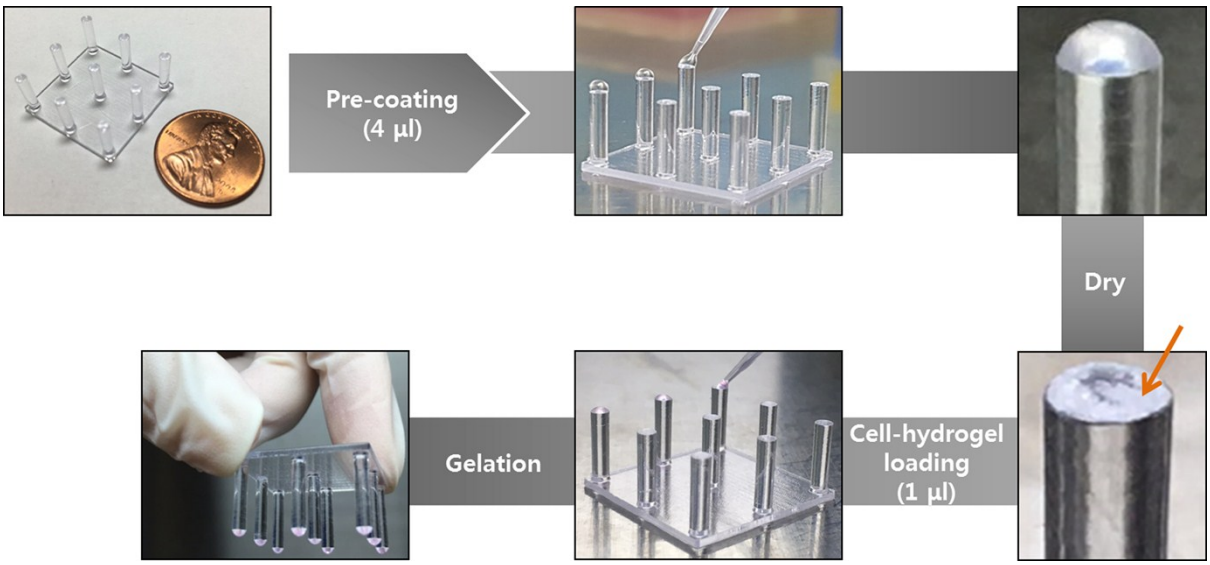
Electronic Supplementary Material (ESI) for Lab on a Chip.

Supplementary Fig 1. Pretreatment of mini-pillar array chip for culturing human TS. Pre-coating of pillars was done by carefully applying 4 µL of the respective pre-coating solution on the tip of each pillar followed by air-dry in a clean bench for 1 h. Cells were then loaded on the tips of mini-pillars in 1 µL of cell-hydrogel suspension. A drop of aqueous pre-coating solution or cell suspension in hydrogels spread well on the surface of the tip without running off through the pillar. BaCl2 crystals were be seen on the tip of pillars after pretreatement for alginate loading with PLL-BaCl2 mixture (arrow).



Supplementary video 1a-b. A video showing experimental steps of pillar pre-coating (a) and cell-loading (b) for culturing human tumor spheroids on a mini-pillar array chip. Feasibility of handling microvolumes for pre-coating and cell-loading can be demonstrated as the volumes were optimized for the diameter of pillar tips. Liquid-loading on to 9 pillars (1 chip) took only 40 sec. A drop of aqueous pre-coating solution or cell suspension in hydrogels spread well on the surface of the tip without running off through the pillar.