

# Workshop on Tissue Chip Platforms as Tools for Testing Biocompatibility and Biotoxicity of Biomaterials

October 24 – 25, 2019

## National Institutes of Health Sponsors:

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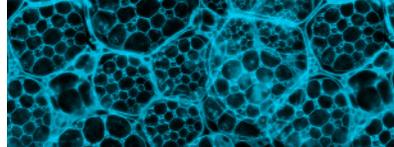
## Agenda

### Thursday, October 24, 2019

- 8:00 a.m.**            **Registration**
- 8:30 a.m.**            **Welcome and Introductions**  
*Les Reinlib, Ph.D., National Institute of Environmental Health Sciences*  
*Nadya Lumelsky, Ph.D., National Institute of Dental and Craniofacial Research*  
*Richard Paules, Ph.D., National Institute of Environmental Health Sciences*
- 9:00 a.m.**            **Keynote: Tissue Chips and Their Potential for Evaluating Biomaterials**  
*Gordana Vunjak-Novakovic, Ph.D., Columbia University*

### Session One: The Biomaterials Perspective

- 9:30 a.m.**            **Tissue Engineered Systems to Assess Materials Biocompatibility – Gaps and Opportunities**  
*David Kaplan, Ph.D., Tufts University*
- 9:50 a.m.**            **Biomaterial Surfaces and Surface Byproducts: Understanding Their Effects on Biology as Assessed in a Physiologically Relevant Environment**  
*Carmem Pfeifer, D.D.S., Ph.D., Oregon Health and Science University*
- 10:10 a.m.**           **Interfacing Degradable Biomaterials and in vivo: From Tissue Regeneration to Cancer**  
*Fan Yang, Ph.D., Stanford University*
- 10:30 a.m.**           **Biocompatibility of Biomaterials in Tissue Chips and Tissue Chips for Assessing Biomaterial Biocompatibility**  
*Buddy Ratner, Ph.D., University of Washington*
- 10:50 a.m.**           **Panel Discussion**
- 11:20 a.m.**           **Lunch Break**



## Session Two: The Tissue Chips Perspective

- 12:50 p.m.**            **Biowire Models of Healthy and Diseased Myocardium**  
*Milica Radisic, Ph.D., University of Toronto, Toronto General Research Institute*
- 1:10 p.m.**            **Human Organs-on-a-Chip: Microengineered Biomimicry of Human Physiological Systems**  
*Dan Huh, Ph.D., University of Pennsylvania*
- 1:30 p.m.**            **Exploiting Microphysiological Systems for Assessing Biological Performance of Materials**  
*Kevin Healy, Ph.D., University of California, Berkeley*
- 1:50 p.m.**            **Of and About Biomaterials: Tissue Chip Bioreactors and Perfusion Control Systems**  
*John Wikswo, Ph.D., Vanderbilt University*
- 2:10 p.m.**            **Panel Discussion**
- 2:40 p.m.**            **Break**

## Session Three: Evaluating and Monitoring Biocompatibility

- 3:00 p.m.**            **Biomaterials to Control Cell Fate**  
*Sharon Gerecht, Ph.D., Johns Hopkins University*
- 3:20 p.m.**            **Tissue Models of Host Responses to Biomaterials**  
*Andres Garcia, Ph.D., Georgia Institute of Technology*
- 3:40 p.m.**            **Tissue Chips and Materials: Cross-Pollination or Cross-Contamination?**  
*Christopher Chen, M.D., Ph.D. Boston University, Harvard University*
- 4:00 p.m.**            **Biomaterial-based Fibrous Models of Connective Tissue Growth and Healing**  
*Helen Lu, Ph.D., Columbia University*
- 4:20 p.m.**            **Panel Discussion**
- 4:50 p.m.**            **Day One Closing Remarks**
- 5:15 p.m.**            **Adjourn for the Day**

## Friday, October 25

### Session Four: Summary Discussions and Recommendations

- 8:30 a.m.**            **Introduction: Goals of the Summary Session**
- 8:45 a.m.**            **Summary of Sessions by the Discussion Leaders**
- 10:15 a.m.**            **Break**
- 10:30 a.m.**            **Summary of Recommendations, Priorities, and Next Steps**
- 11:30 a.m.**            **Adjourn**