

A Cell Culture Chip with Transparent, Micropillar-Decorated Bottom for Live Cell Imaging and Screening of Breast Cancer Cells

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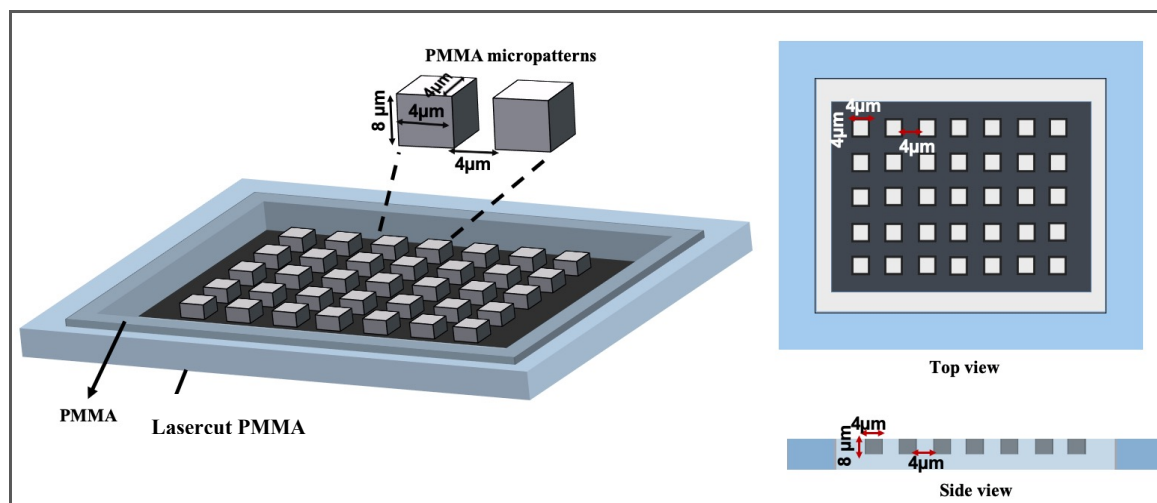
