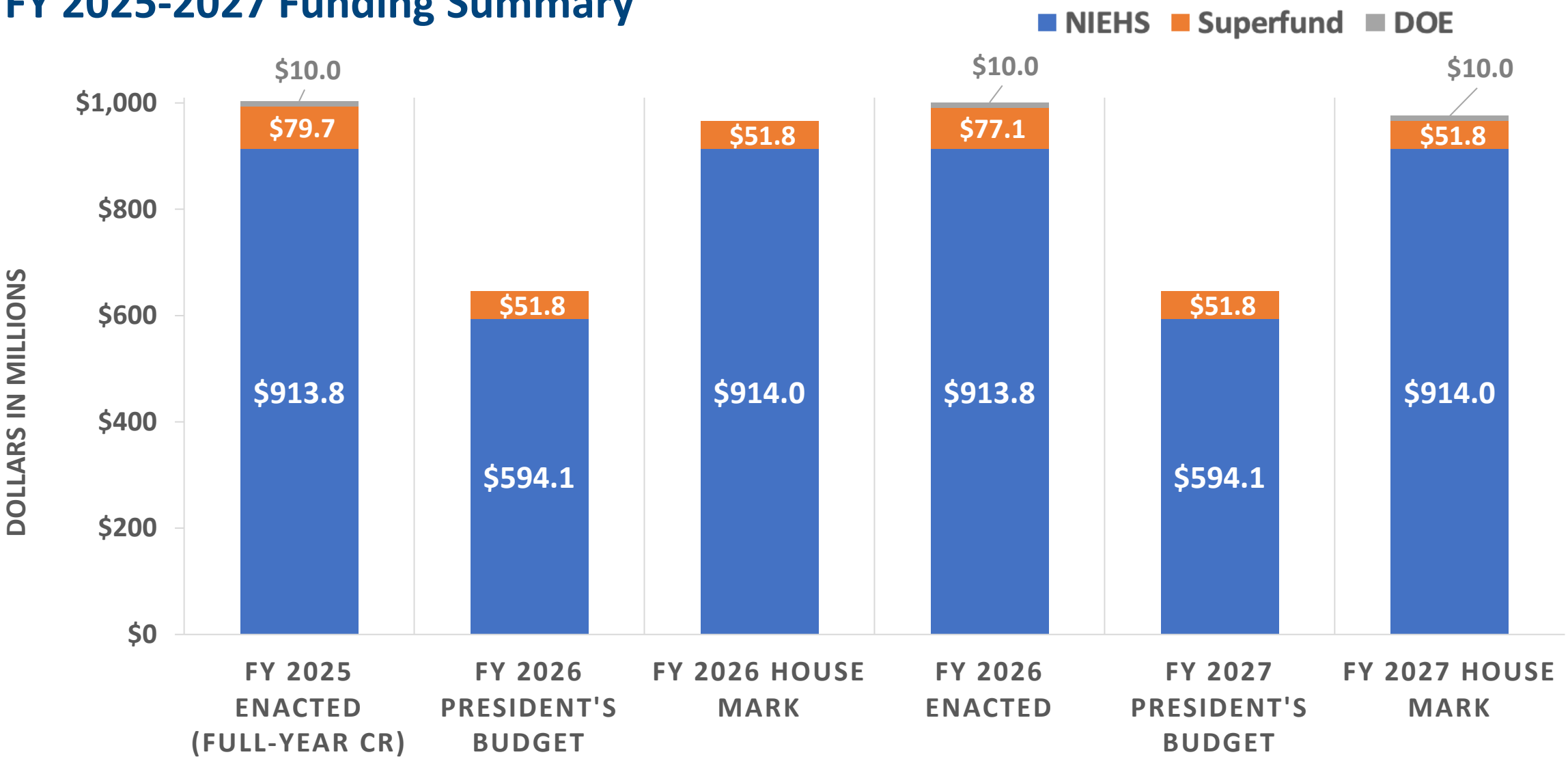
Report to the National Advisory Environmental Health Sciences Council

Kyle M. Walsh, Ph.D.
Director
National Institute of Environmental Health Sciences and
National Toxicology Program

June 24, 2026

Budget Update and Congressional Activities

FY 2025-2027 Funding Summary



Enacted appropriation levels for NIEHS (FY24-FY26) are post-AIDS transfer. FY 2026 and 2027 President's Budget level, as well as FY 2026-2027 House Marks, are pre-AIDS transfer.

FY27 President's Budget Proposal

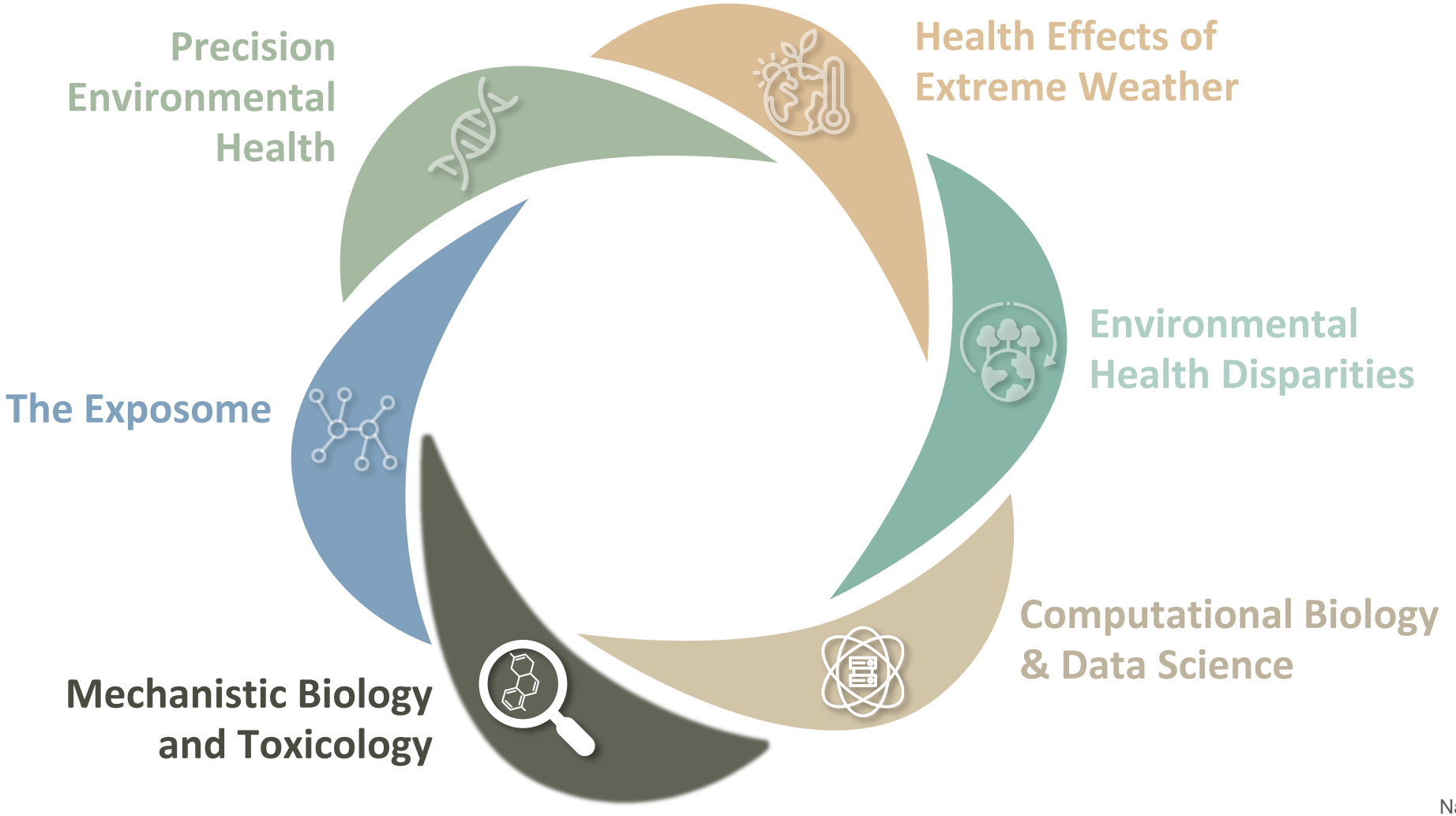
- Proposed President's FY27 Budget HHS reorganization changes to NIEHS:
  - Moves NIEHS to Centers for Disease Control and Prevention (CDC)
  - NIEHS would be a part of the National Center for Chemicals and Toxins, combining:
    - National Center for Environmental Health (CDC)
    - National Institute for Occupational Safety and Health (CDC)
    - Agency for Toxic Substances and Disease Registry (CDC)
    - National Institute of Environmental Health Sciences (NIH)
    - National Center for Toxicological Research (FDA)

