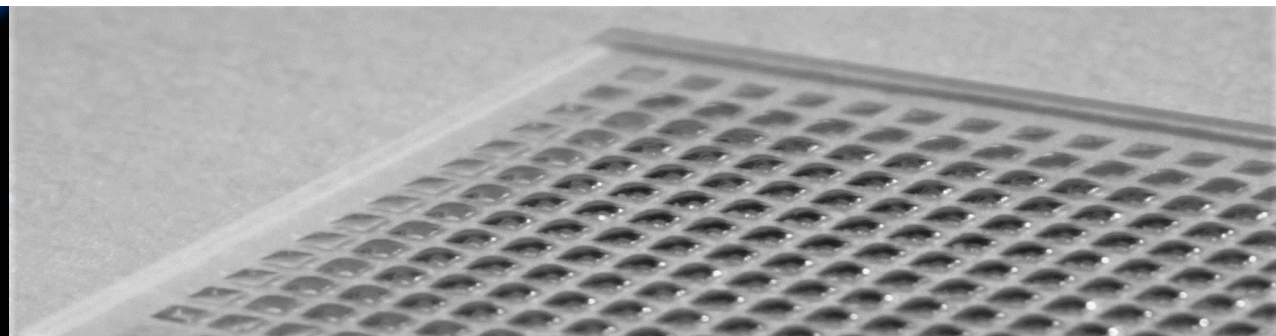
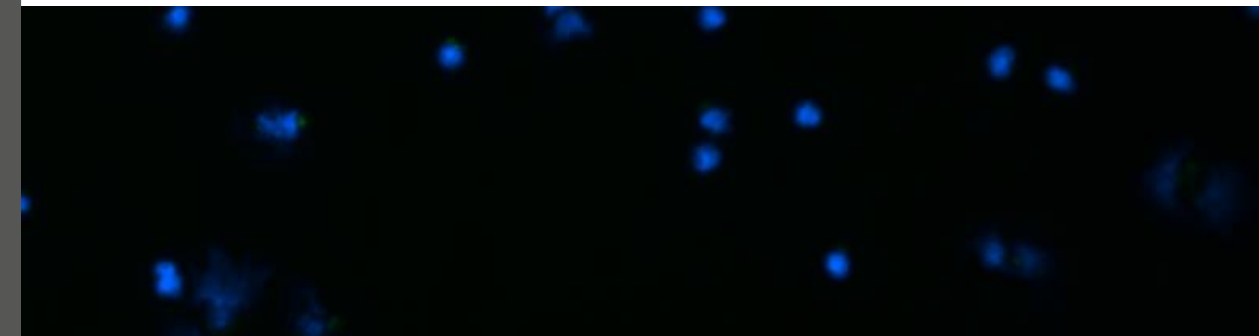


