NIEHS SBIR/STTR Opportunities for Nanotechnology and Water and Other Environmental Technologies

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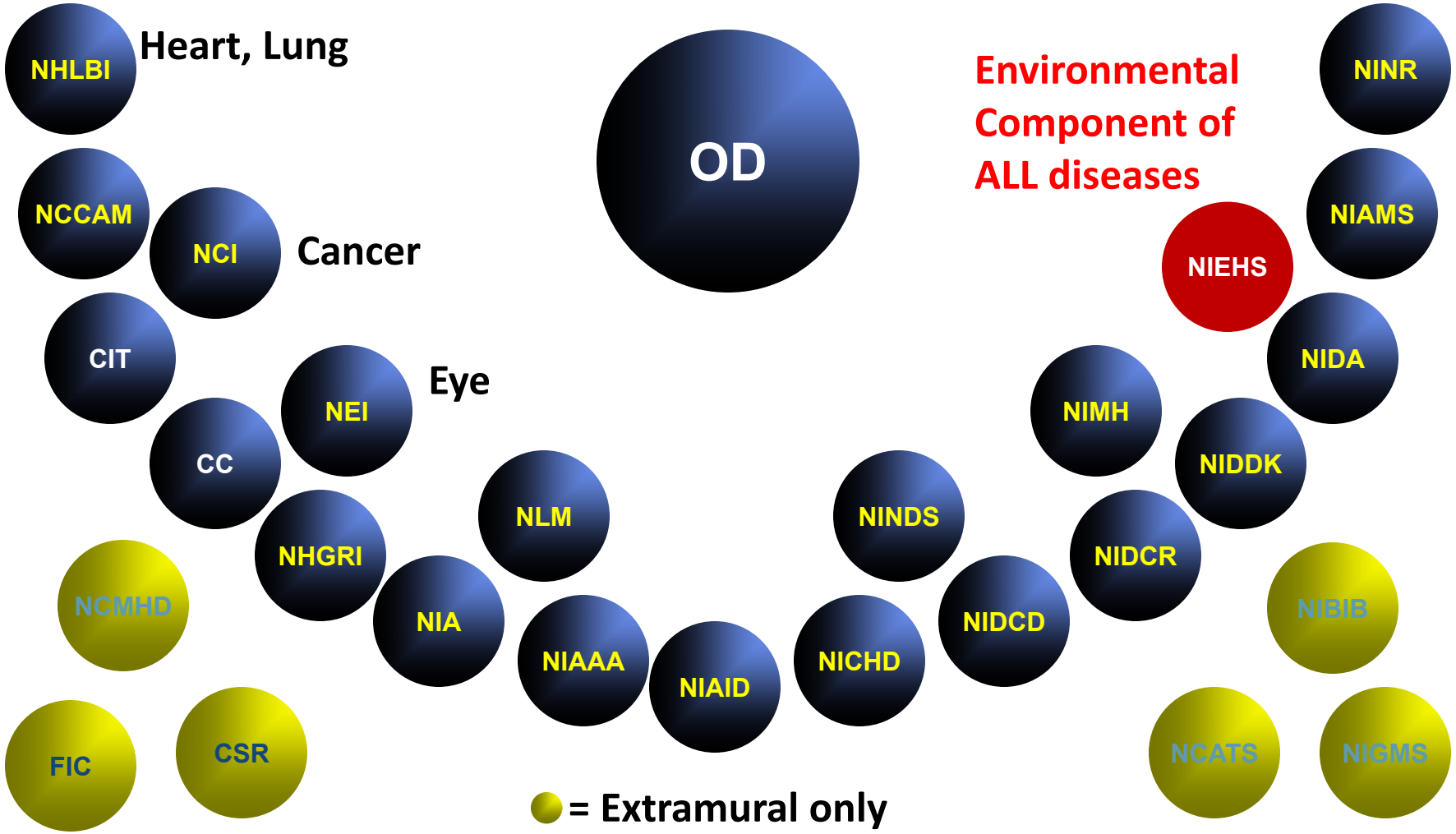
Superfund Research Program, NIEHS

