Oportunidades de Fondos Externos
Vicepresidencia de Recursos Externos
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Universidad
de Puerto Rico
LA MEJOR EDUCACIÓN A TU ALCANCE

UPR external funding success is of utmost importance to strengthen the connection between its investigators/faculty and funding entities who have the potential to sponsor their research and academic endeavors. This publication has been developed in order to summarize funding opportunities and promote the participation of faculty and collaborative research groups in their intent to apply for external funds. Such efforts are aligned with the UPR Strategic Plan 2017-2022: A New Era of Innovation and Transformation for Student Success; Certification 50 (2016-2017) of the Governing Board, December 19, 2016. Strategic Area: Research and Creative Work. Goal 2: Increase Applications for and awards of external funds for research and creative work.

SELECTED FUNDING OPPORTUNITIES

This is a selection of identified funding opportunities for the period ending 9/23/2022 and is in no way all-inclusive of funding opportunities available. Further information has been shared with External Resource Coordinators and Research Coordinators at each UPR campus by e-mail or MS Teams.

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1. Bioengineering Research Grants (BRG) (R01 Clinical Trial Not Allowed), NIH

The goal of the bioengineering research grant (BRG) program is to foster development of innovative technologies, methods, tools, models or designs (for brevity, here onwards referred to as tools) that have the potential for significant impact on biomedical research by infusing principles and concepts from quantitative sciences. The purpose of this FOA is to encourage BRG applications that: 1) apply a multidisciplinary approach to solve biomedical problems; and 2) develop, integrate, optimize, validate, translate or accelerate adoption of promising tools, methods, and techniques for a specific research or clinical problem in basic, translational, and/or clinical science and practice. A BRG application may propose design-directed, developmental, discovery-driven, or hypothesis-driven research and the FOA is appropriate for small teams applying an integrative approach to increase our understanding of and solve problems in biological, clinical, or translational science.

This FOA seeks to encourage collaborations among investigators in the fields of quantitative science and physical science with biomedical researchers to catalyze the development of innovative bioengineering approaches to solve important problems in biomedical research, translational research, clinical investigations, and medical practice.

Significant projects may include, but are not limited to:
- development, validation, and translation of promising modalities for the disease continuum, including tools for risk prediction, screening, prevention, detection, diagnosis, disease progression, intervention, monitoring treatment response, prognosis, or survival
- development of quantitative, predictive models of complex biological systems
- integration and optimization of technologies that significantly increase sensitivity, specificity, positive predictive value, negative predictive value, efficiency, or throughput of analysis to address unsolved biological or medical questions
- in vitro and in vivo models, cell/tissue culture systems and organoids that closely mimic physiological conditions and allow mechanistic studies or engineering and testing of delivery systems, molecules/cells/tissues for therapeutic purposes, therapeutics, implants, and prosthetics that may improve treatment and healthcare.

A project must clearly serve the mission of one or more of the NIH Institutes or Centers participating in this FOA. Investigators are encouraged to contact the designated Scientific/Research contacts for individual institute focus areas that will be supported.

Specific Interests

- National Institute of Dental and Craniofacial Research (NIDCR) - The NIDCR conducts and fosters research on the etiology, pathogenesis, prevention, diagnosis, and treatment of oral, craniofacial, and dental (DOC) diseases and conditions. Within the goals of this FOA, NIDCR is interested in supporting applied and translational research that leverages multidisciplinary principles and concepts from quantitative, biological and clinical sciences to advance the development of innovative technologies, model systems, techniques, designs, and methods with potential to significantly improve DOC health. Specific topics could include but are not limited to:

  o Development and translation of technologies targeted at regeneration and restoration of diseased and injured tissues of the oral and craniofacial complex. Of interest are multi-tissue composites and organs, such as vascularized and innervated bone and muscle, salivary gland, tooth, periodontium, bone-periodontal ligament-cementum interface and osteochondral complexes such as the TMJ condyle.
  o Imagining diagnostics to accelerate clinical implementation of reliable, reproducible, highly specific, and sensitive diagnostic instruments for various DOC applications.
  o Safe and effective biosensors for noninvasive, dynamic, real-time monitoring of physiological status in the human body using the oral cavity as the sensing site.
  o Methods, materials, and devices for orthodontic, prosthetic, periodontic, endodontic and craniofacial applications including those that can be used for bone distraction, reconstruction, hard and soft tissue

healing, and regeneration, and scarless tissue repair of the craniofacial complex.
  o Microphysiological systems and organoids that can be adapted to high-throughput formats for a broad range of applications, such as analysis of biomaterial and tissue function, drug efficacy and toxicology assays, biocompatibility assays, genetic screening, and elucidating mechanisms of DOC development and disease.

- <u>National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)</u> - In addition to mission-relevant R01 projects, the NIAMS would specifically like to stimulate and promote research in building complex 3-dimensional in vitro human musculoskeletal and skin tissue models to study developmental biology, physiology, and disease pathogenesis of musculoskeletal tissues and skin as well as for drug discovery and toxicity studies. NIAMS is not interested in applications that are developing 3D tissues for transplantation, or engineering non-human tissue models, or developing simple 3-D models that do not go significantly beyond those currently in use, such as human skin equivalents composed of only normal keratinocytes and fibroblasts.

- <u>National Eye Institute (NEI)</u> - The NEI supports a broad range of basic and clinical research, clinical trials, epidemiologic studies related to health and disease in the eye and visual system. Research proposed should address a significant aspect of the leading causes of blindness and impaired vision, mechanisms of visual function, preservation of sight, or the special health problems and requirements of the blind.

- <u>National Cancer Institute (NCI)</u> - The NCI leads, conducts, and supports cancer research across the nation to advance scientific knowledge and help all people live longer, healthier lives. As the leader of the cancer research enterprise, collectively known as the National Cancer Program, and the largest funder of cancer research in the world, NCI manages a broad range of research, training, and information dissemination activities that reach across the entire country, meeting the needs of all demographics—rich and poor, urban and rural, and all racial/ethnic populations.

- <u>National Institute of Neurological Disorders and Stroke (NINDS)</u> - Within the goals of this FOA, NINDS is particularly interested in bioengineering research that advances technologies directly related to the nervous system and its disorders. Examples of areas of interest include the development and validation of invasive and non-invasive devices, diagnostic/monitoring tools, advanced imaging techniques, computational models, tissue engineering, and other innovative methods directly related to reducing the negative impact of neurological disorders and stroke. Applicants are strongly encouraged to contact NINDS Scientific Program staff prior to submission.

Link to Additional Information: https://grants.nih.gov/grants/guide/pa-files/PAR-22-242.html

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2. NINR Areas of Emphasis for Research to Optimize Health and Advance Health Equity (R01 Clinical Trial Optional), NIH

Application Deadline: November 9, 2022; February 5, 2023
Award Budget: budgets are not limited but need to reflect the actual needs of the proposed project

This funding announcement solicits R01 grant applications that propose independent research projects that are consistent with the scientific framework detailed in the 2022-2026 National Institute of Nursing Research (NINR) Strategic Plan. This research will be rooted in nursing's holistic, contextualized approach to understanding people and their health, address the nation's most pressing and persistent health challenges with a solutions orientation, and employ innovative and rigorous study designs to inform practice and policy.

NINR will prioritize research that:

- tackles today's pressing health challenges and stimulates discoveries to prepare for, prevent, or address tomorrow's challenges

- discovers solutions across clinical, community, and policy settings to optimize health for individuals, families, communities, and populations
- advances equity by removing structural barriers from research, cultivating diversity in perspectives and ideas, and fostering inclusion and accessibility in designing, conducting, and participating in research
- is innovative, develops or applies the most rigorous methods, and has the potential for the greatest impact on health

Research Lenses

NINR identified five complementary and synergistic research lenses that best leverage the strengths of nursing research and promote multilevel approaches, cross-disciplinary and -sectoral collaboration, and community engagement in research. It is important to note that the lenses are not research topics, but rather perspectives through which to consider the full spectrum of nursing research topics that encompass health and illness within the context of people's lived experiences. These lenses allow nursing research to examine new topics while also allowing scientists to take a different look at long-standing areas of interest. The research lenses are:

- <u>Health Equity</u>: Reduce and ultimately eliminate the systemic and structural inequities that place some at an unfair, unjust, and avoidable disadvantage in attaining their full health potential
- <u>Social Determinants of Heath</u>: Identify effective approaches to improve health and quality of life by addressing the conditions in which people are born, live, learn, work, play, and age
- <u>Population and Community Health</u>: Address critical health challenges at a macro level that persistently affect groups of people with shared characteristics
- <u>Prevention and Health Promotion</u>: Prevent disease and promote health through the continuum of prevention – from primordial to tertiary
- <u>Systems and Models of Care</u>: Address clinical, organizational, and policy challenges through new systems and models of care
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NINR-supported researchers have the flexibility to apply a single lens or a combination of lenses in their study designs. Also, NINR encourages researchers to view the health equity and social determinants of health lenses as primary foci through which to consider the population and community health, prevention and health promotion, and systems and models of care lenses. Applicants are encouraged to review the NINR Strategic Plan for more information on each of the research lenses.

Link to Additional Information: https://grants.nih.gov/grants/guide/pa-files/PAR-22-230.html

3. Resource-Related Research Projects for Development of Animal Models and Related Materials (R24 Clinical Trials Not-Allowed), NIH

Application Due Dates: October 13, 2022; January 25, 2023
Award Budget: budgets are not limited but need to reflect the actual needs of the proposed project; applicants requesting $500,000 or more in direct costs in any year (excluding consortium F&A) must contact a Scientific/ Research Contact for approval at least 6 weeks before submitting the new or renewal application.

The purpose of this opportunity is to support resource-related research projects that are aimed at developing and characterizing new animal-based resources, improving existing resources, or acquiring deep understanding of a model system to improve the utilization, accessibility and translational values of animal models to the research community. The NIH-wide mission of ORIP is to support all NIH ICs that fund basic, preclinical, and translational research by strengthening their existing programs, developing research resources, advancing areas of emerging science, and developing new initiatives to move biomedical research forward. Therefore, proposed studies, models, technologies, and biological materials must be applicable to two or more NIH ICs and must explore multiple body systems or evaluate diseases and processes that impact multiple body systems.

An application under this announcement may be predominantly research based if that research potentially leads to the

development of tools or resources that will have a broad impact on the NIH-wide biomedical research community. An application also may be aimed at final development or enhancement of existing resources.

Applications responding to this FOA should:

- Demonstrate the need for the proposed resources or technologies/tools within broad biomedical research communities and the relevance of the resources and technologies/tools to a range of scientific disciplines.
- Address the impact, benefit, utilization, distribution, and accessibility of the proposed resources and technologies/tools to broad biomedical research areas supported by multiple NIH ICs.
- Describe plans to track potential impact of the proposed resources and technologies/tools.
- Describe potential sources of support for the resources and plans to ensure the continued availability of the resources to the research community after the ORIP-supported grant ends, such as plans to deposit the resources to stock centers or databases accessible to the research community.

Proposed studies, models, technologies, and biological materials that relate strictly to a specific disease or research discipline or are relevant to the mission and programs of a single NIH IC will not be considered suitable for this FOA. Such applications should be directed to the IC with a specific interest in that mission. For example, investigators interested in developing resources with a primary focus on aging, cancer, heart disease, or neurological disorders should contact respective NIH ICs relevant to these topics. Furthermore, applications proposing studies to develop a limited number of resources or are related primarily to the interest of one NIH IC and only peripherally to the interests of other ICs are not acceptable.

Examples of resource-related projects suitable for this FOA, include, but are not limited to:

- Mutant or transgenic animal models for studying fundamental biological processes and investigating mechanisms underlying a broad range of human diseases that impact multiple body systems.
- Generation of antibodies or other reagents and demonstration of their utility for quantifying or characterizing macromolecules or cells in animal models of a variety of human diseases.
- Development of information resources for generating novel hypotheses and improving the utilization of animals in biomedical research, including deep phenotyping of organelles, single cells, cellular networks, microbiomes, or behaviors.
- Informatics tools or systems biology approaches, especially artificial intelligence, or machine learning tools, that integrate various types of data, including genomic, proteomic, metabolomic, imaging, or phenotypic data, to generate novel hypotheses and improve the value of animal models for biomedical research.
- Animal-based genetic, genomic, proteomic, metabolomic or phenomic tools for deep characterization and understanding of disease-related biological processes.
- Genetic resources at the genome scale, including DNA or viral vector libraries, for gene editing of cell lines, germplasm, or somatic cells.
- Methods or tools for improving cryopreservation, or other long-term preservation approaches, of animal cells, germplasm, embryos, or genetic stocks.
- Methods or tools for characterizing stem cells and advancing the techniques of regenerative medicine in animal models, in particular humanized animal models.
- Diagnostic, preventive, or treatment methods for emerging or potential pathogens in animal resource facilities.
- Development, improvements or refinements of technologies or methods applicable to animal model research that aim to specifically enhance its rigor and reproducibility.
- Models or resources that may contribute to the understanding of newly emerging human pathogens of interest to multiple NIH ICs and may be applied in response to pandemics and other active NIH public health initiatives.
- Animal resources, including genetically engineered animal models and related biological materials, for supporting NIH-wide initiatives, including Women's Health, Alzheimer's Disease and Related Dementias, and the BRAIN Initiative.

This FOA will support the development of animal models and related resources to advance a variety of important research areas and have an impact on the NIH-wide biomedical research community. Applications for developing a limited number of resources are not suitable for this FOA and may be appropriate for research project grant activities through R21 or R01 awards supported by ORIP or other NIH ICs. Those applications proposing to develop resources should describe plans to deposit resources to stock centers or databases accessible to the research community and register catalogs of their resources with current resource tagging and identification initiatives, such as FORCE 11. These projects should also encourage investigators who use the resources to make use of the Research Resource Identifiers (RRIDs) in their publications and reports.

