Attachment 1:
RFA-RM-13-016 (Building Infrastructure Leading to Diversity (BUILD))

Department of Health and Human

Services Part 1. Overview

Information

Participating Organization(s)	National Institutes of Health (NIH)
Components of Participating Organizations	This Funding Opportunity Announcement (FOA) is developed as a Common Fund initiative (http://commonfund.nih.gov/) through the NIH Office of the Director, Office of Strategic Coordination (http://dpcpsi.nih.gov/osc/). The FOA will be administered by the National Institute on Minority Health and Health Disparities (NIMHD) on behalf of the NIH.
Funding Opportunity Title	**NIH Building Infrastructure Leading to Diversity (BUILD) Initiative (U54)**
Activity Code	U54 Specialized Center- Cooperative Agreements Successful applicants will receive support through the Linked Specialized Center Cooperative agreement mechanism that includes a primary UL1 (Linked Specialized Center Cooperative Agreement) award, a RL5 (Linked Education Project) award and a TL4 (Linked Undergraduate Institutional Training) award.
Announcement Type	New
Related Notices	January 10, 2014 - See Notice NOT-RM-14-003. Notice of Change in Application Due Date. January 3, 2014 - See Notice NOT-RM-14-002. Notice of Technical • Assistance Webinar.
Funding Opportunity Announcement (FOA) Number	**RFA-RM-13-016**
Companion Funding Opportunity	RFA-RM-13-015, U54 Specialized Center-Cooperative Agreements RFA-RM-13-017, U54 Specialized Center-Cooperative Agreements
Number of Applications	Only one application per institution is allowed, as defined in Section III. 3. Additional Information on Eligibility.
Catalog of Federal Domestic Assistance (CFDA) Number(s)	93.310
Funding Opportunity Purpose	The NIH encourages institutions that seek to engage undergraduate students in innovative mentored research training programs to submit applications for cooperative agreement awards through the NIH Building Infrastructure Leading to Diversity (BUILD) initiative, one of three new Common Fund initiatives that together aim to enhance diversity in the biomedical, behavioral, clinical, and social sciences research workforce. Addressing a major leakage point in the research workforce pipeline, BUILD awards are intended to support the design and implementation of innovative

programs, strategies and approaches to transform undergraduate research training and mentorship. BUILD awards will also support institutional and faculty development to further strengthen undergraduate research training environments.

Key Dates

Posted Date	December 19, 2013
Letter of Intent Due Date(s)	(Extended to **March 2, 2014** per NOT-RM-14-003), Originally February 18, 2014
Application Due Date(s)	(Extended to **April 2, 2014** per NOT-RM-14-003), Originally March 18, 2014
AIDS Application Due Date(s)	Not Applicable
Scientific Merit Review	June/July 2014
Advisory Council Review	August 2014
Earliest Start Date	September 2014
Expiration Date	(Extended to **April 3, 2014** per NOT-RM-14-003), Originally March 19, 2014
Due Dates for E.O. 12372	Not Applicable

Required Application Instructions

It is critical that applicants follow the instructions in the PHS 398 Application Guide except where instructed to do otherwise (in this FOA or in a Notice from the *NIH Guide for Grants and Contracts*). Conformance to all requirements (both in the Application Guide and the FOA) is required and strictly enforced. While some links are provided, applicants must read and follow all application instructions in the Application Guide as well as any program-specific instructions noted in Section IV. When the program-specific instructions deviate from those in the Application Guide, follow the program-specific instructions. **Applications that do not comply with these instructions may be delayed or not accepted for review.**

Note: A new version of the paper PHS 398 application form and instructions (revised 8/2012) must now be used. Download the new application form and instructions from **http://grants.nih.gov/grants /forms.htm**.

Table of Contents

Part 2. Full Text of Announcement

Section I. Funding Opportunity Description

Background

The NIH recognizes a unique and compelling need to promote diversity in the NIH-funded biomedical, behavioral, clinical, and social sciences (collectively termed "biomedical") research workforce. The NIH expects efforts that diversify the workforce to lead to the recruitment of the most talented researchers from all groups, improve the quality of the training environment, balance and broaden the perspective in setting research priorities, improve the ability to recruit subjects from diverse backgrounds into clinical research protocols, and improve the Nation's capacity to address and eliminate health disparities.

With this need in mind, the NIH Director requested input from the NIH Advisory Committee to the Director (ACD) regarding actions that the NIH should take to make transformative progress in this area. In 2012, the ACD Working Group on Diversity in the Biomedical Research Workforce explored ways to improve the recruitment of individuals from diverse backgrounds underrepresented in biomedical research and prepare them for successful biomedical research careers. (These individuals include persons from underrepresented racial and ethnic groups, people with disabilities, and people from disadvantaged backgrounds; see http://www.nsf.gov/statistics /showpub.cfm?TopID=2&SubID=27, and the latest NSF report on Women, Minorities, and Persons with Disabilities in Science and Engineering, http://www.nsf.gov/statistics/women/). The Working Group provided recommendations, endorsed by the ACD, about how to develop and support individuals from diverse backgrounds across the lifespan of a research career, from undergraduate study to acquisition of tenure in an academic position or the equivalent in a non-academic setting. In response to these recommendations, NIH has established the Common Fund Program "Enhancing the Diversity of the NIH-Funded Workforce" (see http://commonfund.nih.gov/diversity/).

This Common Fund program is envisioned as a national collaborative through which awardee institutions, in partnership with the NIH, will develop and implement novel and innovative programs to engage individuals from diverse backgrounds and help them prepare for and succeed in biomedical research careers. This program is being developed in the context of existing programs through which NIH and other entities have made significant investments to engage scientists using a variety of training and mentoring approaches. Although existing programs may show positive outcomes for trainees and participants, progress towards achieving a more diverse NIH-funded workforce is still insufficient.

This program provides an opportunity to understand and address multi-dimensional factors (e.g., at institutional, social, and individual levels) that may strongly influence student success, professional development, and persistence within biomedical research career paths. It will build upon and move beyond existing programs and paradigms to support transformative approaches to student engagement, research training, mentoring, faculty development, and infrastructure development. Transformative approaches are ultimately expected to supplant less-effective practices and methods to have a broad and sustained impact on the diversity of the NIH-funded biomedical research workforce.

> **Relevant questions for this funding opportunity include, but are not limited to:** What are the hallmarks of a successful biomedical research career at each phase of the training process? What motivates students to enter biomedical research career paths, and what factors contribute to their sustained participation? What factors (e.g., institutional, social, and individual) influence emerging scientists, particularly those from underrepresented backgrounds, to enter, exit, or sustain a biomedical research career, and how can these factors be addressed? What must happen during different training stages to ensure that trainees and participants, particularly those from underrepresented backgrounds, develop the skills, knowledge, and competencies essential to success in biomedical research careers and careers in the NIH-funded research workforce? How do institutional structures and resources facilitate successful research training and professional development activities? How can approaches be designed so that their impact continues beyond the period of NIH funding?

The program will consist of three highly integrated initiatives, in which awardees will work together as

the Diversity Program Consortium:

The Building Infrastructure Leading to Diversity (BUILD) Initiative:

Various approaches to increase undergraduate student persistence in the STEM-related fields have been implemented (Graham et al., *Science, 341*, 1455-1456). Student participation in research experiences has been associated with improved academic performance and sustained interest in research careers in the basic and biomedical sciences (for example, see Fechheimer et al., CBE--*Life Sciences Education, 10,* 156-163 and Russell et al., *Science, 316 (5824),* 548-549). BUILD awards should emphasize research opportunities for students in a multi-pronged approach to enhance diversity in the NIH research workforce. Institutions are encouraged to consider additional innovative methods to engage and prepare students for success. Flexibility to innovate is a hallmark of the BUILD initiative. Applicants are encouraged to think creatively about how to address identified needs at their institutions and develop visionary approaches that encompass institutional, social, and individual-level factors.

The National Research Mentoring Network (NRMN) Initiative:

Lack of adequate mentoring is consistently described as a problem for trainees from all backgrounds. The NRMN initiative will develop a highly networked set of motivated and skilled mentors from various disciplines linked to mentees across the country – both from BUILD institutions and elsewhere – for individuals from the undergraduate to early career faculty level. In addition to linking individuals to mentors, the NRMN will develop best practices for mentoring, provide training opportunities for mentors, and provide networking and professional opportunities for mentees. The NRMN is expected to contribute substantially to the attainment of hallmarks of successful research career progression for each career stage.

The Coordination and Evaluation Center (CEC):

The CEC will coordinate consortium-wide activities and evaluate BUILD and NRMN programs. The CEC will facilitate the development of consortium-wide hallmarks, including core competencies, of successful biomedical research career progression, and examination of the impact of BUILD and NRMN programs according to these hallmarks. These consortium-wide development activities will be established through consensus in Executive Steering Committee meetings facilitated by the CEC, (see Section VI for details about the Executive Steering Committee.) The CEC will coordinate the collection and reporting of data from BUILD and NRMN awardees. The CEC will also facilitate consortium-wide discussions of approaches, progress, and lessons learned, and will serve as the focal point for dissemination of information to the broader research training and mentoring communities.

The overarching goal of the Diversity Program Consortium is to enhance the diversity of well-trained biomedical research scientists who can successfully compete for NIH research funding and/or otherwise contribute to the NIH-funded workforce. **The BUILD and NRMN initiatives are not intended to support replication or expansion of existing programs at applicant institutions. For example, simply increasing the number of participants in current NIH-funded research training or mentoring programs would not be responsive to this funding announcement. Promising practices and principles derived from the literature or from pilot programs may be leveraged to inform applicants' approaches and/or expansion of existing efforts in novel ways.** These initiatives are intended to allow institutions to develop and pilot novel approaches to biomedical research training and mentoring and disseminate successful approaches.

Through this FOA, the BUILD initiative targets the loss of promising students, including the disproportionate loss of those from underrepresented backgrounds, that occurs in the scientific pipeline during undergraduate training and at the decision point to continue training at the graduate level.

Purpose/Objectives

The BUILD initiative's primary purpose is to provide opportunities and resources for eligible institutions to implement transformative, broad-based approaches to the training of students to undertake biomedical and behavioral research in matters relating to the cause, diagnosis, prevention, and treatment of diseases. Through the BUILD initiative, eligible institutions will design and implement new models of biomedical and behavioral research training for students that emphasize attainment of hallmarks of success. Participating institutions should collectively consider all of the factors that are likely to prepare students to be successful in the NIH-funded

workforce.

BUILD institutions should develop a variety of approaches to engage and train students and to examine the efficacy of those approaches. While completion of undergraduate and graduate science degrees are requisite milestones for career progression, other predictors of success in research careers should also be considered and addressed. BUILD applicants should consider the substantial literature that addresses these factors and design their approaches with these in mind. It is expected that BUILD resources will be used to devise strategies to address various challenges at the institutional, social, and individual levels. In addition, BUILD awards will support faculty and staff enrichment in novel ways to further enhance the research training environment.

BUILD awards are intended to stimulate creative new approaches for training undergraduate students with a broad range of biomedical and behavioral research interests. Accordingly, BUILD institutions are expected to cast a wide net for student participants and offer innovative research training and mentorship activities across a broad range of relevant disciplines. Applicant institutions may, at their discretion, partner with other institutions to broaden the potential pool of participating students and maximize opportunities for research training and faculty and staff development. The applicant (Primary) institution will have responsibility for the conduct and oversight of the award, along with the flexibility to determine the optimal configuration with its partners (if applicable) to have the maximum impact. Partnerships involving the Primary institution and one or more additional institutions among the types described below are encouraged, but not required.

