

Jaewon PARK

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 Webpage: <https://sites.google.com/view/biomems>

Education

- Ph.D. Electrical Engineering, Texas A&M University, College Station, TX, USA
- B.S. Electrical Engineering, Korea University, Seoul, Korea

Professional Experience

- 2024 – Present Associate Professor, Dept. of Electro-Mechanical Systems Engineering, Korea University, Sejong, Korea
- 2023 – 2024 Assistant Professor, Dept. of Biomedical Engineering, Konkuk University, Chungju, Korea
- 2015 – 2022 Assistant Professor, Dept. of Electrical and Electronic Engineering, Southern University of Science and Technology (SUSTech), Shenzhen, China

Published 45 SCI Journal papers

2 Book Chapters

30+ Conference proceedings

Domestic Patents: 3

International Patents: 7

Academic achievements

Wearable devices and sensors

- Wearable intracranial pressure sensor (ICP)
- Liquid metal-based sensors

Biomedical diagnosis chip

- Detection and quantification of rare cancer cells

Organ-on-a-Chip (Microphysiological Systems)

- Brain-on-a-Chip: Model for myelination, neural stem cell differentiation
- Blood barrier models

Microbes as Biorefinery for Bioenergy and biomedical materials

- Microalgae metabolite analysis chip
- Optimization of cell growth and metabolite production with biochip

Research interests

MicroChip BioSystems Lab.에서는 함께할 학생들을 기다리고 있습니다.

연구분야

- 액체 금속을 이용한 Wearable/stretchable 센서 개발
- 반도체 공정을 이용한 미세 유체 기반 의료 진단 칩
 - ✓ 암세포 진단, 질병 진단 바이오칩
- Organ-on-a-Chip (생체전자)
 - ✓ Brain-on-a-Chip, Blood barrier models
- 녹조류 성장 분석 칩(Biorefinery on a Chip)

지원자격

- 학부생 인턴쉽
- 학/석사 연계과정
- 석사, 박사, 석/박사 통합과정

관심 연구분야, 진학 목적을 포함한 간단한 자기소개서 이메일 송부

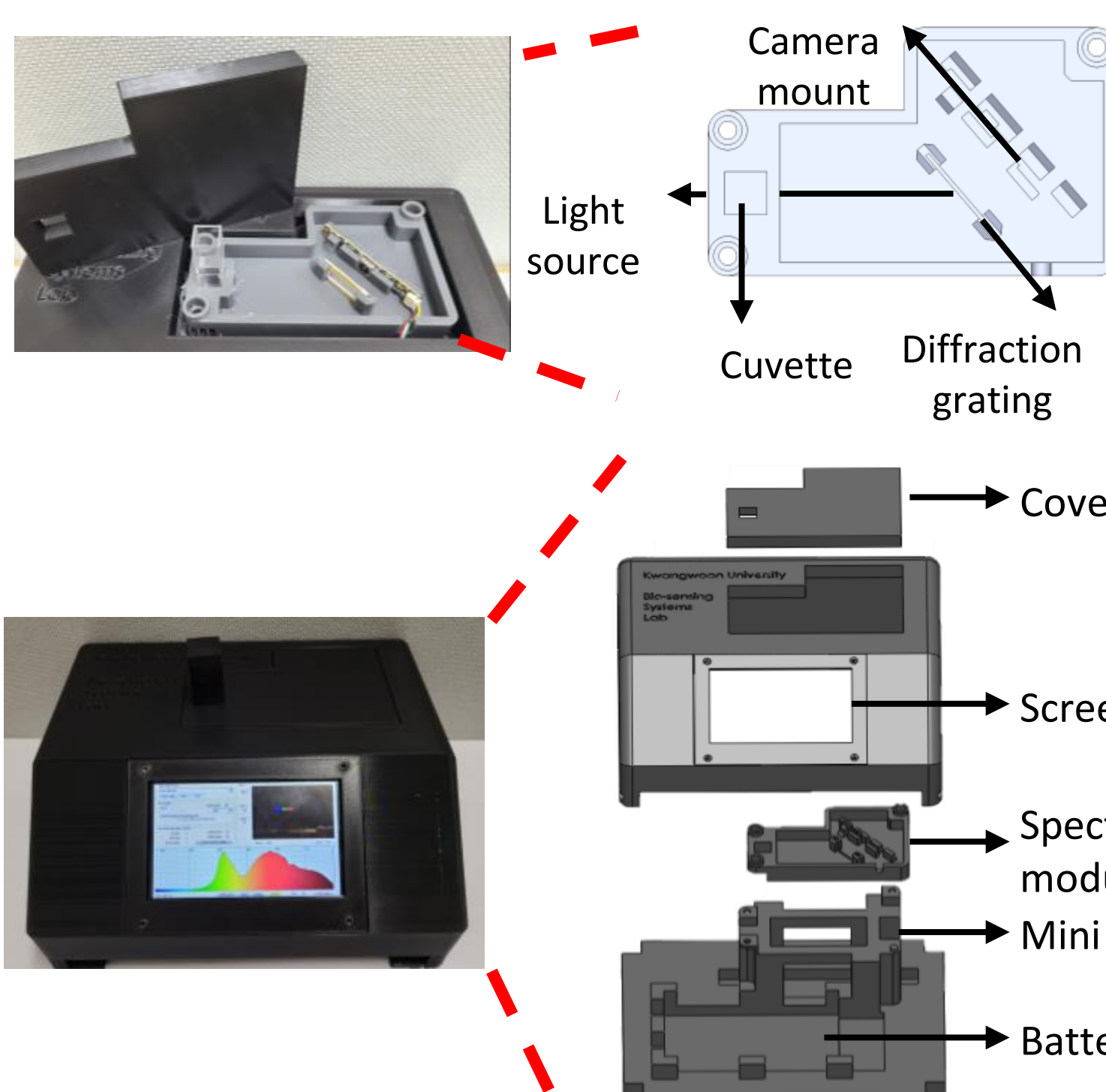
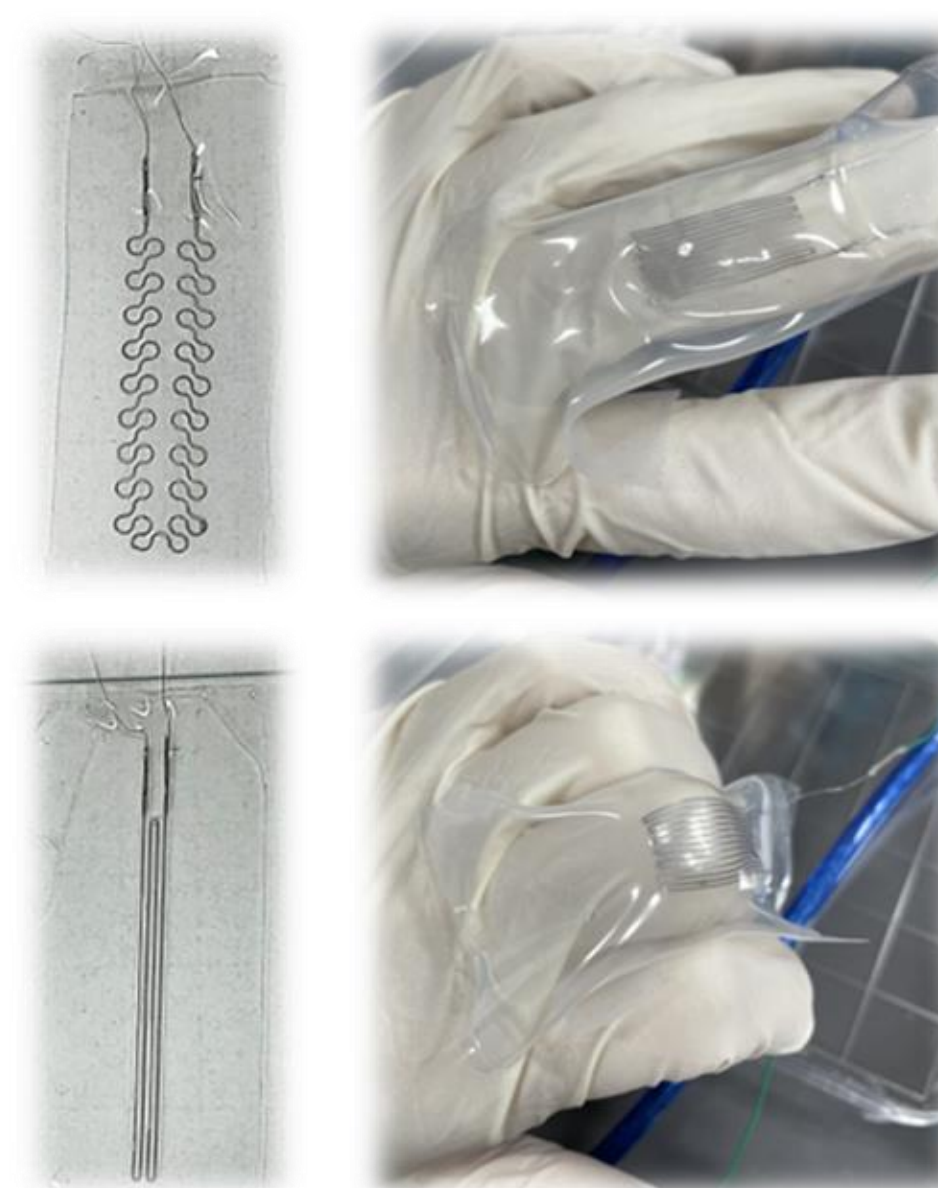
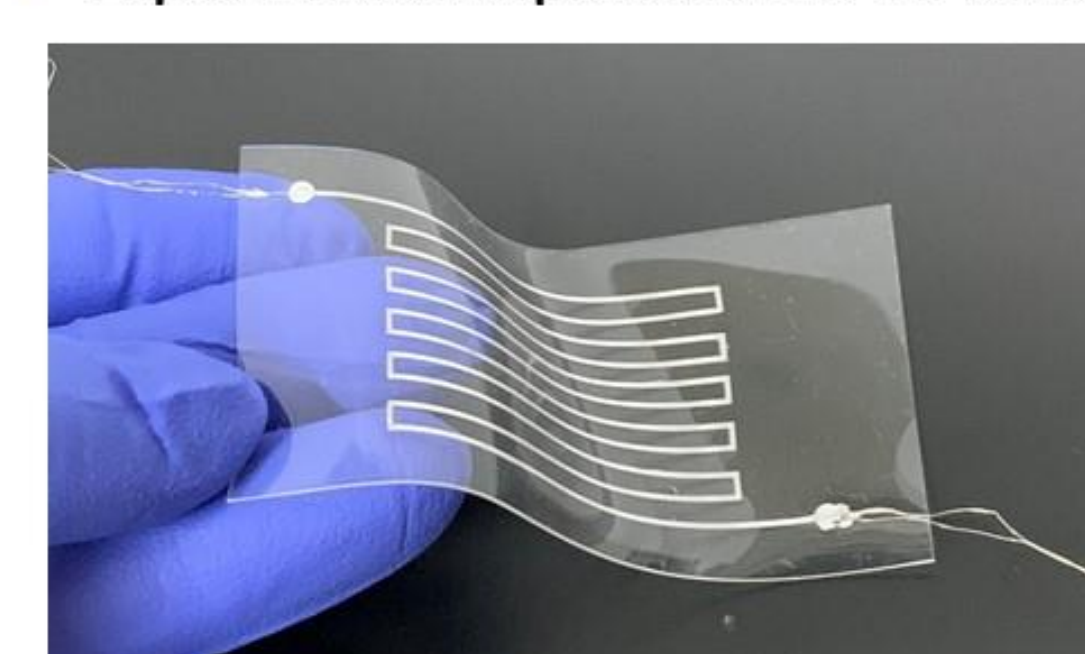
Liquid metal sensor