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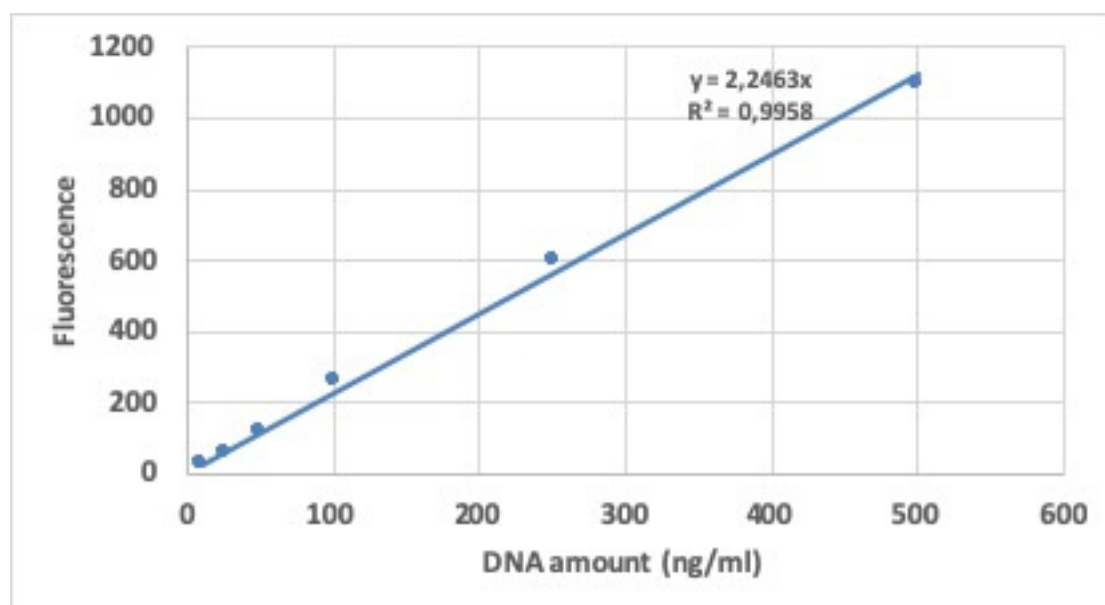
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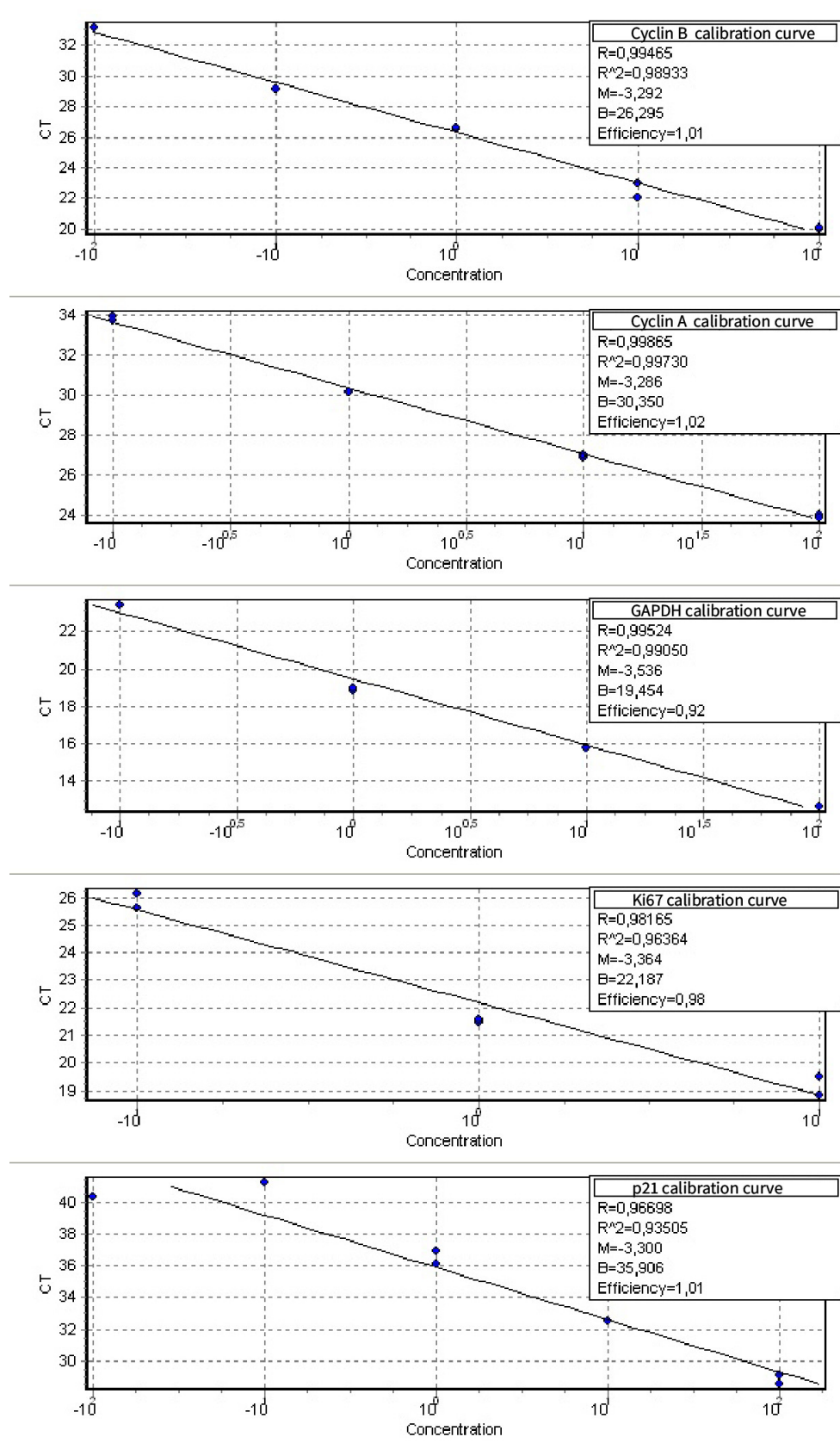
Supplementary Information