- Primary Institutions - Baccalaureate degree-granting colleges and universities that receive less than $7.5M annually in NIH funding (total costs) through Research Project Grants and that have relatively high proportions of students from low-income backgrounds (see Eligibility Section for further details). These institutions typically emphasize undergraduate training and may be ideally poised to encourage students from disadvantaged backgrounds to enter research careers.
- Pipeline Partner – Two- or four-year undergraduate institutions with student populations that will enrich and expand the pool of students engaged in BUILD activities. Primary Institutions and Pipeline Partners are expected to co-develop and implement programs that enable students to master the coursework necessary to enter research careers, in addition to participating in research and mentoring activities. They are also expected to address institutional, social, and individual-level factors that may influence movement into research careers from Pipeline Partner Institutions.
- Research Partner - Research-intensive institutions with investigators who are committed and able to serve as effective mentors. Research Partners are intended to expand training, research and mentorship opportunities available to participating students, as well as engage faculty at Primary Institutions through collaborations and/or training opportunities. These partner institutions are expected to provide a scientifically rich environment, expanding the pool of potential faculty mentors to include additional actively funded investigators, and expanding the available curricula and hands-on research experiences. Partnerships may also enhance student interactions between partner institutions through joint courses, shared laboratory or field experiences, or other activities. In addition to academic research universities, partnerships with industry, NIH intramural research laboratories, or other research institutions may be established.
- Graduate/Medical Partner Institutions - Medical and graduate institutions that do not have undergraduate programs but do have research-active faculty and doctoral-level students engaged in research or planning a research career, and that receive less than $7.5M annually in NIH funding (total costs) through Research Project Grants. Primary Institutions and Graduate/Medical Partner Institutions will work collaboratively to provide programs for undergraduate and graduate students at the respective institutions. (See Eligibility Section for further details.)

The BUILD Primary Institution and its partners should draw from the relevant literature to collectively consider all the factors, including institutional, social, and individual, that are likely to influence a student's persistence in biomedical research career paths. BUILD awards will provide extensive flexibility to participating institutions to tailor approaches to their individual communities, building from existing strengths while enabling new approaches to be developed and assessed. It is expected that each BUILD award will be unique, reflecting unique student and faculty communities. Nevertheless, applicants should consider the following issues as all core activities are developed:

- Innovation: BUILD awards will enable institutions to try novel or promising approaches to enhance

student engagement and research training, and/or to adapt strategies that have been piloted on a small scale to implement institution-wide. Institutions should also explore innovative ways to enhance faculty development and strengthen institutional research training infrastructure and capacity. Innovation domains may include, but are not limited to, novel student engagement in the sciences and outreach strategies, curricula and faculty development, incorporation of lab and field work into the curriculum, scholarly activity in teaching and research training methodologies, mentoring, peer networking and support, social media campaigns, faculty-led research, collaboration rooms, and/or other activities that the institution considers fundamentally important for its ability to better prepare and support students for research careers. Although institutions have high levels of flexibility to innovate, leveraging approaches based on previous pilot activities or on successful approaches described in the literature are encouraged. Innovation in approach - and the potential that the approaches will achieve a transformative impact - will be key review criteria for each of the cores described below.

- Mentoring: Effective research mentoring is a critical component of successful career progression. Each BUILD award is expected to include activities that will enhance the mentoring that students receive within and among participating institutions. Institutions will have flexibility to design novel mentoring strategies with emphasis on innovation and promoting sustainable change at the institutional level. These strategies should focus on enhancing student persistence in biomedical research training pathways, and exposing and equipping students with the knowledge and skills needed to become successful researchers. Mentor/mentee interactions are essential for institutional change; therefore mentors must be adequately equipped to prepare students for success. BUILD awardees are also expected to collaborate with the NRMN to provide access to external mentors.
- Student financial support: BUILD awards will afford flexibility to structure and distribute student financial support for research training. Applicants are encouraged to consider how provision of tuition and paid research experiences may be used most effectively to engage students. The nature and duration of BUILD participant activities should be determined by the needs of individual participants. While the BUILD initiative specifically seeks to enhance diversity among scientists with doctoral training engaged in NIH-funded biomedical research, training activities for all aspects of the research enterprise are encouraged. (See http://commonfund.nih.gov/workforce/ for related discussion of training for multiple career options.) New models of training are expected to build from extant research demonstrating efficacy of proposed approaches, and to extend from such research, identifying new methods for engaging students, including those from underrepresented backgrounds.

Applications may propose an initial ramp-up period of up to 12 months during the first budget period to develop the organizational capacity and strategy deemed necessary to enable an effective transition from the institutions' current state to the transformative state. Activities during this initial phase could include, but are not limited to: increasing outreach to/recruitment of students; identifying gaps and opportunities for improving student outcomes above current baseline indicators; implementing innovative strategies through facilitated collaborations between senior administrators, faculty, outside experts, and community via focus groups and/or workshops; implementing plans for innovative curricula and laboratory training activities and putting them in place; and/or strengthening research training infrastructure.

Use of the ramp-up period is optional. Applicant institutions that consider themselves ready to immediately implement the novel strategies and approaches necessary for achieving BUILD objectives may propose to begin student engagement, research, mentoring, faculty development, and other proposed activities at the start of the project period.

Successful BUILD projects are expected to yield tangible advances in three key areas: institutional development, faculty development, and student development. Expected outcomes must be described in the application. Examples of advances in each area could include, but are not limited to:

1) Institutional Development

- Enhanced institutional capacity to engage students, particularly those who express an early interest in science but then exit the biomedical research training pathway, in biomedical research training and sustain their interest in research through innovations in course structure or curricula, student advising, group learning, and teaching methods.
  Enhanced institutional commitment and capacity to sustain transformative student research training and

mentorship activities beyond the grant funding period.
- Strengthened infrastructure for research training and mentoring at participating institutions.

2) Faculty Development

- Enhanced opportunities for faculty at participating institutions to incorporate more laboratory or field work activities into existing undergraduate courses, or develop new course offerings that emphasize original research.
- Enhanced opportunities for faculty to engage in biomedical research; this may include opportunities for sabbatical (or similar) research experiences, protected time to develop research projects or manuscripts for publication, and other research-related opportunities.
- Increased scholarly productivity as reflected in publications in peer-reviewed journals and presentations at national and/or international scientific conferences.
- Increased participation in mentoring activities and enhanced efficacy as mentors; this may include structured activities which engage experienced mentors to train the next generation of biomedical research mentors.

3) Student Development

- Enhanced pursuit of biomedical research-related undergraduate fields of study.
- Enhanced transition of undergraduate students to accredited doctoral training programs.
- Enhanced student perceptions and attitudes toward biomedical research careers and improved understanding of the requirements for success in those careers.
- Improved readiness for biomedical research careers as determined by measures of success that the Diversity Program Consortium will develop.
- Enhanced student engagement in research as reflected by authorship on peer-reviewed papers and presentations at scientific conferences.
- Enhanced student participation and competitiveness in applying for and receiving research fellowships, scholarships, or other awards.

BUILD awardees will be expected to collaborate with the CEC on an ongoing basis throughout the project period to assess the efficacy of approaches developed through the BUILD award. Specific approaches may need to be adapted following discussion with the Executive Steering Committee to enable evaluation. Required data may be modified based on early findings and recommendations of the Diversity Program Consortium that will guide activities across the BUILD, NRMN and CEC. In addition, the NIH may request information from CEC and other databases, PD(s)/PI(s) and BUILD participants. (See Section VI.3, Reporting).

Coordination among the CEC, BUILD, and NRMN programs for data collection and evaluation will be established after awards are made. Therefore, it is not necessary for a BUILD application to include collaborations with specific CEC or NRMN applicants.

Technical Assistance Webinars

Potential applicants are strongly encouraged to participate in one or more pre-application Technical Assistance webinars, which will provide an opportunity to clarify expectations for the FOA so applicant organizations can present their strongest case for support. The webinar is scheduled for January 2014. Additional information will be posted on the Common Fund website at http://commonfund.nih.gov/diversity/.

Section II. Award Information

Funding Instrument	Cooperative Agreement: A support mechanism used when there will be substantial Federal scientific or programmatic involvement. Substantial involvement means that, after award, NIH staff will assist, guide, coordinate, or participate in project activities.
Application Types Allowed	New The OER Glossary and the PHS 398 Application Guide provide details on these application types.

Funds Available and Anticipated Number of Awards	The NIH Common Fund intends to commit $30 million to fund approximately ten awards, contingent on the number of meritorious applications received and availability of funds.
Award Budget	Applications may request up to $3.0 million (total costs) in the first year. Applications may propose budget increases in year 2 through year 4 to support additional BUILD students, not to exceed $5.3 million (total costs) in any one year. Because the nature and scope of the proposed projects may vary among institutions, it is anticipated that the size of each award will also vary.
Award Project Period	The project period may not exceed 5 years.

NIH grants policies as described in the *NIH Grants Policy Statement* will apply to the applications submitted and awards made in response to this FOA.

Section III. Eligibility Information

1. Eligible Applicants

Eligible Organizations

Higher Education Institutions

- Public/State Controlled Institutions of Higher Education
- Private Institutions of Higher Education

The following types of Higher Education Institutions are always encouraged to apply for NIH support as Public or Private Institutions of Higher Education:

- Hispanic-serving Institutions
- Historically Black Colleges and Universities (HBCUs)
- Tribally Controlled Colleges and Universities (TCCUs)
- Alaska Native and Native Hawaiian Serving Institutions
- Asian American Native American Pacific Islander Serving Institutions (AANAPISIs)

Applicant Primary Institutions are limited to domestic baccalaureate-granting colleges/universities that receive less than $7.5 million (total costs) of NIH research project grant (RPG) funding annually and have an award-eligible pool of undergraduate students, at least 25% of whom are supported by Pell grants. These eligibility requirements are intended to target funds to relatively underresourced institutions with a demonstrated commitment to students from financially disadvantaged backgrounds. These requirements are based on the recognition that (1) many students from low-income backgrounds are also nationally underrepresented in biomedical research, and (2) institutional commitment to these students often comes at the expense of investments in research infrastructure.

For the purposes of determining eligibility as a Primary Institution, the annual level of NIH RPG funding received will be the average level calculated over the preceding three fiscal years (FY 2011, FY 2012 and FY 2013), excluding SBIR/STTR funding and RPGs received through the American Recovery and Reinvestment Act (ARRA) as reported on the NIH RePORT website under NIH Awards by Location & Organization (http://projectreporter.nih.gov/reporter.cfm). The percentage of undergraduates with Pell grants will be based on 2012 student financial aid data for the applicant institution, as reflected in the National Center for Education Statistics IPEDS Data Center website, http://nces.ed.gov/ipeds/datacenter/Default.aspx. See Section IV.2, Content and Form of Application Submission, for instructions on certification of eligibility.

Foreign Institutions

Non-domestic (non-U.S.) Entities (Foreign Institutions) **are not** eligible to apply.

Non-domestic (non-U.S.) components of U.S. Organizations **are not** eligible to apply.

Foreign components, as defined in the *NIH Grants Policy Statement*, **are** allowed.

For the purposes of this FOA, foreign component involvement is restricted to participation of students from the applicant institution in research training activities and/or research projects at foreign sites.

Required Registrations

Applicant Organizations

Applicant organizations must complete and maintain the following registrations as described in the PHS 398 Application Guide to be eligible to apply for or receive an award. All registrations must be completed prior to the application being submitted. Registration can take 6 weeks or more, so applicants should begin the registration process as soon as possible. The NIH Policy on Late Submission of Grant Applications states that failure to complete registrations in advance of a due date is not a valid reason for a late submission.

- Dun and Bradstreet Universal Numbering System (DUNS) - All registrations require that applicants be issued a DUNS number. After obtaining a DUNS number, applicants can begin both SAM and eRA Commons registrations. The same DUNS number must be used for all registrations, as well as on the grant application.
- System for Award Management (SAM) (formerly CCR) – Applicants must complete and maintain an active registration, **which requires renewal at least annually**. The renewal process may require as much time as the initial registration. SAM registration includes the assignment of a Commercial and Government Entity (CAGE) Code for domestic organizations which have not already been assigned a CAGE Code.
- NATO Commercial and Government Entity (NCAGE) Code – Foreign organizations must obtain an NCAGE code (in lieu of a CAGE code) in order to register in SAM.
- eRA Commons - Applicants must have an active DUNS number and SAM registration in order to complete the eRA Commons registration. Organizations can register with the eRA Commons as they are working through their SAM or Grants.gov registration. eRA Commons requires organizations to identify at least one Signing Official (SO) and at least one Program Director/Principal Investigator (PD/PI) account in order to submit an application.

