Electronic Supplementary Information (ESI)

Tailoring the Glucose-Responsive Volume Phase Transition Behaviour of Ag@Poly(phenylboronic acid)s Hybrid Microgels: from Monotonous Swelling to Monotonous Shrinking upon Adding Glucose at a Physiological pH

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Table S1. Composition of Artificial Tear Fluid (Lentner, C. *Geigy scientific tables*; West Caldwell, NJ: Medical Education Division, Ciba-Geigy, **1981**.)

component	concentration
sodium chloride	100.0 mM
sodium bicarbonate	26.0 mM
potassium chloride	16.0 mM
urea	5.0 mM
ammonia chloride	3.0 mM
lactic acid	2.5 mM
pyruvic acid	0.2 mM
citric acid	31.0 μM
vitamin C	8.0 μM
albumins	3.94 g/L
γ-globulins	2.75 g/L
lysozyme	1.70 g/L

Table S2. Interference Tests on Glucose Concentration Reading by using Ag@p(3-VAPBA–*co*–DMAEA) Hybrid Microgels

constituents	concentration	relative error[a]	
		AP-1	AP-6
urea	155.0 mM	–1.6%	–0.3%
creatinine	6.0 mM	–0.2%	–4.8%
L-cystenine	0.1 mM	+5.3%	+1.1%
Ca^{2+}	20.0 mM	–0.1%	–0.6%
Mg^{2+}	0.5 mM	–0.3%	–0.4%
D(-)-fructose	15.0 μM	+0.7%	+0.1%
sodium chloride	100.0 mM	–7.8%	–8.6%
sodium bicarbonate	26.0 mM	–0.8%	–2.3%
potassium chloride	16.0 mM	–0.6%	–1.5%
pyruvic acid	0.2 mM	+0.5%	+0.1%
citric acid	31.0 μM	+0.8%	+0.2%
vitamin C	8.0 μM	+0.4%	+0.1%
HSA	3.94 g/L	+1.1%	+2.3%
γ-globulins	2.75 g/L	+1.0%	+2.1%
lysozyme	1.70 g/L	+0.6%	+1.2%

[a] "+" and "–" indicate an increase and decrease, respectively, in apparent glucose concentration related to the actual glucose concentration.

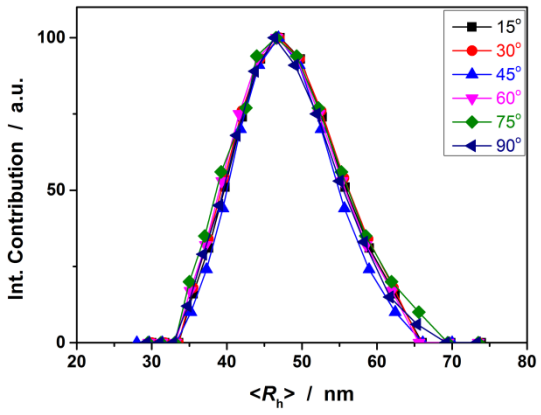

Fig. S1 Angular dependence of the <R_h> distribution of Ag@p(3-VAPBA–*co*–DMAEA) hybrid microgels (AP-1) in a scattering angle θ range of 15°–90°. All measurements were made in PBS of pH = 7.4 at 37.0 °C.

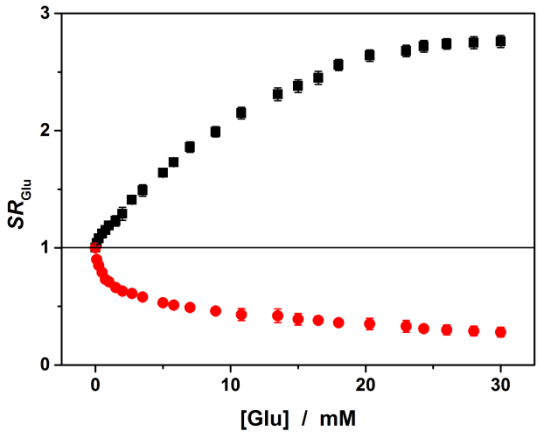

Fig. S2 Glucose-dependent swelling ratio, SR_{Glu} = <R_h>$_{[Glu]}$/<R_h>$_{[Glu]=0mM}$, of p(3-VAPBA–*co*–DMAEA) copolymer microgels (■: corresponding to AP-1; ●: corresponding to AP-6). All measurements were made in PBS of pH = 7.4 at 37.0 °C and a scattering angle θ = 45°.