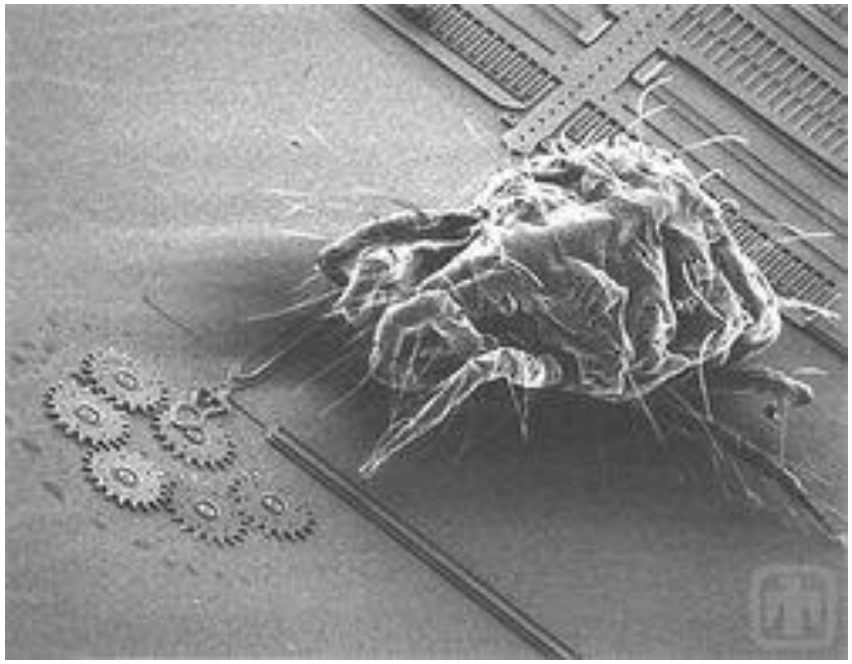
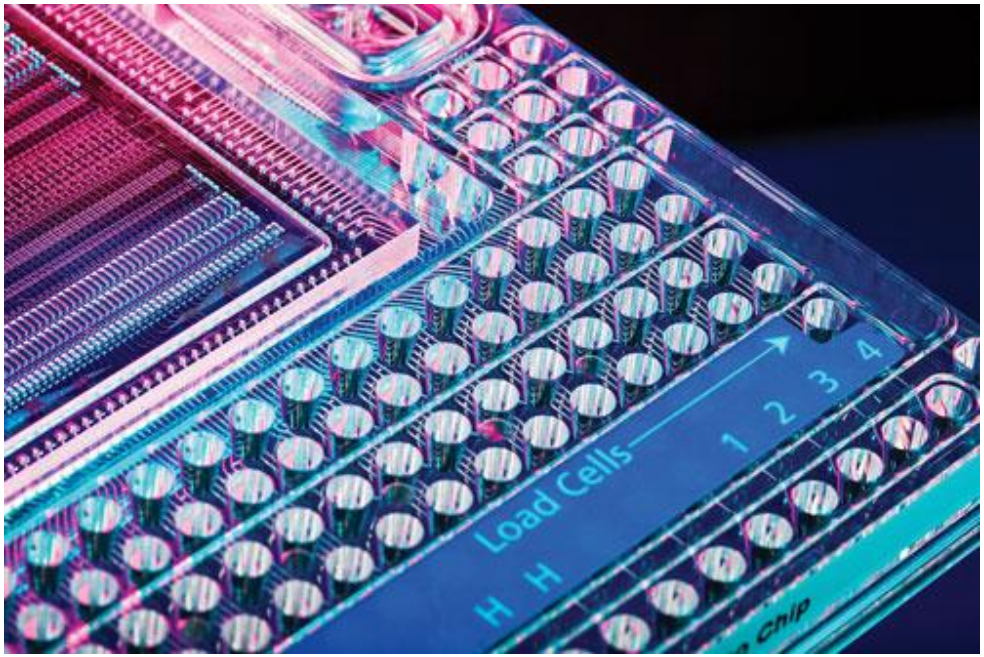
BioMEMS

Dean Ho, UCLA
Peng Liu, Tsinghua University

CAFOE 2013





Sandia National Laboratories
Fluidigm, Inc.