Aug 25, 2022

https://www.niehs.nih.gov/funding/grants/mechanisms/sbir/index.cfm

National Institutes of Health (NIH) - 27 Institutes and Centers



NIEHS Superfund Research Program Mission

Apply Fundamental Knowledge

NIH Research Mission → **…to Understand Health Outcomes**

…from toxicology, epidemiology, genetics, -omics…

NIEHS Research Mission → **…related to environmental exposures**

General NIEHS SBIR/STTR Grants (R41, R42, R43, R44)

SRP founded under Superfund Amendments Reauthorization Act (SARA)*

…including health, risk assessment, remediation and detection

SRP Research Mission → **…with relevance to Superfund**

NIEHS SRP Hazardous Substances Remediation and Detection SBIR Grants (R43, R44)

*NIEHS Worker Education Program also established under SARA

NIEHS SBIR/STTR Program – Funding Mechanisms

Discovery
Phase I
6-12 mos

Development
Phase II
Up to 2 yrs

Feasibility

Full R&D

Fast-Track
Phase I & II

Direct to Phase II**

Competing Renewal Awards

Phase IIB* - Additional R&D

Commercialization Readiness Program

Phase III
(Outside of NIEHS Funding)

NIH is not a customer

* PHASE IIB - Only by RFA for NIEHS
** Direct to Phase II - SBIR only

NIEHS SBIR/STTR Program – Announcements and Funding

Funding Opportunity Announcements

New Omnibus Program Announcements

SBIR (R43/R44)

PA-22-176- SBIR Clinical Trial Not Allowed

PA-22-177- SBIR Clinical Trial Required

STTR (R41/R42)

PA-22-178- STTR Clinical Trial Not Allowed
PA-22-179- STTR Clinical Trial Required

NIH, CDC, and FDA Program Descriptions and Research Topics - https://seed.nih.gov/sites/default/files/HHS_Program_Descriptions.pdf

SBIR/STTR Budgets in FY 2021

Program	SBIR	STTR	FOAs
SBIR/STTR General	~$17M	~$2.7M	Omnibus and RFAs
Superfund (SRP)	~$1.8M	-	Omnibus only
Worker's Training (WETP)	~$600K	-	RFA only

Notice of Special Interest (NOSI) - Innovative Technologies for Research on Climate Change and Human Health

- Multiple Topics from NIEHS, NIAID and NIMHD - Technologies related to water quality measurement, sampling, household water purification and wastewater pathogen detection
- Please refer NOT-ES-22-009 (STTR) and NOT-ES-22-010 (SBIR) for specific interest for participating Institutes

