Supporting Information

Alkyl Chain Grafted Poly(L-lysine): Self-Assembly and Biomedical Application as Carriers

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Experimental Section

Material. FITC-dextran was purchased from Aldrich.

Encapsulation of FITC-dextran in the PLH vesicles.

PLH (6 mg) dissolved in 3 ml methanol was placed in a glass vial (20 mL) and a thin polypeptide film was deposited on the wall of the glass vial by removing methanol under vacuum. The FITC-dextran was suspended in PBS (pH 7.4) at a concentration of 1 mg/mL. 5 mL of this solution was then added to the glass vial, resulting in vesicles forming off the surface and simultaneously encapsulating FITC-dextran in them. The resulting solution was dialyzed against PBS to remove free FITC-textran. Fluorescence measurement of FITC-dextran encapsulated PLH vesicles in aqueous solutions was taken on a Carl Zeiss LSM510 laser scanning confocal microscope.

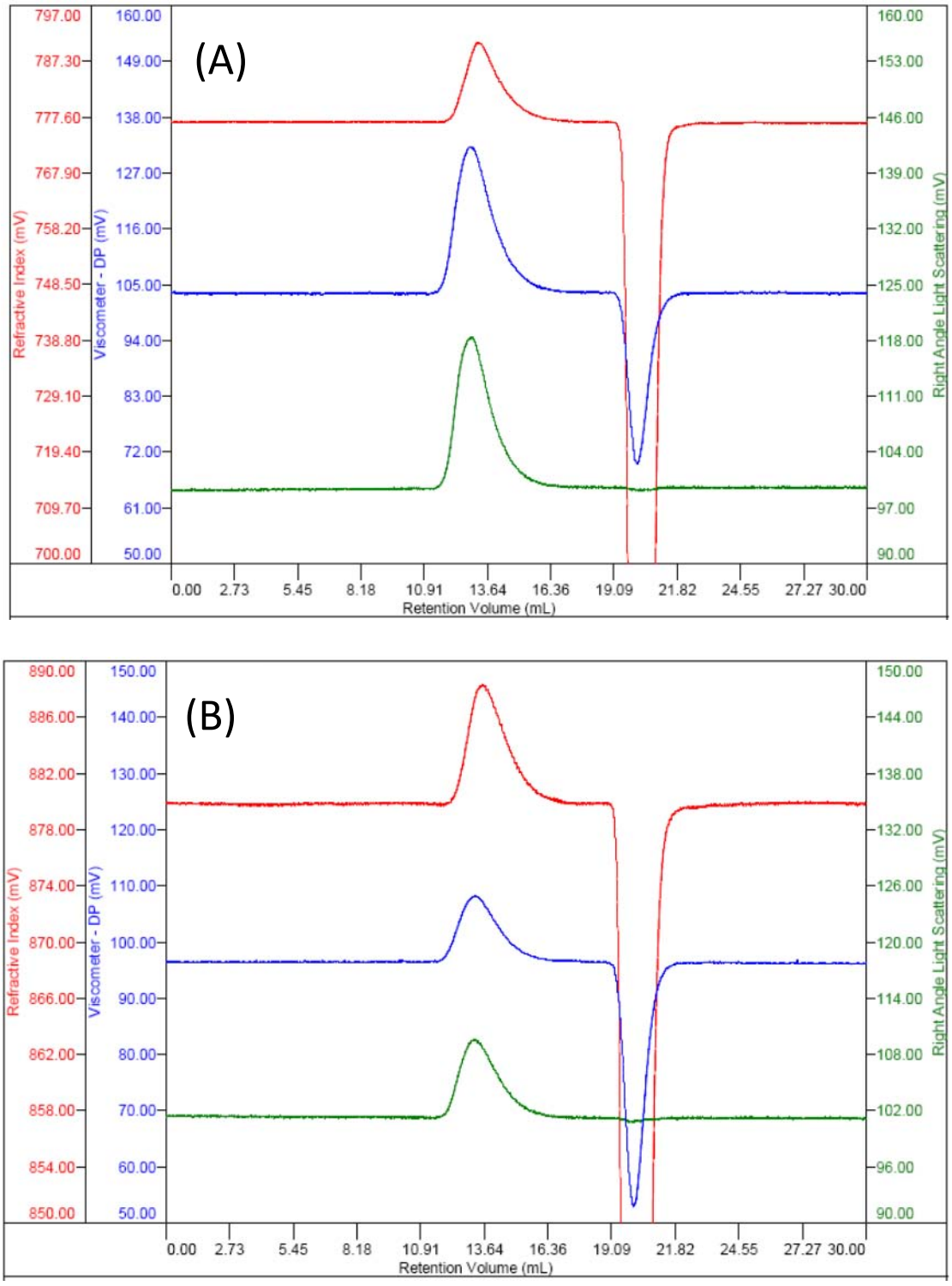

Fig. S1 The GPC chromatograms of (A) Z-Lys_{260} (Mn=68900, Mw/Mn= 1.25) and (B) Z-Lys_{190} (Mn=51900, Mw/Mn= 1.19) from three detectors (RI, right angle light scattering, and viscometer).

