Supplemental Material for
Density-dependent flow generation in active cytoskeletal fluids

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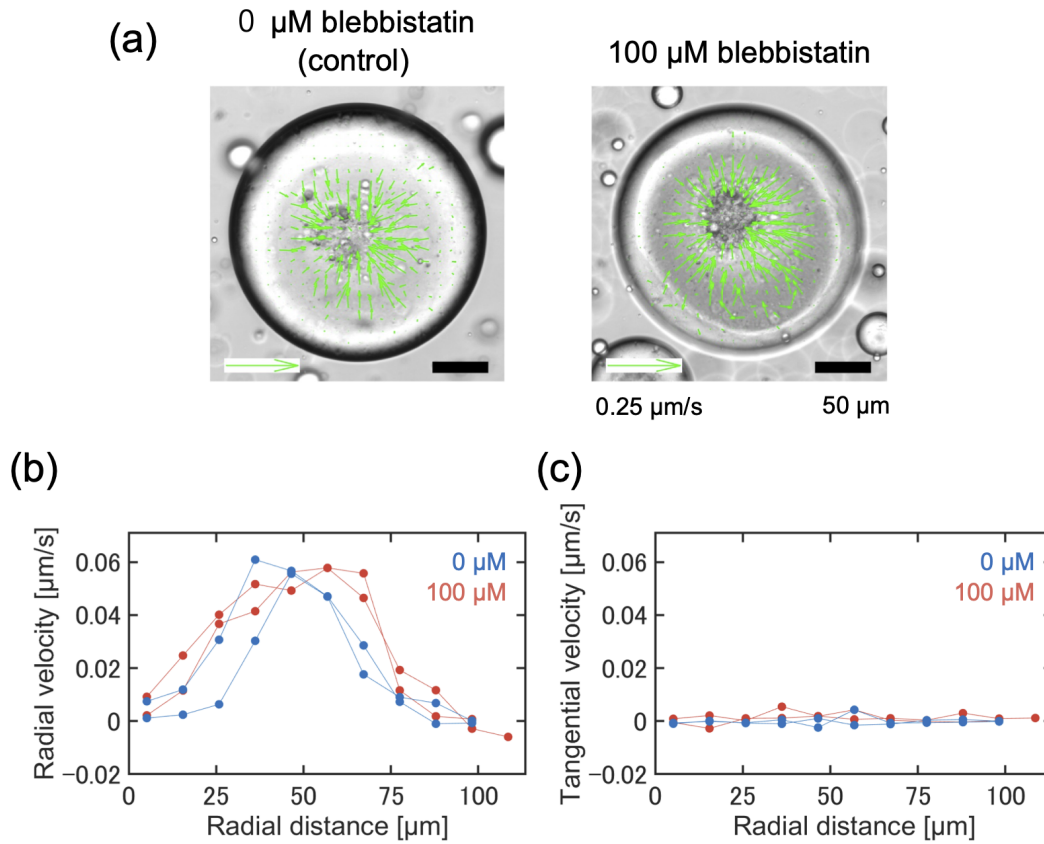(Dated: October 28, 2024)

SUPPLEMENTAL FIGURE

FIG. S1. **Blebbistatin-treated confined actomyosin solution within a droplet.** (a) Microscopic time-lapse observation of confined actomyosin solution in a droplet. Left: 0 μmol/L blebbistatin (control), right: 100 μmol/L blebbistatin. The number in the upper right corner of each image is the elapsed time. Scale bar: 50 μm. The figure on the right depicts the flow field of the transport of granular particles obtained using particle image velocimetry (PIV) analysis. Scale arrow is $0.25\,\mu\mathrm{m\,s^{-1}}$. (b) Radial velocity profile of actin flow, with radial distances measured every 11.8 μm, which corresponds to the grid size used in the PIV analysis. Blue: 0 μmol/L blebbistatin (control), red: 100 μmol/L blebbistatin. Two representative experimental data, control and blebbistatin treated, respectively, are plotted. (c) Tangential velocity profile of actin flow. .

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SUPPLEMENTARY MOVIES

Movie 1. Actin flow generation in the artificial cell containing the actomyosin cytoskeleton (ϕ=100%). Time-lapse image was acquired at every 10 second. Scale bar: 50 µm.

Movie 2. Density-dependence of actin flow generation in artificial cells containing diluted actomyosin cytoskeleton ($\phi = 0\%$, 40%, 60%, 80%). Time-lapse image was acquired at every 10 second. Scale bars: 50 µm.

Movie 3. Density-dependence of actin flow generation in bulk solutions containing diluted actomyosin cytoskeleton ($\phi = 0\%$, 40%, 60%, 80%). Time-lapse image was acquired at every 1 second. Scale bars: 50 µm.