

October 26, 2015

**ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY (FFO)
Professional Research Experience Program – Communications Technology
Laboratory (PREP-CTL)**

EXECUTIVE SUMMARY

- **Federal Agency Name:** National Institute of Standards and Technology (NIST), United States Department of Commerce
- **Funding Opportunity Title:** Professional Research Experience Program – Communications Technology Laboratory (PREP-CTL)
- **Announcement Type:** Initial
- **Funding Opportunity Number:** 2016-NIST-PREP-CTL-01
- **Catalog of Federal Domestic Assistance (CFDA) Number:** 11.620; Science, Technology, Business, and/or Education Outreach.
- **Dates:** Applications must be received no later than 11:59 p.m. Eastern Time, Monday, December 28, 2015. Applications received after this deadline will not be reviewed or considered. **Applicants should be aware, and factor in their application submission planning, that the Grants.gov system will be closed for routine maintenance from 12:01 Eastern Time, Saturday, December 19, 2015 until Monday, December 21, 2015 at 6:00 a.m. Eastern Time, and that applications cannot be submitted during that span.** NIST considers the date and time stamped on the validation generated by www.grants.gov as the official time the application is received. The earliest anticipated start date for awards under this FFO is expected to be approximately March 14, 2016.

When developing your submission timeline, keep in mind that (1) a free annual registration process in the electronic System for Award Management (SAM) (see Section IV.3. and Section IV.7.a.(1).b.) of this FFO) may take between three and five business days or as long as more than two weeks, and (2) applicants using Grants.gov will receive a series of email messages over a period of up to two business days before learning via a validation or rejection whether a Federal agency's electronic system has received its application. **Please note that a federal assistance award cannot be issued if the designated recipient's registration in the System for Award Management (SAM.gov) is not current at the time of the award.**

- **Application Submission Address:** Applications will only be accepted using Grants.gov.

- **Funding Opportunity Description:** NIST is soliciting applications from eligible applicants to provide undergraduate students, graduate students, and post-doctoral fellows with fellowship opportunities and financial assistance to obtain laboratory experiences within the NIST Communications Technology Laboratory (CTL) in Gaithersburg, Maryland. The recipients will work with NIST to foster collaborative research relationships among NIST staff, undergraduate/graduate students, post-doctoral fellows, and the students' academic institutions.
- **Anticipated Amounts:** NIST expects approximately \$2,500,000 may be made available in FY 2016 for the first year of multi-year awards to eligible applicants. New awards are expected to range from approximately \$100,000 to \$2,500,000 annually, with project performance periods of up to two (2) years, consistent with the multi-year funding policy described in Section II.2 of this FFO. Thus, NIST may fund up to approximately \$5 million for PREP-CTL over two years. The specific number of awards will be determined during the selection process, based on the nature and quality of the proposals NIST receives.
- **Funding Instrument:** Cooperative Agreement
- **Who is Eligible:** Eligibility for PREP-CTL is limited to accredited institutions of higher education that offer undergraduate and graduate degrees in academic disciplines relevant to the technical programs of the NIST Communications Technology Laboratory (see <http://www.nist.gov/ctl/>) in Gaithersburg, Maryland. For the purposes of this FFO, these disciplines include (but may not be limited to) computer science, computer engineering, electrical engineering or electronics. Institutions must offer both four-year undergraduate and graduate degree plans and also offer post-doctoral fellowships.
- **Cost Sharing Requirements:** This program does not require cost sharing.

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FULL ANNOUNCEMENT TEXT

I. Program Description

The statutory authority for the PREP-CTL Program is 15 U.S.C. § 278g-1(a) and (c) and 15 U.S.C. § 272(b) and (c).

The U.S. Department of Commerce National Institute of Standards and Technology (NIST) is soliciting applications from eligible applicants to provide undergraduate/graduate students and post-doctoral fellows with fellowship opportunities and financial assistance to obtain laboratory research experiences within the NIST Communications Technology Laboratory (CTL) (see www.nist.gov/CTL/) in Gaithersburg, Maryland. The recipients will work with NIST to foster collaborative research relationships among NIST staff, undergraduate/graduate students, post-doctoral fellows, and the students' academic institutions.

The objectives of the PREP-CTL program are to encourage the growth and progress of science and engineering in the United States by providing research opportunities for undergraduate/graduate students and post-doctoral fellows, enabling them to collaborate with CTL scientists and engineers, and exposing them to cutting-edge research. The PREP-CTL program will promote undergraduate and graduate students' pursuit of degrees in science and engineering, and post-doctoral fellows' professional development in science and engineering and will foster stronger scientific collaboration between the recipient institutions and NIST. The NIST PREP-CTL Coordinator, NIST scientists and engineers, and appropriate division chiefs will coordinate with recipients' outreach coordinators and directors of multi-disciplinary academic organizations to identify students and programs that would benefit from the PREP-CTL program experience. **Applicants must be able to ensure the availability of undergraduate and graduate students for on-site collaborative research experiences within the NIST CTL laboratories operating on the NIST campus in Gaithersburg, Maryland concurrent with their academic studies.** Participating students must be enrolled full-time in an academic program. A grade point average of 3.0/4.0 or better is encouraged. Post-doctoral fellows must be affiliated with a sponsoring institution of higher education.

Financial support may be provided through the awards to the institutions for attendance at conferences, workshops, or other technical research meetings that are relevant to the mission of NIST. Refer to www.nist.gov/CTL/ for information about the missions and areas of research collaboration available to program participants in the NIST CTL laboratories on the NIST campus in Gaithersburg, Maryland.

The recipient will collaborate with the NIST PREP-CTL Coordinator in selecting undergraduate/graduate students and post-doctoral fellows to participate in the PREP-CTL program. In accordance with the procedures proposed by the recipient and included in the cooperative agreement, the NIST PREP-CTL Coordinator anticipates working with staff from NIST to approve candidate undergraduate/graduate students and post-doctoral fellows selected by the recipient. In addition, the

undergraduate/graduate students and post-doctoral fellows selected to be part of the PREP-CTL program managed by the recipient will require a moderate amount of research guidance and training from NIST staff as part of the collaboration.