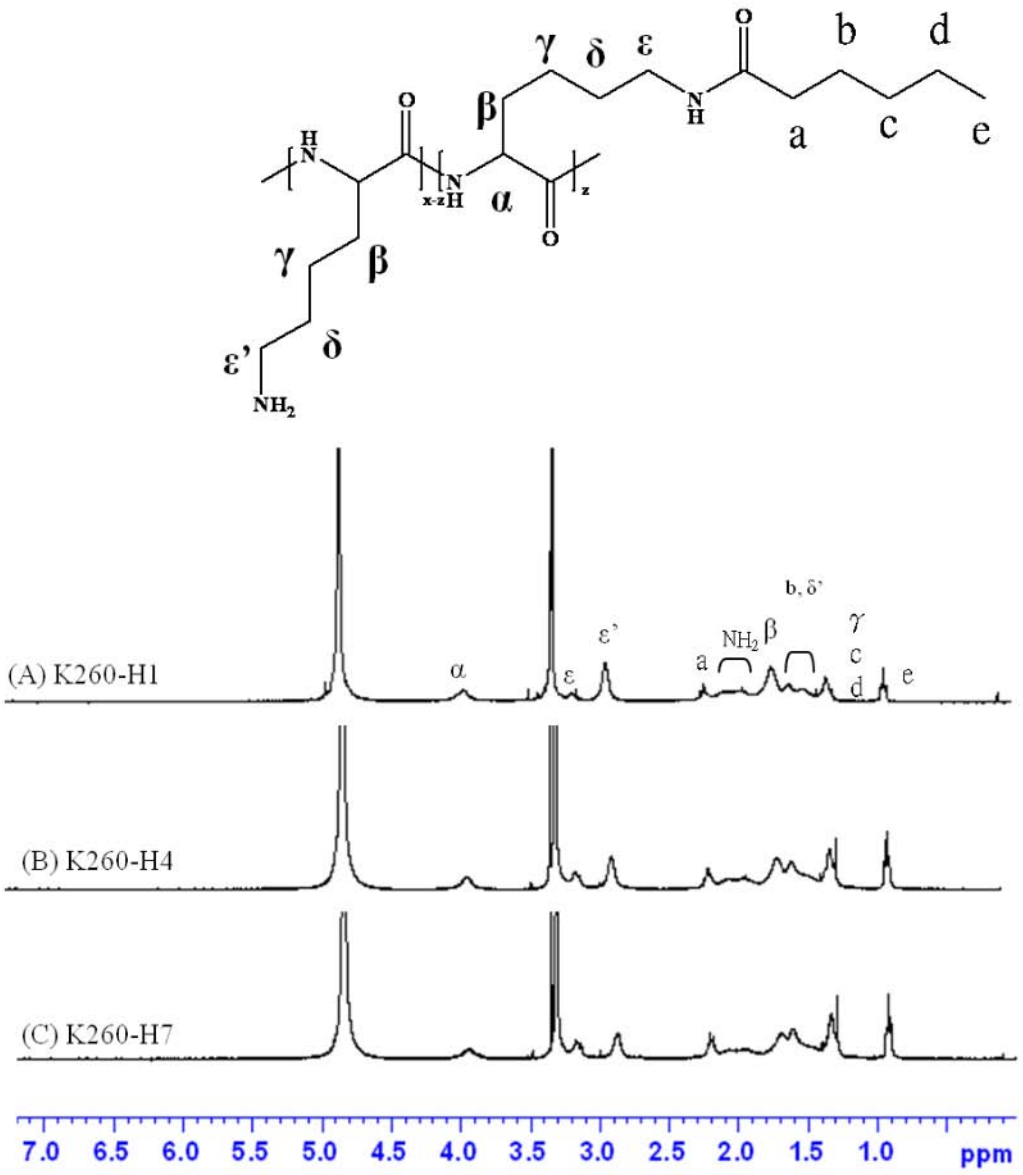

Fig. S2 ^{1}H NMR spectra of (A) K260-H1, (B) K260-H4 and (C) K260-H7 copolypeptides in CD_3OD.

