

## **Synthesis of cationic cholesterol-containing amphiphiles with an acid-labile linker**

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### *Selected spectral data*

**5:**  $^1\text{H-NMR}$  ( $\delta$ , ppm,  $J/\text{Hz}$ ) 0.63 (s, 3H, 18- $\text{CH}_3$ ), 0.84 (d,  $J$  6.8, 6H, 26,27- $\text{CH}_3$ ), 0.91 (d,  $J$  6.7, 3H, 21- $\text{CH}_3$ ), 1.02 (s, 3H, 19- $\text{CH}_3$ ), 1.03-1.60 (m, 21H, Chol), 1.72-2.02 (m, 5H, Chol), 2.30 (m, 2H, 4- $\text{CH}_2$ ), 3.42 (m, 1H, 3-CH), 4.02 (s, 3H,  $\text{N}^+\text{CH}_3$ ), 5.32-5.38 (m, 1H, 6-CH), 5.68 (s, 2H,  $\text{OCH}_2\text{N}^+$ ), 7.51 (s, 1H) and 7.60 (s, 1H,  $\text{CH}=\text{CH}$ ), 9.45 (s, 1H,  $\text{NCH}=\text{N}$ ); mass  $m/z$  [ $M - \text{Br}$ ] $^+$  481.1.

**6:**  $^1\text{H-NMR}$  ( $\delta$ , ppm,  $J/\text{Hz}$ ) 0.60 (s, 3 H, 18- $\text{CH}_3$ ), 0.78 (d, 6 H,  $J = 6.5$ , 26,27- $\text{CH}_3$ ), 0.83 (d, 3 H,  $J = 6.5$ , 21- $\text{CH}_3$ ), 0.93 (s, 3 H, 19- $\text{CH}_3$ ), 0.96-1.57 (m, 21 H, Chol), 1.70-1.97 (m, 5 H, Chol), 2.21-2.37 (m, 2 H, 4- $\text{CH}_2$ ), 3.22 (s, 3 H,  $\text{N}^+\text{CH}_3$ ), 3.34-3.42 (m, 2H,  $\text{CH}_2\text{O}$ ), 3.48-3.56 (m, 2H,  $\text{CH}_2\text{O}$ ), 3.54-3.62 (m, 1 H, 3-CH), 3.89-3.96 (m, 4 H,  $\text{CH}_2\text{N}^+\text{CH}_2$ ), 4.90 (d, 1 H,  $J = 7.5$ ,  $\text{OCH}_a\text{N}^+$ ) и 4.97 (d, 1 H,  $J = 7.5$ ,  $\text{OCH}_b\text{N}^+$ ), 5.31-5.35 (m, 1 H, 6-CH); mass  $m/z$  [ $M - \text{Br}$ ] $^+$  500.4.

**8:**  $^1\text{H-NMR}$  ( $\delta$ , ppm,  $J/\text{Hz}$ ) 0.63 (s, 3H, 18- $\text{CH}_3$ ), 0.84 (d,  $J$  6.8, 6H, 26,27- $\text{CH}_3$ ), 0.91 (d,  $J$  6.7, 3H, 21- $\text{CH}_3$ ), 0.99 (s, 3H, 19- $\text{CH}_3$ ), 1.02-1.60 (m, 21H, Chol), 1.70-2.03 (m, 5H, Chol), 2.32 (m, 2H, 4- $\text{CH}_2$ ), 3.29 (s, 6H,  $\text{N}(\text{CH}_3)_2$ ), 3.55-3.71 (m, 3H, 3-CH,  $\text{CH}_2\text{OH}$ ), 4.10 (m, 2H,  $\text{CH}_2\text{CH}_2\text{OH}$ ), 4.92 (d,  $J$  7.2, 1H) and 4.99 (d,  $J$  7.2, 1H,  $\text{OCH}_2\text{N}^+$ ), 5.38 (m, 1H, 6-CH); mass  $m/z$  [ $M - \text{Br}$ ] $^+$  487.8.

**9:**  $^1\text{H-NMR}$  ( $\delta$ , ppm,  $J/\text{Hz}$ ) 0.63 (s, 3 H, 18- $\text{CH}_3$ ), 0.82 (d, 6 H,  $J = 6.6$ , 26,27- $\text{CH}_3$ ), 0.87 (d, 3 H,  $J = 6.6$ , 21- $\text{CH}_3$ ), 0.92-1.60 (m, 21 H, Chol), 0.96 (s, 3 H, 19- $\text{CH}_3$ ), 1.70-2.03 (m, 5 H, Chol), 2.13-2.34 (m, 2 H, 4- $\text{CH}_2$ ), 2.76 (t, 4 H,  $J = 5.3$ ,  $\text{NCH}_2\text{CH}_2\text{OH}$ ), 2.82 (t, 2 H,  $J = 5.3$ ,  $\text{NCH}_2\text{CH}_2\text{O}$ ), 3.29-3.45 (m, 1 H, 3-CH), 3.60 (t, 4 H,  $J = 5.3$ ,  $\text{NCH}_2\text{CH}_2\text{OH}$ ), 3.64 (t, 2 H,  $J = 5.3$ ,  $\text{NCH}_2\text{CH}_2\text{O}$ ), 4.71 (s, 2 H,  $\text{OCH}_2\text{O}$ ), 5.27-5.34 (m, 1 H, 6-CH); mass  $m/z$  [ $M$ ] $^+$  548.2.

**12:**  $^1\text{H-NMR}$  ( $\delta$ , ppm,  $J/\text{Hz}$ ) 0.61 (s, 3 H, 18- $\text{CH}_3$ ), 0.78 (d, 6 H,  $J = 6.5$ , 26,27- $\text{CH}_3$ ), 0.84 (d, 3 H,  $J = 6.5$ , 21- $\text{CH}_3$ ), 0.94 (s, 3 H, 19- $\text{CH}_3$ ), 0.98-1.56 (m, 21 H, Chol), 1.70-1.98 (m, 5 H, Chol), 2.21-2.35 (m, 2 H, 4- $\text{CH}_2$ ), 3.05 (s, 6 H,  $\text{N}^+(\text{CH}_3)_2$ ), 3.34-3.42 (m, 2 H,  $\text{NCH}_2$ ), 3.43-3.56 (m, 1 H, 3-CH), 3.65-3.74 (m, 2 H,  $\text{N}^+\text{CH}_2$ ), 4.68 (d, 1 H,  $J = 7.8$ ,  $\text{OCH}_a\text{N}^+$ ) и 4.71 (d, 1 H,  $J = 7.8$ ,  $\text{OCH}_b\text{N}^+$ ), 5.29-5.36 (m, 1 H, 6-CH); mass  $m/z$   $[\text{M}]^+$  486.7.