**Supporting Information**

**A Thermal Analysis and Physicochemical Study on Thermoresponsive Chimeric Liposomal Nanosystems**

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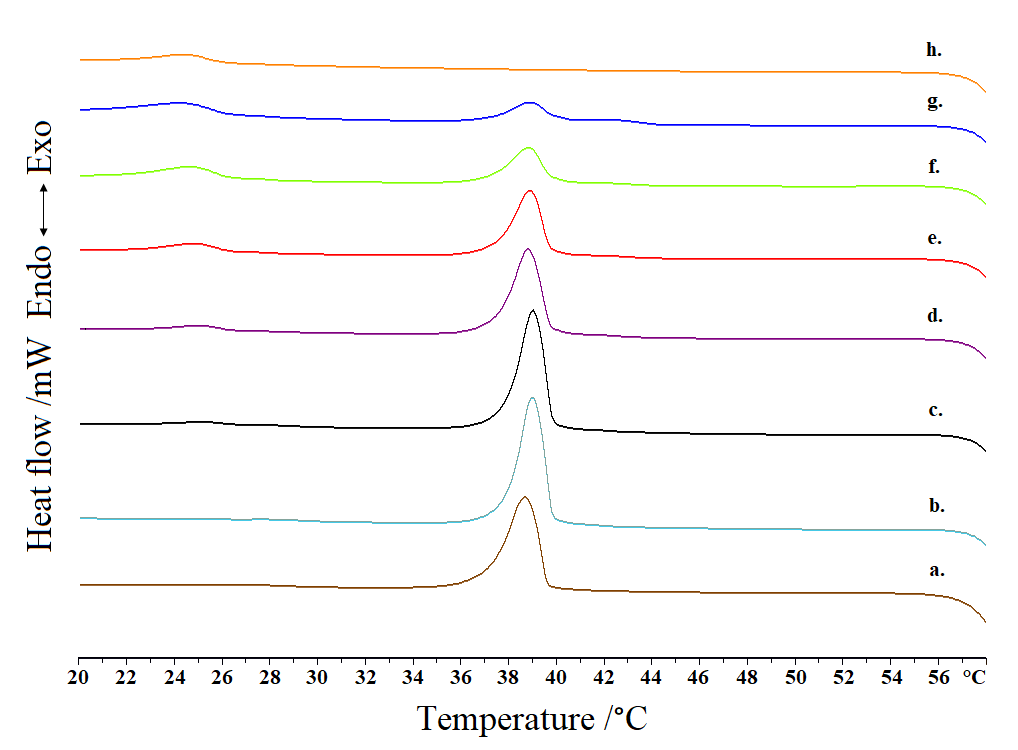
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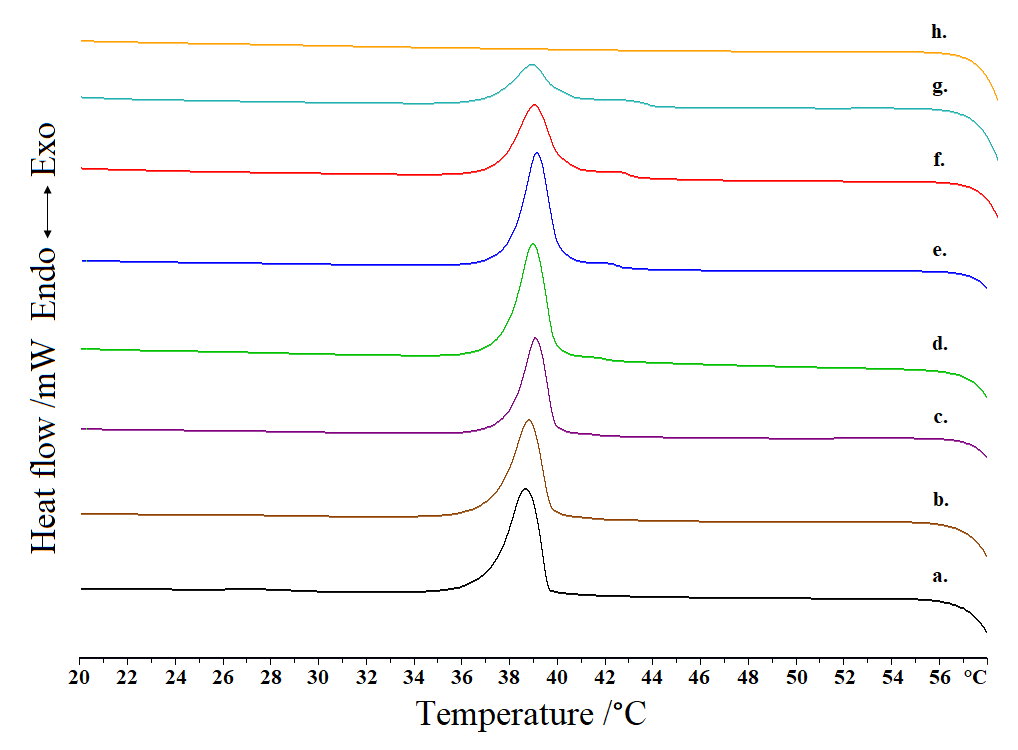
**A.**

**B.**

**Figure S1:** Plot of transition specific enthalpy (*ΔΗm*) vs. concentration of the incorporated copolymer for the chimeric systems A. DPPC:PNIPAM-b-PLA 1 and B. DPPC:PNIPAM-b-PLA 2.



