Supplementary Material (ESI) for Soft Matter
This journal is © The Royal Society of Chemistry 2013

Supplementary Information

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

Mao-Jie Zhang, Wei Wang*, Rui Xie, Xiao-Jie Ju, Li Liu, Ying-Ying Gu, Liang-Yin Chu*

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

Fig. S1 shows the synthesis route of AAPBA monomer.

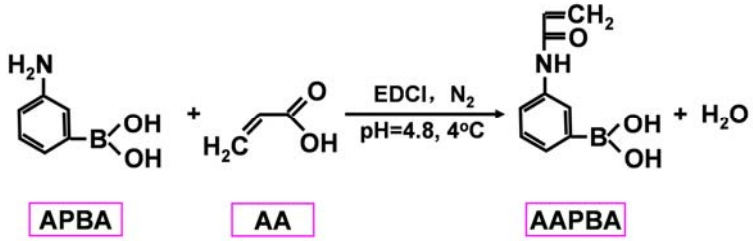

Fig. S1 Synthesis route of AAPBA monomer

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]

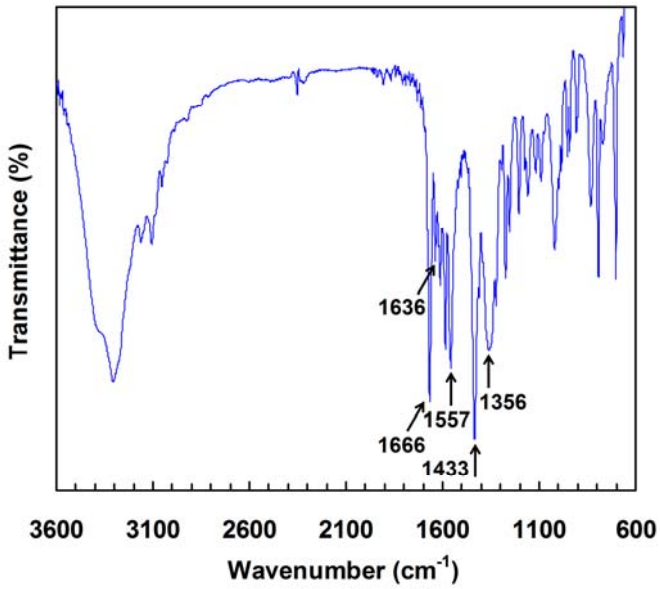

Fig.S2 The FT-IR spectrum of AAPBA monomer

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): δ = 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.

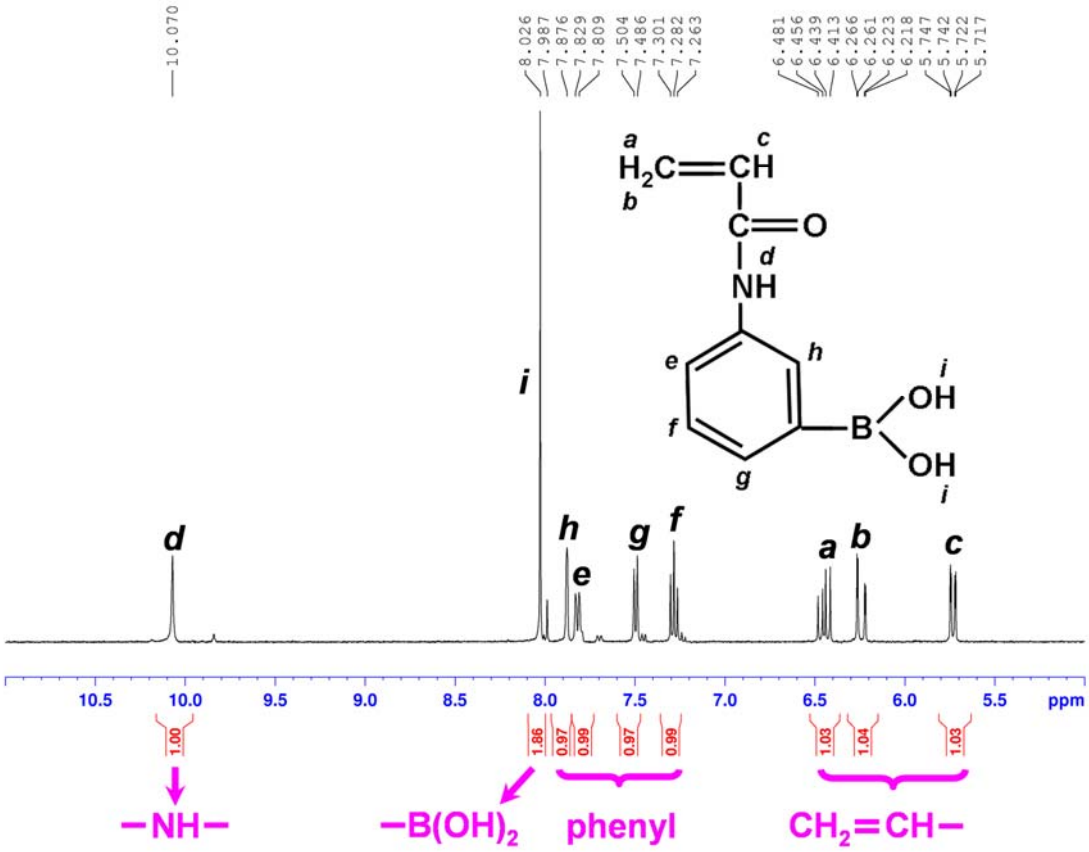

Fig. S3 ^{1}H NMR spectrum of AAPBA monomer

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_2CO_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_4Cl 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 ^{o}C in the dark for further use.

References

[S1] L. Wang, M. Z. Liu, C. M. Gao, L. W. Ma and D. P. Cui, *React. Funct. Polym.*, **2010**, *70*, 159.

[S2] X. Chen, J. Luo, W. Wu, H. Tan, F. Xu and J. Li, *Acta Biomater.*, **2012**, *8*, 4380.