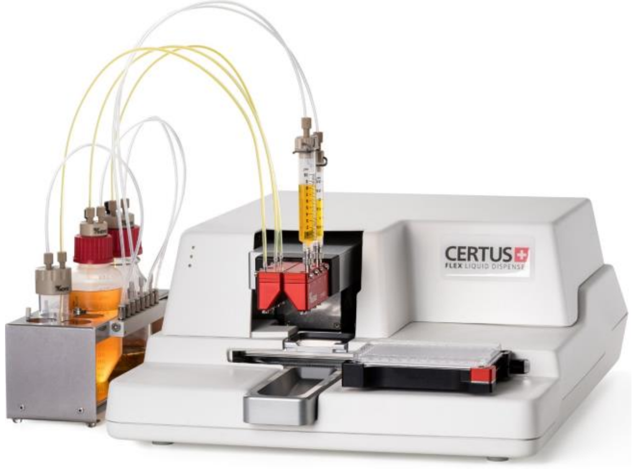


Droplet-Microarray Technology (Aquarray GmbH)

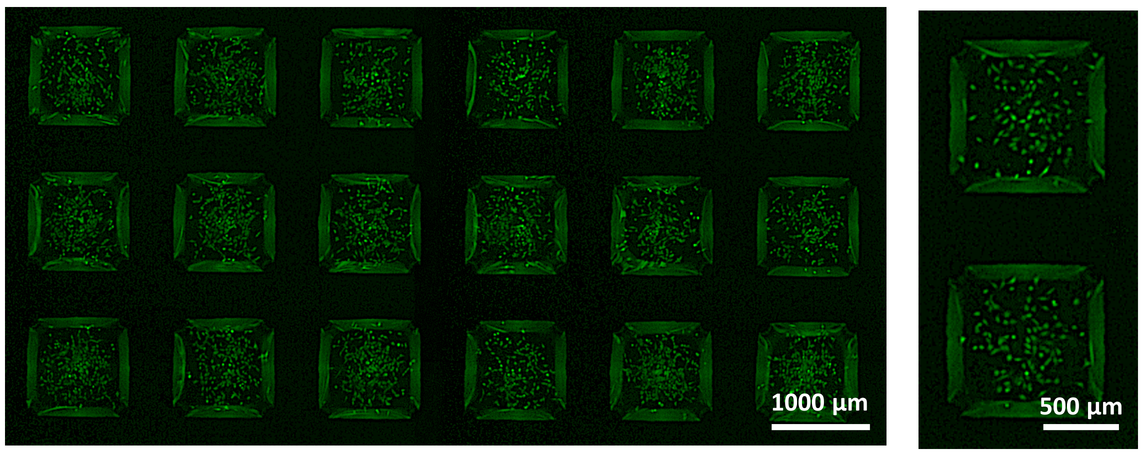
The Droplet Microarray platform enables miniaturization and parallelization of cell-based experiments in 2D as well as in 3D environments and offers:

- cell screenings using only 1-100 cells (stem cells, primary cells) per well;
- individual experiments in 100 nL of medium or scaffold/bioink;
- 700 to 4000 experiments on microscope glass slide;
- ready-to-use pre-printed compound libraries on a chip;
- compatibility with most of the cell-based experiments and related infrastructure;
- compatibility with 2D, as well as 3D (spheroids, scaffold-based culture) cell culture models.

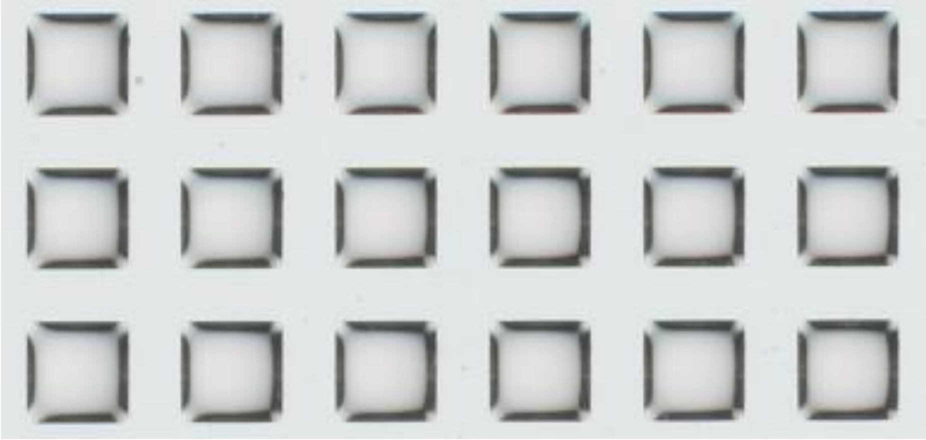
Dispensing cells using Certus FLEX (Fritz Gyger AG)

HeLa-CLL2 cells were dispensed on Droplet Microarray with Certus FLEX (Fritz Gyger AG) using 0,20/0,10 mm 21769, 23686 valve (depending on the application various valves are available, different sizes, optional filter). Dispencing of an array of **672 droplets** of **150 nL** containing **100 cells** with 1 valve took **52 seconds**. Number of cells per droplet was estimated using microscopy and viability of cells was analysed 20 hours after dispensing. Distribution of cells across the slide was homogeneous and viability of cells was 93±4% and morphology on next day was comparable with common culture.

