

Molecular Foundations for Biotechnology (MFB)

Partnerships to Transform Emerging Industries - RNA Tools/Biotechnology

PROGRAM SOLICITATION

NSF 23-554

REPLACES DOCUMENT(S):

NSF 22-554



National Science Foundation

Directorate for Mathematical and Physical Sciences
Division of Chemistry
Division of Physics
Division of Mathematical Sciences

Directorate for Biological Sciences
Division of Molecular and Cellular Biosciences

Directorate for Computer and Information Science and Engineering
Division of Information and Intelligent Systems



National Institutes of Health

National Human Genome Research Institute

Letter of Intent Due Date(s) (required) (due by 5 p.m. submitter's local time):

March 16, 2023

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

May 11, 2023

IMPORTANT INFORMATION AND REVISION NOTES

- The National Human Genome Research Institute (NHGRI) of the National Institutes of Health is now participating in this solicitation. NSF Directorate for Engineering is not participating in this solicitation.
- Research topic areas have changed.
- Eligibility criteria for who may submit proposals have been revised.
- Content requirements for Letters of Intent (LOIs) have been revised.
- Additional solicitation specific review criteria have been included.
- Budgetary guidance has been added.

Any proposal submitted in response to this solicitation should be submitted in accordance with the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Molecular Foundations for Biotechnology (MFB)
Partnerships to Transform Emerging Industries - RNA Tools/Biotechnology

Synopsis of Program:

This initiative supports fundamentally new approaches in molecular sciences to drive new directions in biotechnology, a critical and emerging

technology of the 21st century. This is the third year of a campaign targeting broad themes to be pursued through collaborative high risk/high reward projects.

This MFB solicitation calls for creative, cross-disciplinary research and technology development proposals to accelerate understanding of RNA function in complex biological systems and to harness RNA research to advance biotechnology.

The funding opportunity will be coordinated by the National Science Foundation together with the National Institutes of Health, National Human Genome Research Institute (NHGRI). The focus on RNA science advances (1) [Biotechnology innovation for a sustainable, safe and secure American bioeconomy](#); (2) the [NSF 2022-2026 Strategic Plan](#) to create new knowledge and benefit society by translating knowledge into solutions; and (3) the [NHGRI 2020 Strategic Vision](#) for improving human health at the Forefront of Genomics.

The program will support projects with a budgetary range of approximately \$250,000 to \$400,000 *per year* in *direct* costs and a duration of up to 3 years.

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.

- Pui S. Ho, Division of Chemistry, MPS Directorate, telephone: (970) 491-0569, email: mfb@nsf.gov
- Manju M. Hingorani, Division of Molecular and Cellular Biosciences, BIO Directorate, telephone: (703) 292-7323, email: mfb@nsf.gov
- Stephen DiFazio, Division of Molecular and Cellular Biosciences, BIO Directorate, telephone: (703) 292-4517, email: mfb@nsf.gov
- Christine Chow, Division of Chemistry, MPS Directorate, telephone: (703) 292-4555, email: mfb@nsf.gov
- Sorin Draghici, Division of Information and Intelligent Systems, CISE Directorate, telephone: (703) 292-2232, email: mfb@nsf.gov
- Zhilan J. Feng, Division of Mathematical Sciences, MPS Directorate, telephone: (703) 292-7523, email: mfb@nsf.gov
- Angel E. Garcia, Division of Physics, MPS Directorate, telephone: (703) 292-8897, email: mfb@nsf.gov
- Jennifer Strasburger, NIH National Human Genome Research Institute, telephone: (240) 281-9121, email: strasbuj@mail.nih.gov

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

- 47.049 --- Mathematical and Physical Sciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 93.172 --- National Human Genome Research Institute

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant or R01 project (if the proposal is selected to be funded by NIH/NHGRI)

Estimated Number of Awards: 7

The number of awards depends on the availability of funds and the quality of the proposals.

Anticipated Funding Amount: \$10,000,000

Contingent on availability of funds.