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-OD-22-013.html

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4.   Quantum Sensing Challenges for Transformational Advances in Quantum Systems (QuSeC-TAQS), NSF

Application Deadline:
- **Preliminary Proposal Deadline: December 16, 2022**
- **Full Proposal Deadline: April 3, 2023**

Award Budget: Each project team may receive support of up to a total of $2,500,000 over the project duration of 4 years.

The National Quantum Initiative (NQI) Act calls for a coordinated Federal program to accelerate quantum information science (QIS) and technology research in the United States. A framework for implementing the NQI provided in the National Strategic Overview for QIS, and additional reports from the Subcommittee augment the Strategic Overview with more detailed recommendations on specific topics. In particular, Bringing Quantum Sensors to Fruition recommends deliberate collaborations to combine fundamental and applied research on quantum sensors. In alignment with this strategy, the Quantum Sensing Challenges for Transformational Advances in Quantum Systems (QuSeC-TAQS) program will support interdisciplinary teams to explore highly innovative, original, and potentially transformative research on quantum sensing. The QuSeC-TAQS program encourages coordinated efforts to develop and translate ideas for quantum sensors into tangible quantum systems that can benefit society.

Competitive proposals are expected to present interdisciplinary and collaborative projects that identify a need and describe a sound scientific and engineering approach for developing a novel sensing system with enhanced performance compared to classical technologies. Successful proposals should make a compelling case for how the proposed research project has potential to deliver breakthroughs in quantum sensing technologies that could impact society.

Proposed projects should pursue either or both of the following tracks:

a. Explore new ideas using for enhanced sensing functionalities using quantum information science and engineering principles. Proposals should describe how the project will result in experimental tests or a proof of principle for new concepts, platforms, or approaches for enhanced sensing.
b. Translate quantum information science and engineering discoveries into scalable quantum sensor systems or networks. Proposals should describe how the project will demonstrate advantages for targeted applications as a result of applying fundamentally quantum phenomena.

Competitive proposals will come from interdisciplinary research teams led by at least three (3) investigators who collectively contribute synergistic expertise from domains such as engineering, computer science, mathematical and physical sciences, biology, or geoscience. Competitive proposals should also address the QuSeC-TAQS programmatic considerations described below, such as the potential for transformative advances on a targeted quantum sensor technology, the potential for interdisciplinarity and convergence in the research process, plans for experimental demonstration, and the potential for broader impacts such as educational and training opportunities, partnerships, or international collaboration, student mobility and exchanges.

Potential Quantum Sensing research areas:

Innovative proposals on a diverse range of quantum sensors topics are sought. A partial list of quantum sensor topics is provided here. This list is not intended to be comprehensive, nor limiting. Rather, these technical areas are merely presented to illustrate possible considerations. The scientific and engineering communities are strongly encouraged to explore possibilities beyond these examples.

Sensors, in general, consist of devices and systems that interact with the environment and provide a measurable response. Quantum sensors take advantage of quantum mechanical phenomena such as quantum states, quantum spins, matter-wave duality, coherence, superposition, and/or entanglement and quantum correlations to extend sensing capabilities. Importantly, quantum sensors can provide transduction mechanisms to reach beyond the traditional limits of classical sensors in terms of precision, accuracy, bandwidth, speed, or other factors such as size, weight, and power. Sensors using multi-particle entanglement or squeezing have demonstrated progress towards metrology at the Heisenberg limit. Furthermore, networks of quantum sensors have been proposed to enhance the sensitivity of clocks, telescopes, magnetometers, or other instruments.

Quantum sensing has the potential to revolutionize investigation of complex biological systems, where traditional modes of exploration are often limited by studies of microscopic phenomena with macroscopic tools. Creation of new bio-compatible quantum probes and sensing protocols can provide new insights about complex biological systems that cannot be accessed through classical measurements. For example, nanoscale sensors and coherent spectroscopy can reveal correlations and couplings at length and time scales that were previously inaccessible, or gradients in temperature and metabolites that were previously impossible to study. Such advances can potentially provide new knowledge about biological functions and dynamics within cells.

Atomic clocks have made substantial impacts, for example by enabling GPS navigation, high-speed communication networks, and precision measurements. New applications for atomic clocks may come from chip-scale devices, portable systems, and advancements in the state-of-the-art using quantum logic spectroscopy or other forms of quantum control. Improvements in metrology, time-transfer, navigation, very long baseline interferometry, quantum networking, and even geodesy via measurements of gravitational time dilation are just a few of the application areas that have been suggested for next generation atomic clocks. Proposals for collaborative work to realize new applications, or work to improve key components, subsystems, or device functionality is encouraged.

Matter-wave optics such as atom interferometry, neutron interferometry, and electron holography systems provide unique sensitivity to several atomic, molecular, and solid-state properties. Measurements of gravity, inertial displacements (acceleration and rotation) and the index of refraction for de Broglie waves due to various potentials have been mainstays in this field. Collaborative projects to pioneer new applications in disciplines ranging from physics and materials science to geoscience and navigation are encouraged. Well-motivated work on critical subsystems, including chip-scale devices, integrated photonics, and laser systems are also encouraged, as a means to enable targeted applications.

Solid-state and chip-scale methods to detect standards for quantities such as voltage, current, irradiance and temperature benefit from quantum sensors. Since the redefinition of the kilogram in terms of Planck's constant, all the SI base units can now be realized in terms of quantum phenomena, potentially leveraging new quantum sensor modalities.

Magnetometers have diverse applications ranging from remote sensing and navigation to biological and medical research. Quantum sensors may improve magnetoencephalography studies of cognition, cardiology studies in vivo, laboratory measurements of single neurons, and even intracellular studies of biological dynamics. Optical magnetometers with atoms, molecules, or atom-like defects in solids such as nitrogen vacancy centers in diamonds may be further enhanced using quantum effects to increase sensitivity, reliability, and compatibility with various environments. Superconducting systems and magnetometers based on electron and proton spins can be improved too. Related studies of Magnetic Resonance Imaging (MRI) are also encouraged to extend the sensitivity and applicability of MRI systems.

Identification of molecules in samples, for chemical and biological content analysis, e.g. through coherent Raman

spectroscopy of rotational and vibrational modes, can be used for understanding biological systems, or for disease diagnosis. Spectroscopy using entangled photons may provide benefits such as enhanced precision, discrimination, or contrast. Benefits may also include lower doses of exposure, or more remote, contactless measurements, and lead to novel platforms for biotechnology and medicine.

Uses of entanglement and many-body quantum states to enable new capabilities such as non-invasive imaging or measurements with precision beyond the standard quantum limit are encouraged. High-efficiency quantum transducers to convert information contained in microwave, mechanical, or magnetic domains into modulations on photonic quantum states are needed. Projects exploring chip-level integration of quantum sensors or engineering of key components and subsystems for quantum sensors are also desirable. Additional examples of possible topics include novel molecular and materials architectures for quantum sensing; improved imaging, entangled-photon microscopy, spectroscopy, or photonic systems using quantum optics; enhancing measurements of electric fields and GHz or THz radiation possibly using Rydberg atomic states and coherent spectroscopy.

QuSeC-TAQS Programmatic Considerations:

The following features are deemed important under this research solicitation:

- **Quantum Sensing**: It is expected that proposed research projects will focus on quantum sensing, leveraging both fundamental understanding of quantum phenomena and novel application concepts. Clear rationale as to the novelty and the potential for enhanced capabilities as compared to classical sensors and systems should be addressed.
- **Interdisciplinarity and Convergence**: Progress in this field may benefit from research that draws upon expertise in multiple disciplines including (but not limited to) physics, chemistry, biology, mathematics, geoscience, computer science, and engineering. Proposals should describe how the project will facilitate scientists and engineers to work together in research teams involving theory, modeling, design, characterization, device fabrication, and testing.
- **Experimental Demonstration**: Proposals should describe how the project will realize a proof-of-concept for novel quantum functionalities, characterize quantum device properties, or system performance in relevant conditions for potential applications.

The QuSeC-TAQS program also encourages diverse activities with the potential to increase the impact of projects:

- **Education and Training**: Proposals that in addition to research create education, training, and workforce development opportunities in areas of quantum information science and engineering related to quantum sensing are encouraged.
- **Partnerships**: The creation or development of partnerships with industry, National Laboratories, or other academic institutions can be valuable for developing new concepts and platforms, for scaling up, and subsequently for commercialization of technologies based on quantum sensor concepts. Such partnerships are therefore encouraged where appropriate.
- **International Collaboration and Student Mobility and Exchange**: Collaboration with international scientific teams who are leaders in the field is welcome. Travel support for principal investigators, research personnel and students may be considered. Opportunities for developing student exchange are encouraged in order to develop a globally engaged workforce for QIS technologies.

Link to Additional Information: https://www.nsf.gov/pubs/2022/nsf22630/nsf22630.htm

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5.   National Early Care and Education Workforce Center, HHS, Office of Child Care

Application Due Date: February 02, 2023
Anticipated Funding Amount: up to $6,000,000 for a 60-month project period with five 12-month budget periods

The purpose of the funding opportunity is to fund a research and technical assistance center that will work to increase

recruitment and retainment of a diverse, qualified, and effective workforce across all Early Care and Education (ECE) settings and programs through the provision of technical assistance (TA) at state and local levels and a program of rigorous research that builds the knowledge base and informs TA efforts. The Center will specifically focus on establishing and enhancing career advancement systems and strategies for ECE professionals to pursue credentials and degrees and identifying and encouraging sustainable strategies to increase compensation, provide adequate compensation, and improve workplace policies (wages, benefits, health, and well-being).

The Center will aim to improve the recruitment and retention of the ECE workforce by executing a program of rigorous research that builds the knowledge base and disseminates research to inform solutions, and by providing TA to support the implementation of research-based and sustainable policies and practices at state and local levels. In particular, the Center will aim to improve ECE workforce recruitment and retention through a focus on career advancement and improved compensation for ECE teachers, assistant teachers, aides, and other caregivers providing direct care and education in classrooms and family childcare homes for infants, toddlers, and preschool-aged children. Although challenges with compensation and career pathways exist for professionals and staff in a wide range of roles in ECE settings (e.g., directors, managers, coordinators, home visitors, coaches, support staff, staff serving school-aged children, etc.), the focus of this NOFO is primarily on the ECE workforce, professionals, and staff that provide direct care and education to young children, birth to age 5, in classrooms or family child care homes across Head Start, CCDF, state-funded preschool, IDEA, and other settings. This includes teachers, family child care providers, assistant teachers, and aides.

The Center's research and TA activities will work together to inform each other, build on and complement existing TA and research efforts, and support states and local communities (including Head Start grant recipients) in identifying and implementing sustainable systems, strategies, and policies that support the goals of (1) improving career advancement pathways for ECE professionals to pursue credentials and degrees, and building a pipeline for development of the ECE workforce as a whole; and (2) increasing compensation and improving workplace supports (e.g., benefits, health, well-being) in alignment with career advancement. Through the Center's work to support states and local communities to address ECE career advancement and address compensation, the Center will also aim to influence (a) the quality of ECE programs across programs and settings by ensuring that ECE professionals have the necessary skills and competencies to create engaging, developmentally appropriate environments and implement high-quality practices; (b) strategies and systems that build on and maintain the rich diversity of the ECE workforce; (c) equitable access for all young children and families to have qualified, competent ECE professionals across ECE settings and programs; and (d) advancing the role of ECE educator voice (including family child care providers) in research and policy. The following reflects ACF's priorities that the Center is expected to address through its research and/or TA efforts:

- Building a sustainable pipeline and supporting career advancement for the ECE workforce across all settings, including:
    - Participating in ECE credentialing and/or degree programs with consideration for the diversity of the workforce and variation in existing credential/degree status and related requirements across settings.
    - Removing barriers to career advancement and credential/degree attainment through financial, academic, and workplace supports and other flexibilities for ECE professionals seeking credentials and degrees.
    - Improving the quality, alignment, and articulation of professional development, training, and post-secondary coursework (i.e., including credentialing and degree programs in 2- and 4-year Institutes of Higher Education (IHEs)) to build the competencies and meet the needs of ECE professionals.
    - Promoting end-user design and the role of ECE educators voice in building and the continuous quality improvement of career pathways and career advancement systems, strategies, and policies.
- Promoting sustainable increases in compensation (e.g., pay and benefits) for the ECE workforce across all settings, including:
    - Promoting compensation increases that are commensurate with advances in credentialing or degrees.
    - Ensuring compensation and workforce policies (e.g., wage ladders, benefits, health, well-being) are comparable across ECE settings and to professionals with the same credentials and experience working in elementary grades.
    - Promoting the role of ECE educators in formulating compensation and workforce policies, building systems, and implementing strategies.

