Electronic Supplementary Material (ESI) for Lab on a Chip.

Electronic Supplementary Information for

Large-Scale Production of Compound Bubbles Using Parallelized Microfluidics for Efficient Extraction of Metal Ions

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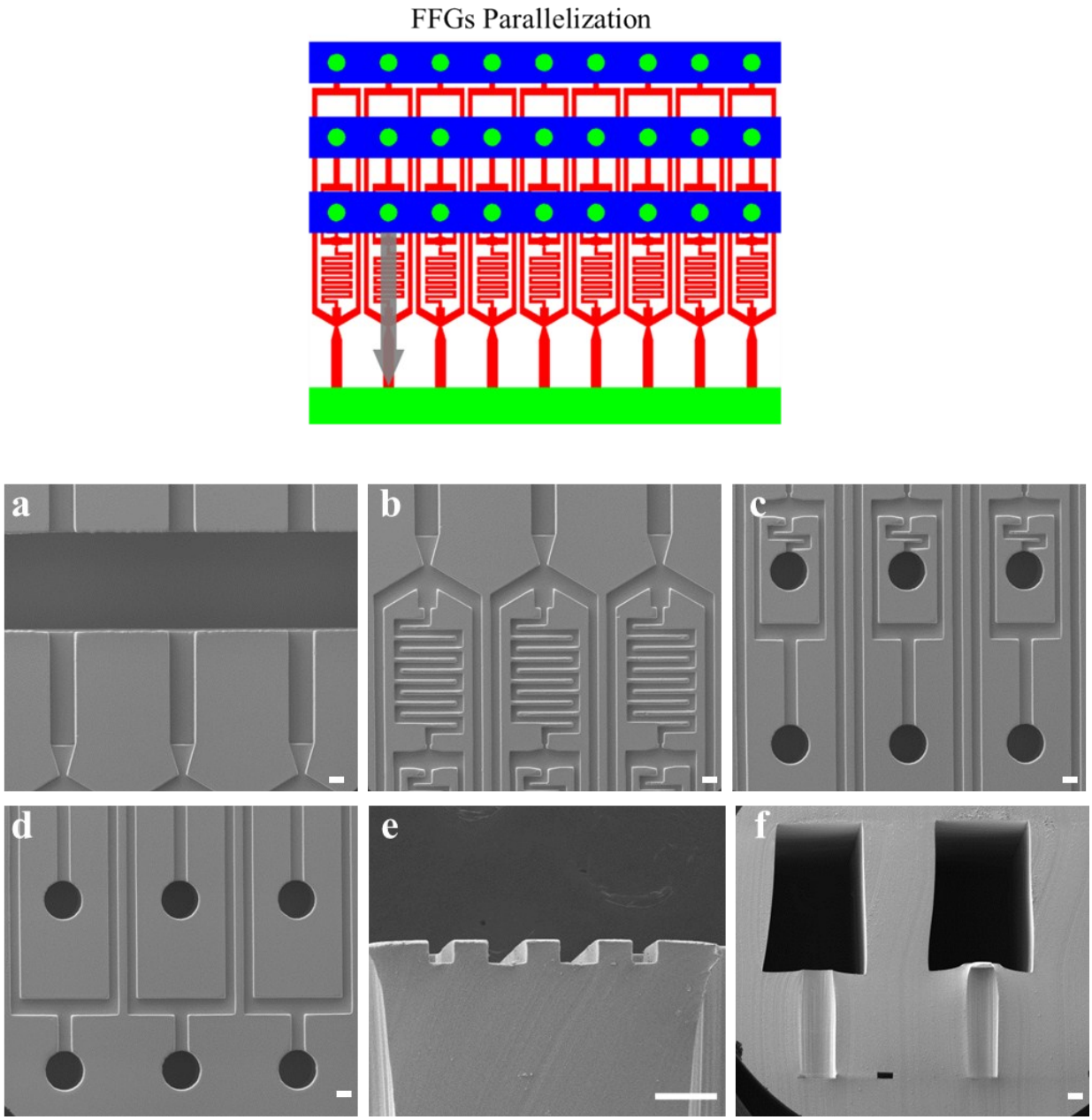

Figure S1. Scanning electron micrograph images of compound bubble flow focusing generator device. (a-d) Top view images of device at different positions. (e) Cross section view of device at position shown in (c). (f) Cross section of device shows delivery channels and vias. Scale bars in all images are 100 um.

