

National Institute of Environmental Health Sciences

SRP Mission:
To provide practical science-based solutions to protect human health

NIEHS Superfund Basic Research and Training Program (SRP):

Capabilities and Directions to Advance Innovative Remediation Technologies

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Program Officer

National Institute of Environmental Health Sciences
Superfund Research Program

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May 26, 2021 1

1

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Capabilities: SRP Research Grant Portfolio (2021)

Multi-disciplinary Centers

- Biological, chemical, physical remediation
- Site modeling, passive sampling, sensors
- Close interactions with biomedical, data sharing, community engagement activities

Bioremediation + Materials Science for emerging contaminants and mixtures

- Awarded 2021
- PFAS, 1,4-Dioxane, TCE/PCE/PCB, metals

Small Business Innovative Research Grants

- Phase I and Phase II grants in remediation and detection technologies
- Limited opportunities beyond Phase II

Category	Percentage
Other Biomedical	34%
Remediation	30%
Monitoring and Modeling	22%
Epidemiology	10%
Ecology	4%

150 Projects

All projects include research translation, technology transfer, and/or commercialization plans

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May 26, 2021 2

2

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Capabilities: SRP Research Grant Portfolio

Sustainable Approaches

- Low carbon footprint, reduced waste generation, cost competitive, practical for adoption by impacted communities, resilient to climate change.

Promising Technologies

- Integrating omics to optimize bioremediation, machine learning to tailor design of novel sorbents/filters, nanotechnology-based sensors and treatment approaches

Technology Readiness

- Generally between TRL 1 and TRL 6

TRL 1 – Basic Principles Observed and Reported

TRL 6 – System adequacy validated in simulated environment

Scope of SRP Program

Field Implementation Commercialization (Suk et al. 2018)

PFAS Passive Samplers

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3

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Barriers and Challenges to Technology Development

Research Enterprise

- **Basic research** generates fundamental knowledge - does not always lead to application
- Transitioning to field is an iterative process - lessons learned very important in reshaping technology

Site Access

- Requires permission and willingness to **accommodate testing and/or sample sharing** for new technologies
- Time commitment for testing technologies
- **Managing expectations:** unrealistic expectation a new technology will work on the "first try"

Funding

- Need for more mechanisms for **funding technology development, testing, and application**

Novel Bioremediation Approaches at Microvi

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4

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Opportunities to Facilitate Technology Development

Strategies to identify sites where new technologies can be tested

- Matching technology developers with the most ideal test sites / sample materials
- Establishing more "study" sites?

Need for information/data sharing between researchers and stakeholders

- Coordinating / facilitating connections between researchers and stakeholders at an early stage of research
- Leverage existing data about existing/failed technologies (avoid reinventing the wheel)
- Finding ways to "package" information about ongoing work without being overwhelming



EnChem Engineering PFAS Treatment



YouTube Video Shorts: SBIR Grantees

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5

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Opportunities to Facilitate Technology Development

Need for mentoring to take the next step for technology transfer

- Effectively engage stakeholders to facilitate research translation early on in development
- Cross-training younger generation to learn more about real world sites (and vice versa...cross-training not-so-young generation)
- Explore and demystify mechanisms / resources for research and training for technology transfer



U Arizona Metal Tolerant Plants

Develop a road map for facilitating technology transfer and adaptation to ensure that these innovative approaches are being implemented in the real world



Laboratory

→



Scale-Up

→



Field Trials

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6

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Thank you!

Please Visit: www.niehs.nih.gov/srp
Ask to join our listservs: SRPInfo@mail.nih.gov

Science Digest: Quarterly compilation of research, activities, and updates

Research Briefs: Monthly research publication highlight

Risk e-Learning: Regular CLU-IN webinar series highlighting SRP research

SBIR Virtual Technology Fair Videos: elevator pitches from current grantees on YouTube

Who We Fund: Includes lists of all currently funded grantees for each grant mechanism

Research Brief 317: New Technique Sheds Light on PFAS in Coastal Watersheds

Superfund Research Program

New Technique Sheds Light on PFAS in Coastal Watersheds

Request for Information (RFI) "NOT-ES-21-006: Drinking Water Contaminants of Emerging Concern for National Emerging Contaminant Research Initiative." **Respond by June 2, 2021.**

Risk e-Learning: Enhancing Integration, Interoperability, and Reuse of Data

June 3, 2021, 2-4 PM EDT
 June 18, 2021, 1-3 PM EDT

SRP Risk Communication Strategies to Reduce Exposures and Improve Health

June 21-22, 2021, 11AM-5 PM EDT
 Virtual Workshop

Save the Date: 2021 SRP 35th Anniversary Annual Meeting

Dec 15-17, 2021, Raleigh, NC and Virtual Options

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May 26, 2021
7

7