7, 28.5, 24.4, 22.1, 14.0. MS (ESI, +ve): *m/z* 676 $[M+NH_4]^+$, 681 $[M+Na]^+$.

6′′-*O*-Lauroylmaltotriose, **3**. Yield: 83% of a ca. 1:1 mixture of *α*- and *β*-anomers. ^{1}H NMR (600 MHz, DMSO-d_6) δ (α-anomer) 6.34 (d, J = 4.6 Hz, 1H), 5.58 (dd, J = 6.2 and 4.4 Hz, 2H), 5.49 (d, J = 3.2 Hz, 2H), 5.31 (d, J = 3.3 Hz, 1H), 5.14 (d, J = 5.9 Hz, 2H), 5.01 (d, J = 3.1 Hz, 2H), 4.91 (t, J = 4.1 Hz, 1H), 4.53–4.49 (m, 3H), 4.26 (d, J = 2.0 Hz, 1H), 4.24 (d, J = 1.9 Hz, 1H), 4.01 (dd, J = 11.7 and 6.6 Hz, 2H), 3.67 (dd, J = 5.0 and 2.2 Hz, 3H), 3.61–3.59 (m, 2H), 3.56 (d, J = 6.0 Hz, 2H), 3.25 (td, J = 6.1 and 3.1 Hz, 2H), 3.21–3.16 (m, 2H), 3.05 (td, J = 8.8 and 5.0 Hz, 2H), 2.29 (t, J = 7.4 Hz, 2H), 1.50 (t, J = 7.2 Hz, 2H), 1.23 (m, 16H), 0.86 (t,

J = 6.7 Hz, 3H). ^{13}C NMR (150 MHz, DMSO-d_6) δ (α-anomer) 173.0, 101.1, 101.0, 100.6, 96.8, 92.2, 80.6, 80.2, 80.1, 76.4, 74.7, 72.9, 72.0, 70.6, 70.2, 63.5, 60.7, 60.6, 60.4, 33.4, 31.4, 29.1, 29.0, 28.8, 28.6, 28.5 (×2), 24.4, 22.2, 14.0. MS (ESI, +ve): *m/z* 704 $[M+NH_4]^+$, 709 $[M+Na]^+$.

6′′-*O*-Myristoylmaltotriose, **4**. Yield: 84% of a ca. 1:1 mixture of *α*- and *β*-anomers. ^{1}H NMR (600 MHz, DMSO-d_6) δ (α-anomer) 6.34 (d, *J* = 4.6 Hz, 1H), 5.59–5.57 (m, 2H), 5.50 (s, 2H), 5.31 (d, *J* = 3.3 Hz, 1H), 5.14 (d, *J* = 5.8 Hz, 2H), 5.01 (d, *J* = 1.8 Hz, 2H), 4.91 (t, *J* = 4.1 Hz, 1H), 4.52–4.49 (m, 3H), 4.26 (d, *J* = 1.9 Hz, 1H), 4.24 (d, *J* = 1.9 Hz, 1H), 4.03–4.00 (m, 2H), 3.69–3.67 (m, 3H), 3.61–3.59 (m, 2H), 3.56 (d, *J* = 6.0 Hz, 2H), 3.26–3.23 (m, 2H), 3.21–3.16 (m, 2H), 3.07–3.03 (m, 2H), 2.29 (t, *J* = 7.4 Hz, 2H), 1.49 (d, *J* = 7.1 Hz, 2H), 1.23 (m, 20H), 0.84 (t, *J* = 7.1 Hz, 3H). ^{13}C NMR (150 MHz, DMSO-d_6) δ (α-anomer) 173.0, 101.1, 101.0, 100.6, 96.9, 92.2, 80.6, 80.2, 80.1, 76.4, 74.7, 73.0, 72.0, 70.7, 70.2, 63.5, 60.7, 60.6, 60.4, 33.4, 31.4, 29.1(3), 29.1(1), 29.0(8), 29.0(6), 28.9(7), 28.9(0), 28.8, 28.5, 24.4, 22.2, 14.0. MS (ESI, +ve): *m/z* 732 $[M+NH_4]^+$, 737 $[M+Na]^+$.