NIEHS SBIR/STTR Program – Focus Areas in Omnibus FOA

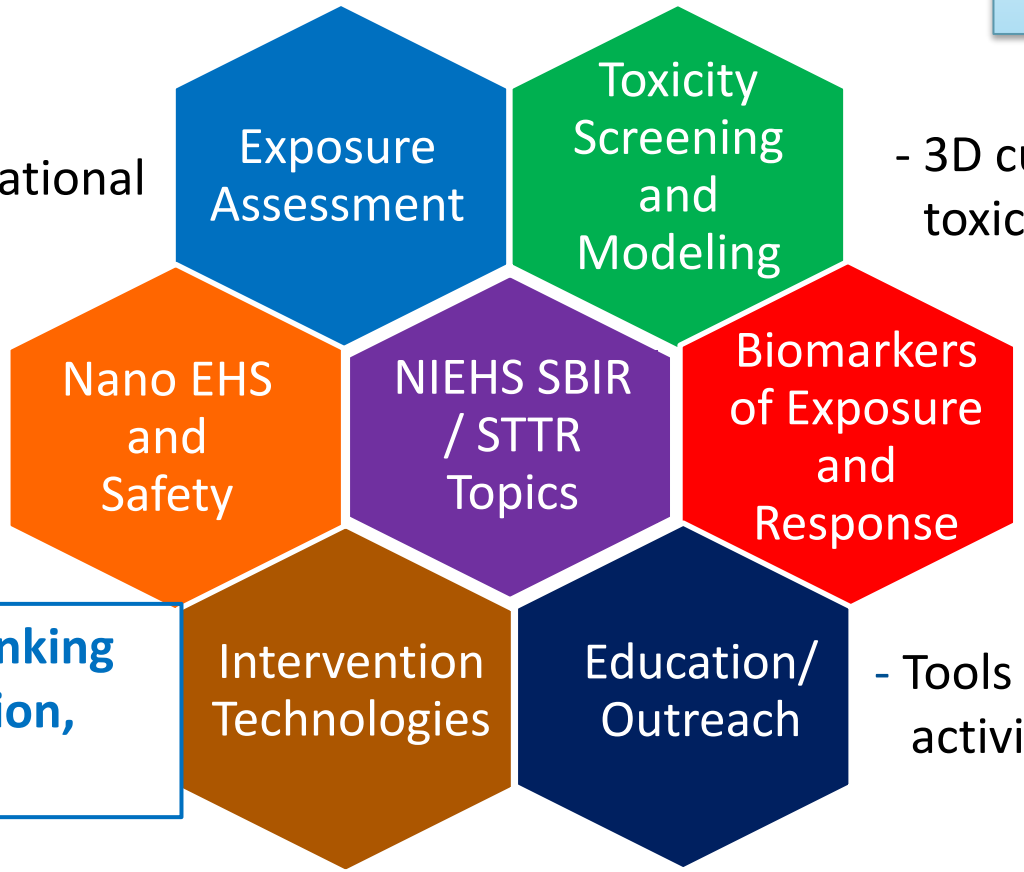
Emphasis on development of novel approaches using state-of-the-art technologies for environmental health sciences

Water Applications

- **Sensors**, computational methods

- *A*ssays and detection technologies for nanomaterials

- VOC exposure, drinking water contamination, real time alerts



- 3D culture models, 3Rs, predictive toxicology

- Biomonitoring, biological response markers

- Tools for EH literacy, citizen science activities

Superfund - Detection and remediation of hazardous substances in the environment

Disaster Response – Sensors and tools useful for disasters or emergency response

Workers Education and Training - Training Tools for workers facing hazards (RFA only)

NIEHS General SBIR/STTR - Water Related Technologies Areas of Interest

Major Topic	Description
Exposure Assessment Tools	- Tools and approaches for identifying and characterizing chemical contaminants in **drinking water** that may pose a risk to human health, with a particular emphasis on new contaminants or compounds that are of emerging concern
Nano Environmental Health and Safety	- Sensors that can detect engineered nanomaterials or micro/nanoplastics in air, **water,** and consumer products, and provide a contextual assessment of the toxicological potential - Methods and tools to assess leaching of engineered nanomaterials from nanotechnology-based **water** filtration systems
Intervention Technologies	- Technologies for detecting and/or removing contaminants from **drinking water**, primarily for home use
Disaster Response	- Sensors and informatics tools that can be rapidly deployed after disasters, including extreme weather events or climate change-related events. These tools can be used by researchers to follow emergency response workers and individuals in the community to help understand dermal, **water** and/or airborne exposure levels, locations, and times

Total Direct Costs, Indirect Costs, Fees
Phase I = $275,766
Phase II = $1,838,436

- **From NIH, CDC, and FDA Omnibus Program Descriptions and Research Topics - https://seed.nih.gov/sites/default/files/HHS_Program_Descriptions.pdf**

Superfund Remediation and Detection Topic Areas

Remediation

- Novel technologies for in situ remediation of **contaminated sediments, soils, and groundwater**
- Innovative **bioremediation technologies** including development and culturing/propagation of plants, bacterial strains, or fungal species for implementing bioremediation
- Technologies to remediate **chemical mixtures** in environmental media
- New strategies for **delivery of reagents/amendments** for groundwater remediation and/or recovery/extraction of contaminants in groundwater
- **New amendments** to stabilize contaminants and/or to stabilize caps for soil and sediment remediation
- New technologies and strategies to cleanup large **complex sites** with multiple sources
- **Resilient** novel remediation approaches capable of withstanding climate change-related impacts such as: fire, flooding, land use changes, and other catastrophic events
- **Sustainable, energy efficient** approaches with a net lifecycle benefit such as net zero emission technologies; technologies that reduce waste generation; processes that recycle/reuse/regenerate active components; long-term remediation approaches equipped with solar or wind energy