- Increased ICP in infants may be the clinical expression of several intracranial pathologies
- ⇒ **Liquid metal-based non-invasive, real-time monitoring ICP sensor for infants**

Infant fontanel

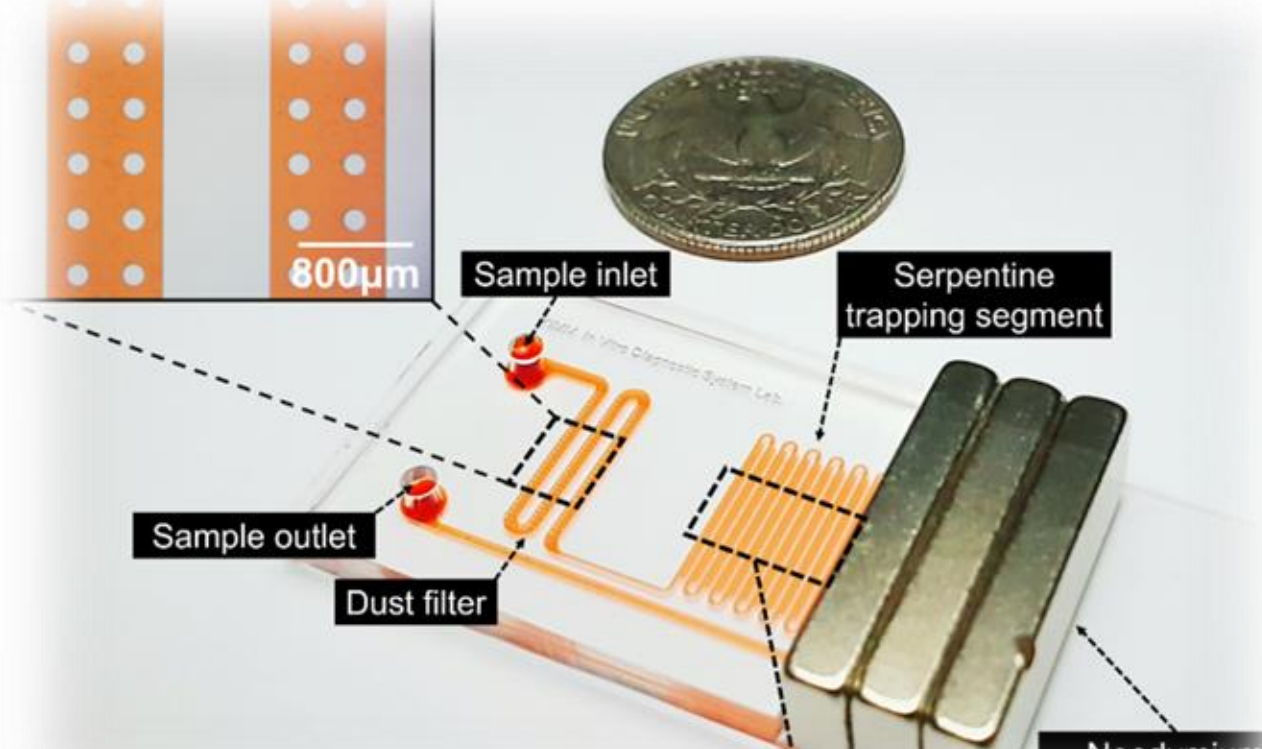
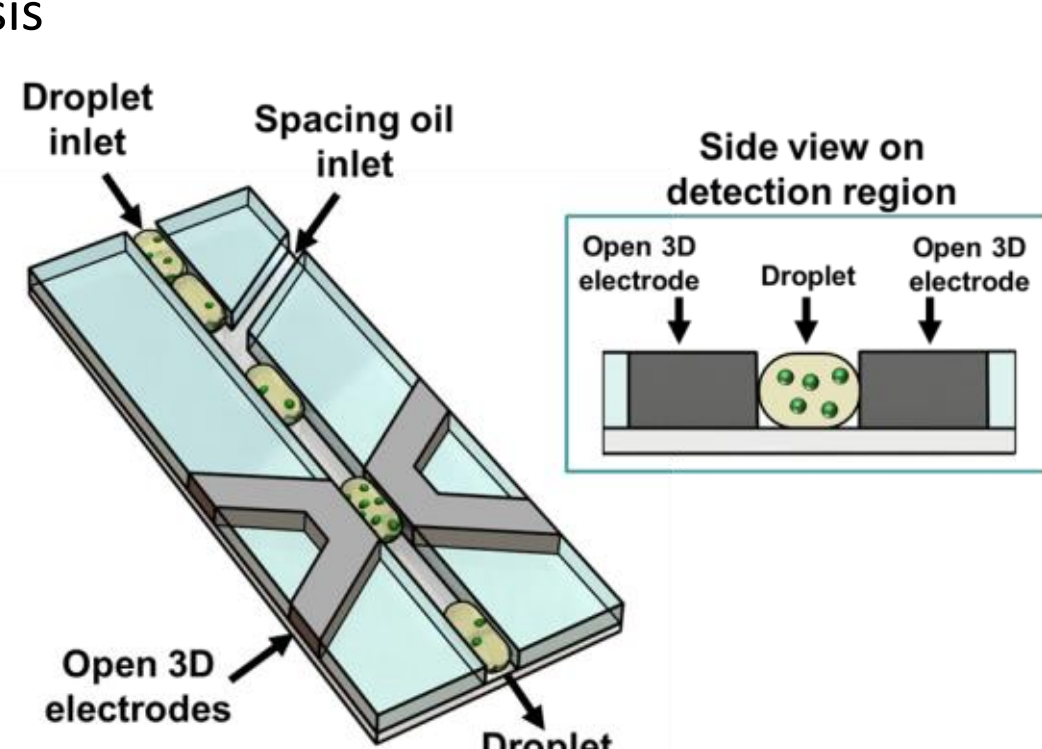