6′′-*O*-Palmitoylmalyoyriose, **5**. Yield: 88% of a ca. 1:1 mixture of α- and β-anomers. ^{1}H NMR (600 MHz, DMSO-d_6) δ (α-anomer) 6.34 (d, *J* = 4.6 Hz, 1H), 5.58 (dd, *J* = 6.2 and 4.8 Hz, 2H), 5.50 (s, 2H), 5.31 (d, *J* = 3.4 Hz, 1H), 5.14 (d, *J* = 5.9 Hz, 2H), 5.02 (d, *J* = 2.8 Hz, 2H), 4.91 (t, *J* = 4.1 Hz, 1H), 4.52–4.49 (m, 3H), 4.26 (d, *J* = 2.0 Hz, 1H), 4.24 (d, *J* = 1.9 Hz, 1H), 4.03–4.00 (m, 2H), 3.69–3.67 (m, 3H), 3.60 (d, *J* = 2.4 Hz, 2H), 3.55 (d, *J* = 4.8 Hz, 2H), 3.26–3.24 (m, 2H), 3.21–

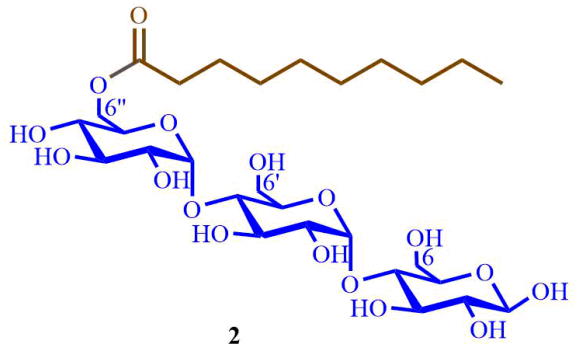
3.17 (m, 2H), 3.07–3.04 (m, 2H), 2.29 (d, *J* = 7.4 Hz, 2H), 1.52–1.49 (m, 2H), 1.23 (m, 24H), 0.85 (t, *J* = 7.4 Hz, 3H). ^{13}C NMR (150 MHz, DMSO-*d*$_6$) δ (α-anomer) 172.9, 101.2, 101.1, 100.5, 96.8, 92.1, 80.5, 80.2, 80.1, 76.4, 75.0, 74.3, 72.9, 71.9, 70.4, 63.1, 60.6, 60.5, 60.4, 33.3, 31.3, 29.1, 29.0, 28.9, 28.8, 28.7(5), 28.7(4), 28.6, 28.5 (×2), 28.3, 24.4, 22.1, 14.0. MS (ESI, +ve): *m/z* 760 $[M+NH_4]^+$, 765 $[M+Na]^+$.

