NIH Resources for Developing and Establishing Confidence in NAMS

Warren Casey, PhD, DABT

Executive Director, Executive Director, Interagency Coordinating Committee on the Validation of Alternative Methods (**ICCVAM**)

NIEHS Division of Translational Toxicology

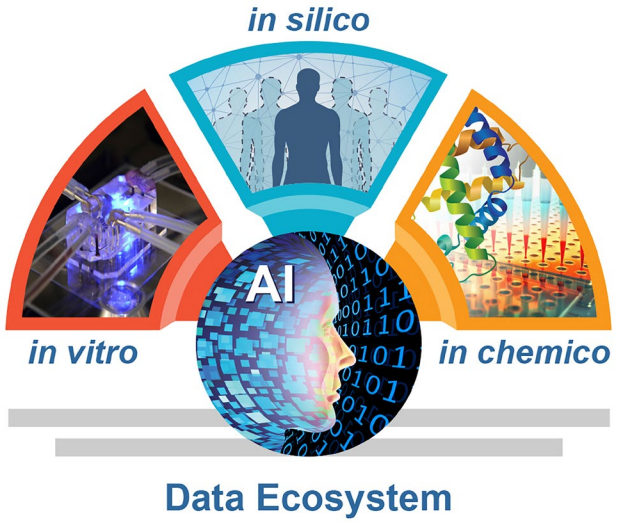
On Detail to NIH OD Division of Program Coordination, Planning, and Strategic Initiatives (**DPCPSI**)

Complement-ARIE: Complement Animal Research in Experimentation

Purpose: To catalyze the development, standardization, validation and use of **human-based new approach methodologies (NAMs)** that will transform the way we do basic, translational, and clinical sciences

Goals:

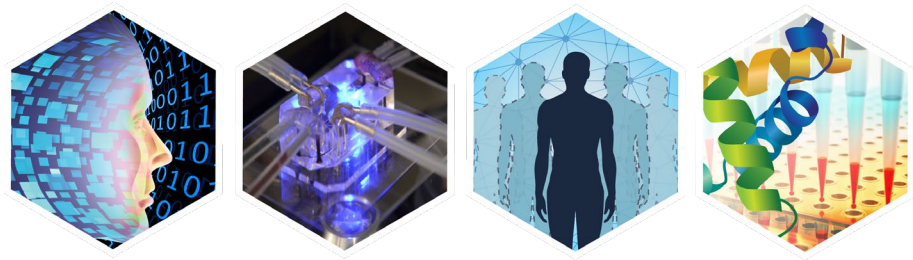
1. Better model and **understand human health and disease** outcomes **representative of the patient populations**.
2. Develop NAMs that **provide insight into specific biological processes** or disease states.
3. Validate mature NAMs to **support regulatory use** and standardization.
4. Complement traditional models and **make biomedical research more efficient and effective**.



Complement-ARIE website

Complement-ARIE: Program Components

- **Technology Development Centers (TDC)**– stimulate the development of NAMs to fill in areas of greatest need, with emphasis on increased biological complexity and throughput, innovative combinatorial approaches, and data sharing.



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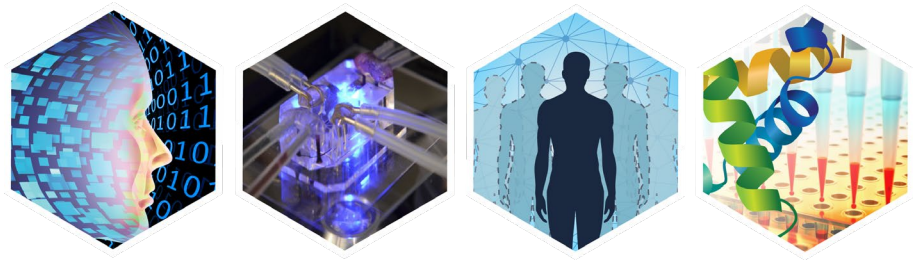

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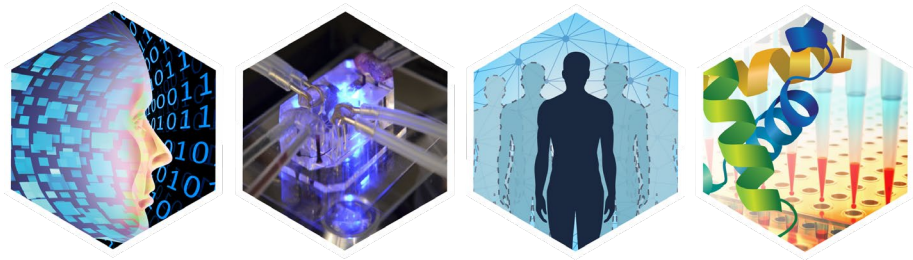