For NHGRI: There are no set aside funds. Applications compete for funding with other applications submitted through regular NIH mechanisms to NHGRI.

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: 1

An individual may be designated as senior personnel (from the submitting organization or subawardee organization) on at most one letter of intent, and at most one full proposal to this solicitation. In the event that an individual exceeds this limit, letters of intent and proposals will be accepted based on earliest date and time of submission, *i.e.*, the first compliant letter of intent or full proposal will be accepted, and the remainder will be returned without review.

There are no eligibility restrictions on unfunded collaborators.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.
- **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

- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. submitter's local time):
March 16, 2023
- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):
May 11, 2023

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review criteria apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions:

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

Reporting Requirements:

Standard NSF reporting requirements apply.

TABLE OF CONTENTS

Summary of Program Requirements

- I. Introduction
- II. Program Description
- III. Award Information
- IV. Eligibility Information
- V. Proposal Preparation and Submission Instructions
 - A. Proposal Preparation Instructions
 - B. Budgetary Information
 - C. Due Dates
 - D. Research.gov/Grants.gov Requirements
- VI. NSF Proposal Processing and Review Procedures
 - A. Merit Review Principles and Criteria
 - B. Review and Selection Process
- VII. Award Administration Information
 - A. Notification of the Award
 - B. Award Conditions
 - C. Reporting Requirements
- VIII. Agency Contacts
- IX. Other Information

I. INTRODUCTION

In recent years, fundamental discoveries and technological breakthroughs have revealed a rich landscape of coding and non-coding RNA functions in the cell. The variety and prominent roles of RNAs in enabling and regulating cellular growth, development, and a myriad of functions present exciting opportunities for mechanistic research coupled with technological development centered on this versatile nucleic acid.

This solicitation seeks to catalyze synergies among researchers in the biological, chemical, computational, mathematical, and physical sciences to pursue creative technological approaches that address questions about RNA function in complex biological systems and to harness RNA research to advance biotechnology. The program prioritizes research on how RNA processing, epitranscriptomic modification, or organization in macromolecular complexes or compartments such as condensates relates to its cellular activities.

II. PROGRAM DESCRIPTION

Proposals submitted in response to this solicitation must aim to develop and provide proof-of-concept testing of tools, methodology and/or theory that address one or both themes:

- (i) Accelerate fundamental discoveries about RNA structure, interactions, and functions at molecular or genome and transcriptome-wide scales, and/or
- (ii) Create innovative RNA-based applications for various sectors of the bioeconomy such as agriculture, energy production, or efforts to mitigate the effects of climate change, improve environmental sustainability, and/or combat global pandemics. Examples include, but are not limited to, approaches that:
 - Identify, predict, detect, quantify, characterize and/or selectively manipulate RNA, including RNA isoforms, RNA modifications in sequence context, and non-natural RNAs;
 - Enable prediction and analysis of the molecular structure and function of RNA and its modified forms, and how they interact with other molecules (including proteins, DNA, small molecules), especially in complex assemblies and compartments such as membraneless condensates;
 - Discover or develop new chemical and biochemical tools, including small molecules or enzymes that target RNA and modulate its properties;
 - Develop novel computational methods, algorithms, and tools, including those that leverage machine learning/artificial intelligence, to enable data science-driven approaches to understanding RNA structure, interactions, and function;
 - Advance the design and synthesis of RNAs with novel form and function by leveraging the power of biological diversity and evolution.

All proposals **must** include innovative, interdisciplinary approaches that have the potential to drive fundamentally new directions in biotechnology. Proposals **must** also be motivated by questions or hypotheses about RNA function in biological systems, with an emphasis on molecular and cellular science. Research that scales to systems levels is also welcome. The program is especially interested in cross-disciplinary and collaborative research that is grounded in chemical and physical science disciplines, including chemical biology, computational, statistical, or machine learning/artificial intelligence methods, and draws heavily on molecular and cellular biology disciplines, such as genetics, genomics, molecular biophysics, and systems and synthetic biology. Creation of new databases or infrastructure for data storage and processing is not in the scope of this program.

