

Article

Pneumatically Actuated Thin Glass Microlens for On-Chip Multi-Magnification Observations

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Supplementary Fig.S1

Microlens size related magnification comparisons:

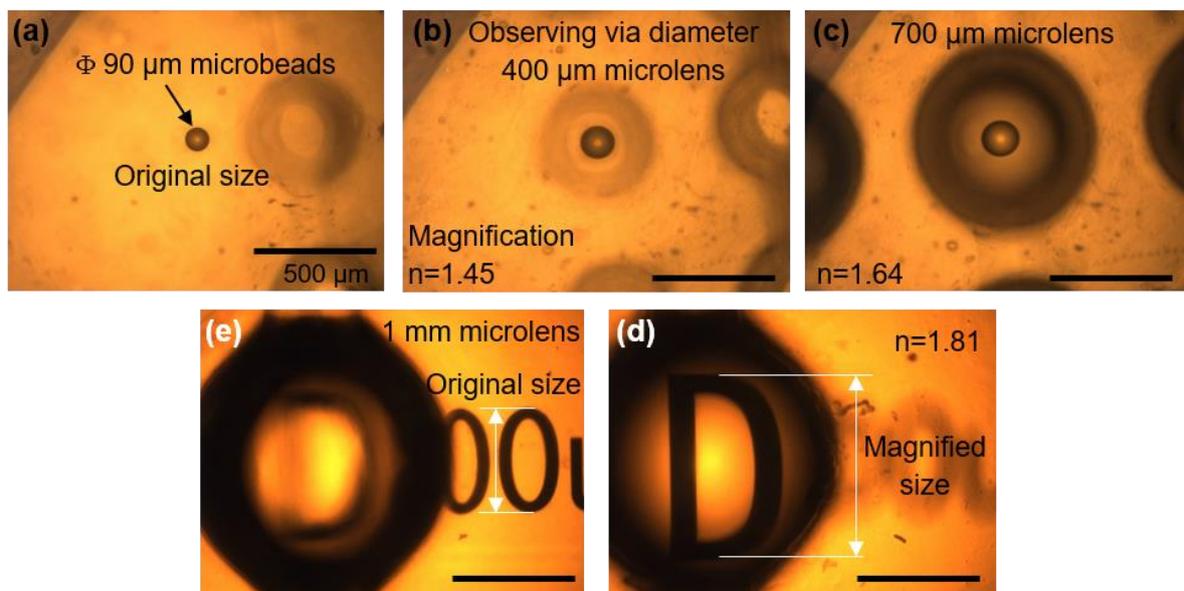
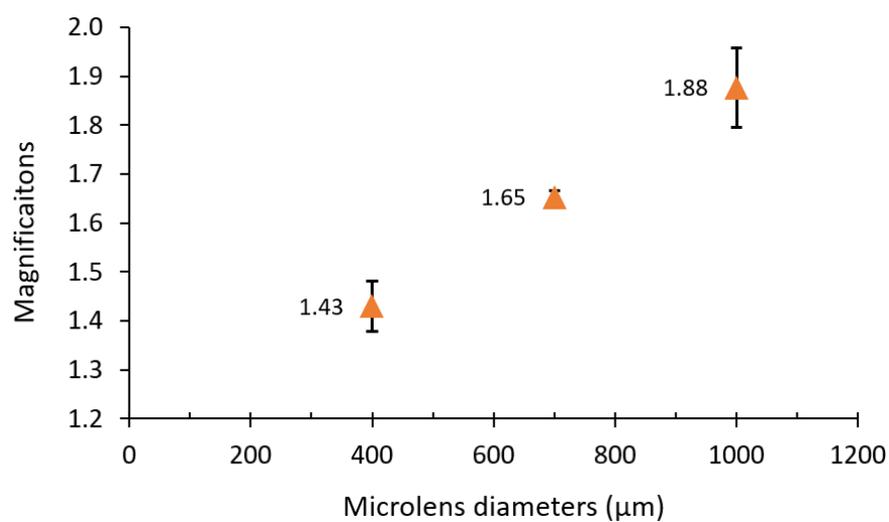


