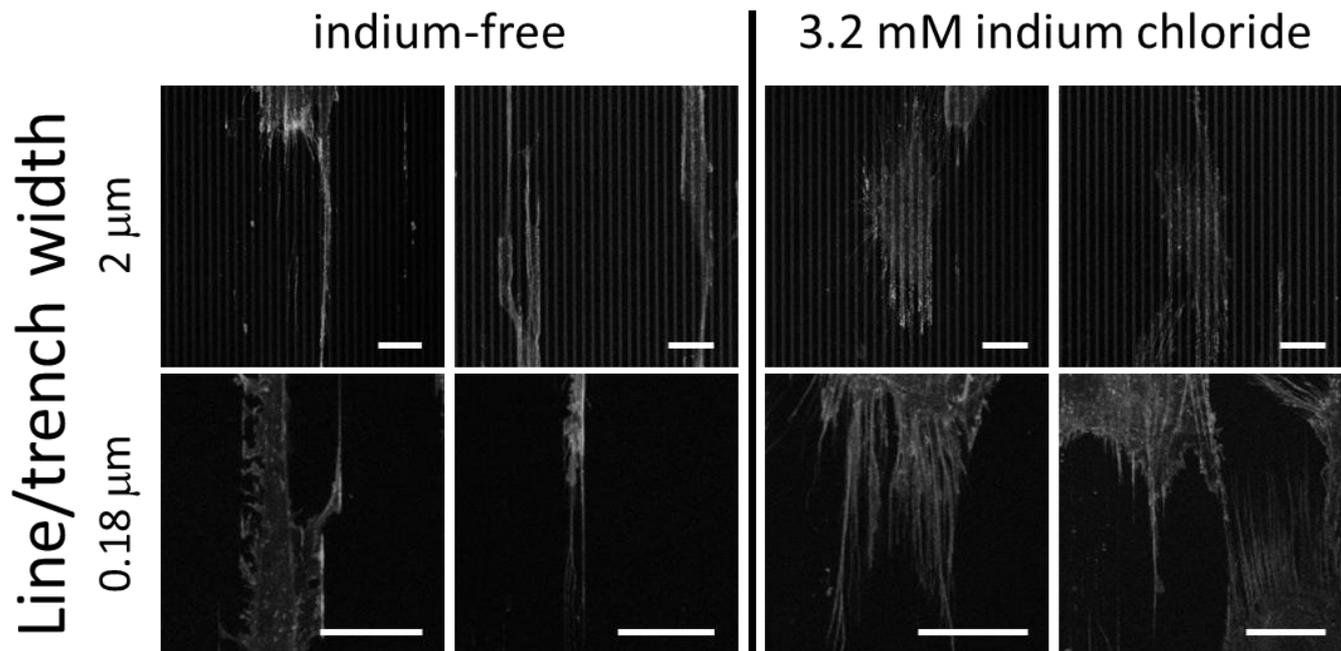
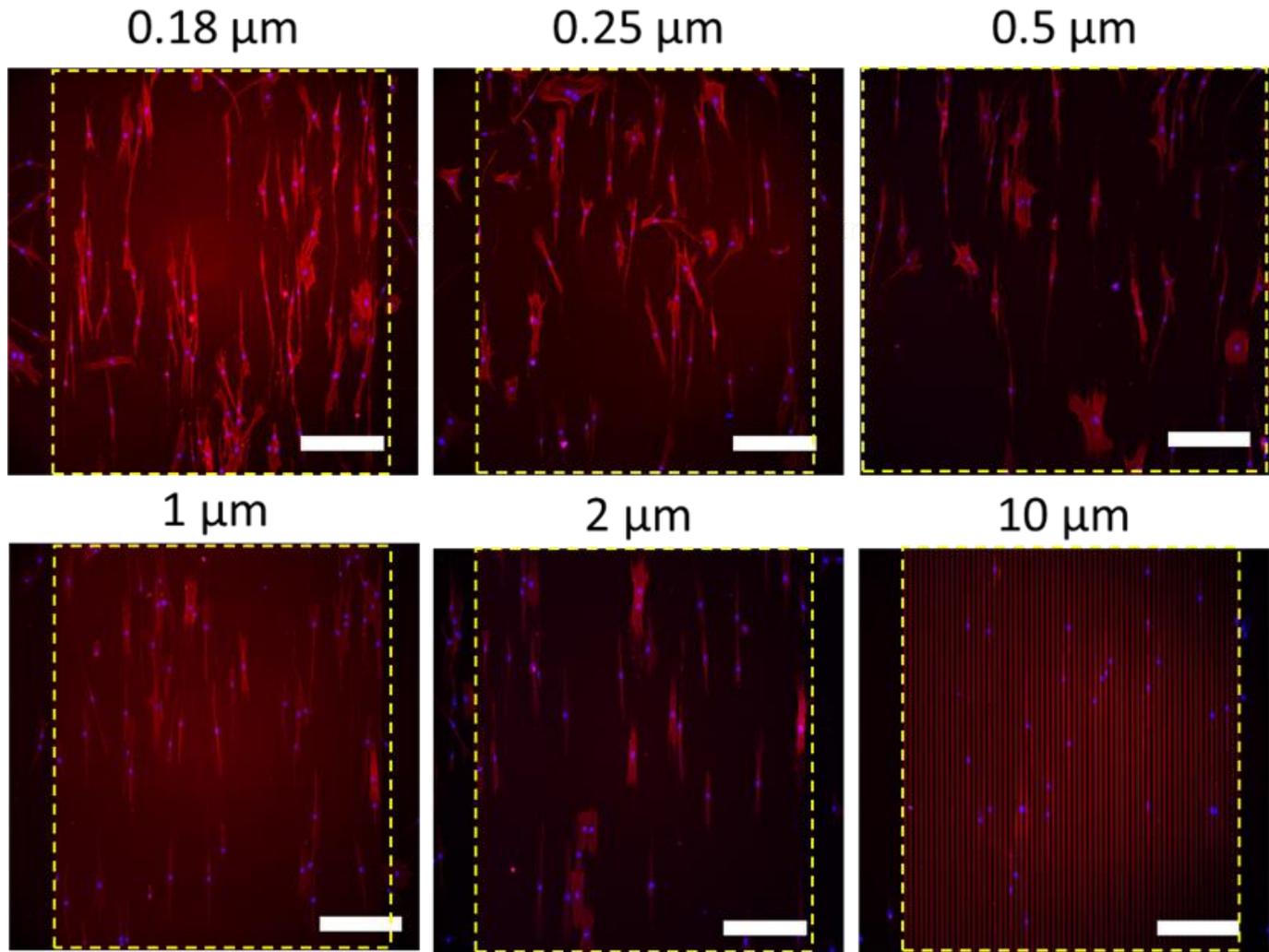