SBIR/STTR Reauthorization

- **SBIR/STTR reauthorized through FY2031** under the Small Business Innovation and Economic Security Act, signed into law on April 13, 2026
- Legislation updates the **SBIR, STTR, and related pilot programs**
- NIH released new **SBIR/STTR Parent NOFOs**, with the next application receipt date on **September 8, 2026**

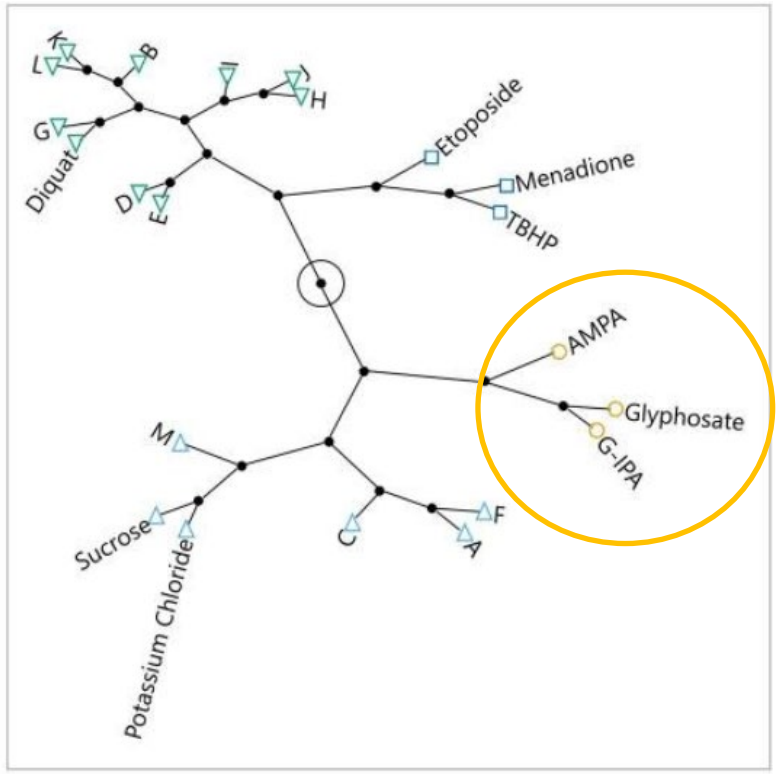
SBIR · STTR
America's Seed Fund

NIEHS Research Areas of Emphasis



Clarifying Potential Cancer-relevant Effects of Glyphosate-based Formulations

- DTT compared glyphosate, glyphosate metabolites, and 13 glyphosate-based formulations in human skin and liver cell systems.
- Glyphosate alone showed weak and inconsistent activity for oxidative stress and DNA damage, even at high exposure levels.
- Several glyphosate-based formulations produced stronger markers of oxidative stress and DNA damage, suggesting formulation ingredients may be important drivers of biological activity.



Stephanie Smith-Roe
Systems Toxicology Branch

Steve Ferguson
Mechanistic Toxicology Branch

Caroll Co
Contractor
DLH

Smith-Roe *et al.*, Toxicol Sci. 2026 Mar 2;209(3).

Tox21 Program – Three Phases at a Glance

PHASE I

Proof of Principle

2005 – 2010

- ~3,000 compound library from NTP & EPA screened via ultra high-speed robotics
- 140 cell-based reporter gene assays (1536-well plates at NCGC/NCATS)
- Established qHTS best practices: library handling, assay optimization, data analysis
- Data released publicly on PubChem and CEBS

3,000
compounds screened

PHASE II

Expanded Screening

2011 – 2014

- 10K compound library (~3,000 each from NTP, EPA, NCGC/NCATS)
- 3 independent runs at 15 concentrations per qHTS assay
- 80+ assays covering nuclear receptors, cellular stress pathways & cytotoxicity
- Data available via NCATS Tripod, PubChem, EPA Dashboard, DTT

70M+
data points generated

PHASE III

Expanding the Biological Landscape

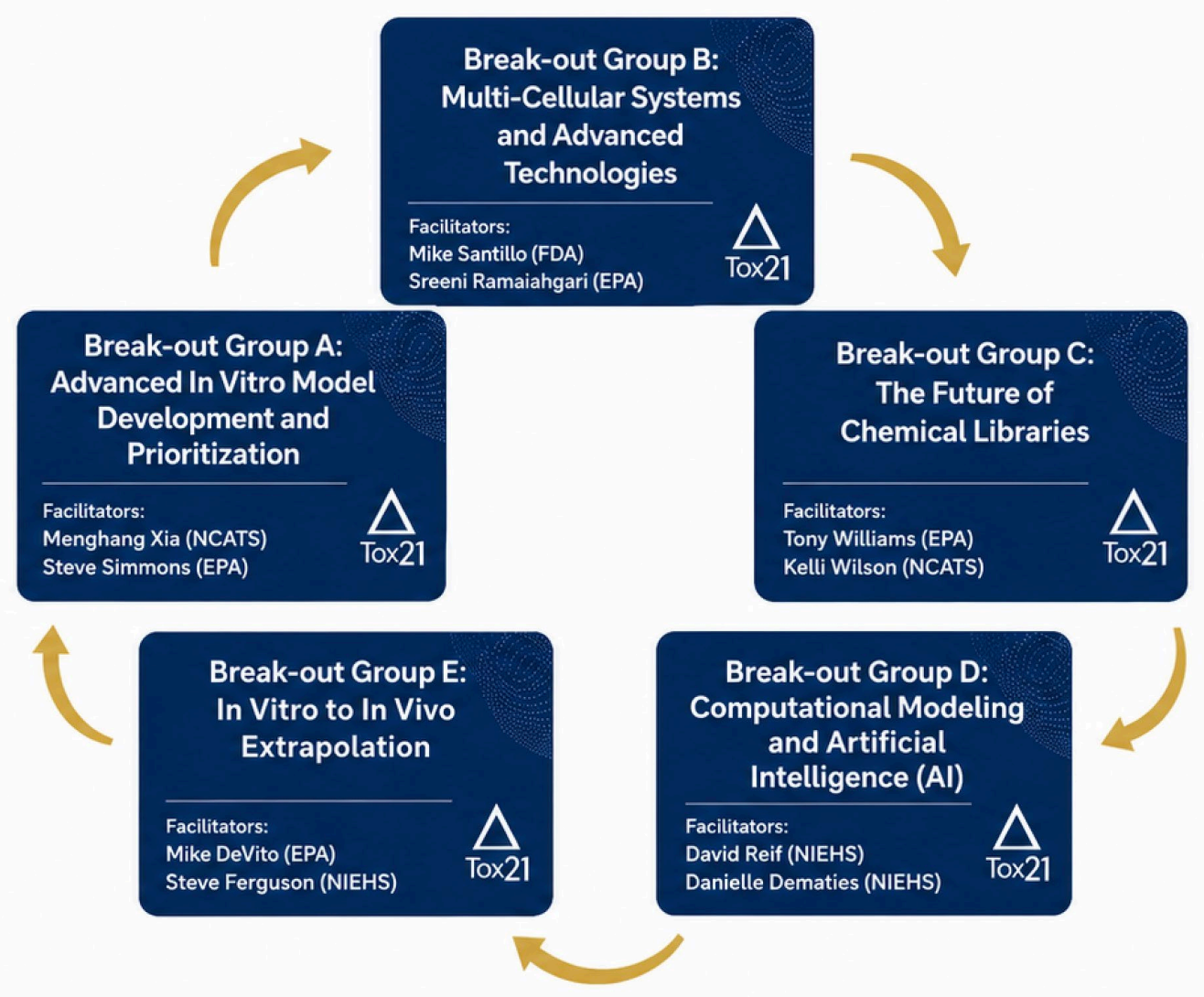
Ongoing

- High content screening using normal human cells with greater pathway coverage
- Expanded xenobiotic metabolism capability & complex biological systems
- Growing focus on chemical mixtures & extended exposure scenarios
- Expanded "big data" analysis tools and cross-partner collaboration

