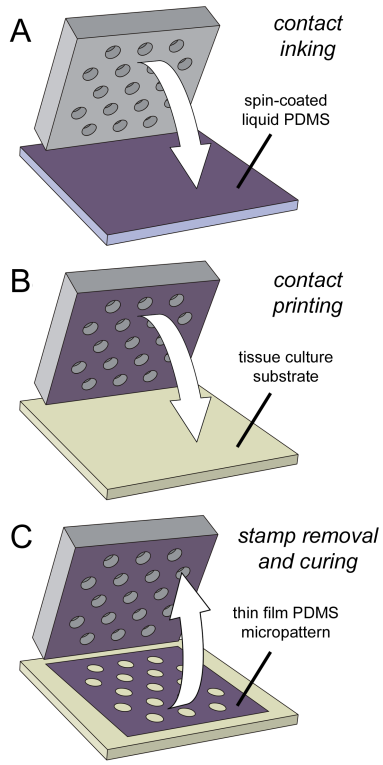
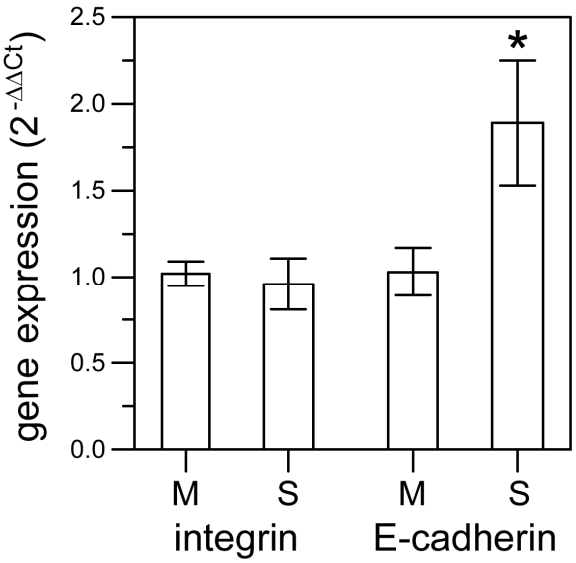
Electronic Supplementary Information

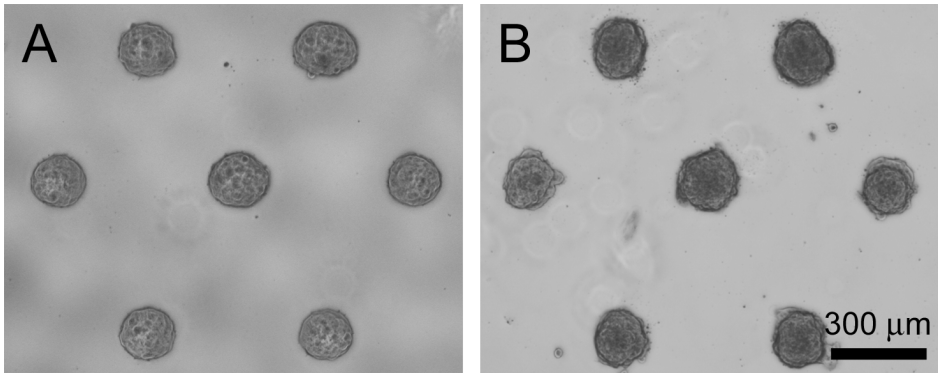
ESI Fig. 1 Illustration of the thin film PDMS printing process. A structured PDMS stamp is inked with liquid PDMS by contact transfer (A) for contact printing onto a tissue culture substrate (B) followed by thermal curing to produce a stable micropattern (C).



