

Using America's Seed Fund to Expand the University Innovation Ecosystem



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Introducing Today's Presenters



Jennifer Shieh, PhD
U.S. Small Business Administration



Ashim Subedee, PhD
NIH Small Business Education and Entrepreneurial Development (SEED) Office



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Using America's Seed Fund to Expand the University Innovation Ecosystem

Jennifer Shieh, PhD
Chief Scientist & Program Manager
Office of Investment & Innovation

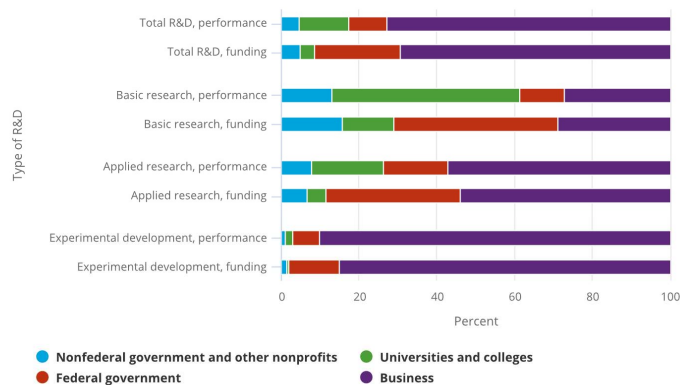
July 13, 2021

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The Challenge

How do we ensure US investment in R&D is translated from discovery to real-world impact?

U.S. R&D performance and funding, by type of R&D and sector: 2017



Source(s)
NCSES, National Patterns of R&D Resources.
Indicators 2020: R&D; Indicators 2020: Academic R&D

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Small Business Innovation Research (SBIR)

→ 3.2% of the extramural research budget for agencies with a budget greater than \$100 M per year

~\$3.53 billion minimum spend each year

Small Business Technology Transfer (STTR)

→ 0.45% of the extramural research budget for agencies with a budget greater than \$1B per year

~\$485 million minimum spend each year

Over 5,000 new awards every year!



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Why?

To help startups and small businesses transform their high-risk, high-impact technologies into marketable products and services that solve problems.

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SBA Office of Innovation & Technology (OI&T) Major Responsibilities

- Provides oversight of SBIR/STTR Programs
 - Monitors participating agencies, develops policy, improves quality of data, manages SBIR.gov, and reports to Congress
- Builds capacity within SBIR Support Organizations
 - Manages two funding programs: [FAST](#) & [GAFC](#)
 - Provides training for [innovation ecosystem builders](#) (state economic development, universities, accelerators, PTACs & SBA Resource Partners)
- Leads Collaborative Federal Outreach and Training
 - Focuses on underrepresented populations
 - Promotes SBA as the face of “America’s Seed Fund”

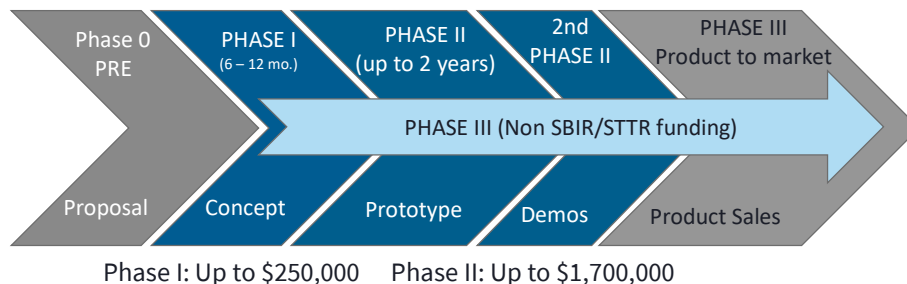


More on the SBA Innovation team at www.sbir.gov/about/leadership

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Only Phases I /II use SBIR/STTR \$\$\$\$



The approval process is lengthy and highly competitive



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What People Love about SBIR/STTR

- **Non-Dilutive Capital**
- **IP/Data Rights**
- **Direct follow-on Phase III awards**



Which agencies fund both SBIR and STTR?