Consistent with 15 U.S.C. § 278g-1(c), applicants are encouraged to promote the participation of underrepresented minorities in any research conducted under an award pursuant to this FFO.

II. Federal Award Information

- 1. Funding Instrument.** The funding instrument that will be used is a cooperative agreement. The nature of NIST's "substantial involvement" will generally be collaboration between NIST and the recipient organizations. This includes NIST collaboration with a recipient on the scope of work. Additional forms of substantial involvement that may arise are described in Chapter 5.C of the Department of Commerce Grants and Cooperative Agreements Manual, which is available at <http://go.usa.gov/SNJd>. Please note the Department of Commerce Grants and Cooperative Agreements Manual is expected to be updated after publication of this funding announcement and before awards are made under this FFO. Refer to Section VII. of this FFO, Federal Awarding Agency Contacts, Grant Rules and Regulations, if you seek the information at this link and it is no longer working or you need more information.
- 2. Multi-Year Funding Policy.** When a proposal for a multi-year award is approved, funding will usually be provided for only the first year of the program. If a project is selected for funding, NIST has no obligation to provide any additional funding in connection with that award. Continuation of an award to increase funding or extend the period of performance is at the sole discretion of NIST. Continued funding will be contingent upon satisfactory performance, continued relevance to the mission and priorities of CTL, and the availability of funds.
- 3. Funding Availability.** NIST expects that approximately \$2,500,000 may be made available in FY 2016 for the first year of multi-year awards to eligible applicants. New awards are expected to range from approximately \$100,000 to \$2,500,000 annually, with project performance periods of up to two (2) years, consistent with the multi-year funding policy described in Section II.2. of this FFO. Thus, NIST may fund up to approximately \$5 million for PREP-CTL over two years. The specific number of awards will be determined during the selection process, based on the nature and quality of the proposals NIST receives.

III. Eligibility Information

- 1. Eligible Applicants.** Eligibility for all programs listed in this FFO is limited to accredited institutions of higher education that offer undergraduate and graduate

degrees in academic disciplines relevant to the technical programs of the NIST Communications Technology Laboratory (see <http://www.nist.gov/ctl/>) in Gaithersburg, Maryland. For the purposes of this FFO, these disciplines include (but may not be limited to) computer science, computer engineering, electrical engineering or electronics. Institutions must offer both four-year undergraduate and graduate degree plans and also offer post-doctoral fellowships.

2. **Cost Sharing or Matching.** This program does not require cost sharing.

IV. Application Submission Information

1. **Address to Request Application Package.** The standard application package, consisting of the standard forms, i.e., SF-424, SF-424A, SF-424B, SF-LLL, and the CD-511, is available at www.grants.gov. The standard application package may also be requested by contacting the NIST personnel listed below:

Cynthia Kotary, Communications Technology Laboratory, National Institute of Standards and Technology, 325 Broadway, Mail Stop 104.01, Boulder, CO 80305 (Phone: (303) 497-3319; e-mail: cindy.kotary@nist.gov).

2. Content and Format of Application Submission

a. Required Forms and Documents

- (1) **SF-424, Application for Federal Assistance.** The SF-424 must be signed by an authorized representative of the applicant organization.

SF-424, Item 12, should list the FFO number 2016-NIST-PREP-CTL-01.

SF-424, Item 18, should list the total budget information for the duration of the project.

The list of certifications and assurances referenced in Item 21 of the SF-424 is contained in the SF-424B.

- (2) **SF-424A, Budget Information – Non-Construction Programs.** The budget should reflect anticipated expenses for the project, considering all potential cost increases, including cost of living adjustments.

- (3) **SF-424B, Assurances – Non-Construction Programs**

- (4) **CD-511, Certification Regarding Lobbying**

- (5) **SF-LLL, Disclosure of Lobbying Activities** (if applicable)

(6) Technical Proposal. The Technical Proposal is a word-processed document of no more than twenty-five (25) pages responsive to the program description (see Section I. of this FFO) and the evaluation criteria (see Section V.1. of this FFO). It should contain the following information:

(a) Executive Summary. The Executive Summary should briefly describe the proposed project and how the applicant will plan and implement the project (see Section I. of this FFO), consistent with the evaluation criteria (see Section V.1. of this FFO). The Executive Summary should not exceed one (1) single-sided page.

(b) Project Approach/Methodology and Program Management Plan. A description of the proposed approach to plan and implement the project (see Section I. of this FFO), sufficient to permit evaluation of the proposal, in accordance with the Project Approach/Methodology and Program Management Plan evaluation criterion (see Section V.1.a. of this FFO).

(c) Qualifications and Experience. A description of the applicant's qualifications for conducting the proposed project, sufficient to permit evaluation of the proposal in accordance with the Qualifications and Experience evaluation criterion (see Section V.1.b. of this FFO).

(d) Success Metrics. A description of three or more metrics by which to evaluate the success of the program in meeting program objectives. Outputs may be quantified, such as: the number and quality of publications by the applicant's participants in the project; the number and types of patents, tools, or software developed by the applicant's participants in the project; ability of students to earn college credits and work towards their undergraduate or graduate degree; and/or the number of science and technology jobs obtained by the applicant's participants in the project once they complete their participation in the project. The metrics should provide a sound basis for evaluating the technical success of specific projects, the quality of the research experience provided to the applicant's participants, and the extent to which collaborations have been formed or strengthened between the recipient institution and NIST. This section should be the primary, but not only, means by which the proposal will be evaluated according to the Success Metrics evaluation criteria (see Section V.1.c. of this FFO).

