ARPA-H: The Mission

The Advanced Research Projects Agency for Health

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The National Academies of Sciences, Engineering, and Medicine
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Our Mission

Accelerate better health outcomes for everyone.

ARPA-H

President Biden's Vision

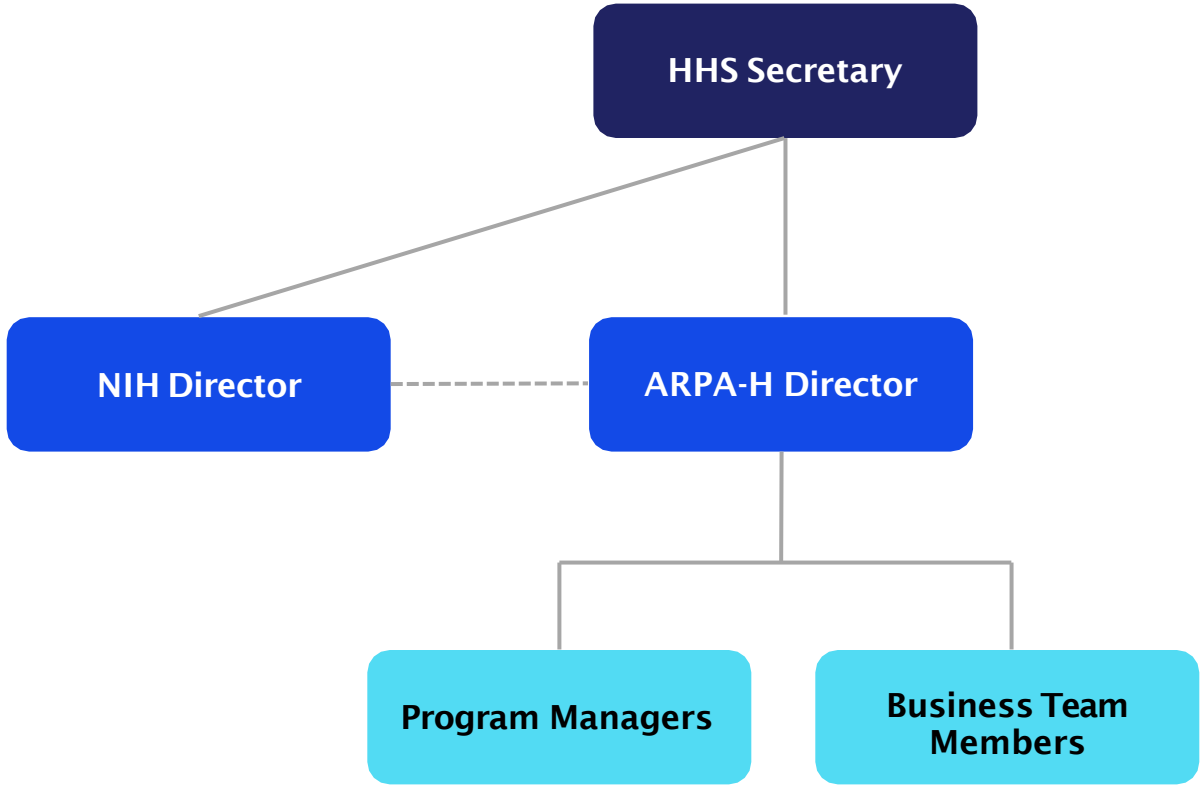
"ARPA-H will pursue ideas that break the mold on how we normally support fundamental research and commercial products in this country."

"Ideas so audacious that people say they just might work only if, only if, we could try. Well, we're about to try in a big way."