↑ biological complexity & realism

Tox21: Heading toward Phase IV

- **Strategic planning workshop held May 11-12 at the EPA Campus (RTP)**
  - ~50 participants representing Tox21 partners (NIEHS, NCATS, EPA, FDA)
  - Divided into 5 breakout groups (A through E, at right)
  - Facilitators rotated through all groups
  - Second day of report-outs followed by plenary brainstorming session



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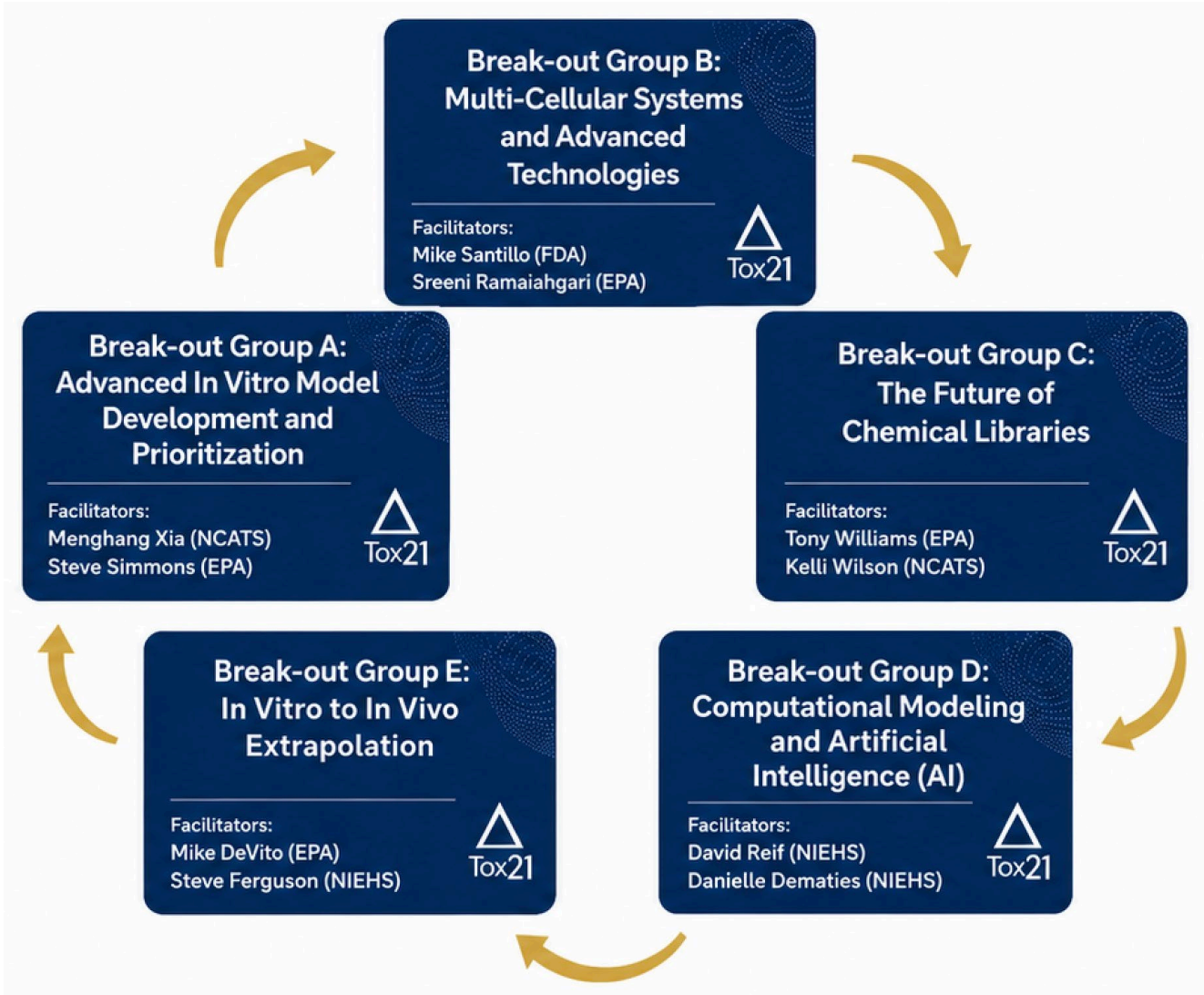


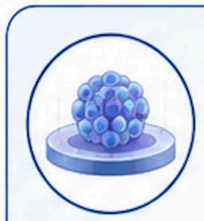
Working team from all 4 partners refining Phase IV plan

NIH Common Fund: Complement-ARIE Consortium Kickoff Meeting

May 26, 2026

- Kickoff focused on consortium structure and governance, scientific priorities, opportunities for impact, and planning for future consortium meetings
- Technology Development Centers **(TDCs)** and NIH Challenge Awards will provide data to the NAMs Data Hub & Coordinating Center **(NAMHub)**
- **NAMHub** will coordinate with the Validation and Qualification Network **(VQN)**, a public-private partnership managed by FNIH.
- Federal partners include FDA, EPA, BARDA, NASA, and ICCVAM, supporting broader translational use and regulatory acceptance of NAMs

NIH Common Fund: Complement-ARIE Technology Development Centers



MARC FERRER

National Center for Advancing Translational Sciences

An Integrated Multiorgan Platform of 3D Microtissues to Model and Understand Interindividual Drug Susceptibility in Fibrotic Pathologies (3D-MOFIB)

LINDA G. GRIFFITH

Massachusetts Institute of Technology

NAMs for Clinical Translation of Therapeutics for Systemic Gynecology Diseases

IVAN RUSYN

Texas A&M AgriLife Research

NAMs-Decisions Center: New Approach Methods for Decisions on Industrial and Consumer-Use Chemicals

LENA SMIRNOVA

Johns Hopkins University

DROIDp – Drug Research Organoid-Integrated Development Platform: a Combinatorial NAM for Assessment of *in vitro* Learning and Memory in Drug and Chemical Testing

JAMES M. WELLS

Cincinnati Children's Hospital Medical Center

Patient-specific, combinatorial NAMs for gastrointestinal diseases and drug response prediction

SHRIKE Y. ZHANG

Brigham and Women's Hospital

Technology development center for integrative physiologic models of the human musculoskeletal system

JOSEPH C. WU

Stanford University

Advancing Personalized Cardiac Organoids - Converging *In Vitro*, *In Chemico*, and *In Silico* Models

NIH Common Fund: Complement-ARIE Technology Development Centers

Darlene Dixon

David Reif

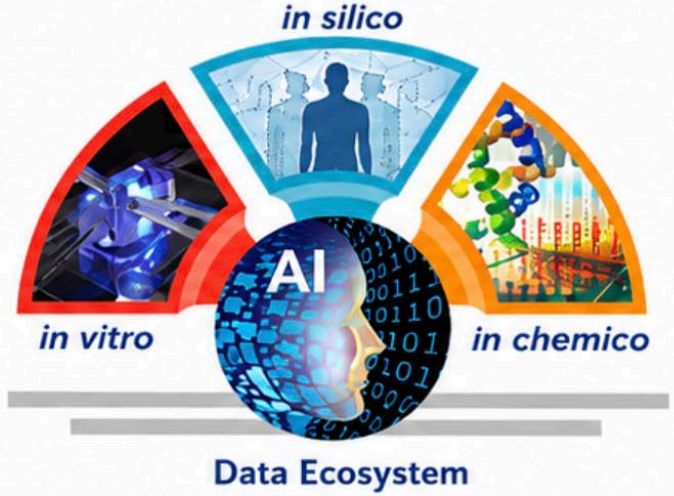
Vesna Chappell, Contractor

Erik Tokar

Stephen Ferguson

Andrew Newell

Collaboration: Team will partner w/ **Marc Ferrer** from the National Center for Advancing Translational Sciences