NSF is committed to the inclusion of all people and institutions in the research enterprise as vital to the nation's health, security, and global leadership in STEM. Hence, to be competitive, proposers must be intentional regarding broadening participation in their projects through efforts to promote diversity, equity, inclusion and accessibility of individuals and institutions traditionally underrepresented in STEM. NSF is also interested in ensuring the inclusion of individuals from diverse social categories and/or identities including but not limited to: race, ethnicity, gender, sexual orientation, socio-economic status, disability status, veteran status, or geography — recognizing that underrepresentation can vary by career stage and discipline and that there are additional considerations of intersectionality. Proposals submitted to this solicitation are strongly encouraged to involve PIs, co-PIs, postdoctoral fellows, students, and other personnel who are members of these groups. NSF also recognizes that STEM research and education occurs at a wide range of institutions, including Minority-Serving Institutions (MSIs), Primarily Undergraduate Institutions (PUIs), and two-year colleges, as well as major research institutions, and welcomes proposals from all types of institutions across diverse geographies. Proposals from EPSCoR jurisdictions are especially encouraged.

NHGRI will consider applications to this solicitation as described above that accelerate genomic research focused on the structure and biology of genomes and can demonstrate utility or relevance to human or disease-relevant model organisms. NHGRI is interested in approaches that are comprehensive across the genome or are generalizable across variants, tissues, diseases, or function and that address priority areas described in the [NHGRI 2020 Strategic Vision](#). Applications for studies relevant only to a particular disease or organ system are not in scope for NHGRI. Similarly, applications whose primary scientific objective is to understand a single biological or behavioral process, the pathophysiology of a disease, the mechanism of action of an intervention, or the direct development of therapeutic research are not in scope. NHGRI recognizes the [importance of diversity in the genomic workforce](#), without which the promise of genomics cannot be fully achieved. NHGRI strongly encourages potential applicants to contact program staff (see Section VIII) in the early stages of application development.

Research projects supported by this program could provide rich opportunities for professional training and workforce development. University-based opportunities for students and postdoctoral researchers may be augmented with internships or similar opportunities to work in non-academic settings for up to three months per year.

Investigators are encouraged to develop collaborations for complementary expertise where necessary to enable interdisciplinary research. Proposers should construct their teams consistent with the goals of the project and the resources available. The proposal should make a compelling case for the collaborative research project and the collaborative team. Of the two types of collaborative proposal formats described in the PAPPG, this solicitation allows only a single proposal submission with subawards administered by the lead organization (PAPPG Chapter II.E.3.a). Separately submitted collaborative proposals will be returned without review.

If any for-profit partners are involved in the proposed project, all partners should agree in advance how intellectual property (IP) rights will be handled. A signed partnership agreement on IP, addressing both publication and patent rights, must be submitted to NSF prior to the issuance of an award. NSF will review this agreement to ensure that the graduation of students will not be unduly affected. NSF is not responsible for the agreement reached nor the IP information exchanged between partners.

III. AWARD INFORMATION

Anticipated Type of Award:

Continuing Grant or Standard Grant or R01 project (if the proposal is selected to be funded by NIH/NHGRI)

Estimated Number of Awards: 7

The number of awards depends on the availability of funds and the quality of the proposals.

Anticipated Funding Amount: \$10,000,000

Contingent on the availability of funds.

For NHGRI: There are no set aside funds. Applications compete with other applications submitted to NHGRI.

Limitation of Awards:

For this solicitation, award sizes are expected to range from approximately \$250,000 to \$400,000 *per year* in *direct* costs with durations of up to 3 years. This range is offered as a guide to help proposers understand what has historically been fundable in the MFB program. The project budget and duration must be commensurate with the scale and scope of the research. Proposers requesting budgets toward the larger end of the range should make it clear why a larger budget is necessary for the success of the project.

