Christina Liu
Alvin Yeh

Division of Biophysics, Biomedical Technology, and Computational Biosciences (BBCB), NIGMS

Miles Fabian

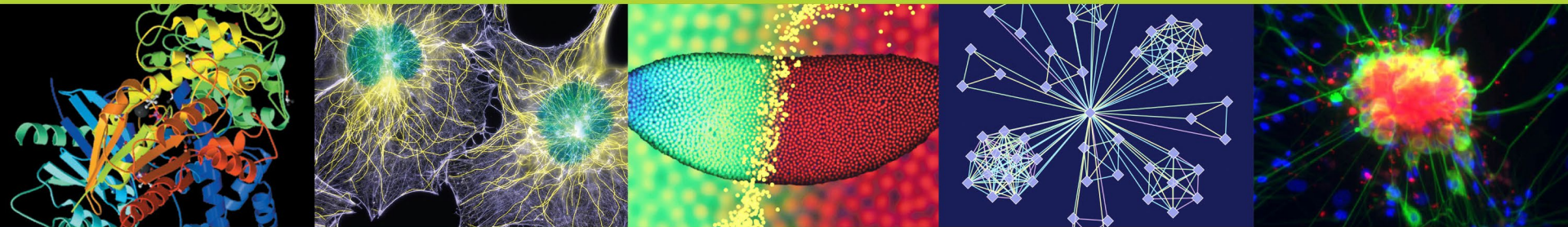*Division of Pharmacology, Physiology, and Biological Chemistry (PPBC), NIGMS*