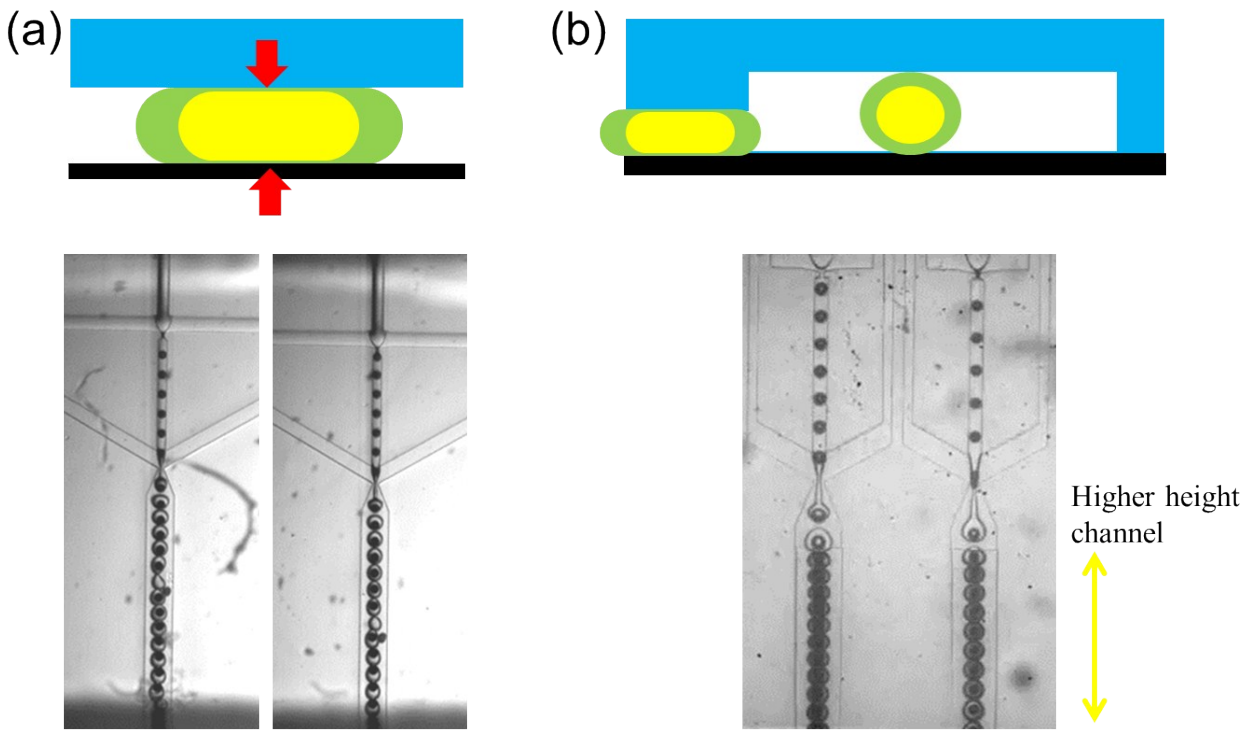

Figure S2. Schematic illustration and optical micrographs showing compound bubble generation in (a) single-height channels and (b) dual-height channels. In both panels, the width of the collection channels is 150 μm.

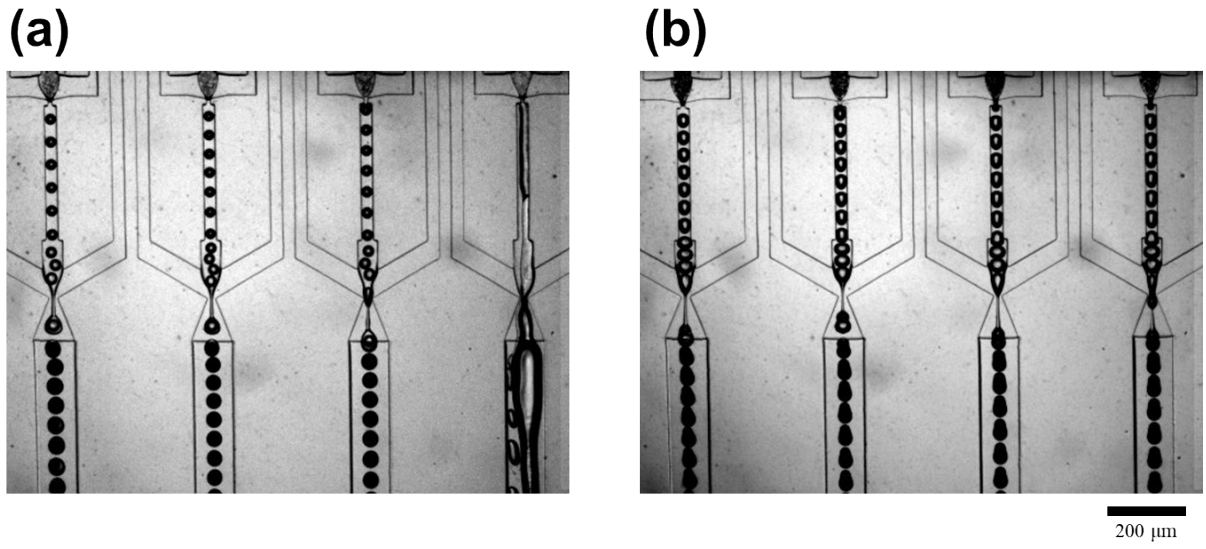

Figure S3. Representative micrographs showing (a) jetting and (b) doublet formation upon gas pressure increase.

Movie. Production of gas-in-water-in-oil compound bubbles from a 400-parallel flow focusing generator (FFG) device.

AutoCAD file of the 400-FFG device,