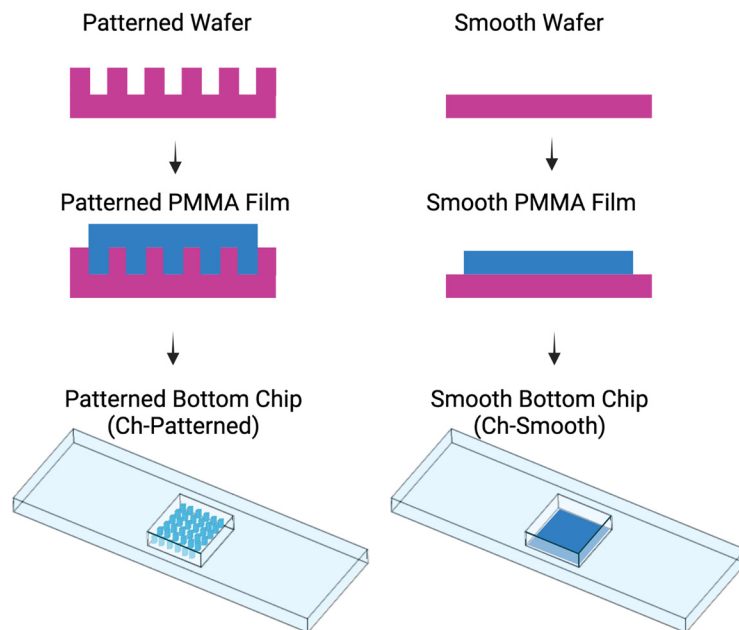
Supplementary Figure S1. Chip and micropattern design.



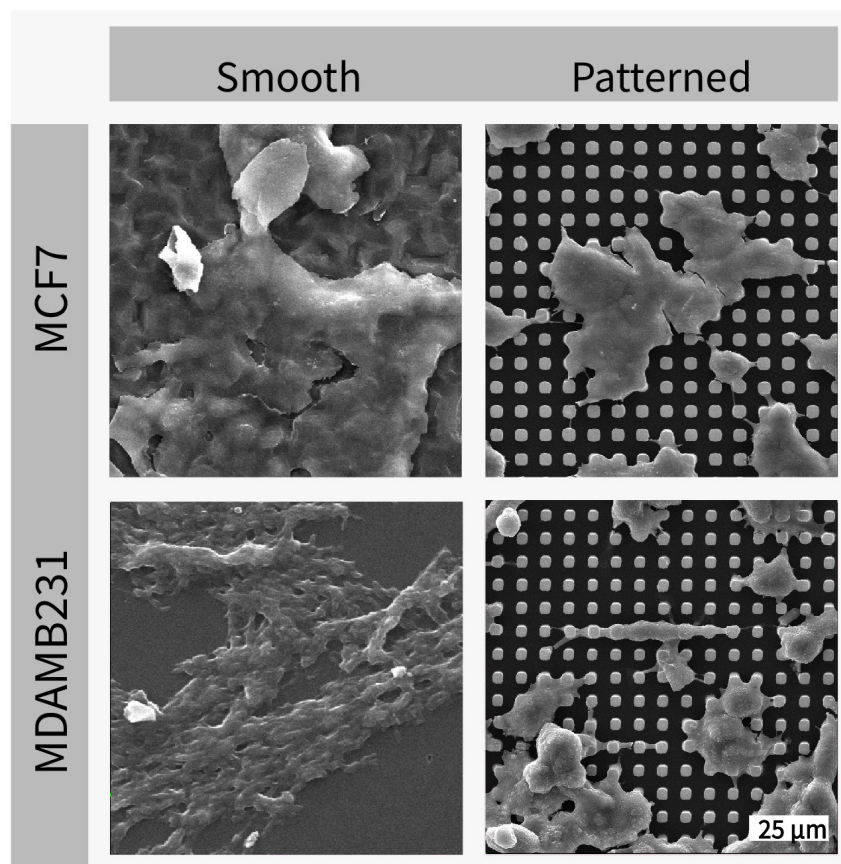
Supplementary Figure S2. DNA quantification calibration curve.