Program Directors/Principal Investigators (PD(s)/PI(s))

All PD(s)/PI(s) must have an eRA Commons account and should work with their organizational officials to either create a new account or to affiliate an existing account with the applicant organization's eRA Commons account. If the PD/PI is also the organizational Signing Official, they must have two distinct eRA Commons accounts, one for each role. Obtaining an eRA Commons account can take up to 2 weeks.

Eligible Individuals (Program Director/Principal Investigator)

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

For institutions/organizations proposing multiple PDs/PIs, visit the Multiple Program Director/Principal Investigator Policy and submission details in the Senior/Key Person Profile (Expanded) Component of the PHS 398 Application Guide.

2. Cost Sharing

This FOA does not require cost sharing as defined in the *NIH Grants Policy Statement.*

3. Additional Information on Eligibility

Number of Applications

Only one application per institution, identified by a unique DUNS number, is allowed.

NIH will not accept any application that is essentially the same as one already reviewed within the past thirty-seven months (as described in the *NIH Grants Policy Statement*), except for submission:

- To an RFA of an application that was submitted previously as an investigator-initiated application but not paid;
- Of an investigator-initiated application that was originally submitted to an RFA but not paid; or
- Of an application with a changed grant activity code.

Student Trainees (TL4 linked training award)/Participants (RL5 Linked Education Project)

It is expected that eligibility for BUILD-supported activities will be open to all undergraduate students at participating institutions, and all graduate students at Graduate/Medical partner institutions. The applicant institution is responsible for selecting students who will receive BUILD financial support. Student trainees supported through a TL4 linked training award must be U.S. citizens or non-citizen nationals or permanent residents and must be enrolled full time in academic degree programs in biomedical science fields at the applicant institution. Student participants supported through a RL5 linked award must be U.S. citizens or non-citizen nationals or permanent residents and must be enrolled full time at the applicant institution or Pipeline Partner or Graduate/Medical Partner institutions (if applicable). A non-citizen national is a person who, although not a citizen of the United States, owes permanent allegiance to the U.S. This is generally a person born in a land that is not a state, but that is under U.S. sovereignty, jurisdiction, or administration, e.g., American Samoa. An individual lawfully admitted for permanent residence must possess a currently valid Permanent Resident Card (USCIS Form I-551) or other legal verification of such status prior to receiving financial benefit from or employment on the grant. Individuals on temporary visas, those seeking asylum, or refugees are not eligible for support from this program. A limited range of enrichment activities, including research training and participation in research projects, may be offered to high school seniors who are concurrently enrolled in college bridge programs for biomedical sciences at participating institutions, but such students are not eligible to receive financial support from BUILD awards.

Other Eligibility Information

Applicants are not required to be recipients of planning grants under RFA-RM-13-001, "Planning Grants for the Building Infrastructure Leading to Diversity (BUILD) Initiative."

Applicants for NRMN or CEC awards are eligible to apply to this FOA. However, the CEC awardee or its Partnering Institutions will not be eligible to receive a BUILD award.

Section IV. Application and Submission Information

1. Address to Request Application Package

Applicants are required to prepare applications according to the current PHS 398 application forms in accordance with the PHS 398 Application Guide.

2. Content and Form of Application Submission

It is critical that applicants follow the instructions in the PHS 398 Application Guide, except where instructed in this funding opportunity announcement to do otherwise. Conformance to the requirements in the Application Guide is required and strictly enforced. Applications that are out of compliance with these instructions may be delayed or not accepted for review.

Letter of Intent

Although a letter of intent is not required, is not binding, and does not enter into the review of a subsequent application, the information that it contains allows IC staff to estimate the potential review workload and plan the review.

By the date listed in <u>Part 1. Overview Information</u>, prospective applicants are asked to submit a letter of intent that includes the following information:

- Descriptive title of proposed activity
- Name(s), address(es), and telephone number(s) of the PD(s)/PI(s)
- Names of other key personnel
- Participating institution(s)
- Number and title of this funding opportunity

The letter of intent should be sent to:

Toya V. Randolph, PhD, MSPH
National Institute on Minority Health and Health Disparities
6707 Democracy Boulevard, Suite 800
Bethesda, MD 20892
Telephone: 301-402-1366
Email: <u>toya.randolph@nih.gov</u>

Application Submission

Applications must be prepared using the PHS 398 research grant application forms and instructions for preparing a research grant application. Submit a signed, typewritten original of the application, including the checklist, five signed photocopies and all copies of the Appendix files in one package to:

Center for Scientific Review
National Institutes of Health
6701 Rockledge Drive, Room 1040, MSC 7710
Bethesda, MD 20892-7710 (U.S. Postal Service Express or regular mail)
Bethesda, MD 20817 (for express/courier service; non-USPS service)

Page Limitations

All page limitations described in the PHS 398 Application Guide and the <u>Table of Page Limits</u> must be followed, in addition to the following page limitations to the Research Strategy section of each component of the application.

- Overall Component: 12 pages
- Administrative Core: 12 pages
- Institutional Development Core: 12 pages
- Student Training Core: 12 pages
- Research Enrichment Core: 12 pages

Instructions for the Submission of Multi-Component Applications

The following section supplements the instructions found in the PHS 398 Application Guide, and should be used for preparing a multi-component application.

The application must consist of the following components:

- Overall Component
- Administrative Core
- Institutional Development Core
- Student Training Core
- Research Enrichment Core

Awards issued through this FOA will divide the cores above into three linked awards: a UL1 Linked Specialized Center Cooperative Agreement award will support activities described through the Administrative and Institutional Development Cores; an RL5 Linked Education Project award will support activities described through the Research Enrichment Core; a TL4 Linked Training Award will support activities described through the Student Training Core.

RFA-RM-13-016: NIH Building Infrastructure Leading to Diversity (BUI...   http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-13-016.html

Overall Component

All instructions in the PHS398 Application Guide must be followed, with the following additional instructions, as noted.

Face Page (Overall)

All instructions in the PHS 398 Application Guide must be followed.

Description, Project/Performance Sites, Senior/Key Personnel, Other Significant Contributors, Human Embryonic Stem Cells (Overall)

All instructions in the PHS 398 Application Guide must be followed.

Table of Contents (Overall)

All instructions in the PHS 398 Application Guide must be followed.

Detailed Budget for Initial Budget Period (Overall)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions: The budget for the Overall Component is a compilation of the itemized budget information provided for the Administrative Core, Institutional Development Core, Student Training Core, and Research Enrichment Core components. Provide an itemized summary (roll-up) budget for the initial budget period for the entire project, representing summations of the itemized costs from the four Core components. Include and identify the total direct costs from the Student Training Core component's PHS 398 Training Budget form as a separate item in the Other Expenses category.

Budget for Entire Proposed Period of Support (Overall)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions: As above, provide a summary (roll-up) budget for the entire project, representing summations of the itemized costs from the four Core components. Include and identify total direct costs from the Student Training Core component's PHS 398 Training Budget Cumulative Budget form as a separate item in the Other Expenses category.

Biographical Sketch (Overall)

All instructions in the PHS 398 Application Guide must be followed.

Resources (Overall)

All instructions in the PHS 398 Application Guide must be followed.

Research Plan (Overall)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions:

Specific Aims: Describe the specific aims for the BUILD project as a whole. These should not be the same as the specific aims of the individual cores, but should be overarching and at a high level, and should include a vision for how the project will allow participating institutions to develop and implement innovative approaches to engage students, including those from underrepresented backgrounds, sustain their interest, and prepare them to pursue doctoral degrees leading to biomedical research careers.

Research Strategy: Describe factors that contribute to the exit of students from biomedical research training pathways and how the award will allow the institution and its partners to address these factors. Describe the expected impact that the award will have long term: how will the award transform - i.e., lead to

12 of 37   2/10/2014 2:00 PM

sustained changes in - the way that students are engaged, mentored, and trained?

Describe the institution's vision for reaching students that would otherwise be likely to exit the biomedical research training pathway and the vision for successful research career paths, predictors of success at multiple stages, and novel activities related to student, faculty, and infrastructure development that create an environment that facilitates achievement of student milestones. Describe potential measures for efficacy and impact of proposed approaches.

Describe how the proposed activities will enhance the Primary Institution's capacity for undergraduate research training, spur innovation, and position the participating institution(s) to achieve BUILD programmatic goals. Applications that propose an initial ramp up period (up to 12 months) to develop an organizational strategy and make necessary institutional infrastructure enhancements should provide a rationale and describe the activities to be conducted and expected outcomes. For example, activities may include but are not limited to: increasing outreach to/recruitment of students; identifying gaps and opportunities for improving student outcomes above current baseline indicators; implementing innovative strategies through facilitated collaborations between senior administrators, faculty, outside experts, community, and NIH program staff via focus groups and/or workshops; implementing plans for innovative curricula and laboratory training activities and putting them in place; and/or strengthening research training infrastructure. The intent of the ramp up period is to allow institutions to establish the groundwork necessary to successfully implement the programmatic activities specified in the application.

Identify proposed partners, if any, that have agreed to participate in the BUILD award. Provide the rationale for participation of all partner institutions. Each partner institution should contribute substantially to the goals of the program. Describe the leadership plan that will ensure effective communication and interaction between partner organizations. Describe how the partnership will operate, the role of faculty or staff from each partner organization, and the vision for student involvement from each.

Describe existing resources/grants/awards at the Primary and Partner institutions that aim to support the engagement of students, including those from underrepresented groups, in biomedical research training and sustain their interest in biomedical research. Describe activities to ensure that the BUILD award will leverage existing resources, including (if applicable) existing biomedical research workforce diversity programs at participating institutions, to have synergistic effects.

Describe past success of the Primary, and Graduate/Medical Partner Institution (if applicable), in engaging science students into research careers and preparing them to be successful in research. Describe student outcomes and compare to national statistics and reports on other student development programs, as available. Provide institutional baseline data for the last five years. Include the number of students enrolled at the institution, and undergraduate graduation data in BUILD-relevant sciences for all students and for students from underrepresented backgrounds. Describe the impact that the BUILD award is expected to have on the institution's ability to improve substantially its engagement of students in research career pathways.

Letters of Support: The application should include a detailed statement from the applicant institution's leadership describing institutional commitment to the transformative concepts proposed and to sustaining new models of student engagement and training if they are shown to be effective through BUILD. Institutional support for BUILD activities may include but is not limited to provision of adequate faculty release time, support staff, facilities, and educational resources that will contribute to the proposed activities; plans for using institutional resources to further enhance the training program (e.g., support for additional student positions) and/or the institution's ability to engage undergraduate students, including those from underrepresented backgrounds, in biomedical research. The statement should also address plans and prospects for long-term sustainability of institutional enhancements resulting from the BUILD project, including, if applicable, how the BUILD award may be leveraged by the institution to build a broader base of support.

Letters of collaboration must be provided by authorized officials from consortium partner institutions (if applicable) addressing their institutional commitment to the proposed project and BUILD program goals. As applicable, key faculty or senior investigators at partner organizations who will have substantial involvement in curriculum development, teaching, research training and mentoring, or other activities should submit

letters.

Certification of Eligibility: Applicant institutions are required to include a letter certifying institutional eligibility as Primary Institutions for the BUILD program. The certification letter must be on institutional letterhead and signed by the authorized institutional official.

Resource Sharing Plan: Individuals are required to comply with the instructions for the Resource Sharing Plans (Data Sharing Plan, Sharing Model Organisms, and Genome Wide Association Studies (GWAS)) as provided in the PHS 398 Application Guide.

Administrative Core

All instructions in the PHS398 Application Guide must be followed, with the following additional instructions, as noted.