Figure S1. Magnification comparison under different diameters of microlenses. (a) The original size of 90 μm fluorescent microbeads. (b) The same microbeads viewed via 400 μm thin glass microlens and 1.45 of magnification achieved. (c) The microbeads put under 700 μm microlens and produced 1.64 magnification. (e) and (d) are the comparison images of observing a letter using a 1 mm diameter of the microlens. Unmark scale bar is 500 μm.

Supplementary Graph. S1

Graph S1. Illustration of different sizes of microlens produced various magnifications. Measured microlens diameters at 400, 700, and 1000 μm respectively.

Supplementary Fig.S2

Microlens with and without microchannel connection

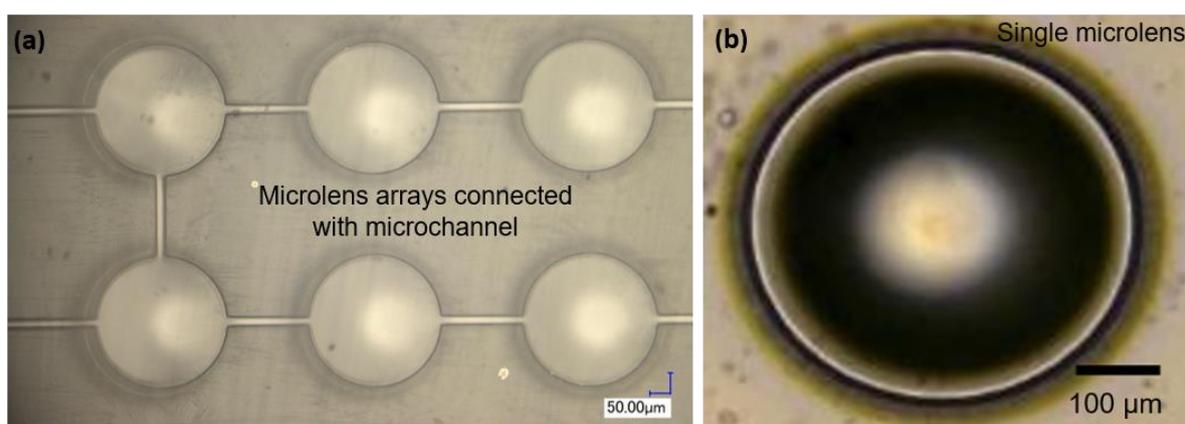


Figure S2. Illustration of microlens connected with or without microchannel. (a) Image of the microlens arrays connected with microchannels. (b) The single (hollow) microlens without microchannel.

