NSF/FDA Scholar-In-Residence at FDA

PROGRAM SOLICITATION
NSF 18-556

REPLACES DOCUMENT(S):
NSF 10-533, NSF 03-525

National Science Foundation
Directorate for Engineering
    Division of Chemical, Bioengineering, Environmental and Transport Systems
    Division of Electrical, Communications and Cyber Systems
    Division of Civil, Mechanical and Manufacturing Innovation
    Engineering Education and Centers
Directorate for Technology, Innovation and Partnerships
    Translational Impacts
Directorate for Mathematical and Physical Sciences
    Division of Materials Research
Directorate for Computer and Information Science and Engineering
    Division of Computer and Network Systems

Food and Drug Administration
    Center for Devices and Radiological Health

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

    Proposals Accepted Anytime

IMPORTANT INFORMATION AND REVISION NOTES

In this version of the solicitation, undergraduate students are no longer eligible for funding. Additionally, the stipend amounts have increased for the various opportunities, and an extra requirement has been added to the supplementary document section.

Important Information

Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in Important Notice No. 147. In support of these efforts, research proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov or via Grants.gov, and may not be prepared or submitted via FastLane.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 22-1), which is effective for proposals submitted, or due, on or after October 4, 2021.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

    NSF/FDA Scholar-In-Residence at FDA

Synopsis of Program:

    The National Science Foundation (NSF), through the Directorate for Engineering, the Directorate of Computer and Information Science and Engineering Division of Computer and Network Systems, and the Directorate for Mathematical and Physical Sciences Division of Materials Research, along with the U.S. Food and Drug Administration (FDA), through its Center for Devices and

Radiological Health (CDRH), have established the NSF/FDA Scholar-in-Residence Program at FDA. This program comprises an inter-agency partnership for the investigation of scientific and engineering issues concerning emerging trends in medical device technology. This partnership is designed to enable investigators in science, engineering, and computer science to develop research collaborations within the intramural research environment at the FDA. This solicitation features three flexible mechanisms for support of research at the FDA: 1) Principal Investigators at FDA; 2) Postdoctoral Researchers at FDA; and 3) Graduate Students at FDA.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Aleksandr L. Simonian, telephone: (703) 292-2191, email: asimonia@nsf.gov
- Steven M. Zehnder, telephone: (703) 292-7014, email: szehnder@nsf.gov
- Daniel Savin, telephone: (703) 292-4644, email: dsavin@nsf.gov
- David Corman, Program Director, NSF, CISE/CNS, telephone: (703) 292-8754, email: dcorman@nsf.gov
- Laurel C. Kuxhaus, telephone: (703) 292-4465, email: lkuxhaus@nsf.gov
- Svetlana Tatic-Lucic, telephone: (703) 292-4627, email: staticlu@nsf.gov
- Henry Ahn, telephone: (703) 292-7069, email: hahn@nsf.gov
- Dorn Carranza, Associate Director for Strategic Partnerships and Innovation, U.S. Food and Drug Administration, telephone: (301) 796-8338, email: dorn.carranza@fda.hhs.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.070 --- Computer and Information Science and Engineering
- 47.084 --- NSF Technology, Innovation and Partnerships

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 5 to 10

Estimated program budget of $750,000, estimate of 5-10 awards, average award size and duration (varies with funding opportunity outlined in Section II. Program Description) are subject to the availability of funds and the quality of proposals.

Anticipated Funding Amount: $750,000

Eligibility Information

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), Chapter I.E. Unaffiliated individuals are not eligible to submit proposals in response to this solicitation.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI:

There are no restrictions or limits.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required

- **Full Proposals:**
    - Full Proposals submitted via Research.gov: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
    - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide).

B. Budgetary Information

- **Cost Sharing Requirements:**

    Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:**

    Not Applicable

- **Other Budgetary Limitations:**

    Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

    Proposals Accepted Anytime

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria apply.

Award Administration Information

Award Conditions:

Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements:

Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

The objectives of the program are to transform science and engineering understanding in health and health care, and to provide educational research experiences in science, engineering, and mathematics. The program objectives include promoting fundamental research into the scientific and engineering processes necessary for: (a) the innovation and development of safe and effective new medical devices and technologies; (b) expanding the knowledge pool of scientific techniques and tools needed to identify basic mechanisms by which medical devices interact with the body from the molecular to the physiological level; and (c) preparing the fundamental knowledge base in the basic sciences that will be needed to shepherd emerging medical device technologies efficiently and responsibly from the early research stage to societal adoption.