Face Page (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed.

Description, Project/Performance Sites, Senior/Key Personnel, Other Significant Contributors, Human Embryonic Stem Cells (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed.

Table of Contents (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed.

Detailed Budget for Initial Budget Period (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed.

Budget for Entire Proposed Period of Support (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed. Funds may be used to support staff time, travel, face-to-face and virtual meeting costs, technical support or services, or related expenses required for infrastructure development, strategic planning, and program implementation. Funds for travel to the Annual Grantees Meeting, held in or near Bethesda, MD, should be included in the budget request. The first annual meeting will take place during October 2014.

Biographical Sketch (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed.

Resources (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed.

Research Plan (Administrative Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions:

Specific Aims: Describe the specific aims for the Administrative Core and how they relate to the

overall specific aims.

Research Strategy: Describe the BUILD project's organizational and governance structure and explain the roles and responsibilities of Administrative Core personnel. Describe the processes to be used to allocate and prioritize fiscal and other resources across the various components. Describe procedures for ensuring

timely and effective communication among project cores and across participating partner institutions, if applicable.

Describe the composition, roles, and responsibilities of any internal and external advisory committees or boards proposed to help manage and oversee BUILD activities, including the required Steering Committee. Describe the desired expertise of committee members, and how each committee will function in providing oversight of the development, implementation, and evaluation of proposed activities. Include frequency of meetings and other relevant information. Note that proposed external advisory committee members from outside the institution should not be named in the application.

Resource Sharing Plan: Individuals are required to comply with the instructions for the Resource Sharing Plans (Data Sharing Plan, Sharing Model Organisms, and Genome Wide Association Studies (GWAS)) as provided in the PHS 398 Application Guide.

Institutional Development Core

All instructions in the PHS398 Application Guide must be followed, with the following additional instructions, as noted.

Face Page (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed.

Description, Project/Performance Sites, Senior/Key Personnel, Other Significant Contributors, Human Embryonic Stem Cells (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed.

Table of Contents (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed.

Detailed Budget for Initial Budget Period (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed.

Budget for Entire Proposed Period of Support (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions: Funds may be used to support development or enhancement of research training infrastructure and research capacity, including but not limited to purchase of equipment to enhance research training; alteration and renovation of space used for research training; incorporation of research experiences into science curricula; faculty training in pedagogical skills development; and faculty sabbatical or workshop training to augment the research and teaching environments at Primary or Graduate/Medical partner institutions. Applications may request up to $500,000 for alteration and renovation of research training space, to be expended within the first two years of the project period. Support for equipment and alteration/renovation costs are limited to Primary, Pipeline, and Graduate/Medical partner institutions.

Biographical Sketch (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed.

Resources (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed.

Research Plan (Institutional Development Core)

All instructions in the PHS 398 Application Guide must be followed.

Specific Aims: Describe the specific aims for the Institutional Development Core and how they relate to the overall specific aims.

Research Strategy: Describe proposed approaches to conduct an assessment of capacity-building and infrastructure needs at the Primary Institution and partner institutions (if applicable) relating to potential advancements in undergraduate research training (e.g., administrative structure, key equipment or laboratory space for research training purposes, required renovations, and/or curriculum development). Describe how the proposed infrastructural improvements reflect and support innovative, potentially transformative, approaches.

Describe any proposed institutional changes intended to enhance the research training environment. Provide specific details about how such changes will be implemented and how they will benefit faculty mentors, research support staff, and students at participating institutions, and ultimately increase the likelihood of achieving expected outcomes. Describe activities that will be undertaken to ensure long-term sustainability of successful approaches to be developed. How will this award provide long-term benefit to the participating institutions beyond the period of Common Fund support?

Describe proposed approaches to conduct an assessment of faculty needs at the Primary Institution and Pipeline and/or Graduate/Medical Partner Institutions (if applicable) as they relate to the ability to engage students and prepare them for research careers, e.g., availability of faculty release time to support the development of novel curricula or other research training activities, local mentor capacity for junior faculty, mentor development, and support for sabbatical training to augment the research environment.

Describe potential strategies and novel approaches to enhance faculty development and mentoring capabilities, and explain how the proposed faculty development activities will enhance the ability of faculty to engage students and prepare them for research careers. Describe efforts that will be undertaken to enhance faculty participation in research at the Primary Institution, and Pipeline and/or Graduate/Medical Partner Institutions (if applicable), as reflected in publications in peer-reviewed journals and presentations at national and/or international scientific conferences. Describe the types of research projects faculty may undertake that are amenable to undergraduate student participation. Delineate specific activities to be supported by the BUILD award to facilitate this type of research experience and describe expected outcomes, both for the faculty and for the students.

Though not required, applicants may propose a pilot project program. A pilot project program may be used to directly support mentored research projects for students if the intent is to develop projects that are especially well suited for undergraduate research OR to provide seed funding to pilot or evaluate new research training strategies. Applicants may propose either or both (or neither) of these types of pilot project programs. If a pilot project program is proposed, describe the rationale for its inclusion, specifically, how it will enhance research training for participants; the qualifications of individuals identified to manage the program; its overall scope, types of projects to be supported, and expected impact on student outcomes and institutional research training capacity; expected number of projects and students to be supported each year; eligibility requirements; solicitation, submission, review, and selection criteria and processes; plans for providing appropriate mentorship; procedures for program oversight and evaluation; limits on dollars available and number of years of support per project. Do not include detailed descriptions of specific pilot projects.

Resource Sharing Plan: Individuals are required to comply with the instructions for the Resource Sharing Plans (Data Sharing Plan, Sharing Model Organisms, and Genome Wide Association Studies (GWAS)) as provided in the PHS 398 Application Guide.

Student Training Core

All instructions in the PHS398 Application Guide must be followed, with the following additional instructions, as noted.

Face Page (Student Training Core)

All instructions in the PHS 398 Application Guide must be followed.

Description, Project/Performance Sites, Senior/Key Personnel, Other Significant Contributors, Human Embryonic Stem Cells (Student Training Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional modifications: List all of the locations where training, program management, and the research training experiences described in the Research Training Program Plan will be performed. If a Project/Performance Site will be engaged in research involving human subjects, it is the responsibility of the applicant organization to assure that all Project/Performance Sites comply with the human subject protection regulations in 45 CFR part 46 and NIH policies for the protection of human subjects. For research involving live vertebrate animals, the applicant organization must supply information for all training sites where animals will be used by trainees (TL4). The applicant organization is responsible for assuring that all Project/Performance Sites have a current Animal Welfare Assurance and comply with the PHS Policy on Humane Care and Use of Laboratory Animals.

Table of Contents (Student Training Core)

All instructions in the PHS 398 Application Guide must be followed.

Detailed Budget for Initial Budget Period (Student Training Core)

Use the PHS 398 Training Budget forms for Ruth L. Kirschstein National Research Service Award (NRSA) institutional training grants. Download the PDF-fillable forms from the Common Fund Workforce Diversity program website (http://commonfund.nih.gov/pdf/PHS398_Training_Budget_V1.pdf). Instructions for completing the forms and budget justification are provided below.

BUILD Student Training Core linked awards (TL4) may be used to support stipends, tuition and fees for undergraduate student trainees, trainee travel, and training-related expenses. Financial support for postbaccalaureate predoctoral or postdoctoral NRSA trainees is not allowed under this component. Annual stipend levels for undergraduate students are the same as for MARC and COR awards (see NOT-OD-12-033). Additional information about stipend levels, tuition and fee levels, and training-related expenses can be found on the Ruth L. Kirschstein National Research Service Award (NRSA) web site and in the NIH Grants Policy Statement: Ruth L. Kirschstein National Research Service Awards.

Part A. Stipends, Tuition/Fees

Enter the number of trainees, total stipend amount and total tuition/fees for each trainee category as appropriate. If a category contains different stipend levels, e.g., for varying appointment periods, itemize in the appropriate blocks. Enter the total stipends for all categories. See NOT-OD-12-033 and NOT-OD-13-064 for current NIH policy regarding payment of tuition and fees. Tuition and fees may be requested only to the extent that the same resident or nonresident tuition and fees are charged to regular non-Federally supported students. Where applicable, trainees should be divided into non-degree-seeking and degree-seeking categories. Grantees should request full needs. The formula currently in effect will be applied by the NIH awarding component at the time an award is calculated. Note that health insurance is not included as part of this budget category (see Training Related Expenses below).

Part B. Other Direct Costs

Enter the total costs for Trainee Travel, Training Related Expenses, and Consortium Training Costs (if applicable). Trainee travel costs are limited to attendance at scientific meetings and workshops that the awardee institution determines to be necessary for the trainee's development and training experience. Enter "0" in the line for Total Direct Costs from R&R Budget Form; the SF424 R&R Budget Form is not applicable for the BUILD Student Training Core budget.

Training Related Expenses (TRE): Applications may request up to $25,200 per trainee annually. Enter the total TRE cost based on the number of trainees proposed. TRE may be used to defray training costs such as personnel costs (see below); equipment and research supplies for training experiences; trainee mentoring activities; faculty/staff travel directly related to the training program; student academic skills development activities (e.g., workshops in problem-solving, critical thinking, effective communication and time management); health insurance for trainees (self-only or family) to the extent that the same health insurance fees are charged to non-Federally-supported students at the applicant institution; and other program-related expenses. TRE expenses must be justified as specifically required by the proposed BUILD training program and must not duplicate items generally available at the applicant institution. Faculty salary support for the training program director(s) is limited to 3.0 calendar months per year. Support for administrative personnel (e.g., program administrator, program coordinator, program assistant) is limited to 6.0 calendar months per person per year.

Consortium Training Costs (if applicable): If training will occur at more than one institution, and any transfer of funds between institutions occurs, applications must include PHS 398 Training Budget forms for each consortium training site; add the direct costs from all consortium training sites and insert the total amount on the appropriate line for each budget period. The applicant institution is responsible and accountable for any arrangements, expenditures, and submission of all required forms when more than one institution is involved in the research training program.

Part C. Total Direct Costs Requested

The sum of Sections A + B will be calculated automatically in the PHS 398 Training Budget forms.

Part D. Indirect Costs

Facilities and Administrative (F&A) costs will be awarded at 8%, excluding tuition/fees, equipment, and consortium costs in excess of $25,000.

Indirect Cost Type: Enter "F&A"

Indirect Cost Rate (%): Enter "8"

Indirect Cost Base ($): Enter the sum of Stipends and Total Other Direct Costs requested. Indirect costs are not paid on Tuition/Fees, equipment, and consortium costs in excess of $25,000.

Funds Requested ($): Enter the product of Indirect Cost Rate multiplied by Indirect Cost Base.

Part E. Total Direct and Indirect Costs Requested (C+D)

The sum of Total Direct Costs Requested and Total Indirect Costs Requested will be calculated automatically in the PHS 398 Training Budget forms.

Part F. Budget Justification

Attach a detailed justification to the first budget period form, reflecting the entire project period. Explain in detail the composition of requested cost items as necessary. Itemize tuition and individual fees. If tuition varies (e.g., in-state, out-of-state, student status), identify these separately. State the purpose of any travel, giving the number of trips involved, the destinations, and the number of individuals for whom funds are requested. Note that PHS policy requires coach class air travel be used. Any foreign travel must be justified in detail, describing its importance to the training experience and considering the type of opportunities available for training, how those opportunities differ from and complement those offered by the grantee institution, and the relationship of the proposed off-site training experience to the career stage of the grantee.

Budget for Entire Proposed Period of Support (Student Training Core)

All values on the PHS 398 Training Budget, Cumulative Budget form are calculated automatically and represent summations of the amounts entered for each individual budget period. If an amount displayed on

this form appears to be incorrect, correct it by adjusting one or more values in the appropriate form(s) for individual budget period(s).

Applications may propose cost increases in year 2 through year 4 to support additional undergraduate trainees recruited each year. Total costs for the project, adjusted upward to reflect increased numbers of trainees (Student Training Core) and student participants (Research Enrichment Core), may not exceed $5.3 million in any one year.