Supplementary Fig.S3

Different diameters of microlens magnification evaluations

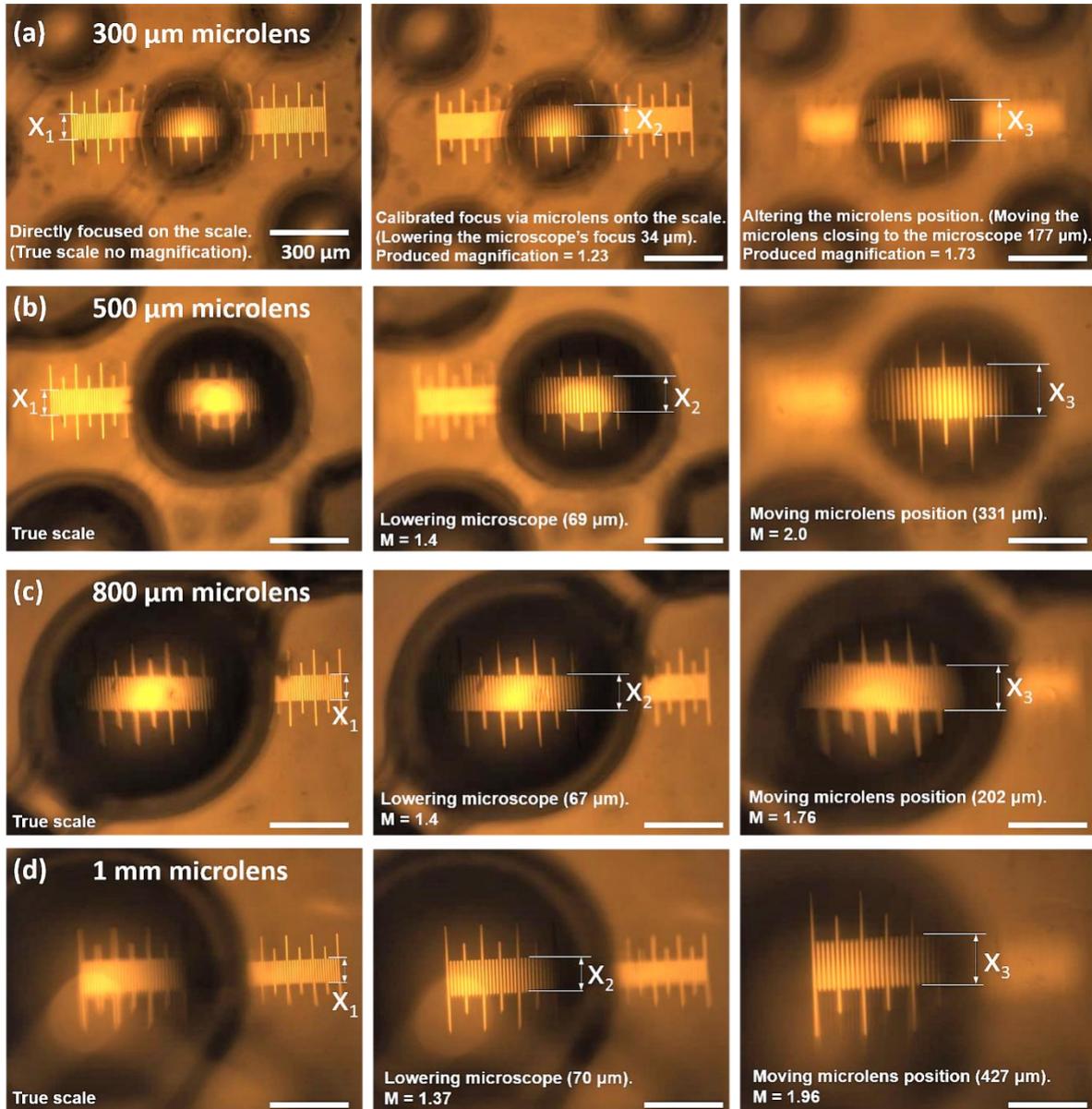


Figure S3. The measuring results of different diameters of microlens with different magnifications at different positions. (a) This row of images are the 300 μm microlens produced magnification at different positions. (b) The 500 μm microlens produced magnification at different positions. (c) The 800 μm microlens produced magnification at different positions. (d) The 1 mm microlens produced magnification at different positions. Unmarked scale bar is 300 μm.

