Electronic Supplementary Material (ESI) for RSC Advances

Supplementary Material

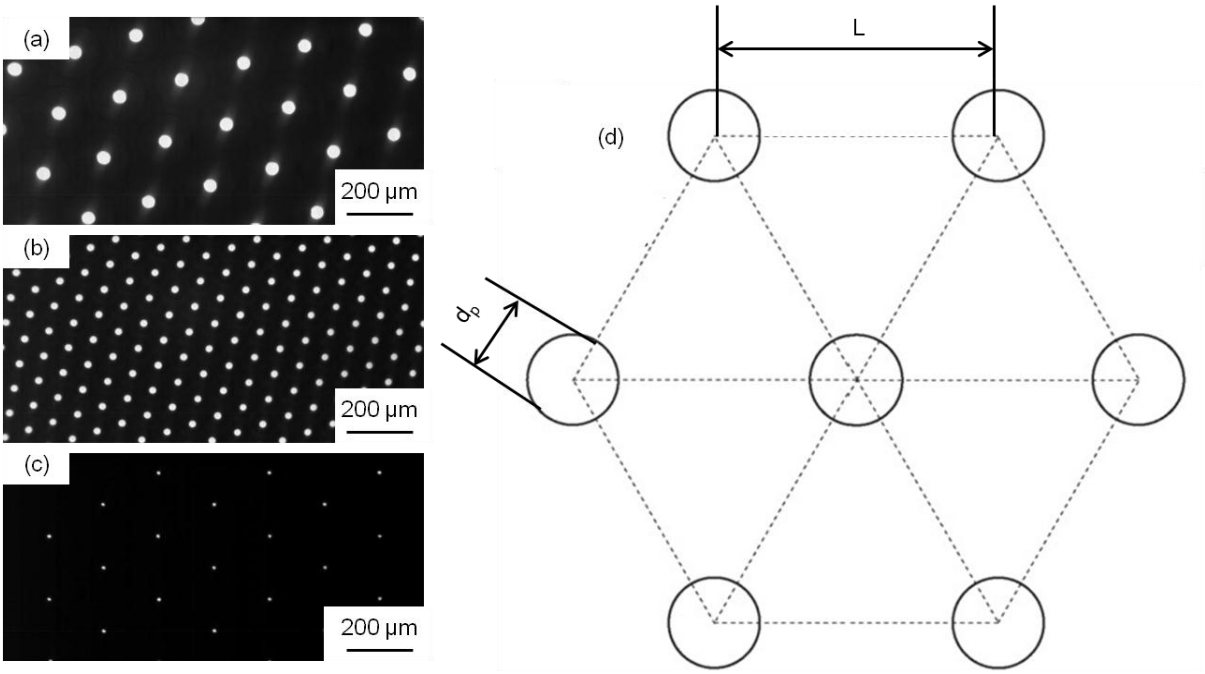

Figure S1. Microscopic images of some membranes used in this study: (a) d_p = 40 µm, L = 200 µm, (b) d_p = 20 µm, L = 80 µm, and (c) d_p = 10 µm, L = 200 µm. (d) Schematic view of the pore arrangement showing a regular hexagonal array of cylindrical pores with uniform pore spacing (L – pore spacing, d_p – pore diameter).

Table S1.

Pore diameters, pore spacing and porosities of the membranes used in this study.

Pore diameter (μm)	Pore spacing (μm)	Membrane porosity (%)
5	200	0.06
10	200	0.2
20	200	0.9
40	200	3.6
20	80	5.7
40	80	22.7

Table S2.

Effect of ethanol evaporation on the liposome size characteristics. The experimental parameters: phospholipid: 20 mg/ml POPC, stabilizer: 5 mg/ml cholesterol, aqueous to organic phase volume ratio: 4.5, agitation speed: 600 rpm, organic phase flow rate: 2 ml/min, membrane pore size: 20 µm, pore spacing: 80 µm. The size characterization was performed using DCS.

	Before ethanol evaporation	After ethanol evaporation
Mean size* (nm)	84 ± 3	89 ± 2
CV* (%)	33 ± 2	34 ± 1

*: Each value represents the mean ± S.D. (n=3)

Table S3.

The effect of membrane cleaning and treatment with a wetting agent on the liposome size and size distribution. The experimental parameters: phospholipid: 20 mg/ml Lipoid E 80, stabilizer: 5 mg/ml cholesterol, aqueous to organic phase volume ratio: 4.5, agitation speed: 600 rpm, organic phase flow rate: 2 ml/min, pore size: 20 µm, pore spacing: 200 µm. The size characterization was performed using DCS.

	Brand new membrane (without wetting agent treatment)	Used membrane (after cleaning and wetting)
Mean size* (nm)	91 ± 3	91 ± 2
CV* (%)	36 ± 1	35 ± 1

*: Each value represents the mean ± S.D. (n=3)

Nomenclature

b	Blade height (m)
CV	Coefficient of variation
PDI	Polydispersity index
d_p	Pore diameter (m)
D	Stirrer diameter (m)
D_m	Effective membrane diameter (m)
L	Pore spacing (interpore distance) (m)
n_b	Number of blades
T	Internal diameter of tank (m)
ε	Membrane porosity