# Single Cell Printing on Droplet Microarray using CellenOne

Demo CELLENION - Aquarray

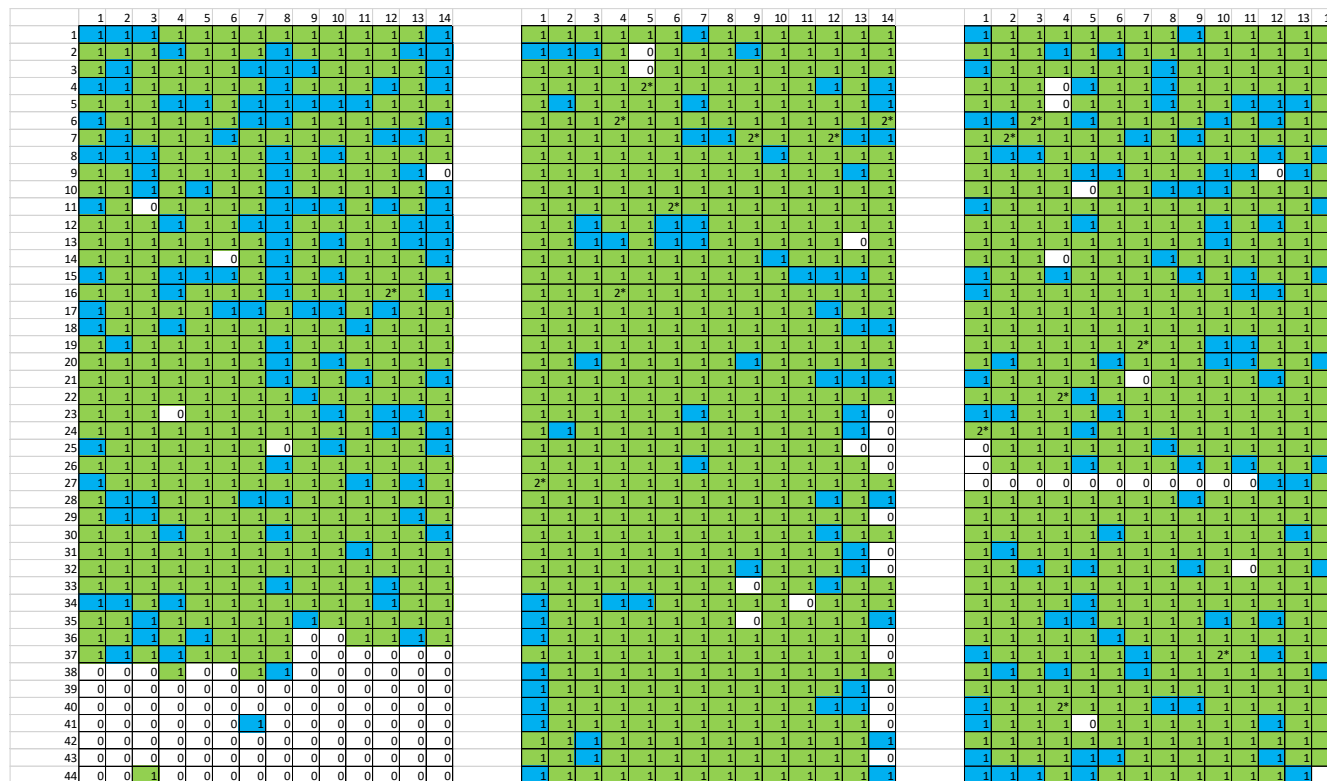


„Single cell dispensing on 1 mm, 500  $\mu$ M and 350  $\mu$ M spots.“

# Dispensing single cells with CellenOne on Droplet Microarray

- Z-DMA 672 spots (1 mm), 2353 spots (500  $\mu\text{m}$ ) and 6048 spots (350  $\mu\text{m}$ )
- Medium was pre-dispensed:
  - 672 spots – 150 nL with I-DOT Mini
  - 2352 spots – 25 nL with I-DOT Mini
  - 6048 spots – 10 nL with CellenOne
- Single cells dispensed according to selection criteria in few pL to each spot containing medium
- All steps with CellerOne were performed with chiller, no humidifier
- Imaging with ImageXpress Pico 4x objective, 22 min imaging time