- Promoting equity in career advancement and compensation systems, strategies, and policies, including:
  - Building on and maintaining the rich racial, linguistic, and cultural diversity of the ECE workforce; reflecting the diversity of the children and families they serve; and incorporating diverse ECE educator voices into the policy making and research process.
  - Reducing existing racial, linguistic, and cultural disparities, as well as disparities among staff with similar credentials and experience serving children of different ages or in different settings.
  - Ensuring young children and their families served across settings have equitable access to qualified, competent ECE professionals.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=341390

6.   Cancer Prevention-Interception Targeted Agent Discovery Program (CAP-IT) Centers (U54 Clinical Trial Not Allowed), NIH

Application Due Date:
- **Letter of Intent: 30 days prior to the application due date**
- **Full Proposal: November 21, 2022**

Budget Amount: must reflect the actual needs of the proposed center but must not exceed $720,000 per year in direct costs

The purpose of this announcement is to solicit Applications for Cancer Prevention-Interception Targeted Agent Discovery Program (CAP-IT) Centers (U54). The overall goal of the CAP-IT Data and Resource Coordination Center (CAP-IT DRCC) is to establish an agile and effective network infrastructure to undertake collaborative research focusing on precision cancer prevention and interception, with the overarching goal of discovering molecularly or immunologically targeted agents designed to prevent or intercept the oncogenic process in specific higher-risk populations. In this FOA, cancer prevention means primary prevention of cancer before the oncogenic process begins, while cancer interception is defined as disruption of the oncogenic process during the precursor or precancer state or stage. Precision cancer prevention-interception refers to an approach employing cancer preventive-interceptive interventions individually tailored for different higher-risk populations such as those with hereditary cancer syndromes (HCS) and individuals diagnosed with high-grade precursor abnormalities that place individuals at higher risk of cancer e.g., precancer. To achieve the Program's overarching goal, CAP-IT research objectives are:

- To identify targets that can be potentially exploited for cancer preventive or interceptive interventions specifically in higher-risk populations, by collaborating with the NCI and other programs with a research focus on molecular profiling of precancer, early cancer, and/or oncogenic signaling pathways. High-value tumor-driving molecular targets/pathways, immune targets, and tumor-specific/tumor-associated antigens, collectively referred to as "oncotargets" in this FOA, will be prioritized for the discovery of targeted interventions.
- To functionally validate the critical roles of the high value oncotargets in tumor initiation and/or progression to invasive cancer and select oncotargets suitable for targeted intervention strategies.
- To discover innovative targeted agents through in vitro and in vivo efficacy evaluation and advance promising efficacious agents to the NCI's existing R&D pipeline for further development.

The CAP-IT network will be formed by U54 Specialized Centers and one Data and Resource Coordination Center (CAP-IT DRCC).

Required Center Capabilities

To maximize the potential of team science efforts, each CAP-IT Center (U54) may combine/integrate capabilities from a multi-institutional/multi-laboratory arrangement in order to undertake multi-disciplinary research involving the following three (3) major focus areas: target validation, screening and identification of active agents or antigenic epitopes, and in vivo efficacy testing. Each U54 CAP-IT Center may choose to focus its agent discovery research either on molecularly targeted, immunologically targeted interventions, or both. Accordingly, all proposed U54 CAP-IT Centers must have necessary scientific expertise, technical capabilities/skills, and infrastructure to carry out the expected scope of activities, including but not limited to the areas of investigation as listed below, through the formation of CAP-IT Center subunit(s)

specialized in any combination of the 3 focus areas (see above) and a separate Administrative Core (for additional details on the requirements, please see Section IV Application and Submission Information):

- Identify targets that can be potentially exploited for cancer preventive or interceptive interventions especially in higher-risk populations through collaborations with the NCI and other programs with a research focus on molecular profiling of precancer, early cancer, and/or oncogenic signaling pathways, and prioritize high-value oncotargets.
- Validate the critical roles of the novel or less well-characterized intervention oncotargets in the early phase of tumorigenesis through functional evaluation studies (e.g., loss-of-function/gain-of-function analyses and synthetic lethality interaction studies).
- Conduct informatic analyses of validated oncotargets for actionability, druggability, and/or feasibility of immune-targetability for cancer prevention and/or interception.
- For molecularly targeted interventions, prioritize the validated oncotargets based on multiple factors, including but not limited to whether oncotargets are predicted to be susceptible to functional modulations; whether drugs or drug-like inhibitors are already available; whether druggable active sites are known; what role(s), if any, they may play in a normal physiological setting; whether pertinent structural biology data are available to help advance rational drug design/development; and whether screening assays for drug discovery are readily available or feasible.
- For immunologically targeted interventions, evaluate the feasibility and appropriateness of immunological targeting approaches based on various factors, including but not limited to target antigen characteristics, sequence homology among different species (e.g. human and mouse), discoverability of potent T-cell epitopes, TCR affinity and avidity, and MHC class-I and MHC class-II binding predictions, and immunogenicity of antigens that may be expressed/delivered as peptides, recombinant proteins, and/or as nucleic acids (mRNA or DNA).
- Confirm expression of the prioritized candidate oncotargets in pertinent preclinical models that recapitulate human cancer development, including the transition from precancer to cancer.
- For molecularly targeted interventions, conduct in silico and in vitro screening for active compounds, using focused chemical libraries with well-characterized compounds for potency screening, such as FDA-approved drug library, NIH Clinical Collection libraries, and appropriate oncotarget or signaling pathway-specific libraries of drug-like small molecules with validated biological activities (Note: High-throughput screening of large compound libraries and iterative chemical optimization for lead compound identification are outside the scope of the expected activities in this FOA).
- For molecularly targeted interventions, select and prioritize active compounds or drug-like small molecule agents selected from in vitro screening using well-characterized compound libraries (see above) based on parameters such as functional potency, known or potential toxicity liabilities, known pharmacokinetic and absorption-distribution-metabolism-excretion properties, and oral bioavailability.
- For immunologically targeted interventions, identify, select and prioritize T cell epitopes deemed potentially useful as cancer vaccine antigenic components by using in silico, in vitro, and in vivo immunogenicity testing.
- For actionable oncotargets that represent previously identified and validated targets as drivers or enhancers of oncogenesis, against which efficacious agents are already available but have not been tested for cancer prevention and interception, evaluate in vivo efficacy of selected agents, utilizing suitable preclinical models known to recapitulate human cancer development for specified target higher-risk cohorts, including the transition from precancer to cancer.
- Evaluate in vivo efficacy of drugs/drug-like compounds and immunological interventions (e.g., cancer vaccines) selected from in silico and/or in vitro discovery studies, utilizing suitable preclinical models known to recapitulate human cancer development for specified target higher-risk cohorts, including the transition from precancer to cancer.

Center Organizational Structure

Each U54 CAP-IT Center must be organized as follows:

1. CAP-IT Center Subunits
2. Research Projects
3. Core (s)

Research Team

Each CAP-IT Project will be led by CAP-IT Project team lead investigators, representing each of partnering CAP-IT Center subunits as applicable with assistance from an NCI Program staff member(s) (Project Scientist(s)). Project team leadership will be responsible for establishing a project-specific research framework, including but not limited to specific research aims with a vision for a well-defined higher-risk cohort (such as a well-characterized HCS cohort) and step-wise strategies, including selection criteria for specific organ sites for a given project, oncotarget prioritization criteria, methods of screening and identification of active agents or antigenic epitopes, in vivo testing strategies, agent prioritization criteria, project-specific milestones, and overall project workflow. The CAP-IT Project team leadership will also be responsible for coordinating project activities, overseeing project progress, and making Go/No-Go decisions at critical junctures.

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-CA-22-055.html

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7. Desalination and Water Purification Research Program: Research Projects, US Dept. of Interior

Application Deadline: November 30, 2022
Award Budget:
- **Group I – Laboratory-Scale Projects: up to $250,000 per award for a project that can be completed within 2 years**
- **Group II – Pilot-Scale Projects: up to $800,000 per award for a project that can be completed within 3 years**

The objective of this NOFO is to invite private industries, universities, water utilities, and other research sponsors to submit applications that address the DWPR goals and objectives through laboratory- or pilot-scale studies. The goal of the DWPR Program is to increase water supplies by reducing the cost, energy consumption, and environmental impacts of treating impaired and otherwise unusable waters. This DWPR funding opportunity invites applicants to address any of the following objectives:

- Reduce energy consumption and lower the cost of desalination
- Reduce the environmental impacts of seawater desalination and develop technology and strategies to minimize those impacts
- Improve existing membrane technologies, including reverse osmosis
- Carry out basic and applied research on next-generation desalination technologies, including improved energy recovery systems and renewable energy-powered desalination systems that could significantly reduce desalination costs
- Develop and promote innovative desalination technologies, including concentrate management and chloride control
- Study methods for the recovery of byproducts resulting from desalination to offset the costs of treatment and to reduce environmental impacts from those byproducts
- Develop metrics to analyze the costs and benefits of desalination relative to other sources of water (including costs and benefits related to associated infrastructure, energy use, environmental impacts, and diversification of water supplies)
- Assess environmental impacts from desalination intake, concentrate management approaches, and reclaimed water
- Develop improved intake/outfall methods at coastal facilities to minimize marine environment impacts such as impingement of larger organisms, entrainment of smaller ones, and impacts to benthic communities
- Improve pretreatment for membrane desalination

- Improve membrane system performance
- Develop novel approaches or processes to desalinate water in a way that reduces primary energy use
- Develop cost-effective approaches for concentrate management that minimize potential environmental impacts
- Develop a better understanding of the formation of hazardous transformation products during water treatment for reuse and ways to minimize or remove them
- Develop a better understanding of pathogen removal efficiencies and the variability of performance in various unit processes and multibarrier treatment and develop ways to optimize these processes
- Identify better indicators and surrogates to monitor process performance in reuse scenarios and develop online real-time or near real-time analytical monitoring techniques for their measurement
- Improve the detection, characterization, monitoring, separation, or destruction of per- and polyfluoroalkyl substances and other contaminants of concern

Funding Groups:

- **Group I – Laboratory-Scale Projects:** are typically bench-scale studies involving small flow rates (less than 2 gallons per minute). They are used to determine the viability of a novel process, new materials, or process modifications. Research at this stage often involves a high degree of risk and uncertainty.

- **Group II – Pilot-Scale Projects:** test a novel process at a sufficiently large scale to determine the practicality of implementing the technology at a larger scale. Pilot-scale studies are used to generate data that can be used to estimate the operational requirements (e.g., labor, chemical addition, power requirements) of the process and show performance with respect to finished water quality goals. Pilot-scale projects are generally preceded by laboratory studies (funded previously by the DWPR Program or others) that demonstrate that the technology works.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=343475

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8. NIAID Investigator Initiated Program Project Applications (P01 Clinical Trial Not Allowed), NIH

Application Due Dates: January 11, 2023; June 8, 2023
Award Budget: budgets are not limited but need to reflect the actual needs of the proposed project

The purpose of Program Project (P01) grants is to support integrated, multi-project research programs that have a well-defined, central research focus or objective. The P01 application must include a minimum of two individual research projects that contribute to the program objective. Each individual research project should reflect a distinct, separate, scientifically meritorious research effort led by an independent investigator, the Project Leader. In addition, the individual projects should be clearly interrelated and synergistic so that the research ideas, efforts, and outcomes of the program as a whole will offer a distinct advantage over pursuing the individual projects separately.

Clinical trials are NOT allowed and will not be reviewed or funded. However, projects and/or cores may include analyses of samples collected from independently funded clinical trials.

In addition to individual research projects, an administrative core is required. The administrative core is responsible for the general organization and administrative management of the overall program, which includes ensuring lines of communication are effectively established and maintained, monitoring progress, and establishing the necessary infrastructure to support collaborative research and encourage optimal interactions and leveraging of resources.

Applicants may propose one or more scientific cores if needed for the proposed research. Each shared resource core must be utilized by two or more projects within the program. For renewals and resubmissions, new cores may be proposed and/or existing cores may be augmented or dropped to support the proposed research.

For more information, please see FAQ Link here: https://www.niaid.nih.gov/grants-contracts/questions-answers-niaid-investigator-initiated-program-project-P01.

Link to Additional Information: https://grants.nih.gov/grants/guide/pa-files/PAR-22-225.html

9. National Digital Newspaper Program (NDNP), NEH

Application Due Date:
- **Optional Draft Deadline: December 1, 2022**
- **Full Proposal: January 12, 2023**

Anticipated Funding Amount: approximately $2,500,000 among an estimated ten recipients, for up to two years

NDNP is a partnership between NEH and the Library of Congress (LC) to create a national digital resource of historically significant newspapers published between 1690 and 1963 from all 56 states and U.S. jurisdictions. LC will permanently maintain this searchable database, which will be freely accessible online (see Chronicling America: Historic American Newspapers). An accompanying national newspaper directory of bibliographic and holdings information on the website directs users to newspaper titles available in all types of formats. During the course of its partnership with NEH, LC will digitize and contribute a significant number of newspaper pages drawn from its own collections to Chronicling America.

If your application is successful, you will select newspapers—published in your state or jurisdiction between 1690 and 1963—and over a period of two years, convert approximately 100,000 pages into digital files (preferably from microfilm), according to the technical guidelines outlined by LC. You may select titles published in any language with a valid ISO 639-2 language code (or ISO 630-3, if appropriate). For newspapers published after 1926, you may only select those in the public domain (i.e., published without copyright or for which the copyright was not registered or renewed by 1963). If you wish to select titles for digitization published after 1926, you must indemnify LC and NEH.

NEH welcomes applications that involve collaboration between prior NDNP recipients and new partners. Such collaborations might involve arranging with experienced recipients to manage the creation and delivery of digital files; offering regular and ongoing consultation on managing aspects of the project; or providing formal training for project staff at an onsite institute or workshop. NDNP has supported such collaborations between the following partners: Arkansas and Mississippi; Florida and Puerto Rico; Louisiana and Mississippi; Minnesota and Iowa; Minnesota and North Dakota; Minnesota and South Dakota; Montana and Idaho; Texas and New Mexico; Texas and Oklahoma; and Virginia and West Virginia.

NDNP supports dissemination activities that engage the wider public in exploring the digitized content, within appropriate limits. Your budget may include staff time, consultation with outside experts, and other eligible expenses related to disseminating NEH-funded products, but **the primary purpose of this program is to create a national digital resource of historically significant newspapers.** If you propose digitizing titles in languages other than English, you must include staff with the relevant language expertise to review the quality of the converted content and related metadata.