(7) Budget Narrative. Applicants should use the SF-424A form to complete the budget submission (see Section IV.2.a.(2) of this FFO). In addition to the SF-424A form, applicants must provide a detailed budget narrative to explain fully and justify all proposed project expenses, including each level of fellowship (undergraduate/graduate students and post-doctoral fellows) and other costs. Costs should be included in the annual budget to support undergraduate/graduate students and post-doctoral fellows. The applicant should determine its capabilities for managing a selected number of students.

For example, the annual budget should contain support for any number of (1) undergraduates, (2) graduates, and (3) post-doctoral fellows. This section should be the primary, but not only, means by which the proposal will be evaluated according to the Budget Narrative criterion (see Section V.1.d. of this FFO). Costs that fit the program description are:

- Stipend or wage (commensurate to what a research associate in the fellow's given department would receive),
- Full tuition assistance should be provided for students calculated at the in-state rate, if applicable,
- Fringe benefits (which may include fees and health insurance),
- Relocation expenses for post-doctoral fellows (optional and limited to \$5000 per fellow),
- The applicant's indirect costs (including administrative and operation costs and costs to administer travel for PREP-CTL program participants), as appropriate, and
- Necessary costs to provide oversight and implementation of the program. (NOTE: All successful applicants will be required to have an institution PREP-CTL program coordinator. Responsibilities of the successful applicant's institution PREP-CTL program coordinator include: serving as a single point of contact for awardee staff, PREP-CTL program applicants and participants and NIST research scientists and engineers; assisting students, awardee sponsors, and NIST advisors in implementing the program and resolving any difficulties that may arise, and serving as the signatory on all agreements between NIST, the awardee, and each fellow).

(8) Indirect Cost Rate Agreement. If indirect costs are included in the proposed budget, provide a copy of the approved negotiated agreement if this rate was negotiated with a cognizant Federal audit agency. If the rate was not established by a cognizant Federal audit agency, provide a statement to this effect. If the successful applicant includes indirect costs in the budget and has not established an indirect cost rate with a cognizant Federal audit agency, the applicant will be required to obtain such a rate in accordance with the Department of Commerce Financial Assistance Standard Terms and Conditions, December 26, 2014, available at <http://go.usa.gov/hKbj>.

Alternatively, in accordance with 2 C.F.R. § 200.414(f), applicants that have never received a negotiated indirect cost rate may elect to charge indirect costs to an award pursuant to a de minimis rate of 10 percent of modified total direct costs (MTDC), in which case a negotiated indirect cost rate agreement is not required. Applicants proposing a 10 percent de minimis rate pursuant to 2 C.F.R. § 200.414(f) should note this election as part of the budget portion of the application.

(9) Data Management Plan. In accordance with the Office of Science and Technology Memorandum for the Heads of Executive Departments and Agencies

of February 22, 2013¹, *Increasing Access to the Results of Federally Funded Scientific Research*, and as implemented through NIST Policy 5700.00², *Managing Public Access to Results of Federally Funded Research*, and NIST Order 5701.00³, *Managing Public Access to Results of Federally Funded Research*, NIST requires submission of a Data Management Plan (DMP).

The DMP is a supplementary document of not more than two pages that must include, at a minimum, a summary of activities that generate data, a summary of the types of data generated by the identified activities, a plan for storage and maintenance of the data generated by the identified activities, and a plan describing whether and how data generated by the identified activities will be reviewed and made available to the public. As long as the DMP meets these NIST requirements, it may take the form specified by the applicant's institution or some other entity (e.g., the National Science Foundation or the National Institutes of Health). Some organizations' templates are available on the Internet.

All applications for activities that will generate scientific data using NIST funding are required to adhere to a DMP or explain why data sharing and/or preservation are not within the scope of the project.

For the purposes of the DMP, NIST adopted the definition of "research data" at 2 C.F.R. § 200.315(e)(3) (available at <http://go.usa.gov/3sZvQ>)

Reasonable costs for data preservation and access may be included in the application.

The sufficiency of the DMP will be considered as part of the administrative review (see Section V.3.a. of this FFO); however, the DMP will not be evaluated against any evaluation criteria.

Items IV.2.a.(1) through IV.2.a.(5) above are part of the standard application package in Grants.gov and can be completed through the download application process. **Items IV.2.a.(6) through IV.2.a.(9) must be completed and attached by clicking on "Add Attachments" found in item 15 of the SF-424, Application for Federal Assistance. This will create a zip file that allows for transmittal of the documents electronically via Grants.gov.**

Applicants should carefully follow specific Grants.gov instructions at www.grants.gov to ensure the attachments will be accepted by the Grants.gov system. ***A receipt from Grants.gov indicates only that an application was transferred to a system. It does not provide details concerning whether all attachments (or***

¹ https://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf

² <http://www.nist.gov/data/upload/Final-P-5700.pdf>

³ http://www.nist.gov/data/upload/Final-O-5701_0.pdf

how many attachments) transferred successfully. Applicants using Grants.gov will receive email notifications over a period of up to two business days as the application moves through intermediate systems before the applicant learns via a validation or rejection notification whether NIST has received the application.

b. Application Format

- (1) **Mail, e-mail and facsimile (fax) submissions.** Will not be accepted.
- (2) **Figures, graphs, images, and pictures.** Should be of a size that is easily readable or viewable and may be landscape orientation.
- (3) **Font.** Easy to read font (10-point minimum). Smaller type may be used in figures and tables but must be clearly legible.
- (4) **Line spacing.** Applicants may use single spacing or double spacing.
- (5) **Margins.** One (1) inch top, bottom, left, and right.
- (6) **Page layout.** Portrait orientation except for figures, graphs, images, and pictures. Paragraphs are to be clearly separated from each other by double spacing, paragraph formatting or equivalent.
- (7) **Page limit.** The Technical Proposal is limited to twenty-five (25) pages.
 - (a) **Page limit includes:** Table of contents (if included), Technical Proposal with all suggested information, including figures, graphs, tables, images, and pictures.
 - (b) **Page limit excludes:** SF-424, Application for Federal Assistance; SF-424A, Budget Information – Non-Construction Programs; SF-424B, Assurances – Non-Construction Programs; CD-511, Certification Regarding Lobbying; SF-LLL, Disclosure of Lobbying Activities; Budget Narrative; Indirect Cost Rate Agreement; and the Data Management Plan.
- (8) **Page numbering.** Number pages sequentially.
- (9) **Page size.** 21.6 centimeters by 27.9 centimeters (8 ½ inches by 11 inches).
- (10) **Application Language.** English.

c. Application Replacement Pages. Applicants may not submit replacement pages and/or missing documents once an application has been submitted. Any revisions must be made by submission of a new application that must be received by NIST by the submission deadline.