II. PROGRAM DESCRIPTION

This activity supports research and collaborations with investigators in the intramural FDA laboratory research program including opportunities for Principal Investigators and embedded postdoctoral fellows and graduate students to conduct engineering and scientific research on topics contributing to public health and to gain experience related to emerging medical device technologies in a research setting, both individually and in collaborative teams.

The following opportunities are options to be considered, and may be combined or modified in alternative arrangements to meet the objectives of the program. Such alternate proposals should represent comparable levels of commitment and interaction; moreover, it is expected that the Principal Investigator will be meaningfully engaged in the conduct of research at the FDA laboratory.

1. **Principal Investigator at FDA** - For science, engineering, and computer science Principal Investigators to conduct research at the FDA. Budget: Awards may be up to one year. Principal Investigators may budget up to 6 months of their salary. Up to 20 percent of the total requested amount may be used for travel, moving, and research expenses for the Principal Investigator and his/her students at the FDA, including materials.
2. **Postdoctoral Researchers at FDA** - For engineering, science, and mathematics fellows for full-time work at FDA under the guidance of an FDA mentor. Budget: Awards from NSF will be for amounts up to $100,000 per year for one to two years and may include the following: ***85 percent of the stipend*** including fringe benefits for the postdoctoral fellow. The award may also include transportation and moving expenses (limited to $3,000); up to 10 percent of the total budget allowance may be used by an advisor for research-related expenses.
3. **Graduate Students at FDA** - For science, engineering, and mathematics graduate students for one to four semesters of full- or part-time work at FDA, with moving expenses for full-time work, in an area related to his/her research under the guidance of an advisor and an FDA mentor. Budget: Awards will be for up to one year, with award amounts typically up to $50,000, and may include the following: a graduate stipend of up to $3,000 per month; transportation expenses and moving expenses (limited to $3,000) for the graduate student; and a 10 percent allowance for the advisor for research-related expenses.

FDA will provide office space, research facilities, research costs in the form of expendable and minor equipment purchases to the host CDRH laboratory, and the time of its research staff. NSF will, as appropriate, assist with funds for transporting specialized equipment between the applicant's home institution and FDA for use in the collaborative research.

Applicants may request support for this activity as a new proposal or as a supplement to an eligible existing NSF grant of the participating Directorates. Please note that both postdoctoral researchers and graduate students must have an advisor submit the proposal on their behalf. The length of support requested should be appropriate to the purpose. Proposals will be evaluated in accordance with NSF merit review criteria and the program objectives (see above).

The proposed activities need not focus on fundamental issues alone; however, topics addressed should be oriented toward research within an intellectual envelope shared by FDA. Typically, FDA scientists and researchers will participate in the merit review of proposals submitted under this solicitation. Unattributed reviews may be shared with FDA. Investigators are expected to integrate research objectives with educational and human resources goals and FDA scientific priorities.

Proposals to NSF must be accompanied with a letter of invitation from FDA, following procedures described more fully below. FDA will host up to 10 NSF scholars and awardees in residence at any one time under this activity. Interested applicants should contact the designated NSF Directorate coordinator to learn more about the procedures for proposal preparation, submission, and evaluation.

III. AWARD INFORMATION

Estimated program budget of $750,000, estimate of 5-10 awards, average award size and duration (varies with funding opportunity outlined in Section II. Program Description) are subject to the availability of funds and the quality of proposals.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), Chapter I.E. Unaffiliated individuals are not eligible to submit proposals in response to this solicitation.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or co-PI:

There are no restrictions or limits.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov*. The complete text of the *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via Research.gov. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