National Institute of General Medical Sciences

NIGMS Biomedical Technology Optimization and Dissemination (BTOD) Centers

**Contact:** NIGMS_BTODMailbox@nigms.nih.gov

Overview

- Technology Development vs. Biological Discoveries

- NIGMS Technology Development pipeline

- Biomedical Technology Optimization & Dissemination (BTOD) Center Program

- BTOD Center Components and their Integration

- Suitable Technologies for a BTOD

- Questions and Answers

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General Medical Sciences
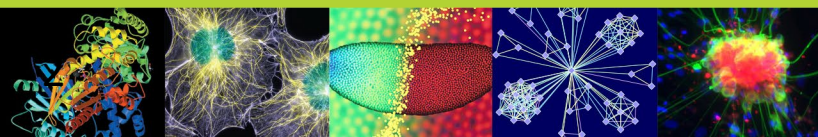
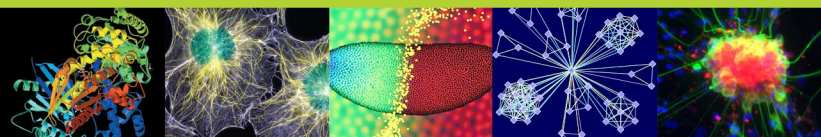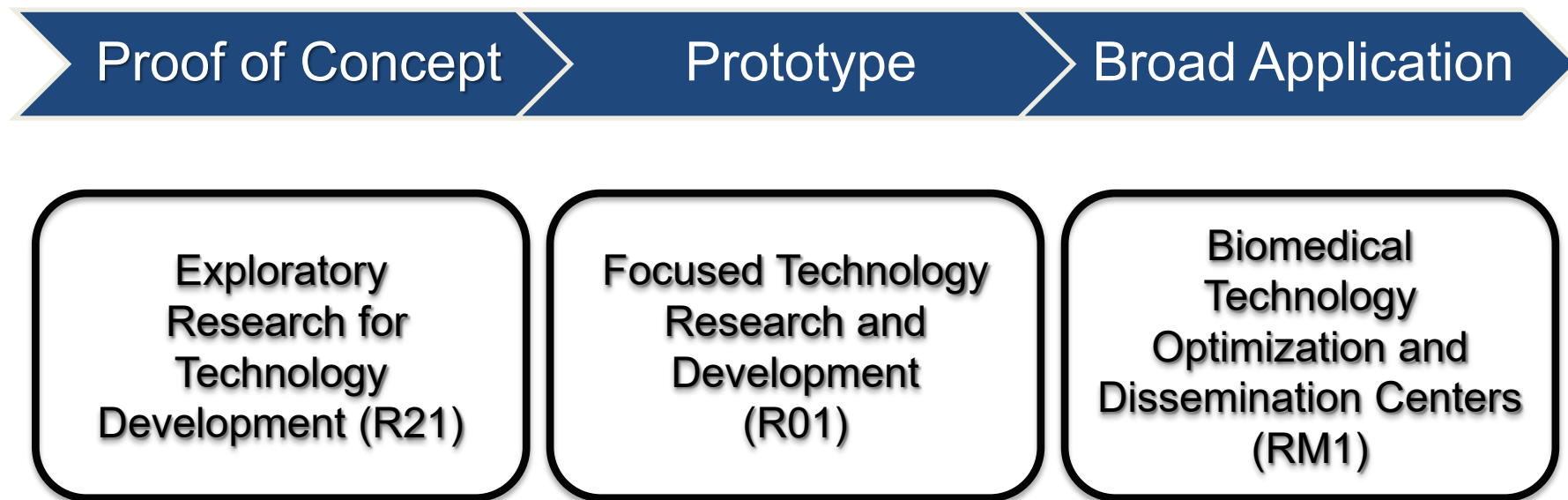# Technology Development Enables Biological Discoveries
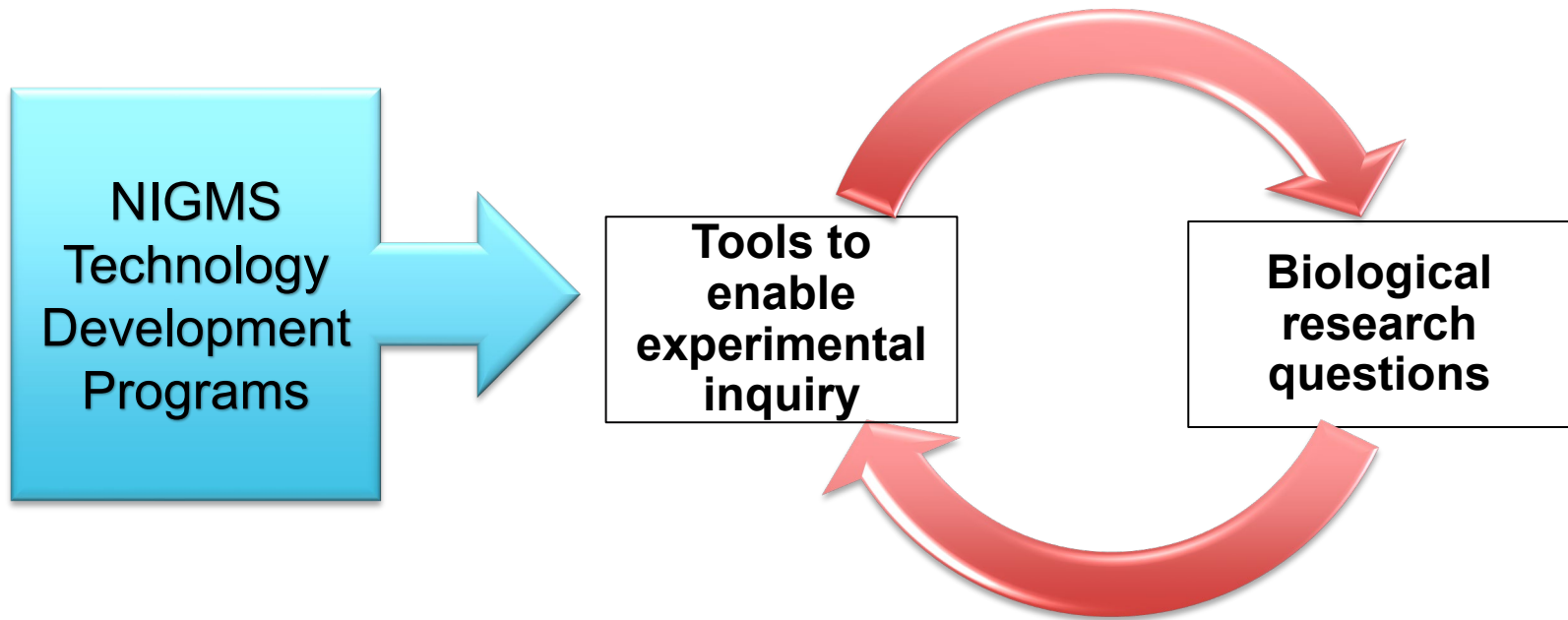
- Technology enables new approaches to addressing biological and biomedical research questions

- Challenging biological and biomedical questions can identify technological needs and emerging technological opportunities
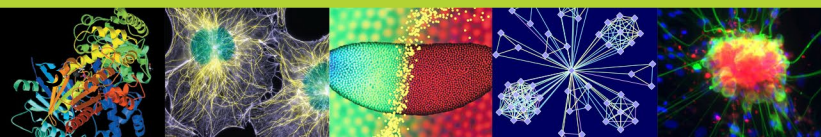
NIGMS Biomedical Technology Development Pipeline