Liquid metal encapsulated thin ICP sensor



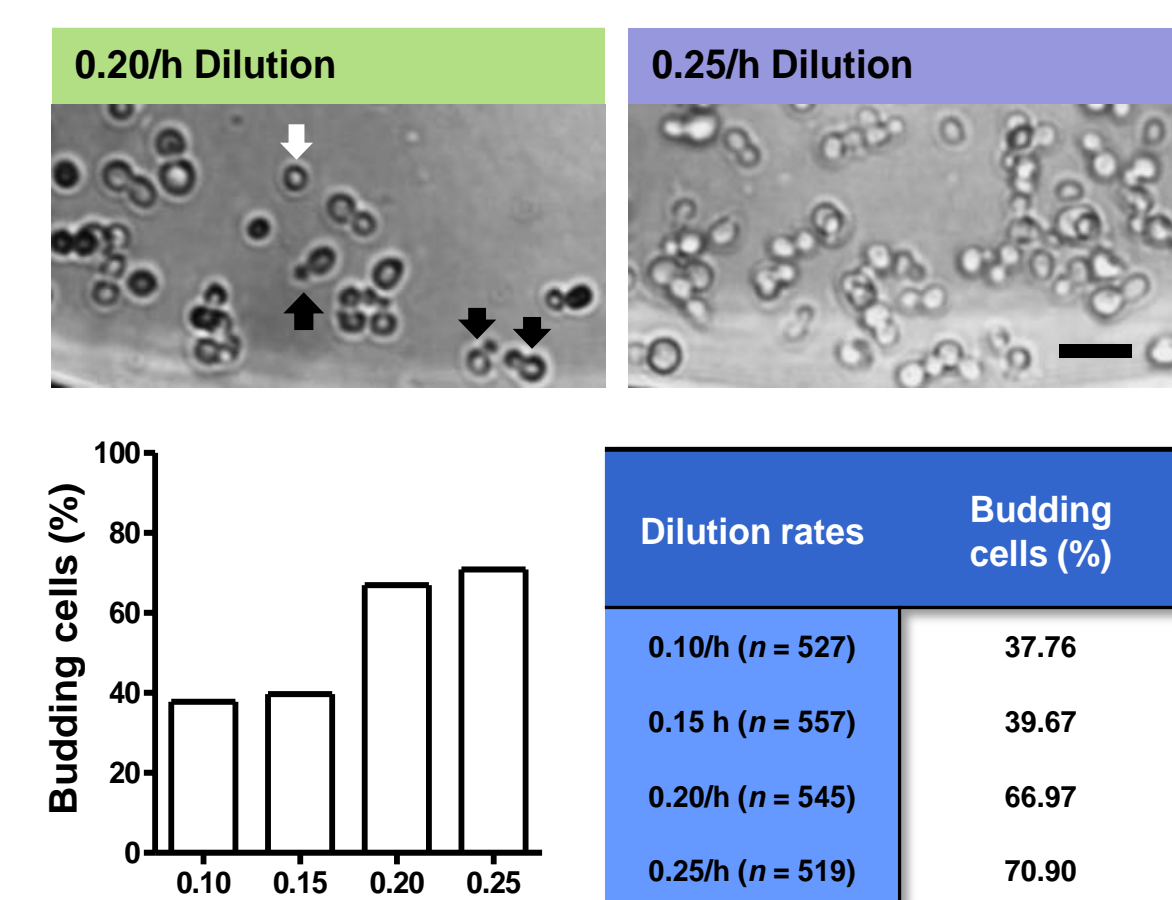
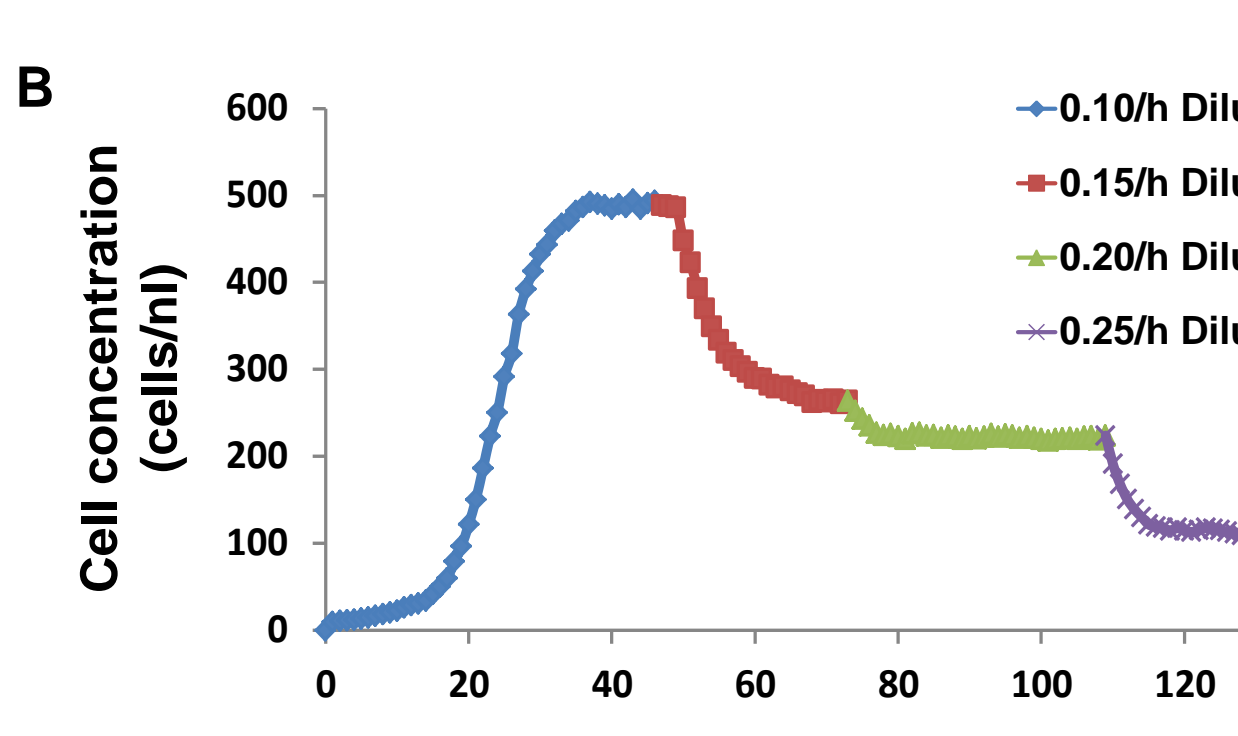
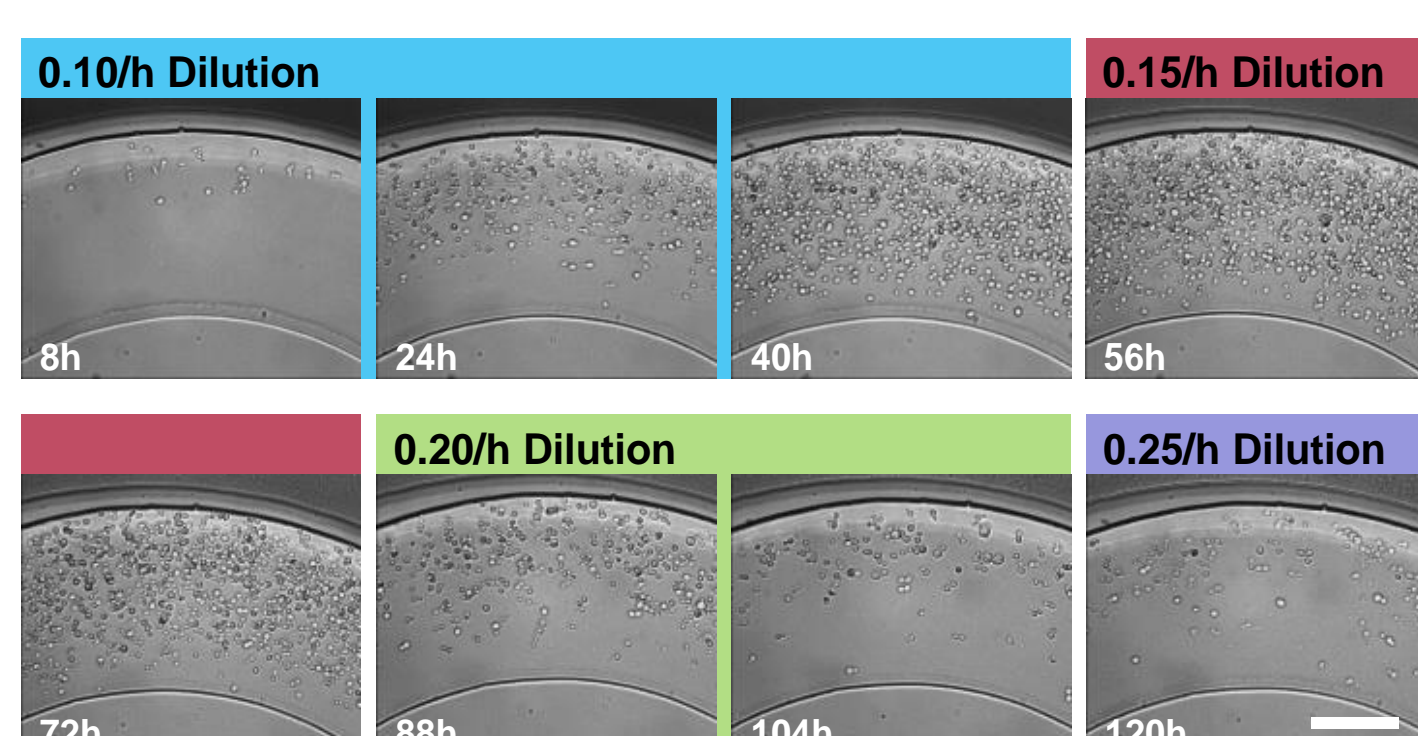