Current Needs in Diagnostics and Therapeutics

- **Diagnostics**

  - Conventional Approaches: Laborious, Issues with sensitivity, specificity

  - Example: Misdiagnosis in pediatric appendicitis

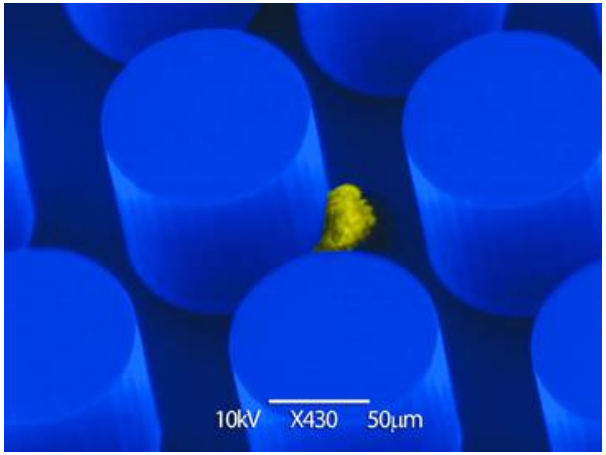
- **Therapeutics**

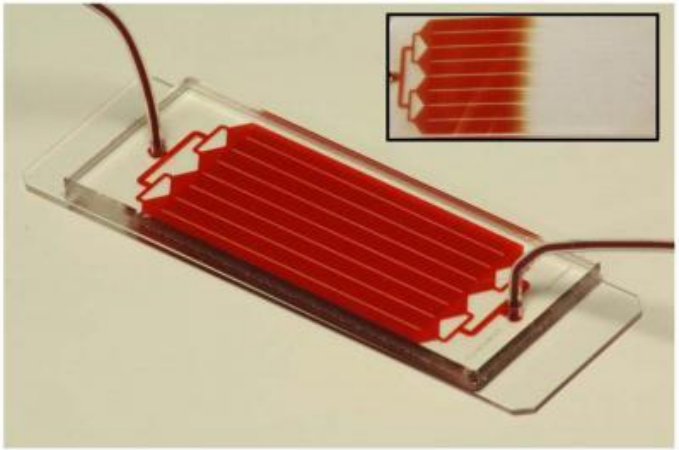
  - Conventional Approaches: Burst release, toxicity, combinatorial therapy, fouling/interfaces

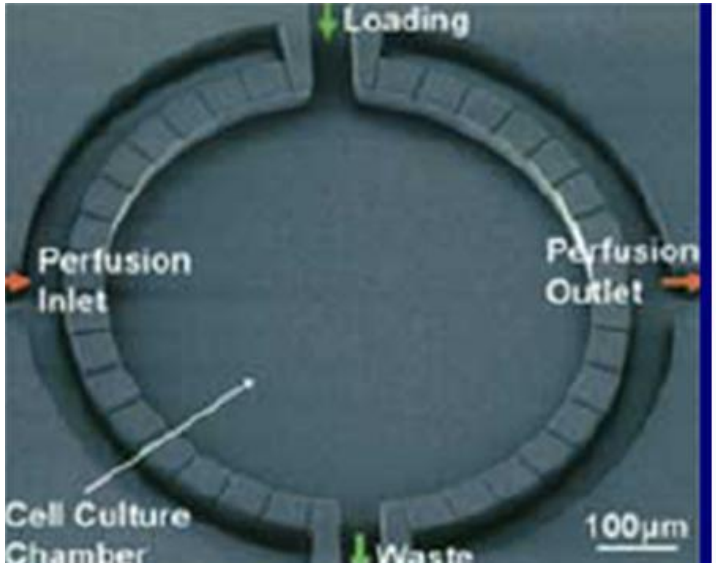
  - Example: Myelosuppression with current formulations of chemotherapeutics