- Defense
- Energy
- Health and Human Services
- National Aeronautics and Space Administration
- National Science Foundation

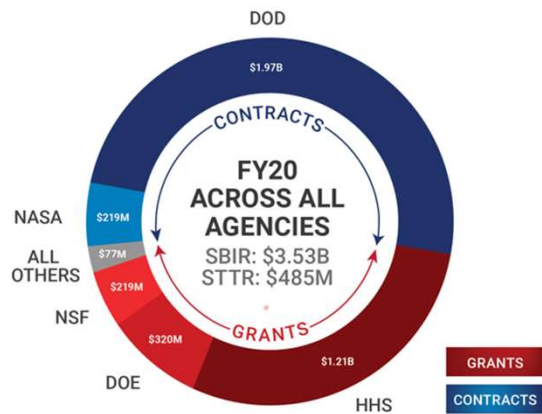


Which agencies fund SBIR only?

- Agriculture
- Education
- Environmental Protection Agency
- Homeland Security
- National Institute of Standards and Technology
- National Oceanic and Atmospheric Administration
- Transportation



Fiscal Year 2020 SBIR/STTR Budgets (Combined)



Agencies with SBIR and STTR Programs	2020 Budget
Department of Defense (DoD)*	\$1.97 B
Department of Health and Human Services (HHS)**, including the National Institutes of Health (NIH)	\$1.21 B
Department of Energy (DOE), including Advanced Research Projects Agency – Energy (ARPA-E)	\$320 M
National Science Foundation (NSF)	\$219 M
National Aeronautics and Space Administration (NASA)	\$219 M
Agencies with SBIR Programs	2020 Budget
U.S. Department of Agriculture (USDA)***	\$30 M
Department of Homeland Security (DHS)	\$14 M
Department of Commerce (DOC): National Institute of Standards and Technology (NIST)	\$3.7 M
Department of Commerce (DOC): National Oceanic and Atmospheric Administration (NOAA)	\$10 M
Department of Transportation (DOT)	\$12.7 M
Department of Education (ED)	\$7.7 M
Environmental Protection Agency (EPA)*	\$3.7 M

NIH also issues contracts; and, within DOC, NIST uses cooperative agreements.

Colleges, Universities are Frequent Partners & Beneficiaries in Both SBIR and STTR

- Nearly 50% of SBIR & 95% of STTR projects across agencies have university involvement
 - For some agencies, universities are involved in more than 50% of SBIR projects (e.g. NIH 70%, NSF 58%)
- ~20% of SBIR awards have sub-awards to universities
- Over 350 **different** research institutions have been involved in SBIR projects alone

National Academies of Sciences, Engineering, and Medicine. 2016 Assessments of SBIR & STTR programs



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Building & Connecting an Inclusive Innovation Ecosystem

SBA works with a number of local partners to counsel, mentor, and train small businesses in the innovation ecosystem.

Find Local Assistance

Local resources might be right around the corner. The SBA works with a number of local partners to train and support potential SBIR/STTR applicants around the country. Check now to find the help you need, from proposal assistance to SAM registration, commercialization support to industry connections.

Find a local resource near you:

Select a state ...



www.sbir.gov/local-assistance



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Strengthening the Pipeline: Applicant Assistance Programs

- Direct hands-on assistance for first-time applicants
- Goal to increase applications submitted by underrepresented small businesses (women-owned small businesses, socially and economically disadvantaged small businesses, and small businesses from underrepresented states).
- DOE Applicant Assistance Program: <https://doephase0.dawnbreaker.com/>
 - **Now open for FY22 Phase I Release 1 topics**
- NIH Applicant Assistance Program: <https://www.evagarland.com/nih-aap-cover-page/>

Strengthening the Pipeline: I-Corps National Innovation Network

- Leverage existing network of I-Corps partners
- Past efforts for I-Corps to feed into SBIR
 - NSF Phase 0: Provides funding for teams to go through I-Corps training as a precursor to preparation of a Phase I SBIR/STTR proposal
 - USDA I-FAST (Innovations in Food and Agricultural Science and Technology) for university-based pre-company teams
- Various agencies also support I-Corps for Phase I SBIR/STTR awardees
- Inclusion in Innovation Initiative (i4)
 - NSF partnership with National GEM Consortium for diverse academic researchers to engage in entrepreneurial training.
 - <https://gemfellowship.org/i4/>

www.nsf.gov/news/special_reports/i-corps/

Strengthening the Pipeline: Talent Development Opportunities

- NIH Diversity Supplements ([PA-18-837](#))
- NSF Supplements for Research Experiences ([Undergraduates](#), [Veterans](#))
- NSF Innovative Postdoctoral Entrepreneurial Research Fellowship ([I-PERF](#))
- [DOE Phase II Diversity Supplements](#)
- National Cancer Institute Small Business Transition Grant for Early Career Scientists ([RFA-CA-21-001](#))
- National Institute of Aging Research and Entrepreneurial Development Immersion (REDI): Entrepreneurial Small Business Transition Award ([RFA-AG-22-007](#), [RFA-AG-22-014](#))

