

Description of Additional Supplementary Files

Supplementary Movie 1. An MCF7 cell's movement guided by our JDAT device to automatically depict the letters 'D', 'U', 'K', and 'E'.

Supplementary Movie 2. An MCF cell moving in the $+z$ -direction, when gradually increasing the applied voltage from 0 V_{pp} to 10 V_{pp}.

Supplementary Movie 3. 200 nm fluorescent polystyrene spheres driving by acoustic streaming vortices induced by y -axis standing SAWs; an MCF7 cell rotating in the $+\theta_x$ -direction; and an MCF7 cell rotating in the $-\theta_x$ -direction.

Supplementary Movie 4. 200 nm fluorescent polystyrene spheres driving by acoustic streaming vortices induced by x -axis standing SAWs; an MCF7 cell rotating in the $+\theta_y$ -direction; and an MCF7 cell rotating in the $-\theta_y$ -direction.

Supplementary Movie 5. 200 nm fluorescent polystyrene spheres driving by an acoustic streaming vortex induced by traveling SAWs; an MCF7 cell rotating in the $+\theta_z$ -direction; and an MCF7 cell rotating in the $-\theta_z$ -direction.

Supplementary Movie 6. An MCF7 cell rotating with respect to an axis in the in-plane -45° ; an MCF7 cell rotating with respect to an axis in the in-plane -29° ; and an MCF7 cell rotating with respect to an axis in the in-plane -15° .

Supplementary Movie 7. An MCF7 cell simultaneously translating in the $+x$ -direction and rotating in the $+\theta_x$ -direction; and an MCF7 cell simultaneously translating in the $+y$ -direction and rotating in the $+\theta_y$ -direction.

Supplementary Movie 8. An MCF7 cell simultaneously moving in the $+x$ -direction and rotating in the $+\theta_y$ -direction; and an MCF7 cell simultaneously moving in the $+y$ -direction and rotating in the $+\theta_x$ -direction.

Supplementary Movie 9. An MCF7 cell simultaneously moving in the $+x$ -direction and rotating in the $+\theta_z$ -direction; and an MCF7 cell simultaneously moving in the $+y$ -direction and rotating in the $+\theta_z$ -direction.

Supplementary Movie 10. An MCF7 cell gradually deformed by our JSAT device.

Supplementary Movie 11. Fluorescence of MCF7 cells in acoustic waves generated by our JSAT.