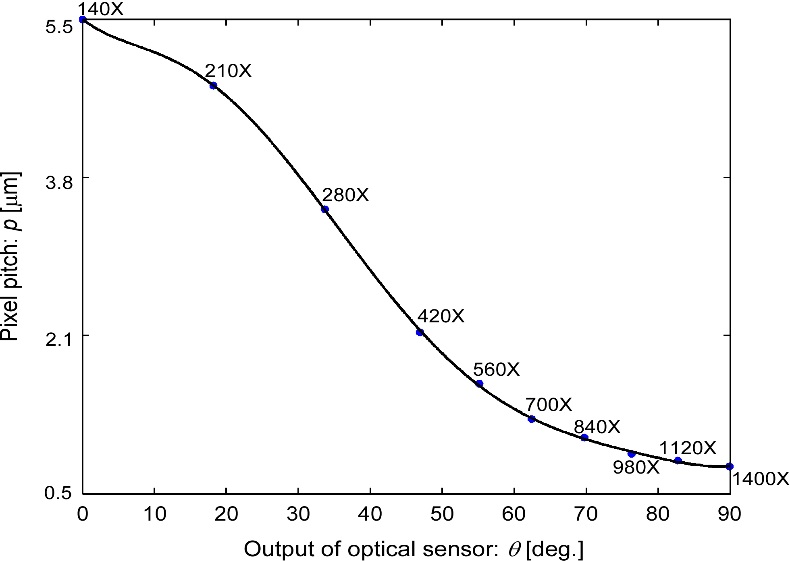
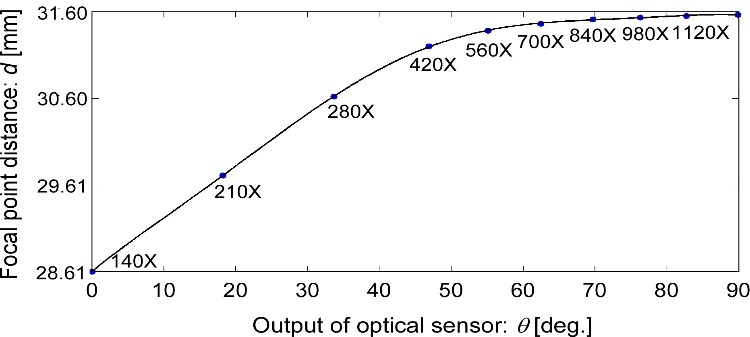
Microrobotic Platform for Single Motile Microorganism Investigation

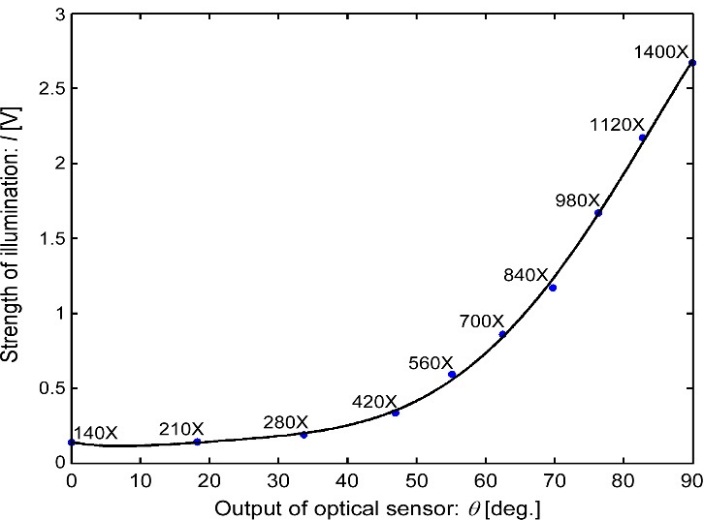
Belal Ahmad 1, Hironobu Maeda 2, Tomohiro Kawahara 1,\*, and Fumihito Arai 3



(a) *p*= *f*1(**)=0.0001** 6+0.0001** 5-0.0006* 4*-0.00003* 3*+0.0014** 2-0.0018** +0.0017, *R*2*=0.99*