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: 1

An individual may be designated as senior personnel (from the submitting organization or subawardee organization) on at most one letter of intent, and at most one full proposal to this solicitation. In the event that an individual exceeds this limit, letters of intent and proposals will be accepted based on earliest date and time of submission, *i.e.*, the first compliant letter of intent or full proposal will be accepted, and the remainder will be returned without review.

There are no eligibility restrictions on unfunded collaborators.

Additional Eligibility Info:

Additional NIH/NHGRI eligibility information is provided below.

Eligible Individuals (Program Director/Principal Investigator)

Any individual(s) with the skills, knowledge, and resources necessary to carry out the proposed research as the Program Director(s)/Principal Investigator(s) (PD(s)/PI(s)) is invited to work with his/her organization to develop an application for support. Individuals from underrepresented racial and ethnic groups as well as individuals with disabilities are always encouraged to apply for NIH support.

For institutions/organizations proposing multiple PDs/PIs, visit the Multiple Program Director/Principal Investigator Policy and submission details in the Senior/Key Person Profile (Expanded) Component of the SF424 (R&R) Application Guide.

NIH/NHGRI and its staff are ineligible to be involved in any proposals submitted to this funding opportunity, including as unfunded collaborators, via letters of collaboration or support, or via any other means.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent (required):

Letters of Intent are required and must be submitted via Research.gov even if full proposals will be submitted via Grants.gov.

The Letter of Intent must be submitted by March 16, 2023. All proposers who submit a Letter of Intent can submit a full proposal. No feedback will be provided by NSF at this stage. Full proposals that do not correspond to a timely submitted Letter of Intent will be returned without review. Submission of multiple Letters of Intent as senior personnel (from the submitting organization or subawardee organization) is not permitted.

Required components of the Letter of Intent are given below. Letters of Intent that are not compliant with this solicitation will disqualify the PIs from submitting a full Proposal.

The Letter of Intent should include this information:

1. Project Title

Proposal titles must indicate the MFB program, followed by a colon, then the title of the project ("MFB: Title"). The title should describe the project in concise, informative language that is understandable to a technically literate reader.

2. List of Senior Project Personnel and Participating Organizations

3. Project Synopsis (2500 characters)

The Synopsis should include statements on the intellectual merit and on the broader impacts of the proposed activities. It should outline the specific goals of the research and testable hypotheses for each goal, and the related technology or methods to be developed. It should also highlight innovative aspects of the work and the significance of potential outcomes in the field.

4. Other Data Fields

Research disciplines (255 characters)

Identify the disciplines in which the research is grounded.

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through Research.gov in response to this Program Solicitation please note the conditions outlined below:

- Submission by an Authorized Organizational Representative (AOR) is not required when submitting Letters of Intent.
- A Minimum of 0 and Maximum of 4 Other Senior Project Personnel are permitted
- A Minimum of 0 and Maximum of 4 Other Participating Organizations are permitted
- Research disciplines is required when submitting Letters of Intent
- Submission of multiple Letters of Intent is not permitted

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.

See PAPPG Chapter II.D.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.

Collaborative Proposals. Of the two types of collaborative proposal formats described in the PAPPG, this solicitation allows only a single proposal submission with subawards administered by the lead organization (PAPPG Chapter II.E.3.a). Separately submitted collaborative proposals will be returned without review.

Note that proposals selected for funding consideration by NHGRI will be invited to submit reformatted applications to NIH's Center for Scientific Review.

The following information supplements the guidelines and requirements in the NSF PAPPG:

Proposal Title: The proposal title must indicate the MFB program, followed by a colon, then the title of the project ("MFB: Title").

