

Electronic Supplementary Information

Convenient tumor 3D spheroid arrays manufacturing via acoustic excited bubbles for in-situ drug screening

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This PDF file includes:

Fig. S1 to S4

Other Supplementary Materials for this manuscript include the following:

Movie S1: Acoustic wave turns on the process of cell aggregation from the dispersed state into spheres (MP4).

Movie S2: Bright and fluorescent fields after cell sphere agglomeration stabilization (MP4).

Figures

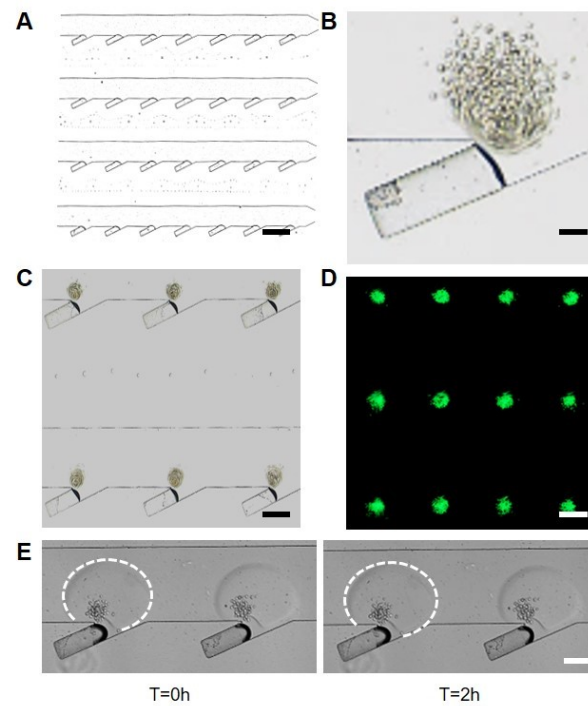


Fig. S1. (A) Bright-field image of bubble array. Scale bar is 500 μm . (B) Bright-field image of a single acoustic bubble forming a cell spheroid. Scale bar is 50 μm . (C) Formation of bright-field images of the cell spheroid. Scale bar is 250 μm . (D) Fluorescence image of cell spheroid after curing. Scale bar is 300 μm . (E) Changes in the volume of the hydrogel encapsulating the cells with time. Scale bar is 150 μm .

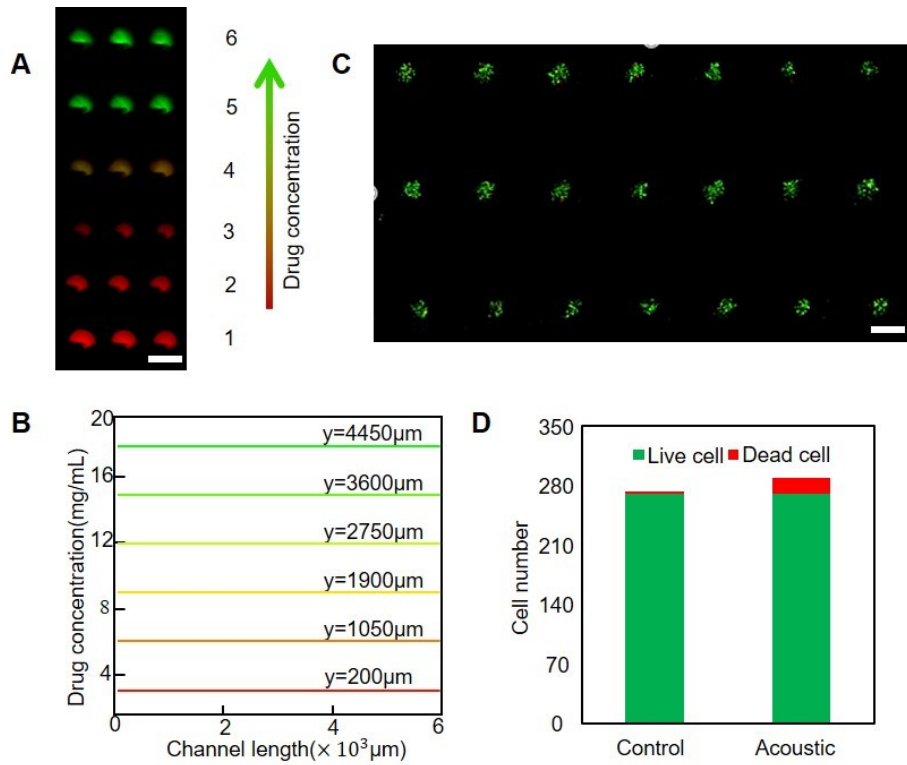


Fig. S2. (A) Bidirectional gradient distribution of drug/dye reflected in the hydrogel area array. Scale bar is $600 \mu\text{m}$. (B) Concentration distribution in each channel. (C) Cellular activity after acoustic and light curing, stained with FDA/PI. Scale bar is $300 \mu\text{m}$. (D) Number of live and dead cells before and after acoustic and light effects.