FDA HOST LABORATORY PROCEDURES

1. **Whitepaper Research Outline and Biographical Sketch**: *Applicants should submit to the FDA a whitepaper (800-word maximum, text format) outlining the proposed project to the following e-mail address: nsf.sir@fda.hhs.gov*. This paper should be accompanied with a biographical sketch of the applicant in the standard NSF format, along with a list of current and pending support. The whitepaper should also indicate how the residency will be structured (i.e., delineate Principal Investigator, postdoctoral researcher, and graduate student effort at FDA). The purpose of this whitepaper is to determine if the suggested research falls within the purview of the interests of both agencies *before* a full proposal is submitted to NSF. **Based on the review of this whitepaper outline, FDA will supply the applicant with a letter of invitation and endorsement (see numbers 2 and 3 below).** This whitepaper should be uploaded into the Other Supplementary Documents Section as part of the full proposal submission to NSF. Please note that the Biographical Sketch should be included in the Biographical Sketches section of the full proposal if the applicant is invited to submit a full proposal.
2. **Letter of Invitation**: Proposals submitted to NSF for this activity require a letter of invitation from one or more Division Directors in the intramural laboratory research program in the FDA's Center for Devices and Radiological Health. The letter of invitation should be scanned and uploaded to the Other Supplementary Documents section of the full proposal submitted to NSF.
3. **Endorsement:** Proposals must include an endorsement from the Director of CDRH's Office of Science and Engineering Laboratories (OSEL) stating that the FDA investigator's laboratory will host the applicant and collaborate in the activity, and outlining the commitments the host laboratory will make to the project. The letter of endorsement should be scanned and uploaded to the Other Supplementary Documents section of the full proposal submitted to NSF.

For the proposal to receive a full review at NSF, all 3 of these previous items outside of the NSF PAPPG requirements MUST be included in the proposal. Failure to obtain prior approval by FDA through the 800-word whitepaper research outline, as well as failure to provide the whitepaper, the letter of invitation, and the endorsement from the FDA investigator's laboratory will result in the proposal being "Returned Without Review" (RWR).

Please note that, for postdoctoral researchers or graduate students performing research at the FDA laboratories, the advisor MUST submit the full proposal on their behalf.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

  Proposals Accepted Anytime

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html. For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: https://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via Research.gov may use Research.gov to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe

are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
   a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and other underrepresented groups in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements or the Division of Acquisition and Cooperative Support for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by an NSF Grants and Agreements Officer. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Administrative and National Policy Requirements

Build America, Buy America

As expressed in Executive Order 14005, Ensuring the Future is Made in All of America by All of America's Workers (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's Build America, Buy America webpage.

Special Award Conditions:

An agreement between NSF-funded awardees (participants) and FDA is required for this activity. Among other things, the agreement will require that participants i) under the activities of this program who are not U.S. Government employees will abide by conflict of interest rules and policies as specified by FDA; ii) not be permitted to serve on FDA advisory panels reviewing a product for which they provided consultative or review services; iii) obtain appropriate visa status for research/training, paid by the home institution; iv) share pertinent information for obtaining security clearance or access to FDA facilities and offices; v) will be required to sign a Commitment to Protect Nonpublic Information; vi) sign a separate project-specific development and implementation agreement with FDA regarding "Inventions" and "Intellectual Property;" and vii) include appropriate acknowledgement of NSF support in reports and/or publications on work performed under the award.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and

other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

NSF awardees under this agreement will be required to include appropriate acknowledgement of NSF support in reports and/or publications on work performed under this award. An example of such an acknowledgement would be : "This material is based upon work supported by the NSF under Award No. [Recipient should enter the award number]."

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Aleksandr L. Simonian, telephone: (703) 292-2191, email: asimonia@nsf.gov
- Steven M. Zehnder, telephone: (703) 292-7014, email: szehnder@nsf.gov
- Daniel Savin, telephone: (703) 292-4644, email: dsavin@nsf.gov
- David Corman, Program Director, NSF, CISE/CNS, telephone: (703) 292-8754, email: dcorman@nsf.gov
- Laurel C. Kuxhaus, telephone: (703) 292-4465, email: lkuxhaus@nsf.gov
- Svetlana Tatic-Lucic, telephone: (703) 292-4627, email: staticlu@nsf.gov
- Henry Ahn, telephone: (703) 292-7069, email: hahn@nsf.gov
- Dorn Carranza, Associate Director for Strategic Partnerships and Innovation, U.S. Food and Drug Administration, telephone: (301) 796-8338, email: dorn.carranza@fda.hhs.gov

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188
- FastLane Help Desk e-mail: fastlane@nsf.gov
- Research.gov Help Desk e-mail: rgov@nsf.gov

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at https://www.grants.gov.

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Suzanne H. Plimpton
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