Small Business Innovative Research Grants (R43/R44)

Hazardous Substances Remediation and Site Characterization SBIR Program

The NIEHS Superfund Research Program (SRP) "Hazardous Substances Remediation and Detection Program" supports Small Business Innovation Research Grants (SBIR R43, R44) to foster the commercialization of novel, cost-competitive technologies, products, and devices for remediation and detection of hazardous substances in the environment. The SRP is specifically interested in proposals applying new engineering, materials science, and biotechnology approaches. In addition, technologies should be sustainable strategies such as offering low carbon footprint, reduced energy consumption, utilization of renewable energy sources, resilient to weather extremes, and with reuse / regeneration capabilities.

Topics of interest include, but are not limited to:

Remediation

- Novel technologies for in situ remediation of contaminated sediments, soils, and groundwater
- Innovative bioremediation technologies including development and culturing/propagation of plants, bacterial strains, or fungal species for implementing bioremediation
- Technologies to remediate chemical mixtures in environmental media
- New strategies for delivery of reagents/amendments for groundwater remediation

Total Direct Costs, Indirect Costs, Fees
Phase I = $173,075
Phase II = $1,153,834

https://www.niehs.nih.gov/research/supported/centers/srp/funding/hwaerp/index.cfm

Superfund Remediation and Detection Topic Areas

Detection Technologies

- **Machine learning, artificial intelligence, computational, geographical information system-based, or modeling** products for predicting fate and transport of contaminants, rates of remediation, bioavailability, or for identifying contamination sources
- Real-time, field deployable, **on-site analysis**: soil, surface water, groundwater, subsurface, sediments, air (such as volatile releases from sites and/or repeated measures
- Accurate and reliable new **passive sampler devices**
- Products that allow for **rapid sample clean-up/preparation** for analysis of environmental samples and/or technologies for rapid extraction or processing of soil for incremental sampling methodologies (ISM)
- Non-targeted or multi-analyte **field sampling devices or kits**, including sample collection products that can sequester a suite of analytes for later analysis
- Novel techniques, sensors, and field analytical methods and real-time mapping/data visualization for development of subsurface **conceptual site models**
- Innovative **tracer technologies** for tracking contaminant sources

Examples of remediation and detection technology needs:

- Vapor Intrusion
- PFAS
- Mining
- Complex Site/Geology
- Disaster Response

Current Grantees:
https://tools.niehs.nih.gov/srp/programs/index269.cfm

Total Direct Costs, Indirect Costs, Fees
Phase I = $173,075
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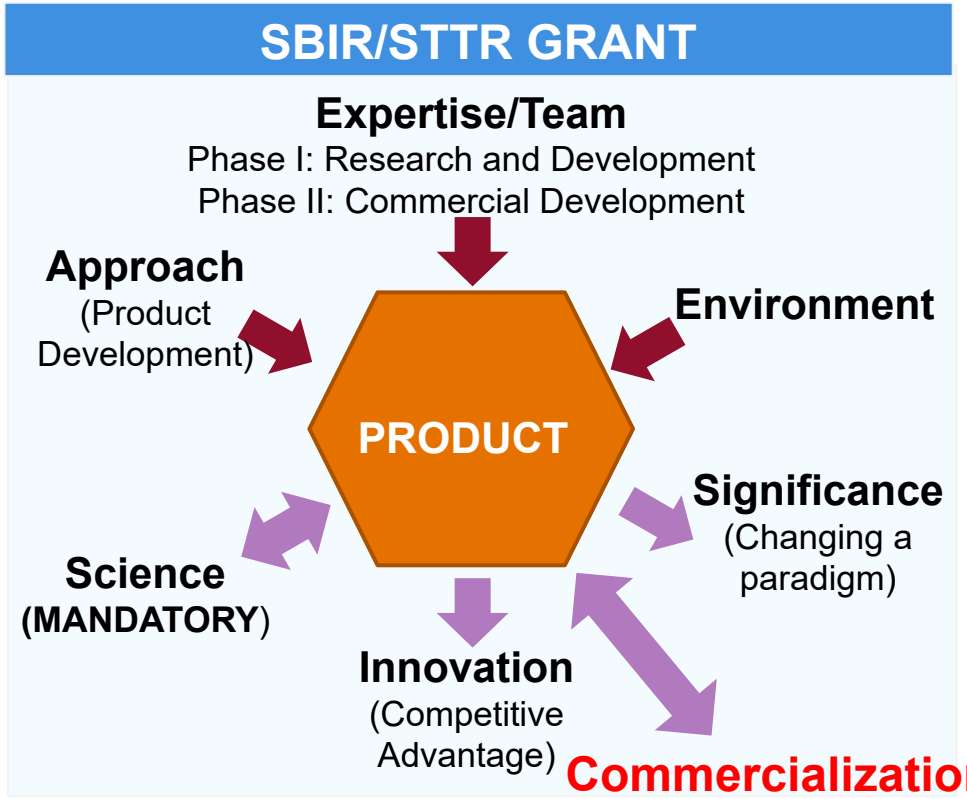
https://www.niehs.nih.gov/research/supported/centers/srp/funding/hwaerp/index.cfm