Link to Additional Information: https://www.neh.gov/grants/preservation/national-digital-newspaper-program

10. Centers of Biomedical Research Excellence (COBRE) Phase 1 (P20 - Clinical Trial Optional), NIH

Application Deadline:
- **Letter of Intent: 30 days prior to the application due date**
- **Full Proposal: January 30, 2023; January 30, 2024**

Award Budget:
- **must not exceed $1.5 million in annual direct costs.**
- **This FOA allows one-time funding of up to $300,000 in direct costs in the first year of the award for an Alteration and Renovation Project. If Alteration and Renovation costs are requested, the total application budget for the first year must not exceed $1.8 million in direct costs.**

Authorized by the U.S. Congress in 1993, the National Institutes of Health (NIH) established the Institutional

Development Award (IDeA) program to build biomedical research capacity in the 23 U.S. states and Puerto Rico that had historically low NIH grant funding success rates. IDeA funding programs collectively support biomedical research in basic, clinical, behavioral, and translational science in IDeA-eligible states by developing faculty investigators, providing research opportunities to students, and enhancing research infrastructure.

A key IDeA component is the Centers of Biomedical Research Excellence (COBRE) program that supports the establishment and development of innovative biomedical research centers of excellence at institutions through awards for three sequential five-year phases. This Funding Opportunity Announcement (FOA) supports COBRE Phase 1 awards, which aim to enhance an institution's capacity in one area of biomedical research by developing a critical mass of investigators who can compete effectively for independent funding, as well as to improve the research infrastructure. COBRE Phase 2 awards are intended to strengthen successful Centers through the continued development of investigators and further improvements in research infrastructure. Phase 3 awards provide resources to transition COBREs to self-sustaining research programs.

COBRE Phase 1 Program

Supports the establishment of a multi-component center of excellence in an area of biomedical research that aligns with the applicant institution's strategic priorities for growing its research capacity. The COBRE Phase 1 program aims to develop a critical mass of investigators who can compete effectively for independent, external research funding. To achieve this goal, the COBRE award supports a Center that provides research support and mentoring to faculty investigators and funding for their recruitment. Enhancements to the institution's research infrastructure that facilitate the proposed research are also supported. The Center's scientific goals must be aligned with the applicant institution's strategic priorities and cover a sufficiently broad scientific area to warrant the institution's sustained support. Applicant institutions should demonstrate their commitment to the COBRE program goals by investing in the recruitment and long-term support of the Center's investigators and the infrastructure required to carry out the scientific research. An established investigator with scientific expertise in the research area of the Center as well as mentoring and administrative experience is expected to lead the Center as the Program Director/Principal Investigator (PD/PI) of the award. An Advisory Committee (AC) comprised of institutional leadership and external experts in the scientific area should provide advice and oversight on critical scientific activities and administrative decisions. Applications proposing to establish a Center in a scientific area closely related to one previously supported by a COBRE award to the institution or in an area for which the institution already has a critical mass of funded investigators are of low programmatic priority.

Required components of the Center include an Administrative Core and 3-5 Research Projects. Optional components include Research Cores and an Alteration and Renovation Project. All proposed components must be integral to attaining the goals of the Center and are expected to interact with each other and with relevant existing programs at the institution to foster a collaborative research environment.

- **Administrative Core (required):** The Administrative Core implements the Center's overall plan, coordinates the Cores, Projects, AC, and mentoring activities, and carries out all responsibilities required of the COBRE award. These include preparing accurate and timely program and financial reports, ensuring all Center activities are compliant with federal regulations, managing the Center's budget, organizing Center-wide scientific and career development activities such as seminar series, workshops, and retreats, and conducting annual performance evaluations of the Center. The Administrative Core may also support an optional Pilot Project Program, which is intended primarily for developing future Research Project Leaders (RPLs).

- **Research Projects (required):** A minimum of three and a maximum of five Research Projects related to the Center's research area must be proposed. Each Research Project should propose innovative science that has the potential to advance the field and jumpstart the research program of the Research Project Leader (RPL). RPLs must qualify either as NIH Early Stage Investigators (ESIs) or as New Investigators (NIs), and must hold faculty appointments (or equivalent at research institutes) and lead their own research programs (see Section III. Eligibility Information for additional details). A senior faculty member is assigned to each RPL as a mentor to guide the RPL's research and professional development. Each Research Project is expected to be supported for 2-3

years. RPL graduation from COBRE support with research publications and independent grant funding is a key measure of the Center's success. Upon graduation of an RPL, a replacement RPL should be selected to fill the vacancy. Applications proposing ESIs in the RPL role are strongly encouraged.

- **Research Core(s) (optional):** A Research Core may be requested if it is required to support the work of the Research Projects. The Research Core should also be made available to other investigators at the institution as well as those from other IDeA institutions. A Research Core should provide cutting-edge technologies and/or services that are not duplicative of existing services or facilities at the applicant institution. Upgrading existing research facilities including those supported by other IDeA programs (e.g., INBRE, IDeA-CTR, and other COBREs) is strongly encouraged.

- **Alteration and Renovation (optional):** Alteration and Renovation (A&R) costs to improve existing research laboratories or animal facilities are allowed if they are relevant to the scope of the proposed research.

   Link to Additional Information: https://grants.nih.gov/grants/guide/pa-files/PAR-22-250.html

11. Computer and Information Science and Engineering (CISE): Core Programs, NSF

Application Deadline:
- **Small Projects: Proposals Accepted Anytime**
- **Medium Projects: December 22, 2022**
- **OAC Core Projects: December 22, 2022**

Award Budget:
- **Small Projects: up to $600,000 for up to three years**
- **Medium Projects: range from $600,001 to $1,200,000 for up to four years**
- **OAC Core Projects: up to $600,000 for up to three years**

This solicitation covers submission to the following CISE core programs. Please see the individual program webpages below for more information on what is within scope for these programs:

- Division of Computing and Communication Foundations (CCF):

   - Algorithmic Foundations (AF) program [Program Webpage] supports potentially transformative projects in the theory of algorithms and computational complexity, characterized by algorithmic innovation and rigorous analysis.
   - Communications and Information Foundations (CIF) program [Program Webpage] supports foundational research that addresses the theoretical underpinnings of information acquisition, transmission, and processing in communications and information processing systems.
   - Foundations of Emerging Technologies (FET) program [Program Webpage] supports foundational research at the intersection of computing and biological systems, nanoscale science and engineering, quantum information science, and other promising disruptive technologies supporting novel computing/communication models.
   - Software and Hardware Foundations (SHF) program [Program Webpage] supports foundational research in the design, verification, operation, and evaluation of computer hardware and software through novel approaches, robust theories, high-leverage tools, and lasting principles.

- Division of Computer and Network Systems (CNS):

   - Computer Systems Research (CSR) [Program Webpage] supports the advancement and holistic design and development of integrated software and hardware computing systems.
   - Networking Technology and Systems (NeTS) [Program Webpage] supports research that advances wired and wireless networking systems, develops a better understanding of the fundamental properties and trade-offs involved, as well as the abstractions and tools used in designing, building, measuring and

managing them.

- Division of Information and Intelligent Systems (IIS):

  - Human-Centered Computing (HCC) program [Program Webpage] supports research in human-computer interaction, integrating across fields including computing, information, social, and behavioral sciences, to (re)design technologies that amplify human capabilities, and understand how human, technical, and contextual aspects of computing and communication systems shape their benefits, effects, and risks.
  - Information Integration and Informatics (III) program [Program Webpage] supports research on computational approaches to the full data lifecycle to maximize the utility of information resources.
  - Robust Intelligence (RI) program [Program Webpage] supports computational research to understand and enable intelligent systems in complex, realistic contexts.

- Office of Advanced Cyberinfrastructure (OAC):

  - OAC Core Research (OAC Core) program [Program Webpage] supports translational research on the design, development, deployment, experimentation, and application of advanced research cyberinfrastructure (CI) to enable new frontiers of discovery and innovation.

PROJECT CLASSES

Proposals submitted to this solicitation must be consistent with one of three project classes defined below. Proposals will be considered for funding within their project classes.

- **Small Projects**
  SMALL projects are not accepted for the OAC Core Research program and will be returned without review if submitted to OAC Core.

  Small projects are well suited to one or two investigators (PI and one co-PI or other Senior Personnel) and at least one student and/or postdoctoral researcher. A Collaboration Plan (up to two pages) may be provided under Supplementary Documents.

- **Medium Projects**
  Medium projects are not accepted for the OAC Core Research program and will be returned without review if submitted to OAC Core.

  Medium projects are well suited to one or more investigators (PI, co-PI and/or other Senior Personnel) and several students and/or postdoctoral researchers. Medium project descriptions must be comprehensive and well-integrated and should make a convincing case that the collaborative contributions of the project team will be greater than the sum of each of their individual contributions. Rationale must be provided to explain why a budget of this size is required to carry out the proposed work. Since the success of collaborative research efforts is known to depend on thoughtful coordination mechanisms that regularly bring together the various participants of the project, a Collaboration Plan is required for any Medium project with more than one investigator, even when the investigators are affiliated with the same institution. Up to two pages are allowed for Collaboration Plans and they must be submitted as a document under Supplementary Documents. The length and level of detail provided in the Collaboration Plan should be commensurate with the complexity of the proposed project. Collaboration Plans and proposed budgets should demonstrate that key personnel, and especially lead PIs, have allocated adequate time for both their individual technical contributions and the leadership of collaborative activities necessary to realize the synergistic effects of larger-scale research. If a Medium project with more than one investigator does not include a Collaboration Plan, that proposal will be returned without review.

- **OAC Core Projects**

OAC Core projects are well suited to one or two investigators (PI and one co-PI or other Senior Personnel) and at least one student and/or postdoctoral researcher.

Link to Additional Information: https://www.nsf.gov/pubs/2022/nsf22631/nsf22631.htm

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12. Allergy and Asthma Statistical and Clinical Coordinating Center (AA-SCCC) (U01 Clinical Trial Not Allowed), NIH

Application Deadline:
- **Letter of Intent: 30 days prior to the application due date**
- **Full Proposal: November 30, 2022**

Award Budget: budgets are not limited but need to reflect the actual needs of the proposed project

The purpose of this announcement is to solicit applications for an Allergy and Asthma Statistical and Clinical Coordinating Center (AA-SCCC) to provide a broad range of support critical for the design, development, execution, and analysis of clinical research in allergic diseases and asthma. The major clinical research programs to be supported by the AA-SCCC include the Atopic Dermatitis Research Network, Consortium for Food Allergy Research, Childhood Asthma in Urban Settings Clinical Research Network, and Immune Tolerance Network. The AA-SCCC may also support investigator initiated clinical trials (IICT), and other clinical trial/study activities funded by NIAID. The types of research for which support will be provided include clinical trials, integrated studies of underlying mechanisms, clinical studies (e.g., longitudinal observational studies, genetic studies, etc.), and studies to identify and validate surrogates/biomarkers.

The objective of the AA-SCCC is to provide a broad range of support critical for the design, development, execution, and analysis of the clinical studies that NIAID sponsored clinical research programs in allergic diseases and asthma conduct. The scope of clinical research to be supported by the Center includes: (i) clinical trials at all phases to evaluate the safety and efficacy of investigational products and innovative approaches for disease treatment and prevention; (ii) studies of underlying disease mechanisms or mechanisms of action of therapeutic modalities as integral components of clinical trials; (iii) observational clinical studies (e.g., longitudinal birth cohort studies, genetic studies, studies designed with the main purpose to assess mechanisms of disease etc.); and (iv) surrogate/biomarker studies. The scope of functions to be performed by the Center includes statistical design and analysis; protocol development; study initiation and management; and management of sample repositories. In addition, the AA-SCCC will be responsible for organizing and maintaining study management teams (SMTs) for every study in which it is involved and for the communication, collaboration, and assistance with the NIAID-supported Clinical Data and Safety Monitoring Center (CDSMC), Clinical Site Monitoring Center (CSMC), the NIAID Clinical Products Center (CPC) and with NIAID staff for planning, oversight, execution, and analysis of NIAID-supported research.

AA-SCCC Functions:

1. Statistical Design and Analysis
2. Protocol Development, Study Initiation and Study Personnel Training
3. Repository and Tracking of Biological Specimens
4. Data Management Support
5. Clinical Safety and Pharmacovigilance Support
6. Clinical Study Internet-Based Collaboration Portals
7. Project Management and Communications
8. Quality Assurance/Quality Control
9.

Clinical Research Support Resources provided by NIAID:

- Regulatory Sponsorship and Support
- Clinical Data and Safety Management Center (CDSMC)
- Clinical Site Monitoring Center (CSMC)
- Clinical Products Center (CPC)

- Immunology Database and Analysis Portal (ImmPort)

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-AI-22-054.html

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13. HEAL Initiative: Prevention and Management of Chronic Pain in Rural Populations (UG3/UH3, Clinical Trials Required), NIH

Submission Date:
- **Letter of Intent: October 22, 2022**
- **Full Proposal: November 21, 2022**

Award Budget:
- **UG3 phase is limited to $500,000/year in direct costs**
- **UH3 phase are limited to $1 million/year in direct costs**

This opportunity encourages UG3/UH3 phased cooperative research applications to accelerate implementation of effective non-opioid interventions for pain management in rural and remote populations. Projects include pragmatic, implementation, or hybrid effectiveness-implementation trials to improve pain management and reduce the use of opioid medications. Awards made under this FOA will initially support a milestone-driven planning phase (UG3) of 1 to 2 years, with possible transition to an implementation phase (UH3) of up to 4 years duration (5 years total for the two phases). Only UG3 projects that plan a pilot may request 2 years for the planning phase with up to 3 years for the UH3 implementation phase; all other projects may request 1 year for the UG3 phase with up to 4 years for the UH3 phase. UG3 projects that have met the scientific milestone and feasibility requirements may request a transition to the UH3 phase. The UG3/UH3 application must be submitted as a single application, following the instructions described in this FOA.