- President Biden Remarks, March 18, 2022

ARPA-H

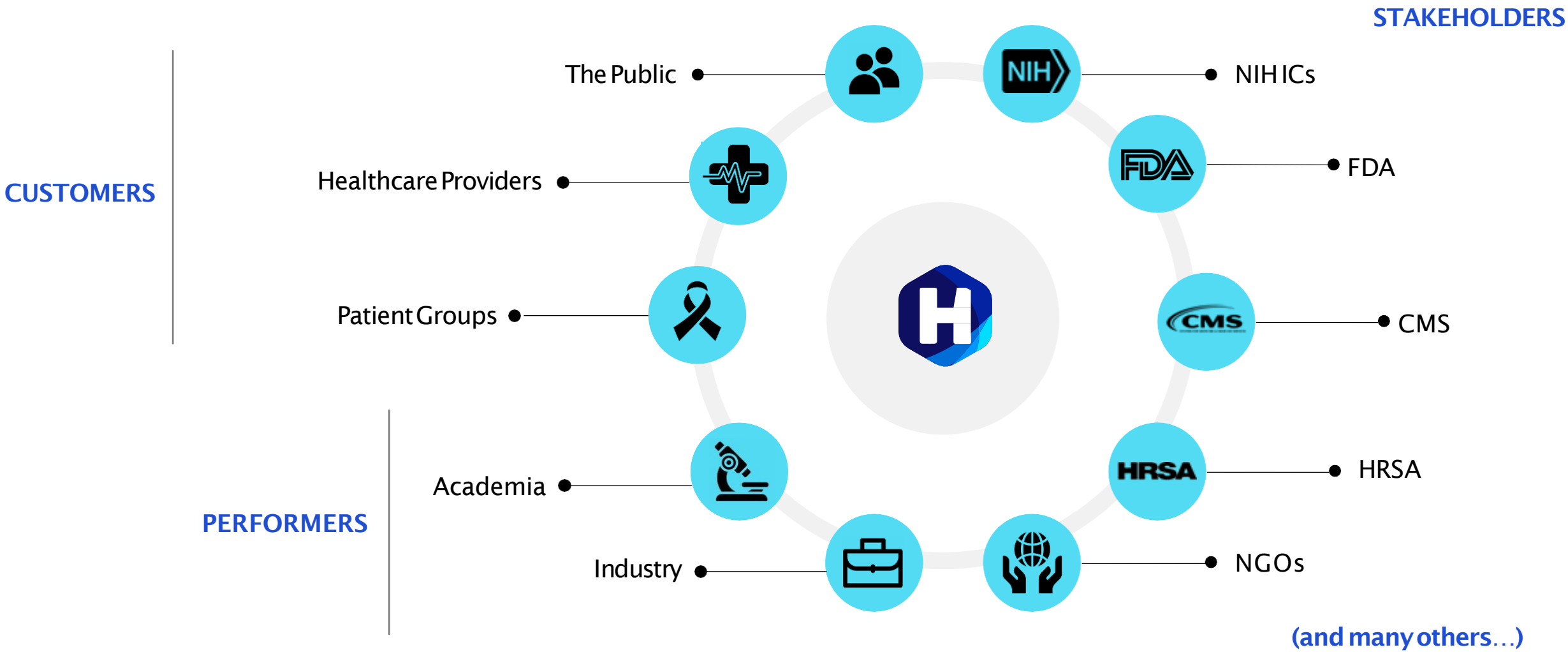
ARPA-H Organization within HHS



ARPA-H Key Features & Authorities

- ARPA-H is a Federal R&D Funding Agency
- Congress has provided $2.5B to start; funding independent of NIH
- Independent component of HHS within NIH, but not an Institute
- ARPA-H Director reports directly to HHS Secretary
- No internal research labs; disease agnostic
- Lean and nimble management structure
- Bottom-up Program Manager driven ideas and decision-making
- ~30/70 Fed/contractorworkforce
- Not grant-based; focus on Cooperative agreements, OTAs, contracts
- High Risk/High Impact Research

ARPA-H Health Ecosystem



ARPA-(H)eilmeier Questions

Towards a Well-Defined Problem

1. What are you trying to do? What health problem are you trying to solve?
2. How does this get done at present? Who does it? What are the limitations of present approaches?
3. What is new about our approach? Why do we think we can be successful at this time?
4. Who cares? If we succeed, what difference will it make?
5. What are the risks? That may prevent you from reaching your objectives? Any risks the program itself may present?
6. How long will it take?
7. How much will it cost?
8. What are our mid-term and final exams to check for success?
9. To ensure equitable access for all people, how will cost, accessibility, and user experience be addressed?
10. How might this program be misperceived or misused (and how can we prevent that from happening)?