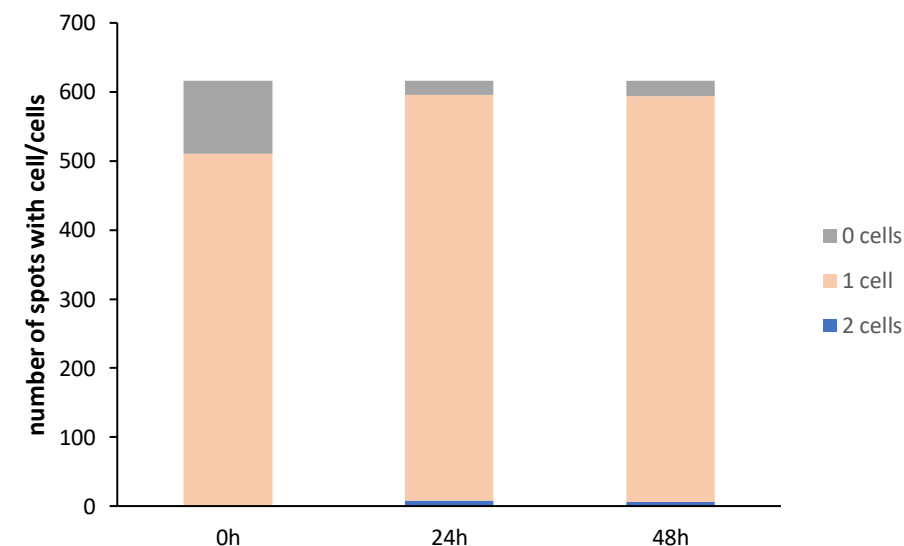
# Precision of dispensing with CellenOne on 672 DMA (1mm spots)



T0: DMA 2  
Note: difficulties during dispensing due to air in the valve

T24: DMA 1  
Note: difficulties during dispensing due to clogged nozzle

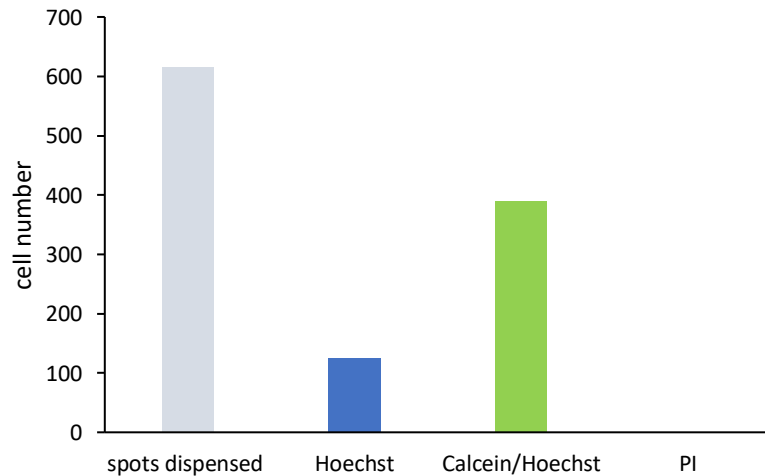
T48: DMA 3  
Note: dispensing without problems



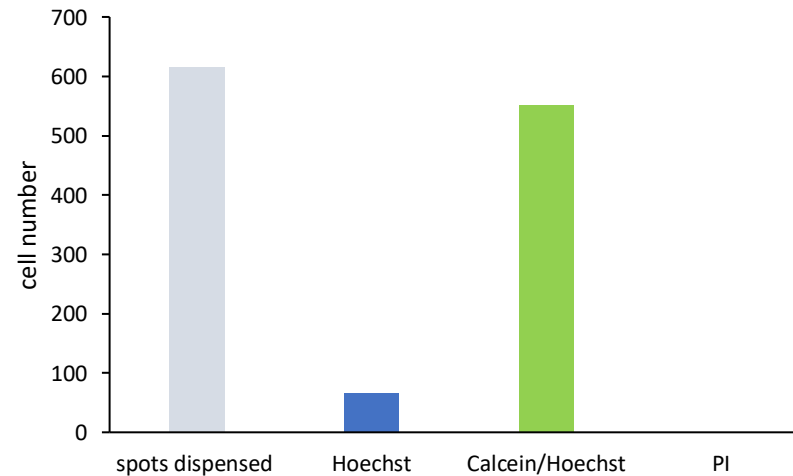
# Cell viability after cell attachment ( t0), 24h and 48h

- Staining solution was dispensed with the I-DOT Mini
- DMAs were incubated for 15 min at 37°C
- DMAs were imaged using the ImageXpress Pico (4x objective) – imaging time 22min