- d. **Pre-Applications.** NIST is not accepting pre-applications or white papers under this FFO.
- e. **Certifications Regarding Federal Felony and Federal Criminal Tax Convictions, Unpaid Federal Tax Assessments and Delinquent Federal Tax Returns.** In accordance with Federal appropriations law, an authorized representative of the selected applicant(s) may be required to provide certain pre-award certifications regarding federal felony and federal criminal tax convictions, unpaid federal tax assessments, and delinquent federal tax returns.
3. **Unique Entity Identifier and System for Award Management (SAM).** Pursuant to 2 C.F.R. part 25, applicants and recipients (as the case may be) are required to: (i) be registered in SAM before submitting its application; (ii) provide a valid unique entity identifier in its application; and (iii) continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency, unless otherwise excepted from these requirements pursuant to 2 C.F.R. § 25.110. NIST will not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements and, if an applicant has not fully complied with the requirements by the time that NIST is ready to make a Federal award pursuant to this FFO, NIST may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.
4. **Submission Dates and Times.** Applications must be received by NIST electronically through Grants.gov no later than 11:59 p.m. Eastern Time, Monday, December 28, 2015. Applications received after this deadline will not be reviewed or considered. **Applicants should be aware, and factor in their application submission planning, that the Grants.gov system will be closed for routine maintenance from 12:01 Eastern Time, Saturday, December 19, 2015 until Monday, December 21, 2015 at 6:00 a.m. Eastern Time, and that applications cannot be submitted during that span.** The date and time stamped on the validation generated by www.grants.gov will be considered the official time that the application was received by NIST. Applicants are cautioned that the validation process may take up to two full business days after the application is submitted to Grants.gov.

NIST strongly recommends that applicants do not wait until the last minute to submit an application. NIST will not make allowance for any late submissions. The responsibility for ensuring a complete application is received by NIST by the deadline is the sole responsibility of the applicant. To avoid any potential processing backlogs due to last minute Grants.gov registrations, applicants are strongly encouraged to start their Grants.gov registration process at least four (4) weeks prior to the application due date.

When developing your submission timeline, keep in mind that (1) a free annual registration process in the electronic System for Award Management (SAM) (see Section IV.3. and Section IV.7.a.(1).b.) of this FFO) may take between three and five business days or as long as more than two weeks, and (2) applicants using Grants.gov will receive a series of receipts over a period of up to two business days before learning via a validation or rejection whether a Federal agency's electronic system has received its application.

5. Intergovernmental Review. Applications under this Program are not subject to Executive Order 12372.

6. Funding Restrictions. Profit or fee is not an allowable cost.

7. Other Submission Requirements

a. Applications must be submitted electronically through www.grants.gov. NIST will not accept applications submitted by mail, facsimile, or e-mail.

(1) Electronic applications must be submitted via Grants.gov at www.grants.gov under announcement 2016-NIST-PREP-CTL-01.

a. Applicants should carefully follow specific Grants.gov instructions to ensure that all attachments will be accepted by the Grants.gov system. A receipt from Grants.gov indicating an application is received does not provide information about whether attachments have been received. For further information or questions regarding applying electronically for the 2016-NIST-PREP-CTL-01 announcement, contact Christopher Hunton by phone at 301-975-5718 or by e-mail at grants@nist.gov .

b. Applicants are strongly encouraged to start early and not wait until the approaching due date before logging on and reviewing the instructions for submitting an application through Grants.gov. The Grants.gov registration process must be completed before a new registrant can apply electronically. If all goes well, the registration process takes three (3) to five (5) business days. If problems are encountered, the registration process can take up to two (2) weeks or more. Applicants must have a unique entity identifier number and must maintain a current registration in the Federal government's primary registrant database, the System for Award Management (<https://www.sam.gov/>), as explained on the Grants.gov Web site. See also Section IV.3. of this FFO. After registering, it may take several days or longer from the initial log-on before a new Grants.gov system user can submit an application. Only authorized individual(s) will be able to submit the application, and the system may need time to process a submitted application. Applicants should save and print the proof of submission they receive from Grants.gov. If problems occur while using Grants.gov, the applicant is advised to (a) print any error message received and (b) call

Grants.gov directly for immediate assistance. If calling from within the United States or from a U.S. territory, please call 800-518-4726. If calling from a place other than the United States or a U. S. territory, please call 606-545-5035. Assistance from the Grants.gov Help Desk will be available around the clock every day, with the exception of Federal holidays. Help Desk service will resume at 7:00 a.m. Eastern Time the day after Federal holidays. For assistance using Grants.gov, you may also contact support@grants.gov.

- c. To find instructions on submitting an application on Grants.gov, Applicants should refer to the “Applicants” tab in the banner just below the top of the www.grants.gov home page. Clicking on the “Applicants” tab produces the “Grant Applicants” page.

In addition to following the “Steps” and instructions described in the “Applicant Actions” section and its sub-categories, further detailed instructions are described in “Applicant Resources” and all of its subcategories. This appears in the box near the top left of the Grant Applicants page. Applicants should follow the links associated with each subcategory.

Applicants will receive a series of email messages during a process of up to two business days before the application is either validated as electronically received by the Federal agency system, or rejected by it. Closely following the detailed information in these subcategories will increase the likelihood of acceptance of the application by the Federal agency’s electronic system.