Program Lifecycle

From ideas to solutions in the real world

DESIGN PROGRAMS

- ARPA-Hard and well-defined problems in health
- Heilmeier Framework
- High risk/High consequence
- Stakeholder Insights

BUILD A PERFORMER TEAM

- Solicit Solutions from the community
- Find the best non-traditionals, industry, and academics to solve
- Build new coalitions

EXECUTE & MEASURE

- Active program management against metrics; PM = CEO
- Stakeholder engagement throughout to ensure transition
- Pivot resources when needed

LEARN & GROW

- Capture and share insights
- Technical honesty
- Advance the state of the art; 10x+ improvement, no incremental change

COMMERCIALIZE & TRANSITION

- Assist company formation or licencing
- Provide mentorship, connections to customers, investors
- De-risk investments

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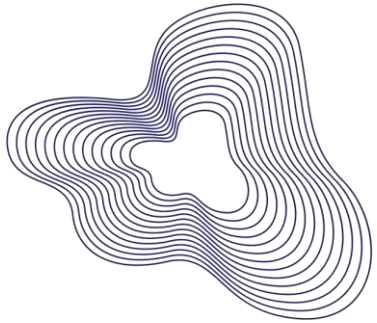
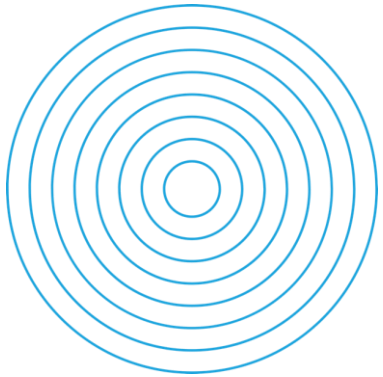
Initial Mission Focus Areas



Health Science Futures

Expanding what's technically possible

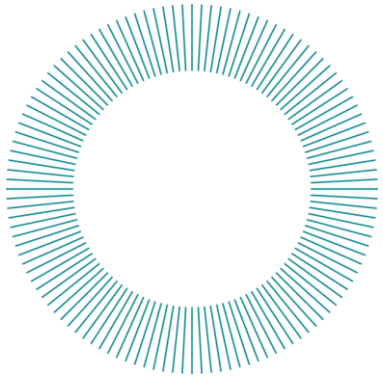
Accelerate advances across research areas and remove limitations that stymie progress towards solutions. These tools and platforms apply to a broad range of diseases.



Scalable Solutions

Reaching everyone quickly

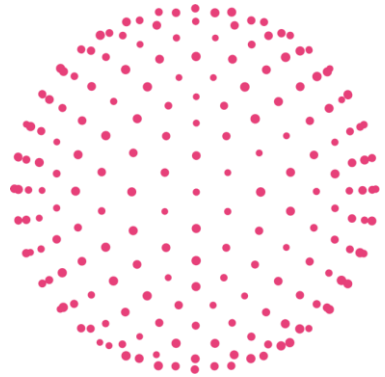
Address health challenges that include geography, distribution, manufacturing, data and information, and economies of scale to create programs that result in impactful, timely, and equitable solutions.



Proactive Health

Keeping people from being patients

Preventative programs will create new capabilities to detect and characterize disease risk and promote treatments and behaviors to anticipate threats to Americans' health, whether those are viral, bacterial, chemical, physical, or psychological.



Resilient Systems

Building integrated healthcare systems

Create capabilities, business models, and integrations to weather crises such as pandemics, social disruption, climate change, and economic instability. Systems are sustained between crises—from the molecular to the societal—to achieve better health outcomes.

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Program Managers

What are the Phenotypes?

Uncommon people with common traits

"THINK LIKE A CEO"

RECOGNIZED EXPERTISE

SERIOUS DRIVE

INSATIABLE CURIOSITY

NO FEAR OF FAILURE

INTERDISCIPLINARY TRACK RECORD

TECHNICAL HONESTY

DECISIVE

CUSTOMER-CENTRIC

Different Approaches and Career Stage

THE PROBLEM SOLVER

Motivated by personal experience; can't let it go.

THE ROOKIE

Early career. Unbiased, looks at the world with fresh eyes.

THE DREAMER

Intensely curious about how the world works, motivated by search for objective facts/truth.

THE STATUSQUO CHALLENGER

Mid-career. Frustrated by the limits of the existing system.

THE SPRINTER-TINKERER

Intrinsic desire to build and experiment and quickly iterate to achieve path to market. Cares about application, not theory.

