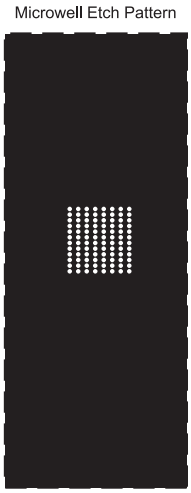
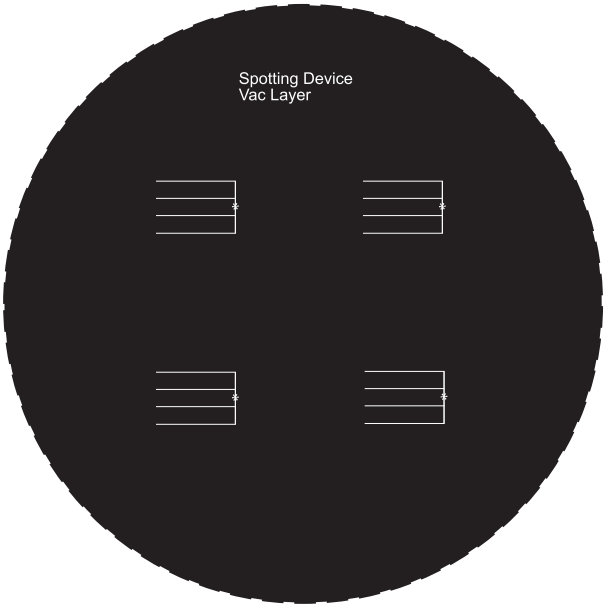
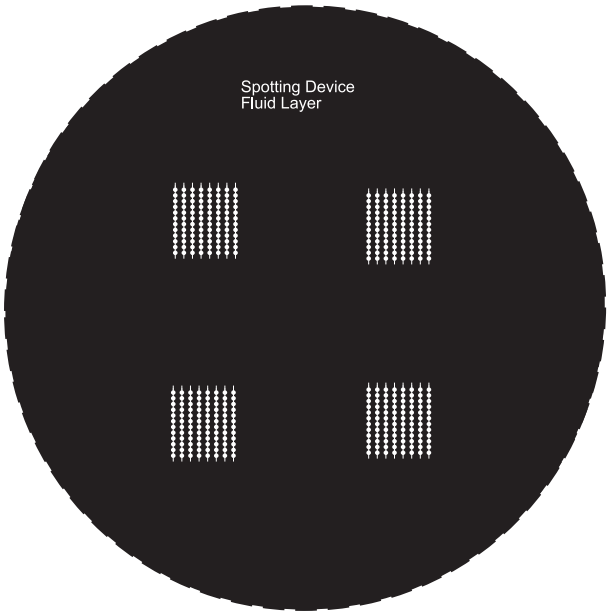
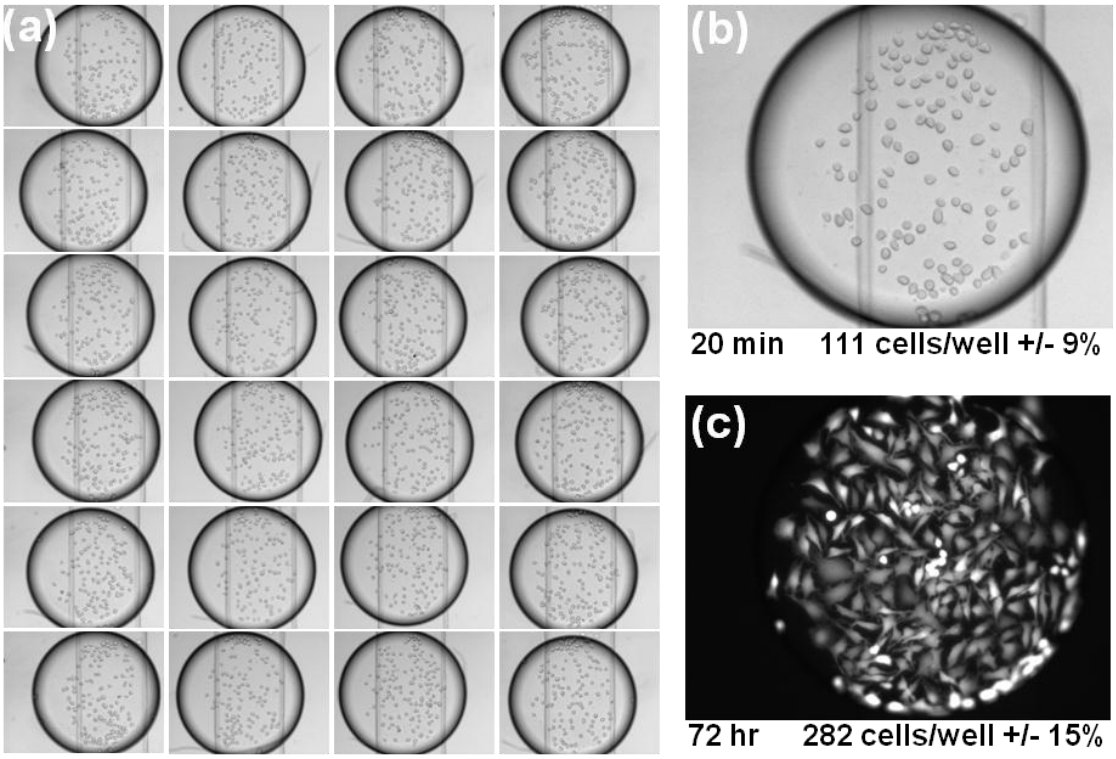