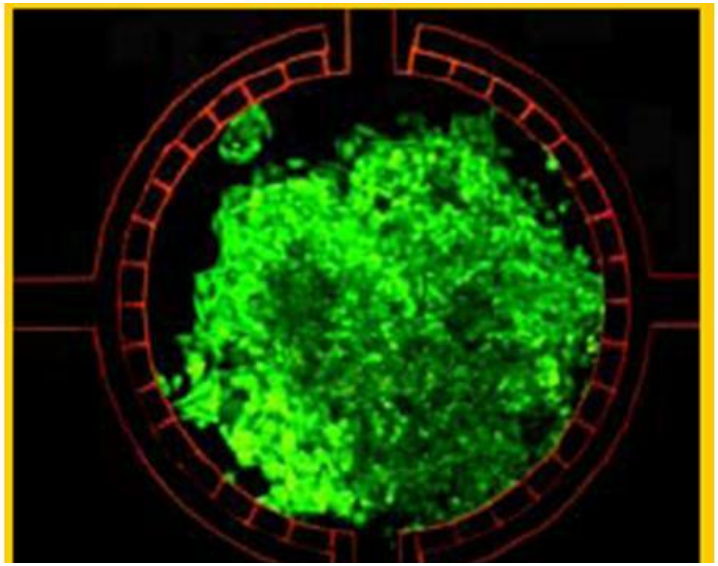
Next-Generation Medicine

- **Diagnostics**





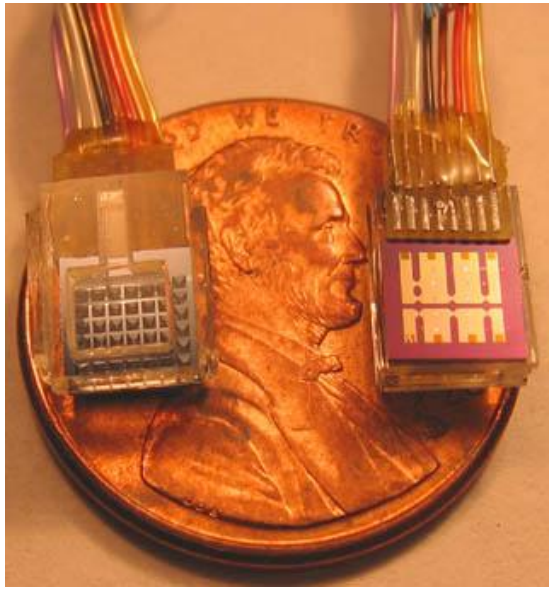


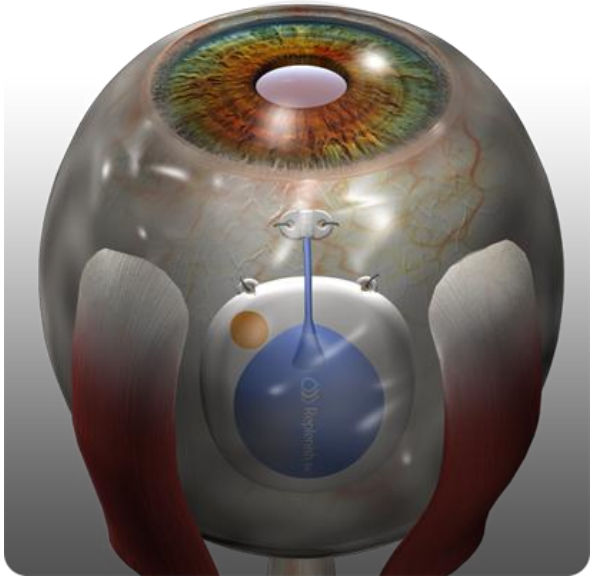


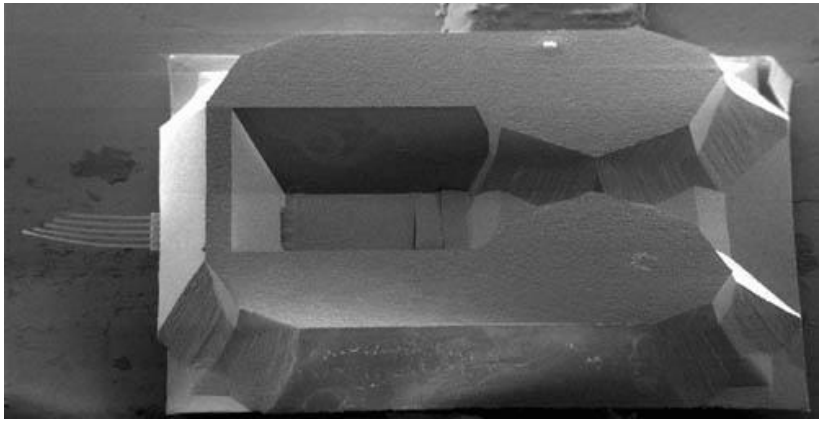
Mirkin et al.,
Toner et. al,
Lee et. al

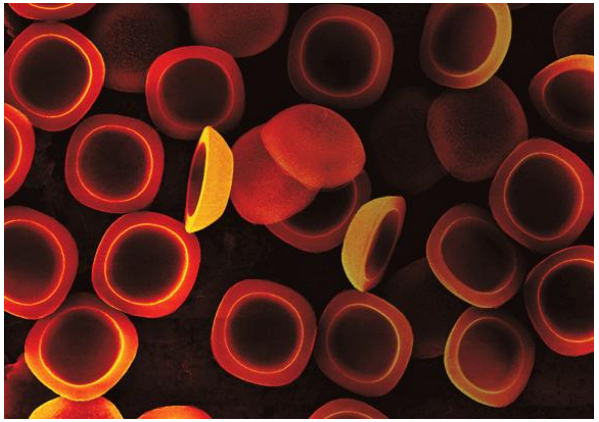
Next-Generation Medicine

- **Therapeutics**









Cima et al.,
MicroCHIPS, Inc.
Replenish, Inc.
Espinosa et al.
Ferrari et al.

Emerging Developments in BioMEMS

Tejal Desai, UC San Francisco
“Micro and Nanostructured Interfaces for Overcoming Drug Delivery Barriers**”**

Yanyi Huang, Peking University
“Quantitative Study of the Dynamic Behavior of Cells through Microfluidic Devices at Single Cell Resolution**”**

Vincent Gau, Genefluidics, Inc.
“Translational Development of Clinical Diagnostic Platforms**”**

Zhe Yu, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences
“Highly-Compliant, Conformal and Stretchable Microelectrode Arrays**”**