

## Electronic Supplementary Material

### Preclinical testing of an anal bulking agent coated with a zwitterionic polymer in a fecal incontinence rat model

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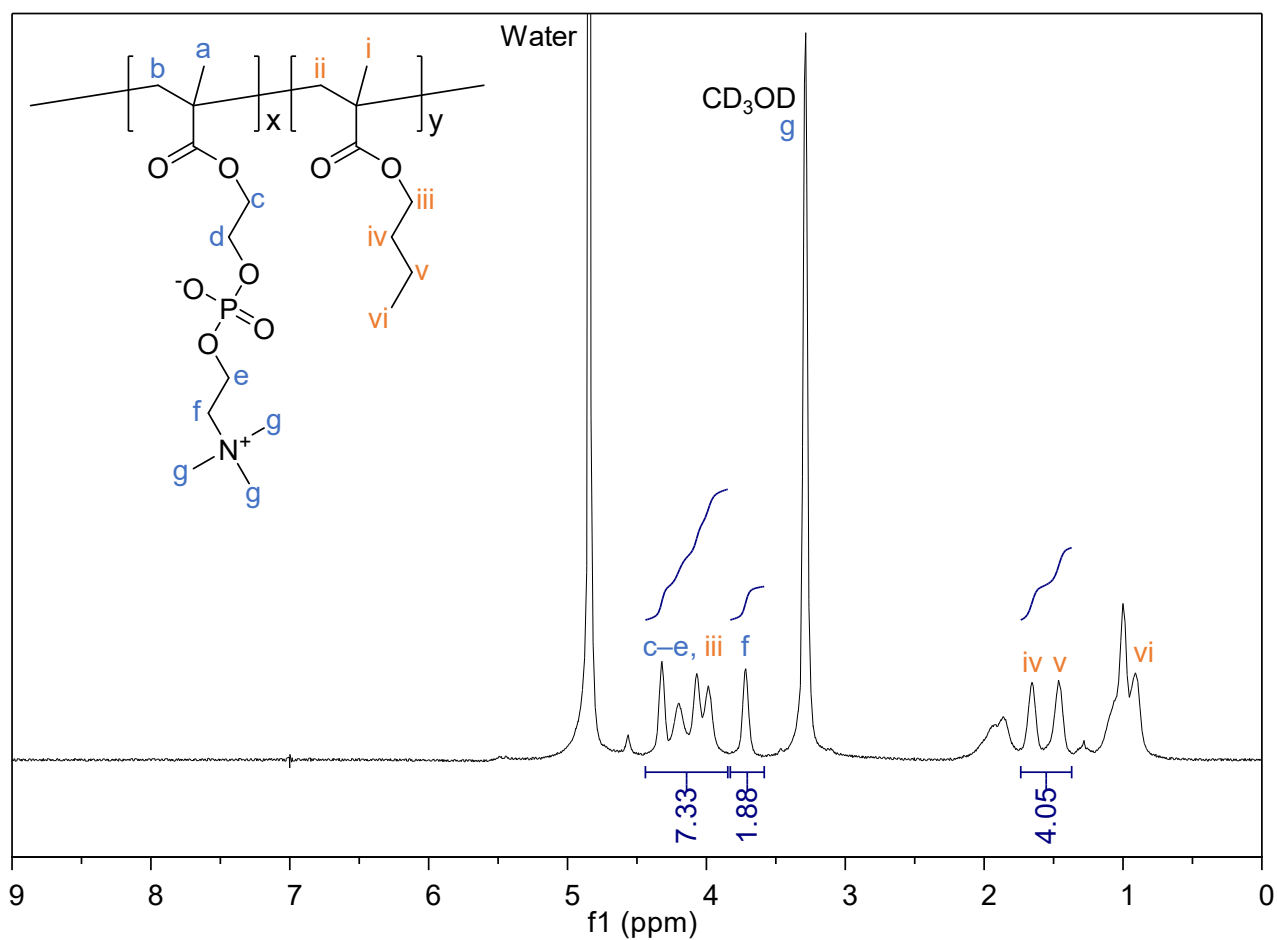
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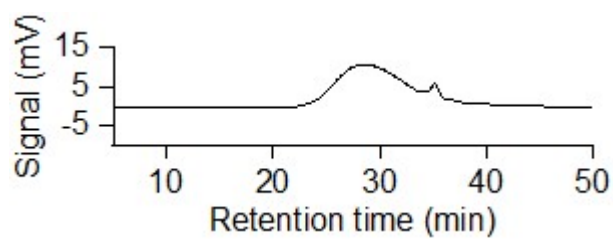
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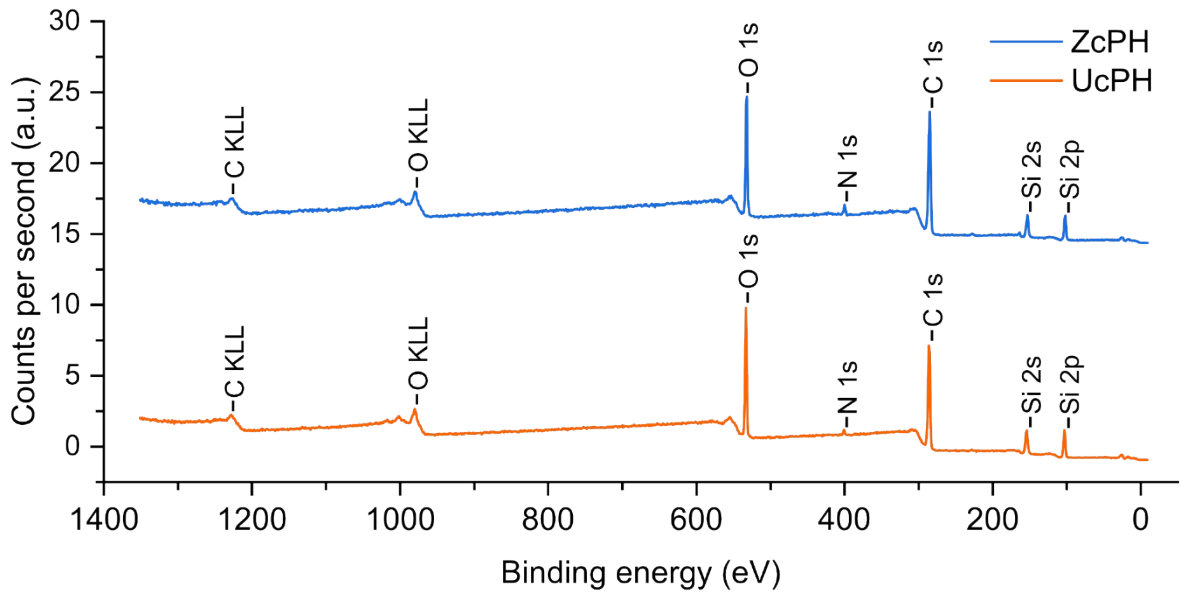
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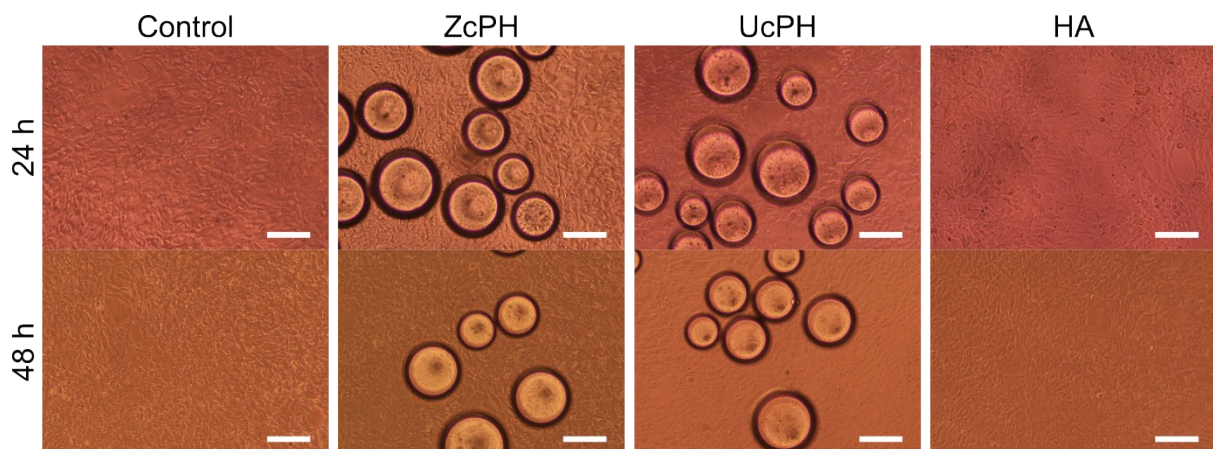
**Figure S1.** <sup>1</sup>H NMR spectrum of the synthesized poly[(2-methacryloyloxyethyl phosphorylcholine)-co-(n-butyl methacrylate)].