Project Description:

Describe the proposed project activities within the 15 page-limit. The Project Description must include the following **subsections**, specifically labeled as below. **Proposals that fail to include these sections will be returned without review, without exception.**

- **Research Description:** A list of all participating PIs/co-PIs, senior personnel and collaborators must be included on the first page. The Research Description section must describe the rationale and approach of the MFB project. It should describe the challenges that drive the research, the hypotheses, the tools/methods that will be developed and tested in order to address the hypotheses, and the anticipated outcomes. It should also highlight innovative, high risk/high reward aspects of the proposed work, cross-disciplinary synergies that enable the research, the significance of

anticipated outcomes such as new technology and knowledge, and how they might advance the relevant field. For collaborative research, the roles and responsibilities of each partner should be made clear. Plans to ensure reproducibility and replicability in sample and data collection, experimental design and methodology, and data analysis that align with community best practices must be included.

- **Broader Impacts:** This section must address how the research could lead to tools/methods and generalizable concepts that can be applied to systems beyond those directly addressed in the proposal. It should also discuss the potential impact on future biotechnology, the education and training opportunities available through the project, and any other broader impacts.

Proposal Budget:

Provide an itemized summary budget and yearly budgets for the duration of the proposed project, including subawards, if appropriate. The project budget and duration must be commensurate with the scale and scope of the research. A Budget Justification must be provided for each budget submitted, including any subaward budgets. It is recommended that the Budget Justification be structured with the same headings and subheadings shown in the Budget sheets. Funds for facility support, construction, or renovation may not be requested.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Award sizes are expected to range from approximately \$250,000 to \$400,000 *per year* in *direct* costs with durations of up to 3 years. This range is offered as a guide to help proposers understand what has historically been fundable in the MFB program. The project budget and duration must be commensurate with the scale and scope of the research. Proposers requesting budgets toward the larger end of the range should make it clear why a larger budget is necessary for the success of the project.

Additional NIH/NHGRI Specific Information:

This funding opportunity announcement (FOA) does not require cost sharing as defined in the [NIH Grants Policy Statement](#).

C. Due Dates

- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. submitter's local time):

March 16, 2023

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

May 11, 2023

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 Research.gov 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.D.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.D.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.

Additional Solicitation Specific Review Criteria

In addition to the standard NSF review criteria described above, proposals submitted in response to this solicitation will be assessed on:

- The innovation in tools, methodology and/or theory to advance research on RNA or to develop RNA-based applications;
- The interdisciplinary approach employed to solve complex challenges;
- The potential catalytic impact on driving new directions in biotechnology; and
- The prospect of the outcomes to be generalizable beyond the specific system under study.

NIH Review Criteria

The mission of the NIH is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. In their evaluations of Intellectual Merit, reviewers will be asked to consider the following criteria that are used by NIH:

Overall Impact. Reviewers will provide an overall impact/priority score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following five core review criteria, and additional review criteria (as applicable for the project proposed).

Significance. Does the project address an important problem or a critical barrier to progress in the field? Is there a strong scientific premise for the project? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

Investigator(s). Are the PD/PIs, collaborators, and other researchers well suited to the project? If Early Stage Investigators or New Investigators, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative or multi-PD/PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance, and organizational structure appropriate for the project?

Innovation. Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

Approach. Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility, and will particularly risky aspects be managed? Have the investigators presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects?

If the project involves clinical research, are the plans for 1) protection of human subjects from research risks, and 2) inclusion of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed?

Environment. Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?

Where applicable, the following items will also be considered:

Protections for Human Subjects. For research that involves human subjects but does not involve one of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate the justification for involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: 1) risk to subjects, 2) adequacy of protection against risks, 3) potential benefits to the subjects and others, 4) importance of the knowledge to be gained, and 5) data and safety monitoring for clinical trials.

For research that involves human subjects and meets the criteria for one or more of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: 1) the justification for the exemption, 2) human subjects involvement and characteristics, and 3) sources of materials.

Inclusion of Women, Minorities, and Children. When the proposed project involves human subjects and/or NIH-defined clinical research, the committee will evaluate the proposed plans for inclusion (or exclusion) of individuals on the basis of sex/gender, race, and ethnicity, as well as the inclusion (or exclusion) of children to determine if it is justified in terms of the scientific goals and research strategy proposed.

