Electronic supplementary information for:

Chip-based size-selective sorting of biological cells using high frequency acoustic excitation

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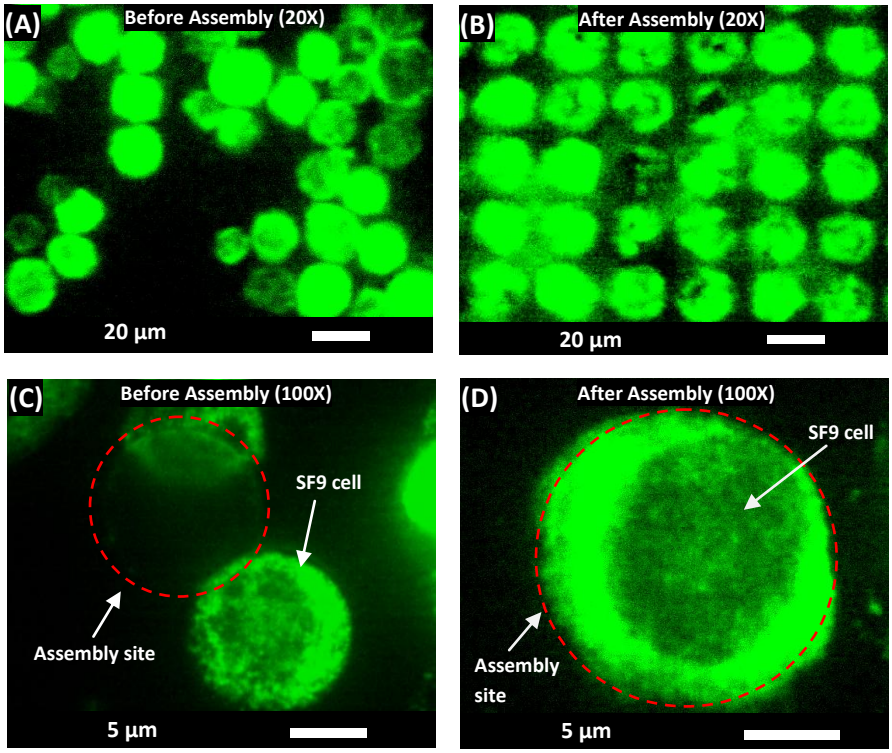

Figure S1: Confocal microscopic images of SF9 cells labeled with fluorescent Cell tracker red CMPTX, viewed at 20X magnification in (a) and (b) and at 100X magnification in (c) and (d). Image (a) shows a sample of cells on the silicon surface before assembly with TASR, while image (b) shows single cells, each 15 µm in diameter, trapped in individual sites on the template surface after going through the TASR process. Similarly, when viewed through oil, at a higher magnification, image (c) shows the cells occupying random positions on the template near, in and outside the assembly sites (faint rim of an assembly site on the silicon surface visible in the center of image (c)) before assembly, while image (d) shows a zoomed in view of a single cell trapped inside an assembly site after being subjected to TASR.

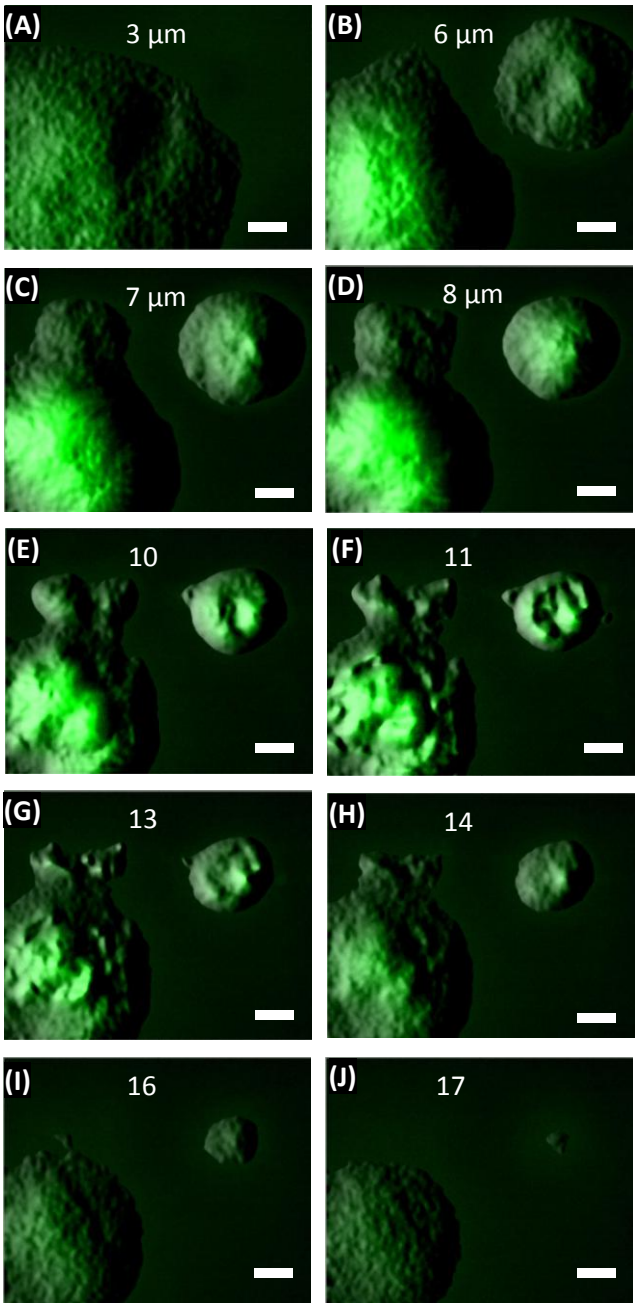

Figure S2: Confocal image surface plots, (A)-(J), of a large and a small SF9 cell assembled inside well-matched assembly sites, 22 and 12 µm in diameter respectively, at varying depths from cell surface. In the images shown here, the scans start from the topmost surface of the smaller cell when the smaller cell is out of focus but some portion of the larger cell is in focus, both being at the same height from the silicon template surface for one particular scan. The scans then progress along the z-axis towards the bottom surface of the small cell when the smaller cell is again out of focus, but the larger cell still remains in focus. Area of a single cell at one depth slice is calculated using Image J software from each scan which is further used to calculate the volume of each slice. Adding up the volumes of all such slices spaced 0.1 microns apart going from top to bottom of the cell surface, the total volume of each cell assembled inside the hole is calculated. The scale bars on each image represent 2µm in length.