The application must be both received and validated by Grants.gov. The application is “received” when Grants.gov provides the applicant a confirmation of receipt and an application tracking number. If an applicant does not see this confirmation and tracking number, the application has not been received. After the application has been received, it must still be validated. During this process, it may be “validated” or “rejected with errors.” To know whether the application was rejected with errors and the reasons why, the applicant must log in to Grants.gov, select “Applicants” from the top navigation, and select “Track my application” from the drop-down list. If the status is “rejected with errors,” the applicant may still seek to correct the errors and resubmit your application before the deadline. If the applicant does not correct the errors, the application will not be forwarded to NIST by Grants.gov.

Applicants should pay close attention to the instructions under “Applicant FAQs,” as it contains information important to successful submission on Grants.gov, including essential details on the naming conventions for attachments to Grants.gov applications.

An applicant should refer to important information in Section IV.4. Submission Dates and Times, to help ensure that the application is received on time.

- b. Amendments.** Any amendments to this FFO will be announced through Grants.gov. Applicants may sign up for Grants.gov FFO amendments or may request copies from Cynthia Kotary by telephone at (303) 497-3319, or by e-mail: cindy.kotary@nist.gov.

V. Application Review Information

- 1. Evaluation Criteria.** Reviewers will evaluate applications based on the following criteria:

a. Project Approach/Methodology and Program Management Plan (0 – 35 points)

Reviewers will evaluate the applicant's proposal based on the responsiveness to and quality of:

- The plan to provide qualified undergraduate/graduate students and post-doctoral fellows with the opportunity to obtain research experience within the NIST CTL Laboratories.
- A demonstrated ability to coordinate with science and engineering institutions to identify professional research opportunities, to match students/researchers with these opportunities, and to manage cooperative agreements for collaborative research. If this will be a new or developing activity for an applicant, the applicant's plan to implement the new program will be evaluated.
- A demonstrated ability to ensure the availability of undergraduate and graduate students for on-site work at the CTL Laboratories on the NIST Gaithersburg, Maryland campus during their tenure as students, concurrent with taking their coursework. If this will be a new or developing activity for an applicant, the applicant's plan to implement the new program will be evaluated.
- A demonstrated ability to ensure that post-doctoral fellows are available for full time on-site collaborative research experiences at the CTL Laboratories on the NIST Gaithersburg, Maryland. If this will be a new or developing activity for an applicant, the applicant's plan to implement the new program will be evaluated.
- The stated expectations regarding the outcomes and benefits to the applicant and to the participating students, expressed in measurable terms.

b. Qualifications and Experience (0 – 35 points)

Reviewers will evaluate the applicant's proposal based on:

- The quality of the applicant's academic program, including existing post-doctoral research programs.
- The quality of the proposed program objectives.
- Demonstrated experience in placing undergraduate/graduate students or

post-doctoral fellows in research laboratories, or other appropriate settings, consistent with furthering the students' education and research experiences. If this will be a new or developing activity for an applicant, the applicant's qualifications to plan and implement the new program will be evaluated.

c. Success Metrics (0 – 20 points) Reviewers will evaluate the clarity and quality of proposed metrics and mechanisms for evaluating the effectiveness of outputs from the PREP-CTL program.

d. Budget Narrative. (0 – 10 points) Reviewers will assess the budgeted costs against the proposed activities to determine the practicality of the proposed budget with respect to developing and implementing the PREP-CTL program as described in Section I. of this FFO.

2. Selection Factors. The Selecting Official, who is the CTL Executive Officer, or designee, will make recommendations to the NIST Grants and Agreements Management Division regarding the final application selections. The Selecting Official shall recommend applications for awards based upon the rank order of the applications (see Section V.3.b. of this FFO), but may recommend applications out of rank based on one or more of the following selection factors:

a. The results of the reviewers' evaluations.

b. The objectives as set forth in the Funding Opportunity Description (see Section I. of this FFO).

c. Whether the project duplicates other projects funded or considered for funding by the Department of Commerce or other federal agencies.

d. The availability of Federal funds.

3. Review and Selection Process

Proposals, reports, documents and other information related to applications submitted to NIST and/or relating to financial assistance awards issued by NIST will be reviewed and considered by Federal employees, Federal agents and contractors, and/or by non-Federal personnel who have entered into nondisclosure agreements covering such information, when applicable.

a. Initial Administrative Review of Applications. An initial review of timely received applications will be conducted to determine eligibility, completeness, and responsiveness to this FFO and the scope of the stated program objectives. Applications determined to be ineligible, incomplete, and/or non-responsive may be eliminated from further review. However, NIST, in its sole discretion, may continue

the review process for an application that is missing non-substantive information, the lack of which may easily be rectified or cured.

- b. Full Review of Eligible, Complete, and Responsive Applications.** Applications that are determined to be eligible, complete, and responsive will proceed for full reviews in accordance with the review and selection process below:

At least three (3) independent, objective reviewers knowledgeable about the scientific areas described in the application will conduct a technical review of each application, based on the evaluation criteria (see Section V.1. of this FFO). If non-Federal reviewers are used, the reviewers may discuss the applications with each other, but scores will be determined on an individual basis, not as a consensus. Based on the reviewers' scores, a rank order will be prepared and provided to the Selecting Official for further consideration. The Selecting Official will then recommend funding recipients based upon the rank order and the selection factors (see Section V.2. of this FFO).

NIST reserves the right to negotiate the budget costs with the selected applicant. Negotiations may include requesting that the applicant remove certain costs. Additionally, NIST may request that the applicant modify objectives or work plans and provide supplemental information required by the agency prior to award. NIST also reserves the right to reject an application where information is uncovered that raises a reasonable doubt as to the responsibility of the applicant. NIST may select some, all, or none of the applications, or part(s) of any particular application. In some cases, NIST may ask applicants to consider combining projects. The final approval of selected applications and issuance of awards will be by the NIST Grants Officer. The award decisions of the Grants Officer are final.

