



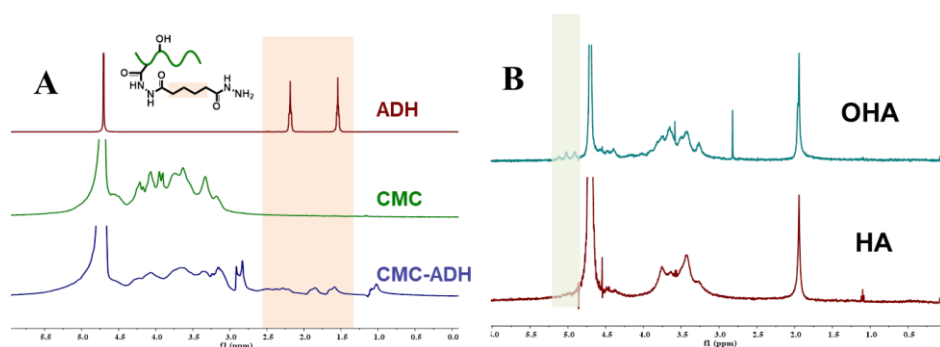
## Supporting Information

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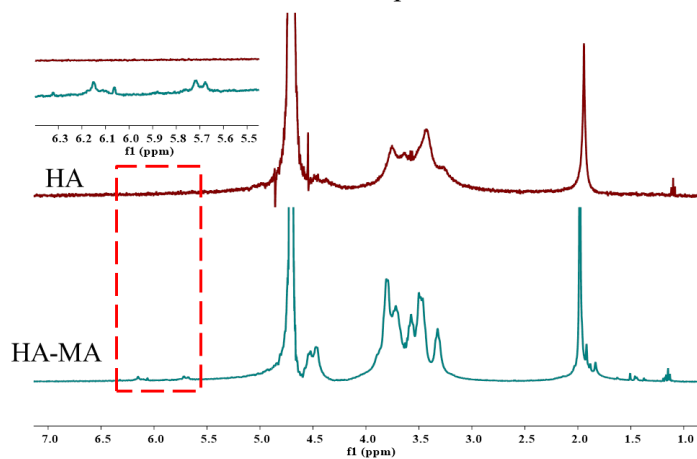
Injectable Hydrogel Delivery System with High Drug Loading for Prolonging Local Anesthesia

Yongchun Li, You Chen, Yifan Xue, Jinlong Jin, Yixin Xu, Weian Zeng, Jie Liu\* and Jingdun Xie\*

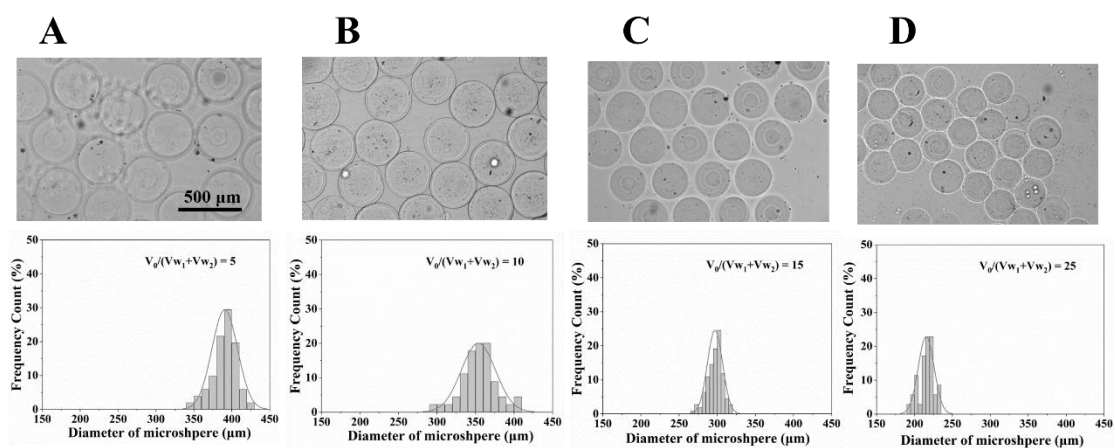
## Support information



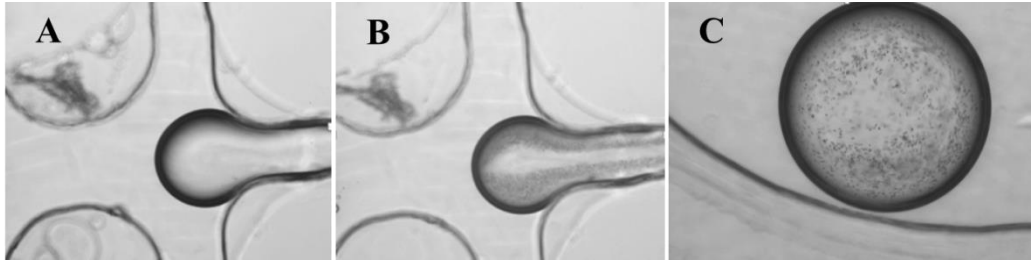
**Figure.S1**  $^1\text{H}$ -NMR spectra of (A) carboxymethyl cellulose (CMC), (B) hyaluronic acid (HA) and its modified products.