NIEHS SBIR/STTR Review Criteria

Background training/ experience, **capable** of completing all project tasks?

Design and methods well-developed and appropriate, potential pitfalls and alternative approaches

Fits the focus area of the Institute and the FOA and **health impact**



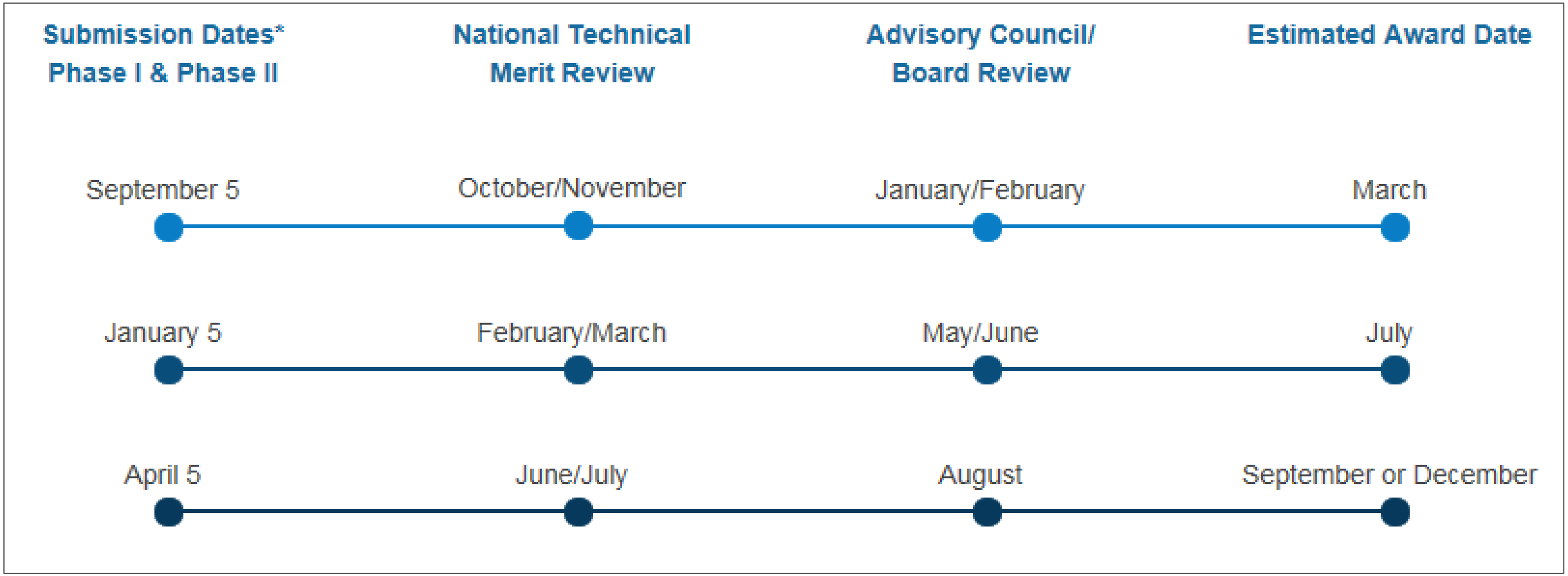
Novelty of the **technology/product** and the **approaches** proposed to test its feasibility

Scientific environment contribute to the probability of success? **Facilities**? Independence?