The overall goal of this initiative is to support the implementation of effective practices and procedures that may lead to prevention or improved management of chronic pain in rural and/or remote populations, along with a reduction in prescribing and/or using opioids. Results from the trials supported by this funding opportunity should inform policy makers, payers, community stakeholders, as well as healthcare providers and patients in the primary care, emergency department, hospital, community health, home health, or dental settings. This funding opportunity requires that the intervention under study be integrated into the health care delivery system that serves individuals who live in a rural or remote community. This does not require the physical setting of the intervention be at a traditional health care facility. Studies can propose to integrate multi-component or multiple interventions that have demonstrated efficacy in other settings.

Trials will become part of and work with the HEAL Pragmatic and Implementation Studies to Improve the Management of Pain and Reduce Opioid Prescribing (PRISM) Program, which has leveraged the infrastructure of the NIH Pragmatic Trials Collaboratory [previously known as the NIH Health Care Systems (HCS) Research Collaboratory]. (See https://rethinkingclinicaltrials.org/.) The PRISM Program has established a Coordinating Center (CC) that is providing national leadership and technical expertise in all aspects of research conducted within the HCS. Awarded applicants will work with the CC (http://rethinkingclinicaltrials.org/about-nih-collaboratory/) to facilitate further planning and refinement of the proposed study in partnership with health care delivery systems. Studies in collaboration with Tribal populations will need to engage in meaningful dialogue to respectfully recognize the sovereignty of each Nation.

Research Objectives

This funding opportunity solicits applications for UG3/UH3 exploratory/developmental phased award cooperative agreements for projects including efficient, pragmatic, implementation, or hybrid effectiveness-implementation trials addressing chronic pain management in rural or remote populations. Projects addressing multiple levels of NIMHD's research framework are encouraged.

Applications must specify one or more health care systems (HCS) that will oversee delivery of care. There must be two or more sites within the HCS, or multiple HCS to assure inclusivity and sufficient sample size. Sites may include (but are not limited to) rural hospitals, clinics, provider offices, pharmacies, mobile health units or home health providers. HCS

partners include but are not limited to large health care systems, small and rural hospitals, Critical Access Hospitals, Rural Health Clinics, Tribal clinics and hospitals, Federally Qualified Health Centers and Indian Health Service (IHS) federally operated healthcare facilities, as well as visiting nurse services/home health agencies. HCS may also include local primary health care providers (including physician, doctor of osteopathy, dentist, nurse practitioner, physician assistant, nurse-midwife, nurse anesthetist, clinical nurse specialist, emergency medical service providers, etc.) at one or more sites of care. For effectiveness studies, the HCS should be large enough to yield sufficient participants to ensure powering the trial design. The design of the proposed project should maximize external validity of the study while maintaining rigor, by testing generalizability, feasibility, and sustainability of findings across rural and/or remote health care settings and diverse staff and patient populations.

In the UG3 planning phase, one or more additional community-based partners will be identified to participate in the proposed trial. Community partner(s) should be located in the rural or remote community (as described in Part 2, Section I. Background) and might be a community organization, faith-based organization, community health worker, local library, school, local patient or consumer advocacy group, community champion, local group representing populations that experience health disparities, and/or other relevant community stakeholder group. Other potential partners with experience working with rural clinical sites include Area Health Education Centers, Primary Care Associations, State Rural Health Associations, State Offices of Rural Health, Medicare Quality Improvement Organizations. The community-based partner(s) should be fully engaged in the research process from planning through implementation and evaluation.

Research Areas of Interest

Applicants must propose a pragmatic or implementation trial to address one or more critical research questions important for chronic pain management in rural or remote populations.

Applications submitted in response to this funding opportunity are strongly encouraged to:
1. include multi-level interventions with systemic implementation strategies that are scalable and conducive to long-term sustainability (beyond the term of award) and can be rapidly implemented in rural and remote healthcare systems
2. incorporate efficiencies and utilize existing resources (e.g., NCATS CTSAs, practice-based research networks, electronic health records, administrative databases and/or patient registries, rural health research centers) to increase the efficiency of participant enrollment, retention, and data collection
3. consider subpopulation analysis to determine which interventions work best for specific population and/or cultural groups (e.g., American Indians/Alaska Natives, Hispanics or Latinos, Pacific Islanders, Veterans, occupations such as mining, agriculture, forestry, etc.) including medically underserved, un- and under-insured, Medicare- or Medicaid-eligible populations, and underrepresented groups, with the intent to focus on reduction of health disparities
4. assess social determinants of health using measures available in the Social Determinants of Health Collection of the PhenX Toolkit (www.phenxtoolkit.org) or other widely adopted measures, as appropriate. Depending on study design and preference of the rural community, a plan to make the intervention available to all participants after completion of the trial should be considered. Applicants are encouraged to collect data on patient experiences that may affect their chronic pain including Veteran status, occupation, etc.

Types of Studies Responsive to this funding opportunity

- Pragmatic, implementation, or hybrid effectiveness-implementation trials
- Adapting, adopting and/or testing of methods for prevention and management of chronic pain and for management of acute pain if the acute pain requires the intervention of a health care provider for management (e.g., acute dental/orofacial pain or acute low back pain) and is likely to recur, become chronic, or escalate to a more serious complication if not managed appropriately.

IC-Specific Areas of Interest

1. National Institute of Nursing Research (NINR)
2. National Institute on Aging (NIA)
3. National Institute on Alcohol Abuse and Alcoholism (NIAAA)
4. National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
5. Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
6. National Institute of Drug Abuse (NIDA)
7. National Institute of Dental and Craniofacial Research (NIDCR)
8. National Institute on Minority Health and Health Disparities (NIMHD)
9. National Institute of Neurological Disorders and Stroke (NINDS)

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-NR-23-001.html

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14. Cyberinfrastructure for Sustained Scientific Innovation (CSSI), NSF

Application Deadline: December 16, 2022, December 1, 2023
Award Budget:
- **Elements awards: up to $600,000 for up to 3 years (up to $200,000 per year)**
- **Framework Implementations awards: between $600,001 and $5,000,000 for 3-5 years ($200,000 to $1,000,000 per year)**
- **Transition to Sustainability awards: up to $1,000,000 for up to 2 years (up to $500,000 per year)**

The Office of Advanced Cyberinfrastructure (OAC) enables science and engineering (S&E) research and education by developing, creating, and supporting secure, advanced, scalable, and global research CI. OAC investments emphasize CI that is:

- **Science-driven:** Promotes science and engineering excellence, enabling fundamentally new scientific and engineering advances; benefits science and engineering communities beyond initial targets
- **Innovative:** Emphasizes unique NSF contributions; builds the capability, capacity, and cohesiveness of a national CI ecosystem; considers both human and technical aspects of the CI
- **Collaborative:** Fosters partnerships and community development; actively engages CI experts, specialists, and scientists working in concert with domain scientists who are users of CI
- **Leveraged:** Builds on existing, recognized capabilities
- **Strategic:** Encourages measurement of progress and sharing of results
- **Sustained:** Provides benefits beyond the participants and the lifetime of the award

The program targets services that address all aspects of CI, from embedded sensor systems and instruments, to desktops and high-end data and computing systems, and on to major instruments and facilities. The program will continue to nurture the interdisciplinary processes required to support the entire data and software lifecycle and will successfully integrate the development, deployment, and support of CI services with innovation and research.

Furthermore, the program aims to catalyze the development of sustainable CI communities that transcend scientific and geographical boundaries. To that end, the CSSI program aims to create a software and data CI ecosystem that scales from individuals or small groups of researchers/innovators to large communities. Recognizing the need to rapidly respond to evolving research community priorities, NSF envisions support for the creation of such an ecosystem to be complemented by investments in foundational CI community services.

The program envisions vibrant partnerships among academia, government laboratories and industry, including international entities, for the development and stewardship of sustainable CI services that can enhance productivity and accelerate innovation in science and engineering. Furthermore, the program also envisions integrated education activities that will play a key role in developing and sustaining the CI over time and in creating a workforce capable of fully realizing its potential to transform science and engineering.

This solicitation welcomes proposals in the following three classes:

- **Elements:** These awards target small groups that will create and deploy robust services for which there is a demonstrated need, and that will advance one or more significant areas of science and engineering. It is expected that the created elements will be disseminated to the community as reusable services, with the potential for sustainability. The development approach may support the hardening of early prototypes and/or expanding functionality to increase end-user relevance.
- **Framework Implementations:** These awards target larger, interdisciplinary teams organized around the development and application of services aimed at solving common research problems faced by NSF researchers in one or more areas of science and engineering, and resulting in a sustainable community framework providing CI services to a diverse community or communities. The resulting CI is expected to be sharable, easily findable and accessible, interoperable, and reusable by broad communities. Proposers are encouraged to engage multiple disciplines and/or emerging multi-disciplinary communities in the design, development, evaluation, and/or demonstration phases of the proposed CI. Some awards are anticipated to be continuing grants, where funds will be released annually subject to agreed-upon milestones, based on approval by NSF and the availability of funds.
- **Transition to Sustainability:** These awards target groups who would like to execute a well-defined sustainability plan for existing CI with demonstrated impact in one or more areas of science and engineering supported by NSF. The sustainability plan should enable new avenues of support for the long-term sustained impact of the CI. Competitive proposals will clearly demonstrate the current level of adoption of the CI in the community and its impact on science and education so far, justify the need to sustain these impacts, and describe how this award will help to achieve long-term sustainability of the CI with clearly defined metrics of success. Requests may include funds to support activities such as further community outreach and engagement; user training, documentation, and technical support; improvements of code quality, scalability, and accessibility; and any other activity needed to achieve the long-term sustainability of the CI. It is expected that the projects funded under this project class will identify and transition to other avenues of support (e.g., open-source community support; revenue from memberships, subscriptions, or donations; funding from industry or other federal agencies) for the operation of the CI to be sustained.

Programmatic Areas of Interest

Important Note: Prospective PIs are strongly encouraged to consult with program officers from the list of Cognizant Program Officers in the relevant research area(s) prior to submitting a proposal to ascertain that the focus and budget of the proposed work are appropriate for this solicitation.

The CSSI program is led by OAC in the Directorate for Computer and Information Science and Engineering (CISE) and has participation from the NSF directorates and divisions as described below. Not all directorates / divisions are participating at the same level, and some have specific research and education priorities. Successful proposals are expected to be of interest to one or multiple directorates, divisions, or offices participating in the CSSI program and are expected to be responsive to programmatic areas of interest for these participating directorates/offices.

Below are programmatic areas of interest for FY 2023.

- The **Directorate for Biological Sciences (BIO)** is primarily interested in the CSSI program as a means to collaborate with other NSF directorates to support proposals that impact a multidisciplinary community that includes BIO-supported researchers. PIs wishing to submit projects that focus primarily on biological sciences should submit to the Infrastructure Capacity for Biological Research (Capacity) program and reference the Cyberinfrastructure Programmatic Area.

- The **Directorate for Computer and Information Science and Engineering (CISE)** is interested in software or data engineering and infrastructure projects that support research in all areas that sustain progress in the CISE field or that advance and adapt CISE research to impact the data and software sustainability needs of other

scientific and engineering disciplines. CISE is also particularly interested in broad applicability projects that support the development of CI that sustains discovery across all fields.

- The **Directorate for Education and Human Resources (EHR)** is interested in fostering multidisciplinary research and development approaches that use large data sets to improve STEM teaching and learning environments (formal and informal) and, over the longer term, revolutionize STEM learning.

- The **Directorate for Engineering (ENG)** will support proposals that provide broad access to novel CI with the potential to address emerging research challenges and enable potentially transformative research advances in the engineering research community. ENG seeks proposals that promote innovation across the CI ecosystem and address the evolving needs of the engineering research community to enable major advances in fundamental discovery in the research areas of its divisions.

- The **Chemical, Bioengineering, Environmental and Transport Systems (CBET) Division** seeks proposals outlining potentially transformative and extensible approaches to establish data and software infrastructure that advance fundamental research in areas of division interest. Successful proposals will directly address the myriad challenges research communities face in harnessing advanced computing infrastructure and the associated data handling required to solve engineering problems; challenges include, but are not limited to: (1) the availability of robust methods for experimental and computational data generation, analysis, and storage, as well as straightforward approaches for sharing and curation; and/or (2) model, code, and software development or modernization.

- The **Division of Civil, Mechanical and Manufacturing Innovation (CMMI)** supports the integration of modeling, computation, data analysis and interdisciplinary research partnerships and perspectives to advance fundamental knowledge. CMMI seeks proposals that provide pathways for discovering, developing, accessing, sharing, understanding, and using powerful CI tools, data and platforms to enhance CMMI researchers' productivity and impact. The division seeks proposals to develop CI ecosystems that will enable the CMMI research community to more effectively employ software, data, and computational methods to enable new modes of discovery and to lead CI development.

- The **Division of Electrical, Communications and Cyber Systems (ECCS)** seeks proposals with innovative approaches to establish data and software infrastructure that will advance the fundamental research areas supported by the Division. Examples of topics of interest include, but are not limited to:
  - Data and software infrastructure to support innovations in devices, circuits, and systems for sensing, communications, and control.
  - Large-scale, real-time machine learning and dynamic data analytics to advance national infrastructure, e.g., wireless communication infrastructure or electrical power grid.
  - Data and software infrastructure to support networked engineering cyber-physical testbeds that are remotely accessible.