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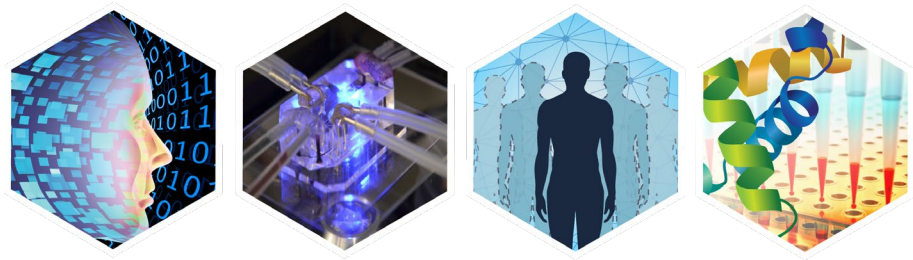
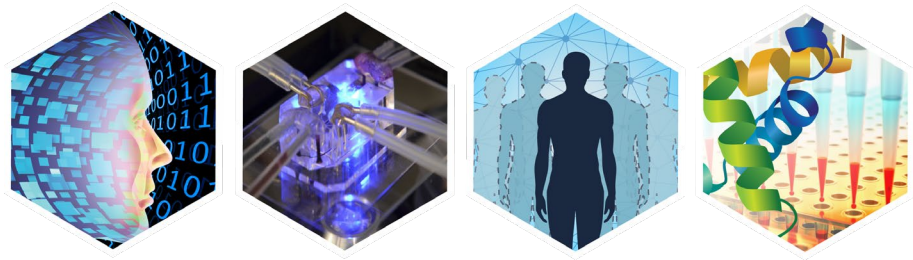
- **Community Engagement and Training** – promote the development of a biomedical research workforce with the skills to build/use new NAMs, community engagement, societal and ethical considerations.



Complement-ARIE: Program Key Dates

- **Technology development centers (UM1) – 4-5 awards**
  - NOFO publication – December 10, 2024
  - Application Receipt date - March 18, 2025
  - Peer Review (July 2025) and Advisory Council (Sept 2025)
  - Earliest award made - Jan 2026
- **NAMs Data Hub and Coordinating Center (U24) – 1 award**
  - NOFO publication – January 7, 2025
  - Application Receipt Date - March 10, 2025
  - Peer Review (July 2025) and Advisory Council (Sept 2025)
  - Earliest award - Jan 2026
- **Validation and Qualification Network for NAMs – FNIH PPP**
  - Design Phase Launch – April 2025
  - Implementation Phase 1 - FY26-FY30



Collection of **A**lternative **Me**thods for **R**egulatory **A**pplication (**CAMERA**)

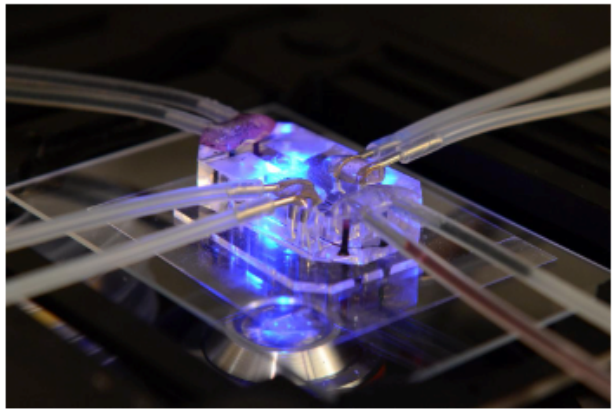
- **Being developed by NICEATM, under ICCVAM (federal) steering committee to provide access to standardized NAMs that are validated/qualified for regulatory (and other) contexts of use**
- **Interactive, searchable web-based graphical user interface**
- **Database with validation study data**
- **Interoperable with Complement-ARIE Data Hub, Integrated Chemical Environment, etc.**
- **Under active development: beta version anticipated Aug-2025**

April 29, 2025

NIH to prioritize human-based research technologies

New initiative aims to reduce use of animals in NIH-funded research.

The National Institutes of Health (NIH) is adopting a new initiative to expand innovative, human-based science while reducing animal use in research. Developing and using cutting-edge alternative nonanimal research models aligns with the U.S. Food and Drug Administration's (FDA) recent initiative to reduce testing in animals. While traditional animal models continue to be vital to advancing scientific knowledge, using new and emerging technologies can offer unique strengths that, when utilized correctly or in combination, can expand the toolbox for researchers to answer previously difficult or unanswerable biomedical research questions.