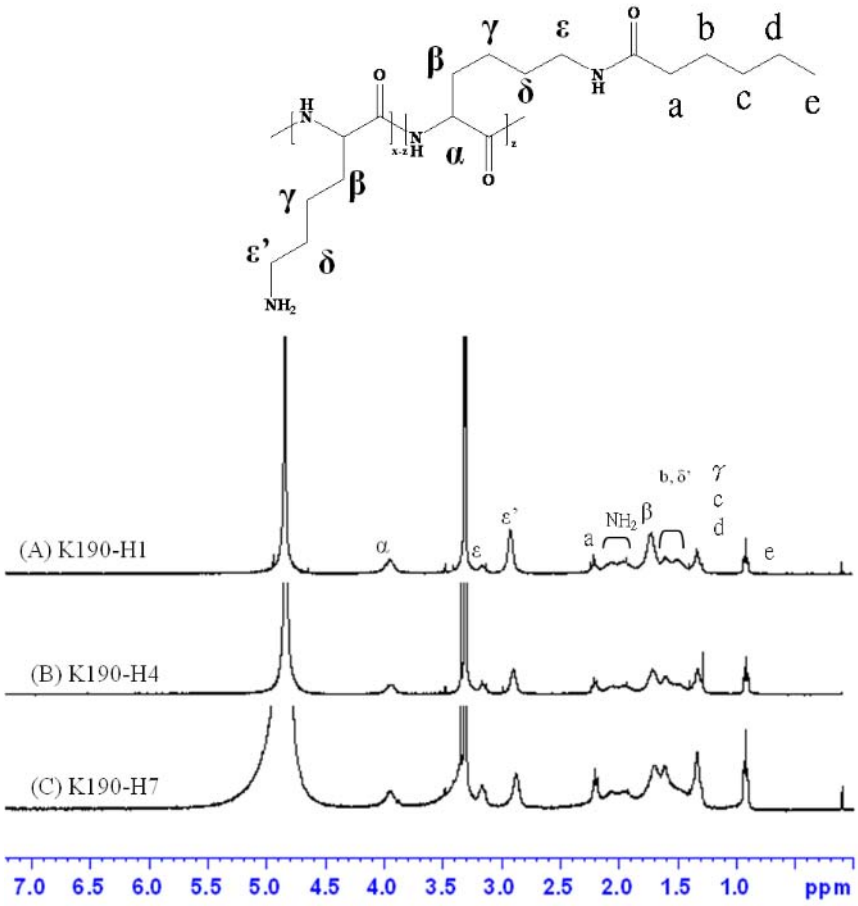

Fig. S3 ^{1}H NMR spectra of (A) K190-H1, (B) K190-H4 and (C) K190-H7 copolypeptides in CD_3OD.

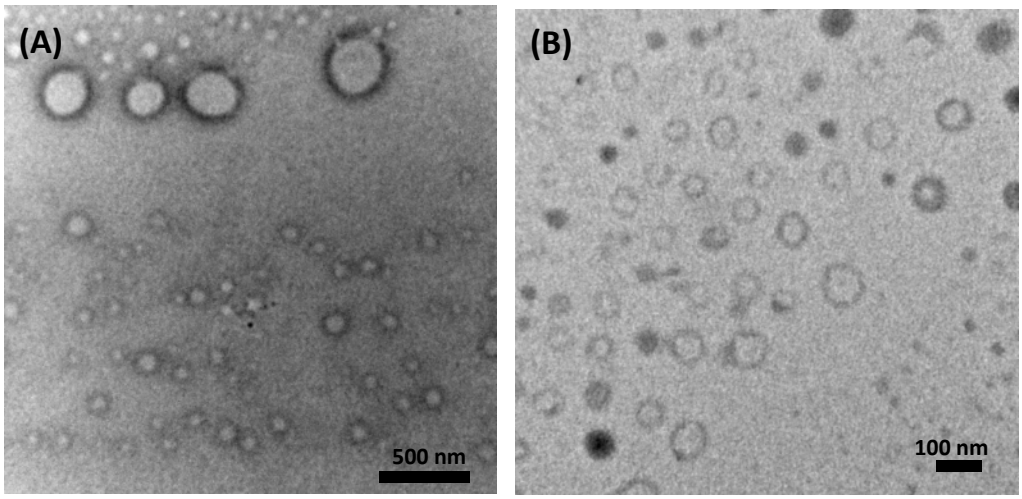

Fig. S4 TEM images of vesicles formed by (A) K190-H7 and (B) K260-H4 copolypeptides at pH 7.4 in PBS using RuO_4 positive staining**.**