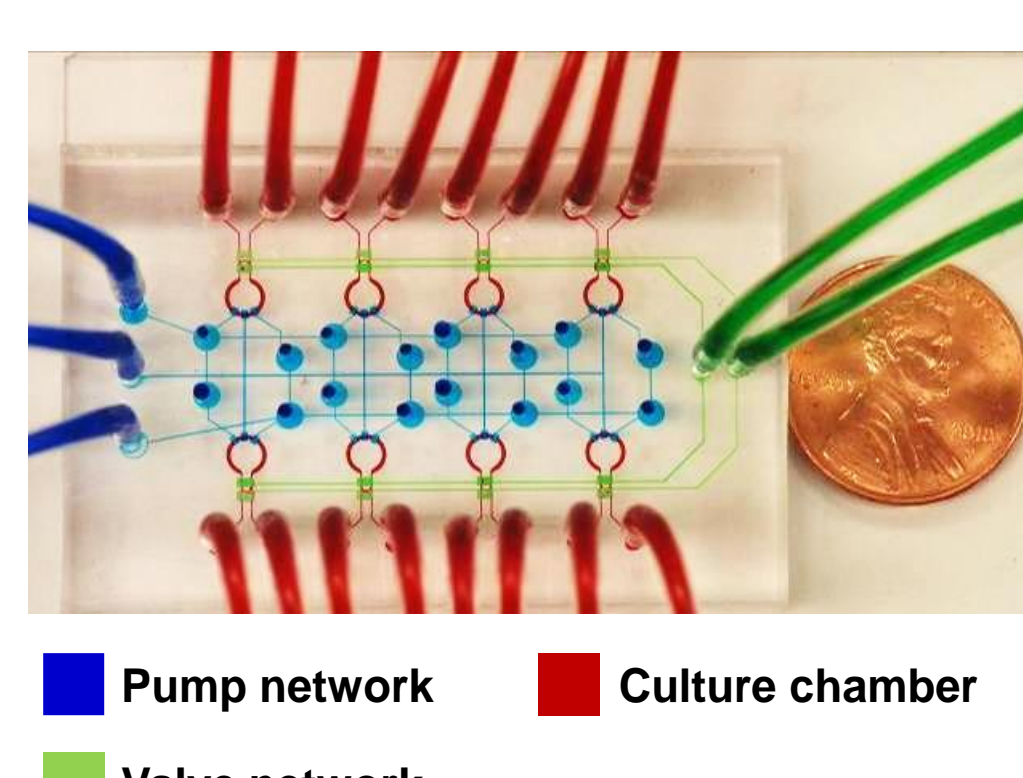
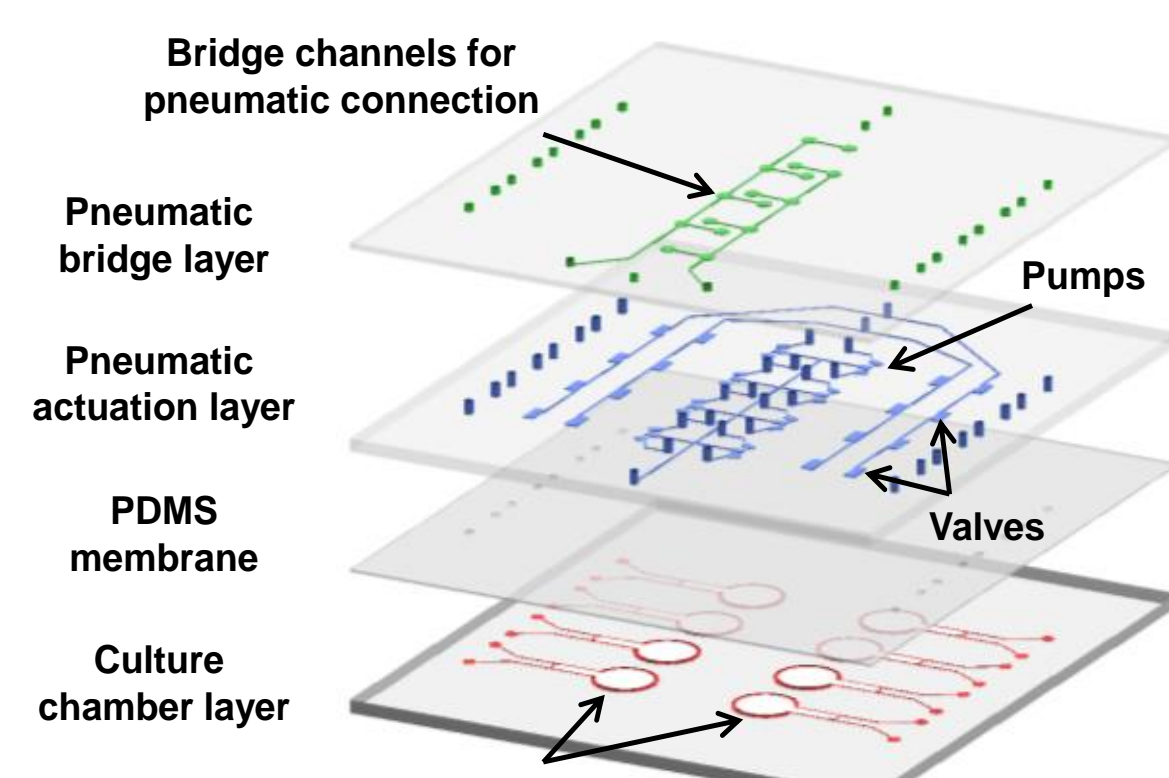
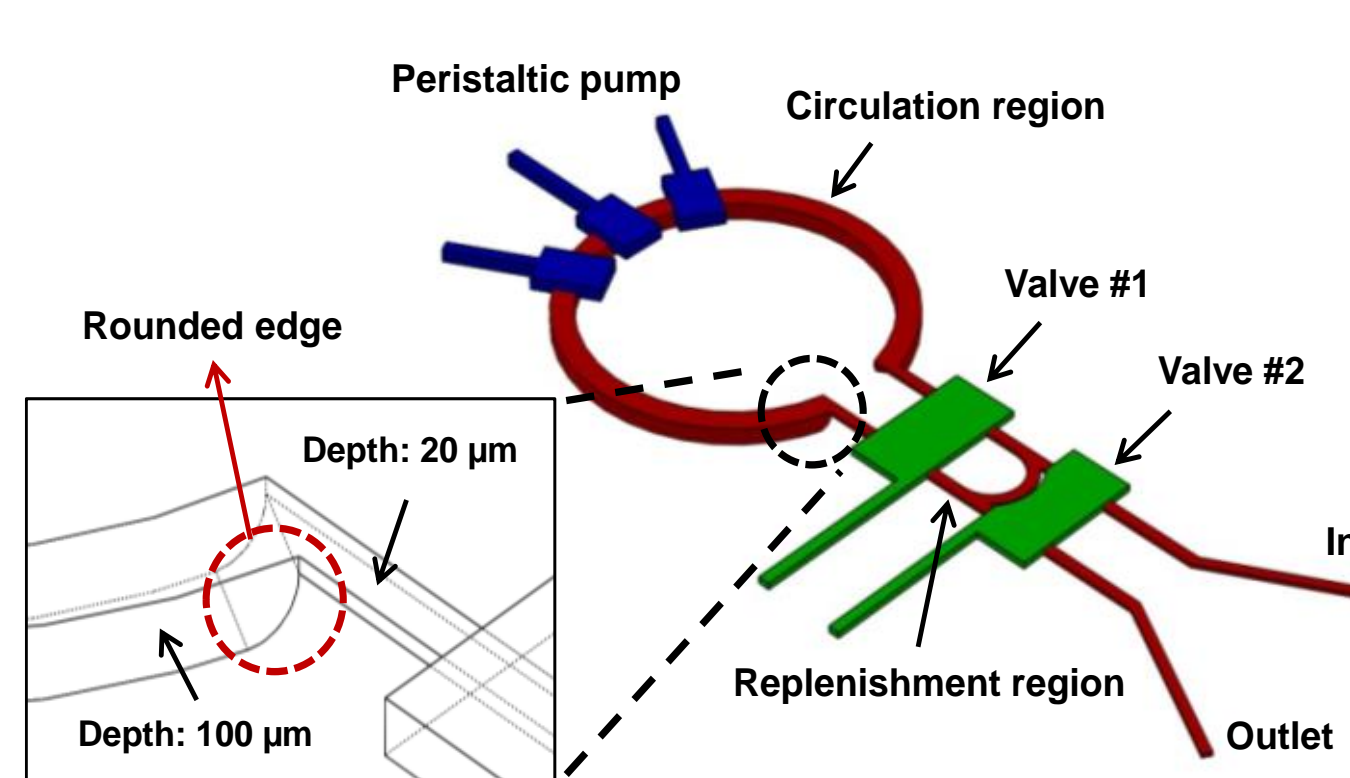
PC-based optical detector