MSRDC-SBA Strategic Alliance Memorandum

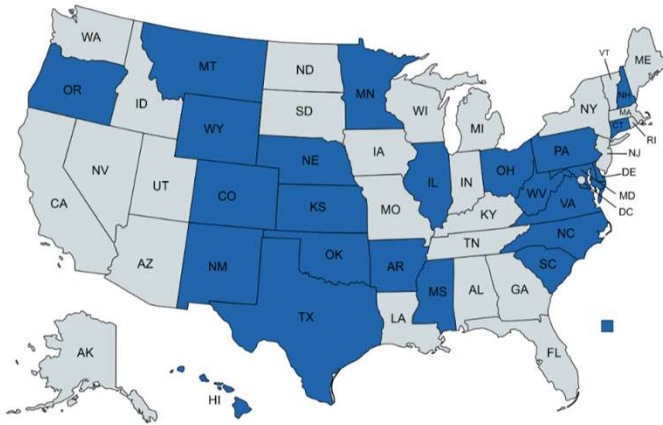
- To create a collaborative environment for members and R&D partners to promote innovation, commercialization, and technology leadership
- Cross-promote relevant events and activities
- Connect networks – SBIR funding agencies & MSRDC members



www.msrdconsortium.org/

Federal and State Technology Partnership Program (FAST)

Building a Network for Innovation Support Across the U.S.



Funding to organizations to provide outreach, training, and financial assistance to potential SBIR applicants and awardees from **underserved communities** including women, socially & economically disadvantaged individuals, and those from underrepresented areas – typically rural areas.

Recipients are SBDCs/SBTDCs, colleges & universities, state economic development organizations, accelerators, and incubators.

www.sbir.gov/about-fast



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2020 FAST Cohort

24 grantees funded at \$125k each (\$3 million total funding)



\$111+ million

Total SBIR/STTR award dollars received by small businesses with FAST assistance



Training Sessions
439



Total SBIR/STTR Awards
267



Phase 0 Awards
\$451,591



Applications Assisted
768



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Growth Accelerator Fund Competition (GAFC)



Growth Accelerator Fund Competition (GAFC) (2014-2019) is a prize competition providing \$50,000 prizes to accelerators and incubators to fund programs to help innovators, entrepreneurs, and startups succeed.

Number of states/territories with winners	51
Total prize funds 2014-2019	\$15,150,000
Total prize awards 2014-2019	303
Number of unique accelerator winners	222
Number of competitions 2014-2019	5

2021 GAFC and SBIR Catalyst competitions closed July 2

- New SBIR Catalyst component aims to scale collaborative partnerships that catalyze connections and support for SBIR/STTR applicants and awardees.



www.sbir.gov/accelerators

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SBIR Support Organizations Monthly Call

Mix of entities including FAST, Small Business Development Centers, Procurement Technical Assistance Centers, universities, accelerators, incubators, women's business centers, state economic development offices, and more.

Facilitated by SBA, it features relevant information, highlights updates from agencies, showcases best practices from partners, and allows partners to give feedback on what's taking place around the country.



www.sbir.gov/support-organizations

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Online Tutorials

55+ Courses including:

- Agency overviews
- Program basics
- Data rights
- IP protection

www.sbir.gov/tutorials

COURSE 4
FINDING TOPICS

TUTORIAL 1
HOW DO I FIND
THE
APPROPRIATE
TOPIC?

Back to Tutorials

FORMATS

- Audio/Video
- Multimedia
- PDF

TOOLS

- Glossary
- Links
- Quiz
- Hide Options

If you want to submit an SBIR/STTR proposal, you must first find a relevant topic at one of the participating agencies. The SBIR/STTR programs do not accept "unsolicited proposals," but instead require that you respond to one of their current topics, even if they are very broad like topics found at many of the agencies that make their SBIR/STTR awards as grants vs. contracts. All of the agencies list their topics in their solicitation or Funding Opportunity Announcement (FOA). The only exception is the Department of Energy which publishes a separate topic list several weeks before it releases its FOA.

