Agriculture and Food Research Initiative Competitive Grants Program

Foundational Program

FY 2014 Request for Applications

United States Department of Agriculture

National Institute of Food and Agriculture

Foundational Program
The Foundational Program RFA focuses on building a foundation of knowledge in fundamental and applied food and agricultural sciences critical for solving current and future societal challenges. Grant types supported by AFRI within this area include single-function Research Projects, multi-function Integrated Projects, and Food and Agricultural Science Enhancement (FASE) Grants.

A. Program Area Descriptions

2. Animal Health and Production and Animal Products

Background
Animal production and health play critical roles in the sustainability and competitiveness of U.S. agriculture. They contribute significantly to the nation's economy, global food production and food security. Our competitiveness depends on understanding the critical biological and physiological mechanisms underlying nutrition, growth, reproduction, and health in livestock, poultry, equine, and aquaculture species. Research at the genetic, genomic, molecular, cellular and organ systems levels is essential. We need to expand our knowledge using basic and applied research to reduce production and health costs, enhance nutritional quality of animal products, and minimize environmental impacts. This information is required to develop better management strategies for both conventional and organic production systems to improve production efficiency and animal well-being, enhance animal health, and develop improved animal products for human use. These strategies may include the application of biotechnology, conventional breeding, and breed development.

The AFRI Animal Health and Production and Animal Products program area addresses the following priorities within the 2008 Farm Bill: B**.** Animal Health and Production and Animal Products - Animal systems (subpriorities i. aquaculture; ii. cellular and molecular basis of animal reproduction, growth, disease, and health; iii. animal biotechnology; iv. conventional breeding, including breed development, selection theory, applied quantitative genetics, breeding for improved food quality, breeding for improved local adaptation to biotic stress and abiotic stress, and participatory breeding; v. identification of genes responsible for improved production traits and resistance to disease; vi. improved nutritional performance of animals; vii. improved nutrient qualities of animal products and uses; and viii. the development of new and improved animal husbandry and production systems that take into account production efficiency, animal well-being, and animal systems applicable to aquaculture).

The Animal Health and Production and Animal Products program area directly aligns with the Research, Education, and Economics Action Plan (www.ree.usda.gov/ree/news/USDA_REE_Action_Plan_02-2012_2.pdf) and specifically addresses: Goal 1. Local and Global Food Supply and Security; Goal 2. Responding to Climate and Energy Needs; and, Goal 3. Sustainable Use of Natural Resources.

In FY 2014, AFRI invites Research Project applications that support Standard, Conference and FASE Grant types relevant to the seven priority areas of the Animal Health and Production and Animal Products Program Area described below.

Additionally in FY 2014, NIFA has partnered with the Biotechnology and Biological Sciences Research Council (BBSRC) of the United Kingdom (UK) for a new priority area to solicit Collaborative Standard research applications in two areas: **Animal Health and Disease; and, Veterinary Immune Reagents**. The goal of this pilot partnership is to leverage fiscal, physical and intellectual resources to facilitate coordinated research that addresses high impact diseases and animal health issues relevant to stakeholders in both countries. The UK component of the US-UK Collaborative Project will be funded under the umbrella of the Living With Environmental Change (LWEC) partnership (www.lwec.org.uk) and the Global Food Security Programme (www.foodsecurity.ac.uk).

Letter of Intent Deadline – February 27, 2014 (5:00 p.m. ET); see Part IV, A for instructions
Program Area e-mail for Submission of Letter of Intent – animals@nifa.usda.gov
Application Deadline – May 1, 2014 (5:00 p.m. ET)

Total Program Funds – Approximately $18 million
Proposed Budget Requests –

- Standard Grants must not exceed $500,000 total (including indirect costs) for project periods of up to 5 years.
- Conference, and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 3.
- Requests exceeding the budgetary guidelines will not be reviewed.

Program Area Priorities – Each application must address one of the following seven Program Area Priorities:

1. **Animal Reproduction**
   Program Area Priority Code – A1211
   Program Area Priority Contact – Dr. Mark Mirando (202) 401-4336 or mmirando@nifa.usda.gov

   Cellular, molecular, genomic/genetic or whole-animal aspects of animal reproduction, especially focusing on:
   - Gonadal function (including production, function, and preservation of gametes);
   - Hypothalamic-pituitary axis; or
   - Embryonic and fetal development (including interaction between the conceptus and its uterine environment).

