Supporting information

Fabrication of hexagonal-prismatic granular hydrogel sheets

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To produce sufficient quantities of drops that display a narrow size distribution, these drops were made using a microfluidic millipede device, as shown in the optical micrograph in Figure S1a. The resulting drops self-assemble into a hexagonal close packed structure, as shown in Figure S2b. They are converted into spherical particles if PEG-DA monomers, contained in them are polymerized by subjecting the drops to UV light, as shown in Figure S1c.

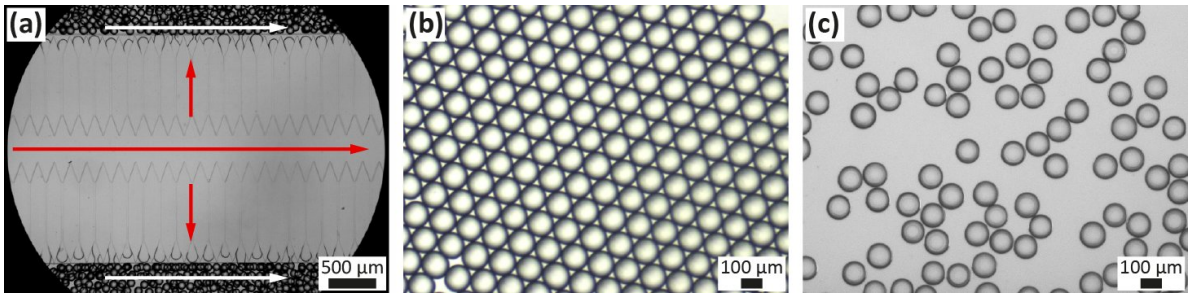

Figure S1. a) Optical micrograph of a section of the millipede device in operation. The red arrows indicate the flow direction of the inner aqueous solution, and the white arrows indicate the flow direction of the HFE 7500 oil. b-c) Optical micrographs of b) water in oil emulsion drops produced in 40 µm tall nozzles that are illuminated with UV light to convert them into c) hydrogel microparticles that display a coefficient of variation below 2.5%. These hydrogel particles are dispersed in water.

If adjacent hydrogel particles are not cross-linked, the hexagonal close packed structure is lost during the evaporation of water that causes individual particles to shrink, as shown in Figure S2.

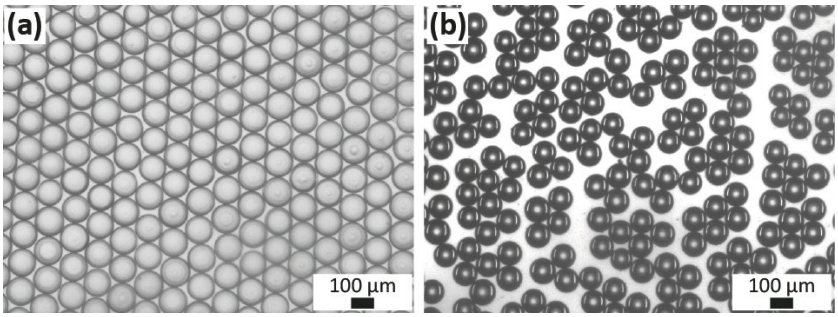

Figure S2. a) Optical micrograph of hydrogel particles assembled into a hexagonal close packed structure. b) Upon water evaporation, the hexagonal structure becomes defective because adjacent particles are not cross-linked.