Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supplementary information for

Sustained Zero-Order Release Carrier for Long-acting, Peakless Basal Insulin Therapy

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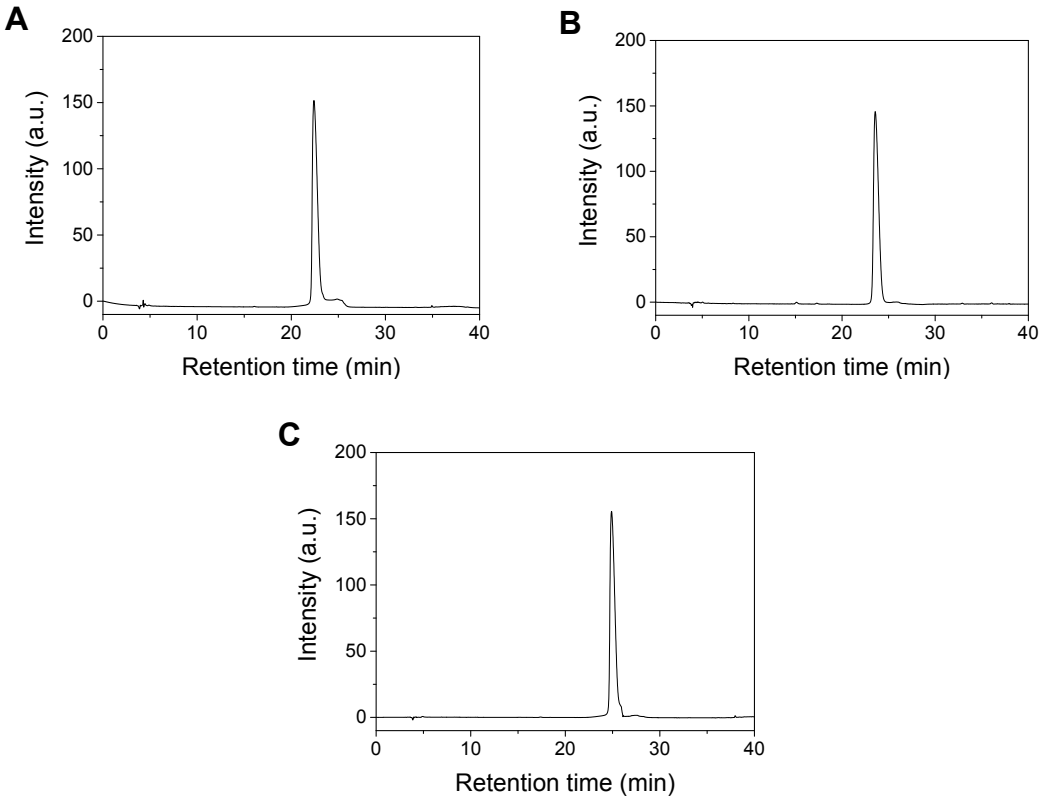

Fig. S1. Chromatograms of the purified PEG-insulin conjugates. Mw of mPEG-SPA used for pegylation is 2000 (A), 5000 (B), and 10000Da (C), respectively.