**Figure S1.** Schematic drawing of an adherent cells on tantalum/silicon oxide parallel line structure. The angular displacement between the long axis of the elliptical-shaped nucleus and the line axis is defined as ( $\phi$ ).

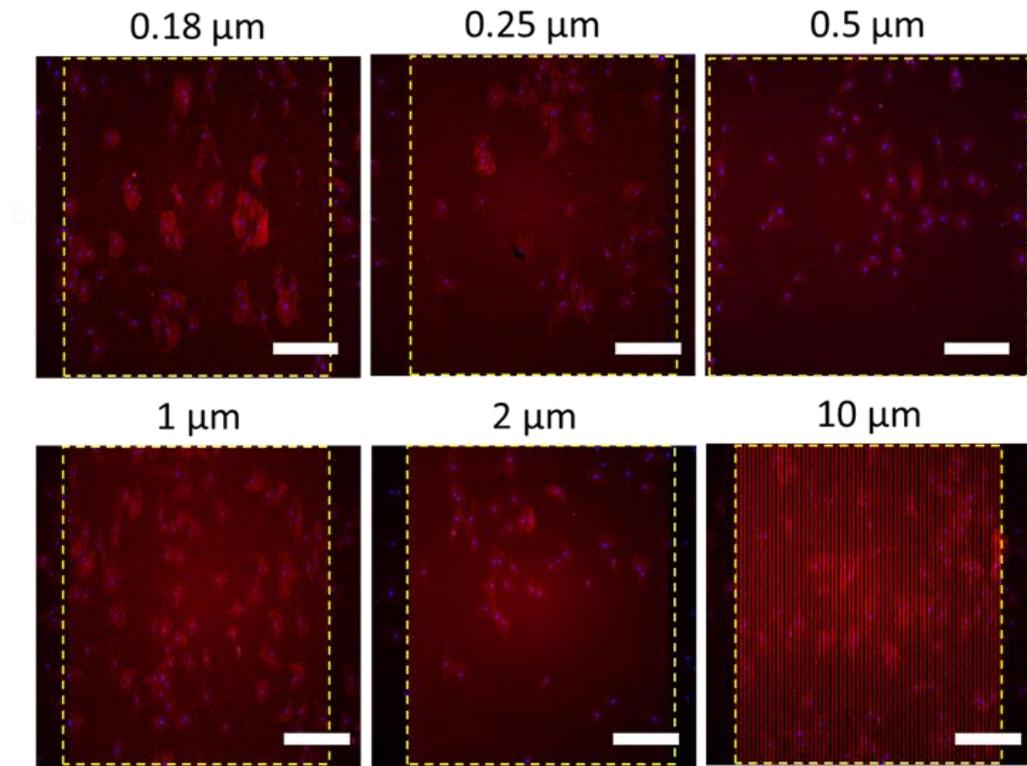


**Figure S2.** High-resolution fluorescence confocal micrographs of cells on structures with line/trench of 2  $\mu\text{m}$  and 0.18  $\mu\text{m}$ . The left four panels show cells incubated in indium-free media. The right four panels reveal cells treated with

3.2 mM indium chloride. Scale bars correspond to 20  $\mu\text{m}$ . The lines and trenches are aligned vertically in these images.



**Figure S3.** Fluorescence confocal micrograph of adherent cells on parallel line/trench structure with line widths of 0.18  $\mu\text{m}$ , 0.25  $\mu\text{m}$ , 0.5  $\mu\text{m}$ , 1  $\mu\text{m}$ , 2  $\mu\text{m}$ , and 10  $\mu\text{m}$ . These cells were treated with indium-free medium. DNA molecules were stained with blue DAPI while actin micro-filaments were labeled with red phalloidin. The lines and trenches are aligned vertically in these images. Scale bars correspond to 20  $\mu\text{m}$ . The dash lines indicate the patterned areas.



**Figure S4.** Fluorescence confocal micrograph of adherent cells on parallel line/trench structure with line widths of 0.18  $\mu\text{m}$ , 0.25  $\mu\text{m}$ , 0.5  $\mu\text{m}$ , 1  $\mu\text{m}$ , 2  $\mu\text{m}$ , and 10  $\mu\text{m}$ . These cells were cultivated in media containing 3.2 mM of indium chloride. DNA molecules were stained with blue DAPI while actin microfilaments were labeled with red phalloidin. The lines and trenches are aligned vertically in these images. Scale bars correspond to 300  $\mu\text{m}$ . The dash lines indicate the patterned areas.