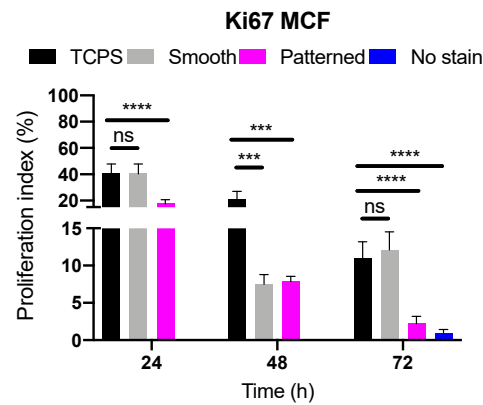
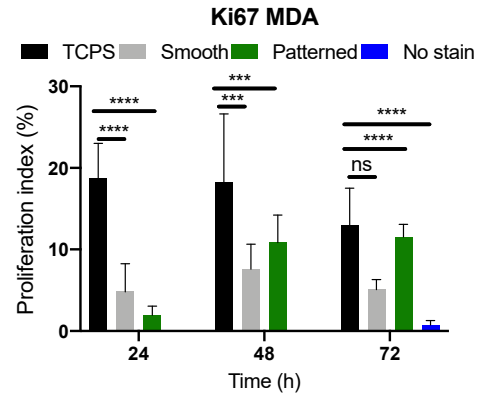
Supplementary Figure S3. Calibration curves of the primers used for RT-qPCR.



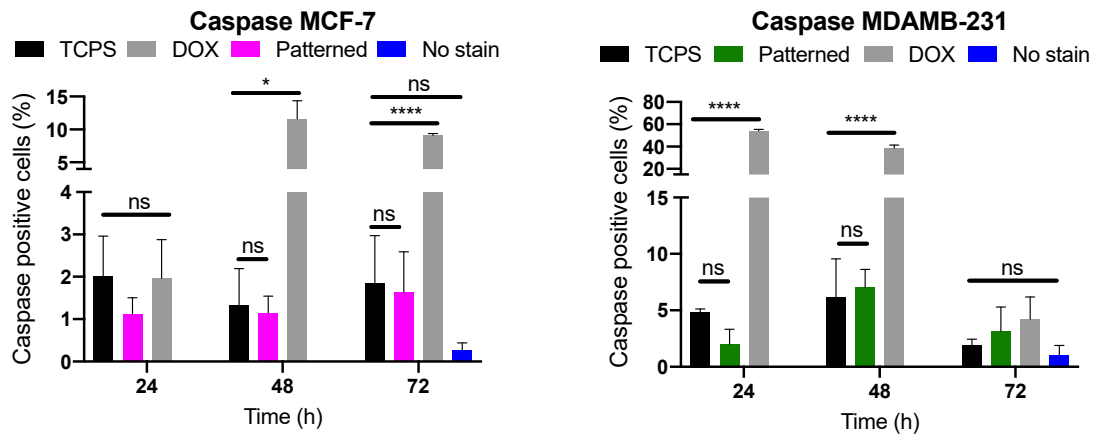
Supplementary Figure S4. Micropatterned surface and chip preparation scheme.



