

Preparing for a Future of AI-Enabled Biology

IN-PERSON AGENDA: AUGUST 11 – 12, 2026

National Academy of Sciences Building, Lecture Room

2101 Constitution Avenue NW, DC 20418

Advances in artificial intelligence (AI) are transforming the life sciences, expanding capabilities in biological design and discovery. These developments raise important questions about how AI-enabled tools may reshape biological capabilities over the coming decades, including both transformative applications and new forms of biological risk. At the same time, significant uncertainty remains about what is substantively new, what is plausible in real-world contexts, and where concerns may be overstated or insufficiently understood.

Addressing these questions requires examining both what may become technically possible and how risks emerge in practice. This includes distinguishing deliberate or misuse-related biological threats from naturally occurring risks; risks in biological design from those associated with translation, detection, and deployment; and how capabilities, incentives, and constraints vary across different categories of actors and stages of the AI-bio lifecycle. The workshop will also consider how governance can remain adaptive as AI-bio capabilities evolve, while preserving beneficial uses and avoiding frameworks that may quickly become outdated. While the primary focus will be AI-enabled biological design and threat possibilities, discussions will consider surveillance and detection where relevant to recognizing, classifying, and addressing emerging threats.

To support forward-looking discussion, the National Academy of Medicine (NAM), in collaboration with the National Academies and with support from the Coalition for Epidemic Preparedness Innovations (CEPI), will convene a two-day workshop to assess how AI-enabled biological risks may evolve in the coming decade. The workshop will bring together experts to examine areas of agreement and disagreement, evaluate tradeoffs, and develop a grounded understanding of AI-enabled biological risks. Workshop proceedings will inform a forthcoming consensus study on AI-enabled biological risks and implications for medical countermeasure (MCM) preparedness and response. The workshop will emphasize capability trajectories, real-world constraints, and preparedness implications rather than focusing solely on specific threat scenarios.

Workshop Objectives

- Assess where advances in AI meaningfully expand biological capabilities and alter biological risk, with particular attention to AI-enabled biological and viral design.
 - Distinguish types of risk and how they emerge across the AI-bio lifecycle, from model development and biological design through synthesis/access, detection, and deployment.
 - Ground discussion in plausible threat pathways, including the capabilities, incentives, and constraints of state and non-state actors.
 - Identify key uncertainties, disagreements, blind spots, and evidence gaps, including capability thresholds, digital-to-physical translation, detection, and intervention feasibility.
 - Evaluate implications for preparedness, including MCM development, prevention, detection, response, and surveillance needs.
 - Identify priority risks, intervention areas, tradeoffs, and roles for key stakeholders.
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DAY 1: Tuesday, August 11

10:00 am WELCOME AND MEETING OVERVIEW

- Victor Dzau, Duke University
- Richard Hatchett, Coalition for Epidemic Preparedness Innovations
- Lalitha S. Sundaram, University of Cambridge
- Herbert “Skip” Virgin, Washington University School of Medicine in Saint Louis and the Gates Foundation

10:40 am KEYNOTE: AI-BIO 2045: WHAT BECOMES POSSIBLE?

- Speaker: Jim Collins, Massachusetts Institute of Technology

11:25 am PANEL I: GROUNDING AI-BIO RISK IN REAL-WORLD ACTORS AND CONSTRAINTS

- Kathleen Vogel, Arizona State University
- Gregory D. Koblentz, George Mason University
- Jennifer Nuzzo, Brown University
- Brett Edwards, University of Bath

12:15 pm LUNCH (45 mins)

1:00 pm PANEL II: ASSESSING HOW AI AND EMERGING TECHNOLOGIES ARE CHANGING THE BIOLOGICAL LANDSCAPE

- Harshi Mukundan, Lawrence Berkeley National Laboratory
- James Zou, Stanford University
- Héctor García-Martín, Lawrence Berkeley National Laboratory
- Angie Rasmussen, University of Saskatchewan
- Man-Wah Tan, Genentech

2:15 pm COFFEE BREAK (15 mins)

2:30 pm PANEL III: WHERE AND HOW COULD NOVEL RISKS EMERGE ACROSS THE LIFECYCLE?

- Yong-Bee Lim, Federation of American Scientists (former)
- Shankar Sundaram, Lawrence Livermore National Laboratory
- Kirsten Kulcsar Weand, Alloy Therapeutics / IBBIS
- Kjersten Fagnan, Joint Genome Institute
- Stephen Johnson, UK Ministry of Defence

3:45 pm PLENARY DAY I: WHAT POSSIBILITIES COULD EMERGE IN THE COMING DECADE?

- Jasper Götting, SecureBio
- Christine Parthemore, Radical Numerics
- Crystal Grant, Council on Strategic Risks
- Ben Oppenheim, Berkeley Risk and Security Lab

4:30 pm DAY 1 CLOSING REMARKS

- Amarda Shehu, George Mason University

4:45 pm ADJOURN DAY 1

DAY 2: Wednesday, August 12

8:30 am BREAKFAST

9:00 am DAY 1 SYNTHESIS AND DAY 2 FRAMING

- Lalitha S. Sundaram, University of Cambridge
- Herbert “Skip” Virgin, Washington University School of Medicine in Saint Louis and the Gates Foundation

9:20 am MANAGING RISKS: PREVENTION, PREPAREDNESS, AND FUTURE-PROOF GOVERNANCE

- Megan Palmer, ARPA-H
- Steph Guerra, RAND
- Sebastian Maurer-Stroh, A*STAR
- Suryesh Namdeo, Indian Institute of Science
- Sam Weiss Evans, Federation of American Scientists
- Matthew Hepburn, Avinora LLC

10:45 am COFFEE BREAK (15 mins)

11:00 am PLENARY DISCUSSION DAY II AND BREAKOUT INSTRUCTIONS

- Ann Arvin, Stanford University

11:45 am LUNCH (30 mins)

12:15 pm BREAKOUT GROUPS (WORKING SESSION)

Group 1: Early-Stage Risks (AI Models and Biological Design)

Leads: Bruce Wittmann, Microsoft; David Robertson, MRC-University of Glasgow

Group 2: Translation and Access (Synthesis and Enabling Infrastructure)

Leads: Ann Arvin, Stanford; Beth Cameron, Brown University

Group 3: Deployment and Actors (Real-World Threat Pathways)

Leads: Nancy Connell, Rutgers New Jersey Medical School; Tze-Yun Leong, National University of Singapore

Group 4: Cross-Cutting Governance and Tradeoffs

Leads: Alex John London, Carnegie Mellon; Orin Levine, Washington Research Foundation

1:00 pm BREAKOUT REPORT-OUT AND SYNTHESIS

- Beth Cameron, Brown University

1:30 pm WORKSHOP CLOSING

- Lalitha S. Sundaram, University of Cambridge (virtual)
- Herbert “Skip” Virgin, Washington University School of Medicine in Saint Louis and the Gates Foundation

1:45 pm ADJOURN DAY 2