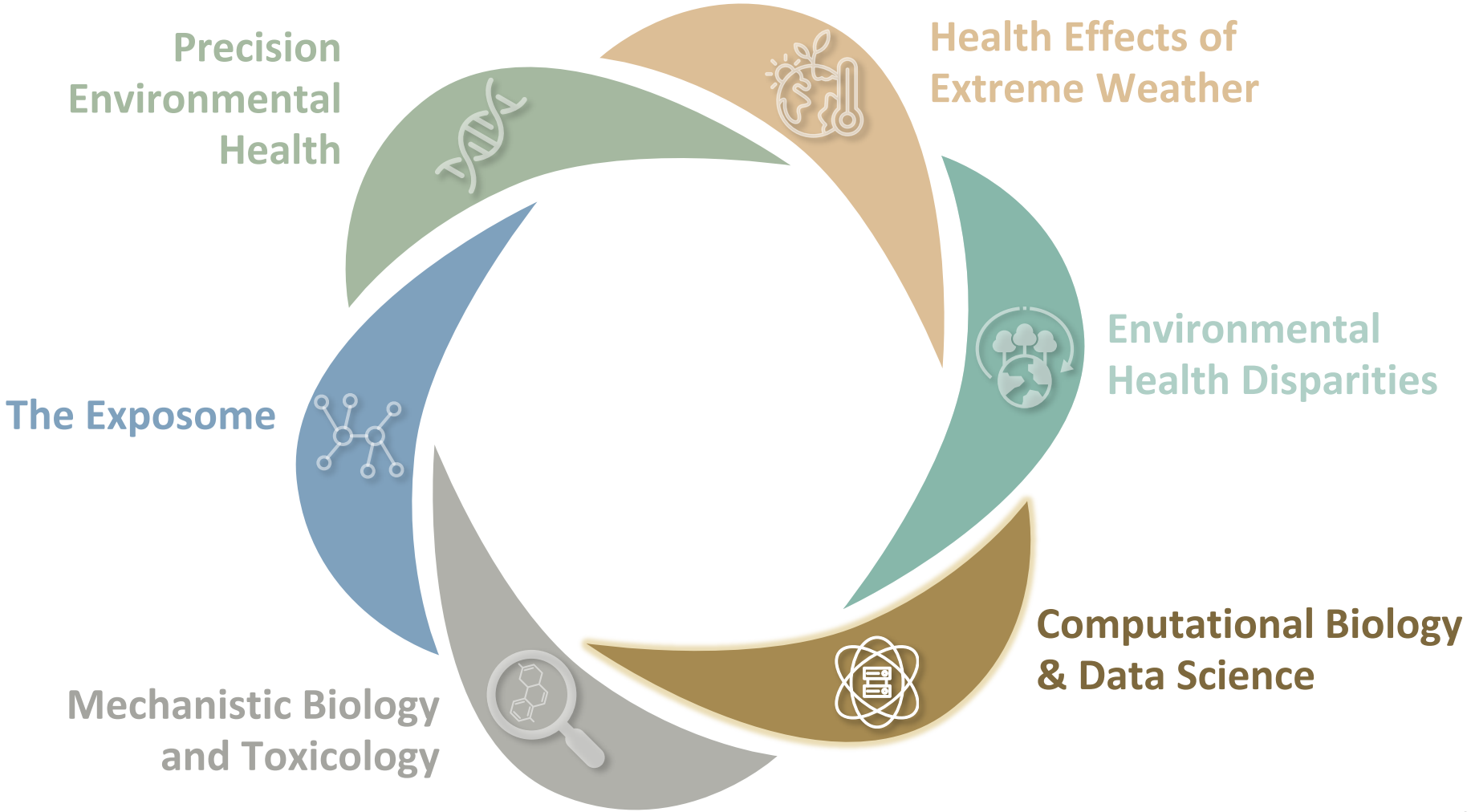
Five-year grant award:

"An Integrated Multiorgan Platform of 3D Microtissues to Model and Understand Interindividual Drug Susceptibility in Fibrotic Pathologies"

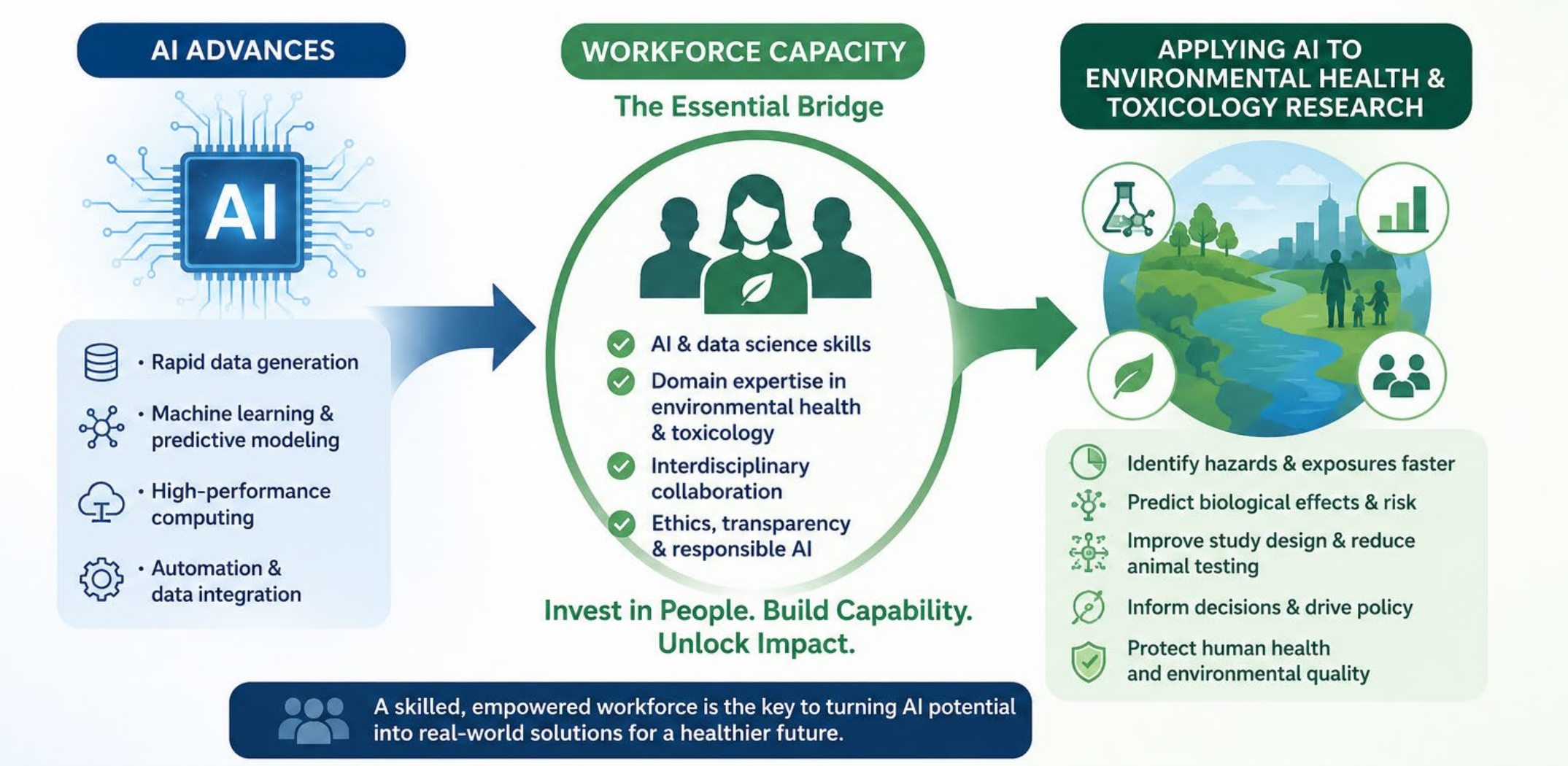
Research will support:

Technology Development Center that advances 3D multiorgan models for fibrosis

NIEHS Research Areas of Emphasis



Building AI & Data Science Capacity



Building AI & Data Science Capacity

Staffing

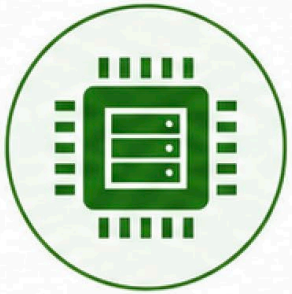
Intramural Federal and Contract Data Science Hires in areas that include:

- Agentic Systems
- Large Language Models
- Natural Language Processing and Text Processing
- Computational Toxicology
- Predictive Modeling
- Geospatial Modeling

Training

Central offerings as well as staff led/organized organic training

- NIH Trainings
- NIH AI clubs & discussion groups
- NIEHS Data Science Training
- NIEHS AI/Data Science Journal Club
- NIEHS ToxPipe Users Group



IT Infrastructure

Server hardware dedicated to AI infrastructure

Allocation of funds in NIH STRIDES program for staff use of AI, including GCP, AWS, and Azure

NIH STRIDES funds for access to large language models through NIEHS ToxPipe AI ecosystem

Building AI & Data Science Capacity

AI Foundations

ToxPipe agentic AI ecosystem

Combines specialized tools, databases with commercial and open AI models (eg LLMs)

- Natural language/MCP interfaces to chemical, toxicology, and biological databases
- Natural language/MCP interfaces to toxicoinformatics tools
- Support development of tailored AI capabilities such as data interpretation and report generation.

AI Methods & Partnerships

Partnerships with AI/ML expertise

ORNL partnerships to develop geospatial foundational models for the Health and Extreme Weather Program

ORNL partnership to develop methods to address missing toxicology data

Commercial partnerships to develop NLP/LLM approaches to extract scientific knowledge from text (Dextr)

Academic partnerships to identify and extract X from pathology slides

Knowledge Bases

Extramural funding of four complementarily biomedical knowledge bases

- Comparative Toxicogenomics Database (CTD)
- Exposome Correlation and Interpretation Database (ECID)
- ROBOKOP Graph Knowledgebase
- GeoSpace Knowledgebase

Data Standards

Extramural funding of data standards (begun 2024)

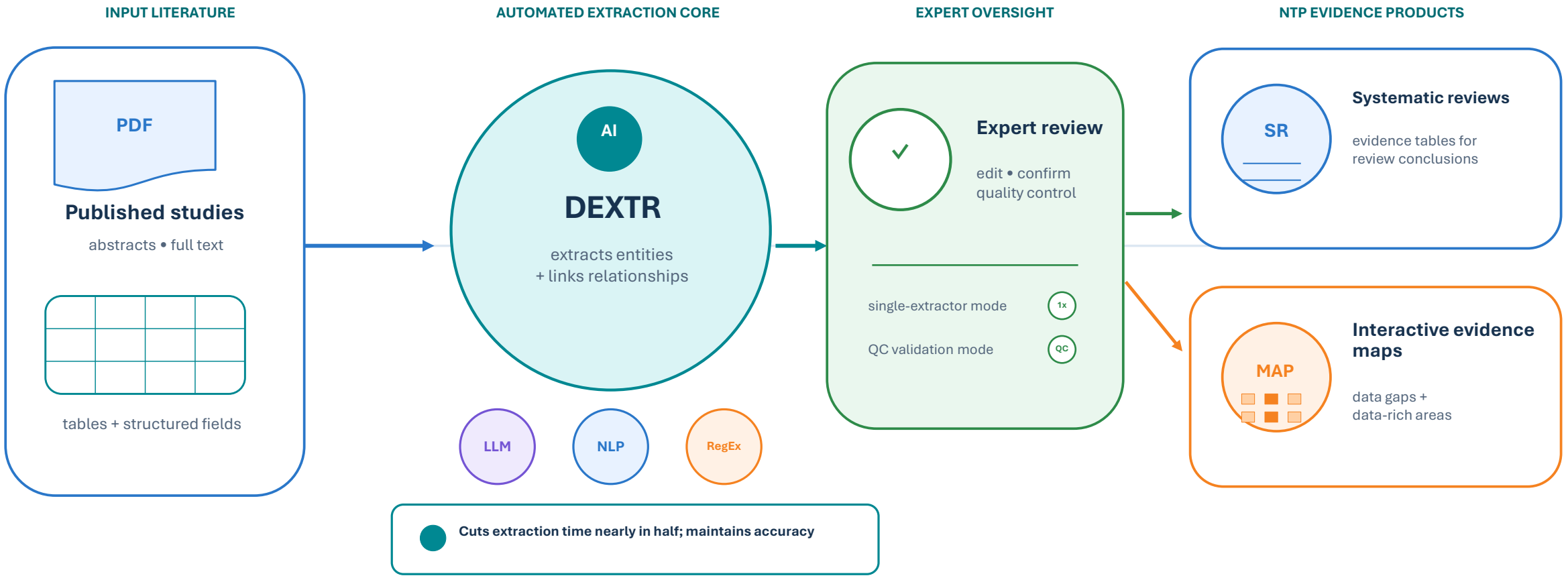
Workshop with AOP and knowledge graph community to advance interoperability of knowledge bases

HEW Funding for development of data standards for Geospatial data

Continued leadership on the Environmental Health Language Collaborative (EHLC)

NIEHS NTP Dextr: AI-assisted evidence synthesis

Human-in-the-loop extraction turns environmental health literature into review-ready data for systematic reviews and evidence maps.



Source basis: NIEHS Dextr project page; NTP noncancer health effects / systematic review methods page; Walker et al. 2022 Dextr evaluation.

Extramural Data Science Capacity Building

Training & Education: Building Researcher Skills and Methods Tutorials

- TAME 2.0
- Mixtures Methods Roadmap
- Novel Spatial Statistics

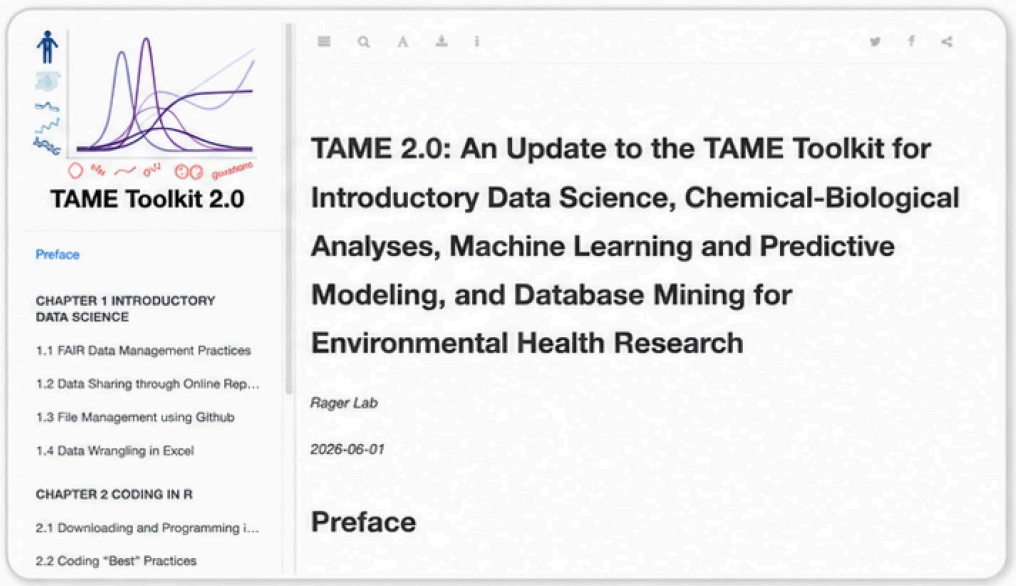
Data Resources & Integration: Databases and Tools for Data Access