An important **problem**, commercial potential, market pull for the proposed product?

Is the company's **business strategy** one that has a high potential for success?

NIH Application to Award Timeline



Required Company Registrations (start now!!)

Start now! It can take 6 weeks or more to complete the registration process.

If your company has not worked with NIH before, you must complete multiple registrations prior to preparing an application and applying for funding.

- SAM (System for Award Management) – required to do business with the U.S. government
  - SAM will issue a 12-character unique entity identifier (UEI) used to complete your full SAM registration and which serves as the official organization identifier in other federal systems
- eRA Commons – required to do business with NIH and some HHS agencies
- Grants.gov– required to submit grant applications through the federal-wide grant portal
- SBA (Small Business Administration) – required to participate in SBIR and STTR federal funding programs

Note: Different systems may use different terminology – "organization", "institution", "company", and "entity" can be used interchangeably.

Application Assistance Program

Need Help Applying for NIEHS SBIR or STTR Phase I Funding?

Apply for the Applicant Assistance Program, a free, 10.5-week mentoring program for new NIH SBIR/STTR applicants.

- The National Institute of Environmental Health Sciences (NIEHS) Small Business Program soon will be accepting applications for the next group of Applicant Assistance Program (AAP) participants.
- Free, 10.5-week program is designed to assist small businesses in preparing an SBIR or STTR application in time for the January 5, 2023, deadline.
- Receive one-on-one coaching.
- AAP provides participants with services such as application needs assessment, mentoring, application preparation support, and application review.
- Use the AAP Application Portal to apply by **Thursday, September 22, 2022, at 11:59 p.m. ET.**

AAP aims to increase the number of applications from **underrepresented** small businesses, especially **women-owned** and **socially and economically disadvantaged** companies and offers support and resources to help those applicants maximize their chances of success.

NIH AAP Overview Webinar
https://www.youtube.com/watch?v=traaHNnxKXY

NIH AAP Q&A/Office Hours
Monday, September 15, 2022 - 2 p.m. ET
REGISTER

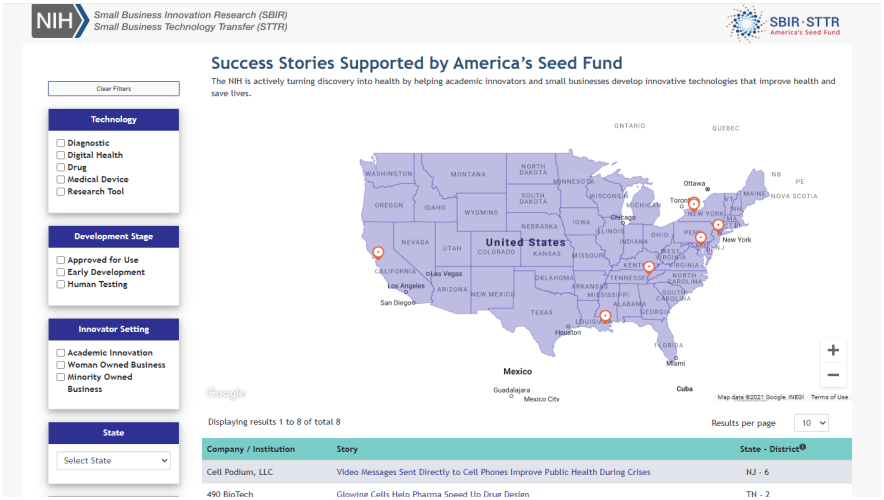
Other Programs

- Research Evaluation and Commercialization Hubs (REACH)
  - 8 proof-of-concept hubs with 51 universities and technical colleges from 12 states.
  - The program focuses on bringing basic science discoveries to market by providing:
    - Entrepreneurial training for innovators on how to bring technologies to market
    - Feedback from federal and industry experts
    - Funding to support early-stage product definition studies
    - Project management support
- NIH STTR Regional Technology Transfer Accelerator Programs for IDeA States
  - Supported by the National Institute of General Medical Sciences (NIGMS)
  - STTR awards to small businesses to develop educational tools and resources to foster entrepreneurship and technology transfer
  - Specifically for the Institutional Development Award (IDeA) states