Print all PHS 398 Training Budget Form pages, including the cumulative budget form page, and the detailed budget justification attachment, and submit them together under this core in the paper application.

Biographical Sketch (Student Training Core)

All instructions in the PHS 398 Application Guide must be followed.

Resources (Student Training Core)

All instructions in the PHS 398 Application Guide must be followed.

Research Plan (Student Training Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions:

Specific Aims: Describe the specific aims for the Student Training Core and how they relate to the overall specific aims.

Research Strategy: Describe current institutional capacity for undergraduate research training in relevant disciplines, including total undergraduate student enrollment, numbers of students in relevant degree programs at the Primary Institution (and Pipeline partner institutions if applicable), membership of participating departments/programs, and participating faculty members. Describe the planned strategy and administrative structure to be used to oversee and monitor the Student Training Core, along with the qualifications and administrative capabilities of key personnel identified to lead the training program.

Describe how the proposed activities for student development will enhance institutional capacity for undergraduate research training and expand the pool of students, including the targeted outreach to students from underrepresented backgrounds. Describe the total number of students currently enrolled in graduate and doctoral biomedical research degree programs, and how the proposed activities are expected to expand the pool of students entering biomedical research graduate level training. Describe the rationale for each activity and how, either individually or collectively, they represent a transformative, new approach to attract highly talented individuals into biomedical research careers who would otherwise be unlikely to pursue this career path. Provide a timeline for implementation of each activity and plans to assess the efficacy of each approach.

Training Program Faculty: Identify faculty who will be available to serve as research mentors, either during the academic year or during summer months, to provide guidance and expertise to BUILD students. The mentors should have strong records as researchers and experience mentoring undergraduates, including those from underrepresented backgrounds. For research training at partner institutions (where proposed), letters from potential training faculty that agree to mentor BUILD trainees should be included in the application, along with biographical sketches. Applications that propose classroom-centered research training activities should fully describe the learning objective(s), innovative attributes, participating faculty (including biographical sketches), training frequency, expected impact on student outcomes, and other relevant information.

Trainee Candidates: Describe in general terms the pool of potential candidates. Do not name prospective trainees. Describe plans to recruit candidates from current student populations and explain how these plans will foster the engagement of students in biomedical research, including those who would otherwise be likely to choose other career paths. Describe how these approaches will be implemented. Identify and provide a rationale for any novel selection factors or approaches designed to stimulate interest in scientific research

careers across a much broader range of the student population than is typically targeted by existing undergraduate research training programs (e.g., non-science majors, transfer students). Describe the evaluation criteria to be used in the selection of trainees, and how training plans will be tailored to the needs of prospective candidates.

Proposed Training: Provide an overview of the proposed training program, including near- and long-term objectives. Describe strategies to be used and activities to be undertaken to ensure that proposed objectives are met. Institutions with existing training programs must explain what distinguishes this program from the others, how the programs will synergize, and how the faculty, potential trainee pool, and resources are robust enough to support additional programs.

Describe plans to develop essential research skills, such as the ability to apply critical thinking to formulate and design ways to test hypotheses, identify potential problems and propose solutions or alternative approaches, and communicate research findings orally and in writing. Also include information about planned courses, curricula, seminars, workshops, or tutorials that will be incorporated into the training program and mentored research experiences. Describe how students will be made aware of NIH and other funding opportunities.

Applications that propose research experiences at partner institutions with active NIH institutional training grant (T32) programs should describe how the BUILD PD(s)/PI(s) will interact with the T32 PD(s)/PI(s) to promote awareness of graduate research training programs in the biomedical sciences and encourage BUILD students to apply for admission to research-oriented graduate degree programs. Most NIH Institutes and Centers support T32 predoctoral training programs in various research areas; to identify such programs, visit the NIH Research Portfolio Online Reporting Tools (RePORT) website.

Plan for Instruction in the Responsible Conduct of Research: Every BUILD trainee supported through the Student Training Core and every BUILD student participant supported through the Research Enrichment Core is strongly encouraged to receive instruction in the responsible conduct of research. All applications must include a plan to provide such instruction. The plan must address five components (format; subject matter; faculty participation; duration of instruction; and frequency of instruction) as detailed in NOT-OD-10-019. The background, rationale and more detail about instruction in the responsible conduct of research can be found in NOT-OD-10-019. Additional guidance on training in the responsible conduct of research can be found at http://www.nigms.nih.gov/Training/responsibleconduct.htm.

Applications lacking a plan for instruction for the Student Training Core in the responsible conduct of research may not be reviewed.

Research Enrichment Core

All instructions in the PHS398 Application Guide must be followed, with the following additional instructions, as noted.

Face Page (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed.

Description, Project/Performance Sites, Senior/Key Personnel, Other Significant Contributors, Human Embryonic Stem Cells (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional modifications: List all of the locations where the research experiences described in the proposed research enrichment program will be performed. If a Project/Performance Site will be engaged in research involving human subjects, it is the responsibility of the applicant organization to assure that all Project/Performance Sites comply with the human subject protection regulations in 45 CFR part 46 and NIH policies for the protection of human subjects. For research involving live vertebrate animals, the applicant organization must supply information for all sites where animals will be used by student participants. The applicant organization is responsible for assuring that all Project/Performance Sites have a current Animal Welfare

Assurance and comply with the PHS Policy on Humane Care and Use of Laboratory Animals.

Table of Contents (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed.

Detailed Budget for Initial Budget Period (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions: Faculty support may include salary offset for faculty who spend substantial effort in the development and use of novel curricula or mentoring activities; equipment and supplies for key training faculty to enable or enhance mentored research experiences for students; faculty training in pedagogical skills development; release time to conduct grant writing workshops or other activities to enhance student awareness and competitiveness for extramural research fellowships and grant funding; and resources for highly effective mentors to train new mentors.

Participant Costs: Participants are those students who benefit from the proposed activities and experiences involved in the research enrichment program. Participant costs may be paid if specifically required for the proposed research enrichment program and sufficiently justified. Participant costs must be itemized in the proposed Research Enrichment Core budget. Allowable participant costs depend on the educational level/career status of the individuals to be selected to participate. The salary and fringe benefits for an undergraduate participant should be consistent with the institutional salary policies for employees in similar positions.

Individuals supported by NIH training and career development mechanisms (K, T, or F awards) may receive educational experiences supported by a BUILD award, as participants, but may not receive salary or stipend supplementation from BUILD Research Enrichment Core funds.

Because the BUILD Research Enrichment component is not intended as a substitute for an NRSA institutional training program, costs to support full-time participants (supported for 40 hours/week for a continuous, 12-month period) are not allowable under the Research Enrichment Core.

Budget for Entire Proposed Period of Support (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions: Applications may propose budget increases in year 2 through year 4 to support additional cohorts of BUILD participants recruited each year. Total costs adjusted upward to reflect increased numbers of participants supported through the Research Enrichment Core and Student Training Core in years 2 through 4 may not exceed $5.3 million in any one year.

Biographical Sketch (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed.

Resources (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed. Describe the institutional environment, facilities, and training resources that will contribute to the planned Research Enrichment Core.

Research Plan (Research Enrichment Core)

All instructions in the PHS 398 Application Guide must be followed, with the following additional instructions:

Specific Aims: Describe the specific aims for the Research Enrichment Core and how they relate to the overall specific aims.

Research Strategy: Innovative approaches to engage students in research, to sustain their interests, and to prepare them for research careers are intended to be a key outcome of this program. Provide a summary of the research enrichment program to be developed, including its objectives, types of research activities to be employed, and mentoring resources. Describe approaches that will be developed to identify and engage talented students, including those who would otherwise be unlikely to pursue biomedical research careers. Provide the rationale for these approaches and the impact that each is intended to have.

Describe the academic enrichment students will receive to enable them to be competitive for entrance into science Ph.D. programs at accredited graduate institutions. This should include a contemporary science curriculum rich in quantitative and/or qualitative, and cross-disciplinary skills, but may also include coursework designed to foster innovation and other attributes of successful research scientists. Describe novel curricula, field programs, or other activities to be developed, and the participants that they are intended to reach.

Describe postbaccalaureate research experiences that may be provided, if applicable. Explain how such experiences will enhance and/or sustain interest in biomedical research careers, and how they will prepare participants to successfully compete for admission to graduate-level research training programs. Describe how participants will be selected and the research and mentoring options that will be available to them. Describe specific goals for the postbaccalaureate training period and how progress toward these goals will be assessed.

Research Enrichment Core activities should also provide participants with professional skills development opportunities and career guidance, including instruction and training in grant writing in order to successfully apply for pre-doctoral and postdoctoral fellowships, career development awards, and independent research grant support. Describe how participants will be made aware of NIH and other funding opportunities. Provide programmatic detail on the specific activities proposed (e.g., courses, curricula, seminars, workshops).

Describe how the proposed enrichment activities to be developed are distinct from current activities at the applicant and partner institutions. Describe how each partner institution will participate in proposed activities and how faculty and student participants at partner institutions will interact. Describe the synergistic impact that partnerships are expected to provide to the Research Enrichment component.

Describe arrangements for core administration and provide evidence that the Core Director is actively engaged in research and/or teaching in an area related to the mission of NIH, and can organize, administer, monitor, and evaluate the proposed research enrichment activities. Also provide evidence of institutional and community commitment to, and support for, the proposed activities.

Describe the characteristics and responsibilities of the participating faculty; provide evidence that the participating faculty and preceptors are actively engaged in research or other scholarly activities related to the mission of NIH. Provide evidence that faculty at participating institutions are committed to the development and use of the innovative curricula, field exercises, or other activities to be developed. Faculty training in pedagogical skills and modern teaching modalities that confer improved learning outcomes is encouraged to enhance the academic learning environment at the institution. BUILD awards can provide support for faculty to attend workshops, seminars, and other professional development activities to acquire the knowledge and skills necessary for improved pedagogy as well-justified in the budget.

Describe a mentoring plan with specific goals. The plan should include how faculty will be selected to serve as mentors and any training activities designed to enhance the cultural competence of faculty to provide mentorship to mentees from diverse backgrounds. In addition, the plan should describe how identified standards of effective mentoring will guide development and content of mentoring opportunities, and describe how mentor training will be tailored for undergraduate mentees.

Describe strategies and plans for recruiting, selecting, and assigning participants to research activities. Describe the anticipated duration of research experiences, the months in which they will occur, and the allocation of each participant's time to be spent in various activities. All BUILD awards are expected to include a mentored summer research program under this Core. Provide details about the pool of expected participants, including the number of students potentially engaged, their qualifications, etc. Do not name prospective participants.

Applications may propose outreach activities to raise awareness of the BUILD initiative and stimulate interest in the biomedical sciences among high school students in surrounding communities. Further, a limited range of enrichment activities, including mentored research experiences, may be offered to high school seniors who are concurrently enrolled in college bridge programs in relevant sciences at participating institutions (note: BUILD awardees will be expected to provide documentation certifying enrollment in a college bridge program). If such activities are proposed, describe the target population, the specific activities to be conducted, key personnel, and anticipated benefits to participants and to the BUILD project as a whole.

While the proposed program may complement ongoing research training programs at participating institutions, the proposed enrichment activities must be distinct from those currently supported by NIH or other federal programs. The applicant organization should clearly describe the distinction between the intended participants in the proposed research enrichment program and research training supported by other programs. Adaptations of components of existing research enrichment programs may be considered, but the application should clearly describe the innovative and distinct nature of the proposed activities, e.g., the addition of unique components and/or a proposal to determine portability of an existing methodology

Though not required, applicants may propose a pilot project program. A pilot project program may be used to directly support mentored research projects for students OR to provide seed funding to pilot or evaluate new research training strategies. Applicants may propose either or both (or neither) of these types of pilot project programs. If a pilot project program is proposed, describe the rationale for its inclusion, specifically, how it will enhance research training for participants; the qualifications of individuals identified to manage the program; its overall scope, types of projects to be supported, and expected impact on student outcomes and institutional research training capacity; expected number of projects and students to be supported each year; eligibility requirements; solicitation, submission, review, and selection criteria and processes; plans for providing appropriate mentorship; procedures for program oversight and evaluation; limits on dollars available and number of years of support per project. Do not include detailed descriptions of specific pilot projects.