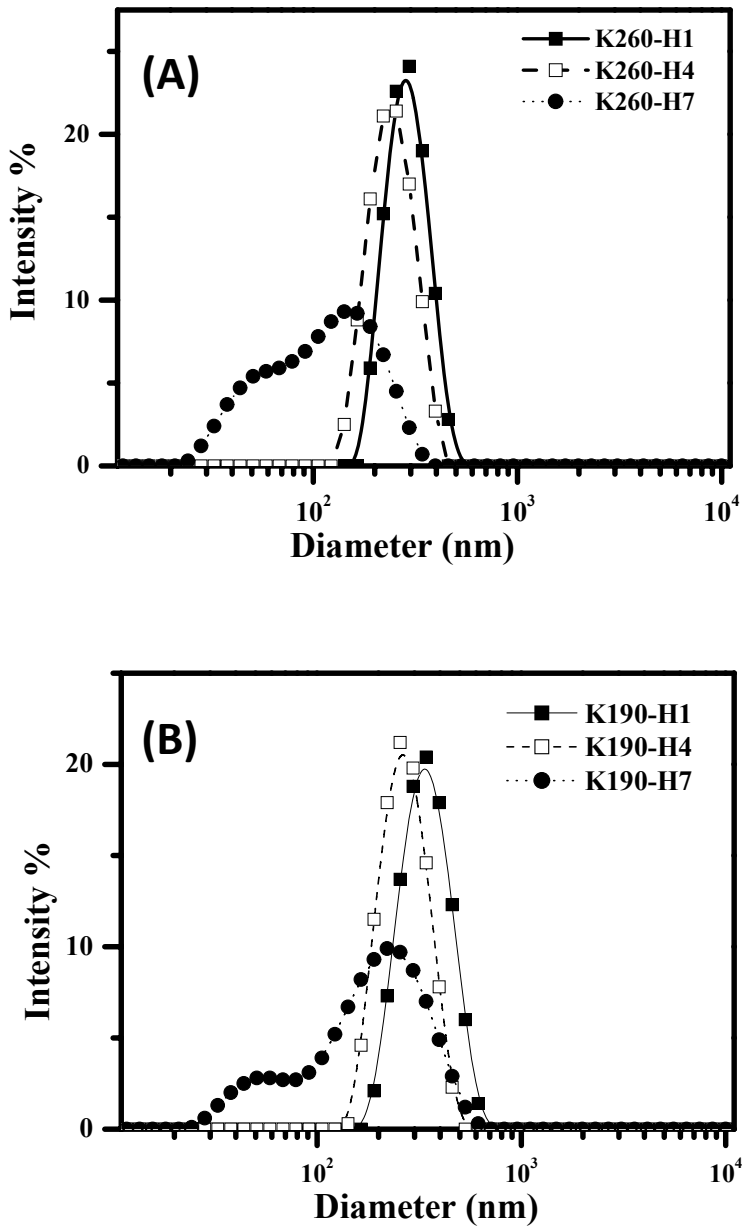

Fig. S5 The hydrodynamic diameter distributions, $f(D_h)$, for PLH vesicles in PBS (I=0.01 N and pH 7.4).

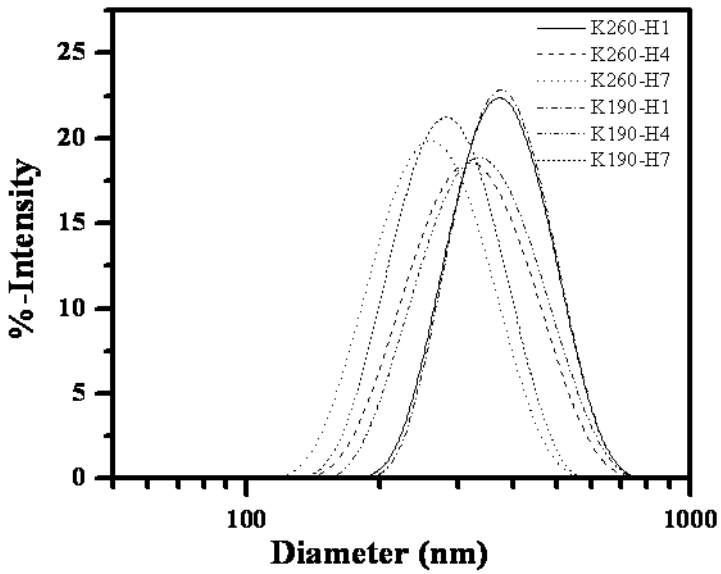

Fig. S6 The hydrodynamic diameter distributions, $f(D_h)$, for PLH vesicles in PBS (I=0.01 N and pH 4.68).