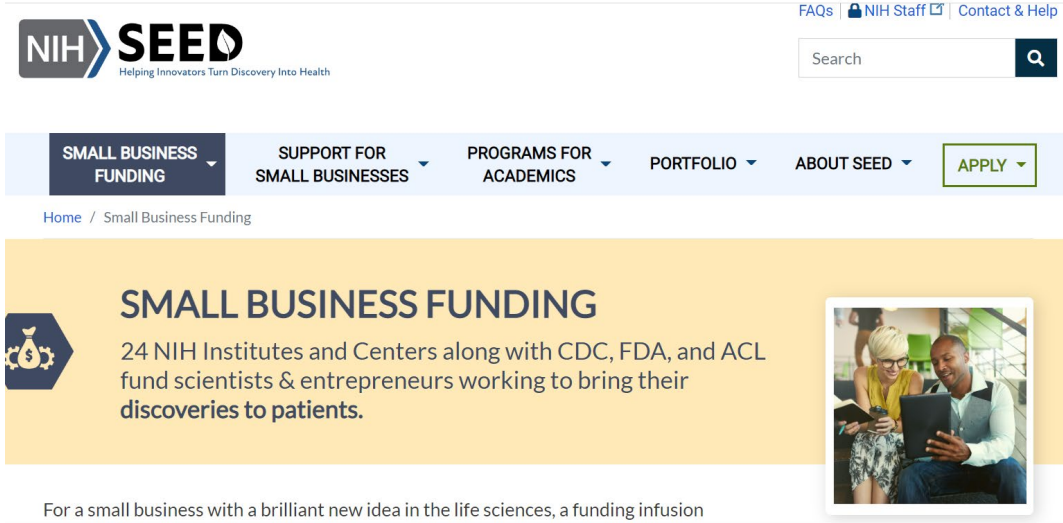
Additional Resources and Success Stories

https://www.sbir.gov/Sensor-technology-for-the-21st-century

https://www.niehs.nih.gov/news/events/pastmtg/2020/tech-fair/index.cfm



https://sbir.nih.gov/stories/



https://seed.nih.gov/small-business-funding

Thank you!

NIEHS SBIR/STTR Contact Information

SBIR and STTR General

Daniel T. Shaughnessy, Ph.D. - shaughn1@niehs.nih.gov

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Superfund Research - SBIR only

Heather Henry, Ph.D. - henryh@niehs.nih.gov

Worker Training Program - SBIR RFA only

Kathy A. Ahlmark - ahlmark@niehs.nih.gov

Sign up for NIEHS SBIR listserv - SBIR-NIEHS LISTSERV

https://www.niehs.nih.gov/funding/grants/mechanisms/sbir/index.cfm

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

Agency NIEHS Summary Table

Program name	NIEHS SBIR/STTR
URL	General NIEHS: https://www.niehs.nih.gov/funding/grants/mechanisms/sbir/index.cfm Superfund (Remediation / Detection): https://www.niehs.nih.gov/research/supported/centers/srp/funding/hwaerp/index.cfm
Contact information	Dan Shaughnessy (General NIEHS) Heather Henry (Superfund)
Next deadline	Sept 5th, Jan 5th, May 5th
Mechanisms funded	Phase I, Phase II, Direct to Phase II, Fast Track SBIR and STTR* ** Note Superfund does not offer STTR*
Amount awarded (Total Direct Costs, Indirect Costs, Fees)	Phase I = $173,075 – $275,766 Phase II = $1,153,834 - $1,838,436