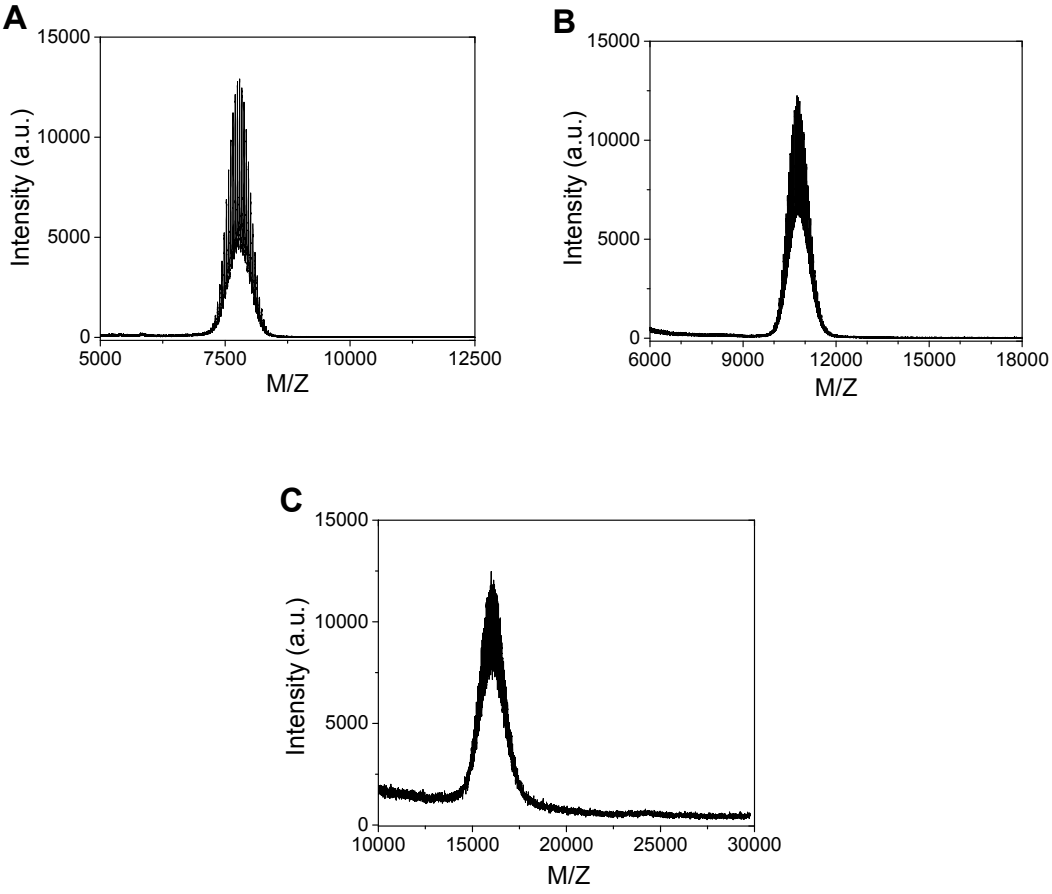

Fig. S2. MALDI-TOF mass spectra of the purified PEG-insulin conjugates. Mw of mPEG-SPA used for pegylation is 2000 (A), 5000 (B), and 10000Da (C), respectively. The average Mw of the conjugates is 7790 (A), 10782 (B), and 16040Da (C), respectively.