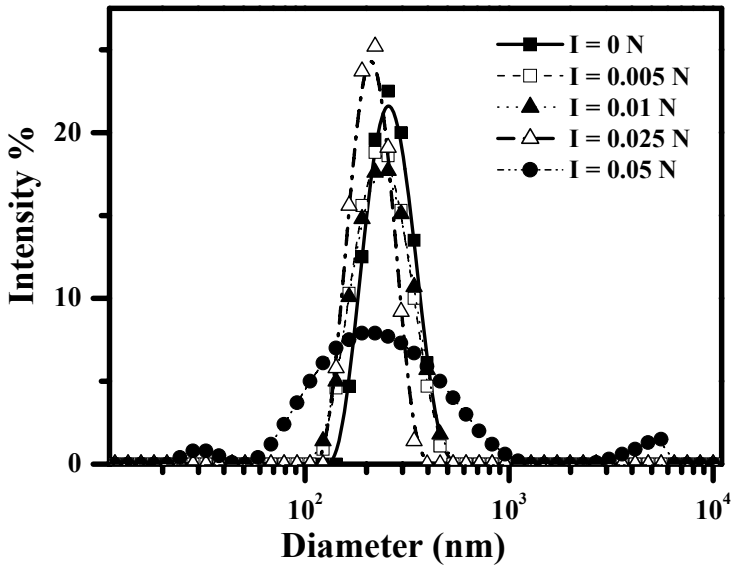

Fig. S7 The hydrodynamic diameter distributions, $f(D_h)$, for K260-H4 copolypeptide (2 mg/ml) at different ionic strengths.

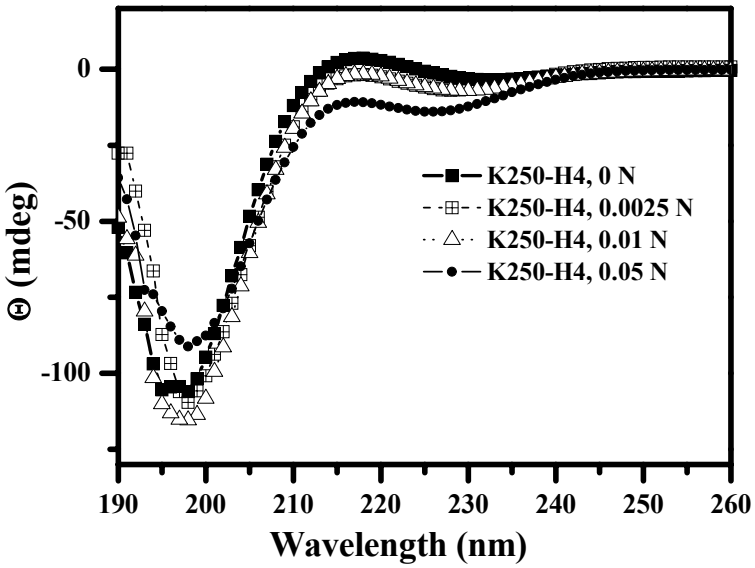

Fig. S8 CD spectra obtained for K260-H4 copolypeptide (2 mg/ml) at different ionic strengths.

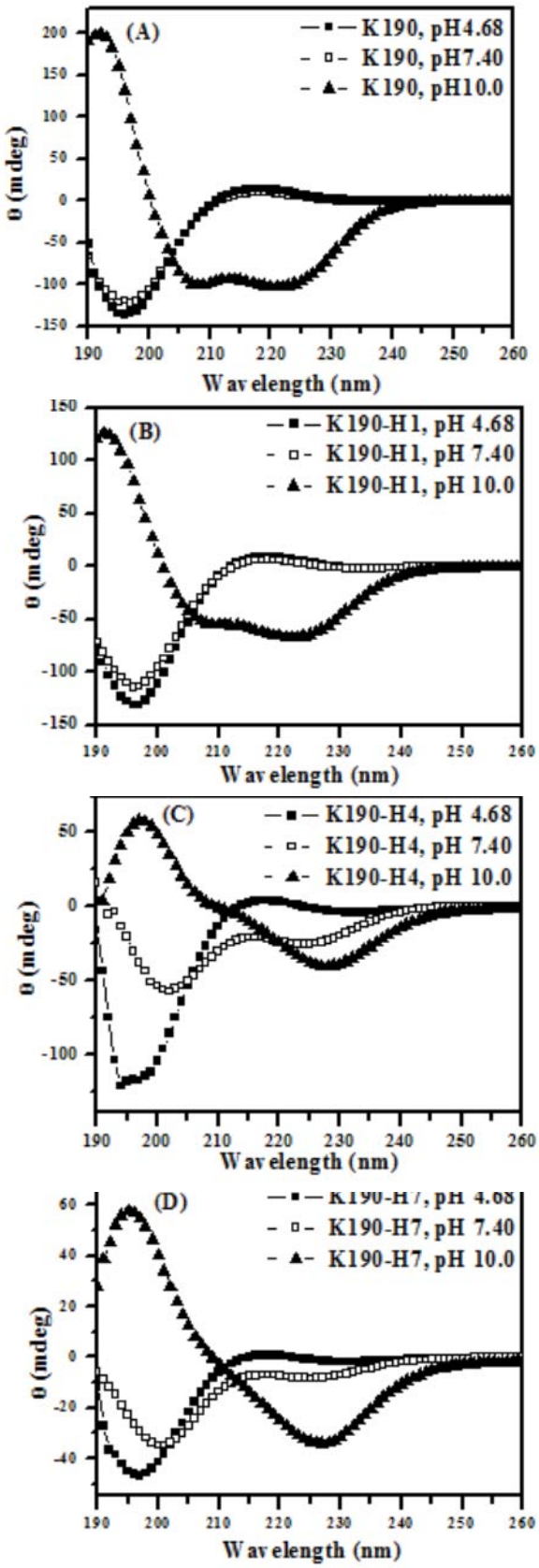

Fig. S9 CD spectra obtained for (A) K190, (B) K190-H1, (C) K190-H4, and (D) K190-H7 copolypeptides at pH 4.68 (■), 7.4 (□), and 10.0 (▲), respectively.

