Developing and Demonstrating Nanosensor Technology to Detect, Monitor, and Degrade Pollutants

Informational Webinar for Applicants

EPA STAR RFA

August 14, 2023

Webinar Objectives

- Review application information for the EPA STAR RFA:

  "Developing and Demonstrating Nanosensor Technology to Detect, Monitor, and Degrade Pollutants"

- Provide guidance for eligibility, submission, technical aspects of application process
- Answer questions about the application process

Webinar Rules

Webinar Ground Rules

- Please hold your questions until all EPA presentations have been made
- You may type your questions in the comments box
- Specific research projects or ideas should not be discussed but clarifying questions regarding the RFA announcement may be answered
- Slides and Q&A transcript will be provided after the webinar
- Please keep yourself muted during the presentation

RFA and Award Information

- RFA will close on **October 4, 2023**, at 11:59:59 p.m. Eastern Time
- Estimated Number of Awards: 1
- Total Funding Amount: $1,500,000 (direct + indirect)
- Project Period: 3 years
- Cost sharing is not needed or allowed
- Award information details can be found in **Section II** of the RFA

Read the RFA very carefully, all necessary information is provided

Agency Contacts

- **Technical Contact:** Sydney Cunniff, Project Officer (cunniff.sydney@epa.gov); phone: 202-564-0868
- **Eligibility Contact:** Ron Josephson, Eligibility Officer (josephson.ron@epa.gov); phone: 202-564-7823
- **Peer Review Contact**: Julie Wanslow, Science Review Officer (Wanslow.julie@epa.gov); phone: 202-564-6521
- **Electronic Submissions:** electronic-grant-submissions@epa.gov

STAR Research Grants

- The Science to Achieve Results (STAR) program's goal is to stimulate and support scientific and engineering research that advances EPA's mission to protect human health and the environment
- STAR is a competitive, peer-reviewed, extramural research program that provides access to the nation's best scientists and engineers in academic and other non-profit research institutions

Background

- Advances in nanotechnology have significantly advanced the field of environmental science. Because of their unique properties, nanomaterials have enabled advances in sensor design to improve specificity and sensitivity
- Nanomaterials are also being used to develop new environmental remediation technologies to capture and degrade pollutants
- Per- and polyfluoroalkyl substances (PFAS) are pollutants that necessitate low detection limits and intensive destruction methods
- This RFA is soliciting research to develop and demonstrate nanosensor technology with functionalized catalysts that have potential to **degrade**, in addition to **detecting** and **monitoring,** PFAS chemicals in drinking water sources

Research Interests and Questions

Applications must address both of the following research areas:

1. Develop and demonstrate nanosensor technology to **detect and monitor PFAS**
   - Groundwater and surface water that may be used as drinking water sources
2. Develop and demonstrate nanosensor technology with **functionalized catalysts to degrade PFAS**
   - Mineralization process with destruction of carbon-fluorine bond
   - Without creation of harmful by-products

Research Specifics

- Different nanomaterials may be used for detection/monitoring and degradation portions, but should focus on the same PFAS
- Specific PFAS studied should be listed in EPA's Fifth Unregulated Contaminant Monitoring Rule (UCMR5)
- EPA is seeking projects with expected results that can be practically applied in real-world settings. This RFA is not seeking proof-of-concept or bench-scale projects
- This RFA is seeking nanotechnology that is ready to be validated and demonstrated outside the lab in the relevant environment, equivalent to a Technology Readiness Level (TRL) of 5-6
  - Applicants should clearly define the TRL of their technology
  - STAR grant funding cannot be used for commercialization purposes

Expected Outputs/Outcomes

Nanosensor technology with…

- Proven sensitivity and selectivity to monitor spatial and temporal changes in PFAS
- Scalable and practical beyond laboratory settings
- Demonstrated ability to remove and/or degrade PFAS in water
- Potential to address unmet environmental sensing and management needs
- Demonstration of how it can be developed, scaled, and implemented for environmental sensing and management
- Established test cases for future applications of nano-enabled sensing and catalysis
- Cutting-edge techniques in sensing and monitoring
- Outreach materials for stakeholders demonstrating the benefits of nanosensor technology for environmental sensing and management

Eligibility Information

Eligible to Apply (Section III):

- Public and private nonprofit institutions/organizations
- Public and private institutions of higher education
- Hospitals located in the U.S.
- State and local governments
- Federally Recognized Indian Tribal Governments
- Foreign collaborators, data collection or use are OK

Eligibility Information (2)

Not Eligible to Apply (Section III)

- Profit-making firms
- Individuals
- Foreign governments or international organizations
- Federal agencies
- Federally-Funded Research and Development Centers (FFRDCs)

- FFRDC employees may cooperate or collaborate with eligible applicants within the limits imposed by applicable regulations
- Eligible entities can partner with some ineligible entities under EPA's Subaward Policy
- For-profit companies may NOT be subawardees, may be consultants subject to competitive procurement requirements (Section IV.C.5.iv.f)

Eligibility Information (3)

- **Applications must be submitted via Grants.gov**
  - If you cannot access Grants.gov, see Exceptions to Grants.gov Submission Requirement
  - You must have SAM.gov registration ACTIVE in order to apply via Grants.gov.
- **Applications that exceed federal funding or performance period time limits will not be reviewed.**
  - Start date does not really matter, as long as period of performance is within three years.
  - Research usually starts six to nine months after the close of the RFA.
- **Applications from ineligible organizations, or that are somehow not substantially compliant, will not be reviewed.**
- **Organizations and PIs may submit more than one application, as long as they are substantially different.**

Application Materials and Process

- Applications must be received electronically through **Grants.gov** under the funding opportunity number (EPA-G2023-STAR-H1)
- Application and submission information can be found in **Section IV**
- Formal instructions for submission can be found in **Section IV.F**
- Must have active SAM.gov registration in order to apply
- Applications must include all information requested in **Section IV.C**
- All necessary forms are available at: How to Apply and Required Forms
- Required application package materials include:
  - Human Subjects Research Statement (HSRS)
  - Scientific Data Management Plan (SDMP)

Make sure to include the Current and Pending Support form in your Grants.gov submission

Application Materials and Process (2)

- If you have trouble with Grants.gov, perform the steps in Section IV.F.5 **before** the close of the RFA
- You may resubmit an application before the deadline, but changes are not permitted after an RFA closes. If we see duplicates of the same application, we will process the most recent one
- If you are experiencing a natural disaster and cannot submit on time, please contact us immediately
- Letters of support or intent from EPA employees are prohibited, and we will remove such letters if we find them

Application Review Process

- Detailed information about review criteria can be found in **Section V**.
- Peer Review
  - All eligible applications are reviewed by external technical experts for scientific merit.
  - Peer Review Officer: Julie Wanslow (Wanslow.Julie@epa.gov)
- Relevancy Review
  - Applicants who pass peer review will undergo an internal relevancy review to ensure an integrated research portfolio for the Agency.
  - Project Officer: Sydney Cunniff (cunniff.sydney@epa.gov)
- Past Performance History Review
  - Applicants who pass peer review will be asked to provide additional information on the PI's performance and reporting history under Federal grants.

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  If you are interested in potentially serving on the external scientific Peer Review Panel, rather than applying, please send your contact information and a copy of your CV to Julie at your earliest convenience.

- **Electronic Submissions:** electronic-grant-submissions@epa.gov

Thank you!