NMR and Elemental Analysis Data

Selected data for oleyl bromide: $C_{18}H_{35}Br$ (MW=331.4). ^1H chemical shift (δ) data: (500 MHz, $CDCl_3$); 5.36 (multiplet, 2H, vinyl), 3.43 (singlet, 2H, α-methylene to bromide), 2.02-2.04 (multiplet, 4H, allylic), 1.87 (broad multiplet, 2H, β-methylene to bromide), 1.44 (broad multiplet, 2H, γ-methylene to bromide), 1.28-1.40 (multiplet, 20H, the remaining methylene groups), 0.89 (triplet, 3H, terminal methyl group).

Selected data for 18:1-2-18:1: $C_{42}H_{86}N_2Br_2$ (MW=778.98). Elemental analysis: (calc. C, 64.76; H, 11.13; N, 3.60; found C, 64.64; H, 11.00; N, 3.43). ^1H chemical shift data (500 MHz, $CDCl_3$); 5.35-5.36 (overlapping triplets, 4H, vinyl), 4.81 (singlet, 4H, spacer α- methylenes to quaternary nitrogens), 3.72 (broad triplet, 4H, C-18 chain α-methylenes to quaternary nitrogens), 3.53 (singlet, 12H, quaternary methyl groups), 2.01-2.03 (multiplet, 8H, allylic), 1.81 (broad multiplet, 4H, C-18 chain β-methylenes to quaternary nitrogens), 1.28-1.40 (multiplet, 44H, remaining methylenes in C-18 chains, 0.89 (triplet, 6H, terminal methyl groups).

Selected data for 18:1-3-18:1: $C_{43}H_{88}N_2Br_2$ (MW=793.01). Elemental analysis: (calc. C, 65.13; H, 11.18; N, 3.53; found C, 64.84; H, 11.00; N, 3.65); ^1H chemical shift data (500 MHz, $CDCl_3$); 5.35-5.36 (overlapping triplets, 4H, vinyl), 3.97 (broad triplet, 4H, spacer α-methylenes to quaternary nitrogens), 3.48 (broad triplet, 4H, C-18 chains α-methylenes to quaternary nitrogens), 3.36 (singlet, 12H, quaternary methyl groups), 2.83 (multiplet, 2H, central methylene in spacer), 2.02-2.03 (multiplet, 8H, allylic), 1.83 (broad multiplet, 4H, C-18 chain β-methylenes to quaternary nitrogens), 1.28-1.40 (multiplet, 44H, remaining methylenes in C-18 chains), 0.89 (triplet, 6H, terminal methyl groups).

Selected data for 18:1-6-18:1: $C_{46}H_{94}N_2Br_2$ (MW=835.09). Elemental analysis: (calc. C, 66.16; H, 11.35; N, 3.35. found C, 65.58; H, 11.10; N, 3.25); ^1H chemical shift data (500 MHz, $CDCl_3$); 5.35-5.36 (overlapping triplets, 4H, vinyl), 3.78 (broad triplet, 4H, spacer α-methylenes to quaternary nitrogens),

3.44 (multiplet, 4H, C-18 chains α-methylenes to quaternary nitrogens), 3.40 (singlet, 12H, quaternary methyl groups), 2.10 (multiplet, 4H, spacer β-methylenes to quaternary nitrogens), 2.01-2.03 (multiplet, 8H, allylic), 1.70-1.73 (multiplet, 8H, central methylenes in spacer and C-18 chain β-methylenes to quaternary nitrogens), 1.28-1.40 (multiplet, 44H, remaining methylenes in C-18 chains), 0.89 (triplet, 6H, terminal methyl groups).