In the early days of SBIR/STTR, you had to read a paper copy of the solicitation from beginning to end to see if there were any relevant topics. Now that the solicitations are all distributed electronically, it is much faster, easier, and more productive to find topics by using search engines. You type in your key words(s), and the search engine goes through the currently open topics (or, at your option, topics that closed in the recent past) and tells you which topics contain your key word(s).

SBIR/STTR
TOPIC
SEARCH
ENGINES



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Why We Work on America's Seed Fund



illumina®



sonicare



QUALCOMM®

INTUITIVE
SURGICAL®

www.sbir.gov/showcase



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Why You Want to Work with America's Seed Fund

- Create impact from your institution's research
- Opportunities for your students and community
- Build the innovation ecosystem around your institution
- Partnerships with small businesses
- Successful companies give back – create a virtuous cycle



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2021
NATIONAL SBIR
WEEK

July 19 - July 23

Connect with Federal program managers through

- Live Q&A panels
- Hundreds of 1-on-1 meetings
- Agency roundtable sessions

www.sbirroadtour.com



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2021 Space Technology
MBDA
INVISION
TOUR

Technology Transfer & Small Business Innovation Research

Presented in partnership with the Federal Laboratory Consortium (FLC) and the U.S. Small Business Administration (SBA)

Wednesday, July 21, 2021
1:00 – 3:30 PM ET

Featuring Department of Commerce Remarks from Deputy Secretary of Commerce, Don Graves!

SPACE FOR INNOVATION. INNOVATION FOR SPACE.

www.mbdainvision.com

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[#seedthefuture](https://twitter.com/SBIRgov)

www.sbir.gov
bit.ly/JoinSBIRList
technology@sba.gov

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**Biomedical Product Development Funding
and Support from NIH**

Ashim Subedee, PhD
 Academic Innovation Lead, SEED (Small business Education & Entrepreneurial Development)
 National Institutes of Health

AUTM Webinar
 July 13, 2021

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NIH Mission Discovery/Knowledge and Turning Discovery into Health



