Glucose-responsive microgels based on apo-enzyme recognition

Ting Ye,‡a Xue Bai,‡a Xiaomei Jiang,b Qingshi Wu,a Shoumin Chen,a Anqi Qu,a Junwei Huang,a Jing Shenc and Weitai Wu*a

‡ State Key Laboratory for Physical Chemistry of Solid Surfaces, Collaborative Innovation Center of Chemistry for Energy Materials, The Key Laboratory for Chemical Biology of Fujian Province, and Department of Chemistry, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen 361005, China. E-mail: wuwtxmu@xmu.edu.cn
b Clinical Laboratory, Huli Center for Maternal and Child Health, Xiamen 361009, Fujian, China
c Department of Applied Chemistry, College of Vocational Education, Yunnan Normal University, Kunming 650092, Yunnan, China

Fig. S1 Fluorescence spectrum of GOx and apo-GOx.

Fig. S2 FTIR spectrum of apo-GOx@pNIPAM microgels.

Fig. S3 FTIR spectrum of GOx, apo-GOx and NIPAM.
**Fig. S4** FTIR spectra, after resolution enhancement by first derivation, of apo-GOx@pNIPAM microgels in the absence (0.0 mM) and presence (20.0 mM) of glucose.

**Fig. S5** Variation in the $I_t/I_0$ for apo-GOx@pNIPAM microgels upon adding glucose (red lines: 1st-order kinetic fits).

**Fig. S6** Sugar-dependent $<D_h>$ values: fructose (□), galactose (○), or mannose (Δ). All measurements were made in 5.0 mM PBS of pH = 7.4 at 37.0 °C.

**Fig. S7** Temperature-dependent $<D_h>$ values. All measurements were made in 5.0 mM PBS of pH = 7.4.
**Fig. S8** Releasing profiles of insulin from the insulin solution to PBS.

**Fig. S9** Changes of the mice number in different groups within the normoglycemic range (<11.1 mM) over the administration time.