NATIONAL INSTITUTES OF HEALTH

WORKSHOP ON CATALYZING THE DEVELOPMENT AND USE OF NOVEL ALTERNATIVE METHODS

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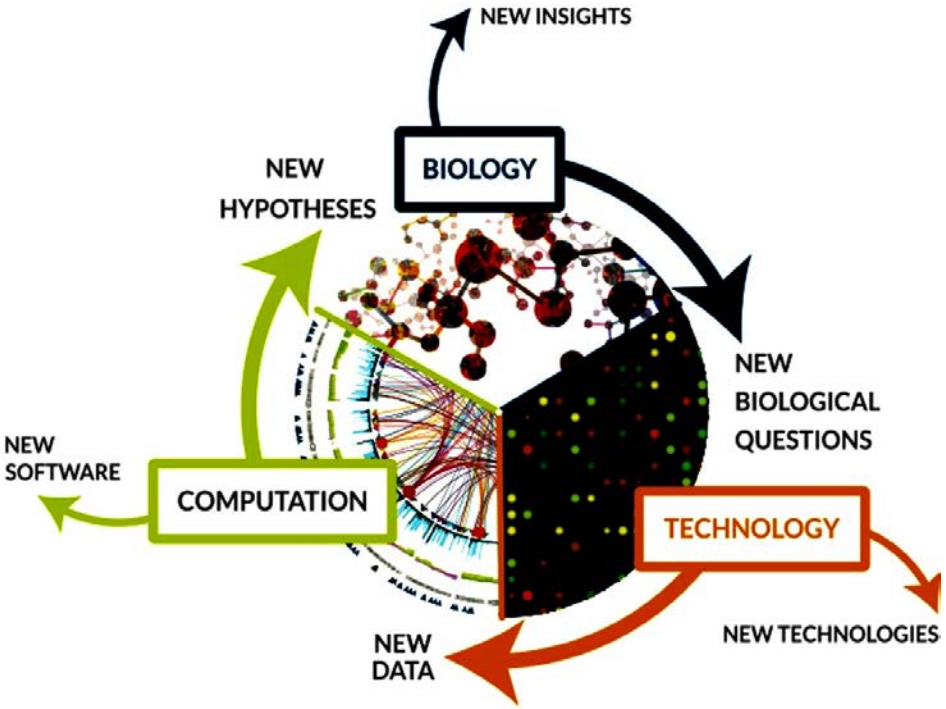
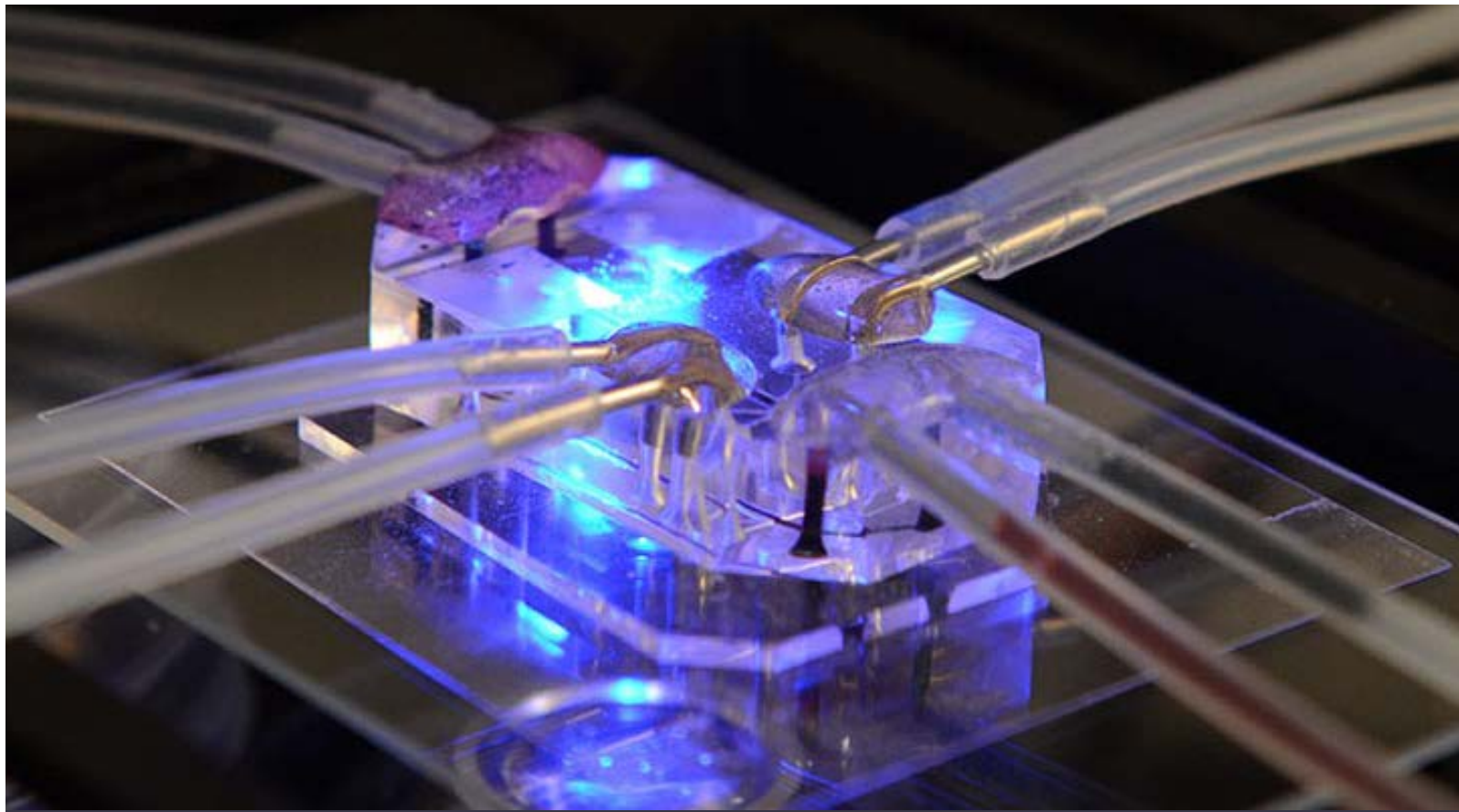
National Institutes of Health