- The **Directorate for Geosciences (GEO)** is interested in the following research fields: atmospheric and geospace science, Earth science, ocean science, and polar science.

- The **Directorate for Mathematical and Physical Sciences (MPS)** appreciates that software and data CI enable scientific advances and discovery across MPS.
  - Division of Astronomical Sciences (AST)
  - Division of Chemistry (CHE)
  - Division of Materials Research (DMR)
  - Division of Mathematical Sciences (DMS)
  - Division of Physics (PHY)

Link to Additional Information: https://www.nsf.gov/pubs/2022/nsf22632/nsf22632.htm

15. Large Scale Integrated Mapping and Molecular Profiling of Cell Ensembles and/or Cell-Types Mediating Opioid Action in the Rodent Brain (R01 - Clinical Trial Not Allowed), NIH

Application Deadline:
- **Letter of Intent: January 02, 2023**
- **Full Proposal: February 02, 2023**

Award Budget: up to $700,000 direct costs for any one year, for a 5-year maximum project period

This funding opportunity announcement aims to support synergistic research programs that employ innovative scalable technologies to identify, map, and molecularly profile cellular ensembles that produce and/or respond to endogenous opioids or that are engaged during different stages of opioid use (acute, chronic, withdrawal, abstinence, relapse). Emphasis is on approaches that enable the multimodal integration of data pertaining to the morphology, spatial distribution, connectivity and activity of a circuit or functional cell ensemble, with the molecular profiling of its cellular constituents, at single-cell resolution. It is anticipated that reference multimodal datasets generated in this realm will transform our understanding of the mechanisms associated with the transition from opioid use to opioid use disorder (OUD) and will generate foundational knowledge for the development of future therapeutics for OUD.

Applications which lack the required components below will be considered not responsive this FOA and will not be reviewed. In order to be considered responsive, the major thrust of the application MUST investigate opioid exposure in an appropriate rodent model. Any opioid may be investigated (endogenous peptides, morphine, oxycodone, heroin, fentanyl, etc.). Acceptable exposure regimens includes acute vs chronic, experimenter vs self-administered, acute early exposure, long access, withdrawal, and/or relapse. In addition, the major thrust of responsive applications MUST focus on at least one of the following:

- Decoding the architecture and makeup of functional cellular assemblies mediating opioid-associated behavioral states, by spatially resolving and co-registering activity readouts and molecular profiles of cells releasing or responding to opioids in the CNS. These studies should combine single-cell resolution readouts of connectivity, neural activity or receptor engagement with omics-based profiling.
- Decoding the spatiomolecular heterogeneity and plasticity of opioid-associated states, by identifying changes in transcriptome and/or epigenome dynamics across opioid-associated behavioral stages, within spatially defined biological candidate circuits or functional ensembles.

Other points to consider when developing a research application:

- Applicants should have strong technical preliminary data showing that the proposed experiments can be performed. However, specific pilot preliminary data in the context of opioid exposure is not required.
- We anticipate that the most compelling projects will be proposed by interdisciplinary teams and encourage applicants to assemble interdisciplinary teams with expertise in appropriate areas including rodent opioid exposure models.
- Data generated must be made available to the scientific community for data mining through the NIDA-funded SCORCH data coordination center (RFA-DA-20-027).
- Applicants should propose a timeline and yearly quantitative milestones for their projects. If selected for funding, applicants will work with NIH staff to develop more granular milestones which will be included in their Notice of Award. Progress towards completion of these milestones will be assessed yearly.
- Applicants should plan for the PDs/PIs and essential team members to travel domestically for a yearly face to face meeting with other NIDA researchers for the entire funding period.
- Applicants are strongly encouraged to contact program staff if they have any questions.

Examples of applications responsive to the FOA

- Projects that generate and disseminate highly granular multimodal atlases or catalogs of molecularly-characterized

cell ensembles engaged by opioids, using neurophysiology, imaging methods or molecular integrators of cell activity such as CaMPARI, iTango, or FLiCRE.

- Projects that characterize and map cell-specific transcriptional or epigenomics trajectories across stages of opioid exposure, and their causal determinants within a candidate circuit, by exploiting spatial omics assays such as, but not limited to, multiplexed FISH, STARmap, Slide-seq, 10X Vizium and unbiased multiomic assays such as SHARE-seq or snmC2T-seq.
- Projects that combine elements of both of these approaches.

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-DA-23-035.html

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16.   BRAIN Initiative: Theories, Models and Methods for Analysis of Complex Data from the Brain (R01 Clinical Trial Not Allowed), NIH

Application Deadline:
- **Letter of Intent: 30 days prior to the application due date**
- **Full Proposal: December 15, 2022; September 12, 2023**

Anticipated Funding Amount: budgets are not limited but are expected to range between $150,000 to $250,000 direct costs per year, for a 3-year maximum project period.

The broad goal of The BRAIN InitiativeSMis to understand the circuits and patterns of neural activity that give rise to mental experience and behavior. As stated in the BRAIN 2025 Report (II.5), "Theory, Modeling, and Statistics Will Be Essential to Understanding the Brain." As advances in neurotechnology's are producing large, complex datasets at an unprecedented rate, novel theoretical and analytical approaches are needed to realize the potential of these rich datasets. Understanding neural circuitry requires an understanding of the algorithms and mechanisms that govern information processing within and between interacting circuits in the brain as a whole. Informed by rich observations, formalized theoretical frameworks allow researchers to infer general principles of brain function and the algorithms underlying functioning neural circuitry. Theory coupled with mathematical modeling and simulations are needed to identify gaps in knowledge, to drive the systematic collection of the future data (e.g., collected data should address model parameters that are currently unknown), and to formulate testable hypotheses on neural circuit mechanisms and how they affect behavioral and cognitive processes. Statistical approaches are needed to conduct formal inference to support or refute a stated theory or hypothesis. Finally, new data analysis methods, including Artificial Intelligence and Machine Learning (AI/ML) methods, are needed to detect dynamical features and patterns in complex data, often spanning multiple modalities and scales, are needed to reveal underlying mechanisms of brain function.

This reissue has been updated based on the recommendations of the BRAIN Initiative 2.0 report:

https://braininitiative.nih.gov/strategic-planning/acd-working-groups/brain-initiative-20-cells-circuits-toward-cures

For this reissue, priority will be given to the development of:

- Analytical and computational tools to facilitate new theory development as well as tools to integrate existing (especially competing) theories, and conceptual frameworks
- Multiscale/Multiphysics models incorporating biologically-inspired dynamical representations of neurons mechanistically linking to behavioral processes
- Platforms incorporating machine-driven knowledge integration of competing theories for the discovery of foundational theories of the brain

Projects are encouraged to utilize the NIH BRAINWORKS platform (that organizes, integrates, and represents nuanced knowledge contained within the growing body of the scientific literature) to assist in the development of Theories, Models and Methods for understanding brain circuits from the cellular and subsecond resolution to behavior.

It is expected that this next generation of analytical tools will be developed such that the neuroscience research

community can easily share and use them. The development of analytical tools for analyzing behavioral and functional brain circuits must include knowledge at the cellular and sub-second temporal resolution. For example, projects using fMRI are required to include other data types and methods that include cellular and sub-second temporal resolution. Applications to this FOA must focus on tool building and dissemination in the domain of theories about neural circuit mechanisms, models of circuit structure and function, and/or computational methods of analysis spanning the scale of neurons and firing rates (or proxies thereof) or finer. Investigative studies should be limited to model parameter estimation and/or validity testing of the tools being delivered.

Specific topics of interest include, but are not limited to:

<u>Theories and conceptual frameworks</u>

- Theoretical insights into how circuit dynamics depend on the properties of single neurons and their connections. Identify conditions for which insights from small circuits scale to larger circuits. Determine which general rules of circuit function depend on specific biological details of neuronal, non-neuronal, and synaptic function.
- Theories linking large-scale, cell-type data platforms efforts (e.g., cell census) to behavior.
- Theories that elucidate how both short-and long-term behavioral change is encoded in the chemical and electrical activity of neurons.
- Theories of how ensembles go beyond the individual units of activity to produce emergent properties in collective state conditions.
- Theories of how ongoing ensemble activity carries out effortful, deliberate cognitive processes requiring multiple or iterative steps, such as mental imagery, mental spatial navigation, mathematical processing, reasoning, language processing or other cognitive abilities that are specially advanced in humans.
- Theories of how interactions within and between large neural systems and brain areas—encompassing inputs from multiple sensory systems, internal states, memories, goals, constraints, and preferences—drive behavior in humans and animals, including specialized animal models.

<u>Models to integrate information across large temporal and spatial scales</u>

- Models and methods that integrate knowledge across multiple levels - connecting cellular properties with anatomical constraints, physiology, and behavior; linking mechanisms of neural activity with biophysical mechanisms; bridging mesoscale neural circuits with macroscale neural populations and quantifiable behavior; linking invasive and non-invasive behavioral.
- Models of dynamical neuronal activity on spatial and temporal scales that span individual synapses, action potentials, neurons, circuits, network activity (including attractors and persistent activity), and internal circuit states (including neuropeptides and neuromodulatory systems).
- Formal statistical inference frameworks to conduct network connectivity and causal-inference analyses from different types of neuroscience data such as EEG, LFP and multi-site single neuron recordings.
- Uncertainty quantification of the data, parameters, and outcomes of predictive multiscale models of the brain (e.g., as a result of sparse data and biological variation across subjects).
- New, interoperable simulation methods for multiscale models (e.g., integrating subcellular models into neuronal networks and biophysically inspired neuronal networks into full-brain model scales).

<u>Methods for complex data analysis</u>

- Novel methods (including AI/ML) to extract fundamental dynamical (mechanistic) features and patterns from large nonlinear, spatio-temporal datasets for real-time data analysis.
- Novel implementations of dynamic versions of principal component analysis, including novel implementations of independent component analysis, graphical models, and compressed sensing that may be used to dynamically track structure in continuous data, point process data, or combinations of the two.
- Tools to address data dimensionality – correlating lower dimension neural activity among subsets of strategically

sampled neuronal populations; analyzing higher dimension data resulting from increased behavioral and stimulus complexity.
- Data fusion and data assimilation methods to combine heterogeneous data and link sparse data with mechanisms.

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-DA-23-039.html

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17. Dangers and Opportunities of Technology: Perspectives from the Humanities, NEH

Application Deadline: February 2, 2023
Award Information:
- **Single Researcher: up to $75,000 for up to 24 months**
- **Collaborative Team: up to $150,000 for up to 24 months**

The Dangers & Opportunities of Technology: Perspectives from the Humanities program (DOT) supports humanistic research that explores the relationship between technology and society. NEH is particularly interested in projects that examine current social and cultural issues that are significantly shaped by technology. The project's goal must be to expand understanding of a particular topic in the humanities and not engage in political advocacy.

NEH encourages you to interpret the term "technology" broadly. It is up to you to make a compelling case for the technologies you choose to examine. You may also involve communities affected by these technologies as collaborators or contributors.

NEH invites projects that link their research to compelling social issues where technology plays a key role. Projects may address a wide range of topics, such as:
- climate change
- racial justice
- social media, disinformation, and the democratic process
- medical technologies
- wealth inequality
- data privacy and ethics of algorithms
- cryptocurrencies and nonfungible tokens (NFTs)
- supply chains and infrastructure
- educational technologies
- streaming economy (e.g., music, television, film)

The DOT program can support activities such as:
- course releases
- research assistance
- research travel
- community partner participation
- conducting studies or interviews
- convenings
- data collection and analysis
- experiments or prototyping
- designing curricular materials
- development or production of articles, books, documentary films, web sites, or other forms of intellectual output

The program will support projects at any research stage.
- Projects led by a single researcher
  - Projects in this category will be led by a single project director with an institutional affiliation who will set the research agenda. Other personnel, including students, may carry out some activities.

- Projects led by collaborative teams
  - Projects in this category will be led by two or more project directors (co-directors), each contributing equally to the research agenda(s). Co-project directors may be independent scholars. Other personnel, including students or staff from community organizations, can also be involved in carrying out some of the work.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=343684

18. HEAL Initiative: HEAL Data2Action – Acceleration Projects (R33 Clinical Trial Not Allowed), NIH

Application Deadline:
- **Letter of Intent: October 22, 2022**
- **Full Proposal: November 22, 2022**

Award Budget: up to $750,000 in direct costs per year for a maximum project period of 5 years

HEAL Data to Action (HD2A) Acceleration Projects are intended to develop data or methods that improve timeliness, quality, accessibility, or usefulness of existing data ecosystems (e.g., electronic health records, syndromic surveillance systems, claims data, registries, pharmacy dispensing, mortality records) to allow faster and improved responses to address the overdose epidemic. Scope of these projects are similar to an R01 and must have preliminary or feasibility data available, such as from an R21 study or its equivalent. These differ from an R01 primarily in that they are expected to engage with the resource centers funded through the HD2A program and as such, may evolve through leveraging these resources.

Acceleration Projects are to develop data or methods that improve the timeliness, quality, accessibility, or usefulness of existing data ecosystems (e.g., electronic health records, syndromic surveillance, claims data, registry data, pharmacy dispensing, and mortality records) to allow for faster and improved responses to address the overdose epidemic. The data or methods must focus on outcomes of interest to the HEAL initiative (e.g., opioid use disorder (OUD), overdose, relapse, chronic pain) or the HHS overdose prevention strategy. Priority will be given to applications that demonstrate the following:
1. translatability of the data or methods to other substance use problems
2. identification and partnerships with stakeholders/end-users along the research continuum and inclusion of at least one representative of those end-users as key personnel in the application to ensure that the proposed data or methods will be useful to the stakeholders who drive actions
3. evaluation and/or implementation of data or methods in terms of timeliness, quality, accessibility, or usefulness of data for prevention and services planning. There is no requirement or expectation that the data or methods will be used to drive action as part of the award activities.

