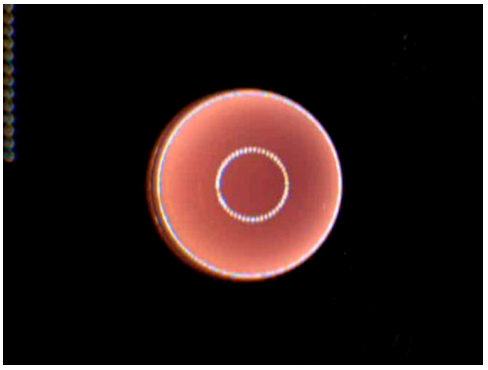
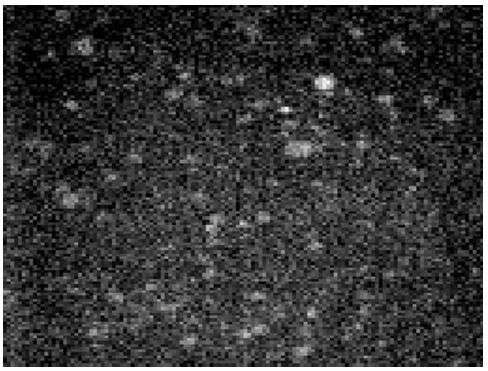
Supporting Information

Reboud et al. 10.1073/pnas.1206055109



Movie S1. Lysis on phononic superstrates. A droplet of 10 μL (3 mm wide) was positioned on the hydrophilic spot. The SAW was propagated at 9.5 MHz (with a power of 3.1 W). The square phononic lattice, machined into the superstrate using standard lithographic and etching methods, filtered the ultrasonic wave, creating lytic vortices within the drop. The bright rings observed on the droplet are due to reflections from the illumination source. The movie was recorded at 50 frames/s. The acoustic excitation was turned on after 1.26 s, leading to agitation of the liquid and increased scattering, and resulted in the disappearance of the illumination rings. At the beginning of the process, the cells were concentrated towards the centre of the drop and then lysed, resulting in a translucent drop. The acoustic excitation was turned off after 3.76 s, ending the actuation of the liquid surface, leading to the reappearance of the illumination rings.

Movie S1(WMV)



Movie S2. Confocal analysis. SAW lysis of MCF7 cells. A droplet of 10 μl of a suspension of actin-GFP MCF7 cells at a concentration of 2 million cells/ml was processed at 9.61 MHz. The power was increased from 0.06 W to 0.8 W while video recording was performed at 215 frames/s. The fluorescent cells first concentrate into the centre of the drop near the surface of the device, then disappeared as the actin-GFP was released from the cells following lysis. Due to the fast imaging, the image is only 65 × 65 pixels.

Movie S2(AVI)