THE SAGE

Late career. Experience yields deep understanding.

PMs Define Success for Future Real-World Impact

At ARPA-H, our Program Managers identify a well-defined problem to pursue through the program life cycle to bring solutions forward that:

"Survive in the wild"

Real people **want** them and enthusiastically **adopt** them.

Separate the improbable from the impossible

Remove the barriers of today's technologies and systems.

Deliver better health to everyone

The healthy, the sick, providers, hospitals, all 50 states, the world…

Program Managers will use flexible contracting vehicles, including Cooperative Agreements, Contracts, and Other Transactional Authorities to create these solutions.

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CALL TO ACTION

Apply - Our top priority is to **hire the Program Managers** that will bring well-defined problems to ARPA-H and build the teams to solve them.

Engage - We are actively engaging research, patient, and stakeholder, communities; we want to hear from you!

Current Open Positions

- Director Acquisitions and Contracting Office
- Chief Data Officer (CDO)
- Chief of Staff (CoS)
- Senior Health Economist
- Chief Artificial Intelligence Officer (CAIO)

Apply Now

arpa-h.gov | careers@arpa-h.gov

Cancer Cabinet

Collective action to end cancer as we know it

OFL

Office of the First Lady

GPC

Gender Policy Council

Office of Management and Budget

OLA

Office of Legislative Affairs

OPE

Office of Public Engagement

Office of Science and Technology Policy

DPC

Domestic Policy Council

U.S. FOOD & DRUG ADMINISTRATION

CMS CENTERS FOR MEDICARE & MEDICAID SERVICES

NIH National Institutes of Health *Turning Discovery Into Health*

CDC

NIH NATIONAL CANCER INSTITUTE Center for Cancer Research

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ARPA-H in the Context of the Moonshot

Cancer Moonshot milestone ARPA-H milestone

JAN 2016

Obama tasks Biden (VP) to launch effort to "end cancer as we know it" at last State of the Union