From Untested Concepts to Broad Dissemination

Proof of Concept > Prototype > Broad Application

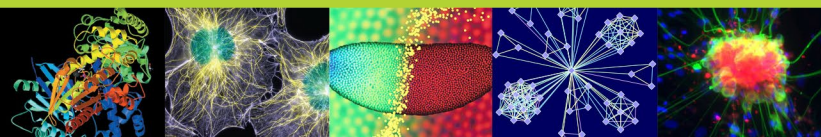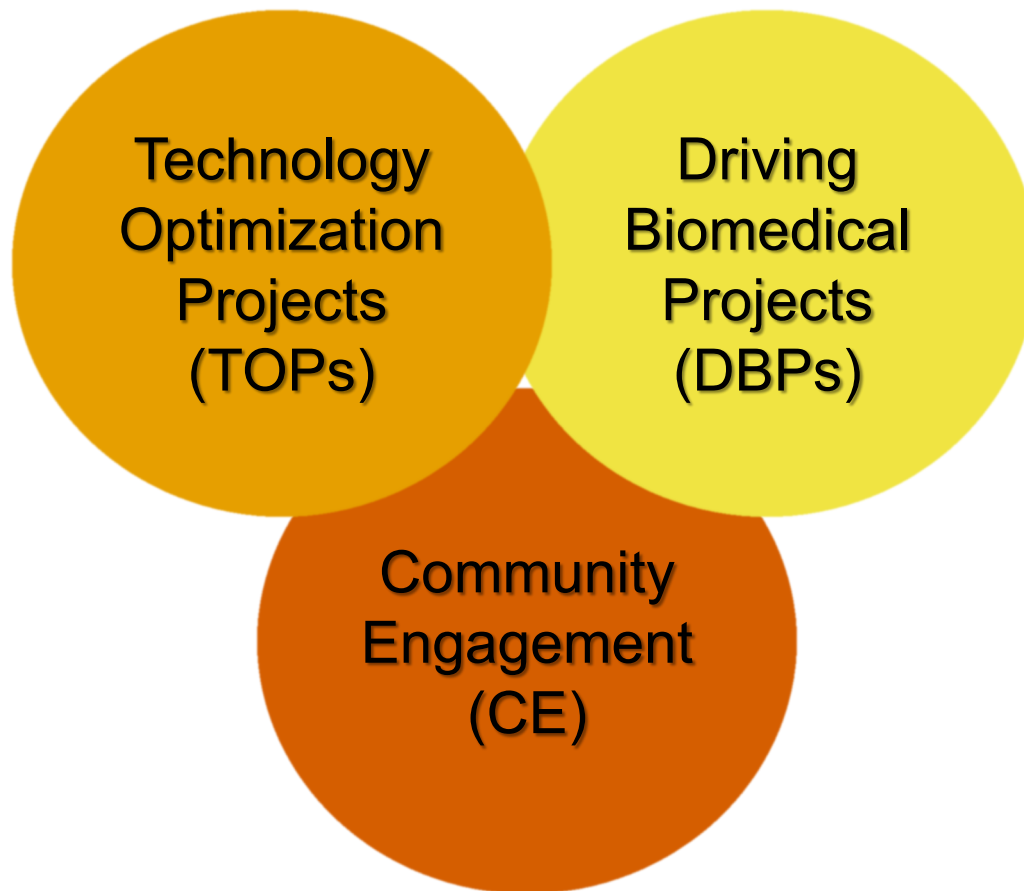| Exploratory Research for Technology Development (R21) | Focused Technology Research and Development (R01) | Biomedical Technology Optimization and Dissemination Centers (RM1) |