2. **Animal Nutrition, Growth and Lactation**
   Program Area Priority Code – A1231
   Program Area Priority Contact – Dr. Steven Smith (202) 401-6134 or sismith@nifa.usda.gov

   Cellular, molecular, genomic/genetic or whole-animal aspects of nutrition, growth and lactation, especially focusing on:
   - Nutrient utilization and efficiency;
   - Innovative approaches to feed formulation or use of novel alternative feedstuffs; or
   - Improving the quality and efficiency of producing meat, milk, eggs, and animal fiber.

3. **Animal Well-Being**
   Program Area Priority Code – A1251
   Program Area Priority Contacts – Dr. Margo Holland, (202) 401-5044 or mholland@nifa.usda.gov and Dr. Peter Johnson (202) 401-1896 or pjohnson@nifa.usda.gov

   Evaluation of current management practices and development of new management practices that reduce animal stress and optimize sustainable production efficiency. Areas of focus may include but are not limited to:
   - Behavioral and/or physiological methods to objectively measure animal stress and well-being;
   - Prevention or alleviation of pain or stress associated with management practices, including stocking density, handling and transportation; or
   - Methods of humane slaughter or on-farm euthanasia.

   NOTE: Proposals that address animal welfare with a significant engineering component such as the design, manufacture, and operation of structures, technologies, machines, processes, and/or systems should be submitted to the Agriculture Systems and Technology Program Area Priority: Engineering, Products, and Processes (A1521).

4. **Animal Health and Disease**

   *****Also see US-UK Collaborative Project funding opportunity described below in Section 7.*****

Program Area Priority Code – A1221
Program Area Priority Contacts – Dr. Margo Holland, (202) 401-5044 or mholland@nifa.usda.gov
and Dr. Peter Johnson (202) 401-1896 or pjohnson@nifa.usda.gov

Cellular, molecular, genomic/genetic or whole-animal aspects of animal health and disease, especially focusing on:

- Maintenance of homeostasis;
- Disease prevention (vaccines, diagnostics, enhanced innate or adaptive immunity, disease resistance or susceptibility, or management); or
- Therapeutic interventions for disease reduction/treatment (including alternatives to current antimicrobial treatments).

5. **Tools and Resources - Animal Breeding, Genetics and Genomics**
Program Area Priority Code – A1201
Program Area Priority Contact – Dr. Lakshmi Kumar Matukumalli (202) 401-1766 or
lmatukumalli@nifa.usda.gov

Development of community genetic and genomic resources and tools including software, experimental protocol/methods for breeding, advancing basic biology and applied animal health and nutritional focus such as:

- Improvement of genome assembly and annotation;
- Discovery and analysis of genetic diversity within and across breeds or populations (*e.g.,* detection of signatures of selection);
- Application of genome-wide methods for identification of gene regulatory regions;
- Novel quantitative genetics methods including selection theory and modeling;
- User-friendly web interfaces and data visualization tools having knowledge exchange capabilities between federated databases within and across species; or
- Development of cyber-infrastructure tools, that will benefit agricultural animals through customization and addition of new software tools, for genotype-phenotype associations from analysis of large-scale sequence and/or genotype data, databases, and user-friendly web-interface.

NOTE: The emphasis of this program area priority is on the development of tools and resources. Applications that assess genome variation (*e.g.,* selecting within a breed for a specific trait of interest) and relevance to function and phenotype for improved animal production or health, conventional animal breeding, breed development, or applied quantitative genetics should be directed to Program Area Priorities 1, 2, 3, or 4 identified above.

6. **Tools and Resources** - **Veterinary Immune Reagents**

*****Also see US-UK Collaborative Project funding opportunity described below in Section 7.*****

Program Area Priority Code – A1223
Program Area Priority Contacts – Dr. Peter Johnson (202) 401-1896 or pjohnson@nifa.usda.gov
and Dr. Margo Holland, (202) 401-5044 or mholland@nifa.usda.gov

Development of publicly accessible immunological reagents for agriculturally-relevant animal species.

Applicants must:

- Address one of the following **five species groups (ruminants: primary focus on bovine; swine; poultry; equine; or, aquaculture: primary focus on catfish and salmonids).** Applications should clearly outline the methods that the project team will use to determine the US immunology research communities' highest priority needs for the species;
- Describe a strong management and implementation plan that includes standard operating procedures and addresses the following: quality control and quality assurance of developed reagents to ensure sensitivity and specificity; distribution and maintenance of the developed reagents, including a mechanism to avoid future reagent loss that guarantees the sustainability of developed reagents;

- All reagents must be made publicly available, reasonably priced, and readily accessible; and
- Describe how the project management structure will connect with principal national stakeholders and/or partners for the particular species group (such as through an Advisory Committee, etc.); international linkages are encouraged, when appropriate. Strong linkages with the larger community will help assure a high degree of accountability for community needs; synergies are facilitated and unnecessary duplication can be avoided.

