Supporting Information

A

Surface Tension versus Molecular Area for PEO-PCL-OH (12/08)

B

Compression Modulus versus Molecular Area for PEO-PCL-OH (12/08)

C

Surface Tension versus Molecular Area for PEO-PCL-OH (18/08)

D

Compression Modulus versus Molecular Area for PEO-PCL-OH (18/08)

E

Surface Tension for PEO-PCL-OH (18/08)

F

Compression Modulus for PEO-PCL-OH (18/08)
SI. Figure 1. Surface tension and compressibility modulus of (a,b) PBD-PEO-OH (12/06); (c,d) PBD-PEO-OH (18/06); (e,f) PBD-PEO-OH (18/09); (g,h) PBD-PEO-OH (25/13); (i,j) PBD-PEO-NH2 (25/13); (k,l) PBD-PEO-NH2 (50/23).
SI. Figure 2. (a) The emission spectra of a series mixture of DOPC and DSPC lipids. The emission fluorescence was recorded at room temperature (T=25°C). At this condition, DOPC is in liquid-crystalline phase (phase transition temperature -20°C); DSPC is in gel phase (phase transition temperature 55°C). As the DSPC mol% in the mixture increases, the characteristic emission peaks at 440nm and 490nm remain but the ratio between these two peaks change according to DSPC mol%. (b) GP (Generalized Polarization) calculated versus DSPC mol% in the mixture.
SI Figure 3. DLS result measures the diameter of the vesicle suspension, which indicates a mono-disperse uniform size distribution around 160nm.

SI Figure 4. The extent of crosslinking has been verified via FT-IR in transmittance mode (uncrosslinked vesicles represented by dotted line; crosslinked vesicles represented by solid line). The peaks correspond to C=C stretch (at 1620-1680cm\(^{-1}\)), =C-H stretch (at 3010-3100cm\(^{-1}\)) have reduced tremendously after free radical addition reaction.
SI Figure 5. (a) The set-up of mini-extrusion includes two syringes at both ends of the chamber/holder with the PC membrane inside the chamber/holder; (b) images of track-etched PC membrane filter with pore size 100nm. All of the vesicle solutions were subjected to a mini-extrusion process to reduce the size distribution of vesicles to be monodispersed with a uniform distribution. The mini-extrusion process is achieved by repeatedly forcing the vesicle solution through a PC (polycarbonate) membrane with a fixed pore size from one syringe to the other as outlined above.

\[\text{(a)}\]

SI Figure 6. The chemical structure of (a) 1,2-addition PBD polymer segment; (b) 1,4-addition PBD polymer segment. The C=C double bond is present on the side chain of 1,2-addition polymer, and on the main chain of 1,4-addition polymer.