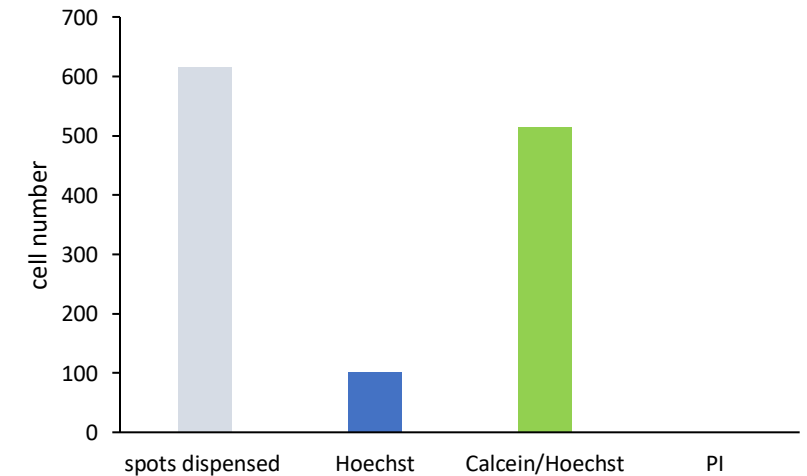
cell viability at t0 (DMA 672 spots)



cell viability at t24 (DMA 672 spots)

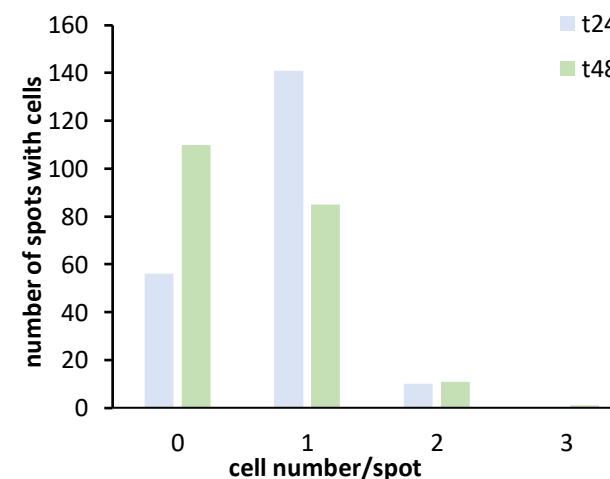
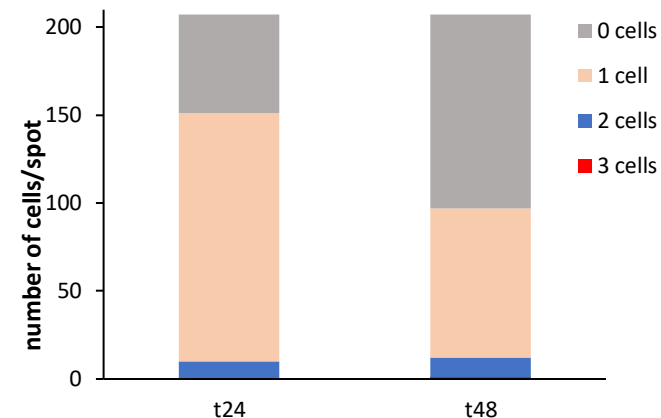


cell viability at t48 (DMA 672 spots)