- Healthcare Products
- Drugs
 - Devices
 - Diagnostics
 - eHealth



NIH Mission Discovery/Knowledge and Turning Discovery into Health



Grants



Universities

Research

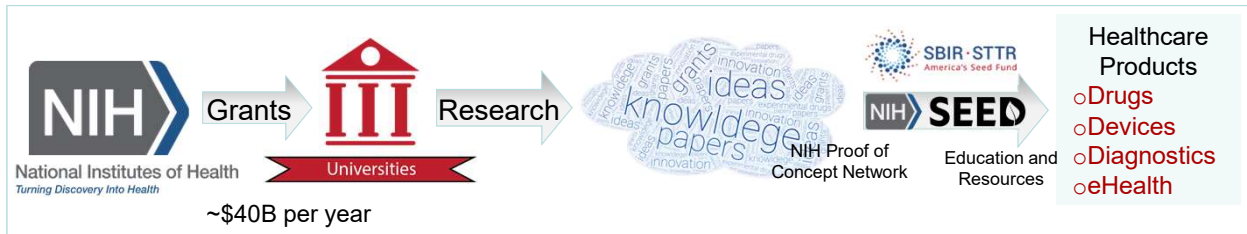


- Healthcare Products
- Drugs
 - Devices
 - Diagnostics
 - eHealth

~\$40B per year

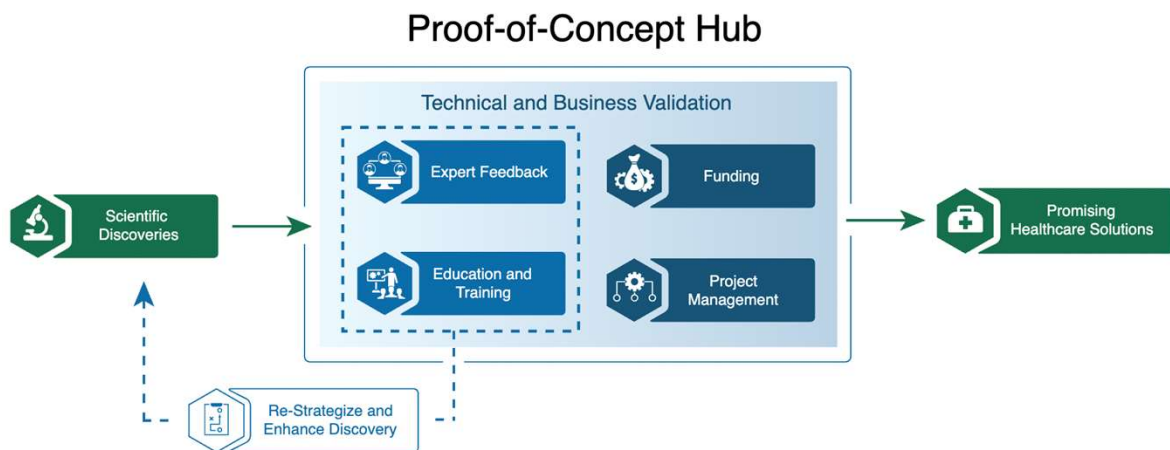


Introducing NIH SEED



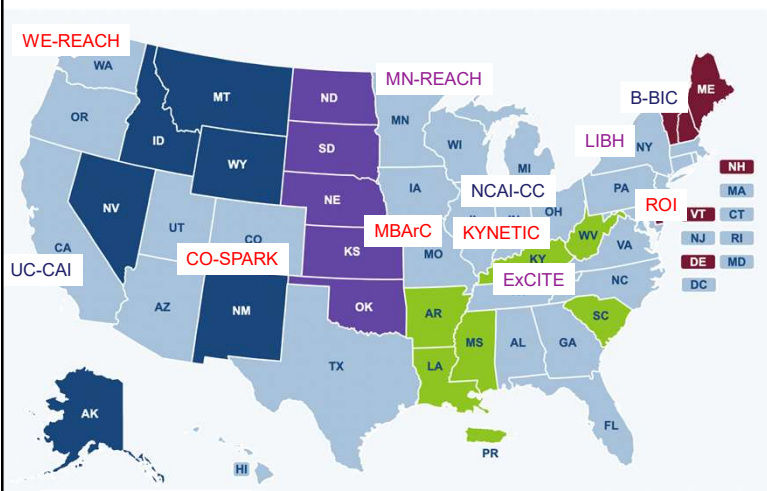
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NIH Proof-of-Concept Network: Supporting Product Development in Academia



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NIH Proof-of-Concept Network: NCAI, REACH, IDeA Accelerator Hubs



More than 100 universities in 34 states and Puerto Rico



NIH Centers for Accelerated Innovation (NCAI) - **2013**

- Heart, Lung, Blood and Sleep focused
- 28 universities/research institutions

Research Evaluation And Commercialization Hubs (REACH) – **2015** and **2019**

- Trans-NIH
- 6 universities – **REACH 2015**
- 43 universities/colleges – **REACH 2019**

NIGMS IDeA States Regional Technology Transfer Accelerator Hubs (2018)

- Southeast: XLerator Network
- Northeast: DRIVEN
- Central: SHARP
- Western: ASCEND

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Proof-of-Concept Network Outcomes REACH + NCAI programs


370 Funded R&D
Projects – from 839
applications


>3000 **Academic Innovators**
receiving entrepreneurial training


98 startups


89 SBIR/STTR applications
38 SBIR/STTR awards


16 tech licenses
13 license options


**\$1.7B in follow-on-
funding** (\$1.5 non-
federal) - **\$52M NIH
investment**



As of July 6, 2021

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NIH Small Business Programs (SBIR and STTR)



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NIH Small Business Programs (SBIR and STTR)

Talk to a Program Officer at least a month before the application deadline!

List of SBIR Program Managers:
<https://sbir.nih.gov/engage/ic-contacts>

Research Portfolio Online Reporting Tools (RePORT): <https://report.nih.gov/>

Not sure who to contact?
<https://public.era.nih.gov/commons/public/servicesdesk/nitseed.era>
 or
 Email: SEEDInfo@nih.gov

Contact	Engage
<ul style="list-style-type: none"> Contact SBIR/STTR IC Program Contacts eRA Service Desk (for electronic submission Qs) Connect 	<ul style="list-style-type: none"> Twitter Listserve News Webinar Events