Program Area Priority Additional Information:

- Applicants are strongly encouraged to contact one of the Program Area Priority Contacts prior to submission of letter of intent.
- A maximum of one award per species is anticipated for a maximum total of five awards. If an award is made in FY 2014 for a species, that species will not be eligible for a second immune reagent award from the FY 2015 RFA.
- To foster mutual learning and synergies among projects, AFRI will facilitate networking among species awardees each year through one Project Director meeting at a location to be determined and three video conferences. Each award team will share their progress to date (e.g., timeline metrics, including any ongoing challenges and those solved) and next steps, and also consider collaboration opportunities among one or more award teams for mutual benefit.

7. **US-UK Collaborative Projects: Animal Health and Disease; and Veterinary Immune Reagents**
Program Area Priority Code – A1224
Program Area Priority Contacts –
US applicants: Dr. Peter Johnson (202) 401-1896 or pjohnson@nifa.usda.gov and
Dr. Margo Holland, (202) 401-5044 or mholland@nifa.usda.gov
UK applicants: Dr. Sadhana Sharma, Strategy and Policy Manager-Animal Health, BBSRC,
44 (0) 1793-413099 or sadhana.sharma@bbsrc.ac.uk

NOTE: Letters of Intent for US-UK Collaborative Projects must be emailed to animals@nifa.usda.gov and UK-USCollab@bbsrc.ac.uk. Letter of Intent deadline and further guidance are listed previously, directly after the background section of "**Animal Health and Production and Animal Products".**

A. **Animal Health and Disease**

- **Research on emerging diseases and/or diseases of agriculturally relevant animals of high economic consequence in BOTH the US and UK (viral, bacterial, and parasitic diseases):**
  - Pathogen emergence, persistence, transmission, infectivity and pathogenesis, host-pathogen interactions (including immunology; genetics and genomics), epidemiology, diagnostics or
  - Next generation vaccines with particular emphasis on approaches using new techniques and methodologies.

- **Alternatives to current antimicrobials and anthelmintics used to treat disease in agricultural animals in BOTH the US and UK:**
  - Strategies including but not limited to the following: antimicrobial peptides, prebiotics, probiotics, bacteriophage, modulators of innate and adaptive immunity, immune modulation, novel approaches based on gut microbiome and host interactions, or genetic resistance to disease, including classical animal breeding;
  - The human health impact of proposed alternate strategies must be considered (e.g., strategies should not create selection pressure favoring the development of antimicrobial resistance to medically relevant human antibiotics).

B. Veterinary Immune Reagents

- In addition to all the specific requirements in Section 6 above that must be followed by US-UK Collaborative proposals for Veterinary Immune Reagents, applicants must also:

- Describe strategic and economic relevance of the species to the US and UK;
- Clearly outline the methods the project team will use to determine the US and UK immunology research communities' highest priority needs for the species; and
- Describe how AFRI and BBSRC funds will synergize to address high priority reagent gaps and avoid unnecessary duplication.

NOTE: In addition to the requirements described in "Other Program Area Key Information" below, US-UK Collaborative Project applicants must also read and adhere to the requirements in **"Additional Program Area Key Information for US-UK Collaborative Projects in Animal Health and Disease; and Veterinary Immune Reagents".**

Other Program Area Key Information applicable to ALL Animal Health and Production and Animal Products priority areas 1-7:

- All applications must adhere to the requirements beginning in Part IV.
- All AFRI applications may include subcontracts to other institutions, including foreign. Adequate justification for foreign subcontracts is required with demonstration of the benefit to the US.
- Applications from, and collaborations with, small to mid-sized institutions, minority-serving institutions, and/or EPSCoR states are strongly encouraged.
- Applicants must justify model systems (*e.g.,* use of laboratory animals, cell cultures). Applications that primarily (i.e., encompassing greater than 50% of the work proposed) use non-agricultural or non-aquacultured species as models will not be considered.
- Applicants must include power analyses if experimental animals are used. Studies comparing treatment groups must justify the sample size for each experimental group, considering the magnitude of the treatment difference for the response variable, standard deviation for the response variable, power, and level of significance (*i.e.,* probability of making a type I error).
- Applicants must provide a validation plan if diagnostic tests are developed.
- Applicants must include a statement addressing Minimum Information about Microarray Experiment (MIAME) compliance (see www.mged.org) if microarray studies are included.
- Applicants must provide a plan to release research results to the public in a timely manner.