Combining microfabrication techniques with modern tissue engineering, the lung-on-a-chip, designed by the Wyss Institute at Harvard University, offers a new in vitro approach to drug screening by mimicking the complicated mechanical and biochemical behaviors of a human lung. The lung-on-a-chip work was supported by NIH Common Fund and FDA. *Wyss Institute, Harvard University*

"For decades, our biomedical research system has relied heavily on animal models. With this initiative, NIH is ushering in a new era of innovation," said NIH Director Dr. Jay Bhattacharya. "By integrating advances in data science and technology with our growing understanding of human biology, we can fundamentally reimagine the way research is conducted—from clinical development to real-world application. This human-based approach will accelerate innovation, improve healthcare outcomes, and deliver life-changing treatments. It marks a critical leap forward for science, public trust, and patient care."

https://www.nih.gov/news-events/news-releases/nih-prioritize-human-based-research-technologies

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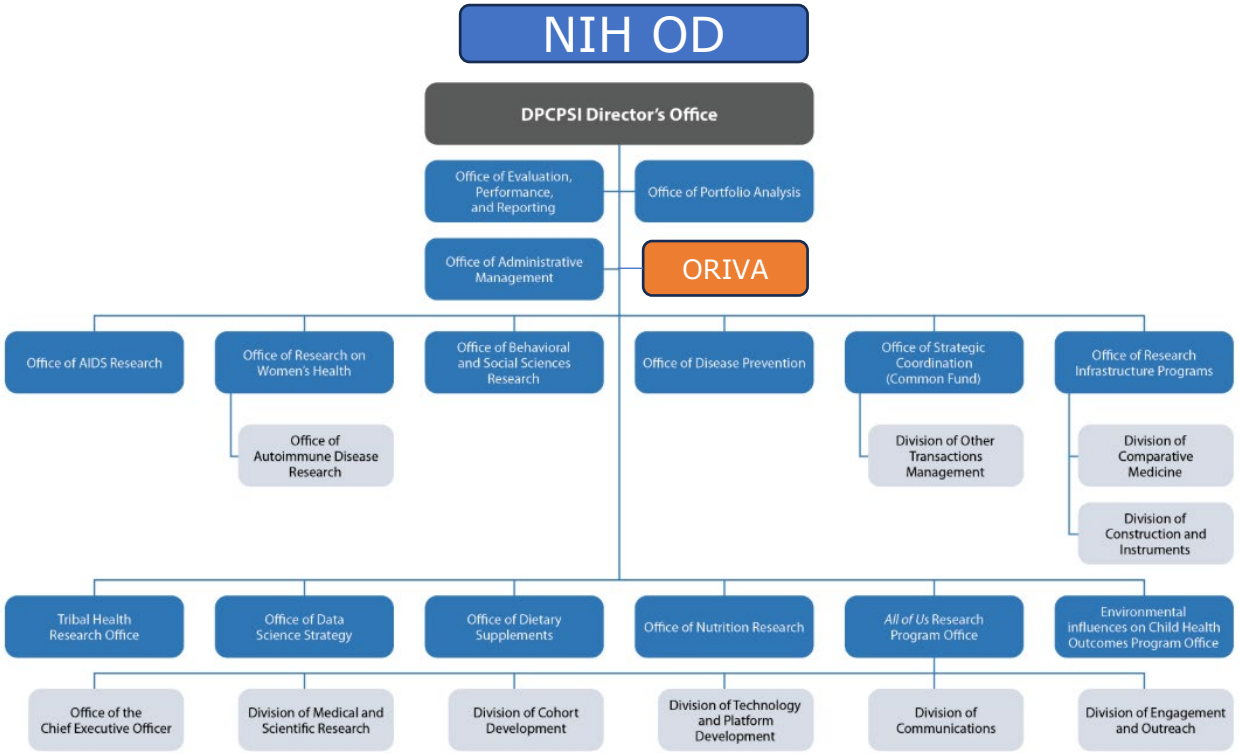
FDA Announces Plan to Phase Out Animal Testing Requirement for Monoclonal Antibodies and Other Drugs

For Immediate Release: April 10, 2025

The FDA's animal testing requirement will be reduced, refined, or potentially replaced using a range of approaches, including AI-based computational models of toxicity and cell lines and organoid toxicity testing in a laboratory setting (so-called New Approach Methodologies or NAMs data). Implementation of the regimen will begin immediately for investigational new drug (IND) applications, where inclusion of NAMs data is encouraged, and is outlined in a roadmap also being released today. To make determinations of efficacy, the agency will also begin use pre-existing, real-world safety data from other countries, with comparable regulatory standards, where the drug has already been studied in humans.

Planned Office of Research Innovation, Validation, and Application*

Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI)



Nicole C. Kleinstreuer, Ph.D.
Acting NIH Deputy Director for Program Coordination, Planning, and Strategic Initiatives (DPCPSI)

**Pending HHS Approval*

ORIVA

To integrate innovative human-based science, the NIH intends to establish the **Office of Research Innovation, Validation, and Application (ORIVA)** within NIH's Office of the Director.