National Institute on Alcohol Abuse and Alcoholism http://www.niaaa.nih.gov	Megan Ryan Phone: 301-443-4225 Email: mryan1@mail.nih.gov	Jeff Thurston Phone: 301-443-9801 Fax: 301-443-3891 Email: jeffrey.thurston@nih.gov
National Institute of Allergy and Infectious Diseases http://www.niaid.nih.gov	Natalia Kruchinin Phone: 240-669-2919 Fax: 240-627-3162 Email: kruchinin@niaid.nih.gov	Vandhana Khurana Phone: 240-669-2966 Fax: 301-493-0597 Email: khuranav@niaid.nih.gov

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NIH Success Stories

Success Stories Supported by America's Seed Fund

The NIH is actively turning discovery into health by helping academic innovators and small businesses develop innovative technologies that improve health and save lives.

Technology

- Diagnostic
- Digital Health
- Drug
- Medical Device
- Research Tool

Development Stage

- Approved for Use
- Early Development
- Human Testing

Innovator Setting

- Academic Innovation
- Woman Owned Business
- Minority Owned Business

State

Select State

Funding Institute

Select Institute



Displaying results 1 to 10 of total 73

Results per page 10

Company / Institution	Story	State - District
University of California Center for Accelerated Innovation (UC CAI)	Implantable Monitor Can Save Wounded Soldiers and Improve Diabetes Management	CA - 45
NIH Centers for Accelerated Innovations (NCAI) at Cleveland Clinic	Personalized Airway Stents Provide a Better Fit and Improve Quality of Life	OH - 11
NIH Centers for Accelerated Innovations (NCAI) at Cleveland Clinic	Drug Shows Potential to Treat Diseases and Rebuild Damaged Tissue	OH - 11

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Education, Training, and Other Support

Academics / SBIR
Pre-Application

Discovery
Phase I

Development
Phase II

Commercial
Market



Applicant Assistance Program

I-Corps™ at NIH

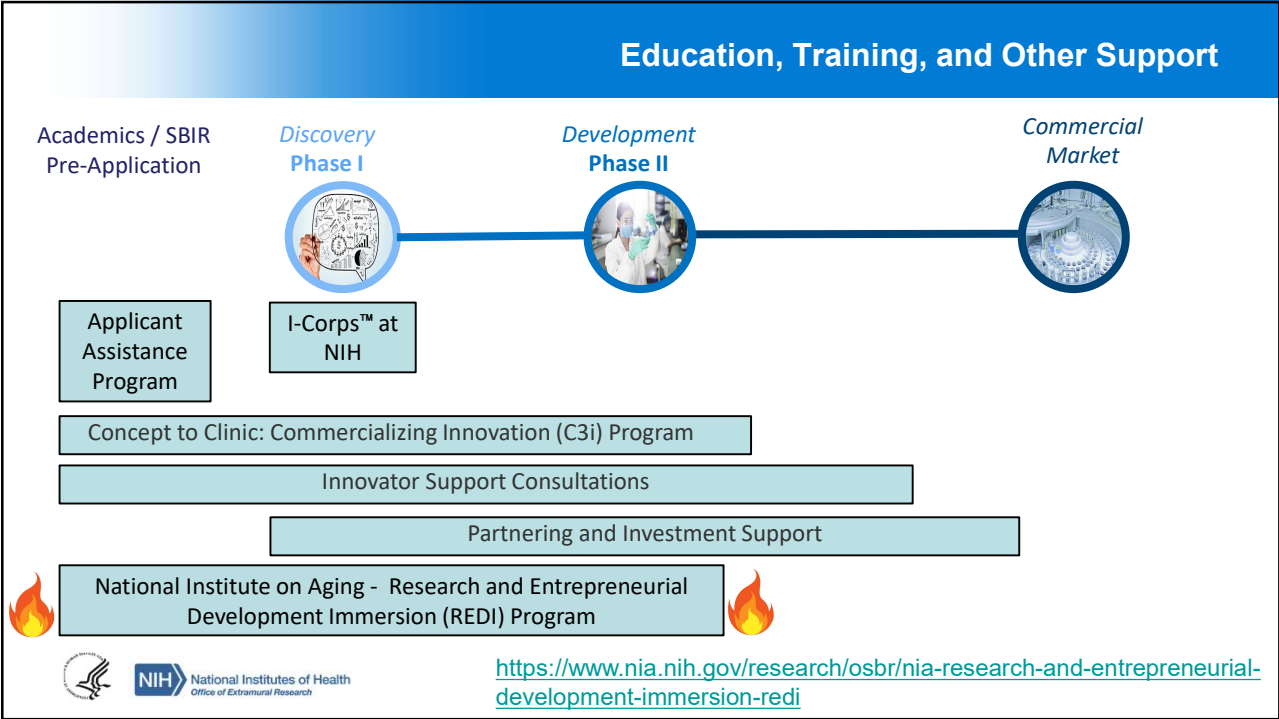
Concept to Clinic: Commercializing Innovation (C3i) Program