- c. Federal Awarding Agency Review of Risk Posed by Applicants.** After applications are proposed for funding by the selecting official, the NIST Grants Management Division (GMD) performs administrative reviews, which may include a review of the financial stability of an applicant, the quality of the applicant's management systems, the history of performance, and/or the applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-Federal entities. Upon review of these factors, if appropriate, special conditions that correspond to the degree of risk may be applied to an award.

In addition, prior to making an award where the total Federal share is expected to exceed the simplified acquisition threshold (currently \$150,000), NIST GMD will review and consider the publicly available information about that applicant in the Federal Awardee Performance and Integrity Information System (FAPIIS). An applicant may, at its option, review and comment on information about itself previously entered into FAPIIS by a Federal awarding agency. As part of its review of risk posed by applicants, NIST GMD will consider any comments made by the applicant in FAPIIS in making its determination about the applicant's integrity, business ethics, and record of performance under Federal awards.

4. Anticipated Announcement and Award Dates. The earliest anticipated start date for awards made under this FFO is expected to be January 2016.

5. Additional Information

a. Notification to Unsuccessful Applicants. Unsuccessful applicants will be notified in writing.

b. Retention of Unsuccessful Applications. An electronic copy of each non-selected application will be retained for three (3) years for record keeping purposes. After three (3) years, it will be destroyed.

VI. Federal Award Administration Information

1. Federal Award Notices. Successful applicants will receive an award from the NIST Grants Officer. The award cover page, i.e., CD-450, Financial Assistance Award is available at <http://go.usa.gov/SNMR>. This award cover page may be updated between publication of this funding announcement and issuance of awards in this program. Refer to Section VII. Agency Contacts, Grant Rules and Regulations, if you seek the information at this link and it is no longer working or you need more information.

2. Administrative and National Policy Requirements

a. Uniform Administrative Requirements, Cost Principles and Audit Requirements. Through 2. C.F.R. § 1327.101, the Department of Commerce adopted Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200, which apply to awards in this program. Refer to <http://go.usa.gov/SBYh> and <http://go.usa.gov/SBg4>.

b. Department of Commerce Financial Assistance Standard Terms and Conditions. The Department of Commerce will apply the Financial Assistance Standard Terms and Conditions dated December 26, 2014, accessible at <http://go.usa.gov/hKbj>, to this award. Please note the Department of Commerce Financial Assistance Standard Terms and Conditions are expected to be updated after publication of this funding announcement and before awards are made under this FFO. Refer to Section VII. of this FFO, Federal Awarding Agency Contacts, Grant Rules and Regulations, if you seek the information at this link and it is no longer working or you need more information. Also, awards will include additional terms and conditions that are specific to the PREP-CTL program; available at <http://www.boulder.nist.gov/bdprepo.htm>.

c. Department of Commerce Pre-Award Notification Requirements. The Department of Commerce will apply the Pre-Award Notification Requirements for

Grants and Cooperative Agreements dated December 30, 2014 (79 FR 78390), accessible at <http://go.usa.gov/hKkR>. Please note the Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements are expected to be updated after publication of this funding announcement and before awards are made under this FFO. Refer to Section VII. of this FFO, Federal Awarding Agency Contacts, Grant Rules and Regulations, if you seek the information at this link and it is no longer working or you need more information.

- d. Funding Availability and Limitation of Liability.** Funding for the program listed in this notice is contingent upon the availability of Fiscal Year 2016 appropriations. NIST issues this notice subject to the appropriations made available under the current continuing resolution funding the Department of Commerce, the Continuing Appropriations Act, 2016, Public Law 114-53 (September 30, 2015). NIST anticipates making awards for the program listed in this notice provided that funding for the program is continued beyond December 11, 2015, the expiration of the current continuing resolution. In no event will NIST or the Department of Commerce be responsible for proposal preparation costs if these programs fail to receive funding or are cancelled because of agency priorities. Publication of this announcement does not oblige NIST or the Department of Commerce to award any specific project or to obligate any available funds.
- e. Collaborations with NIST Employees.** The PREP-CTL Program Description specifically anticipates that students will collaborate with NIST. Applicants are not required to collaborate with specific NIST employees; however, if the applicant wishes to propose collaboration with a specific NIST employee, the statement of work should include a statement of this intention, a description of the collaboration, and prominently identify the NIST employee(s) involved, if known. Any collaboration by a NIST employee must be approved by appropriate NIST management and is at the sole discretion of NIST. Prior to beginning the merit review process, NIST will verify the approval of the proposed collaboration. Any unapproved collaboration will be stricken from the application prior to the merit review. Any collaboration with an identified NIST employee that is approved by appropriate NIST management will not make an application more or less favorable in the competitive process.
- f. Use of NIST Intellectual Property.** If the applicant anticipates using any NIST-owned intellectual property to carry out the work proposed, the applicant should identify such intellectual property. This information will be used to ensure that no NIST employee involved in the development of the intellectual property will participate in the review process for that competition. In addition, if the applicant intends to use NIST-owned intellectual property, the applicant must comply with all statutes and regulations governing the licensing of Federal government patents and inventions, described in 35 U.S.C. §§ 200-212, 37 C.F.R. Part 401, 2 C.F.R. §200.315, and in Section D.03 of the Department of Commerce Financial Assistance Terms and Conditions dated December 26, 2014, found at <http://go.usa.gov/hKbj>. Questions about these requirements may be directed to Chief Counsel for NIST, (301) 975-2803, nistcounsel@nist.gov.

Any use of NIST-owned intellectual property by an applicant is at the sole discretion of NIST and will be negotiated on a case-by-case basis if a project is deemed meritorious. The applicant should indicate within the statement of work whether it already has a license to use such intellectual property or whether it intends to seek one.

If any inventions made in whole or in part by a NIST employee arise in the course of an award made pursuant to this FFO, the United States government may retain its ownership rights in any such invention. Licensing or other disposition of NIST's rights in such inventions will be determined solely by NIST, and include the possibility of NIST putting the intellectual property into the public domain.