Listening Sessions

DEC 2016

The Cures Act is signed into law. The Cancer Moonshot is appropriated

Research, Trials, Patents

MAR 2022

Biden calls on Congress to fund ARPA-H during State of the Union

Listening Sessions

ARPA-H is appropriated with a budget of $1B over 3 years

JUL 2022

New goals are set for the Cancer Moonshot 2.0

AUG 2022

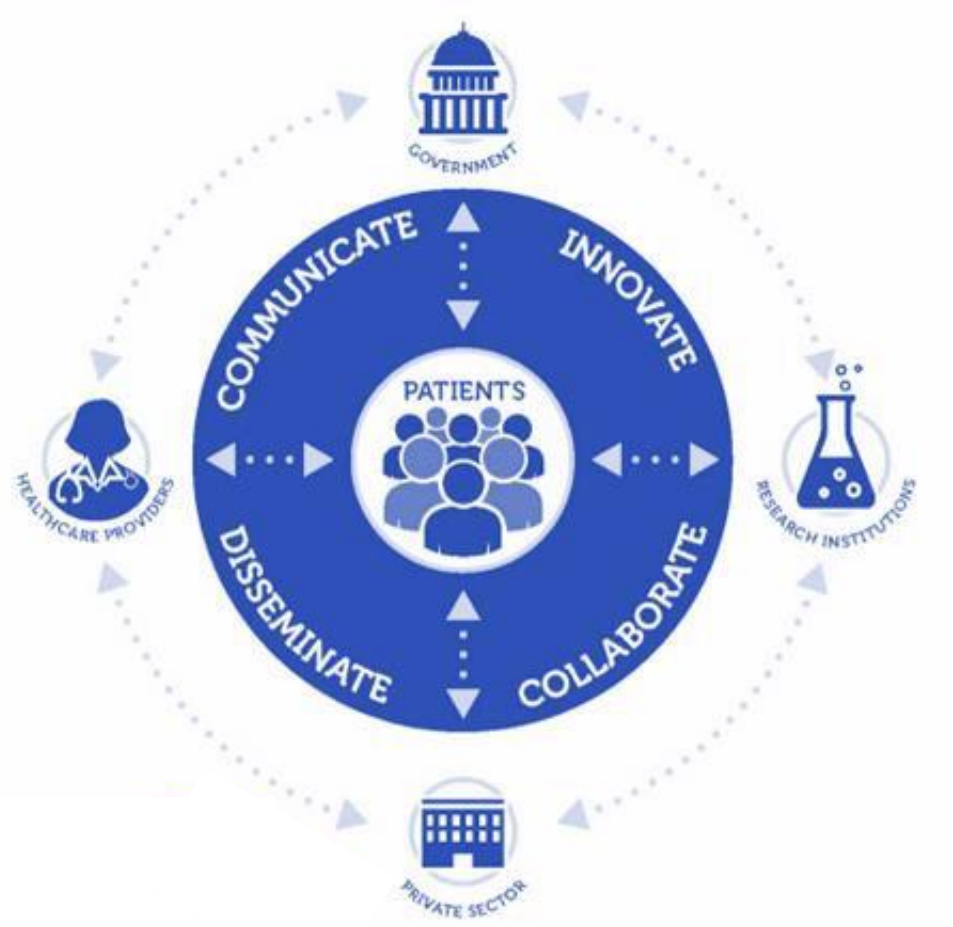
New NCI Director Announced

SEP 2022

Inaugural ARPA-H Director announced at Cancer Moonshot event – Agency will expand the toolkit to combat ALL diseases

Cancer Moonshot

2022 Strategic Priorities



1. Close the screening gap
2. Address environmental exposure
3. Decrease impact of preventable cancers
4. Bring cutting edge research to patients
5. Support patients and caregivers

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How Might ARPA-H Contribute to the Moonshot?

ARPA-H can appoint a Cancer Moonshot Champion to:

- **Identify** internal efforts across mission offices that utilize the whole of ARPA-H that are aligned to Cancer Moonshot
- **Engage** stakeholders on behalf of the government
- **Collaborate** with Cancer Moonshot leaders in OSTP, NIH, and across government

PMs can:

- **Leverage** infrastructure (e.g., data, networks) and implementation pathways
- **Translate** ongoing research efforts into capabilities for researchers or patients
- **Solve** problems prioritized in the Moonshot that can't be solved otherwise

Striking the right balance:

Collaborating to seize the moment, while maintaining the **flexibility** for ideas and domains beyond cancer.

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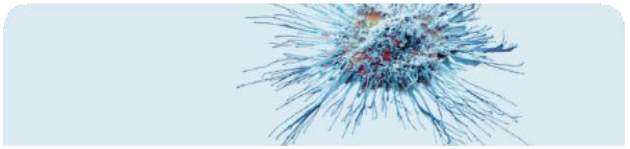
Examples of Notional Programs Addressing Moonshot Strategic Priorities

Close the screening gap

What if new at-home screens meant you didn't need to go to the hospital for a colonoscopy anymore?

Address environmental exposure

What if wearable consumer devices also gave you a data readout of environmental risk over time?

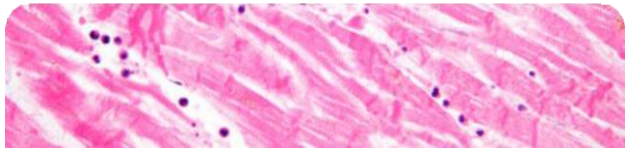


Decrease impact of preventable cancers

What if we had new tools to measure and modulate microenvironments in the body to prevent metastasis?

Support patients and caregiver

What if your electronic health record advocated for you even when you weren't at your doctor's office?



Bring cutting-edge research to patients

What if AI/ML tools could readily interpret 3D histopathology of specimen and the data could be shared instantly with doctors to improve patient care?

Address inequities

What if we could ensure that every community in America – rural, urban, Tribal, and everywhere else – has access to cutting-edge cancer diagnostics, therapeutics, and clinical trials?

