On-Chip Impedance ANAnlyzer (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 use cell manipulation method.
- These methods have to integrate easily.

Experiment

- Relationship between expansion rate of Bioresist and temperature.
- Frequency response of microvalve.

Fabrication

1. Spincoating of LOR/OFPR
2. Patterning of LOR/OFPR
3. Sputtering of Cr/Au
4. Lift off & Cleaning
5. Patterning of SU-8 SU-8
6. Patterning of Bioresist
7. Wiring PDMS

Conclusions

1. For the functional actuator which can be integrated in a microfluidic chip, we proposed and fabricated gel actuator by using Bioresist 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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