Goals of the BTOD Program

Optimize
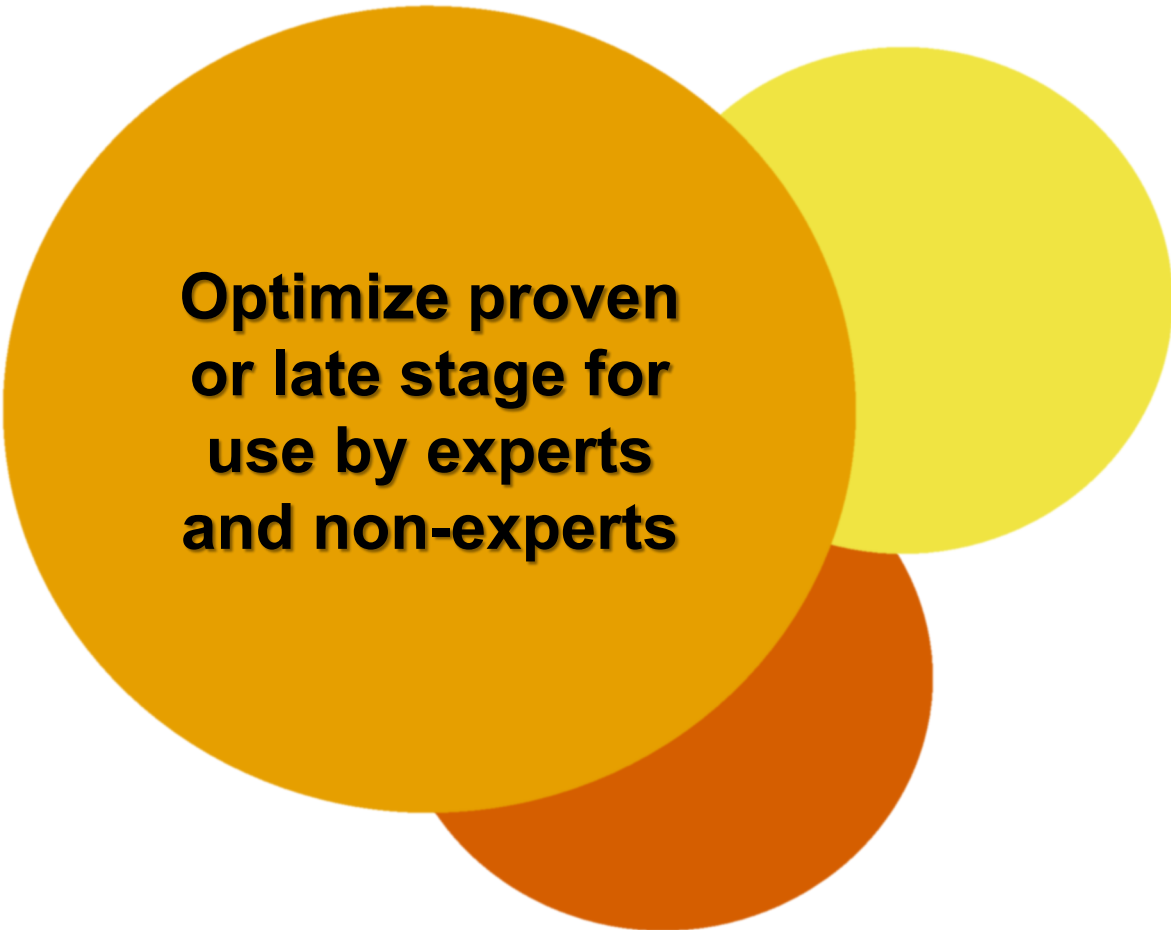
state-of-the-art, late-stage technologies

Disseminate

for broad use by expert and non-expert biomedical researchers

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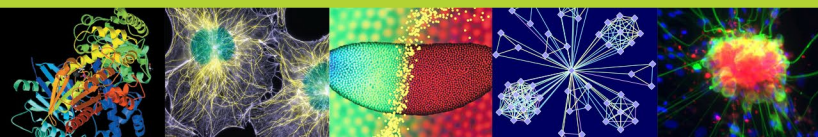
Three Components

Technology Optimization Projects (TOPs)

Driving Biomedical Projects (DBPs)

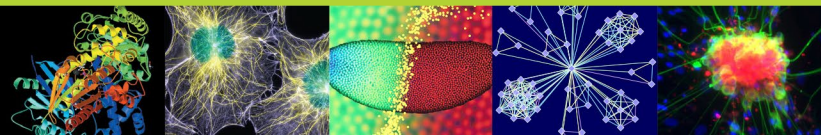Community Engagement (CE)

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Technology Optimization Projects (TOPs)

Optimize proven or late stage for use by experts and non-experts

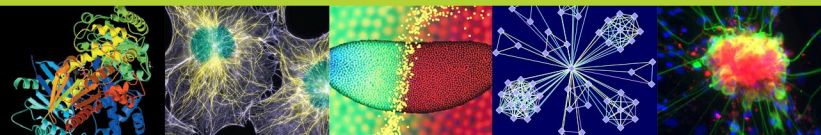# Driving Biomedical Projects (DBPs)
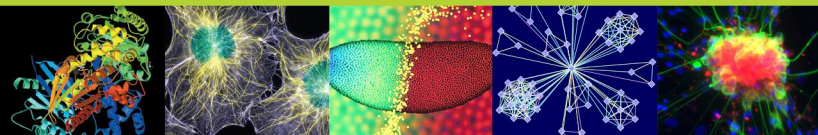
# Community Engagement (CE)

Self-sustained Technology Dissemination

- Training
- Publications, Seminars
- Commercialization

Accelerating Utilization

- Currently state-of-the-art or unique technology with demonstrated feasibility.