# Precision of dispensing with CellenOne on 2352 DMA (500 $\mu$ M spots)

24h_1										48h_1									
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
1	1	1	0	1	1	1	1	1	1	0	1	0	0	2*	1	1	0	0	1
2	1	1	1	1	2*	1	1	0	0	1	1	0	1	2*	1	3*	0	0	1
3	0	0	0	1	2*	1	0	1	1	0	0	0	1	0	0	0	0	0	1
4	1	0	1	1	0	1	0	1	1	0	0	0	0	1	0	1	0	1	0
5	1	2*	1	1	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0
6	1	1	1	1	0	1	1	1	1	1	0	1	0	1	0	1	0	1	0
7	1	0	2*	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
8	0	1	0	2*	1	1	1	1	1	1	1	1	1	2*	1	1	1	1	1
9	1	1	1	1	1	1	1	1	0	1	0	0	1	0	1	0	1	0	1
10	1	1	0	0	2*	1	2*	1	1	1	0	0	0	1	1	2*	0	0	0
11	1	1	0	1	1	1	0	0	0	1	0	0	1	1	1	0	0	1	0
12	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0
13	1	1	0	1	1	1	1	1	1	0	1	0	1	1	0	1	0	1	0
14	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
15	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	2*	1	0	0	1	0	1	1	1	0	2*	1	0	0	0	1	0	0	0
17	0	1	1	1	0	1	1	1	1	0	0	2*	2*	0	0	1	1	0	0
18	1	1	0	0	0	1	1	1	1	0	1	0	0	0	2*	1	1	1	1
19	0	0	2*	1	1	0	1	1	1	1	0	1	0	0	1	0	0	2*	0
20	0	0	1	1	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0
21	0	1	1	0	0	1	0	0	0	1	0	1	1	0	0	1	0	0	0
22	1	1	0	1	2*	1	1	0	1	1	1	0	0	0	1	0	2*	1	1
23	1	1	0	1	1	1	2*	1	1	1	0	1	1	1	1	2*	1	1	0



T24: DMA 1  
207 spots (9x23) were dispensed with 1 cell/spot (Hela-GFP) and analyzed after 24h for precision

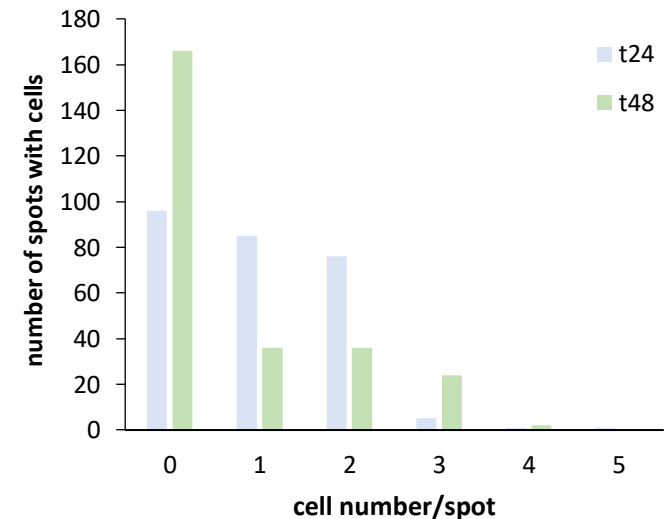
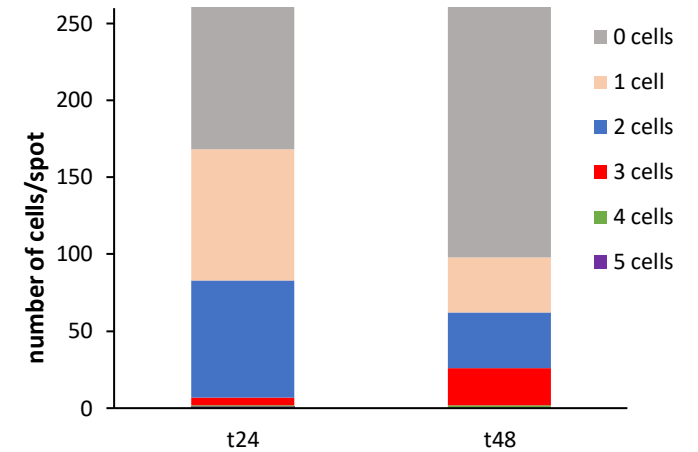
T48: DMA 2  
207 spots (9x23) were dispensed with 1 cell/spot (Hela-GFP) and analyzed after 48h for precision