August 21, 2023

INNOVATIVE TECHNOLOGIES CATALYZE SCIENTIFIC DISCOVERY

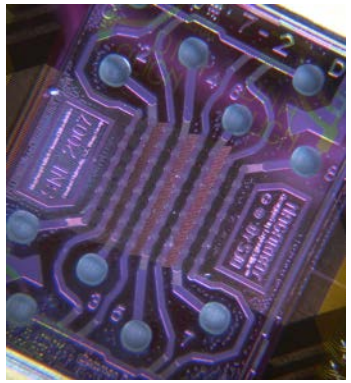


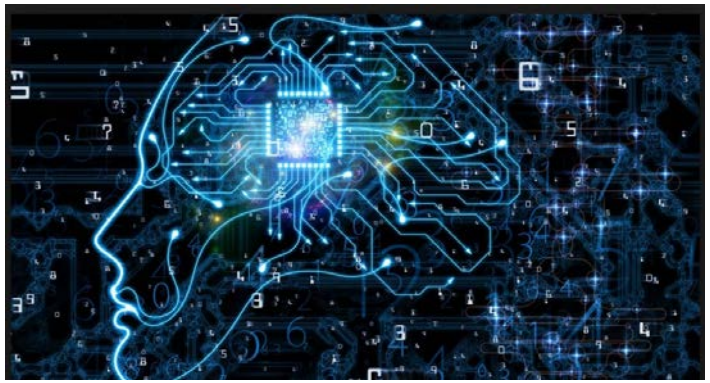
(Sonis & Villa, 2020)



SCOPE

TECHNOLOGY DRIVEN, COMPLEMENTARY APPROACHES





in Chemico

- Cell-free methods
- Epigenetics
- Biochemical pathways
- Chemical genetics

in Vitro

- Cultured cell methods
- Induced Pluripotent Stem Cells (iPSC)
- Microphysiological Systems (MPS)

in Silico

- Computational methods
- Artificial intelligence, deep learning, machine learning
- Mathematical modeling and simulations