- g. Research Activities Involving Human Subjects, Human Tissue, Data or Recordings Involving Human Subjects Including Software Testing.** Any application that includes research activities involving human subjects, human tissue/cells, or data or recordings from or about human subjects, must satisfy the requirements of the Common Rule for the Protection of Human Subjects (“Common Rule”), codified for the Department of Commerce at 15 C.F.R. Part 27. Research activities involving human subjects who fall within one or more of the classes of vulnerable subjects found in 45 C.F.R. Part 46, Subparts B, C and D must satisfy the requirements of the applicable subpart(s). In addition, any such application that includes research activities on these subjects must be in compliance with all applicable statutory requirements imposed upon the Department of Health and Human Services (DHHS) and other Federal agencies, all regulations, policies and guidance adopted by DHHS, the Food and Drug Administration, and other Federal agencies on these topics, and all Executive Orders and Presidential statements of policy on applicable topics. (Regulatory Resources: <http://www.hhs.gov/ohrp/humansubjects/index.html> which includes links to FDA regulations, but may not include all applicable regulations and policies).

NIST uses the following Common Rule definitions for research and human subjects research:

Research: A systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes. For example, some demonstration and service programs may include research activity.

Human Subject: A living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention or interaction with the individual or identifiable private information.

- (1) *Intervention* includes both physical procedures by which data are gathered and manipulations of the subject or the subject's environment that are performed for research purposes.
- (2) *Interaction* includes communication or interpersonal contact between investigator and subject.
- (3) *Private information* includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record). Private information must be individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator associated with the information) in order for obtaining the information to constitute research involving human subjects.

See 15 C.F.R. § 27.102 Definitions.

- 1) **Requirement for Federalwide Assurance.** If the application is accepted for [or awarded] funding, organizations that have an IRB are required to follow the procedures of their organization for approval of exempt and non-exempt research activities that involve human subjects. Both domestic and foreign organizations performing non-exempt research activities involving human subjects will be required to have protocols approved by a cognizant, active IRB currently registered with the Office for Human Research Protections (OHRP) within the DHHS that is linked to the engaged organizations. All engaged organizations must possess a currently valid Federalwide Assurance (FWA) on file from OHRP. Information regarding how to apply for an FWA and register an IRB with OHRP can be found at <http://www.hhs.gov/ohrp/assurances/index.html>. NIST relies only on OHRP-issued FWAs and IRB Registrations for both domestic and foreign organizations for NIST supported research involving human subjects. NIST will not issue its own FWAs or IRB Registrations for domestic or foreign organizations.
- 2) **Administrative Review.** NIST reserves the right to make an independent determination of whether an applicant's activities include research involving human subjects. NIST will conduct an independent administrative review of all applications accepted for funding that include research involving human subjects that were approved by a non-NIST Institutional Review Board (IRB). Research may not start until the NIST Human Subjects Protection Office (HSPO) issues institutional review approval for final action by the NIST Grants Officer. (15 C.F.R. § 27.112 Review by Institution.) If NIST determines that an application includes research activities which involve human subjects, the applicant will be required to provide additional information for review and approval. The documents required for funded proposals are listed in each section below. Most

such documents will need to be produced during the proposal review process; however, the Grants Officer may allow final versions of certain required documents to be produced at an appropriate designated time post-award. If an award is issued, no research activities involving human subjects shall be initiated or costs incurred for those activities under the award until the NIST Grants Officer issues written approval. Retroactive approvals are not permitted.

3) **Required documents for proposal review. All applications involving human subject research must clearly indicate, by separable task, all research activities believed to be exempt or non-exempt research involving human subjects, the expected institution(s) where the research activities involving human subjects may be conducted, and the institution(s) expected to be engaged in the research activities.**

a. **Not research determination.** If an activity/task involves human subjects as defined in the Common Rule, but the applicant participant(s) indicates to NIST that the activity/task is not research as defined in the Common Rule, the following information may be requested for that activity/task:

- (1) Justification, including the rationale for the determination and such additional documentation as may be deemed necessary by NIST to review and/or support a determination that the activity/task in the application is not research as defined in the Common Rule.
- (2) If the applicant participant(s) used a cognizant IRB that provided a determination that the activity/task is not research, a copy of that determination documentation must be provided to NIST. The applicant participant(s) is not required to establish a relationship with a cognizant IRB if they do not have one.

NIST will review the information submitted and may coordinate further with the applicant before determining whether the activity/task will be defined as research under the Common Rule in the applicable NIST financial assistance program or project.

b. **Exempt research determination with no IRB.** If the application appears to NIST to include exempt research activities, and the performer of the activity or the supplier and/or the receiver of the biological materials or data from human subjects **does not** have a cognizant IRB to provide an exemption determination, the following information may be requested during the review process so that NIST can evaluate whether an exemption under the Common Rule applies (see 15 C.F.R. § 27.101(b), (c) and (d)).

- (1) The name(s) of the institution(s) where the exempt research will be conducted.
- (2) The name(s) of the institution(s) providing the biological materials or data from human subjects will be provided.

- (3) A copy of the protocol for the research to be conducted; and/or the biological materials or data from human subjects to be collected/provided, not pre-existing samples (*i.e.*, will proposed research collect only information without personal identifiable information, will biological materials or data be de-identified and when and by whom was the de-identification performed, how were the materials or data originally collected).
- (4) For pre-existing biological materials or data from human subjects, provide copies of the consent forms used for collection and a description of how the materials or data were originally collected and stripped of personal identifiers. If copies of consent forms are not available, explain.
- (5) Any additional clarifying documentation that NIST may deem necessary in order to make a determination whether the activity/task or use of biological materials or data from human subjects is exempt under the Common Rule.

c. Research review with an IRB. If the application appears to NIST to include research activities (exempt or non-exempt) involving human subjects, and the proposed performer of the activity has a cognizant IRB registered with OHRP, and linked to their Federalwide Assurance, the following information may be requested during the review process:

- (1) The name(s) of the institution(s) where the research will be conducted;
- (2) The name(s) and institution(s) of the cognizant IRB(s), and the IRB registration number(s);
- (3) The FWA number of the applicant linked to the cognizant IRB(s);
- (4) The FWAs associated with all organizations engaged in the planned research activity/task, linked to the cognizant IRB;
- (5) If the IRB review(s) is pending, the estimated start date for research involving human subjects;
- (6) The IRB approval date (if currently approved for exempt or non-exempt research);
- (7) If any of the engaged organizations has applied for or will apply for an FWA or IRB registration, those details should be clearly provided for each engaged organization.