- Useful toward a wide variety of biomedical problems.

- Not broadly available to investigators.

- Potential strong user demand.

- Ready for hardening of methodology to insure rigor and reproducibility

- Creating a robust pipeline.

- Path to commercialization.
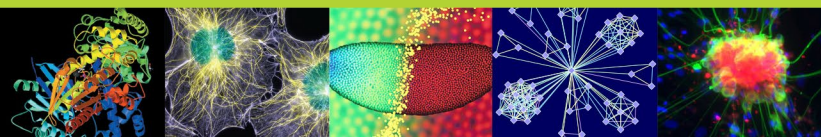
NIGMS Supported BTDD Centers

- **Center on Macromolecular Dynamics by NMR Spectroscopy (COMD/NMR)**
  New York Structural Biology Center

- **The GCE4All Center: Unleashing the Potential of Genetic Code Expansion for Biomedical Research**
  Oregon State University

- **National Resource for Advanced NMR Technology**
  Florida State University and University of Florida

- **UTSW-UNC Center for Cell Signaling Analysis**
  UT Southwestern Medical Center & the University of North Carolina Chapel Hill
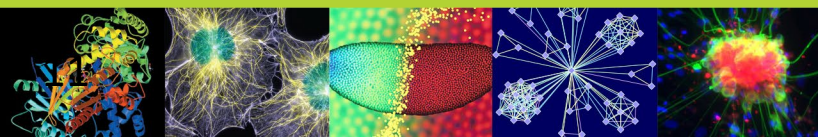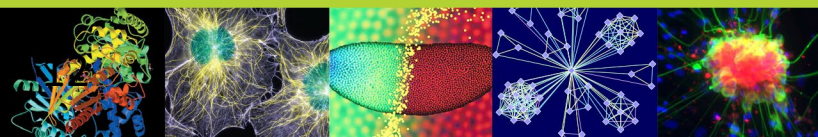
Research Areas for BTOD Centers

BTOD projects should address biomedical research areas within the NIGMS mission.

NIGMS supports fundamental research that increases understanding of basic biological process and lays the foundation for future advances in disease diagnosis, treatment, and prevention.

The discovery of technological innovations is essential to the NIGMS mission, but so is paving a path for investigators to have access and use these technologies.

Potential Areas for BTOD Centers

- Bioanalytical Chemistry & Tools

- Biostatistics

- Chemistry

- Chemical Biology

- Data Science

- High-throughput Biochemistry

- Imaging Tools & Methods

- Single Cell Technologies

- Synthetic Biology

- Training and Workforce Development
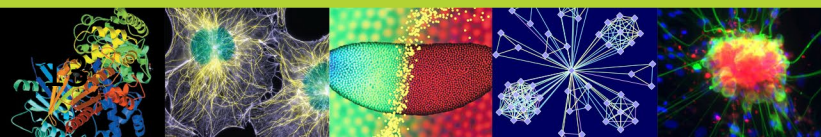
Application Submission

- [PAR-23-110](): Biomedical Technology Optimization and Dissemination Center (BTOD) (RM1-Clinical Trial Not Allowed)

- May/January receipt dates with first receipt date of May 26, 2023

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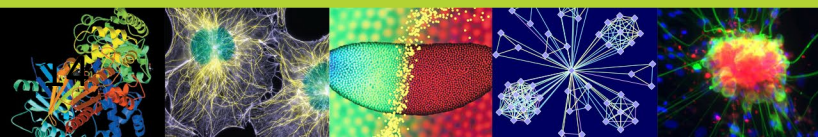
For more information: NIGMS BTOD Website

https://www.nigms.nih.gov/about/overview/BBCB/biomedicaltechnology/Pages/btdd.aspx

- General descriptions

- Frequently Asked Questions and Answers

- More descriptions of the funded Centers
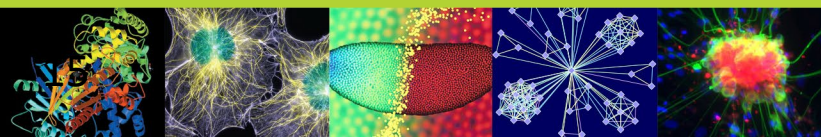
Send your questions to

NIGMS_ BTODMailbox @nigms.nih.gov