Vertebrate Animals. The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment according to the following criteria: (1) description of procedures involving animals including species, strains, ages, sex, and total number to be used; (2) justifications for the use of animals and for the appropriateness of the species proposed; (3) interventions to minimize discomfort, distress, pain and injury; and (4) justification for euthanasia method if NOT consistent with the American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals. Reviewers will assess the use of chimpanzees as they would any other application proposing the use of vertebrate animals. For additional information, see <https://grants.nih.gov/grants/olaw/VASchecklist.pdf>.

Biohazards. Reviewers will assess whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection is proposed.

Budget and Period of Support. Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.

B. Review and Selection Process

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

NSF will manage the review of proposals in consultation with NHGRI. Relevant information about proposals and unattributed reviews of proposals will be shared between the participating organizations as appropriate. Further information on the processes and requirements of participating funding organizations is detailed in this Section and in Section VIII of this solicitation.

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. Upon conclusion of the review process, meritorious proposals may be recommended for funding by NSF or NHGRI, at the option of the agencies, not the proposing organizations. *Proposals selected for funding by NHGRI will need to be reformatted and resubmitted to that agency.* Subsequent submission and grant administration procedures will be in accordance with the individual policies of the awarding agency. Further information will be provided to these applicants after selection.

NSF Process: Those proposals selected for funding by the NSF will be handled in accordance with standard NSF procedures. 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 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 an 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.

NIH Process: Proposals selected for funding consideration by NIH will be invited to submit reformatted applications to the Division of Receipt and Referral (DRR) in NIH's Center for Scientific Review (CSR: <https://public.csr.nih.gov/>). PIs invited to submit to NIH will receive further information on submission procedures from NIH and a new receipt date will be determined for the NIH formatted applications. An applicant will not be allowed to increase the proposed budget or change the scientific content of the application in the reformatted submission to the NIH. NIH budgets must be less than \$500,000 in direct costs per year, and the total costs requested for all years may not exceed the range specified in this NSF solicitation. Indirect costs on any foreign subawards/subcontracts will be limited to eight (8) percent. Applicants will be expected to utilize the Multiple Principal Investigator option at the NIH (https://grants.nih.gov/grants/multi_pli/) as appropriate. Applications selected for funding consideration by NIH will be subject to the NIH [Data Management and Sharing \(DMS\) policy \(effective January 25, 2023\)](#). These NIH applications will be entered into the NIH IMPAC II system.

Following the NSF peer review, recommended applications that have been resubmitted to the NIH are required to go to second level review by the Advisory Council or Advisory Board of the awarding Institute or Center. The following will be considered in making funding decisions:

- Scientific and technical merit of the proposed project as determined by scientific peer review.
- Availability of funds.
- Relevance of the proposed project to program priorities.
- Adequacy of data management and sharing plans.

Subsequent grant administration procedures for NIH awardees, including those related to New and Early Stage Investigators (https://grants.nih.gov/grants/new_investigators/), will be in accordance with the policies of NIH. Applications selected for NIH funding will use the NIH R01 funding mechanism. At the end of the project period, renewal applications for projects funded by the NIH are expected to be submitted directly to the NIH as Renewal Applications.

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:

If any for-profit partners are involved in the proposed project, all partners should agree in advance how intellectual property (IP) rights will be handled. A signed partnership agreement on IP, addressing both publication and patent rights, must be submitted to NSF prior to the issuance of an award. NSF will review this agreement to ensure that the graduation of students will not be unduly affected. NSF is not responsible for the agreement reached nor the IP information exchanged between partners.

For Awards supported by NIH: Notification of award as well as award terms and conditions will be determined by the NIH.

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.