Plan for Instruction in the Responsible Conduct of Research: Every BUILD trainee supported through the Student Training Core and every BUILD student participant supported through the Research Enrichment Core is strongly encouraged to receive instruction in the responsible conduct of research. All applications must include a plan to provide such instruction. The plan must address five components (format; subject matter; faculty participation; duration of instruction; and frequency of instruction) as detailed in NOT-OD-10-019. The background, rationale and more detail about instruction in the responsible conduct of research can be found in NOT-OD-10-019. Additional guidance on training in the responsible conduct of research can be found at http://www.nigms.nih.gov/Training/responsibleconduct.htm.

Applications lacking a plan for instruction for the Research Enrichment Core in the responsible conduct of research may not be reviewed.

Resource Sharing Plan: Individuals are required to comply with the instructions for the Resource Sharing Plans (Data Sharing Plan, Sharing Model Organisms, and Genome Wide Association Studies (GWAS)) as provided in the PHS 398 Application Guide.

Appendix for the Entire Application

Do not use the Appendix to circumvent page limits. Follow all instructions for the Appendix (please note all format requirements) as described in the PHS 398 Application Guide.

3. Submission Dates and Times

Part I. Overview Information contains information about Key Dates.

Information on the process of receipt and determining if your application is considered "on-time" is described in detail in the PHS 398 Application Guide.

Applicants may track the status of the application in the eRA Commons, NIH's electronic system for grants administration.

4. Intergovernmental Review (E.O. 12372)

This initiative is not subject to intergovernmental review.

5. Funding Restrictions

All NIH awards are subject to the terms and conditions, cost principles, and other considerations described in the *NIH Grants Policy Statement*.

Pre-award costs are allowable only as described in the *NIH Grants Policy Statement*.

Awards issued through this FOA will divide the cores above into three linked awards: a UL1 Linked Specialized Center Cooperative Agreement award will support activities described through the Administrative and Institutional Development Cores; an RL5 Linked Education Project award will support activities described through the Research Enrichment Core; a TL4 Linked Training Award will support activities described through the Student Training Core. The costs associated with each component will be allowable only to the corresponding linked award.

6. Other Submission Requirements and Information

Applications must be postmarked on or before the due dates in Part I. Overview Information.

Upon receipt, applications will be evaluated for completeness by the Center for Scientific Review and responsiveness by components of participating organizations, NIH. Applications that are incomplete and/or nonresponsive will not be reviewed.

Responsiveness Criteria

BUILD awards are intended to support novel approaches for enhancing undergraduate research training, and mentorship across a range of scientific disciplines. Applications that focus exclusively on a particular scientific discipline, research topic area, or that restrict eligibility for participation to a particular demographic group are not responsive to this FOA. However, institutions are encouraged to conduct targeted outreach activities to raise awareness among students from underrepresented backgrounds about opportunities afforded by the BUILD project.

Similarly, the BUILD is intended to provide training, mentorship and other opportunities relevant to the pursuit of a biomedical research career. Applications that focus on general science, technology, engineering, and mathematics (STEM) education, or on the preparation of individuals exclusively for clinical, teaching, or other non-research careers, are not responsive to this FOA.

Post Submission Materials

Applicants are required to follow the instructions for post-submission materials, as described in NOT-OD-13-030.

Section V. Application Review Information

1. Criteria

Only the review criteria described below will be considered in the review process. As part of the NIH mission, all applications submitted to the NIH in support of biomedical research are evaluated for scientific and technical merit through the NIH peer review system.

Overall Impact - Overall

Reviewers will provide an overall impact score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following review criteria

and additional review criteria (as applicable for the project proposed).

Scored Review Criteria - Overall

Reviewers will consider each of the review criteria below in the determination of scientific merit, and give a separate score for each. An application does not need to be strong in all categories to be judged likely to have major scientific impact. For example, a project that by its nature is not innovative may be essential to advance a field.

Significance

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

In addition, specific for this FOA: Is the project likely to substantially enhance the engagement of undergraduate students, including those from underrepresented backgrounds, in biomedical research training, sustain their interest, and prepare them to successfully pursue research careers? Will students be reached who would otherwise be unlikely to pursue biomedical research as a career choice? If the objectives of this award are met, will the awardee institution be positioned to sustain its success? Do the activities suggest that the program to be developed will not merely expand existing programs, but instead will build from and synergize with existing training programs and resources at participating institutions? Are ongoing activities taken into account such that the program to be developed will allow the Primary Institution and its partners to engage and serve many more students than are currently served and/or to dramatically improve the research training to be provided? Are specific metrics included that document the numbers of students entering biomedical research careers from the applicant institution and its partners, if any? Are plans clearly described to improve above the stated baseline of students entering graduate level biomedical research programs?

Investigator(s)

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

In addition, specific for this FOA: Do the investigators show evidence of the ability to lead institutional transformation, develop, and direct a program focused on biomedical research, research training and mentorship, including for undergraduate students from diverse backgrounds? Are the key personnel committed to research training for students from underrepresented backgrounds, and is there evidence of past success in motivating such students to pursue research careers and preparing them to be successful? Are activities planned to ensure active engagement of faculty from all partner institutions?

Innovation

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

In addition, specific for this FOA: Are the approaches to be used innovative in the ways in which students from diverse backgrounds are engaged and trained? Are factors that contribute to student exit from biomedical research training considered and are innovative strategies to address these factors included? Are novel and creative approaches to research training and/or mentoring clearly described and likely to

substantially increase student participation in research, including students from underrepresented backgrounds? If the proposed model is already in existence, is it being adapted or applied in innovative ways to engage and train students from diverse backgrounds? Have the PD(s)/PI(s) developed innovative ways to engage faculty in research mentoring and teaching across Partnering Institutions?

Approach

Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed?

If the project involves human subjects and/or NIH-defined clinical research, are the plans to address 1) the protection of human subjects from research risks, and 2) inclusion (or exclusion) of individuals on the basis of sex/gender, race, and ethnicity, as well as the inclusion or exclusion of children, justified in terms of the scientific goals and research strategy proposed?

In addition, specific for this FOA: Is the overarching vision for development of transformative approaches to biomedical research training compelling, and are the activities well suited to address this vision? Is there a plan to make students aware of NIH and other funding opportunities? Do the approaches provide a comprehensive strategy to address factors that lead students to exit the biomedical research career pathway? Are the approaches likely to encourage experiences that may lead students to select and enter biomedical research careers? Will the proposed approaches enrich the biomedical research training environment at participating institutions? Is each of the approaches to be utilized well justified and will each contribute substantially to the overarching vision established by the PD(s)/PI(s) and collaborators? Are the proposed activities distinct from ongoing research training activities, such that synergies will result if the new activities are conducted?

Is an appropriate rationale for the selection and inclusion of partner organizations provided? Will each of the partner organizations make substantial and meaningful contributions to the goals of the project?

Environment

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

In addition, specific for this FOA: Are the combined environments of all partner institutions likely to foster effective collaborations for teaching and mentoring diverse students in coursework and in research? Are partnerships envisioned that will provide robust research experiences for undergraduate students? Will the partnerships provide a robust mentoring pool for students to integrate with and form long-lasting mentor/mentee relationships to help shape their future careers?

Additional Review Criteria

As applicable for the project proposed, reviewers will evaluate the following additional items while determining scientific and technical merit, and in providing an overall impact score, but will not give separate scores for these items.

Overall Component

- Does the application articulate a compelling and well-grounded vision for successful research career paths and predictors of success at multiple stages?
- Are the activities related to student, faculty, and infrastructure development novel, well integrated, and likely to create an environment that fosters achievement of proposed milestones, leading to overall gains in student outcomes above institutional baseline indicators?
- Does the application describe how the proposed activities will enhance the Primary Institution's capacity

for undergraduate research training, spur innovation, and position the participating institution(s) to achieve BUILD programmatic goals?

- If the application proposes to use up to 12 months post-award to develop an organizational strategy and make necessary institutional infrastructure enhancements, does it provide a rationale for taking a phased approach and clearly describe the proposed activities and expected outcomes?
- Have existing resources/grants/awards at the Primary and Partner institutions been appropriately leveraged to help achieve the stated aims?
- If Partner Institutions are proposed, are their roles clearly described and justified?
- Do the letters of support from authorized institutional officials and key personnel at the Primary and Partner Institutions (if applicable) demonstrate strong support for the proposed activities and include tangible examples of institutional commitment that engender confidence in the likelihood of success?
- Are there specific project milestones that are directly related to achieving the programmatic goals, and is the proposed timeline feasible and realistic?

Administrative Core

- Is the organizational and governance structure likely to support timely execution of the project and attainment of proposed priorities and objectives?
- Are the roles and responsibilities of Administrative Core personnel clearly delineated?
- Are proposed processes to allocate and prioritize fiscal and other resources clearly described and well justified?
- Is a plan provided to ensure timely and effective communication across project cores and the Diversity Program Consortium as a whole?
- Does the proposed management plan clearly describe the composition and roles of any proposed advisory committees or boards and engender confidence that advisers will be effectively utilized?
- Is the infrastructure to support data collection to evaluate the impact and effectiveness of the proposed program described, and are proposed plans for evaluation likely to enable meaningful comparisons with institutional baseline data and outcomes from other training programs locally or at the national level?
- Are there personnel with appropriate expertise to collaborate with the CEC to develop data collection and analysis protocols for the evaluation of the BUILD?

Institutional Development Core

- Is the need for institutional development adequately described and justified in the context of enhancing undergraduate research training?
- Are specific details about planned infrastructural enhancements likely to yield transformative long-term changes at the institutional level in student research training and mentorship environments?
- Does the application include a plan for assessing faculty needs as they relate to preparing students for research careers?
- Are proposed plans for assessing faculty needs as they relate to preparing students for research careers well thought out and likely to inform strategies for enhancing the institutional training environment?
- Are plans for sustainability beyond the period of Common Fund support addressed?
- Does the application reflect an environment supportive of the innovation space needed to develop and test novel ideas?
- Is it clear how the proposed institutional development activities will benefit the faculty and students participating in BUILD?

Student Training Core

Training Program and Environment

- Are the research facilities and research environment conducive to preparing trainees for successful careers as biomedical research scientists?
  Are the objectives, design and direction of the proposed research training program likely to ensure effective training?
  Are training opportunities appropriately tailored for undergraduate trainees?
  Do the courses, where relevant, and research experiences provide opportunities for trainees to acquire

state-of-the-art scientific knowledge, methods, and tools that are relevant to the goals of the training program?
- Does the program provide appropriate inter- or multidisciplinary research training opportunities?
- Is the proposed training program likely to ensure trainees will be well prepared for research-intensive and research-related careers?
- Is the level of institutional commitment to the training program, including administrative and research training support, sufficient to ensure the success of the program?
- Is it clear how the proposed training program is distinguished from other externally funded training programs at the institution?
- Are the proposed trainee development activities likely to enhance institutional capacity for undergraduate research training and expand the pool of students that enters graduate level research training, including those from underrepresented backgrounds?
- Are the proposed trainee activities transformative, feasible, and measureable?
- Are proposed strategies to improve student academic learning communities and curriculum development well reasoned and justified?
- Are the proposed training activities likely to enable trainees to thrive as they move through each step of the biomedical research career pathway?

Program Director

- Does the training program director have the scientific background, expertise, and experience to provide strong leadership, direction, management, and administration of the proposed academic and research training program?
- Does the program director plan to commit sufficient time to the program to ensure its success?
- If there are multiple program directors, is a strong and compelling leadership approach evident, including the designated roles and responsibilities, governance, and organizational structure consistent with and justified by the aims of the training program and with the complementary expertise of each program director?