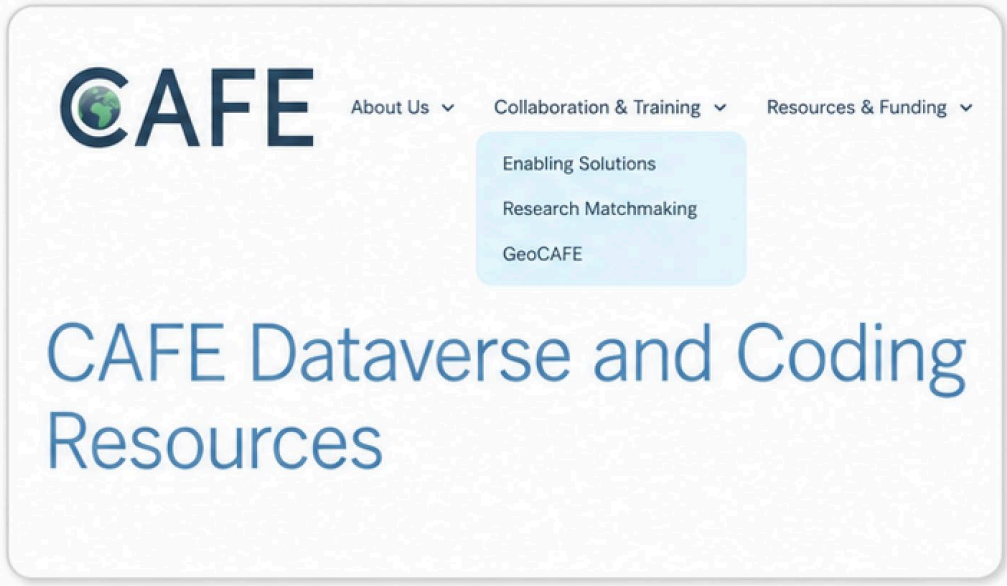
- Environmental Neuroactive Chemicals Database
- Zebrafish Information Network (ZFIN)
- Collapsible Kernel Machine Regression

AI/ML Platforms & Tools: AI/ML for Environmental Monitoring and Prediction

- MyEcoReporter
- Scalable Arsenic & PAH Prediction
- FlowsDT & Urban Air Quality ML

Extramural Data Science Capacity Building





NIEHS SuperFund Program:

Online learning modules for Introductory Data Science, Chemical-Biological Analyses, Predictive Modeling, and Database Mining for Environmental Health

NIH Health and Extreme Weather Program:

Resource for sharing, discovery, and hosting of environmental and and health resources, including data sets, software, and training materials

NIEHS extramural investments through the NIH Data Repositories and Knowledgebases (DRKB) Program

Grant	Title	PI	Institution	Website
U24ES033155	Comparative Toxicogenomics Database (CTD)	Mattingly, Carolyn (Contact); Wiegers, Thomas; Davis, Allan Peter	NORTH CAROLINA STATE UNIVERSITY	https://ctdbase.org/
U24ES035386	Exposome Correlation and Interpretation Database (ECID)	Barupal, Dinesh (Contact); Teitelbaum, Susan	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	https://www.ecidbase.org/
U24ES035214	Supporting Biomedical Discovery with the ROBOKOP Graph Knowledgebase	Tropsha, Alexander (Contact); Bizon, Christopher	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	https://robokop.renci.org/
R24ES036917	GeoSpace - GeoSpatial Knowledgebase for Exposomics	Kloog, Itai (Contact); Barupal, Dinesh	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	https://www.gsbase.org/
U24DK141185	Metabolomics Workbench - National Metabolomics Data Repository	Subramaniam, Shankar	UNIVERSITY OF CALIFORNIA, SAN DIEGO	https://metabolomicsworkbench.org/

2026 NIH-DRKB Annual Meeting hosted by NIEHS awardees at ISMMS

NIEHS extramural investments in data and metadata standards projects

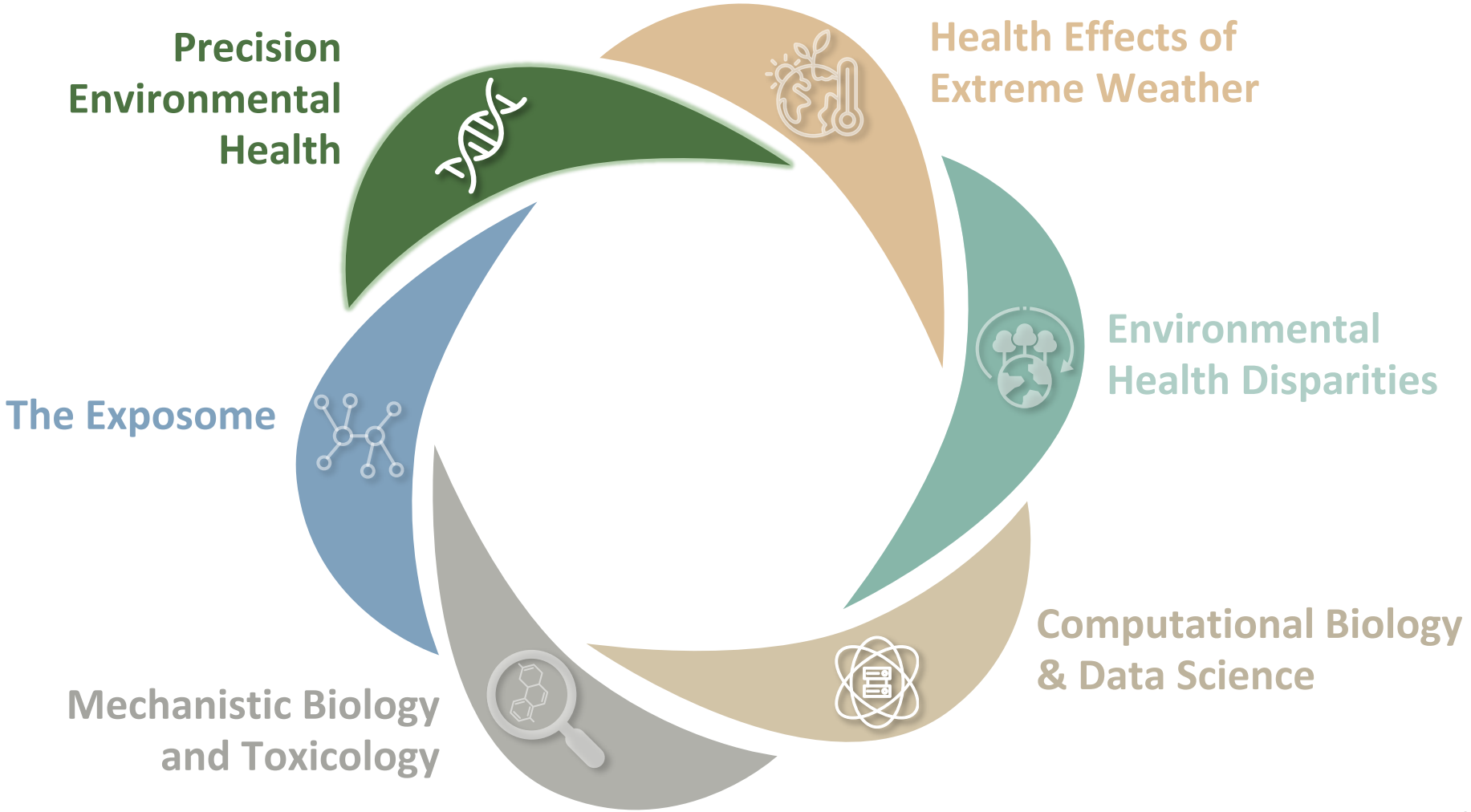
- **Awarded in 2024 through RFA-ES-23-002 - Accelerating Data and Metadata Standards in the Environmental Health Sciences.**
- **Support efforts to advance data and metadata standards, promote interoperability, and improve data sharing and reuse across the environmental health sciences.**