6′′-*O*-Stearoylmaltotriose, **6**. Yield: 82% of a ca. 1:1 mixture of α- and β-anomers. ^{1}H NMR (600 MHz, DMSO-*d*$_6$) δ (α-anomer) 6.34 (d, *J* = 4.7 Hz, 1H), 5.54 (t, *J* = 6.9 Hz, 2H), 5.49 (d, *J* = 2.9 Hz, 1H), 5.34 (d, *J* = 3.0 Hz, 1H), 5.16 (t, *J* = 6.2 Hz, 2H), 5.02 (s, 2H), 4.99 (d, *J* = 3.7 Hz, 1H), 4.91 (d, *J* = 4.1 Hz, 1H), 4.48 (d, *J* = 6.0 Hz, 1H), 4.36 (t, *J* = 6.0 Hz, 1H), 4.31 (d, *J* = 7.0 Hz, 1H), 4.27 (s, 1H), 4.25 (s, 1H), 4.01 (dd, *J* = 11.8 and 6.6 Hz, 2H), 3.72–3.69 (m, 3H), 3.64 (dd, *J* = 8.3 and 3.4 Hz, 2H), 3.54 (d, *J* = 6.2 Hz, 1H), 3.50 (d, *J* = 6.1 Hz, 1H), 3.25 (s, 2H), 3.20–3.16 (m, 2H), 3.06 (dd, *J* = 9.4 and 5.1 Hz, 2H), 2.30 (s, 1H), 2.18 (d, *J* = 7.4 Hz, 1H), 1.49 (d, *J* = 8.8 Hz, 2H), 1.23 (m, 28H), 0.85 (s, 3H). ^{13}C NMR (150 MHz, DMSO-*d*$_6$) δ (α-anomer) 173.7, 101.1, 101.0, 100.9, 96.8, 92.1, 81.1, 81.0, 80.6, 76.5, 75.2, 74.3, 72.8, 71.8, 70.3, 63.5, 62.8, 60.8, 60.7, 33.5, 31.2, 29.1, 29.0(4), 29.0(3), 29.0(1), 28.9(6), 28.9(3), 28.8, 28.7(7), 28.7(3), 28.6, 28.5 (×2), 24.5, 22.1, 14.0. MS (ESI, +ve): *m/z* 788 $[M+NH_4]^+$, 793 $[M+Na]^+$.

6′′-*O*-Oleoylmatotriose, **7**. Yield: 77% of a ca. 1:1 mixture of *α*- and *β*-anomers. ^{1}H NMR (600 MHz, DMSO-*d*$_6$) δ (α-anomer) 6.34 (dd, *J* = 4.7 and 0.9 Hz, 1H), 5.58 (dd, *J* = 6.2 and 4.6 Hz, 2H), 5.50–5.49 (m, 2H), 5.33 (d, *J* = 1.5 Hz, 1H),

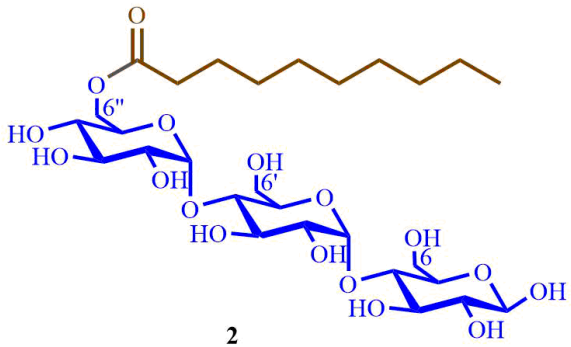
5.32 (d, *J* = 1.6 Hz, 1H), 5.32–5.31 (m, 1H), 5.15 (d, *J* = 5.9 Hz, 2H), 5.03–5.01 (m, 2H), 4.91 (t, *J* = 4.1 Hz, 1H), 4.52–4.48 (m, 3H), 4.25 (dd, *J* = 11.8 and 1.9 Hz, 2H), 4.02 (dd, *J* = 11.7 and 6.5 Hz, 2H), 3.69–3.66 (m, 3H), 3.61–3.59 (m, 2H), 3.56 (d, *J* = 7.2 Hz, 2H), 3.25 (td, *J* = 6.1 and 3.1 Hz, 2H), 3.21–3.15 (m, 2H), 3.08–3.03 (m, 2H), 2.30 (t, *J* = 7.4 Hz, 2H), 1.98 (q, *J* = 6.6 Hz, 4H), 1.50 (t, *J* = 7.2 Hz, 2H), 1.27–1.22 (m, 20H), 0.85 (t, *J* = 7.0 Hz, 3H). ^{13}C NMR (150 MHz, DMSO-d_6) δ (α-anomer) 172.9, 129.6 (×2), 101.1, 100.5, 99.2, 93.3, 92.1, 80.5, 80.2, 80.0, 76.4, 75.0, 74.3, 72.9, 71.9, 70.4, 63.5, 60.6, 60.5, 60.4, 33.3, 31.3, 29.1, 29.0(9), 29.0(5), 28.8, 28.7, 28.6, 28.5, 28.4, 26.6, 26.5, 24.4, 22.1, 14.0. MS (ESI, +ve): *m/z* 786 $[M+NH_4]^+$, 791 $[M+Na]^+$.