Preceptors/Mentors

- Are sufficient numbers of experienced preceptors/mentors with appropriate expertise and funding available to support the number and level of trainees proposed in the application?
- Do the preceptors/mentors have strong records as researchers, including successful competition for research support in areas directly related to the proposed research training program? Do the preceptors/mentors have strong records of training undergraduate students?
- Are appropriate plans in place to ensure that preceptors lacking sufficient research training experience are likely to provide strong and successful mentoring?
- Are trainees broadly distributed among research faculty?

Trainees

- Are the selection processes and criteria for BUILD trainees clearly stated, and likely to engage a broad range of students at participating institutions?
- Is the description of the issues facing trainees as they consider biomedical research careers through their undergraduate and postbaccalaureate years well reasoned, and are the approaches to be undertaken likely to address these factors? Is this likely to enhance the ability of the institution and its partners to engage a diverse group of students in biomedical research training pathways?
- Is the potential applicant pool of sufficient size to warrant the proposed size of the training program?

Training Record

- Does the proposed training program have a rigorous evaluation plan to assess the quality and effectiveness of the training?
- Are effective mechanisms in place for obtaining feedback from trainees and monitoring their subsequent career development?
- Does the applicant institution (and partner institutions, if applicable) have a strong track record in providing research training to undergraduate students and sending students on to research-oriented

doctoral degree programs in the biomedical sciences?

Research Enrichment Core

- Are planned research enrichment, and mentoring activities clearly described and likely to be successful?
- Is the description of the issues facing participants as they consider biomedical research careers through their undergraduate and postbaccalaureate years well-reasoned, and are the approaches to be undertaken likely to address these factors? Is this likely to enhance the ability of the institution and its partners to engage a diverse group of students in biomedical research training activities?
- If applicable, are the selection processes and criteria for BUILD postbaccalaureate participants clearly stated, and likely to engage a broad range of students at participating institutions?
- Is the Core leadership actively engaged in research or teaching activities related to the mission of NIH?
- Do plans for engaging students, including those from underrepresented backgrounds, and sustaining their interest in research engender confidence that the program is likely to be successful?
- Will proposed enrichment activities likely result in decisions by participants to enter graduate level training, and enable these individuals to be successful in future biomedical research career phases?
- Are faculty development activities tailored to the needs and interests of the faculty at the Primary and Participating Institutions?
- Will the approaches be likely to enrich and strengthen faculty credentials as biomedical research mentors?
- Is the selection process for identifying faculty mentors clearly stated?
- Are proposed training strategies likely to strengthen the cultural competency of mentors across Participating Institutions?
- Is it clear how identified mentorship standards will guide the development of BUILD participants?
- Are plans to promote faculty interactions between Partnering Institutions robust, and will they contribute to stronger mentoring of students, including those from underrepresented backgrounds, at all institutions?
- If outreach activities are proposed, are specific populations, key personnel and activities appropriate for the proposed activities?
- If the Primary or Partner Institutions have current training awards, does the application clearly distinguish between the proposed research training program and the training activities supported by other programs?

Protections for Human Subjects

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

For research that involves human subjects and meets the criteria for one or more of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: 1) the justification for the exemption, 2) human subjects involvement and characteristics, and 3) sources of materials. For additional information on review of the Human Subjects section, please refer to the Guidelines for the Review of Human Subjects.

Inclusion of Women, Minorities, and Children

When the proposed project involves human subjects and/or NIH-defined clinical research, the committee will evaluate the proposed plans for the inclusion (or exclusion) of individuals on the basis of sex/gender, race, and ethnicity, as well as the inclusion (or exclusion) of children to determine if it is justified in terms of the scientific goals and research strategy proposed. For additional information on review of the Inclusion section, please refer to the Guidelines for the Review of Inclusion in Clinical Research.

Vertebrate Animals

The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment

according to the following five points: 1) proposed use of the animals, and species, strains, ages, sex, and numbers to be used; 2) justifications for the use of animals and for the appropriateness of the species and numbers proposed; 3) adequacy of veterinary care; 4) procedures for limiting discomfort, distress, pain and injury to that which is unavoidable in the conduct of scientifically sound research including the use of analgesic, anesthetic, and tranquilizing drugs and/or comfortable restraining devices; and 5) methods of euthanasia and reason for selection if not consistent with the AVMA Guidelines on Euthanasia. For additional information on review of the Vertebrate Animals section, please refer to the Worksheet for Review of the Vertebrate Animal Section.

Biohazards

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

Resubmissions

Not Applicable

Renewals

Not Applicable

Revisions

Not Applicable

Additional Review Considerations - Overall

As applicable for the project proposed, reviewers will consider each of the following items, but will not give scores for these items, and should not consider them in providing an overall impact score.

Training in the Responsible Conduct of Research

All applications for support under this FOA must include a plan to fulfill NIH requirements for instruction in the Responsible Conduct of Research (RCR). Taking into account the specific characteristics of the training program, the level of trainee experience, and the particular circumstances of the trainees, the reviewers will evaluate the adequacy of the proposed RCR training in relation to the following five required components: 1) *Format -* Does the plan satisfactorily address the format of instruction, e.g. lectures, coursework and/or real-time discussion groups, including face-to-face interaction? (*A plan involving only on-line instruction is not acceptable.*); 2) *Subject Matter* – Does the plan include a sufficiently broad selection of subject matter, such as conflict of interest, authorship, data management, human subjects and animal use, laboratory safety, research misconduct, research ethics? 3) *Faculty Participation -* Does the plan adequately describe how faculty will participate in the instruction? 4) *Duration of Instruction -* Does the plan meet the minimum requirements for RCR, i.e., at least eight contact hours of instruction? 5) *Frequency of Instruction* – Does the plan meet the minimum requirements for RCR, i.e., at least once during each career stage (undergraduate, postbaccalaureate, predoctoral, postdoctoral, and faculty levels) and at a frequency of no less than once every four years? Plans will be rated as **ACCEPTABLE** or **UNACCEPTABLE**, and the summary statement will provide the consensus of the review committee.

Applications from Foreign Organizations

Not Applicable

Select Agent Research

Reviewers will assess the information provided in this section of the application, including 1) the Select Agent(s) to be used in the proposed research, 2) the registration status of all entities where Select Agent(s) will be used, 3) the procedures that will be used to monitor possession use and transfer of Select Agent(s),

and 4) plans for appropriate biosafety, biocontainment, and security of the Select Agent(s).

Resource Sharing Plans

Reviewers will comment on whether the following Resource Sharing Plans, or the rationale for not sharing the following types of resources, are reasonable: 1) Data Sharing Plan; 2) Sharing Model Organisms; and 3) Genome Wide Association Studies (GWAS).

Budget and Period of Support

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

2. Review and Selection Process

Applications will be evaluated for scientific and technical merit by (an) appropriate Scientific Review Group(s) convened by the CSR, in accordance with NIH peer review policy and procedures, using the stated review criteria. Assignment to a Scientific Review Group will be shown in the eRA Commons.

As part of the scientific peer review, all applications:

- May undergo a selection process in which only those applications deemed to have the highest scientific and technical merit (generally the top half of applications under review) will be discussed and assigned an overall impact score.
- Will receive a written critique.

Appeals of initial peer review will not be accepted for applications submitted response to this FOA.

Applications will be assigned to the appropriate NIH Institute or Center and will compete for available funds with all other recommended applications submitted in response to this FOA. Following initial peer review, recommended applications will receive a second level of review by the National Advisory Council on Minority Health and Health Disparities. The following will be considered in making funding decisions:

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

3. Anticipated Announcement and Award Dates

After the peer review of the application is completed, the PD/PI will be able to access his or her Summary Statement (written critique) via the eRA Commons.

Information regarding the disposition of applications is available in the *NIH Grants Policy Statement*.

Section VI. Award Administration Information

1. Award Notices

If the application is under consideration for funding, NIH will request "just-in-time" information from the applicant as described in the *NIH Grants Policy Statement*.

A formal notification in the form of a Notice of Award (NoA) will be provided to the applicant organization for successful applications. The NoA signed by the grants management officer is the authorizing document and will be sent via email to the grantee's business official.

Awardees must comply with any funding restrictions described in Section IV.5. Funding Restrictions. Selection of an application for award is not an authorization to begin performance. Any costs incurred before receipt of the NoA are at the recipient's risk. These costs may be reimbursed only to the extent considered allowable pre-award costs.

Awards issued through this FOA will divide the cores above into three linked awards: a UL1 Linked Specialized Center Cooperative Agreement award will support activities described through the Administrative and Institutional Development Cores; an RL5 Linked Education Project award will support activities described through the Research Enrichment Core; a TL4 Linked Training Award will support activities described through the Student Training Core. The costs associated with each component will be allowable only to the corresponding linked award.

Any application awarded in response to this FOA will be subject to the DUNS, SAM Registration, and Transparency Act requirements as noted on the Award Conditions and Information for NIH Grants website.

Prior Approval of Pilot Projects

All Awardee-selected pilot projects require approval by NIMHD prior to initiation. For research projects that involve human subjects:

- The awardee institution will provide NIMHD with written study protocols that address risks and protections for human subjects in accordance with NIH's Instructions for Preparing the Human Subjects Section of the Research Plan, NOT-OD-12-129 (http://grants.nih.gov/grants/guide/notice-files/NOT-OD-12-129.html), and NOT-OD-12-130 (http://grants.nih.gov/grants/guide/notice-files/NOT-OD-12-130.html).
- The awardee institution will provide NIMHD with specific plans for data and safety monitoring, and will notify the IRB and NIMHD of serious adverse events and unanticipated problems, consistent with NIH DSMP policies.

If live vertebrate animals are to be involved, follow NIMHD policy (NOT-MD-08-002).

2. Administrative and National Policy Requirements

All NIH grant and cooperative agreement awards include the *NIH Grants Policy Statement* as part of the NoA. For these terms of award, see the *NIH Grants Policy Statement* Part II: Terms and Conditions of NIH Grant Awards, Subpart A: General and Part II: Terms and Conditions of NIH Grant Awards, Subpart B: Terms and Conditions for Specific Types of Grants, Grantees, and Activities. More information is provided at Award Conditions and Information for NIH Grants.

Cooperative Agreement Terms and Conditions of Award

The following special terms of award are in addition to, and not in lieu of, otherwise applicable U.S. Office of Management and Budget (OMB) administrative guidelines, U.S. Department of Health and Human Services (DHHS) grant administration regulations at 45 CFR Parts 74 and 92 (Part 92 is applicable when State and local Governments are eligible to apply), and other HHS, PHS, and NIH grant administration policies.

The administrative and funding instrument used for this program will be the cooperative agreement, an "assistance" mechanism (rather than an "acquisition" mechanism), in which substantial NIH programmatic involvement with the awardees is anticipated during the performance of the activities. Under the cooperative agreement, the NIH purpose is to support and stimulate the recipients' activities by involvement in and otherwise working jointly with the award recipients in a partnership role; it is not to assume direction, prime responsibility, or a dominant role in the activities. Consistent with this concept, the dominant role and prime responsibility resides with the awardees for the project as a whole, although specific tasks and activities may be shared among the awardees and the NIH as defined below.

The PD(s)/PI(s) will have the primary responsibility for:

- All aspects of the study, including any modification of project design, conduct of the project, quality control, data analysis and interpretation, preparation of publications, and collaboration with other investigators will be verified, confirmed and established when necessary by the Steering Committee.
- Awardee will agree to the governance of the Steering Committee and, for issues affecting the consortium as a whole, of the Executive Steering Committee.
- Awardee will agree to accept close coordination, cooperation, and participation of the Enhancing the

Diversity of the NIH-Funded Workforce Working Group in those aspects of scientific and technical management of the project as described under "NIH Program Staff Responsibilities."