Grant	Title	PI	Institution	Website
R24ES036127	Data Standards to Support Integrated Source to Outcome Modeling	Hines, David	RESEARCH TRIANGLE INSTITUTE	https://s2o-datastandards.github.io/
R24ES036130	Advancing a community-led zebrafish toxicology phenotype atlas	Toro, Sabrina (Contact); Burger, Alexa	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	https://zappfish.org/
R24ES036131	Semantics Standards and Tools for Spatial and Contextual Exposome Data	Bian, Jiang (Contact); Hu, Hui; Tao, Cui	INDIANA UNIVERSITY INDIANAPOLIS	www.spacescans.com
R24ES036134	Community-Driven Sensor Metadata Ecosystem for Exposure Health	Gouripeddi, Ramkiran (Contact); Cummins, Mollie	UNIVERSITY OF UTAH	https://www.smarterexposurehealth.org/
R24ES036135	Accelerating Data and Metadata Standards in the Environmental Health Sciences Study of Emerging Water Contaminants	Cheung, Kei-hoi	YALE UNIVERSITY	https://fair-ehs.med.yale.edu/

SPACESCANS

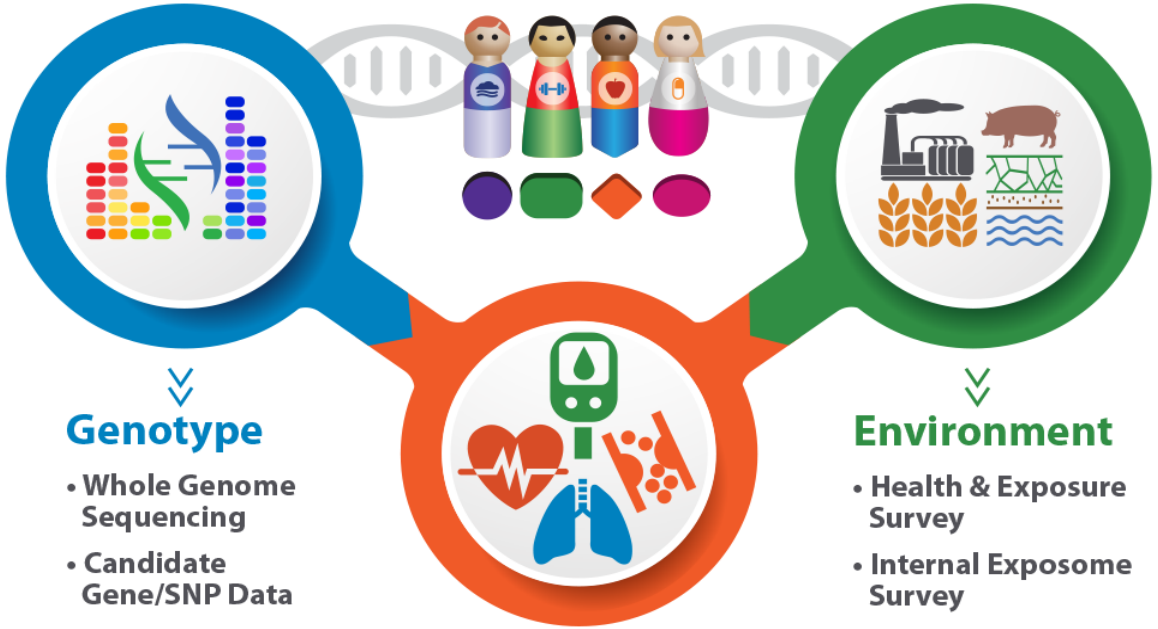
FAIR-EHS

NIEHS Research Areas of Emphasis



NIEHS Personalized Environment and Genes Study (PEGS)

Dr. Alison Motsinger-Reif, Dr. Lawrence Kirschner



Genotype

- Whole Genome Sequencing
- Candidate Gene/SNP Data

Phenotype

- Self-Reported Diseases and Conditions
- Electronic Health Records (EHRs)
- ICD codes

Environment

- Health & Exposure Survey
- Internal Exposome Survey
- External Exposome Survey
- Geographic Information Systems (GIS)

Personalized Environment and Genes Study

Participants: 19,445

Updates on PEGS and All of Us Collaboration

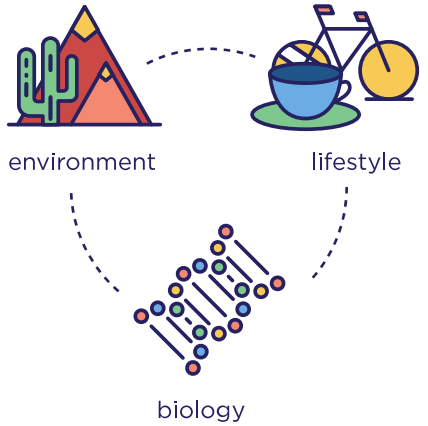
11:15am

- From PEGS to All of Us: Genes, Environment, and Health Across Two Cohorts

Alison Motsinger-Reif, Ph.D.
Chief, Biostatistics & Computational Biology Branch
Principal Investigator
DIR, NIEHS

PEGS
Personalized Environment & Genes Study
Powerful science for integrating genetics and environmental data

NIEHS-*All of Us* Environmental Health and Exposomics Study



- Leveraging expansive data already available in the *AoU* workbench
  - Whole genome sequencing and genome wide chip data
  - Electronic health records
  - Extensive survey questions on lifestyle and social determinants of health
  - Thorough analysis of biospecimens to collect environmental and omics data
- **NIEHS and the *All of Us* Research Program** launched a study to identify environmental risk factors and biomarkers associated with **type 2 diabetes and related complications**.
  - **HHEAR** analyzed stored blood samples from **more than 5,600 *AoU* participants**, initially focusing on individuals who developed type 2 diabetes after joining *All of Us*
  - **Untargeted metabolomics** to measure compounds associated with environmental exposures, diet, pharmaceuticals, and internal biological processes

Scientific and Programmatic Highlights

NIH Grants & Funding: Highlighted Topics with NIEHS Participation

Health and Extreme Weather: Advancing Critical Research to Address Direct and Indirect Health Impacts of Weather-Related Natural Disasters and Emerging Weather-Related Harms

Lead ICO: NIEHS

Integrating Environmental Science and Engineering with Biomedical Research for Effective Exposure Prevention and Disease Intervention

Lead ICO: NIEHS

Environmental Contributors to Infertility

Lead ICO: NIEHS

Using Clinical Studies and Human-Based Models to Understand Vaccine Mechanisms Impacting Efficacy and Safety
Lead ICO: NCATS

Epidemiological Studies of Vaccination and Health Outcomes Across the Lifespan
Lead ICO: NIAID

Advancing Autoimmune Disease Research: Integrating Genetic, Environmental, and Immunological Factors to Improve Diagnosis and Treatment
Lead ICO: ORWH

Advancing the Science of Prenatal Dietary Supplements
Lead ICO: ODS

Breaking Barriers: Integrating Immunology and Neuroscience to Transform AD/ADRD Research and Bring a Better Understanding of the Aging Brain
Lead ICO: NIA

Enhancing Scientific Rigor, Transparency and Replicability
Lead ICO: NINDS

Characterizing Interactions between Biology and Electromagnetic Radiation
Lead ICO: NIBIB

Accelerating Hidradenitis Suppurativa Research
Lead ICO: ORWH

Advancing Research into the Cause and Treatment of Rare Skin Diseases
Lead ICO: NIAMS