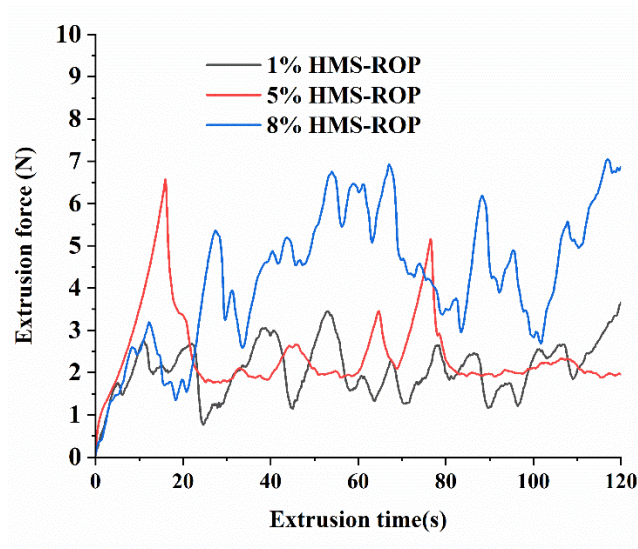
**Figure.S2**  $^1\text{H}$ -NMR spectra of (A) HA and (B) methacrylic anhydride modified HA (HAMA).



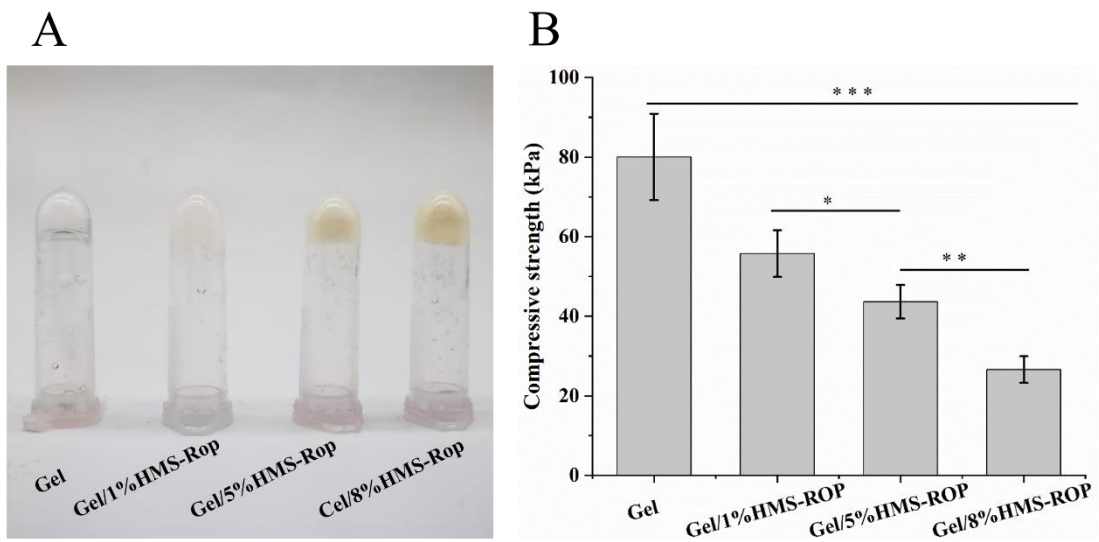
**Figure.S3** Size and distribution of hydrogel microspheres prepared by different oil-water ratios based on microfluidic chip.



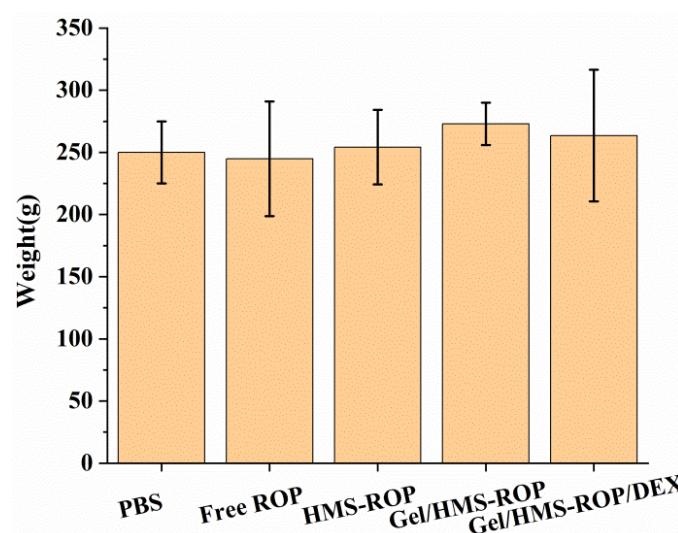
**Figure.S4** Untreated and in-situ alkalization process in preparation of drug-loaded gel microspheres.



**Figure.S5** The extrusion force of Gel and HMS-ROP groups showed a unstable extrusion force during the injection process.



**Figure.S6** (A) The optical images of the Gel and Gel/HMS-ROP groups and (B) their compressive strength was characterized by the universal mechanical experimental machine. (\* $P < 0.05$ , \*\*  $P < 0.01$ , \*\*\*  $P < 0.001$ ,  $n = 4$ )



**Figure S7** The body weight of SD rats before the experiment

Video.S1: Real-time preparation process of HMS-ROP in microfluidic chip

Video.S2: Testing the injectability of Gel/HMS-ROP/DEX composite based on mechanical testing machine

Video.S3: Hot plate experimental process of sensory block *in vivo*