

バイオレジストを用いた多機能マイクロ流体チップ



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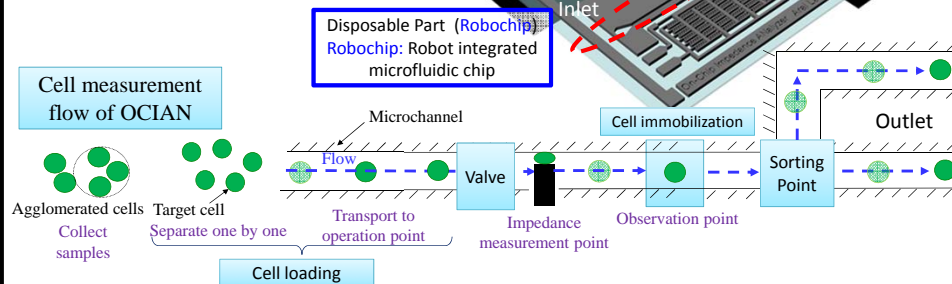
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温度応答性ゲルをパターン化し流体制御素子を集積化する!

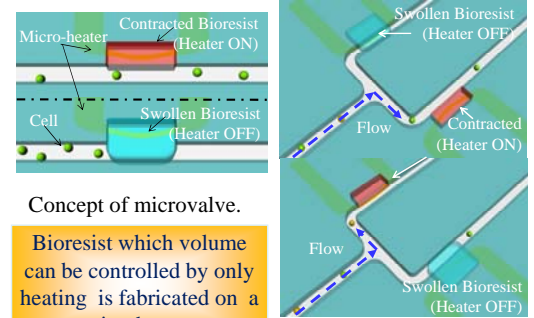
On-Chip Impedance Analyzer (OCIAN)

- (1) Mechanical impedance measurement in a flow environment
- (2) High speed and High resolution
- (3) Chip part is disposable

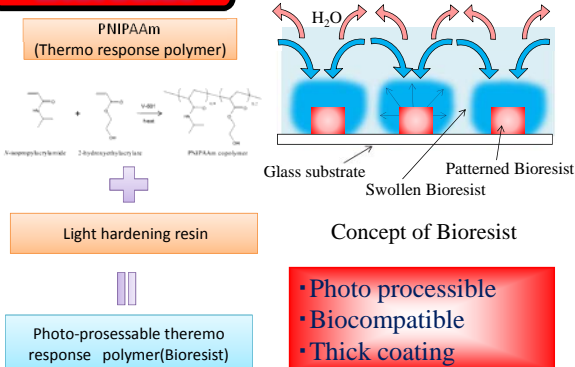


For high speed cell impedance measurement

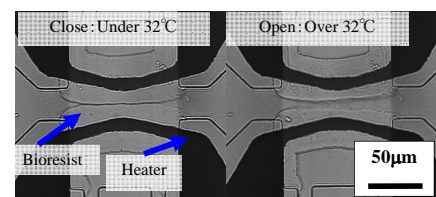
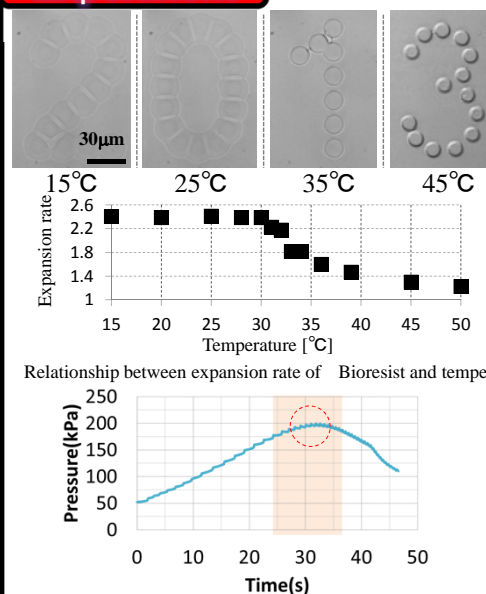
- Need to cell manipulation method.
- These method have to integrate easily.



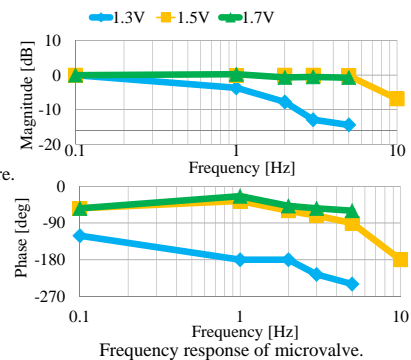
Biorecist



Experiment

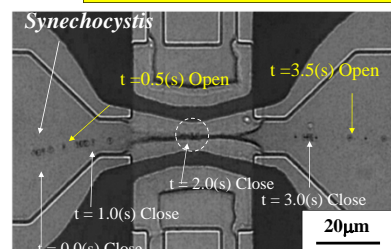
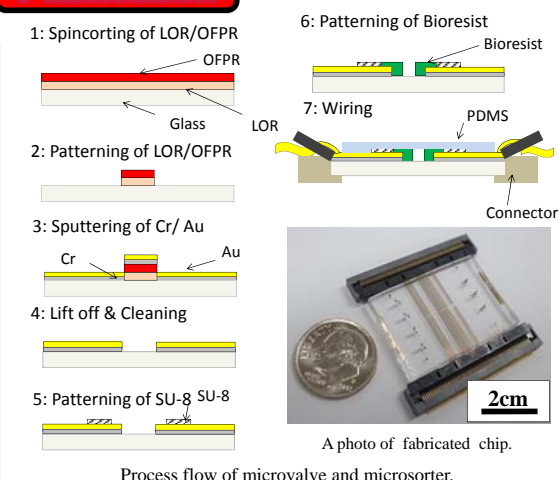


Demonstration of microvalve

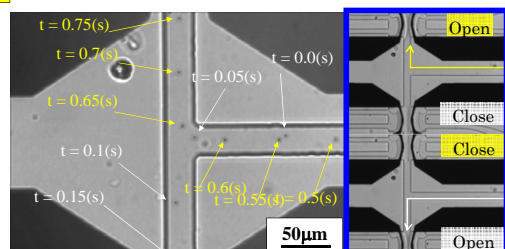


It can be actuated at 10Hz by applying only 1.5V.

Fabrication



Valve and Sorting experiment with Synechocystis at 1Hz



Conclusions

1. For the functional actuator which can be integrated in a microfluidic chip, we proposed and fabricated gel actuator by using Biorecist and microheater.
2. Proposed gel actuator is actuated by only heating.
3. The response of fabricated microvalve is demonstrated at 10Hz by applying only 1.5V and its leakage pressure is up to 200 kPa.

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