# Precision of dispensing with CellenOne on 6048 DMA (350 $\mu$ M spots)

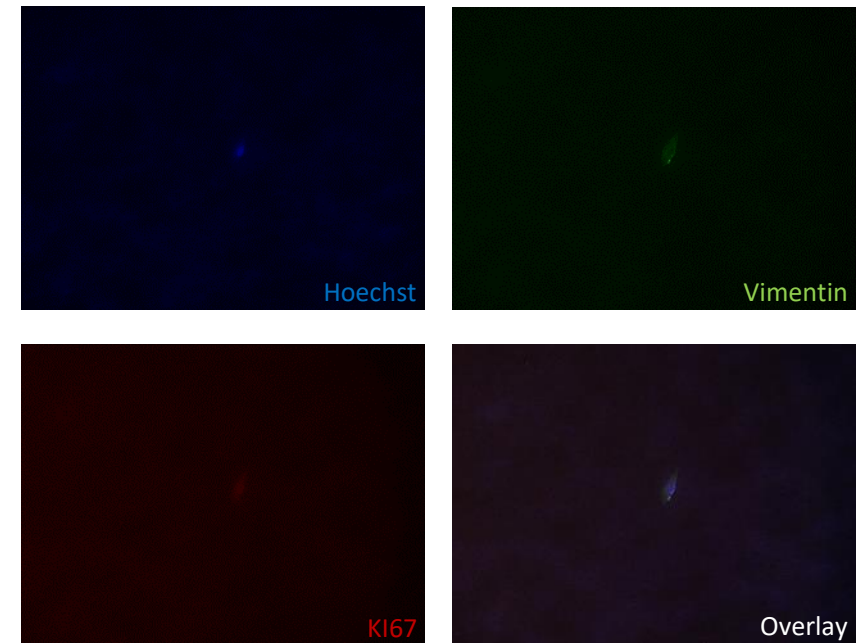
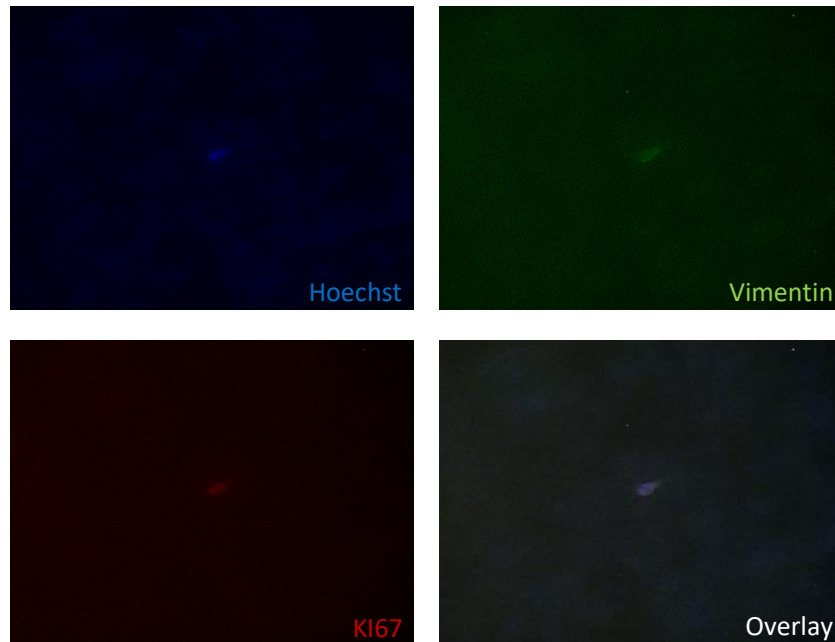
DMA 6048		24h_1											48h_1										
Hela GFP																							
	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	
1	0	0	2*	0	3*	0	1	1	1	3*	0	0	0	1	0	2*	0	2*	0	1	2*	0	
2	2*	0	1	1	2*	1	1	3*	3*	2*	0	0	0	0	0	2*	0	2*	0	2*	2*	0	
3	2*	2*	2*	0	2*	1	0	0	1	1	1	0	0	2*	0	3*	1	0	0	0	1	0	
4	2*	1	5*	2*	2*	0	0	1	2*	2*	1	0	0	1	4*	0	1	0	0	0	3*	0	
5	0	2*	0	0	0	1	2*	2*	2*	2*	0	0	0	0	0	0	0	2*	2*	2*	0	0	
6	1	2*	1	0	0	0	0	0	0	0	2*	0	0	1	0	1	0	0	2*	0	0	2*	
7	1	1	0	1	0	1	1	0	1	2*	2*	0	0	2*	3*	0	1	0	0	0	0	0	
8	2*	1	0	1	1	0	1	0	0	0	0	0	0	3*	2*	0	1	0	0	0	0	0	
9	1	2*	0	1	1	1	0	1	1	1	0	0	0	2*	3*	0	1	0	0	0	1	0	
10	0	0	2*	2*	2*	1	0	0	0	0	0	0	0	0	1	2*	2*	0	0	0	0	0	