Applicants must provide a description and budgeted plan for the release of research results (e.g., sequence data, germplasm, genetic resources) that is compliant with the terms and conditions that govern USDA NIFA funded projects in the Animal Health and Production and Animal Products Program Area, where applicable**,** especially page 5 (Genetic Resources from Outside of the U.S); pages. 6-8 (Patents and Inventions including Plant Variety Protection); and pages 10-12 (Release of Animal or Plant Genome Sequence Data and Distribution of Animal or Plant Genomic Resources, Release or Distribution of Animal Quantitative Trait Loci, and the Release or Distribution of Plant Germplasm). Terms and conditions can be found at www.nsf.gov/pubs/policydocs/rtc/agencyspecifics/nifa_413.pdf

- Applicants are encouraged to take advantage of molecular and biotechnology approaches to accelerate improvements in animal production and health, where appropriate.
- Applications with primary focus on the following should not be submitted to Animal Health and Production and Animal Products:
  - *Food Safety*. Consult the *Food Safety, Nutrition, and Health* Program Area Priorities in this RFA for a possible fit. Only pathogens that cause important disease in the agricultural animal are eligible for support in *Animal Health and Production and Animal Products***.**
  - *Secondary effects or indirect effects of disease* (*e.g.,* on reproduction, muscle growth, lactation).
  - *Plant-based vaccines*.
- Applications focused on the effects of metabolic disorders (e.g., hepatic lipidosis, insulin resistance) and nutrient deficiencies on meat, milk and egg production should be submitted to the Animal Nutrition, Growth and Lactation Program Area Priority (A1231); applications focused on the effects of metabolic disorders and nutrient deficiencies on immune function or susceptibility to disease should be submitted to the Animal Health and Disease Program Area Priority (A1221).
- Applicants are encouraged to review the Ecology and Evolution of Infectious Diseases (http://nifa.usda.gov/fo/ecologyandevolutionofinfectiousdiseases.cfm) and the Dual Purpose with Dual Benefit: Research in Biomedicine and Agriculture Using Agriculturally Important Domestic Species (http://grants.nih.gov/grants/guide/pa-files/PAR-13-204.html) collaborative interagency programs. Additional information can be found under Part I, B.

Additional Program Area Key Information only for the US-UK Collaborative Projects: Animal Health and Disease; and, Veterinary Immune Reagents (priority area 7):

- **Prior to Letter of Intent Submission and Full Application Writing:**
  - US applicants are **strongly encouraged** to contact one of the US Program Area Priority Contacts to confirm that the topic meets NIFA's mission to support high priority issues relevant to US stakeholders.
  - UK applicants **must** contact the UK Program Area Priority Contact to confirm that the UK component fits BBSRC's requirements and the needs of UK stakeholders. UK researchers applying under this heading must meet BBSRC eligibility requirements for managed mode calls and must apply through an institution eligible to receive BBSRC funding. Please see BBSRC funding rules: www.bbsrc.ac.uk/funding/apply/grants-guide.aspx**.** Applications with non-eligible UK partners will not be considered for funding as a US-UK Collaborative award.

- **Total US-UK Collaborative Budget:**
  - In addition to the AFRI funding requested to support work led by US scientists, UK scientists should request additional funding in British pounds (£) from the BBSRC for their work; however, this part of the budget should not be reported on NIFA's Form SF424. Instead, budget details must be included in an appendix described below under "application submission".
  - Equal support from AFRI and BBSRC is not required. Either country may contribute more than 50% of the total resources (e.g., AFRI 50% + BBSRC 50%; AFRI 70% + BBSRC 30%; AFRI 40% + BBSRC 60%; etc.). This provides each transatlantic team with maximum flexibility to use total project resources for the greatest scientific impact.
  - Expected total funding from the BBSRC for this solicitation to fund the UK component of US-UK Collaborative Awards is up to £2 million (British pounds) for up to 5 years for the Animal Health and Disease priority and up to £0.5 million (British pounds) for up to 5 years for the Veterinary Immune Reagents priority. AFRI has not set a maximum to be spent on US-UK Collaborative awards.