ROSTER

ADVISORY COMMITTEE TO THE DIRECTOR WORKING GROUP

Howard Chang, MD, PhD *(co-chair)*
Stanford University

Lyric Jorgenson, PhD *(co-chair)*
National Institutes of Health

Antonio Baines, PhD
NC Central University/University of North Carolina

Szczepan Baran, DVM
VeriSIM Life

Wendy Chapman, PhD
University of Melbourne

Myrtle Davis, DVM, PhD
Bristol-Myers Squibb

Linda Griffith, PhD
Massachusetts Institute of Technology

Ranu Jung, PhD
University of Arkansas

Arnold Kriegstein, MD, PhD
University of California, San Francisco

Nancy Lane, MD
University of California, Davis

Kelly Metcalf Pate, DVM, PhD
Massachusetts Institute of Technology

Sergiu Pasca, MD
Stanford University

Gordana Vunjak-Novakovic, PhD
Columbia University

EX OFFICIO

Namandjé Bumpus, PhD
Food & Drug Administration

Maureen Gwinn, PhD
Environmental Protection Agency

Danilo Tagle, PhD
National Institutes of Health

EXECUTIVE SECRETARIES

Brittany Chao, DPhil
National Institutes of Health

Jessica Creery, PhD
National Institutes of Health

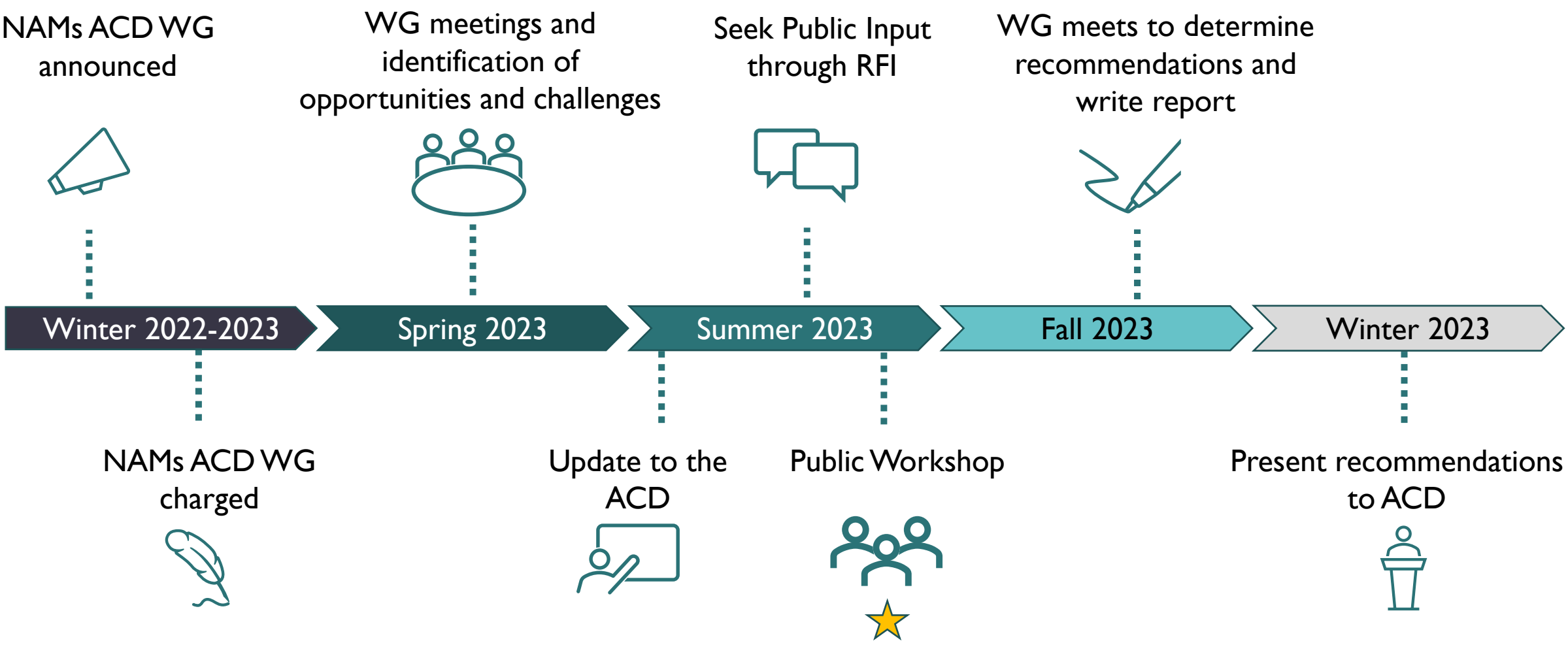
CHARGE TO THE WORKING GROUP

1. Identify the types of alternative methods being developed for use in biomedical research and assess their general strengths and weaknesses for studying human biology, circuits, systems, and disease states

2. Characterize the types of research, condition, or disease for which alternative methods are most applicable or beneficial

3. Articulate high-priority areas for NIH investment in the use and development of novel alternative methods with human applicability to:
   - Advance progress into understanding specific biological processes or states
   - Augment the tools and capabilities for biomedical research to complement and/or potentially replace traditional models