- ### Diagnosis chip
- Detection of cCPC using microfluidic platform
 - Metastasis diagnosis with magnetic gradient
 - 3D Liquid metal Capacitive/Impedance Sensor



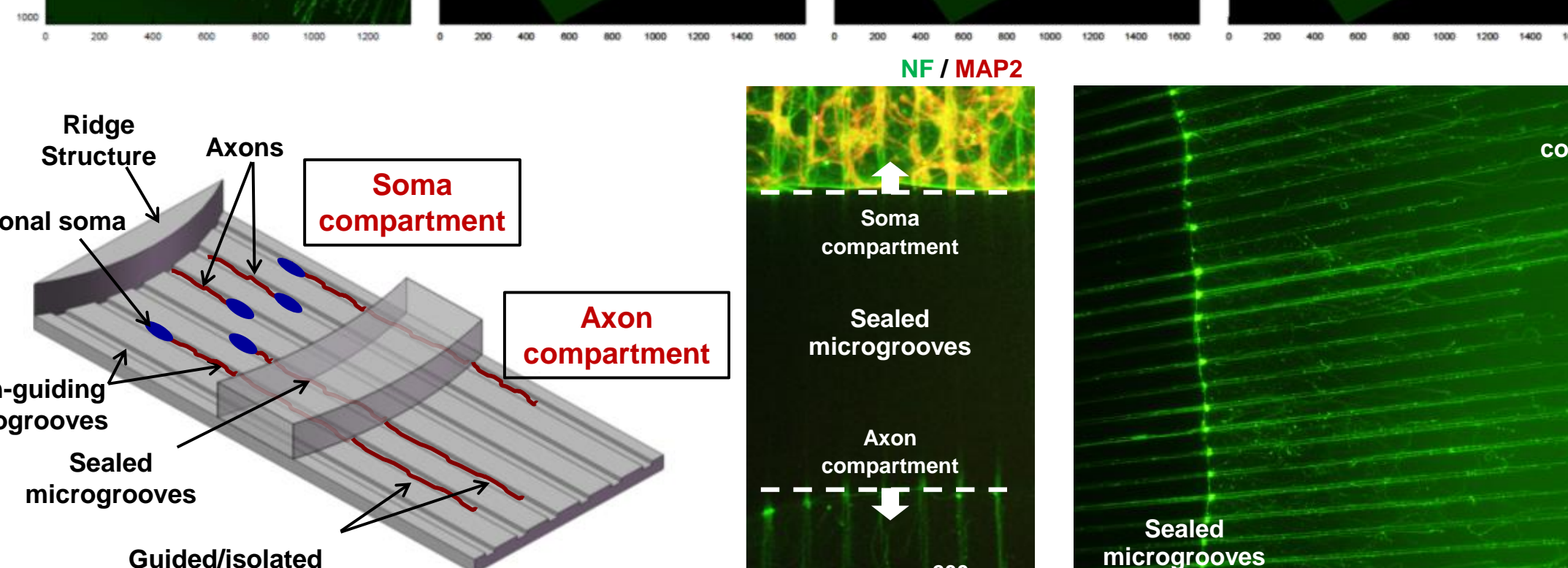
