

Fig. S1: Comparison of measured azimuthal beam profiles with propagated holograms, for on-axis focusing to  $Z_F = 50$  mm and when steered transversely to  $X_F = 10$  mm (a), and axial profiles for on-axis focusing to  $Z_F = 50$  mm (b). The difference in peak pressures of 3% is within the uncertainty of the hydrophone measurements.

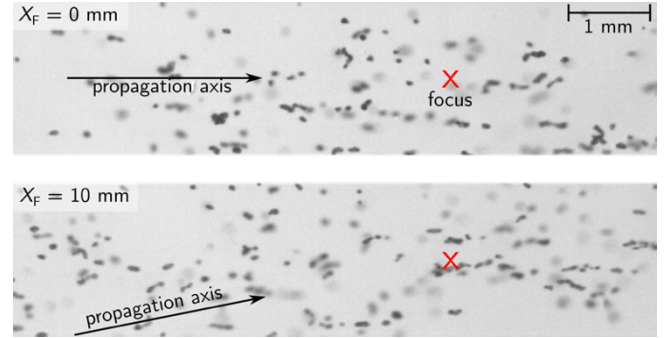


Fig. S2. Distribution of cavitation bubbles observed near the focus for  $P=6$  MPa for on-axis focusing to  $Z_F = 50$  with no transverse beam steering (top) and with transverse beam steering to  $X_F=10$  mm (bottom). Fan-out proliferation of bubbles is observed in both cases.