WORKING GROUP ACTIVITY

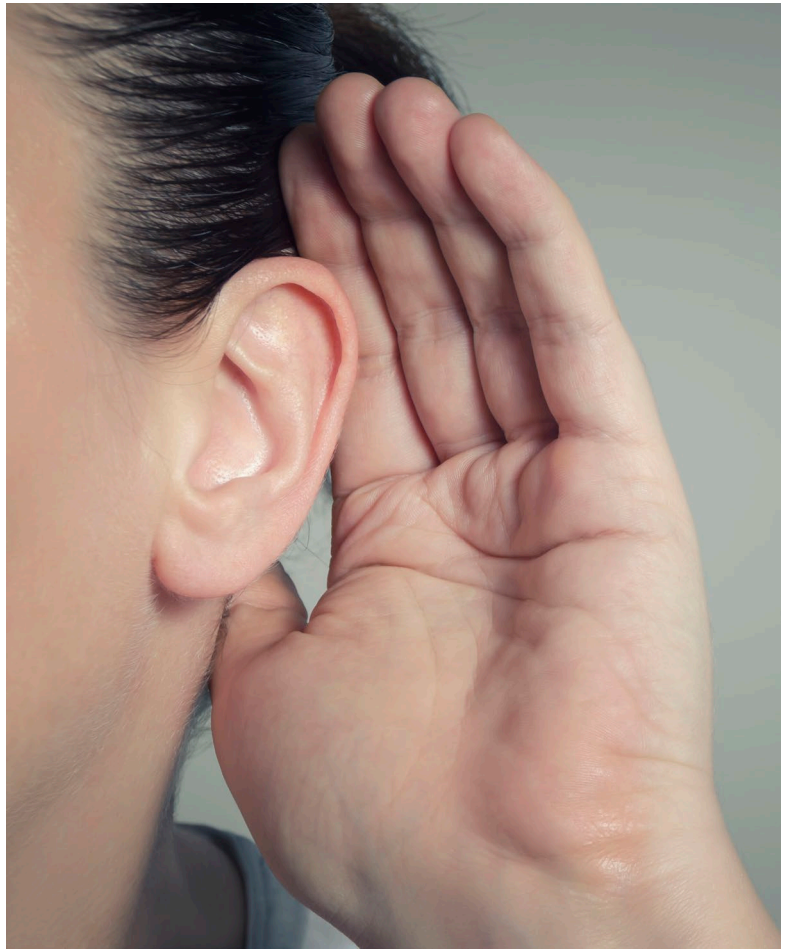


WE WANT TO HEAR FROM YOU!

Request for Public Input NIH seeking input from interested individuals and communities to inform working group discussions and recommendations

- NIH specifically interested in information on challenges and opportunities for the development and use of NAMs in biomedical research

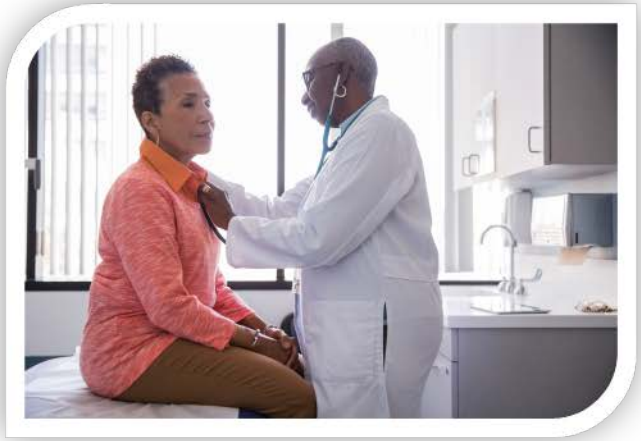
RFI deadline extended to Sept 5!



THE POWER OF INTERDISCIPLINARY WORK

TODAY'S AGENDA!

9:00 AM	Welcome
9:15 AM	SESSION 1: The Opportunities and Challenges for NAMs in Biomedical Research
10:30 AM	Break
10:45 AM	SESSION 2: Cross Sector Approaches for Driving NAMs Use and Development
NOON	Break
1:00 PM	SESSION 3: Developing Integrated and Multi-System Models
2:00 PM	Break
2:15 PM	SESSION 4: Leveraging Diverse Datasets for Maximally Useful NAMs
3:15 PM	Break
3:30 PM	SESSION 5: Equitably Deploying Robust and Reliable NAMs into Practice
4:45 PM	Discussion and Next Steps
5:00 PM	Adjourn



THE VISION

The Opportunities and Challenges for NAMs in Biomedical Research

Moderator: Nancy Lane, MD, *University of California, Davis*

Speakers:

- Nathan Price, PhD, *Thorne HealthTech*
- Thomas Hartung, MD, *John Hopkins University*
- Nicole Kleinstreuer, PhD, *U.S. National Institutes of Health*
- Chirag Patel, PhD, *Harvard Medical School*