- **Application Submission:**
  - US-UK Collaborative applications must be submitted by US institutions and follow all AFRI requirements. The application title must begin with the words "US-UK Collaborative".
  - The overall project must demonstrate a unified, collaborative approach; the specific contributions and responsibilities of the US and UK teams to the objectives must be set out clearly in the proposal's project narrative and be reflected in the budget justifications.
  - US scientists are strongly discouraged from submitting more than one application as lead Project Director to the Animal Health and Disease section. However, US scientists may serve as co-project director on more than one application.
  - Information for the UK component of US-UK Collaborative Applications should be included as Supplementary Documents in one or more Appendices labeled as "UK Supplementary Documents". This information should only include the following:
    - **Biographical sketches of UK senior personnel:** All biographical sketches must conform to NIFA format. NOTE: NIFA Conflict of interest lists are also required for all UK senior personnel.
    - **Added value of partnership:** How is this partnership bringing together complementary expertise in a meaningful intellectual collaboration?
    - **UK budget:** Costs and justification of resources for the UK component of the project should be entered into the Je-S system but the completed form **SHOULD NOT** be submitted electronically to the BBSRC at this stage. Instead, a PDF version of the form should be saved and sent to the US lead Project Director (PD) for inclusion as a supplementary document in the application. Also, an electronic copy of this document should be sent to the BBSRC cognizant program officer before Close of Business on the AFRI Animal Health and Disease deadline date. Full details regarding requirements can be obtained at www.bbsrc.ac.uk/funding/opportunities/2013/animal-health-veterinary-immune-reagents.aspx. Applicants should ensure that they contact the main UK cognizant program officer at BBSRC to discuss the remit of their application and to confirm whether they should complete a BBSRC Je-

S form. If awarded, the researchers will be asked to attend an annual meeting to be held at either the National Institute of Food and Agriculture or an alternate location. Thus, necessary travel costs for attendance of this meeting should be included in the proposed budget.

- **Letters of collaboration:** Letters of collaboration from UK scientists are required. These letters must be brief and restricted to a statement of intent to collaborate only. Additional information on the nature of the collaboration and the roles of the investigators should be included in the 18 page AFRI Project Narrative.
- **Institutional endorsement:** A certification of the submission must be provided by the UK institution where the work will be performed. This certification should be a signed letter from an authorized representative with the following text: "I confirm on behalf of [insert name of institution] that the US-UK Collaborative application between [insert name of PD from the US and institution] and [insert name of PD from the UK] is endorsed and has been submitted by [name of Research Office].

NOTE to UK applicants: The applicants must ensure that all of the proposed research, whether it would be carried out in the UK or elsewhere, would comply with the principles of BBSRC's and other UK funders' common guidance on "Responsibility in the use of animals in bioscience research" (www.bbsrc.ac.uk/organisation/policies/position/policy/animals-in-bioscience-research.aspx). In particular, UK Institutions should be aware of the following aspect of the guidance relating to research or collaboration outside the UK:

- "When collaborating with other laboratories, or where animal facilities are provided by third parties, researchers and the local ethics committee in the UK should satisfy themselves that welfare standards consistent with the principles of UK legislation (e.g., the Animals (Scientific Procedures) Act 1986), and set out in this guidance, are applied and maintained. Where there are significant deviations, prior approval from the funding body should be sought and agreed."

- **Application Review and Award Selection:**
  - A separate peer review panel to evaluate US-UK Collaborative applications will not be convened. Instead, US-UK Collaborative applications will be reviewed with the other applications (non US-UK Collaboratives) submitted for that priority.
  - To be competitive for funding, a US-UK Collaborative application must clearly demonstrate a substantial and meaningful collaboration between the US and UK partners. Work proposed by each country (and therefore each country's budget) must be integral to the success of at least one of the application objectives.
  - After the peer review panel concludes, highly ranked US-UK Collaborative applications will be jointly discussed by AFRI and the BBSRC program leaders. To be recommended for funding as a US-UK Collaborative award, both AFRI and the BBSRC must agree to provide funding for the project. AFRI will not support the US component of a US-UK Collaborative unless the BBSRC funds the UK component, and vice-versa.
  - AFRI components and UK components of the collaborative applications will be awarded in accordance with AFRI and BBSRC policies, respectively. If the BBSRC selects an application for funding, BBSRC will require that the costs for the UK component of the application be submitted via the RCUK's (Research Councils UK) Je-S application submission system before final approval. UK collaborators should therefore ensure that they are registered Je-S users before the application is submitted.