600 MHz ^{1}H NMR Spectrum of Compound **2** (Recorded in DMSO-d_6)



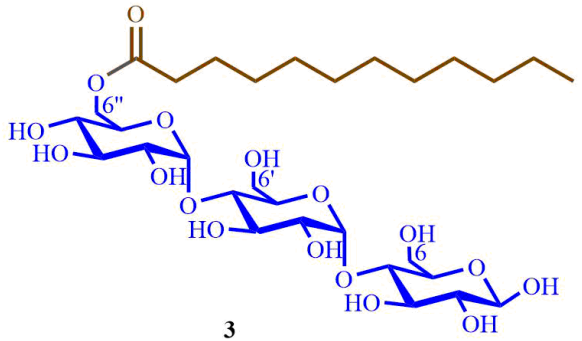
2

150 MHz ^{13}C NMR Spectrum of Compound **2** (Recorded in DMSO-d_6)



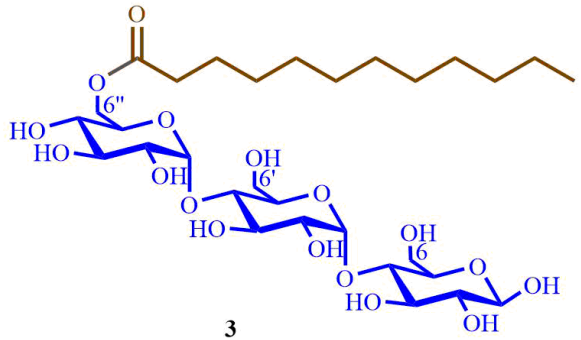
2

600 MHz ^{1}H NMR Spectrum of Compound **3** (Recorded in DMSO-d_6)



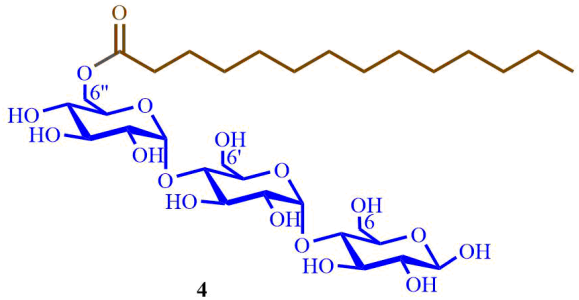
3

150 MHz ^{13}C NMR Spectrum of Compound **3** (Recorded in DMSO-d_6)



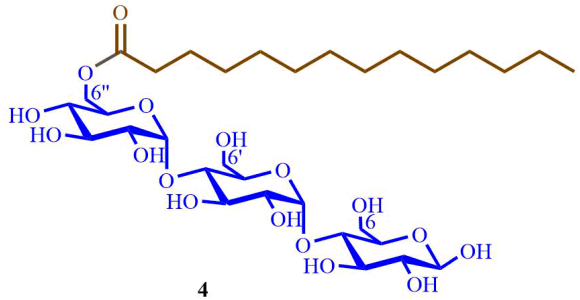
3

600 MHz ^{1}H NMR Spectrum of Compound **4** (Recorded in DMSO-d_6)



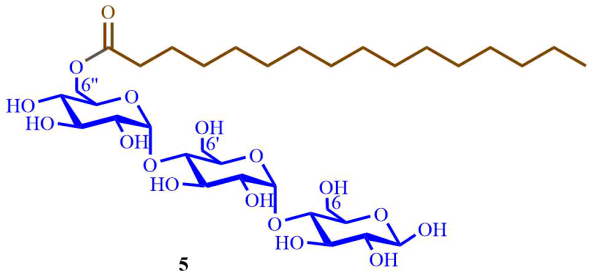
4

150 MHz ^{13}C NMR Spectrum of Compound **4** (Recorded in DMSO-d_6)



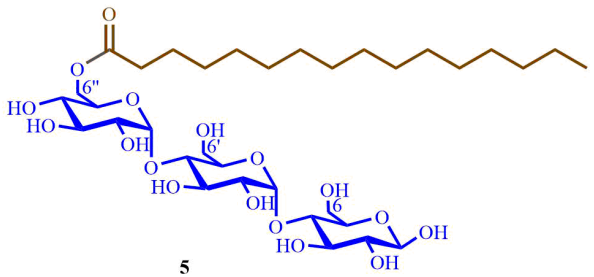
4

