Supplementary Information

Microfluidic Fabrication of Monodisperse Microcapsules for Glucose-Response at Physiological Temperature

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Synthesis and Characterization of 3-Acrylamidophenylboronic Acid (AAPBA) Monomer

Fig. S1 shows the synthesis route of AAPBA monomer.

![Synthesis route of AAPBA monomer](image)

**Fig. S1** Synthesis route of AAPBA monomer

Fig. S2 shows the characteristic peaks of the AAPBA monomer. The absorption bands at 1666 cm\(^{-1}\) and 1636 cm\(^{-1}\) are attributed to C=O and C=C bond stretching vibrations, respectively. A typical amide II band appears in the spectrum of AAPBA at 1557 cm\(^{-1}\). The absorption bands at 1433 cm\(^{-1}\) is attributed to benzene skeleton stretching vibrations. The absorption band at 1356 cm\(^{-1}\) is characteristic of -B(OH)\(_2\). [S1]

![FT-IR spectrum of AAPBA monomer](image)

**Fig.S2** The FT-IR spectrum of AAPBA monomer
The structure of AAPBA monomer was confirmed by 400 MHz $^1$H NMR (Bruker AVII-400 MHz) spectrum (Fig. S3). $^1$H NMR (AAPBA) ([D6] DMSO): $\delta = 5.75$ (1H, CH$_2$=CH-), 6.27 (1H, CH$_2$=CH-), 6.40 (1H, CH$_2$=CH-), 7.28 (1H, phenyl), 7.49 (1H, phenyl), 7.82 (1H, phenyl), 7.88 (1H, phenyl), 8.03 (2H, -B(OH)$_2$), 10.07 (1H, -NH-). These $^1$H NMR results together with the FT-IR results verify the successful synthesis of AAPBA monomer.

![Fig. S3 $^1$H NMR spectrum of AAPBA monomer](image)

**Labeling of Insulin with Fluorescein Isothiocyanate (FITC)**

The insulin was labeled with FITC according to literature.$^{[S2]}$ Typically, 25 µL DMSO solution containing 5 mg/mL FITC was slowly added to 5 ml aqueous solution containing Na$_2$CO$_3$ (0.1 M) and insulin (8 mg/mL) within 10 min. The reaction was incubated in the dark in an ice-water bath for 12 h, and then stopped by addition of 10 mL NH$_4$Cl solution (50 mM). The mixture was further stirred for 2 h in the ice-water bath. After that, the unbound FITC was removed by dialysis. The obtained FITC-insulin was lyophilized and stored at 4 °C in the dark for further use.

**References**