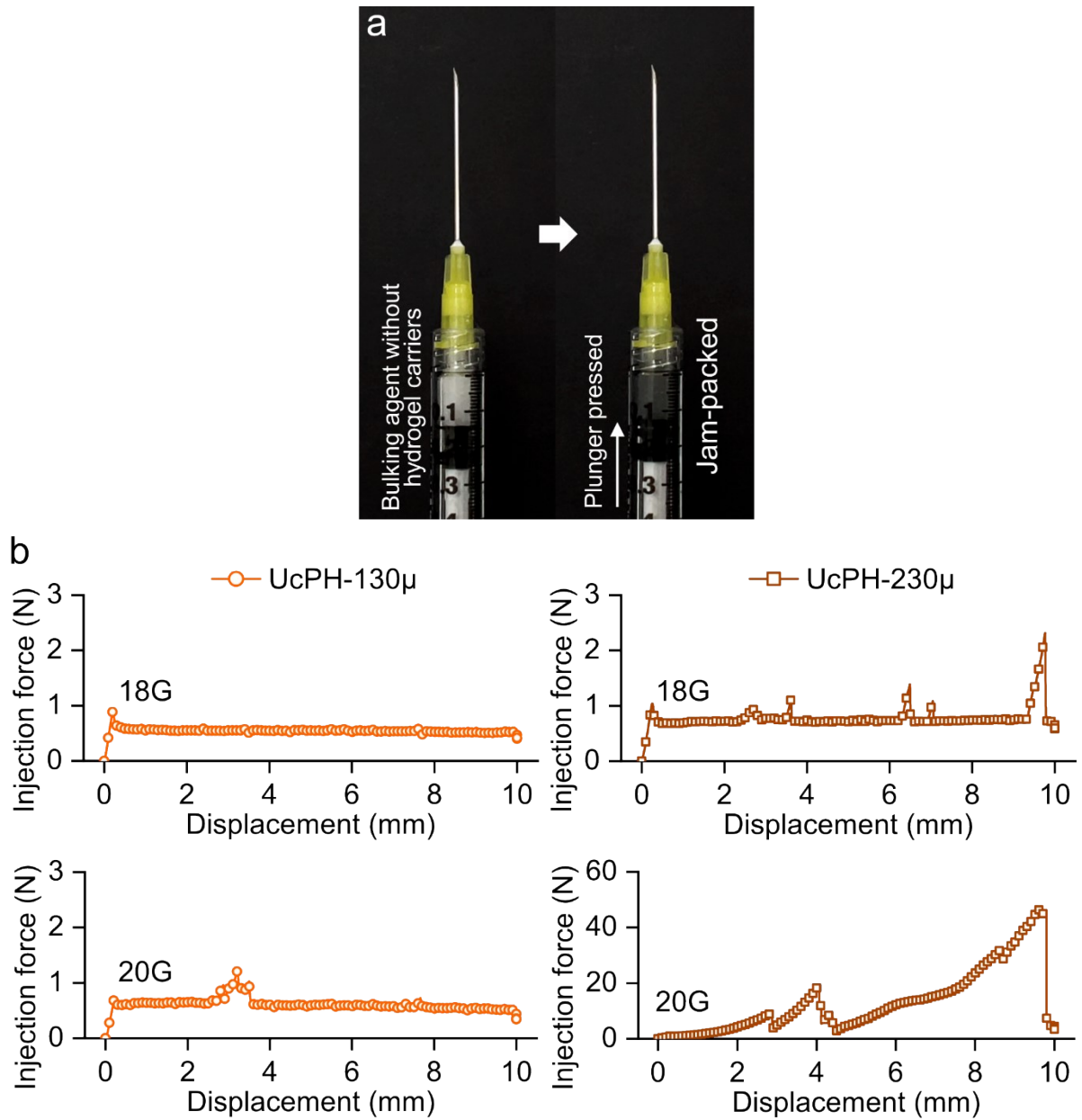
**Figure S2.** Chromatogram, obtained by aqueous gel permeation chromatography, is of the single broad peak of poly[(2-methacryloyloxyethyl phosphorylcholine)-co-(n-butyl methacrylate)].