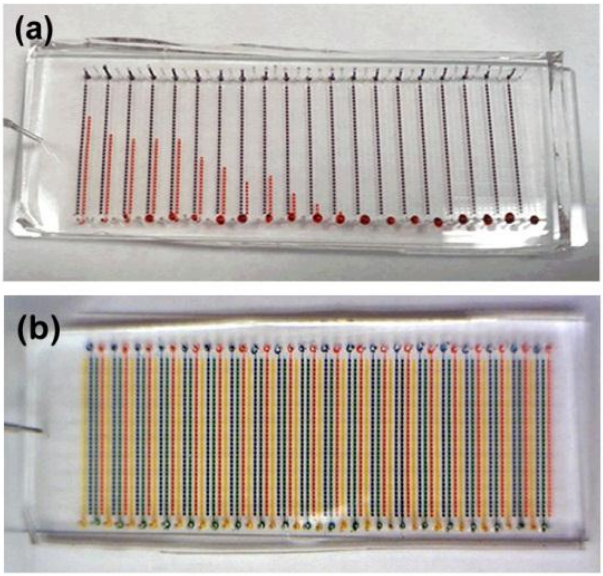




Supplementary Figure 1. Masks used to fabricate the layer components of the RNA interference screening device and platform. Microwells are etched to a depth of 50 microns. All other features are created in photoresist at a height of 25 microns.



Supplementary Figure 2. Cell seeding and cell growth counts. The use of microwells in the screening platform allows for consistent loading of HeLa cells from cell suspension using only pipette tips to interface with the platform. HeLa cells were resuspended at a density of 42 cells/nL and were injected directly onto siRNAs patterned within a row of twelve microwells. (a, b) Brightfield images were taken shortly after seeding (20 minutes) and representative wells are shown. (c) At 72 hours post-seeding, the cells were stained with Calcein AM (5 μM in PBS) for 30 minutes at 37℃. Cells were imaged and counts were analyzed using CellProfiler. Standard deviation between wells varies from cell seeding (~9%) to final imaging at 72 hours (15%).



Supplementary Figure 3. An image of the microfluidic spotting platform design scaled out to 2,880 wells, illustrated in the process of (a) loading and (b) when completely filled. Wells are 400μm in diameter with interwell spacing of 750μm center-to-center in the x-direction and 500μm center-to-center in the y-direction