If the application includes research activities involving human subjects to be performed in the first year of an award, additional documentation may be requested by NIST during pre-award review for those performers, and may include the following for those research activities:

- (1) A signed (by the study principal investigator) copy of each applicable final IRB-approved protocol;
- (2) A signed and dated approval letter from the cognizant IRB(s) that includes the name of the institution housing each applicable IRB, provides the start

- and end dates for the approval of the research activities, and any IRB-required interim reporting or continuing review requirements;
- (3) A copy of any IRB-required application information, such as documentation of approval of special clearances (*i.e.*, biohazard, HIPAA, etc.) conflict-of-interest letters, or special training requirements;
 - (4) A brief description of what portions of the IRB submitted protocol are specifically included in the application submitted to NIST, if the protocol includes tasks not included in the application, or if the protocol is supported by multiple funding sources. For protocols with multiple funding sources, NIST will not approve the study without a non-duplication-of-funding letter indicating that no other federal funds will be used to support the tasks proposed under the proposed research or ongoing project;
 - (5) If a new protocol will only be submitted to an IRB if an award from NIST is issued, a draft of the proposed protocol;
 - (6) Any additional clarifying documentation that NIST may request during the review process to perform the NIST administrative review of research involving human subjects. (See 15 C.F.R. § 27.112 Review by Institution.)

This clause reflects the existing NIST policy and requirements for Research Involving Human Subjects. Should the policy be revised prior to award, a clause reflecting the policy current at time of award may be incorporated into the award.

If the policy is revised after award, a clause reflecting the updated policy may be incorporated into the award.

For more information regarding research projects involving human subjects, contact Anne Andrews, Director, NIST Human Subjects Protection Office (e-mail: anne.andrews@nist.gov; phone: (301) 975-5445).

3. Reporting

a. Reporting Requirements. The following reporting requirements described in Sections A.01 Performance (Technical) Reports and B.02 Financial Reports of the Department of Commerce Financial Assistance Standard Terms and Conditions dated December 26, 2014, <http://go.usa.gov/hKbj>, apply to awards in this program (see Section VI.2.b. of this FFO):

(1) Financial Reports. Each award recipient will be required to submit an SF-425, Federal Financial Report on a semi-annual basis for the periods ending March 31 and September 30 of each year. Reports will be due within 30 days after the end of the reporting period to the NIST Grants Officer and Grants Specialist named in the award documents. A final financial report is due within 90 days after the end of the project period.

(2) Performance (Technical) Reports. Each award recipient will be required to submit a technical progress report to the NIST Grants Officer and Federal

Program Officer on a semi-annual basis for the periods ending March 31 and September 30 of each year. Technical progress reports shall contain information as prescribed in 2 C.F.R. § 200.328. Technical progress reports should also provide an overall assessment of program activities and explore opportunities to improve program effectiveness. Reports will be due within 30 days after the end of the reporting period. A final technical report shall be submitted within 90 days after the expiration date of the award, and publication citation information as well as links to publicly available data shall be submitted as soon as they become available.

If a recipient's Data Management Plan (DMP) has changed since their last submission of a technical progress report, the recipient must include their revised DMP in the next technical progress report following the revision to the DMP. The revised DMP must include all of the requirements described in Section IV.2.a.(9) of this FFO.

(3) Patent and Property Reports. From time to time, and in accordance with the Administrative and National Policy Requirements (see Section VI.2. of this FFO) and other terms and conditions governing the award, the recipient may be required to submit property and patent reports.

- b. Audit Requirements.** 2 C.F.R. 200 Subpart F, adopted by the Department of Commerce through 2 C.F.R. § 1327.101 requires any non-Federal entity (i.e., including non-profit institutions of higher education and other non-profit organizations) that expends Federal awards of \$750,000 or more in the recipient's fiscal year to conduct a single or program-specific audit in accordance with the requirements set out in the Subpart. Applicants are reminded that NIST, the Department of Commerce Office of Inspector General, or another authorized Federal agency may conduct an audit of an award at any time.
- c. Federal Funding Accountability and Transparency Act of 2006.** In accordance with 2 C.F.R. Part 170, all recipients of a Federal award made on or after October 1, 2010, are required to comply with reporting requirements under the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. No. 109-282). In general, all recipients are responsible for reporting sub-awards of \$25,000 or more. In addition, recipients that meet certain criteria are responsible for reporting executive compensation. Applicants must ensure they have the necessary processes and systems in place to comply with the reporting requirements should they receive funding. Also see the *Federal Register* notice published September 14, 2010, at 75 FR 55663 available here <http://go.usa.gov/hKnQ>.

VII. Federal Awarding Agency Contacts

Questions should be directed to the following contact persons:

Subject Area	Point of Contact
Programmatic and Technical Questions	Cynthia Kotary Phone: 303-497-3319 E-mail: cindy.kotary@nist.gov
Technical Assistance with Grants.gov Submissions	Christopher Hunton Phone: 301-975-5718 E-mail: grants@nist.gov Or www.grants.gov Phone: 800-518-4726 E-mail: support@grants.gov
Grant Rules and Regulations	Scott McNichol Phone: 303-497-3444 E-mail: scott.mcnichol@nist.gov