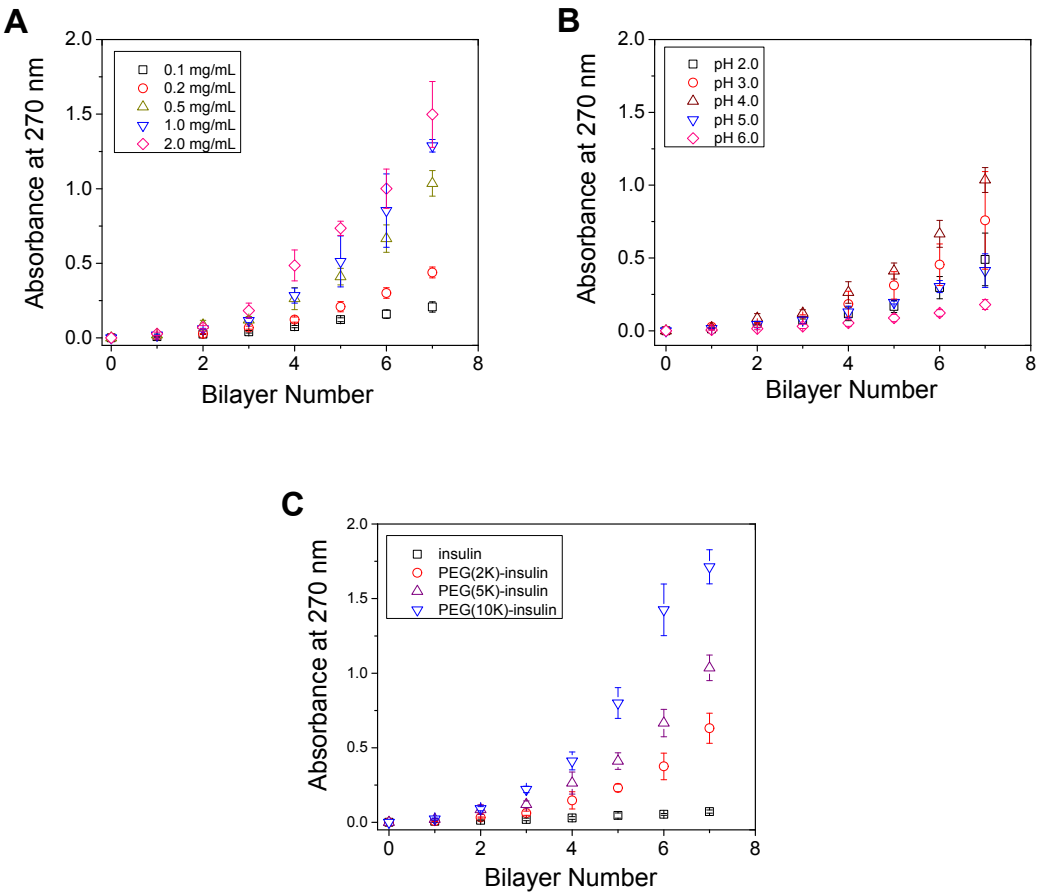

Fig. S3. Fabrication of PEG-insulin/TA LBL films under various conditions. (A) PEG(5K)-insulin and TA were assembled at different concentrations as indicated. T = 5°C, pH = 4.0. (B) PEG(5K)-insulin and TA were assembled at different pHs as indicated. [PEG-insulin] = [TA] = 0.5 mg/mL, T = 5°C. (C). PEG-insulin with different molecular weights were assembled with TA. [PEG-insulin] = [TA] = 0.5 mg/mL, T = 5°C, pH = 4.0. The results are expressed as mean ± standard deviation. (n=3)