11	1	0	1	2*	2*	2*	1	2*	2*	1	2*	0	0	3*	0	0	0	0	0	2*	1	2*	
12	0	0	1	1	2*	1	2*	0	0	0	0	0	0	0	0	3*	0	3*	0	2*	0	0	
13	2*	2*	0	2*	1	1	1	1	1	1	0	0	0	0	0	2*	1	1	0	1	0	0	
14	0	2*	2*	1	2*	1	1	1	1	2*	1	0	0	0	3*	0	3	0	2*	1	1	2*	
15	0	0	1	2*	0	0	2*	0	2*	0	2*	0	0	0	0	2*	1	0	0	2*	0	0	
16	0	0	2*	0	0	2*	0	0	1	0	2*	0	0	0	0	3*	0	0	0	0	0	0	
17	0	0	4*	0	2*	1	2*	0	0	2*	2*	0	0	0	0	4*	0	3*	1	2*	0	0	
18	0	1	0	3*	1	2*	2*	2*	1	1	2*	0	0	0	0	3*	2*	3*	3*	1	1	0	
19	0	1	1	1	2*	1	0	1	1	0	1	0	0	0	1	0	2*	1	0	1	1	0	
20	2*	1	2*	0	1	0	2*	2*	2*	1	1	0	0	0	3*	2*	0	1	1	3*	3*	2*	
21	0	1	2*	0	0	2*	2*	2*	0	1	2*	0	0	0	2*	1	0	0	1	0	3*	0	
22	2*	1	0	0	0	0	1	2*	2*	1	2*	0	0	0	3*	3*	0	0	0	3*	0	0	
23	2*	1	0	2*	2*	1	2*	1	0	0	0	0	0	0	2*	1	0	3*	3*	2*	2*	1	
24	1	2*	1	1	0	1	2*	0	0	1	0	0	0	2*	0	0	1	0	0	0	1	0	

