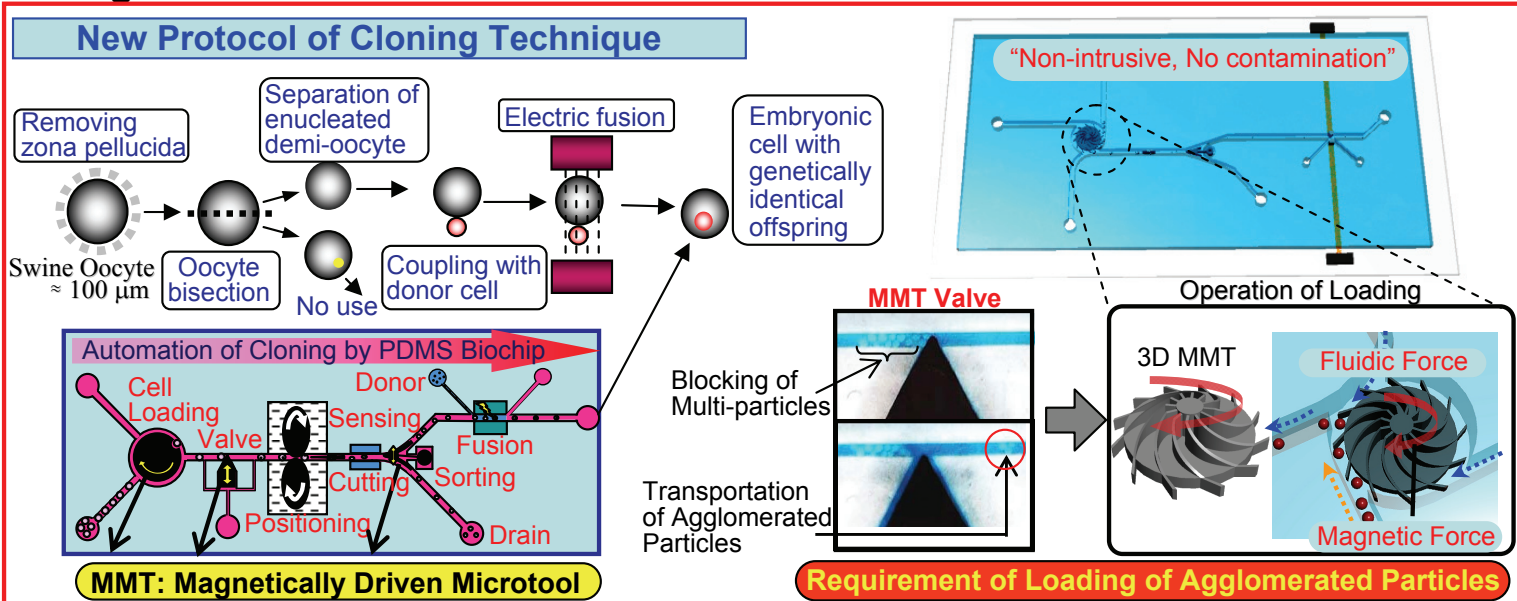


バイオチップ内で微粒子(卵子)を詰まらせずに1個ずつ送り出すには？

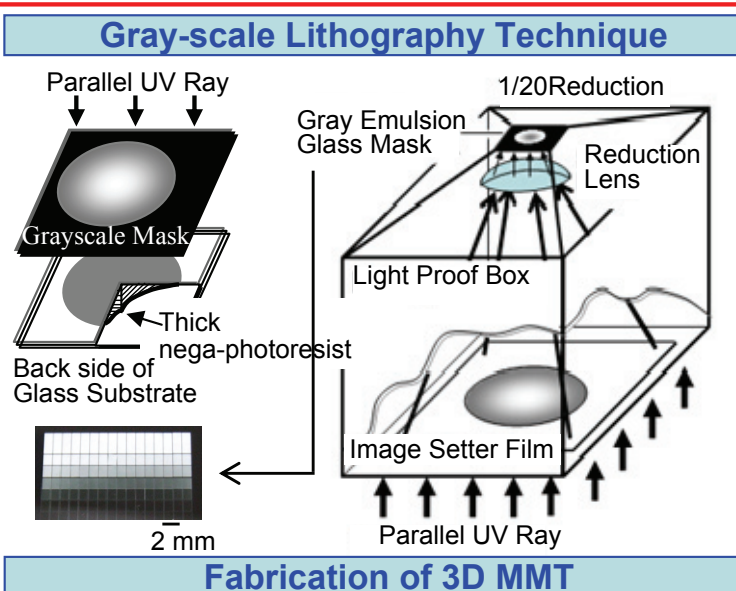
Abstract:

We present a novel fabrication method of **three dimensional polymeric magnetically driven microtools** (3D-MMT) for non-intrusive and no contamination experiments on a chip. A **grayscale photolithography technique** has been applied and produced **smoothly curved (100 μm gap) object** without steps. A wide range of on-chip application of microactuators by 3D-MMT have been proposed to complicated and sensitive motion such as **microloader**, uniquely actuated by a combination of **magnetic and fluidic force**.

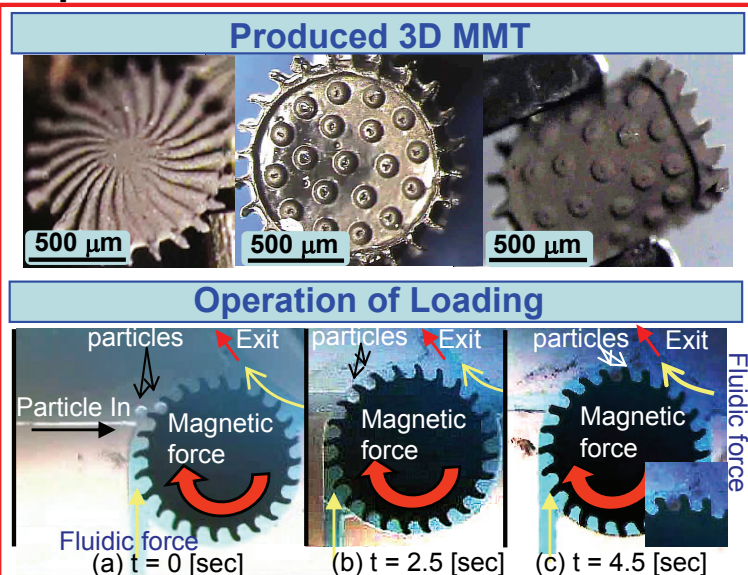
Background:



Fabrication:



Experiments:



Conclusions:

- We have developed 3D-MMT for cell-laden on-chip experiment.
- The 3D-MMT has a smooth curvature with 100 μm gap fabricated by gray-scale lithography techniques
- The loading function was obtained by rotation of 3D-MMT.
- Gear-shaped MMT improved the efficiency of loading of particles with a combination of magnetic and fluidic forces.

References:

Y. Yamanishi, S. Sakuma, F. Arai, "On-chip Cell Manipulation Systems -Part 5: Microparticle loading systems by magnetically driven microtool-", Proc. 2008 JEMS Conf. on Robotics and Mechatronics(ROBOMECH2008), 2P1-D15, Nagano, 2008