

Supporting Information

Ice-Inspired Lubricated Drug Delivery Particles from Microfluidic Electrospray for Osteoarthritis Treatment

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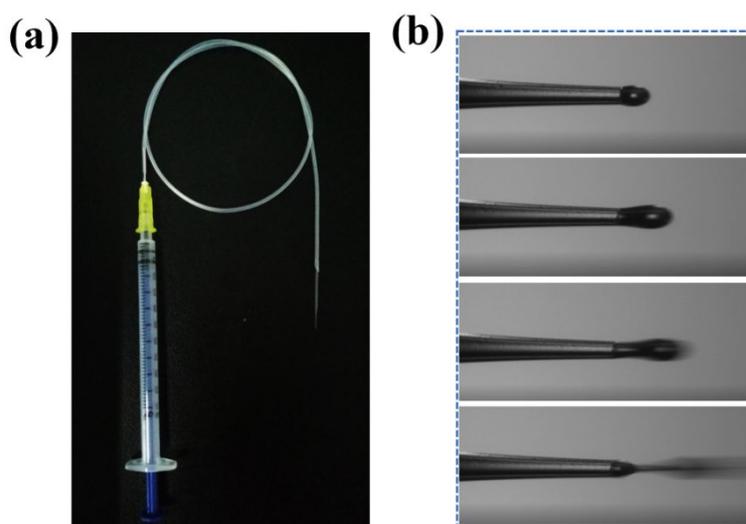


Figure S1. The simple microfluidic device. (a) A simple microfluidic injection device. (b) The real-time image of the microfluidic electro-spray process of particles.

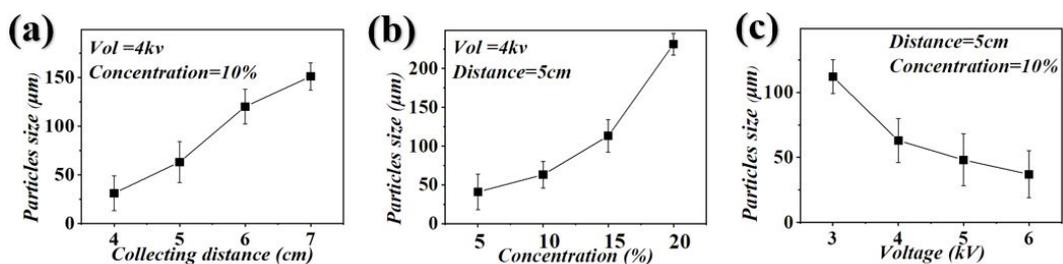


Figure S2. The effects of microfluidic parameters on the particle diameter. (a-c) The influence of (a) collection distances, (b) concentrations and (c) voltage on the particle diameter.

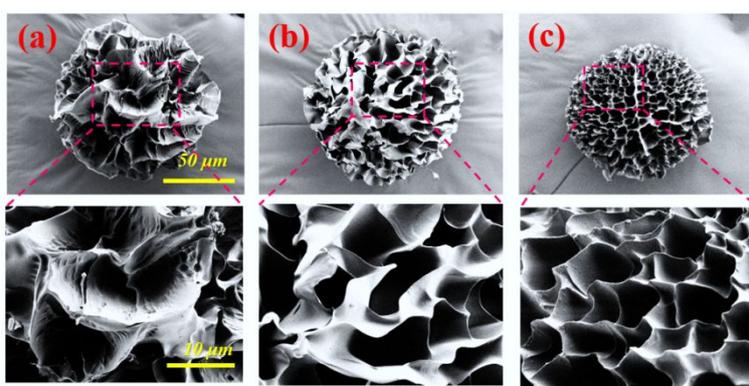


Figure S3. SEM of different dose of HAMA particles. (a-c) The whole (top) and the enlarged view (bottom) of the surface of different particles from (a) 5%, (b) 10%, and (c) 15% HAMA pre-gel solution.

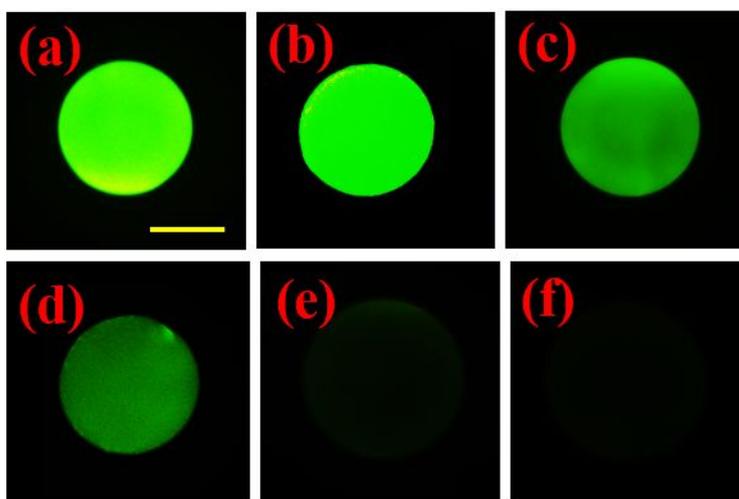


Figure S4. The fluorescent images of FITC-loaded particles released *in vitro*. (a-f) The

fluorescent images of FITC-loaded particles on (a) day 0, (b) day 1, (c) day 2, (d) day 3, (e) day 4 and (f) day 5 during the drug releasing period. The scale bar is 30 μm .

