Supporting Information

Liposomes in Double-Emulsion Globules

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1. Stability of Bulk Double Emulsions with Tubular Liposomes in the W_1 Phase

In the preparation of bulk double emulsions, the two-step emulsification procedure was used. In the first step, the W_1 aqueous phase was added to the oil phase drop-by-drop with strong magnetic stirring. Subsequently, high-shear homogenization at 1000 rpm was applied to obtain W_1/O single emulsions using a homogenizer (Silverson, Massachusetts). In the second step, the W_1/O single emulsions were added to the W_2 aqueous phase drop by drop with gentle magnetic stirring. In the double emulsions, the volume ratio of W_1:O:W_2 is 1:1:0.5, and the compositions are shown in Table S1.

After storage of freshly prepared emulsions A and B for one hour, they were unstable –as expected – and had some phase separation. As seen in Figures S1 and S2, emulsion B shows greater stability than emulsion A, which is in agreement with the results in our capillary experiments. Following Pays et al,[34] this may be explained by an increase in the activation energy against the oil-film rupture after L-α-phosphatidylcholine adsorbs on the interface.

2. Stability of Tubular Liposomes Entrapped inside the Oil Phase

According to the cryo-TEM image (Figure S3), tubular liposomes were stable for up to at least 24-hour storage when stored within the oil phase composed of 0.005 M Span 80 in *n*-hexadecane.

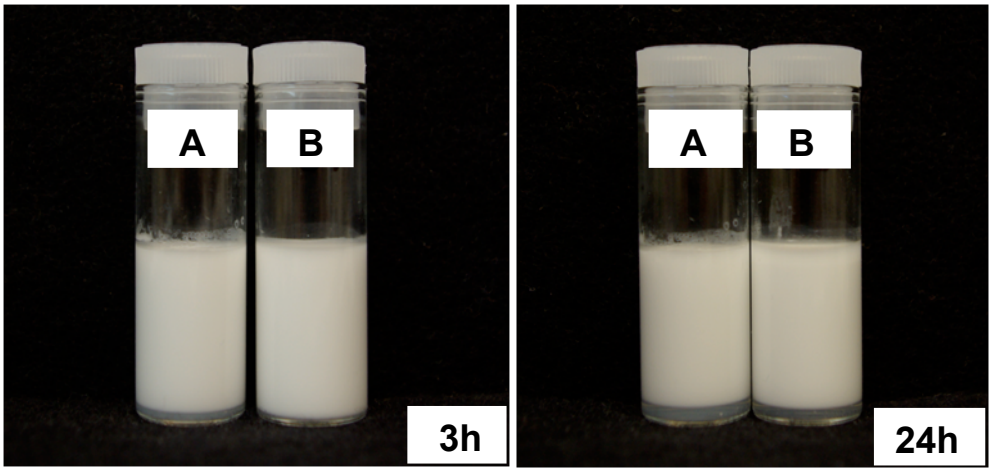

Figure S1. Visual comparison of emulsions A and B after 3h and 24h storage.

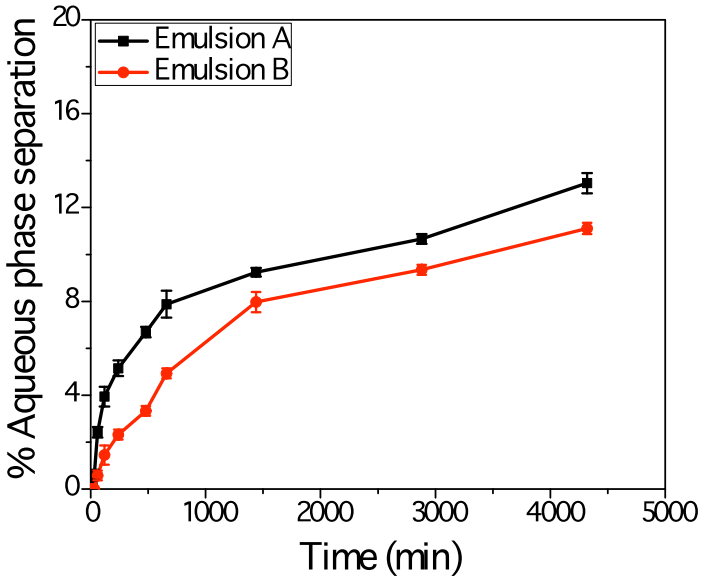

Figure S2. Effect of liposomes on the phase separation of emulsions A and B.

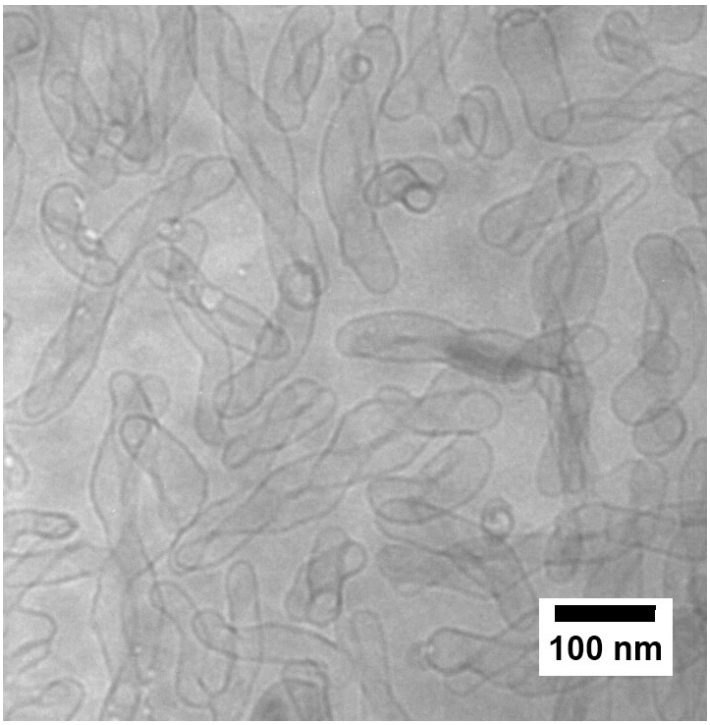

Figure S3. Tubular liposomes inside the oil phase for 24 hours

Table S1.

Compositions of double emulsions

Double Emulsions	W_1	O	W_2
Emulsion A	PBS buffer solution	0.03 M Span 80 in *n*-Hexadecane	0.01 M Tween 80 in PBS buffer solution
Emulsion B	Tubular liposomes in PBS buffer solution	0.03 M Span 80 in *n*-Hexadecane	0.01 M Tween 80 in PBS buffer solution