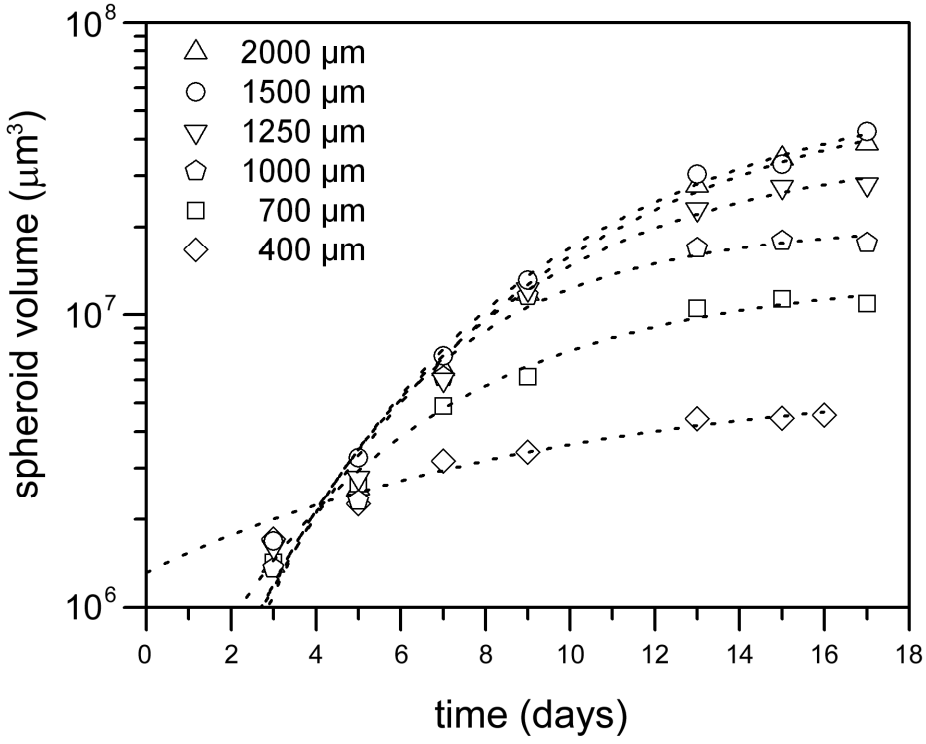
ESI Fig. 2 Gene expression levels of α5β1 integrin in the spheroids (S) were the same as those from monolayer (M) cultures. E-cadherin was up-regulated during array-based spheroid culture (*$p < 0.001$). Data points are mean expression values ± standard deviation from triplicate conditions, with triplicate measurements from each sample.



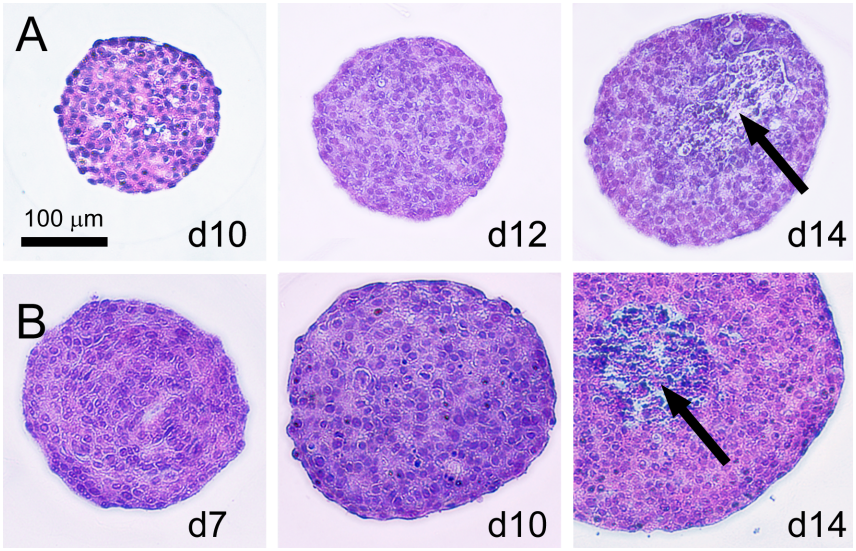
ESI Fig. 3 Array-based culture of BT474 cells at day 3 (A) and NCI-H1792 cells at day 7 (B).



ESI Fig. 4 Volumetric growth of spheroids cultured on arrays with pitches ranging from 400 to 2000 µm. Curves were fitted using the Gompertz equation.



ESI Fig. 5 Hematoxylin and eosin stained median sections of spheroids harvested at different stages of culture (from day 7 (d7) to day 14 (d14)) on arrays with pitches of 400 μm (A) and 1500 μm (B). Secondary necroses (<5% by volume) are indicated with arrows.



ESI, Table 1 Summary of the conditions and results from the irinotecan dose response experiment. Diameter and volumetric growth values are from the control spheroids. The experiment was undertaken in triplicate with each replicate involving the measurement of 8 individual spheroids. Standard deviation values are prefixed with ±.

culture conditions	exposure (days)	spheroid diameter start (μm)	spheroid diameter end (μm)	mean volumetric growth (μm^3)	50% inhibition concentration (μM)
monolayer	4–7	-	-	-	32 (95% CI 22–49)
400-μm-pitch arrays	4–7	165 ± 4	175 ± 7	4.4×10^5	102 (95% CI 49–239)
400-μm-pitch arrays	11–14 (hypoxic)	191 ± 8	192 ± 9	5.6×10^4	307 (95% CI 144–634)
1500-μm-pitch arrays	4–7	168 ± 8	240 ± 12	4.6×10^6	62 (95% CI 23–96)
150-μm-pitch arrays	10–13 (hypoxic)	307 ± 32	363 ± 20	9.8×10^6	224 (95% CI 123–408)

ESI Video Time lapse microscopy video of array-based spheroid assembly and growth during culture for 7 days. Ordinarily the arrays are periodically washed to remove non-adherent cells. During undisturbed culture as required for video microscopy, non-adherent satellite spheroids become incorporated within the array-tethered spheroids.