Advancing Nutrition Research to Inform Regulatory Practice
Lead ICO: ONR

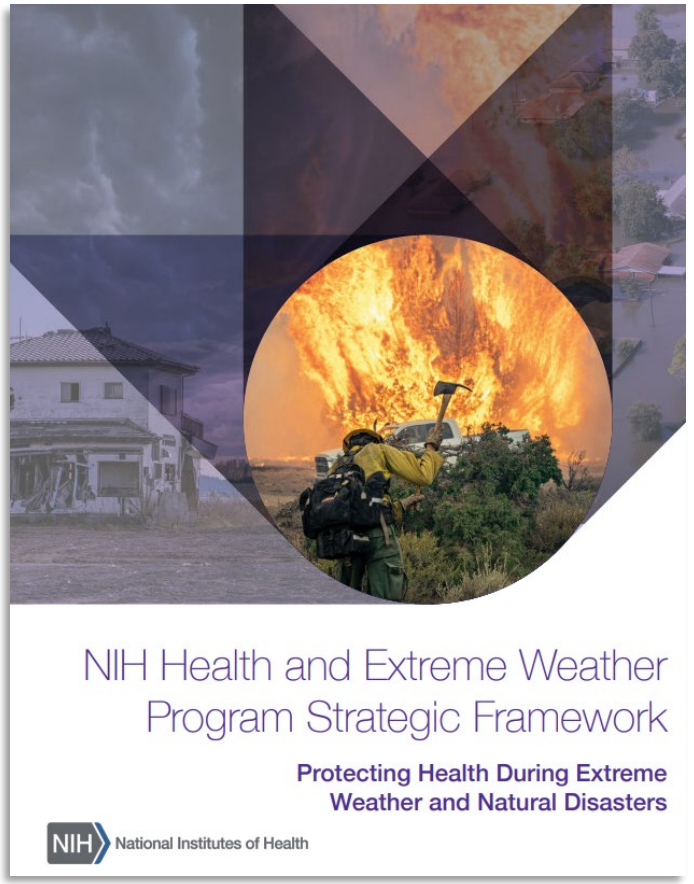
Understanding Nutritional Influences on Neurodevelopmental Disorders in Children
Lead ICO: ONR

1st National Symposium on Wildfires and Their Impact on the Environment and Health

May 6, 2026

RUTGERS UNIVERSITY
Office for Research

- Wildfire smoke has emerged as one of the most pressing environmental health challenges of our time, affecting millions across North America annually.
- This symposium explored cutting-edge research on health impacts, examined effective mitigation strategies, and foster partnerships to protect public health.
- The NIH HEW Program released its Strategic Framework in September 2025, specifically calling out **wildfire-health** research as a major focus of the program.



2026 Centers for Oceans and Human Health Annual Meeting

May 18-20, 2026

WOODS HOLE OCEANOGRAPHIC INSTITUTION

"When ocean balance is disrupted, human health is directly impacted."

UNC Chapel Hill Nutrition Research Institute

June 5, 2026

Nutrition Research Institute

Pioneering Personalized Nutrition

EATUNIQUELY

President's Cancer Panel Meeting

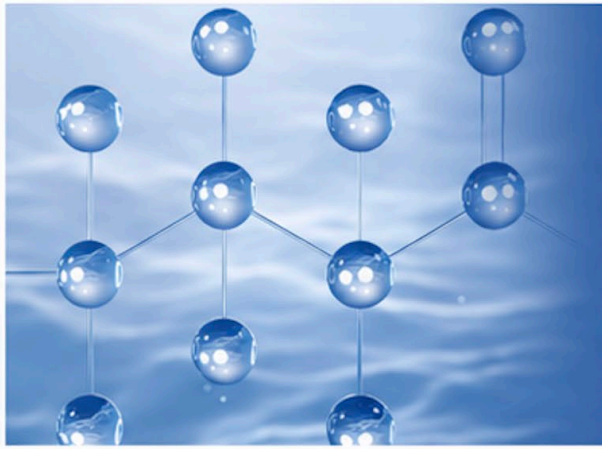
June 8-9, 2026

Modifiable Risk Factors for Cancer: Opportunities for Prevention

- Meeting examined lifestyle and environmental contributors to cancer risk, with attention to early-onset cancers
- NIEHS presentation focused on identifying environmental carcinogens to inform prevention and public health action
- Reinforced NIEHS's role in linking exposure science, mechanistic toxicology, and cancer prevention

Charged to monitor the development and execution of the activities of the National Cancer Program and report to the President on progress, efficacy, and opportunities for improvement.

National Institute of Environmental Health Sciences
Your Environment. Your Health.



WORKSHOP ON ADVANCING PFAS AND CANCER RESEARCH

June 29-30, 2026
Durham, NC & Virtual

This workshop will explore new research opportunities and approaches to address current gaps in knowledge around how PFAS impacts cancer risk and control, including studies of special populations, measurement and exposure assessment issues, and biomarker data pooling opportunities.

Keynote Speakers

Jonathan Hofmann, PhD, MPH
Senior Investigator, Occupational and Environmental Epidemiology Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute

Douglas Walker, PhD
Associate Professor, Gangarosa Department of Environmental Health, Emory University

Jeanette Stingone, PhD
Assistant Professor of Epidemiology, Columbia University Mailman School of Public Health

events.cancer.gov/niehs/pfascancerworkshop/registration

Moving Forward: Concept Development and Strategic Investments

1:30pm

- Micro and Nanoplastics Research Coordination Center

Lingamanaidu Ravichandran, Ph.D.
Program Officer, DERT, NIEHS

Anika Dzierlenga, Ph.D.
Scientific Program Director, DERT, NIEHS

2:15pm

- Health and Extreme Weather Program Next Steps

Ashlinn Quinn, Ph.D.
Program Officer, DERT, NIEHS

3:00pm

- New Training Program

Carol Shreffler, Ph.D.
Program Officer, DERT

NIEHS Workforce, Capacity, and Infrastructure

NIEHS Workforce, Capacity, and Infrastructure

- NIEHS is working with NIH to build in critical areas
- Examples include:
  - **Workforce** – including administrative and scientific positions
    - New tenure-track investigator positions in Reproductive & Developmental Biology (RDBL) and Epidemiology (EB)
    - New DTT staff scientist positions in Developmental Neurotoxicology and Immunotoxicology
  - **Capacity & Infrastructure**
    - Clinical & Computational Sciences Building

Concept rendering of the Clinical and Computational Sciences Building

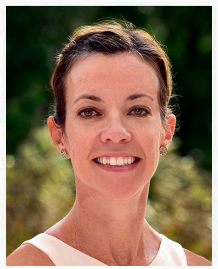
NIEHS Awardees and Recognition

NIEHS Awardees and Recognition

- 2026 Global Exposome Symposium for Brain Health
- Distinguished Leadership Award from the Bordeaux Exposome Symposium to Dr. David Balshaw, Ph.D.

2026 Innovation Awards from NIH Office of AIDS Research

A Novel In Vitro Model to Study Placenta–Heart Interactions in the Context of HIV


Janine Santos


Vesna Chappell


Carlos Guardia


Tyler Beames


Nicole Taube

Reprogramming HIV to Deliver Immune Protection Instead of Destruction


Shih-Heng Chen


Negin Martin


Serena Dudek


Michael Fessler

NIH Awards at NIEHS

Alan Jarmusch, Ph.D.

Director's Challenge Innovation Award

ORWH Intramural Innovation Award

Study of Environment, Lifestyle & Fibroids Research Team

2025 NIH Director's Award

Clarice Weinberg, Ph.D.

Director's Challenge Innovation Award

NAEHS Council Members

Stephania A. Cormier
Ph.D.

Olivier Deschenes
Ph.D.

J. Timothy Greenamyre
M.D., Ph.D.

Patricia Nez Henderson
M.P.H., M.D.

Darryl Hood
Ph.D.

Keri Hornbuckle
Ph.D.

Cathrine Hoyo
Ph.D., M.P.H.

Gökhan M. Mutlu
M.D.

Maria Savasta-Kennedy

NAEHS Council Ex-Officio Members

Robert F. Kennedy Jr.
J.D. (HHS)

Jay Bhattacharya
M.D., Ph.D. (NIH)

Jason Aungst
Ph.D. (FDA)

Yulia Iossifova Carroll
M.D., Ph.D. (CDC)

Maureen R. Gwinn
Ph.D. (EPA)

Thank you!

National Institute of Environmental Health Sciences

National Toxicology Program
U.S. Department of Health and Human Services