Applications should describe how the data or methods proposed could be applicable to solving current problems. This may include facilitating the extraction and transformation of data from electronic health records (EHR) for research use and consideration of social determinants of health as crucial contributors to health. This is an opportunity to foster the adoption of standardized data structure such as Fast Healthcare interoperability Resources (FHIR®) in accessing and exchanging data from EHR.

The datasets produced, when applicable, shall adhere to the FAIR principles (Findable, Accessible, Interoperable, Reproducible) and shall be ethically sourced, trustworthy, well-defined, and accessible. The principles also apply to algorithms and other digital assets. The end products of this effort are twofold:
1. methods, algorithms, tools, or technologies that shorten the time lag between data capture and data availability or improve the geographical precision of available data
2. linked/integrated datasets or datasets that can be further integrated in an established data ecosystem that improves timeliness, quality, accessibility, or usefulness of the data to provide actionable insights

Under the R33 award, applicants will develop data or methods and in terms of data timeliness, quality, accessibility, or usefulness that could apply to at least one-use case (e.g., improvements in monitoring, early detection, hot spot

identification, linkage and modeling for data-driven decision making).

The HD2A Program includes Support Centers that will provide technical assistance and other support to participating HD2A Projects. For Acceleration Projects, the resource centers are intended to assist Projects, for example, in informing benefits and tradeoffs of different data tools, applying simulation modeling in support of forecasting and decision-making, and understanding evidence-based practices that could serve as use cases. Each Acceleration Project will be expected to participate in a baseline needs assessment meeting with the Support Centers to identify opportunities and options for their proposed projects. Acceleration Projects will have an opportunity to access ongoing and on-demand support from each of these resource centers, as relevant and appropriate, throughout the course of the project.

Based on data and input from relevant stakeholders and considering the support available from the HD2A Support Centers, applicants should propose projects likely to have a measurable and sustained impact on overdose, opioid-related outcomes, and/or chronic pain as relevant to their targeted element(s) of the Overdose Prevention Strategy, i.e., primary prevention, harm reduction, treatment of opioid use disorder, and recovery support.

Pre-Application Consultation

Potential applicants are strongly encouraged to consult with NIDA Program staff early in the application development process. This early contact will provide an opportunity to discuss and clarify NIH policies and guidelines, including the scope of the project relative to the HEAL initiative mission and intent of this FOA. Inquiries may be emailed to: HEALdata2action@nih.gov.

Link to Additional Information: https://grants.nih.gov/grants/guide/rfa-files/RFA-DA-23-058.html

19. FWS - Refuges, Fish and Wildlife Service

Application Deadline: September 30, 2023
Award Amount: up to $200,000

The U.S. Fish and Wildlife Service (Service) Coastal Program is a voluntary, community-based program that provides technical and financial assistance through cooperative agreements to coastal communities, conservation partners, and landowners to restore and protect fish and wildlife habitat on public and private lands. The Coastal Program staff coordinates with partners, stakeholders and other Service programs to identify geographic focus areas and develop habitat conservation goals and priorities within these focus areas. Geographic focus areas are where the Coastal Program directs resources to conserve habitat for Federal trust species. Projects are developed in collaboration with partners, and with substantial involvement from Service field staff. Coastal Program projects must support the missions of the U.S. Department of the Interior (DOI), U.S. Fish and Wildlife Service (Service), and the Coastal Program, and be based on biological principles and the best available science.

The Coastal Program takes an adaptive approach to designing and implementing coastal habitat protection and restoration strategies that anticipate and ameriorate the impacts of climate change and other environmental stressors. Coastal Program habitat improvement projects strive to increase coastal resiliency by improving the ability of coastal ecosystems to adapt to environmental changes and supporting natural and nature-based infrastructure projects to protect and enhance coastal habitats.

The Coastal Program also supports the vision of America the Beautiful, including:

- Pursuing a collaborative and inclusive approaches to conservation.
- Achieving conservation of 30 percent of U.S. lands and waters over the next 30 years.
- Encouraging locally-led conservation efforts.
- Supporting the habitat conservation priorities of Tribes.
- Pursuing conservation and restoration approaches that create jobs and stimulate local economies.

- Encouraging the voluntary stewardship efforts of private landowners.
- Using the best available science as a guide.
- Building on existing tools and strategies with an emphasis on flexibility and adaptive approaches.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=343706

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20.   Marine Fisheries Initiative (MARFIN), National Marine Fisheries Service, NOAA

Application Deadline: February 2, 2023
Award Information: funding available for this program is contingent upon the availability of FY 2023
Congressional appropriations

The National Marine Fisheries Service (NMFS), Southeast Region, is seeking proposals under the Marine Fisheries Initiative Program (MARFIN), for research and development projects that optimize the use of fisheries in the Gulf of Mexico, Puerto Rico, the U.S. Virgin Islands, and off the South Atlantic states of North Carolina, South Carolina, Georgia, and Florida, involving the U.S. fishing industry (recreational and commercial), including fishery biology, resources assessment, socio-economic assessment, management and conservation, selected harvesting methods, and fish handling and processing. This program addresses NOAA's mission goal "Healthy Oceans."

All of the items listed below under Ecosystems and Fisheries are considered high priorities and are not listed in any particular order of importance. Items under Economics and Human Dimensions are in order of priority. Proposals must address one of the priority areas listed below as they pertain to federally managed species. If you select more than one priority, you should list first on your application the priority that most closely reflects the objectives of your proposal. Projects should focus on the greatest probability of recovering, maintaining, improving, or developing fisheries; collecting data directly applicable for improving stock assessments, collecting and improving data on bycatch estimates and protected species fishery interactions, and/or generating increased social and economic values and opportunities for the commercial, recreational, and subsistence sectors of fisheries.

1. Economics and Human Dimensions
2. Ecosystems
3. Fisheries

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=343642

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21.   NIAID Research Opportunities for New and "At-Risk" Investigators to Promote Workforce Diversity (R01 Clinical Trial Optional), NIH

Application Deadline: December 07, 2022; February 05, 2023; June 05, 2023
Award Information: budgets are not limited but need to reflect the actual needs of the proposed project

The mission of the National Institute of Allergy and Infectious Diseases (NIAID) is to conduct and support basic and applied research to better understand, treat, and ultimately prevent infectious, immunologic, and allergic diseases. In addition, NIAID has a unique mandate which requires the Institute to respond to emerging public health threats. Research shows that having a diverse scientific and public health workforce benefits research on issues such as COVID-19, HIV, and asthma, which disproportionately impact underrepresented groups. Scientists from diverse backgrounds have the potential to engage with underrepresented communities more effectively, and the knowledge and perspectives they bring from their own communities may help ensure that the research agenda addresses the needs of all who are affected by these diseases, including those most impacted by these diseases (DOI:10.2105/AJPH.2008.153536; DOI:10.1056/NEJMe2114651; PMCID:PMC8461584; https://covid19community.nih.gov/news/diversity-in-research-for-covid19-therapies). Furthermore, the mission includes educational activities that complement the training of the next generation of scientists in NIAID-related research areas. NIAID seeks to promote diversity in all its training and research programs and to enhance the diversity of the investigator pool, including participation by investigators from

underrepresented groups in order to develop a highly competent and diverse scientific workforce capable of conducting state-of-the-art research in NIAID mission areas.

NIH and NIAID recognize a unique and compelling need to promote diversity in the biomedical, behavioral, clinical, and social sciences workforce. NIH expects efforts to diversify the workforce to lead to the recruitment of the most talented researchers from all groups; to improve the quality of the educational and training environment; to balance and broaden the perspective in setting research priorities; to improve the ability to recruit subjects from racial and ethnic minority and other NIH-designated populations that experience health disparities into clinical research protocols; and to improve the Nation's capacity to address and eliminate health disparities.

Scope and Objectives

Section 404M of the Public Health Service Act (added by Section 2021 in Title II, Subtitle C, of the 21st Century Cures Act, P.L. 114-255, enacted December 13, 2016), entitled, "Investing in the Next Generation of Researchers," established the Next Generation of Researchers Initiative within the Office of the NIH Director. This initiative is intended to promote and provide opportunities for new researchers and earlier research independence, and to maintain the careers of at-risk investigators. In particular, subsection (b) requires the Director to "Develop, modify, or prioritize policies, as needed, within the National Institutes of Health to promote opportunities for new researchers and earlier research independence, such as policies to increase opportunities for new researchers to receive funding, enhance training and mentorship programs for researchers, and enhance workforce diversity"; and subsection (c) requires the Director to "Carry out other activities…as appropriate, to promote the development of the next generation of researchers and earlier research independence." See, The NIH Policy Supporting the Next Generation Researchers Initiative (NOT-OD-17-101).The NIH Advisory Committee to the Director (ACD) offered a number of recommendations to NIH on the "Next Generation Researchers Initiative." Among those: the Committee recommended "special funding consideration for "at-risk" investigators. These are researchers who developed meritorious applications who would not have significant NIH research funding if the application under consideration is not awarded.

The objective of this program is consistent with the provisions of the 21st Century Cures Act and the recommendations from the NIH ACD and seeks to support research from New Investigators and At-Risk Investigators from diverse backgrounds, including investigators from underrepresented racial and ethnic groups, in order to enhance the diversity of R01-funded investigators. Investigators from diverse backgrounds, including those from underrepresented groups (e.g., see NOT-OD-20-031, Notice of NIH's Interest in Diversity), are encouraged to work with their institutions to apply for support under this program. Investigators from categories A and B are particularly encouraged to work with their institutions to apply.

Specific Areas of Research Interest

NIAID supports basic and applied research to better understand, treat, and prevent infectious, immunologic, and allergic diseases, with the goal of developing new therapies, vaccines, diagnostic tests, and other technologies. Research areas include microbiology and infectious diseases, AIDS, and AIDS -related research, immunology, allergy, transplantation, and emerging and re-emerging infectious diseases. For the purposes of this FOA, NIAID encourages research within the scope of all areas of NIAID's scientific areas of focus. Applicants are advised to contact the scientific contact for the NIAID Division most closely aligned with their research interest and planned proposal. Clinical trials are optional, based on NIAID's determination of level of risk (see NOT-AI-21-037). Investigators proposing NIH-defined clinical trials may refer to the Research Methods Resources website for information about developing statistical methods and study designs. Consultation with NIAID staff prior to the application due date is strongly encouraged for submission of a clinical trial application (see NOT-AI-21-037).

   Link to Additional Information: https://grants.nih.gov/grants/guide/pa-files/PAR-22-241.html

22. EPSCoR Research Infrastructure Improvement Program: Track-2 Focused EPSCoR Collaborations (RII Track-2 FEC), NSF

The primary driver for RII Track-2 FEC investments is the need to build STEM-driven, interjurisdictional research collaborations with the potential to be nationally and internationally competitive. The Project Description should include a strong rationale for the collaboration and demonstrate that the partnership is designed to facilitate discovery and innovation in the focus area, which neither party could address as well, or as rapidly, alone. RII Track-2 FEC projects are unique in their integration of researchers into collaborative teams across EPSCoR jurisdictions, and must develop a diverse, well-prepared, STEM-enabled workforce necessary to sustain research competitiveness. Moreover, NSF EPSCoR recognizes that the demographics of the United States is changing and therefore to be competitive, EPSCoR jurisdictions must be intentional regarding broadening participation in projects through diversity and inclusion of individuals traditionally underrepresented in STEM. Therefore, the recruitment and/or development of early-career faculty who are traditionally underrepresented in STEM fields as well as the involvement of traditionally underrepresented groups at all levels of this project, including at the postdoctoral researcher, student, and K-12, are critical in achieving this goal and must be an integral component of the proposed project.

Over the long term, RII Track-2 FEC investments are expected to result in sustained improvements in research competitiveness, enabling EPSCoR investigators to successfully pursue significant opportunities of national and international importance in science and engineering research and education. Moreover, specific to this solicitation, it is expected that previous NSF and other federal agency investments will be leveraged and translated into advancing our understanding of the effects of climate change as well as climate resilience on individuals and communities disproportionately affected by this phenomenon in the involved jurisdiction(s). Non-EPSCoR and international collaborations may be included, but no EPSCoR funds should be directed to these organizations.

Central to the success of the proposal is a clear demonstration that the collaboration is well-positioned to produce outcomes that cannot be obtained through the efforts of a team in a single jurisdiction working alone. The proposal must clearly identify the roles and contributions of each partner in the project, the anticipated increases in research capacity and competitiveness, the projected workforce development and educational plan and outcomes, and the benefits to the jurisdictions, nation, and society. It is expected that these collaborations be balanced, with participating jurisdictions each contributing to and benefitting from projects at levels that are appropriate to their capabilities.

To ensure maximum impact of available programmatic funds, requests for RII Track-2 FEC funding must:

- Add significantly to the research capacity of the participating jurisdictions in the designated focus area.
- Contribute to the advancement of research and innovation in the proposal's focus area.
- Illustrate how the participating jurisdictions' research capacities will be positively impacted by the collaborative effort.
- Outline clear plans for the recruitment and/or development of early-career faculty who are underrepresented in the chosen STEM field.
- Engage the full diversity of the participating jurisdictions' resources including two- and four-year colleges, Minority-serving institutions, and local and state industry in STEM workforce development.
- Engage and collaborate with social and economic scientists to understand and assess the societal implications of emerging, innovative and disruptive technologies towards climate resilience on impacted communities.
- Present a detailed plan to demonstrate the potential for economic impact of the endeavor and present a

sustainability plan for obtaining subsequent, sustained non-EPSCoR funding from federal, jurisdictional, or private sector sources.