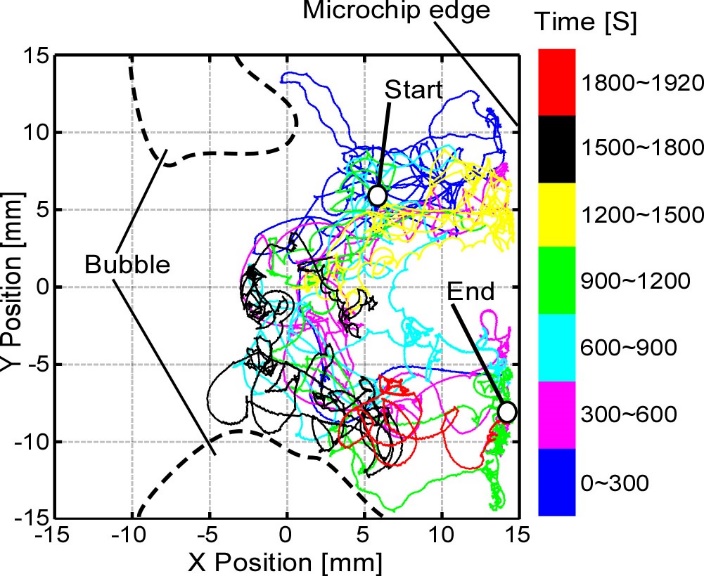


(b) *d*= *f*2(**)=0.0001** 3-0.0015** 2+0.0702** +28.6101, *R*2*=0.99*

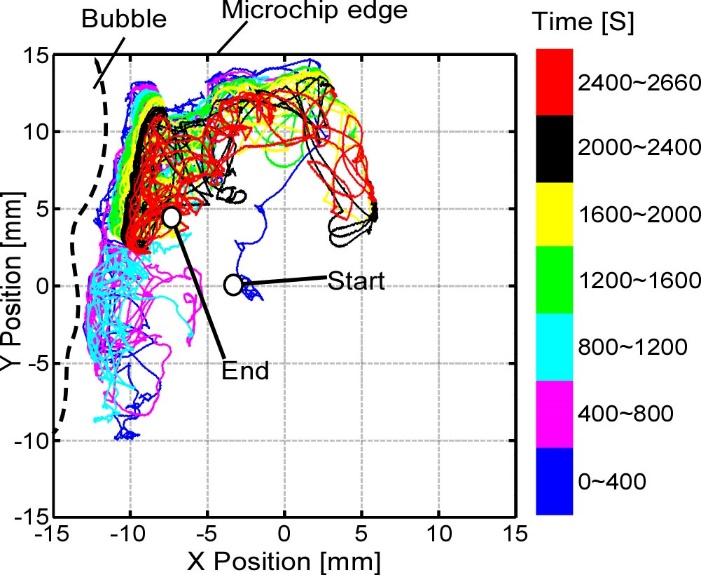


(c) *l*= *f*3(**)=-0.0513** 5-0.1058* 4*+0.1912** 3+0.7398** 2-0.8423** +0.5083, *R*2*=0.99*

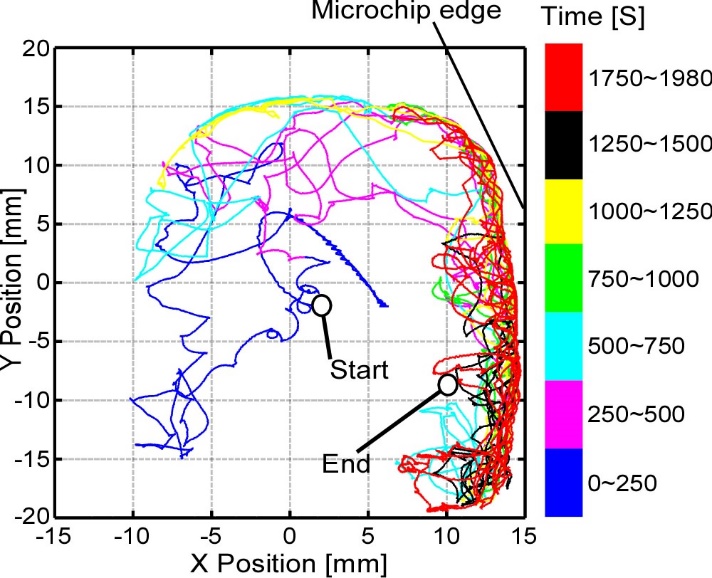
**Figure S1.** Calibration results of three main parameters for magnification ratio control of microscope. The function of *θ* (The dial rotational degree measured by the optical sensor) for the curve fitting and the coefficient of determination *R*2 are also shown. (**a**) Relationship between the magnification ratio and the pixel pitch of the captured image; (**b**) Relationship between the magnification ratio and the focal point distance of the microscope; (**c**) Relationship between the magnification ratio and the appropriate illumination strength of the microscope.