- **Coordinate NIH-wide efforts** to develop, validate, and scale the use of non-animal approaches across the agency's **biomedical research** portfolio and serve as a hub for interagency coordination and **regulatory translation** for public health protection.

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- **Expand funding and training** in non-animal approaches and awareness of their value in translational success. New funding opportunities will include **new evaluation criteria** that assess methods based on their suitability for the research question, context of use, translatability, and human relevance. **Grant review staff will participate in mitigation training** to address any possible bias towards animal studies and integrate experts on alternative methods into study sections.

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- **Expand Infrastructure** for non-animal approaches make these methods more accessible to researchers.

FDA–NIH Workshop: Reducing Animal Testing

JULY 7, 2025

FDA

Marty Makary, M.D., M.P.H.
FDA Commissioner

Tracy Beth Høeg, M.D., Ph.D.
Senior Advisor for Clinical Sciences, Office of the Commissioner & Center for Biologics Evaluation and Research

Seven Musser, Ph.D.
Associate Commissioner for Human Foods Research

Jeremy Walsh
Chief Artificial Intelligence Officer

Tucker Patterson, Ph.D.
Director, National Center for Toxicological Research

Steve Kozlowski, M.D.
Acting Chief Scientist

Tracy Chen, Ph.D., D.A.B.T.
Senior Advisor, Regulatory Science Collaborative Community, Office of the Chief Scientist

NIH & ARPA-H

Nicole Kleinstreuer, Ph.D.
Acting NIH Deputy Director for Program Coordination, Planning, and Strategic Initiatives, National Institutes of Health

Warren Casey, Ph.D., DABT
ICCVAM Executive Director, DPCPSI

Brian Cholewa, Ph.D.
Senior Toxicologist/Program Director, Chemopreventive Agent Development Research Group, NCI

Andrew Kilianski, Ph.D.
Acting Deputy Director, Health Science Futures, Advanced Research Projects Agency for Health (ARPA-H)

International participation from: European Medicines Agency (Belgium), German Federal Institute for Risk Assessment, Pharmaceuticals and Medical Device Agency (Japan), Therapeutic Goods Administration (Australia)

https://www.fda.gov/news-events/fda-meetings-conferences-and-workshops/fda-nih-workshop-reducing-animal-testing-07072025#event-information

NIH Funding Announcements to Align with NIH Initiative to Prioritize Human-based Research

July 10, 2025

On April 29, NIH announced it is prioritizing human-focused research and reducing animal use in research. To further this initiative, all new Notices of Funding Opportunity that relate to animal model systems (NOFOs) must now also support human-focused approaches such as clinical trials, real world data, or new approach methods (NAMs). Examples of NAMs include ex vivo human-based approaches, including perfused human organs and precision-cut tissue slices; in vitro methods, including microphysiological systems and organoids; computational and artificial intelligence-based approaches; and combinations thereof.

Importantly, NIH will no longer issue NOFOs exclusively supporting animal models or limit/specify the types of models that must be used. The intent of this effort is to ensure investigators consider the models most appropriate for understanding human states of health and disease and are not constrained by the NOFO. NIH Institutes, Centers and Program may issue NOFOs that exclude proposals for animal use entirely.

This new emphasis on human-based research will accelerate medical advances, save animals and help NIH achieve its crucial mission of improving human health.

How Does the NIH Initiative to Prioritize Human-Based Research Affect Research Proposing the Use of Laboratory Animals?

July 18, 2025

In July 2025, NIH announced it will no longer develop new funding opportunities focused exclusively on animal models of human disease. Rather, going forward, new funding opportunities will be designed more broadly with language that also encourages various approaches be considered. This means researchers may choose any model they deem appropriate – including a combination of approaches – to answer a research question when submitting applications seeking NIH support. This strategy is intended to open the possibilities of which types of models can be submitted in response to funding opportunities, not be restrictive or prescriptive.

Applicants may continue to propose research exclusively involving human participants (like clinical trials), particular laboratory animals, real-world data, in vitro methods, mathematical models, artificial intelligence, in silico approaches, other alternative approaches, or a combination of models. Peer reviewers will assess, through our fair and impartial review process, the merit of each approach proposed, its relevance to human disease, and if it is best suited to answering the research question that advances biomedical research and discovery. Our overarching goal is to accelerate progress, encourage innovation, and ultimately improve the quality and validation of new approach methodologies.

We are also prioritizing human-based technologies and models, where scientifically valid and justified. Likewise, funding opportunities will indicate a special emphasis on human-based approaches.

Thank you!

Questions?

National Institutes of Health