Office of Science
Financial Assistance
Funding Opportunity Announcement
DE-FOA-0000448

RESEARCH, DEVELOPMENT AND TRAINING IN ISOTOPE PRODUCTION

SUMMARY:

The Office of Nuclear Physics (NP), Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications for research and development on alternative methods to produce and separate stable and radioactive isotopes needed for a wide variety of research and applications. The proposed research and development should provide new and innovative technologies, or improvements to existing technologies, to foster the enhanced production of isotopes that will benefit research and applications in medicine, homeland security, the physical sciences, biological and geological sciences, and industry. Applications proposing novel and effective ways to enhance education and training of personnel with expertise to improve and develop new methods in the production, processing, purification, and distribution of stable and radioactive isotopes are invited.

A companion Program Announcement to DOE Laboratories (LAB 11-448) will be posted on the Office of Science Grants and Contracts web site at: http://www.science.doe.gov/grants/

NOTE: The significant needs for methods of Mo-99 production are recognized. However, development of new production modalities for this isotope is currently being pursued under programs sponsored by National Nuclear Security Administration (NNSA). Thus, applications exclusively involving proposed modes of Mo-99 production are excluded from this call.

Projects under this FOA will be funded under the auspices of the Isotope Development and Production for Research and Applications Program operating in the Office of Nuclear Physics in the United States Department of Energy's Office of Science. Contingent upon the availability of FY 2011 appropriated funds, it is anticipated that a total amount of $3,000,000 will be available under this opportunity. It is anticipated that at least two awards will be made. Awardees will be selected guided by a peer review conducted in accordance with 10 CFR Part 605.10. The specific evaluation criteria are presented later in this FOA.

The general goal of this funding opportunity is to support efforts that will improve or develop new production and processing techniques of stable and radioactive isotopes in short supply, and to train the next generation workforce involved in the production, processing and distribution of isotopes. In establishing priorities for the program, the Office of Nuclear Physics considers

guidance from the Nuclear Science Advisory Committee on Isotopes (NSAC-I) as documented in the following two reports:

> *Compelling Research Opportunities using Isotopes*, NSAC Isotopes Subcommittee, April 23, 2009 (http://www.er.doe.gov/np/nsac/docs/NSACI_Final_Report_Charge1.pdf)
>
> *Isotopes for the Nation's Future A Long Range Plan*, NSAC Isotopes Subcommittee, August 27, 2009 (http://www.er.doe.gov/np/nsac/docs/NSACI_II_Report.pdf

Other background information pertinent to the purposes of this FOA may be found in:

> *The Frontiers of Nuclear Science—a Long Range Plan*, DOE/NSF Nuclear Science Advisory Committee, December ,2007 (http://www.er.doe.gov/np/nsac/docs/Nuclear-Science.High-Res.pdf)
>
> *Workshop on the Nation's Needs for Isotopes: Present and Future*, August, 2008 (http://www.er.doe.gov/np/program/docs/Workshop%20Report_final.pdf)
>
> *Advancing Nuclear Medicine Through Innovation*, National Academy of Sciences (2007), National Academies Press (http://dels.nas.edu/Report/Advancing-Nuclear-Medicine-Through-Innovation-2007/11985)

SUPPLEMENTARY INFORMATION:

Program Objective:

The mission of the Office of Nuclear Physics Isotope Development and Production for Research and Applications (IDPRA) Program is to develop, produce and distribute stable and radioactive isotope products that are in short supply. Many isotopes are high-priority commodities of strategic importance for the Nation and are essential for energy, medical and national security applications, and basic research. A goal of the program is to make critical isotopes more readily available to meet domestic U.S. needs. Community-sponsored studies and workshops have identified a number of stable and radioactive isotopes in short supply that are needed by the research and applied sciences communities. The reliable availability of isotopes for research is crucial for U.S. scientists to stay engaged at the forefront of scientific advances and discoveries in isotope-using sciences.

The IDPRA Program is steward of the Isotope Production Facility (IPF) at Los Alamos National Laboratory (LANL), the Brookhaven Linear Isotope Producer (BLIP) facility at BNL, and hot cell facilities for processing isotopes at Oak Ridge National Laboratory (ORNL), BNL and LANL. The Program also coordinates and supports isotope production at a suite of university, national laboratory, and federal accelerator and reactor facilities throughout the Nation to promote a reliable supply of domestic isotopes.

Scientists at universities, national laboratories or private companies are encouraged to submit proposals that focus on the development of advanced, cost-effective and efficient technologies

for producing, processing, recycling, and distributing isotopes in short supply. Successful research programs should lead to breakthroughs that facilitate an increased supply of isotopes important to end-users of the materials and that complement the existing portfolio of isotopes produced and distributed by the IDPRA Program.

All aspects of research into the science of isotope production are of interest in this regard including:

- Novel or improved capabilities for inducing the transmutation in targets to create radioisotopes;
- Optimum selection of the materials and effective design of targets for the production of radioisotopes;
- Innovative approaches to model and predict behavior and yields of targets undergoing irradiation in order to minimize target failures during routine isotope production;
- Chemical and physical processes to recover and purify radioisotopes from activated targets, legacy materials, or facility components;
- Automation of production and processing techniques to enhance efficiency and safety of the production of radioisotopes; and
- New and innovative production methods for stable isotopes, including electromagnetic and non-electromagnetic separation methods.