**Figure S3.** Qualitative determination of the overall elemental composition of the bulking agent surfaces. Survey scan spectra of X-ray photoelectron spectroscopy present the major chemical elements. ZcPH, zwitterion coated polydimethylsiloxane hyaluronic acid solution; UcPH, uncoated polydimethylsiloxane hyaluronic acid solution.



**Figure S4.** Micrographs representing the cellular morphology after the direct contact with the injectable bulking agents for 24 h and 48 h. The cell culture without any foreign material was set as a control. Bar, 100  $\mu\text{m}$ ; ZcPH, zwitterion coated polydimethylsiloxane hyaluronic acid solution; UcPH, uncoated polydimethylsiloxane hyaluronic acid solution; HA, hyaluronic acid solution.



**Figure S5.** Measure of injectabilities of the bulking agents and the effect of particle sizes on injectability of the bulking agents. (a) Non-injectable property of the pure PDMS particles without hydrogel carriers was demonstrated by applying a load to the plunger. (b) Quantification of injection forces for the bulking agents of different particle sizes ( $129 \pm 27 \mu\text{m}$  and  $227 \pm 77 \mu\text{m}$  in diameter, mean  $\pm$  SD). Two different hypodermic needle gauges (18G and 20G) were adopted for the compression test by a materials testing machine. UcPH-130 $\mu$ , uncoated 130-micrometer polydimethylsiloxane hyaluronic acid solution; UcPH-230 $\mu$ , uncoated 230-micrometer polydimethylsiloxane hyaluronic acid solution.