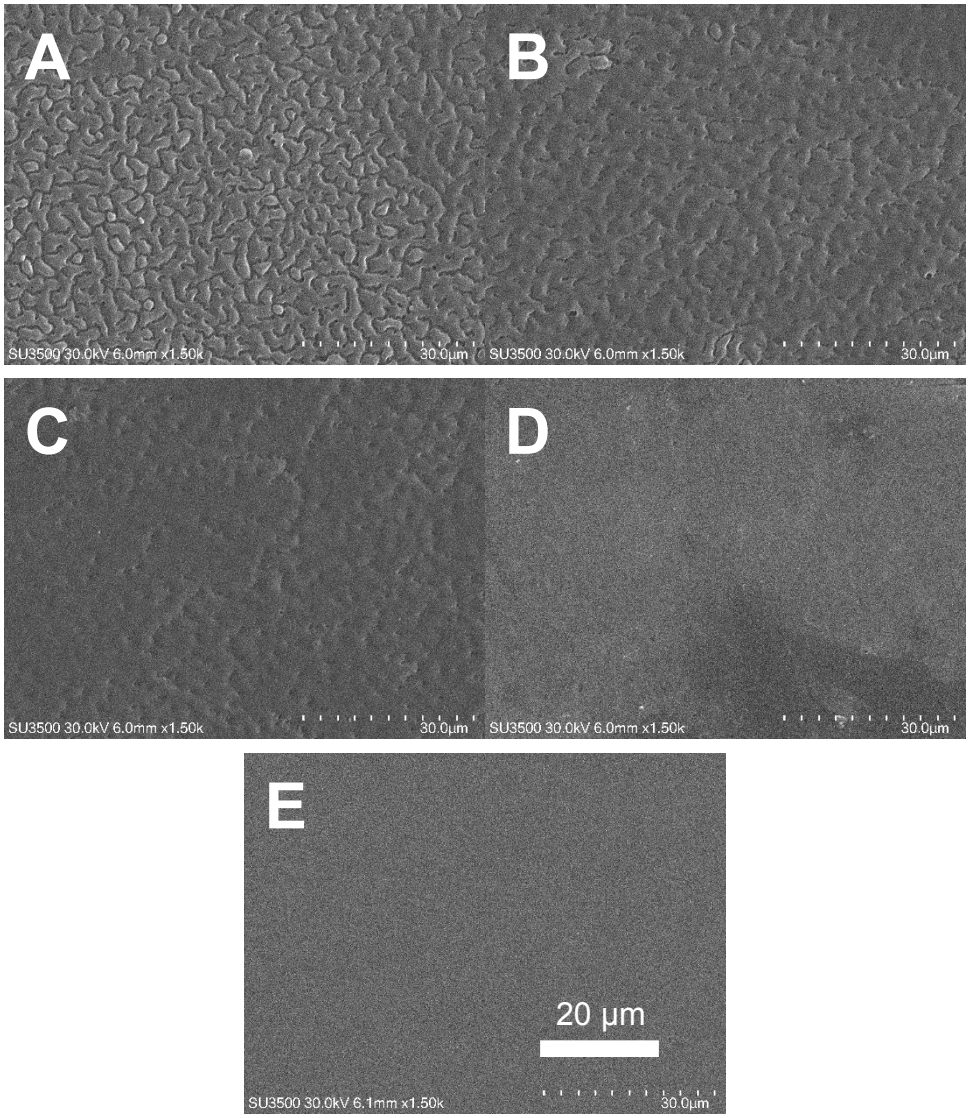

Fig. S4. SEM images of an as-prepared 9-bilayer PEG-insulin/TA film (A) and the film after being soaked in 10 mM pH7.4 phosphate buffer at 37 °C for 100 (B), 200 (C), 600 (D) and 800 min (E). The film surface became smoother with time because of the gradual disintegration of the film. The film disintegrated completely at a soaking time of 800 min.

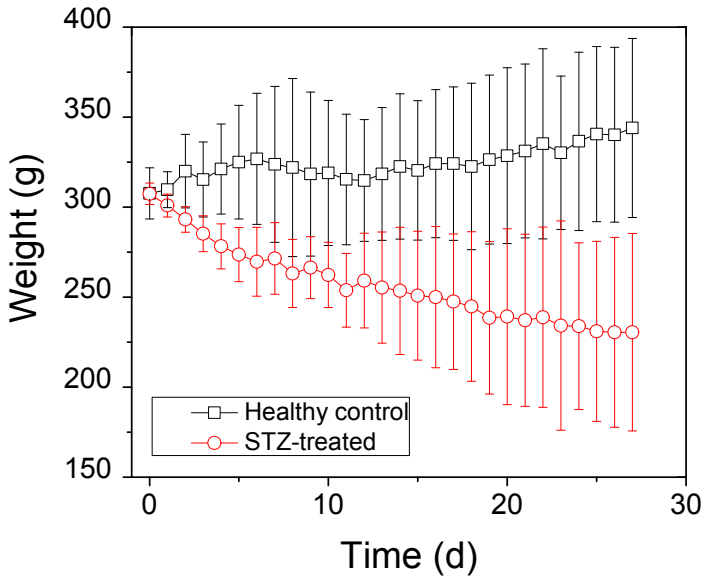

Fig. S5. Body weight profile of rats. (□) healthy control group (untreated). (○) Streptozotocin (STZ)-treated group. The results are expressed as mean ± standard deviation. (n=6)