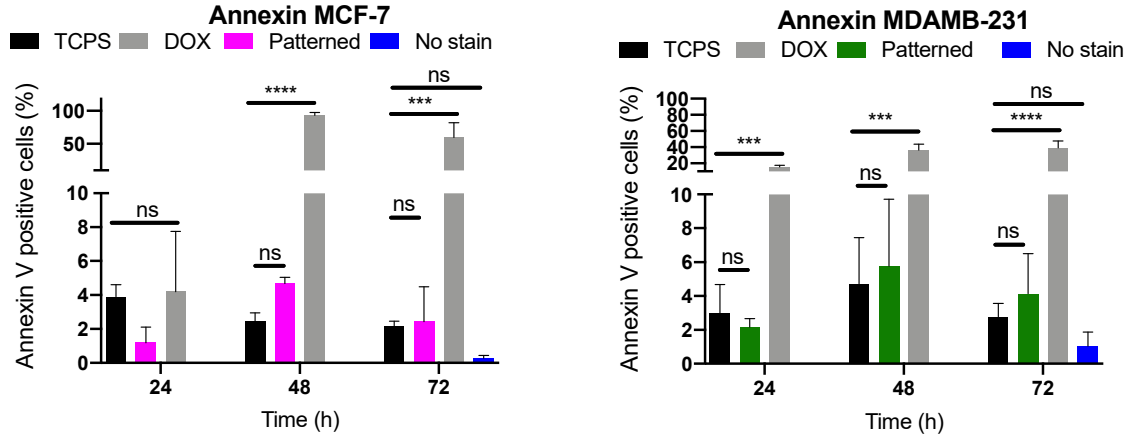
Supplementary Figure S5. SEM images of MCF7 and MDAMB231 cells on Ch-Smooth and Ch-Pattern chips.



Supplementary Figure S6. Ki67 proliferation index of MCF7 and MDAMB231 cells. (Two way ANOVA, MCF7: $p_{\text{time}} < 0.0001$, $p_{\text{sample}} < 0.0001$, MDAMB231: $p_{\text{time}} = 0.0468$, $p_{\text{sample}} < 0.0001$).



Supplementary Figure S7. Caspase analysis of MCF7 and MDAMB231 cells (Two way ANOVA, MCF7: $p_{\text{time}} = 0.0013$, $p_{\text{sample}} < 0.0001$, MDAMB231: $p_{\text{time}} < 0.0001$, $p_{\text{sample}} < 0.0001$).



Supplementary Figure S8. Annexin V analysis of MCF7 and MDAMB231 cells (Two way ANOVA, MCF7: $p_{\text{time}}=0.0013$, $p_{\text{sample}}<0.0001$, MDAMB231: $p_{\text{time}}<0.0001$, $p_{\text{sample}}<0.0001$).

Supplementary Table S1. Shape descriptors and their equations.

Circularity	$\text{Circularity} = 4\pi \times \frac{\text{Area}}{[\text{Perimeter}]^2}$
Feret	$\text{Feret} = \frac{\text{Max Feret (Diameter Max)}}{\text{Min Feret (Diameter Min)}}$
Roundness	$\text{Roundness} = 4 \times \frac{\text{Area}}{\pi \times [\text{Major axis}]^2}$
Aspect ratio	$\text{Aspect ratio} = \frac{\text{Bounding box length}}{\text{Bounding box width}}$
Solidity	$\text{Solidity} = \frac{\text{Area}}{\text{Convex Area}}$

Supplementary Table S2. Primer forward and reverse sequences used for qRT-PCR experiments, their NCBI accession numbers and their references.

Gene	NCBI Acces. No.	Forward	Reverse	Ref.
GAPDH	NM_001289746.1	CACCCACTCCTCCACCTTTG	CCACCACCCTGTTGCTGTAG	55
CCNA	NM_001237.3	AGCTGCCTTTTCATTTAGCACTCTAC	TTAAGACTTTCCAGGGTATATCCAGTC	57
CCNB	NM_031966.3	TATGCAGCACCTGGCTAAGA	CATGCTTCGATGTGGCATAC	58
CDKN1A	NM_078467.2	ATGTGGACCTGTCACTGTCTTG	CGTTTGGAGTGGTAGAAATCTG	56
Ki67	NM_002417.4	ATTGATCGTTCCTTCAGGTATG	TCATCAGGGTCAGAAGAGAA	59