Innovator Support Consultations

Partnering and Investment Support



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Innovator Support

Finance, Strategy, Intellectual Property, Regulatory Experts

The experts are categorized as follows:

- Investor-in-Residence:** One expert
- Entrepreneurs-in-Residence:** Three experts
- Intellectual Property:** Two experts
- Regulatory/Reimbursement:** Three experts

National Institutes of Health
Office of Extramural Research

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Private Sector Transitions



Landmark
VIRTUAL FORUM

Madorra
Best Pitch at ACA 2020
Investment from Golden Seeds



BIO 2020
Closing a \$30M venture capital round

careband
Coached for 2020 Furlong Longevity Conf.
\$1.1M venture capital investment

HEALTHTECH PARTNERING WEEK MARCH 15-19, 2021
www.healthtechpartneringweek.com



ANGEL CAPITAL ASSOCIATION



ACA 2019
\$3.7M from 3 venture investment partners

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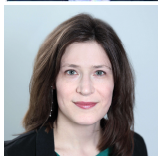
Working with SEED



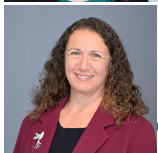
Matt McMahon
Director
mm@nih.gov



Ashim Subedee
Academic Innovation Lead
ashim.subedee@nih.gov



Stephanie Fertig
HHS Small Business Program Lead
stephanie.fertig@nih.gov



Chris Sasiela
Innovator Support Team Lead
chris.sasiela@nih.gov

- Joint trainings, webinars, and workshops
- Guidance and support to innovators at your university

SEEDinfo@nih.gov
seed.nih.gov Coming in August...

NIH SEED

FUNDING ▾ SUPPORT ▾ PORTFOLIO ▾ ABOUT US ▾ APPLY ▾

SEED accelerates the conversion of scientific discoveries into healthcare solutions

<p>Academic Product Development NIH provides training and support for academic innovators.</p> <p>LEARN MORE →</p>	<p>Small Business Programs America's Seed Fund provides over one billion dollars plus technical and business assistance to companies every year.</p> <p>LEARN MORE →</p>	<p>Business of Science Help transform cutting-edge technologies into products that improve health and save lives.</p> <p>LEARN MORE →</p>
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REDI

Research and Entrepreneurial Development Immersion (REDI)

Empowering spin-offs is critical to biomedical innovation, the economy, and the mission of NIA. Through the above funding programs, REDI provides bio-entrepreneurship training to further enrich and diversify NIA training programs. REDI-supported trainees will acquire additional nonacademic skills for success, such as science communications; intellectual property; regulatory affairs; science policy; consulting; drug discovery, approval, and production; and the business of science, science education, and health care. Diverse participants are particularly encouraged.

FOA	Due Dates	Budget Limits
RFA-AG-22-004 (REDI: Mentored Entrepreneurial Career Development Award; K01 clinical trial not allowed)	Application: September 29, 2021 Letter of Intent: N/A	\$90,000/year in salary; \$50,000/year in other program-related expenses
RFA-AG-22-003 (REDI: Entrepreneurship Enhancement Award; R25 clinical trial not allowed)	Application: October 4, 2021 Letter of Intent: September 4, 2021	\$150,000/year in direct costs
RFA-AG-22-007 (REDI: Entrepreneurial Small Business Transition Award; SBIR clinical trial optional)	Application: October 26, 2021 Letter of Intent: September 26, 2021	Phase I \$400,000; Fast-Track \$2 million
RFA-AG-22-014 (REDI: Entrepreneurial Small Business Transition Award; STTR clinical trial optional)	Application: October 26, 2021 Letter of Intent: September 26, 2021	Phase I \$400,000; Fast-Track \$2 million

<https://www.nia.nih.gov/research/osbr/nia-research-and-entrepreneurial-development-immersion-redi>