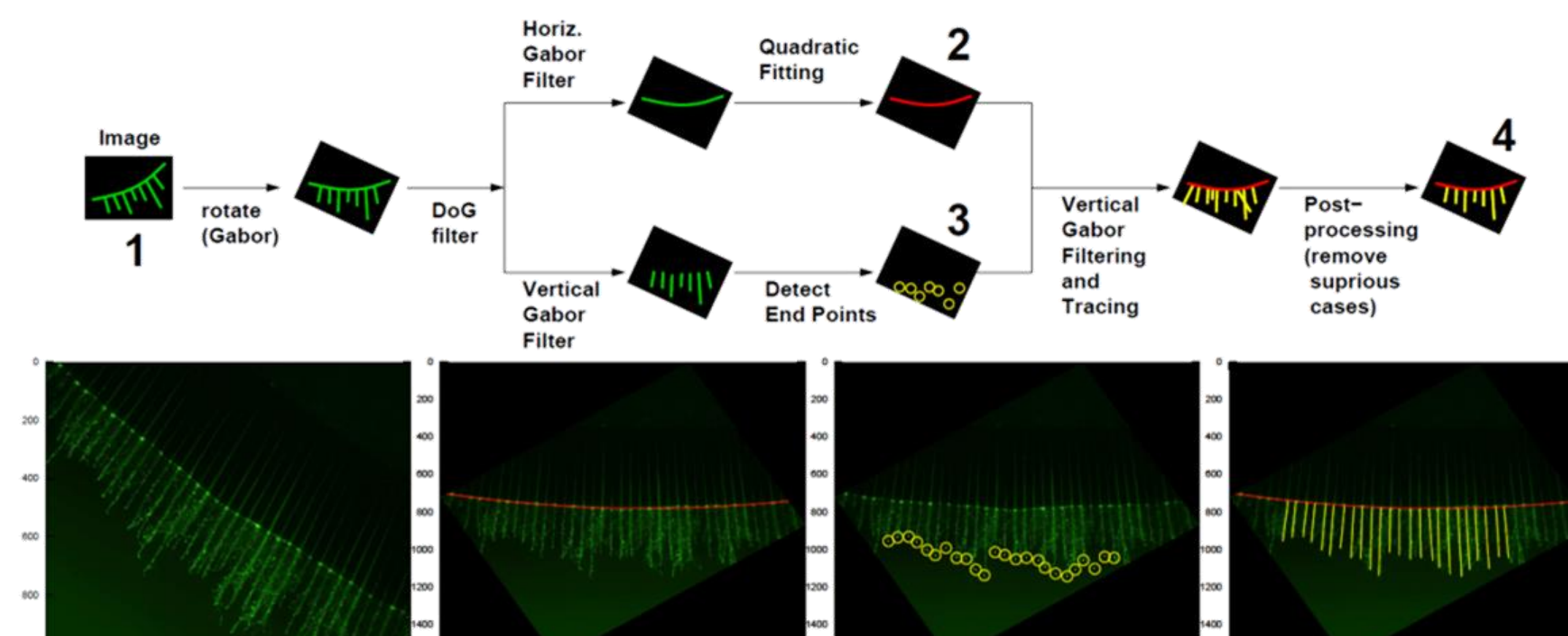
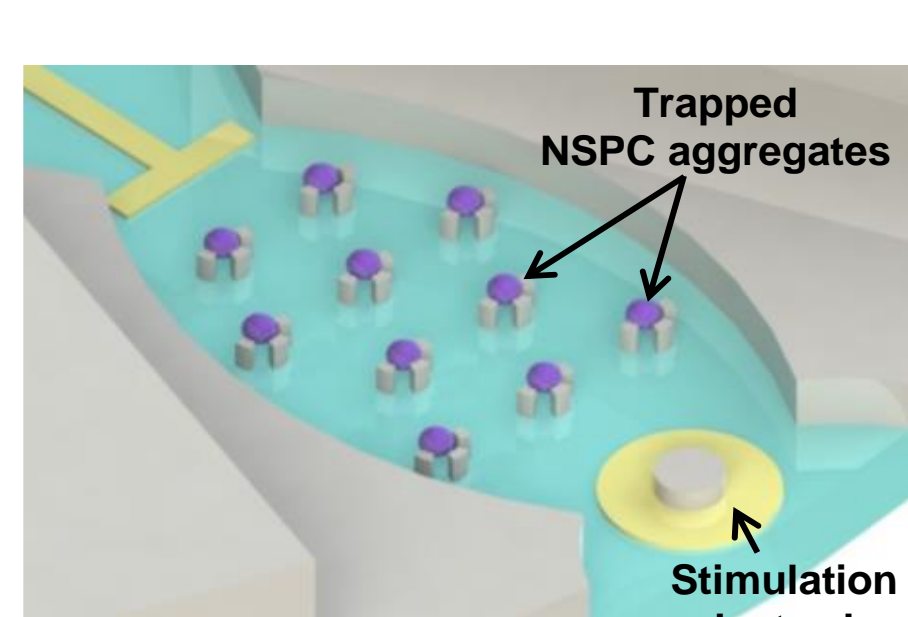
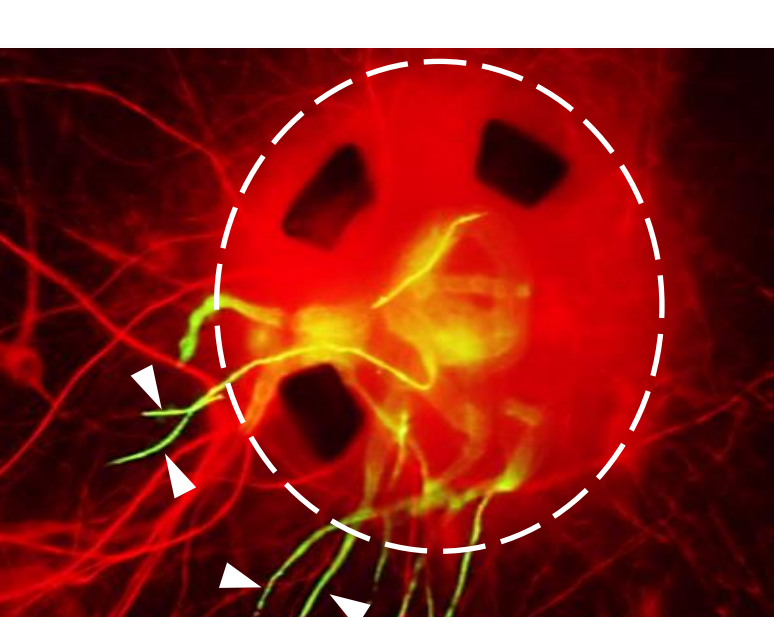
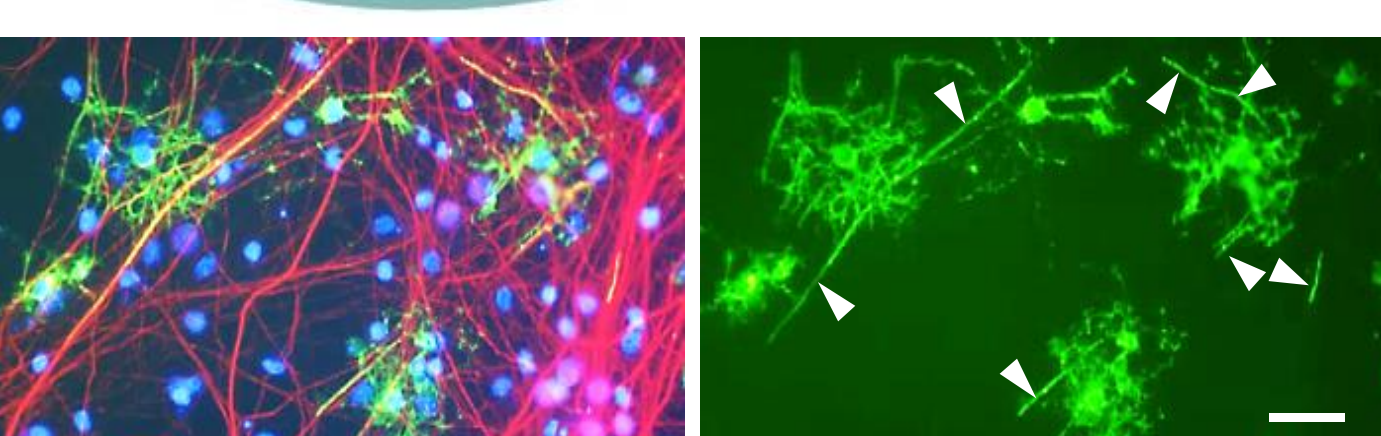
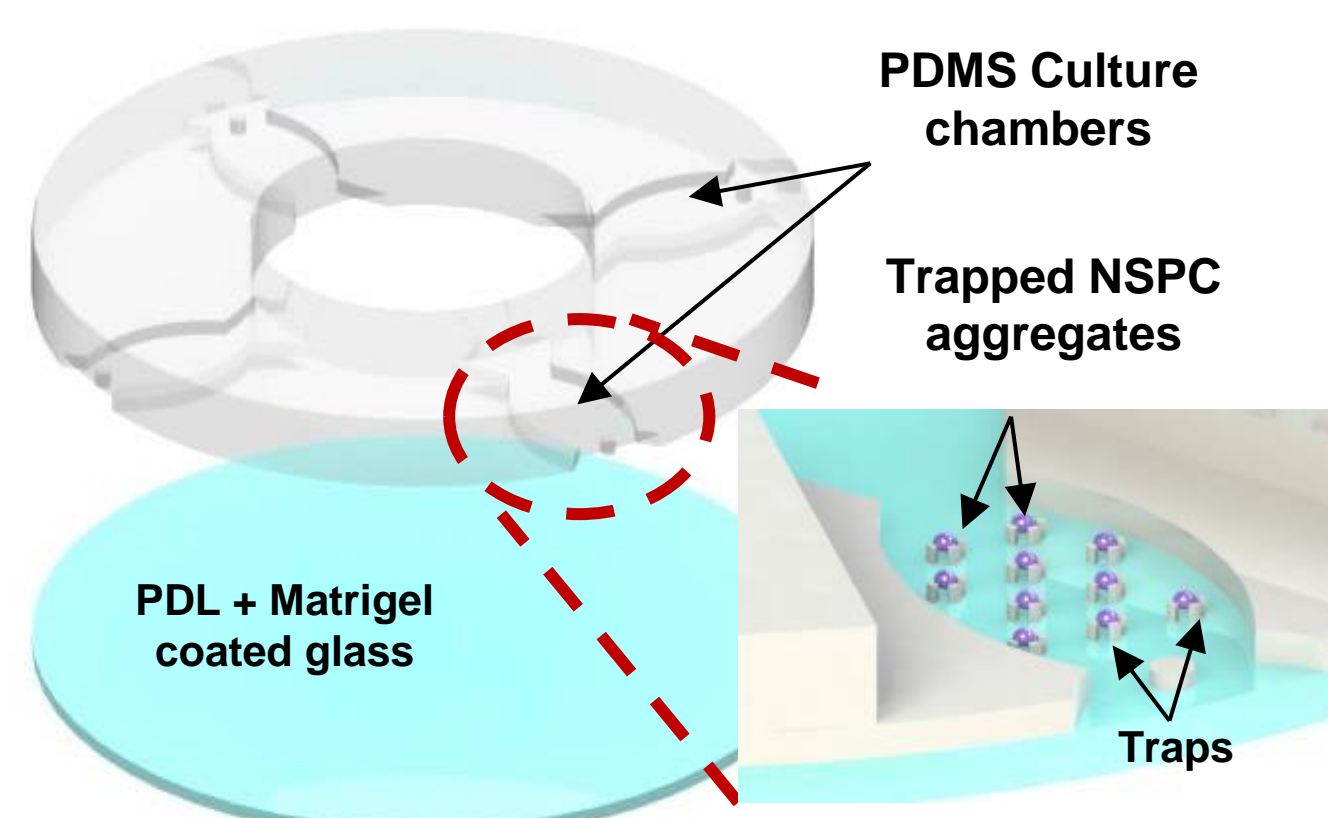
Micro Bio-reactor