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:

- Pui S. Ho, Division of Chemistry, MPS Directorate, telephone: (970) 491-0569, email: mfb@nsf.gov
- Manju M. Hingorani, Division of Molecular and Cellular Biosciences, BIO Directorate, telephone: (703) 292-7323, email: mfb@nsf.gov
- Stephen DiFazio, Division of Molecular and Cellular Biosciences, BIO Directorate, telephone: (703) 292-4517, email: mfb@nsf.gov
- Christine Chow, Division of Chemistry, MPS Directorate, telephone: (703) 292-4555, email: mfb@nsf.gov

- Sorin Draghici, Division of Information and Intelligent Systems, CISE Directorate, telephone: (703) 292-2232, email: mfb@nsf.gov
- Zhilan J. Feng, Division of Mathematical Sciences, MPS Directorate, telephone: (703) 292-7523, email: mfb@nsf.gov
- Angel E. Garcia, Division of Physics, MPS Directorate, telephone: (703) 292-8897, email: mfb@nsf.gov
- Jennifer Strasburger, NIH National Human Genome Research Institute, telephone: (240) 281-9121, email: strasbuj@mail.nih.gov

For questions related to the use of NSF systems contact:

- NSF Help Desk: 1-800-673-6188
- 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.

For questions about NHGRI interests, contact:

- Jennifer Strasburger, telephone: (240) 281-9121, email: strasbuj@mail.nih.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>.

ABOUT THE NATIONAL INSTITUTES OF HEALTH

The mission of the National Institutes of Health (NIH) is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. NIH works toward that mission by conducting research in its own laboratories; supporting the research of non-Federal scientists in universities, medical schools, hospitals, and research institutions throughout the country and abroad; helping in the training of research investigators; and fostering communication of medical information.

For the latest information about NIH programs, visit the NIH website at <https://www.nih.gov/>.

National Human Genome Research Institute (NHGRI)

The mission of the National Human Genome Research Institute (NHGRI) is to accelerate scientific and medical breakthroughs that improve human health. We do this by driving cutting-edge research, developing new technologies, and studying the impact of genomics on society. More information can be found at our website at <https://www.genome.gov>.

NHGRI supports resources, approaches, and technologies that accelerate genomic research focused on the structure and biology of genomes; the genomics of disease; the implementation and effectiveness of genomic medicine; computational genomics and data science; the impact of genomic technology, advances, and implementation on health disparities and health equity; and ethical, legal, and social issues related to genomic advances. NHGRI recognizes the [importance of diversity in the genomic workforce](#), without which the promise of genomics cannot be fully achieved.

In general, NHGRI supports studies that provide generalizable methods and knowledge. Approaches that are comprehensive across the genome or are generalizable across variants, tissues, diseases, or function may be in scope for NHGRI to the extent they address priority areas described in the [NHGRI 2020 Strategic Vision](#) and on the web pages for the research mission of NHGRI's Extramural Divisions and Offices:

- Division of Genome Sciences: <https://www.genome.gov/about-nhgri/Division-of-Genome-Sciences>
- Division of Genomic Medicine: <https://www.genome.gov/about-nhgri/Division-of-Genomic-Medicine>
- Ethical, Legal, and Social Implications Research Program: <https://www.genome.gov/Funded-Programs-Projects/ELSI-Research-Program-ethical-legal-social-implications>
- Office of Genomic Data Science: <https://www.genome.gov/about-nhgri/Office-of-the-Director/Office-of-Genomic-Data-Science>
- Training, Diversity and Health Equity Office: <https://www.genome.gov/about-nhgri/Office-of-the-Director/Training-Diversity-and-Health-Equity-Office>

Applications for studies relevant only to a particular disease or organ system should be directed to the appropriate Institute or Center. Applications whose primary scientific objective is to understand a single biological or behavioral process, the pathophysiology of a disease, or the mechanism of action of an intervention, will not be in scope for NHGRI.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities(FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.F.7 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
 - Send an e-mail to: nsfpubs@nsf.gov
 - or telephone: (703) 292-8134
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See [System of Record Notices, NSF-50](#), "Principal Investigator/Proposal File and Associated Records," and [NSF-51](#), "Reviewer/Proposal File and Associated Records." Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314



National Science Foundation, 2415 Eisenhower Avenue, Alexandria, Virginia 22314, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (703) 292-5090 or (800) 281-8749

[Text Only](#)