T24: DMA 1  
264 spots (11x24) were dispensed with 1 cell/spot (Hela-GFP) and analyzed after 24h for precision

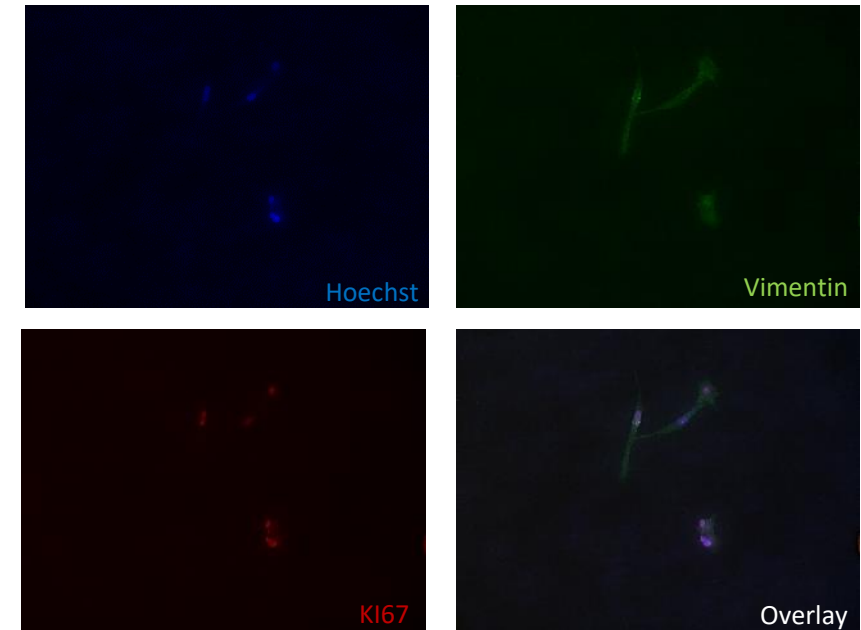
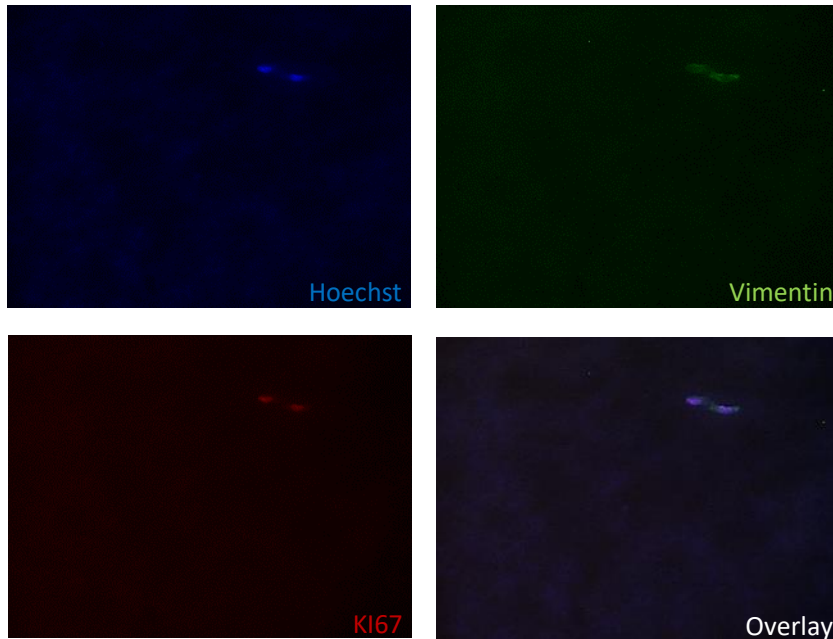
T48: DMA 2  
264 spots (11x24) were dispensed with 1 cell/spot (Hela-GFP) and analyzed after 48h for precision



# Immunofluorescence staining for Vimentin and Ki67 on SK-Mel 28 cultured on 672 DMA after 24h



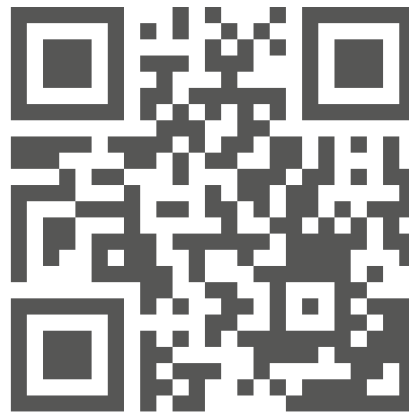
# Immunofluorescence staining for Vimentin and Ki67 on SK-Mel 28 cultured on 672 DMA after 48h







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