- Novel two-depth reactor design for small-volume fraction replenishment
- 1% of 250 nl volume at broad dilution rates (0.01-1/h with 0.01/h resolution)



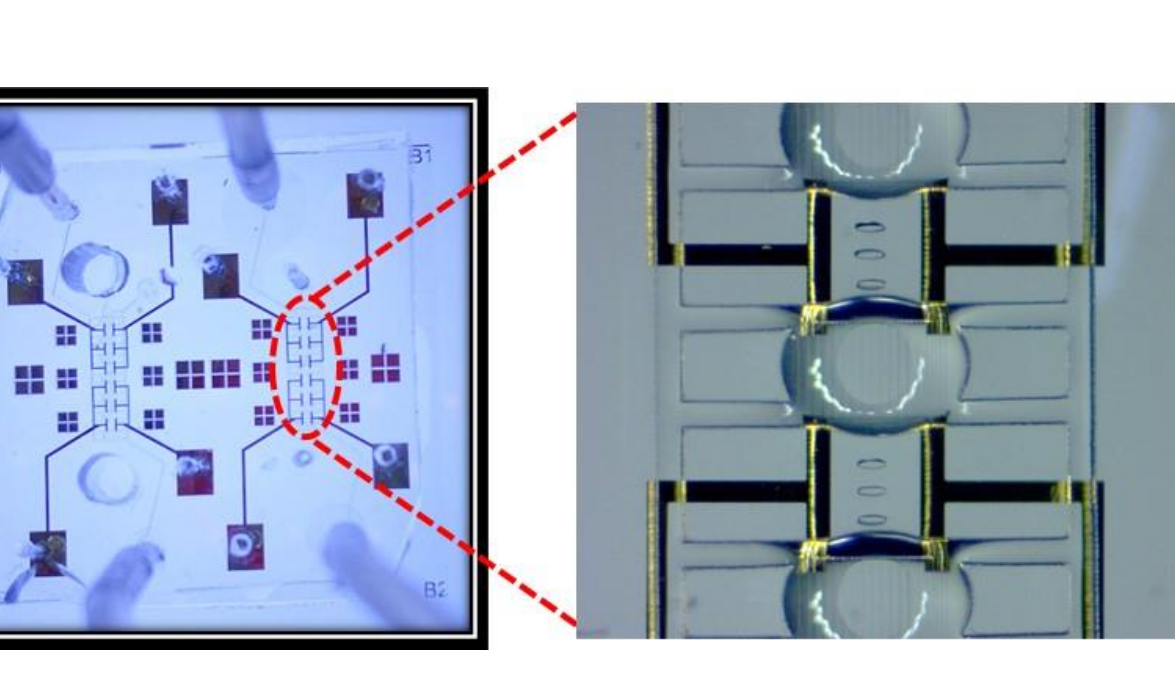
Brain-on-a-Chip

- NSPC culture biochip as an *in vitro* model for CNS myelogenesis
- Axon regeneration chip

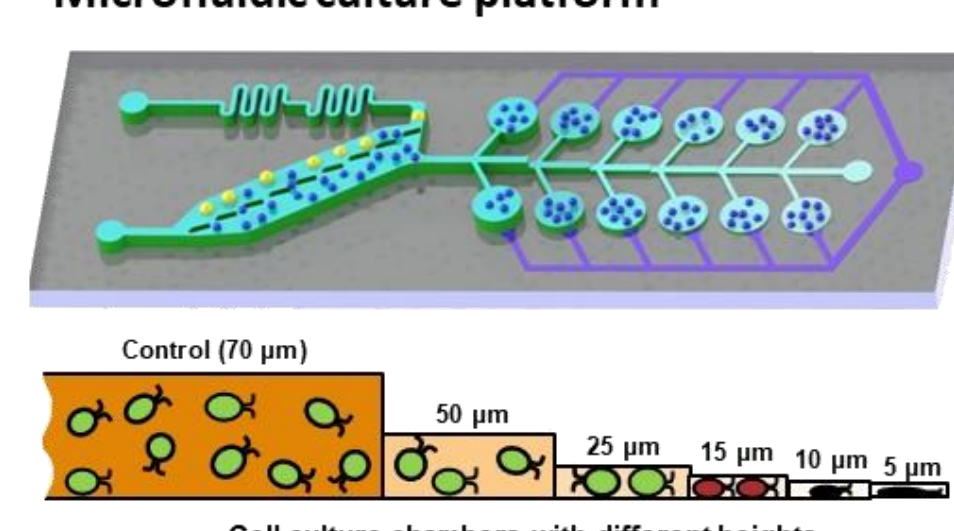


Biorefinery-on-a-Chip

- High-throughput screening devices for Microalgae applications



Microfluidic culture platform



Size-based cell separation