Droplet - Microarray with HeLa cells stained with Calcein



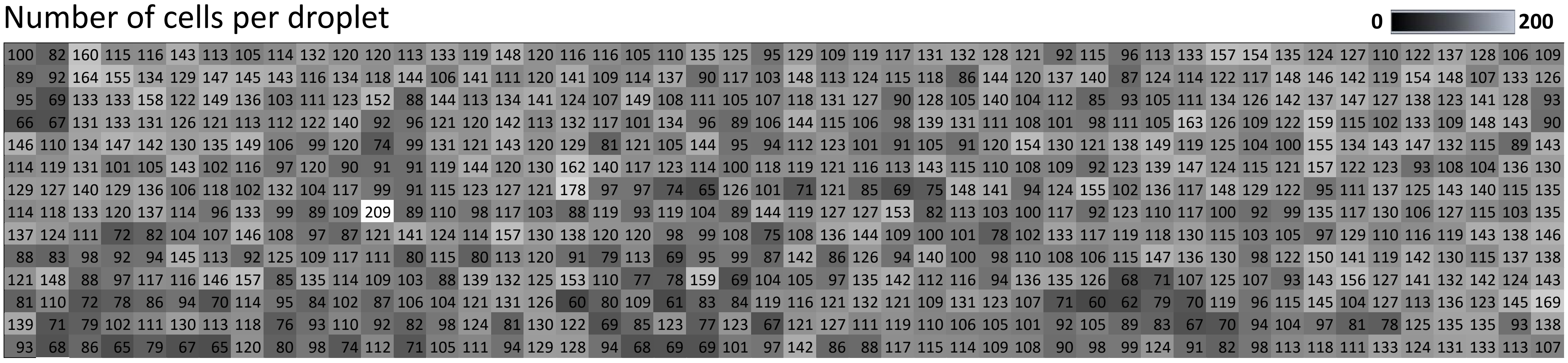
Droplet - Microarray with 150 nL droplets



Direction of printing →

↑ ↓ ↑ ↓

Number of cells per droplet



100	82	160	115	116	143	113	105	114	132	120	120	113	133	119	148	120	116	116	105	110	135	125	95	129	109	119	117	131	132	128	121	92	115	96	113	133	157	154	135	124	127	110	122	137	128	106	109
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66	67	131	133	131	126	121	113	112	122	140	92	96	121	120	142	113	132	117	101	134	96	89	106	144	115	106	98	139	131	111	108	101	98	111	105	163	126	109	122	159	115	102	133	109	148	143	90
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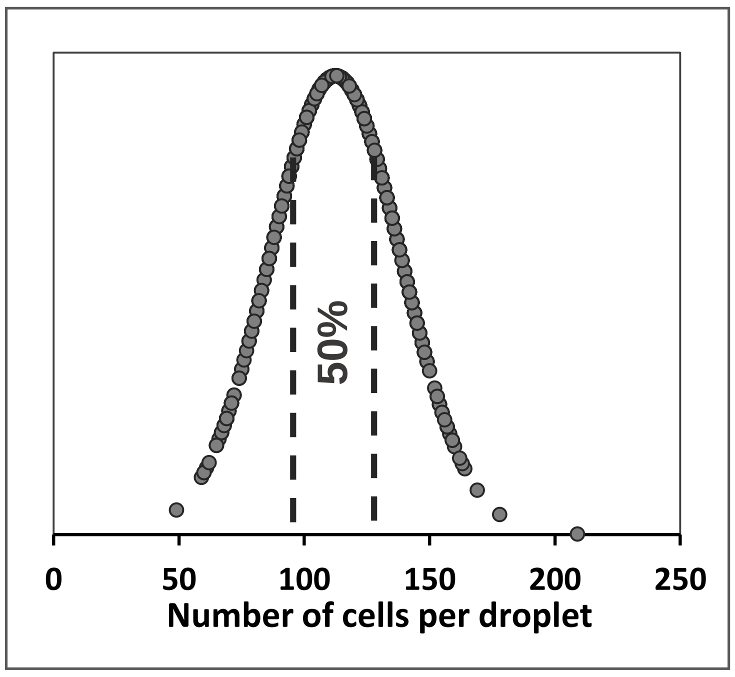
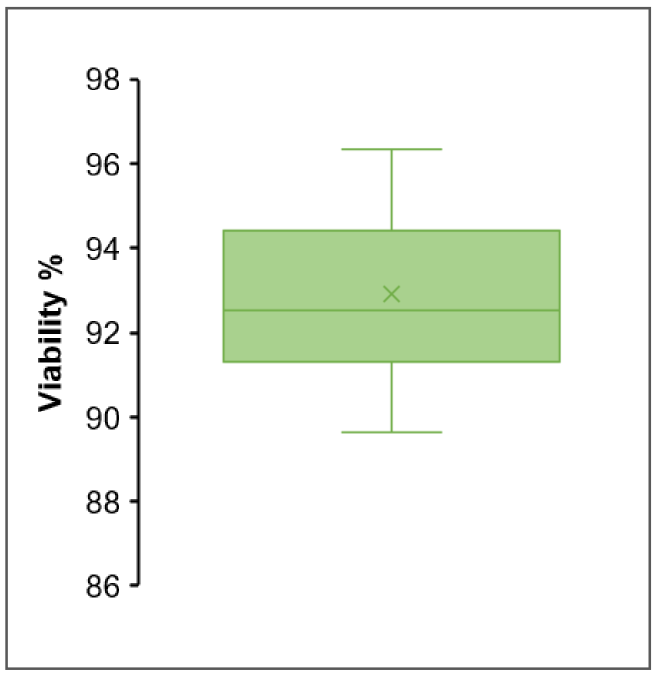


HeLa-CCL2 cells 20 hours after printing.



October 22th 2019