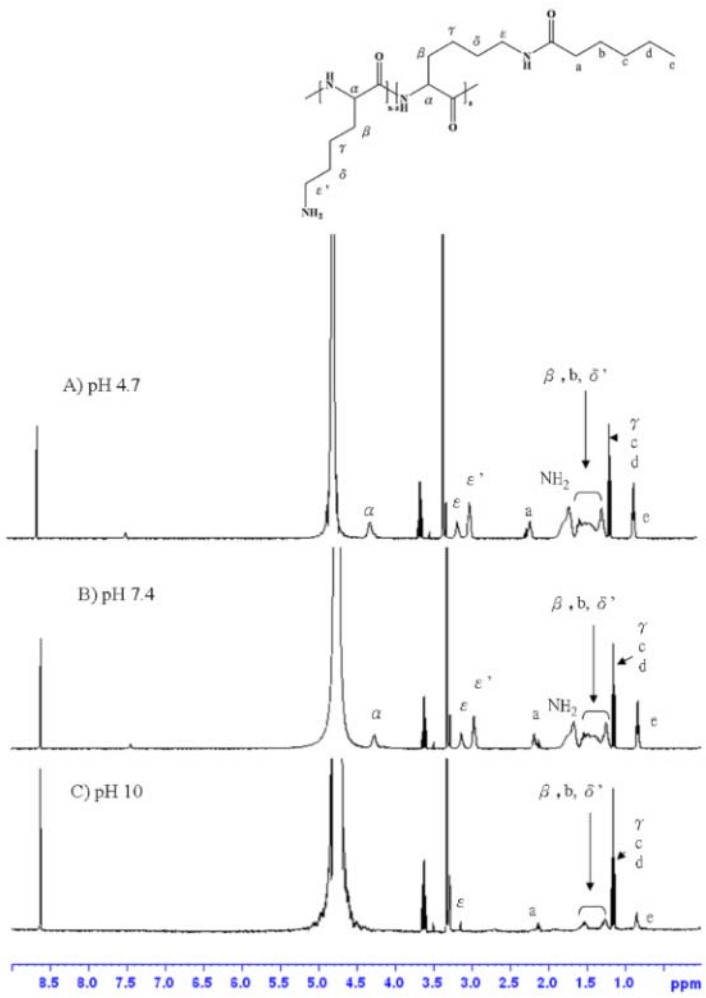

Fig. S10 ^{1}H NMR spectra of K190-H7 copolypeptide in D_2O at (A) pH 4.7 (B) pH 7.40 (C) pH 10.0.

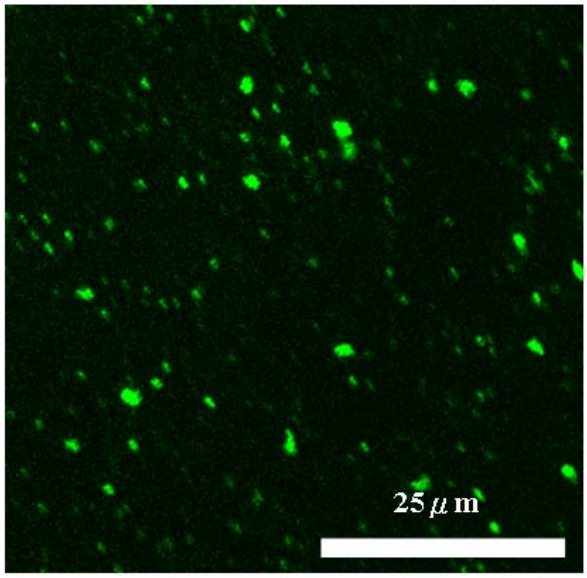

Fig. S11 Confocal image of FITC-dextran encapsulated K190-H4 vesicles. The sample was not sonicated or did not pass through the filters.