Supplementary Fig.S4

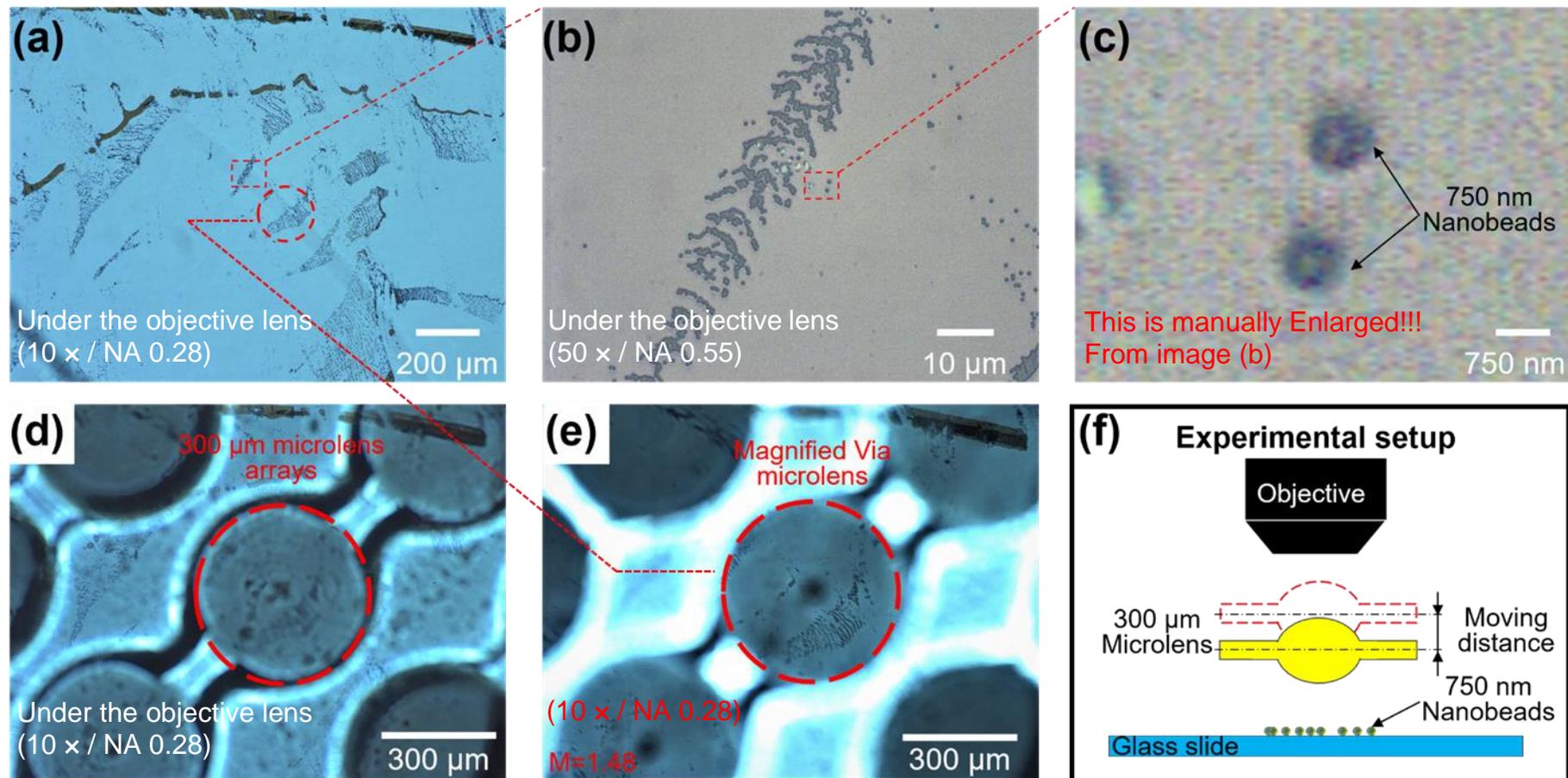
Nano beads observation using 300 μm thin glass microlens

Figure S4. The experiment of Nanobeads observation using thin glass microlens. From (a–c) are the 750 nm Nanobeads microscopic images under the different objective lens at various magnifications without microlens. (d) Positioning the 300 μm microlens over the Nanobeads area. (d) Calibrate the microscope focus through microlens onto the Nanobeads. Microlens magnified the previous image, the magnification power was approximately 1.48. (f) The illustration of the experimental setup for this experiment. (The experimental setup image is not to scale).