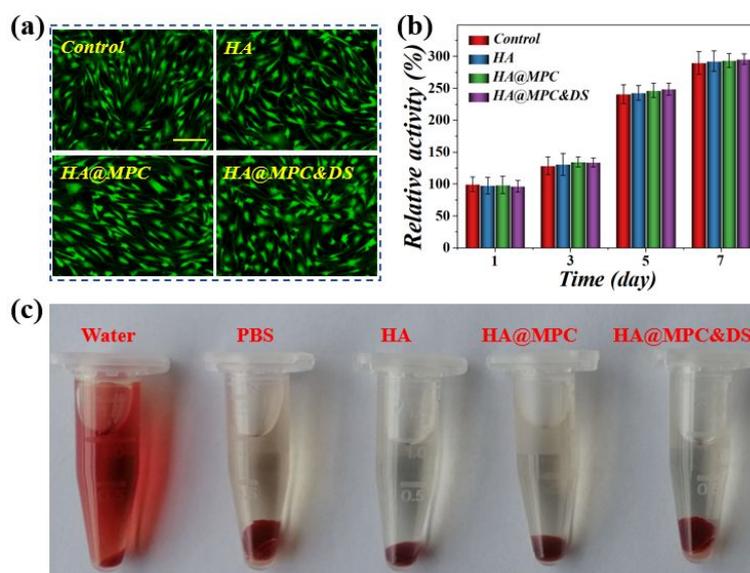


Figure S5. Biocompatibility test of particles. (a) Calcein-AM staining of human chondrocytes after 7 days of culture. The scale bar is 50 μm . (b) MTT assay for 7 days. (c) Hemolytic activity assay.

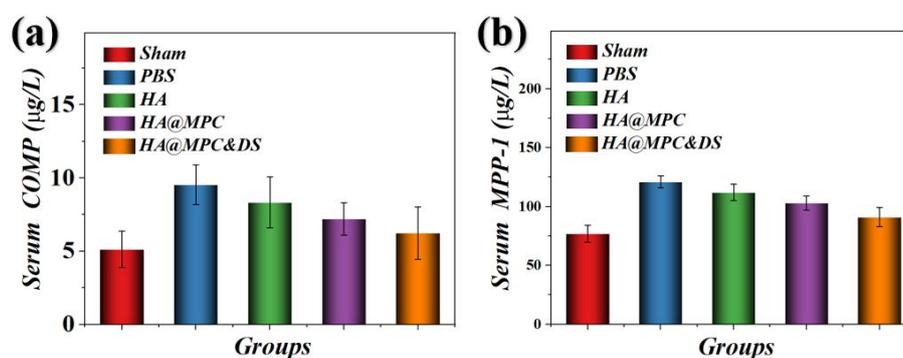


Figure S6. The expression of COMP (a) and MMP-1 (b) in different groups.

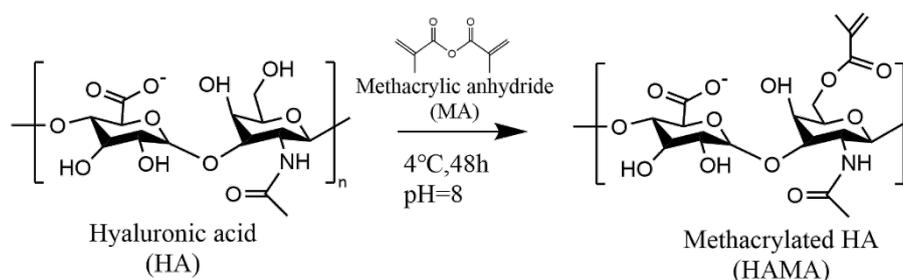


Figure S7. Synthesis process of HAMA.

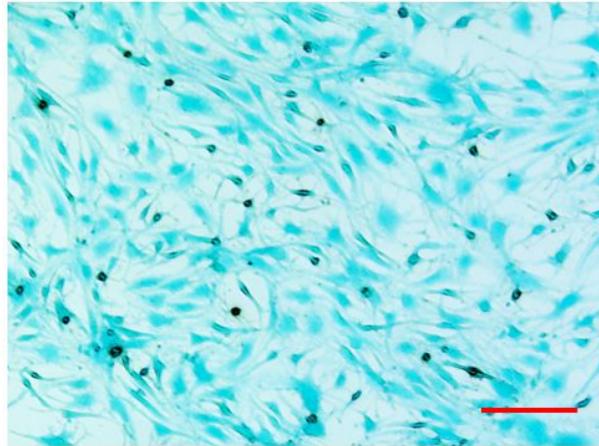


Figure S8. Alcian blue staining of the human chondrocytes. The scale bar is 50 μm .