(a) Tracking duration: 32 min and 9 s, microchip dimensions: 30 × 30 × 0.1 mm

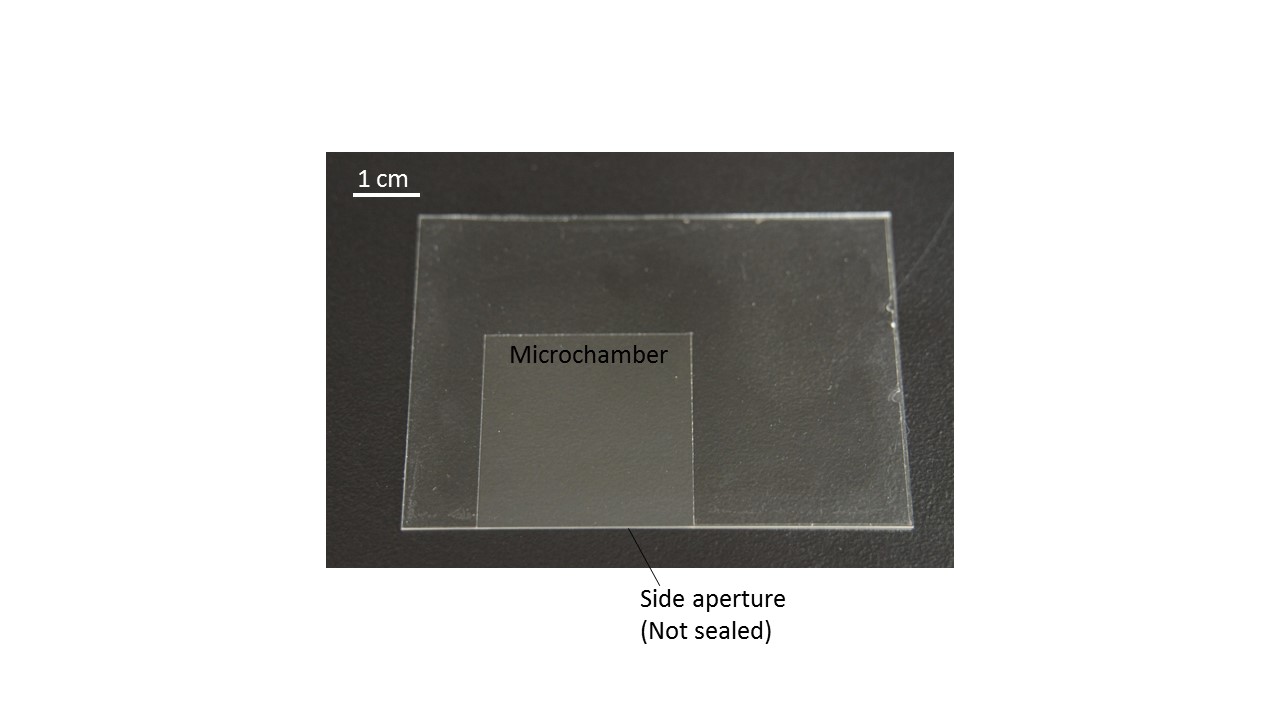


(b) Tracking duration: 44 min and 32 s, microchip dimensions: 30 × 30 × 0.1 mm



(c) Tracking duration: 33 min and 15 s, microchip dimensions: 30 × 40 × 0.1 mm

**Figure S2.** Swimming path of single *Paramecium* in three different tracking experiments.

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**Figure S3.** An overview of fabricated microfluidic chip. Chamber dimensions: 3 × 3 × 0.1 mm. The microtool can be inserted from the side aperture to apply stimulation.

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