B. Grant Types

Applications must propose one of the project types specified within the Program Areas and select the appropriate grant type for the application within the constraints of the grant types solicited.

1. **Standard Grants**
   Standard Grants support targeted original scientific Research, Education, Extension, or Integrated Projects**.**

2. **Other Grants (Collaborative)**
   ONLY Collaborative Research Grants are solicited under Animal Health, Production and Products Program area in this RFA.

   The Collaborative Project Grant is a type of Research, Education, Extension, or Integrated Project that allows AFRI programs to partner resources with other funding organizations to address high priority mission areas of mutual interest, without either organization transferring funds to the other. For AFRI programs soliciting Collaborative Project Grants, a single proposal is submitted to the program; it must contain all of the requisite sections for an AFRI application, in addition to information that may be outlined in the specific program description. The overall project must demonstrate an integrated, collaborative approach; the specific contributions and responsibilities of the AFRI and partner agency teams to the objectives must be set out clearly in the proposal's project narrative and reflected in the budget justifications. The advantages of the multi-organizational effort must be clearly described in the Project Narrative, as well as the specific managerial arrangements to assure strong coordination among teams. Work proposed to be supported by AFRI cannot duplicate what would be funded by the partners, and vice-versa. To be competitive for funding, a Collaborative Project Grant must clearly demonstrate a substantial and meaningful collaboration between the AFRI and non-AFRI funded teams. Work proposed to be funded by each agency (and therefore each agency's budget) must be integral to the success of at least one of the application objectives. If a Collaborative Project Grant is funded, AFRI makes an award to support objectives done by the AFRI Project Director and/or co-Project Directors. A separate award is made by the partner agency that supports objectives done by its team of Project Director and/or co-Project Directors. In FY2014, AFRI Collaborative Project (Research) Grants will only be solicited in two areas as a pilot activity within AFRI Foundational Animal Health and Production and Animal Products. While Collaborative Project Grants are solicited in a limited number of areas, all AFRI applications may continue to include subcontracts to other institutions for work also supported by AFRI.

PART II – APPLICATION AND SUBMISSION INFORMATION

A. Letter of Intent Instructions

All Program Areas within the AFRI Foundational Program Area require a Letter of Intent and is a prerequisite for submission of an application. Refer to the Program Area Descriptions beginning in Part I, C for Letter of Intent deadlines for a specific Program Area.

NOTE: You must contact the Program Area contact before submitting a Letter of Intent to the Exploratory Research Program Area Priority.

1. The Letter of Intent must adhere to the following guidelines:

   a. Font size must be at least 12 point
   b. Margins must be at least one inch in all directions
   c. Line spacing must not exceed six lines of text per vertical inch
   d. The Letter of Intent is limited to **two pages** for all project and grant types
   e. On Page 1, provide **only** the following information:

    i. the name, professional title, department, institution and *e*-mail address of the lead project director (PD) and name, professional title, department, and institution of all collaborating investigators
    ii. the Program Area and the Priority area within that Program Area most closely addressed in the application
  f. On Page 2, include:
    i. a descriptive title
    ii. rationale
    iii. overall hypothesis or goal
    iv. specific objectives
    v. approach
    vi. potential impact and expected outcomes

2. NIFA will only accept Letters of Intent in the portable document format (PDF). Attach the PDF Letter of Intent to an email addressed to the appropriate Program Area email address for Submission of Letter of Intent. In the email subject line, write: Letter of Intent [Program Area Priority Code] _ [PD's Last Name].

3. A letter is required for **all** grant types except Conference Grant applications. See Part II, D for a detailed description of grant types.

4. Submission of more than one Letter of Intent to a program (i.e., program area priority) is discouraged.

5. An acknowledgment receipt will be sent by replying to the sender within five business days.

6. Letters of Intent will be reviewed by scientific program staff in order to plan for appropriate expertise for the peer review panel and ensure that the proposed project fits appropriately within the Program Area Priorities.

7. Within three weeks after the Letter of Intent deadline, the PD will receive a response from the Program Area Priority Contact.

8. Applications submitted without a prior Letter of Intent submission will not be reviewed.

9. Applicants must notify the appropriate Program Area Priority Contact of any changes to project key personnel, title, or objectives from the time of submission of the Letter of Intent to the submission of a full application.