- Awardee will provide goals and progress toward those goals at regular intervals as requested by the Steering Committee and the Executive Steering Committee.
- Awardee will ensure that resources (e.g. data sets; procedure manuals) developed as part of this project are made publicly available and that results are published in a timely manner.
- Awardee will adhere to the Executive Steering Committee policies regarding intellectual property, data release and other policies that might be established during the course of this activity that are consistent with applicable NIH policies, laws, and regulations.
- Awardee will retain custody of and have primary rights to the data and software developed under these awards, subject to Government rights of access consistent with current DHHS, PHS, and NIH policies. The CEC and consortium will develop plans for data sharing among awardees. All evaluation-related data will be shared with the NIH at the conclusion of the award.

NIH staff have substantial programmatic involvement that is above and beyond the normal stewardship role in awards, as described below:

- The Project Scientists for the project will serve on the Steering Committee and the Executive Steering Committee. The Project Scientists may work with the awardees on any issues that come before these Committees.
- The Project Scientists will serve as a liaison between the awardee and the Enhancing the Diversity of the NIH-Funded Workforce Working Group. The Coordinators of the Enhancing the Diversity of the NIH-Funded Workforce Working Group will periodically report progress to the Director of the Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI), and the Chairs of the Working Group.
- The NIH reserves the right to withhold funding or curtail the study (of an individual award) in the event of (a) substantive changes in the agreed-upon work scope with which NIH cannot concur, (b) human subject ethical issues that may dictate a premature termination; (c) or project not progressing well.
- Support or other involvement of industry or any other third party in the study--e.g., participation by the third party; involvement of project resources or citing the name of the study or NIH support; or special access to project results, data, findings or resources--may be advantageous and appropriate. However, except for licensing of patents or copyrights, support or involvement of any third party will occur only following notification of and concurrence by NIH.
- Additionally, an NIH Program Official will be responsible for the normal scientific and programmatic stewardship of the award and will be named in the award notice.

Areas of joint responsibility include:

A Steering Committee will serve as the primary governing board for the cooperative agreement funded under this FOA. The Steering Committee membership will include the NIH Program Official, NIH Project Scientist(s), the PD(s)/PI(s) of the awarded cooperative agreement, who will serve as Steering Committee Chair(s), and two external members not involved in the project who are selected by the PDs/PI(s). Additional members of the Enhancing the Diversity of the NIH-Funded Workforce Working Group may be appointed to the Steering Committee by the co-chairs of the Working Group, but the total number of NIH votes may not exceed 1/3 of the Steering Committee voting membership. Other government staff may attend the Steering Committee meetings, if their expertise is required for specific discussions.

The Steering Committee will:

- Meet at least annually or as needed, with intermittent conference calls as needed.
- Develop recommendations for uniform procedures and policies necessary to meet the goals of the FOA and the goals of the Enhancing the Diversity of the NIH-Funded Workforce Program as a whole.
- Provide input to the PD(s)/PI(s) with respect to the activities of the BUILD, its coordination with the NRMN and CEC, and progress in meeting the goals of the FOA.
- Schedule time for, and prepare concise (3 to 4 pages) summaries of, the Steering Committee meetings, which will be delivered to members of the group within 30 days after each meeting.
- Provide representation on the Executive Steering Committee (see below) to address issues relevant to the Diversity Program Consortium as a whole.

Dispute Resolution:

Any disagreements that may arise in scientific or programmatic matters (within the scope of the award) between award recipients and the NIH may be brought to Dispute Resolution. A Dispute Resolution Panel composed of three members will be convened. The three members will be a designee of the Steering Committee chosen without NIH staff voting, one NIH designee, and a third designee with expertise in the relevant area who is chosen by the other two. In the case of individual disagreement, the first member may be chosen by the individual awardee. This special dispute resolution procedure does not alter the awardee's right to appeal an adverse action that is otherwise appealable in accordance with PHS regulation 42 CFR Part 50, Subpart D and DHHS regulation 45 CFR Part 16.

Executive Steering Committee:

An Executive Steering Committee (ESC) will be responsible for providing general oversight and guidance to the Diversity Program Consortium. The ESC membership will include one non-NIH member from the Steering Committee of each of the BUILD, NRMN, and CEC awards, the NIH Program Official and/or Project Scientists for each program, and a member of the Enhancing the Diversity of the NIH-Funded Workforce Working Group, who will serve as ESC Chair. The co-chairs of the Enhancing the Diversity of the NIH-Funded Workforce Working Group may appoint additional members from the Working Group to serve as members on the ESC, but the total number of NIH votes may not exceed 1/3 of the Executive Committee voting membership. Awardee members of the ESC will be required to accept and implement policies approved by the ESC. The CEC will be responsible for communicating ESC feedback and guidance to the BUILD, NRMN, and CEC Steering Committees.

The ESC will meet at least once annually, with intermittent conference calls as needed. The first ESC meeting will take place during the Annual Grantees Meeting in October 2014.

Responsibilities of the ESC include the following:

- Form sub-committees as necessary to work through detailed issues that affect the Diversity Program Consortium as a whole.
- Define competencies to be targeted through BUILD and NRMN activities.
- Define hallmarks of success in biomedical research careers at various career stages.
- Develop policies for adoption of mentoring standards.
- Develop procedures and policies for sharing information between projects and with the wider community.
- Review and consider issues and progress of individual awardees so that lessons learned can be shared, and plans of the Diversity Program Consortium as a whole and of individual projects may be modified to have maximal impact.
- Contribute content and ideas for a program website managed by the CEC for the purposes of sharing information.
- Develop a public summary of lessons learned across the Program as a whole and applicability of the lessons to the wider community.

3. Reporting

When multiple years are involved, awardees will be required to submit the Non-Competing Continuation Grant Progress Report (PHS 2590 or RPPR) annually and financial statements as required in the *NIH Grants Policy Statement.* The applicants should anticipate the need for data collection, collation, verification, and transmission of data relevant to the evaluation of BUILD activities.

The Diversity Program Consortium Executive Steering Committee and the CEC will advise with respect to any additional required data elements, format, and frequency of data reporting. If the NIH implements new procedures or systems for tracking outcomes of trainees during the course of the BUILD award, the awardee will be expected to participate in these new procedures or systems in accordance with NIH policy.

If a pilot project program is included in the project, progress reports should briefly describe status of pilot projects, including data and safety monitoring, and should notify NIH of serious adverse events and unanticipated problems.

Other Reporting Requirements

- The institution must submit a completed Statement of Appointment (PHS Form 2271) for each student who receives financial support from a BUILD TL4 linked training award to work or participate in a BUILD activity full time for eight weeks or more or the equivalent. Grantees must submit the PHS 2271 data electronically using the xTrain system. More information on xTrain is available at xTrain (eRA Commons). An appointment or reappointment may begin any time during the budget period, but not before the budget period start date of the project.
- A notarized statement verifying possession of permanent residency documentation must be submitted with the Statement of Appointment (Form PHS 2271). Individuals with a Conditional Permanent Resident status must first meet full (non-conditional) Permanent Residency requirements before receiving support.
- TL4 Trainee Termination Notice: Within 30 days of the end of the total support period for each student, the institution must submit a Termination Notice (PHS Form 416-7) via xTrain for each student appointed full time for eight weeks or more, or the equivalent.
- eRA Commons IDs for all students supported under the RL5 award who participate for at least one person month must be reported on annual progress reports (NOT-OD-13-097).

NIH may request information from CEC and other databases, PD(s)/PI(s) and BUILD students themselves. If the NIH implements new procedures or systems for tracking outcomes of students during the course of the BUILD award, the awardee will be expected to participate in these new procedures or systems in accordance with NIH policy.

A final progress report, invention statement, and the expenditure data portion of the Federal Financial Report are required for closeout of an award, as described in the NIH Grants Policy Statement.

The Federal Funding Accountability and Transparency Act of 2006 (Transparency Act), includes a requirement for awardees of Federal grants to report information about first-tier subawards and executive compensation under Federal assistance awards issued in FY2011 or later. All awardees of applicable NIH grants and cooperative agreements are required to report to the Federal Subaward Reporting System (FSRS) available at www.fsrs.gov on all subawards over $25,000. See the NIH Grants Policy Statement for additional information on this reporting requirement.

4. Evaluation

Evaluation of the BUILD initiative will be carried out continuously over the first five years of the program. The findings of this evaluation will determine whether the initiative will be continued for an additional five years as configured, continued with modifications, or discontinued.

The Diversity Program Consortium through its inclusive governance structure will establish and define any additional data elements required to effectively evaluate the BUILD, including data intended to measure hallmarks of success at each career stage and the impact that BUILD activities are having on student achievement of these hallmarks. The Consortium and/or the CEC will disseminate these requirements and obtain OMB clearance of recommended data as needed.

The NIH will periodically evaluate the BUILD awards to assess impact toward the overarching goal of engaging a diverse talent pool (e.g., supplemental instruction and other service learning opportunities), sustaining research interests of emerging scientists, and preparing them for successful careers in biomedical research. In assessing the effectiveness of this Program, NIH may request information from CEC and other databases, PD(s)/PI(s), and BUILD trainees and participants themselves. The BUILD program will be evaluated on the impact of BUILD in contributing to a diverse NIH-funded workforce. At a minimum it is expected that the BUILD will be evaluated on the following key outcomes related to trainees and participants:

- Completion of undergraduate or graduate degree, completion of postdoctoral research training, and entrance into graduate programs, postdoctoral research training or faculty position.
- Involvement in research appropriate to career stage (e.g., ranging from research assistantships for undergraduates to early career faculty participating as investigators, etc.).
- Authorship on publications in peer-review journals.
- Receipt of NIH or other peer-reviewed grants or fellowships.

Where necessary, PD(s)/PI(s), scholars, and other students participating in BUILD activities may be contacted

after the completion of the BUILD program for periodic updates on subsequent educational or employment history and professional activities. Upon the completion of a program evaluation, NIH will determine whether lessons learned from BUILD should inform other NIH-funded training efforts.

Section VII. Agency Contacts

We encourage inquiries concerning this funding opportunity and welcome the opportunity to answer questions from potential applicants.

Application Submission Contacts

eRA Commons Help Desk (Questions regarding eRA Commons registration, submitting and tracking an application, documenting system problems that threaten submission by the due date, post submission issues)
Telephone: 301-402-7469 or 866-504-9552 (Toll Free)

Web ticketing system: https://public.era.nih.gov/commonshelp
TTY: 301-451-5939
Email: commons@od.nih.gov

GrantsInfo (Questions regarding application instructions and process, finding NIH grant resources)
Telephone: 301-435-0714
TTY: 301-451-5936
Email: GrantsInfo@nih.gov

Scientific/Research Contact(s)

Toya V. Randolph, PhD, MSPH
National Institute on Minority Health and Health Disparities (NIMHD)
Telephone: 301-402-1366
Email: toya.randolph@nih.gov

Peer Review Contact(s)

Delia Olufokunbi Sam, PhD Center
for Scientific Review (CSR)
Telephone: 301-613-6206
Email: olufokunbisamd@csr.nih.gov

Financial/Grants Management Contact(s)

Priscilla Grant, JD
National Institute on Minority Health and Health Disparities (NIMHD)
Telephone: 301-594-8412
Email: grantp@mail.nih.gov

Section VIII. Other Information

Recently issued trans-NIH policy notices may affect your application submission. A full list of policy notices published by NIH is provided in the *NIH Guide for Grants and Contracts*. All awards are subject to the terms and conditions, cost principles, and other considerations described in the *NIH Grants Policy Statement*.

Authority and Regulations

Awards are made under the authority of sections 301, 402, 405, and 487 of the Public Health Service Act as amended (42 USC 241, 282, 284, and 288) and the Code of Federal Regulations, 42 CFR Parts 52 and 66, and 45 CFR Parts 74 and 92.

Weekly TOC for this Announcement

Department of Health and Human Services (HHS)

NIH... Turning Discovery Into Health®

Note: For help accessing PDF, RTF, MS Word, Excel, PowerPoint, Audio or Video files, see Help Downloading Files.