Also, proposals that contribute to the training of the next generation of nuclear scientists and engineers in technical areas related to isotope production and processing are strongly encouraged.

Applications requesting support for research and development in one or more areas should include a separate task for each area. For each task the application should address the specific goal of the effort; the method or approach to be taken; a cost-breakdown of the effort; the personnel required to carry out the effort; the deliverable result of the task. Consideration should be given to the performance, cost, schedule, impact and benefit for producing the isotope product that would result from the task. Each task should describe a realistic schedule, which includes a minimum of one milestone per quarter. Milestones will be used to track progress of supported work. Equipment and hardware required to accomplish the proposed tasks must be identified and detailed costs and procurement schedule shall be provided. Applicants should note that they will be required to report formally on a regular basis regarding R&D expenditures and progress towards achieving the milestones and deliverables of the proposed effort. Institutional contributions to the effort should be clearly indicated.

Collaboration

Applicants are welcome to collaborate with researchers in other institutions, such as universities, industry, non-profit organizations, federal laboratories and Federally Funded Research and Development Centers (FFRDCs), which include the DOE National Laboratories. In the case of collaborative applications submitted from different institutions that are directed at a single research activity, each application must have a different scope of work and a qualified principal investigator who is responsible for the research effort being performed at his or her institution.

There must be a single technical description of the proposed work, and separate face pages and budget pages for each institution. The scope of work at each institution must be clearly specified. While collaboration with researchers at FFRDCs (Fermi National Accelerator Lab and other DOE national labs are examples of FFRDCs), is encouraged, no funds will be provided to those organizations under this FOA. The procedure for submitting a collaborative application can be accessed via the web at: http://www.sc.doe.gov/grants/colab.asp. This section provides specific details regarding collaborating institutions.

LETTER OF INTENT:

Letters of Intent are not required.

APPLICATION DUE DATE: April 18, 2011, 11:59 PM Eastern Time

Formal applications submitted in response to this Funding Opportunity Announcement must be received by Monday, April 18, 2011, 11:59 p.m. Eastern Time, to permit timely consideration of awards. You are encouraged to transmit your application well before the deadline. **APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.**

IMPORTANT SUBMISSION INFORMATION:

The full text of the Funding Opportunity Announcement (FOA) is located on FedConnect. Instructions for completing the Grant Application Package are contained in the full text of the FOA which can be obtained at: https://www.fedconnect.net/FedConnect/?doc=DE-FOA-0000448&agency=DOE. To search for the FOA in FedConnect click on "Search Public Opportunities". Under "Search Criteria", select "Advanced Options", enter a portion of the title " Research, Development and Training Isotope Production", then click on "Search". Once the screen comes up, locate the appropriate Announcement.

In order to be considered for award, Applicants must follow the instructions contained in the Funding Opportunity Announcement.

WHERE TO SUBMIT: Applications must be submitted through Grants.gov to be considered for award.

You cannot submit an application through Grants.gov unless you are registered. Please read the registration requirements carefully and start the process immediately. Remember you have to update your CCR registration annually. If you have any questions about your registration, you should contact the Grants.gov Helpdesk at 1-800-518-4726 to verify that you are still registered in Grants.gov.

Registration Requirements: There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register

with the credential provider, and register with Grants.gov). See http://www.grants.gov/GetStarted. Use the Grants.gov Organization Registration Checklist at http://www.grants.gov/assets/OrganizationRegCheck.pdf to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants, who are not registered with CCR and Grants.gov, should allow at least 21 days to complete these requirements. It is suggested that the process be started as soon as possible.

IMPORTANT NOTICE TO POTENTIAL APPLICANTS: When you have completed the process, you should call the Grants.gov Helpdesk at 1-800-518-4726 to verify that you have completed the final step (i.e. Grants.gov registration).

Questions: Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. Part VII of this FOA explains how to submit other questions to the Department of Energy (DOE).

All applications should be in a single PDF file.

GENERAL INQUIRIES ABOUT THIS FOA SHOULD BE DIRECTED TO:

Technical/Scientific Program Contact:

Program Manager: Dennis Phillips, Office Nuclear Physics
Phone: 301-903-7866
Fax : 301-903-3833
E-Mail: dennis.phillips@science.doe.gov

Merit Review

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following evaluation criteria which are listed in descending order of importance codified at 10 CFR 605.10(d):

1. Scientific and/or Technical Merit of the Project;
2. Appropriateness of the Proposed Method or Approach;
3. Competency of Applicant's Personnel and Adequacy of Proposed Resources; and
4. Reasonableness and Appropriateness of the Proposed Budget.

The evaluation process will include program policy factors such as the relevance of the proposed research to the terms of the announcement and the agencies' programmatic needs. Note that external peer reviewers are selected with regard to both their scientific expertise and the absence of conflict-of-interest issues. Both Federal and non-Federal reviewers may be used, and submission of an application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

The Catalog of Federal Domestic Assistance (CFDA) number for this program is 81.049, and the solicitation control number is ERFAP 10 CFR Part 605.

Posted on the Office of Science Grants and Contracts Web Site: January 24, 2011.