Current Topic Focus Area

RII Track-2 FEC proposals must be aligned with the following focus area: "advancing climate change research and resilience capacity to expand opportunities for disproportionately affected communities." Climate change is an important component of global environmental change and addressing, and mitigating, its effects is a key national priority. As a major societal challenge, climate change has profound consequences for the habitability and sustainability of the planet, while also affecting the nation's food, water, energy, economies, security, and quality of life through its impacts on human health, agriculture, ecosystems and water resources. Disproportionately affected communities are considered more susceptible to these impacts and adaptation and mitigation strategies related to climate change and resiliency must be based on robust scientific findings affecting and involving these communities. Participation in climate change research with disproportionly affected individuals as the centerpiece, will potentially advance science and engineering, enhance the contribution of EPSCoR jurisdictions to the well-being of our nation's citizens, and promote economic stability and recovery in EPSCoR jurisdictions.

Link to Additional Information: https://www.nsf.gov/pubs/2022/nsf22633/nsf22633.htm

23.   Racial Equity in STEM Education (EHR Racial Equity), NSF

Application Deadline: January 17, 2023; October 10, 2023
Award Information: up to a total maximum project budget of $5M for a total maximum duration of 5 years

Collectively, proposals funded by this solicitation will:
1. substantively contribute to institutionalizing effective research-based practices, policies, and outcomes in STEM environments for those who experience inequities caused by systemic racism and the broader community
2. advance scholarship and promote racial equity in STEM in ways that expand the array of epistemologies, perspectives, ideas, theoretical and methodological approaches that NSF funds)
3. further diversify project leadership (PIs and co-PIs) and institutions funded by NSF

Designing Projects that Meet Racial Equity in STEM Education Program Goals

Efforts to address systemic racism in STEM education are complementary to NSF's efforts in Broadening Participation in STEM. The portfolio of projects funded by this program should be diverse in theoretical approaches, epistemologies, and methodologies, yet all proposals should:
1. conceptualize systemic racism in the context of the project
2. be led by or in authentic partnership with communities impacted by systemic racism
3. articulate a rigorous plan to generate knowledge and/or evidence-based practice via fundamental or applied research

Conceptualizing Systemic Racism: EHR recognizes that systemic racism is multifaceted and can be addressed in various ways, requiring varied approaches and diverse perspectives. Approaches may include but are not limited to how systemic racism influences STEM knowledge generation, STEM participation and experiences, and access and outcomes in STEM. As the constructs of systemic racism and racial equity may have different meanings in different settings, each proposal should conceptualize systemic racism within the bounds of the project context and indicate how racial equity is advanced by the proposed work. Contexts may include, but are not limited to: preK-12, two-year and four-year undergraduate, and graduate institutions; municipal organizations; STEM workplaces; and informal STEM contexts, such as museums, community organizations, and media.

Authentic Partnership and Leadership: Core to this funding opportunity are the voices, knowledge, and experiences of communities impacted by enduring racial inequities. Therefore, because racial inequities frequently produce long-enduring systemic barriers in STEM and beyond, the participation of these stakeholders should be at the center of the

proposals, including, for example, being in project leadership and research positions, conceptualizing the proposal, making decisions, and interpreting and disseminating evidence and research results. It is expected that proposals will indicate how they are led by, or developed and led in authentic partnership with, individuals and communities who experience inequities caused by systemic racism. The proposed work should provide positive outcomes for the individuals and communities engaged and should foreground peoples' humanity, knowledge, experiences, and strengths.

Research Foci: Each proposal should articulate a rigorous plan to generate knowledge and/or evidence-based practice via fundamental or applied research. Projects may focus on, but are not limited to:

- building theory; developing research, evaluation, and assessment methods; conducting pilot projects and feasibility studies
- testing approaches and interventions
- assessing the potential, efficacy, effectiveness, and scalability of approaches and interventions
- changing institutional, organizational, and structural practices and policies
- establishing, cultivating, and assessing authentic partnerships with communities impacted by systemic racism, conducting syntheses, meta-syntheses, meta-analyses, and systematic literature reviews
- convening conferences that explore a theory, topic, method, or issue related to the program goals in order to drive research and practice forward;
- focusing on affective, behavioral, cultural, social components, and implications.

Link to Additional Information: https://www.nsf.gov/pubs/2022/nsf22634/nsf22634.htm

Proposals Accepted Anytime

1. Division of Environmental Biology, NSF
   https://www.nsf.gov/pubs/2022/nsf22541/nsf22541.pdf

2. Mathematical Biology, NSF
   https://beta.nsf.gov/funding/opportunities/mathematical-biology

3. Computational and Data-Enabled Science and Engineering in Mathematical and Statistical Sciences, NSF
   https://beta.nsf.gov/funding/opportunities/computational-and-data-enabled-science-and-engineering-mathematical-and

4. Sedimentary Geology and Paleobiology (SGP), NSF
   https://www.nsf.gov/pubs/2022/nsf22597/nsf22597.htm

5. Condensed Matter and Materials Theory (CMMT), NSF
   https://www.nsf.gov/pubs/2022/nsf22610/nsf22610.htm#pgm_desc_txt

6. Division of Materials Research: Topical Materials Research Programs (DMR:TMRP), NSF
   https://www.nsf.gov/pubs/2022/nsf22609/nsf22609.htm

7. Research in the Formation of Engineers, NSF
   https://beta.nsf.gov/funding/opportunities/research-formation-engineers-rfe

Fellowships and Scholarships Funding Opportunities

1. Minority Serving Institutions Grant Program (MSIGP), Scholarships and Fellowships, U.S. Nuclear Regulatory Commission
   Deadline: December 9, 2022

This NOFO is issued to fund scholarships and fellowships to Minority Serving Institutions' (MSIs) for the exchange and transfer of knowledge and skills relevant to nuclear safety, security, environmental protection, or any other field the Commission deems critical to its mission.

- **Scholarship**: This is a one- (1) to two- (2) year program. Scholarship funds may be requested for up to $100,000.00 total costs (direct costs and facilities and administrative costs) for the project period. A scholarship student may not receive more than $10,000.00 per year or exceed $20,000.00 over a 2-year period.

- **Fellowship**: This is a four- (4) year program. Fellowship funds may be requested for up to $400,000.00 total costs (direct costs and facilities and administrative costs) for the project period. A post graduate student may not receive

https://www.grants.gov/web/grants/view-opportunity.html?oppId=343477

2. Engineering Research Initiation (ERI), NSF
   Deadline: October 11, 2022
   https://www.nsf.gov/pubs/2022/nsf22595/nsf22595.htm

Announcing Previous Important Funding Opportunities

1. Office of Postsecondary Education (OPE): Fund for The Improvement of Postsecondary Education (FIPSE): Basic Needs for Postsecondary Students Program, Dept. of Education
   Deadline: October 03, 2022
   https://www.grants.gov/web/grants/view-opportunity.html?oppId=342792

2. Engineering Research Initiation (ERI), NSF
   Deadline: October 11, 2022
   https://www.nsf.gov/pubs/2022/nsf22595/nsf22595.htm

3. Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES), NSF
   Deadline: October 25, 2022
   https://www.nsf.gov/pubs/2022/nsf22622/nsf22622.htm

4. Astronomy and Astrophysics Research Grants (AAG), NSF
   Deadline Window Date: October 01, 2022 - November 15, 2022
   https://www.nsf.gov/pubs/2022/nsf22624/nsf22624.htm

5. Advancing Informal STEM Learning (AISL), NSF
   Deadline: January 11, 2023
   https://www.nsf.gov/pubs/2022/nsf22626/nsf22626.htm

6. Linguistics, NSF
   Deadline: January 15, 2023
   https://beta.nsf.gov/funding/opportunities/linguistics

7. Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS), NSF
   Deadline: January 26, 2023
   https://www.nsf.gov/pubs/2022/nsf22604/nsf22604.htm

8. Mid-Career Advancement (MCA), NSF

Deadline Window Date: February 01, 2023 - March 01, 2023
https://www.nsf.gov/pubs/2022/nsf22603/nsf22603.htm

9. NIAMS Clinical Trial Planning Grant (R34) - Clinical Trial Not Allowed, NIH
    Deadline: March 03, 2023
    https://grants.nih.gov/grants/guide/pa-files/PAR-22-205.html

10. NHPRC-Mellon Planning Grants for Collaborative Digital Editions in African American, Asian American, Hispanic
    American, and Native American History and Ethnic Studies, National Archives
    Deadline: June 7, 2023
    https://www.archives.gov/nhprc/announcement/digitaleditions

Forecasted Opportunities

1. **Programmatic Interventions to Increase Uptake of Influenza and COVID-19 Vaccination Among Students Attending Institutions of Higher Education, CDC**

    The purpose of this Notice of Funding Opportunity is to support research to investigate programmatic interventions to increase uptake of influenza and COVID-19 vaccination among students attending institutions of higher education (IHEs). The objectives include: 1) assessing knowledge and attitudes about influenza and COVID-19 vaccination coverage and mandates among undergraduate students; 2) identifying barriers and factors associated with likelihood of influenza and COVID-19 vaccine uptake; 3) designing, implementing, and assessing the effectiveness of one or more approaches to increase influenza and COVID-19 vaccination coverage among undergraduate students; and 4) performing a cost-assessment of the intervention(s). The study design will be a include a pre- and post-intervention survey, randomized controlled trial of one or more interventions informed by a pre-intervention survey, and a cost-analysis of each implement intervention.

    Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=343399

2. **Identifying and Addressing Historical and Structural Drivers of Medical Mistrust among Hispanic/Latino Gay, Bisexual and Other Men Who Have Sex with Men (HLMSM) for HIV Prevention, CDC**

    Medical mistrust (MM) is associated with HIV disparities among Hispanic/Latino (H/L) gay, bisexual, and other men who have sex with men (HLMSM) by preventing or delaying access to HIV services. Because its root causes in this priority group are unknown, understanding pathways that lead to MM would allow targeted interventions to address MM in this population. The purpose of this two-phase community-driven study is twofold: (1) to conduct formative research on MM drivers in HLMSM and identify existing interventions that build trust to improve access and utilization of HIV prevention and care services, and (2) to evaluate implementation of targeted multilevel interventions that build trust in health and HIV prevention services. This Notice of Funding Opportunity is intended to fund three US jurisdictions, preferably prioritized in the Ending the HIV Epidemic Initiative (Priority Jurisdictions: Phase I).

    Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=343404

3. **Enhancing Telehealth Strategies to Support Retention and Adherence to Antiretroviral Therapy (ART) or Pre-exposure Prophylaxis (PrEP) for HIV, CDC**

    The purpose of this Notice of Funding Opportunity (NOFO) is to support the evaluation of the effectiveness of an enhanced telehealth program to improve adherence to HIV prevention and treatment medication, while also exploring the "implementability" of its practice into routine care. Specifically, the awardee will, via a hybrid effectiveness-

implementation research design: 1) evaluate the effectiveness of an enhanced telehealth program for maintenance of HIV medication adherence among clinically stable people with HIV (PWH) and pre-exposure prophylaxis (PrEP) medication adherence for those at risk of HIV infection; and 2) identify potential implementation facilitators and challenges by evaluating the delivery of these strategies. Furthermore, the recipient will evaluate the cost and cost-effectiveness of providing telehealth to patients on antiretroviral therapy (ART) or PrEP, and evaluate program enhancements that will include, but may be not limited to, multi-month prescription refills, biospecimen sample self-collection, and the use of specialized staff such as community health workers and patient navigators. This enhanced telehealth program will focus on those disproportionately affected by HIV or at risk for HIV infection, including cis-gender Black or African American (hereafter referred to as Black) women with HIV, transgender women. and gay, bisexual and other men who have sex with men (hereafter referred to as MSM).

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=343629

4. **OMHHE Racial & Ethnic minority Acceleration Consortium for Health Equity (REACH), FDA**

This Funding Opportunity Announcement (FOA) is for FDA OMHHE's Racial & Ethnic minority Acceleration Consortium for Health equity (REACH) which solicits applications from diverse institutions, to participate in a consortia to strengthen and advance minority health and health equity. The consortium will consist of 5-8 multi-project cooperative agreement (U01) awardees that will strengthen and advance minority health and health equity regulatory needs by supporting communications, research, and collaborations on diseases and conditions that disproportionately impact racial and ethnic minority populations, as well as prepare for and proactively respond to existing/emerging threats that impact racial and ethnic minority and other underrepresented or undeserved communities.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=341833

5. **Advancing COVID health disparities focused research to strengthen and advance health equity, FDA**

The purpose of this funding opportunity announcement (FOA) is to fund COVID research that will strengthen and advance research in minority health and healthy equity, increase understanding of health disparities, and provide future direction for research that will contribute to regulatory decision making.

OMHHE is interested in research proposals that will contribute to advancing understanding of long COVID or post-COVID conditions for racial and ethnic minorities or contribute to informing the continued evaluation of the safety and efficacy of FDA approved products (therapeutics, diagnostics, and vaccines) for the treatment, prevention, or diagnosis of COVID-19. These research proposals should support evaluation of outcomes by demographic data including, but not limited to, ethnicity, race, age, disability and geography.

Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=341830

6. **Educational Funding Opportunity: Expanding education on skin lightening products, FDA**

The purpose of the funding opportunity is to expand and advance FDA's Office of Minority Health and Health Equity (OMHHE) work with stakeholders and partners for education, outreach, and public awareness activities on the use of and potential risks from skin lightening products (e.g., hydroquinone).

Applicants will propose innovative and community-based strategies and activities that have the potential to strengthen the science base for education and public health awareness on the use of and potential risks from skin lightening products.
Link to Additional Information: https://www.grants.gov/web/grants/view-opportunity.html?oppId=341831

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