**Figure S2:** DPPC:PNIPAM-b-PLA 1 DSC cooling cycle for systems (a) DPPC and DPPC:PNIPAM-b-PLA 1 (b) 9:0.02, (c) 9:0.05, (d) 9:0.1, (e) 9:0.2, (f) 9:0.5, (g) 9:1 and (h) PNIPAM-b-PLA 1.



**Figure S3:** DPPC:PNIPAM-b-PLA 2 DSC cooling cycle for systems (a) DPPC and DPPC:PNIPAM-b-PLA 2 (b) 9:0.02, (c) 9:0.05, (d) 9:0.1, (e) 9:0.2, (f) 9:0.5, (g) 9:1 and (h) PNIPAM-b-PLA 2.

**A.**

**B.**

**Figure S4:** Stability assessment of A. DPPC conventional and DPPC:PNIPAM-b-PLA 1 and 2 and B. EPC conventional and EPC:PNIPAM-b-PLA 1 and 2 chimeric structures’ size.

**A.**

**B.**

**Figure S5:** Stability assessment of A. DPPC conventional and DPPC:PNIPAM-b-PLA 1 and 2 and B. EPC conventional and EPC:PNIPAM-b-PLA 1 and 2 chimeric structures’ polydispersity.



**A.**

**Room Temp**

**45°C**

**Sonication**



**B.**

**Room Temp**

**45°C**

**Sonication**



**C.**

**Room Temp**

**45°C**

**Sonication**



**D.**

**Room Temp**

**45°C**

**Sonication**

**Figure S6:** DLS intensity-weighted plots of nanoparticles in three different conditions for A. DPPC, B. DPPC:PNIPAM-b-PLA 1 9:0.02, C. DPPC:PNIPAM-b-PLA 1 9:0.05 and D. DPPC:PNIPAM-b-PLA 1 9:0.1.

**Table S1:** Calorimetric profiles of DPPC:PNIPAM-b-PLA 1 chimeric bilayers in PBS (pH = 7.4) (cooling cycle).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Molar Ratio** | **Tonset,m /°C** | **Tm /°C** | **ΔT1/2,m /°C** | **ΔHm /J g-1** | **Tonset,t /°C** | **Tt /°C** | **ΔT1/2,t /°C** | **ΔHt /J g-1** |
| Lipid | - | 39.91 | 39.11 | 1.50 | 47.32 | - | - | - | - |
| Chimeric | 9:0.02 | 40.13 | 39.39 | 1.19 | 52.59 | - | - | - | - |
| Chimeric | 9:0.05 | 40.17 | 39.50 | 1.20 | 50.21 | 26.85 | 25.54 | 1.82 | 1.64 |
| Chimeric | 9:0.1 | 40.06 | 39.18 | 1.33 | 41.07 | 26.65 | 25.27 | 1.99 | 2.87 |
| Chimeric | 9:0.2 | 40.05 | 39.22 | 1.31 | 31.46 | 26.57 | 25.02 | 2.19 | 5.74 |
| Chimeric | 9:0.5 | 40.11 | 39.09 | 1.52 | 20.49 | 26.53 | 24.94 | 2.42 | 8.05 |
| Chimeric | 9:1 | 40.41 | 39.25 | 1.68 | 14.90 | 26.49 | 24.55 | 3.03 | 9.65 |
| Polymer | - | - | - | - | - | 24.69 | 24.69 | 2.39 | 6.53 |

*Tonset*: temperature at which the thermal event starts; *T*: temperature at which heat capacity (*ΔCp*) at constant pressure is maximum; *ΔT1/2*: width at half peak height of the transition; *ΔH*: transition enthalpy normalized per gram of chimeric system. m: main transition; t: thermoresponsive transition

**Table S2:** Calorimetric profiles of DPPC:PNIPAM-b-PLA 2 chimeric bilayers in PBS (pH = 7.4) (cooling cycle).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sample** | **Molar Ratio** | **Tonset,m /°C** | **Tm /°C** | **ΔT1/2,m /°C** | **ΔHm /J g-1** |
| Lipid | - | 39.91 | 39.11 | 1.50 | 47.32 |
| Chimeric | 9:0.02 | 40.01 | 39.14 | 1.40 | 43.20 |
| Chimeric | 9:0.05 | 40.19 | 39.41 | 1.14 | 34.09 |
| Chimeric | 9:0.1 | 40.22 | 39.36 | 1.29 | 46.92 |
| Chimeric | 9:0.2 | 40.41 | 39.53 | 1.22 | 46.07 |
| Chimeric | 9:0.5 | 40.57 | 39.39 | 1.54 | 37.76 |
| Chimeric | 9:1 | 40.59 | 39.25 | 1.76 | 26.24 |
| Polymer | - | - | - | - | - |

*Tonset*: temperature at which the thermal event starts; *T*: temperature at which heat capacity (*ΔCp*) at constant pressure is maximum; *ΔT1/2*: width at half peak height of the transition; *ΔH*: transition enthalpy normalized per gram of chimeric system. m: main transition