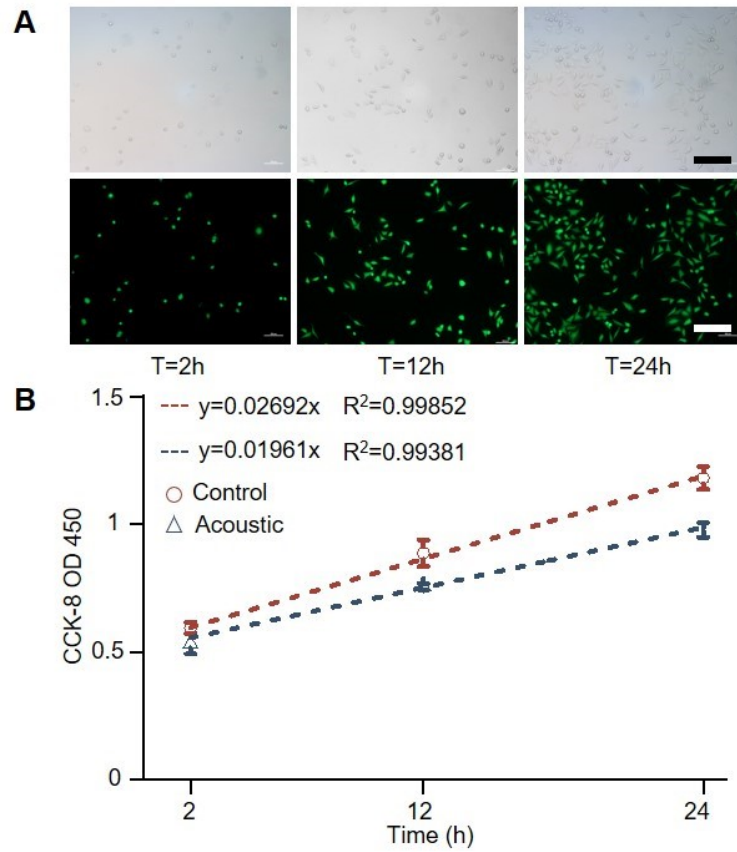


Fig. S3. (A) Value-added of cells over time after the action of collected acoustic bubbles. Scale bar is 200 μm . (B) OD450 values of acoustic-treated and non-acoustic-treated cells were measured with CCK-8. A linear fit was made to the OD450 curve over time, with means and variances from four independent groups.

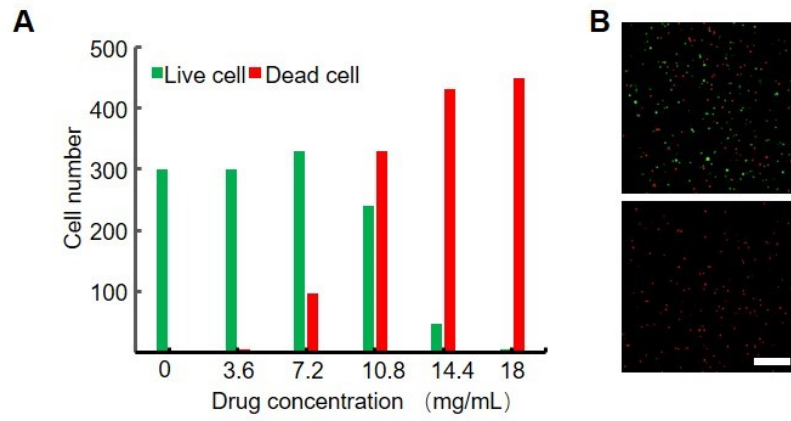


Fig. S4. (A) Number of live-dead cells in the cell spheroids array at each concentration. (B) the live-dead cells of single cells at 7.2 mg mL⁻¹ and 18 mg mL⁻¹ concentrations, respectively. Scale bar is 900 μ m.