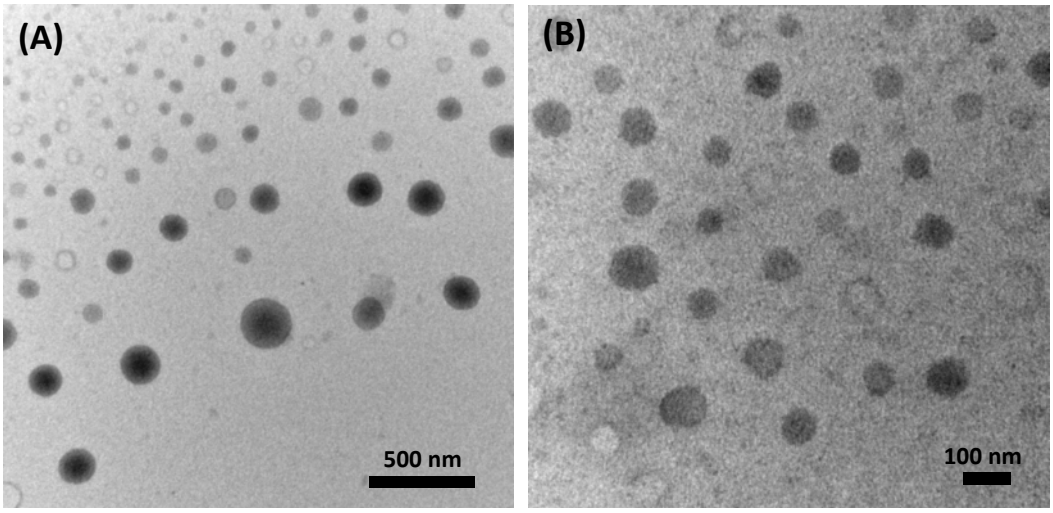

Fig. S12 TEM images of (A) Mb-loaded K190-H4 particles and (B) Mb-loaded K190-H7 particles.

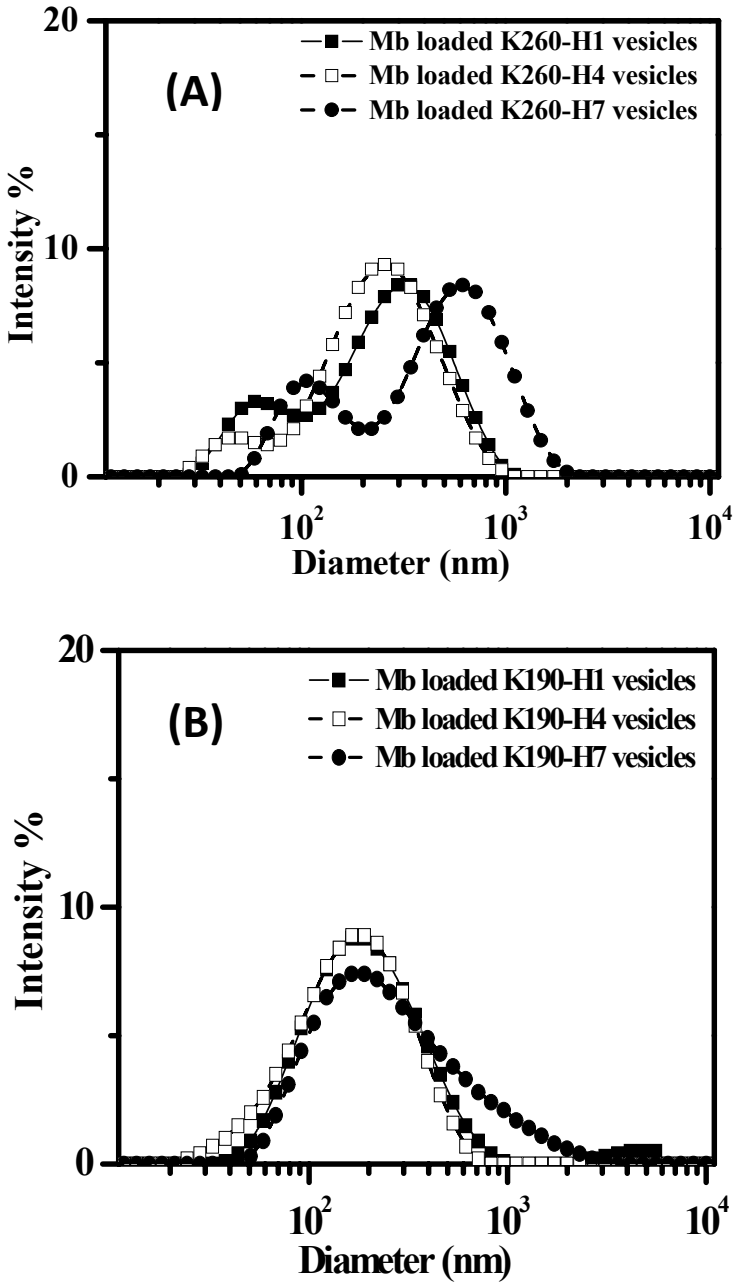

Fig. S13 The hydrodynamic diameter distributions, $f(D_h)$, for Mb-loaded PLH particles.

