Electronic Supplementary Information (ESI)

Switchable glucose-responsive volume phase transition behavior of poly(phenylboronic acid) microgels

Mingming Zhou, a Fan Lu, a Xiaomei Jiang, b Qingshi Wu, a Aiping Chang, a and Weitai Wu*, a

b Clinical Laboratory, Huli Center for Maternal and Child Health, Xiamen 361009, Fujian, China

Figure S1. 1H NMR of 2-dansylaminoethylamine in CDCl3.
Figure S2. $^1$H NMR of DAEAM in CDCl$_3$.

Figure S3. $^{13}$C NMR of DAEAM in CDCl$_3$.

Figure S4. $^1$H NMR of 3-VAPBA in DMSO-d$_6$. 
Figure S5. $^{13}$C NMR of 3-VAPBA in DMSO-$d_6$.

Figure S6. A typical electron energy loss spectroscopy (EELS) of the microgels (pPBA-2) along the line in the TEM image.

Figure S7. FTIR spectra of 3-VAPBA and DAEAM.
Figure S8. 1\textsuperscript{st} derivative of the normalized hydrodynamic diameter, $<D_h>/<D_h>_{0\text{pH}}$, of (a) pPBA-1 and (b) pPBA-2 microgels.

Figure S9. \textsuperscript{11}B NMR spectrum of the control samples synthesized following pPBA-1 (up) and pPBA-2 microgels (down) but without DAEAM, in D\textsubscript{2}O of pH = 7.4, measured at 25.0 °C.

Figure S10. DLS $<D_h>$ distribution of pPBA-1 (open symbols) and pPBA-2 (solid symbols) microgels upon adding 0.0 mM (□,■) or 200.0 mM (○,●) glucose.
Figure S11. The solution temperature-dependent $<D_h>$ of pPBA-1 (□) and pPBA-2 (■) microgels. All measurements were made in PBS of pH = 7.4 and at a scattering angle $\theta = 45^\circ$.

Figure S12. PL spectrum for DAEAM. The excitation spectrum is also presented.

Figure S13. DLS $<D_h>$ distribution of pPBA-1 (open symbols) and pPBA-2 (solid symbols) microgels before (□, ■) and after (○, ●) ten cycles of adding (25.0 mM) and removing (0.0 mM) of glucose. All measurements were made in PBS of pH = 7.4 at 25.0 °C and a scattering angle $\theta = 45^\circ$.
Figure S14. The glucose resolution ($\delta$[Glu]) as a function of the glucose concentration [Glu] by employing pPBA-1 (open symbols) and pPBA-2 (solid symbols) microgels at 25.0 °C (■,□) and 37.0 °C (●,○). All measurements were made in PBS of pH = 7.4.

Figure S15. PL response of pPBA-1 (open symbols) and pPBA-2 (solid symbols) microgels upon adding glucose. All measurements were made in 5.0 mM PBS of pH = 7.4 at (a) 25.0 °C and (b) 37.0 °C, in the absence (■,□) and presence of 0.1 mM fructose (●,○).