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Notional Example: **Digital Histopathology Capability**

Cancer priorities at ARPA-H are cross-cutting **within** programs

Notional Program Problem:

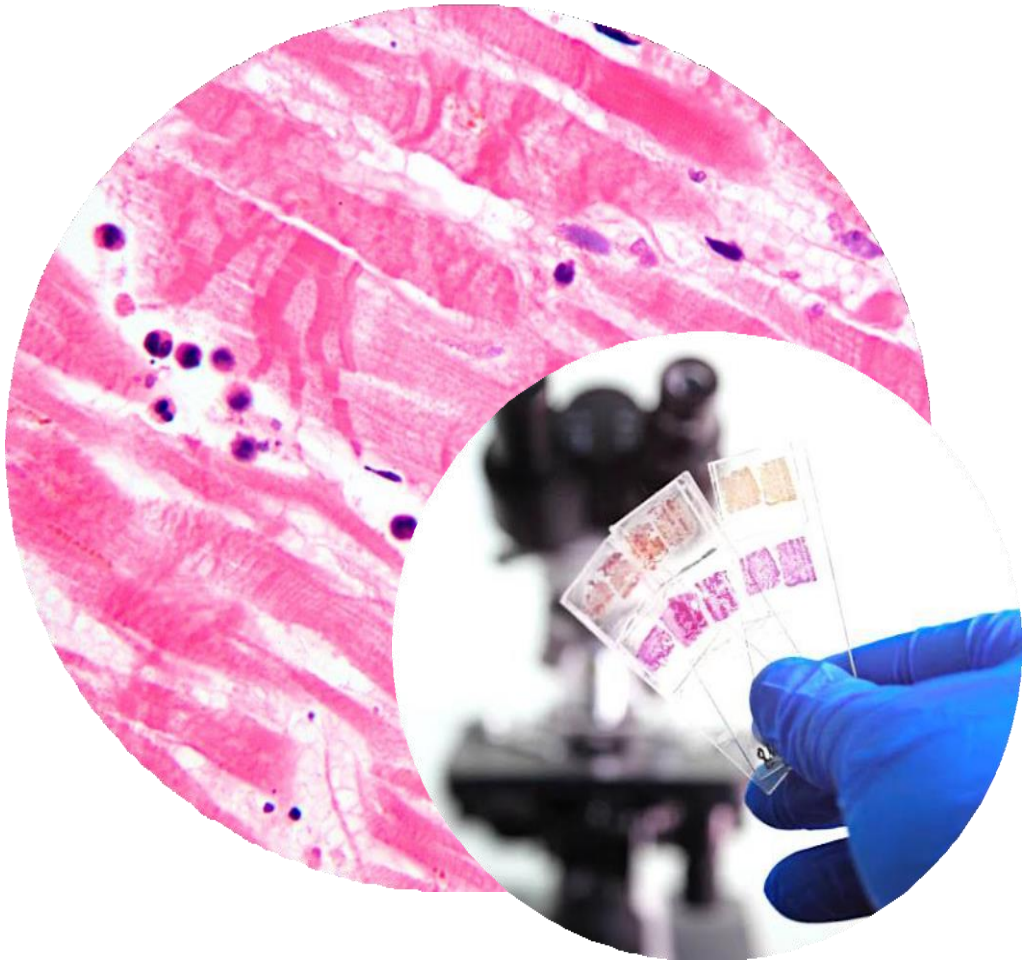
Current histopathology practice is manual, requires an expert in the loop, is costly, and data is not accessible to share broad insights to improve patient care.

Technical areas include:

- Design and develop novel multi-omic histopath assays
- AI, ML, and data technology for automated diagnostics and 3D tissue characterization
- Data integration into care pathways and digital advocacy

Applications/Indications include:

Proofs of concept for metastatic cancers, neurodegenerative disease, and wound healing



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“Full Contact” Program Management

- Responsibility to identify well-defined problems in health and assemble teams from industry, academics, and government to solve
- Acts as the CEO of Programs – has autonomy as a decision-maker; protects risk-taking by ensuring all decisions are made on technical merit, mission benefit
- Develops well-structured programs that decouple concept risk (high) with execution risk (moderate)
- Provides active and cooperative oversight and direction of all programs and performers
  - Define technical milestones/deliverables
  - Monitor technical milestones/deliverables
  - Pivot resources as needed
  - Stakeholder Engagement
  - Budget management
  - Drive towards transition
- Expected to launch ~1 program/year
- Lead a contractor SETA team to execute day-to-day activities

First acting deputy director, Dr Adam Russell

Our Vision

Solutions to preserve and expand health

Our Moment

We live in an era of complex technologies with massive economic and social disruptions. Powerful biological factors include pandemics that make us sick and emerging biotechnologies to make us well.

Our Promise

ARPA-H Program Managers (PMs) design, build, and launch ***solutions*** to create the best version of our health future.

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