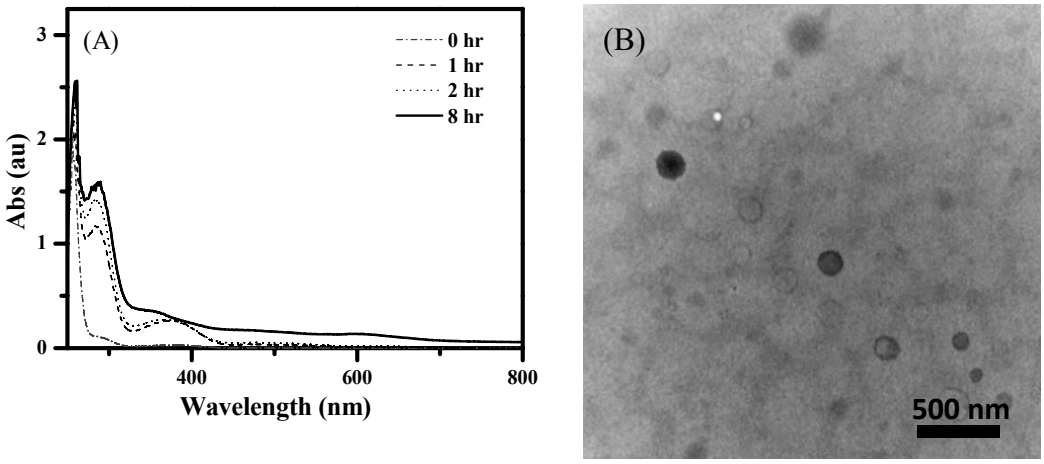

Fig. S14 (A) UV-vis spectra of K190-H4 vesicles crosslinked by genipin as a function of time at pH 5 and (B)TEM image of crosslinked K190-H4 vesicles. The sample was prepared at pH 5 in DI water.

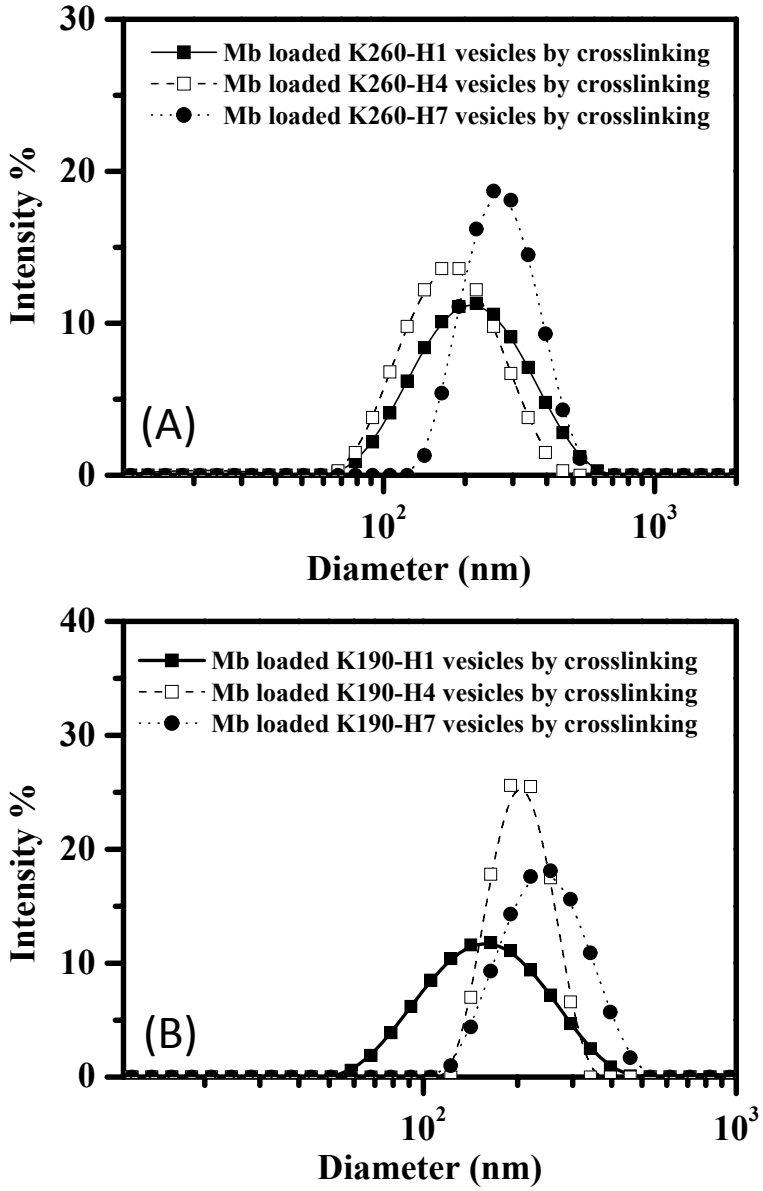

Fig. S15 The hydrodynamic diameter distributions, $f(D_h)$, for Mb-loaded PLH particles.