600 MHz ^{1}H NMR Spectrum of Compound **5** (Recorded in DMSO-d_6)



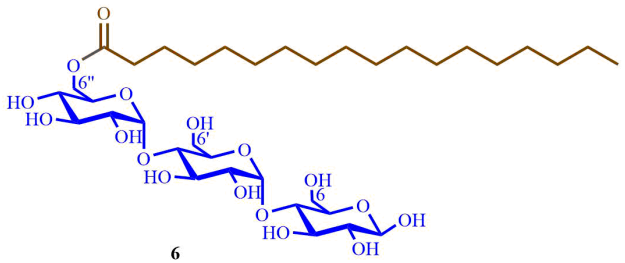
5

150 MHz ^{13}C NMR Spectrum of Compound **5** (Recorded in DMSO-d_6)



5

600 MHz ^{1}H NMR Spectrum of Compound **6** (Recorded in DMSO-d_6)



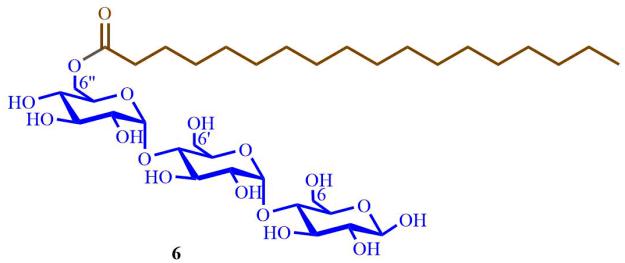
6

* beta anomer

H_2O

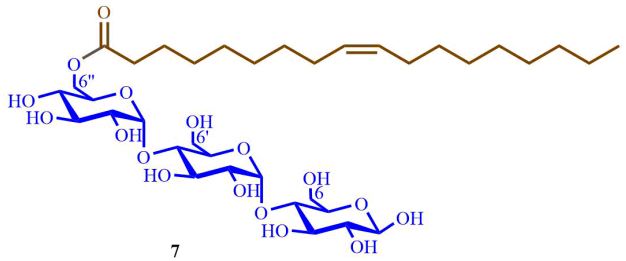
DMSO

150 MHz ^{13}C NMR Spectrum of Compound **6** (Recorded in DMSO-d_6)



6

600 MHz ^{1}H NMR Spectrum of Compound **7** (Recorded in DMSO-d_6)



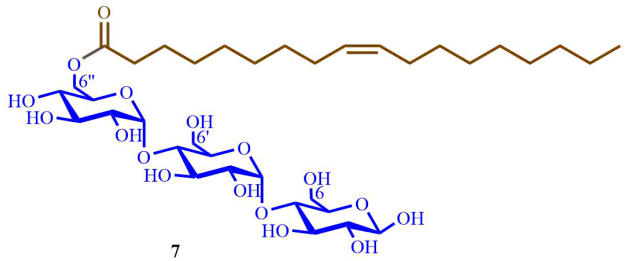
7

H_2O

DMSO

* beta anomer

150 MHz ^{13}C NMR Spectrum of Compound **7** (Recorded in DMSO-d_6)



7

Key HMBC correlations for Compound **3** (Recorded in DMSO-d_6)