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## **Joint National Pork Board (NPB) and Center of Excellence for Emerging and Zoonotic Animal Diseases (CEEZAD) Request for White Papers**

### **Key Dates:**

**Issue Date October 29<sup>th</sup> 2014**

**Response Date: December 8<sup>th</sup> 2014**

**Performance Period July 1<sup>st</sup> 2015 – June 30<sup>th</sup> 2016**

### **Purpose:**

The National Pork Board's (NPB) Swine Health Committee and Center of Excellence for Emerging and Zoonotic Animal Disease (CEEZAD) seek Principal Investigators (PIs) for funding from Checkoff and government sources during the financial year that begins July 2015 and beyond. The goal of this joint call is to leverage the research dollars that each organization has available for transboundary animal diseases (TAD) of swine while limiting duplication of efforts and to further the organizations' missions to prevent, detect, and control these diseases. The Pork Board's Swine Health Committee mission is to review and act on the strategic health issues which may affect the productivity of swine herds and global trade issues and collaborate with other animal health related entities and organizations in order to more effectively solve U.S. swine health issues. CEEZAD's mission is to enhance the U.S. Department of Homeland Security's capabilities by developing state-of-the-art countermeasures for high priority transboundary and zoonotic animal disease.

Funding will be considered for listed research topic related to swine either jointly or individually through each organization depending upon the specificity or overlap of research objectives to each organization's program needs. Topic areas include Vaccines, Diagnostics/Detection, Risk Analysis, Biosecurity, Epidemiology/Modeling, and Education/Outreach.

The National Pork Board and CEEZAD are especially interested in projects that advance pork industry preparedness and have practical application for detection, response and eradication of trade- and commerce-limiting TAD of swine. In addition, both organizations will consider projects that address the development of swine-specific biosecurity tools or strategies that focus on prevention, intervention, containment and control of TAD through the pork chain or risk



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analysis of TAD introduction into the U.S. swine herd from animal and non-animal products that are used as inputs for pork production in the U.S.

Priority diseases for both organizations include: Foot-and-Mouth Disease, Classical Swine Fever and African Swine Fever. The performance period is July 1, 2015 through June 30, 2016. This 2015-2016 call for White Papers provides a summary of both CEEZAD's and NPB's current research priorities that shall be addressed through new projects. Project awards range from \$30,000 to \$80,000 per year for a single institution, and up to \$180,000 per year for multi-institutional projects with several collaborative partners.

All white papers will be reviewed by NPB's Swine Health Committee.

### **Information Requested**

The White Paper should clearly state the main goal of the project, the relevance to CEEZAD's and NPB's mission, joint call priorities and the scientific basis for the proposed research (see enclosed White Paper Template). The precise objectives and major milestones should be clearly outlined. Submissions should briefly describe the experimental plan, anticipated outcomes and their impact on advancement of countermeasures against high impact pathogens. Priority will be given to projects of high impact in the area of countermeasure development for transboundary animal diseases of swine that limit trade or commerce; projects already at an advanced stage of development that delineate clear, practical outcomes within one year of completion; projects with high potential to leverage additional matching funds; and those with demonstrated capability to engage stakeholders and end-users. Priority will be given to applied projects with feasible practical outcome, but basic research projects with "state-of-the-art" approaches and high impact potential will also be considered.

**Submit to:** [imorozov@vet.k-state.edu](mailto:imorozov@vet.k-state.edu) with CEEZAD-NPB RFP in the subject line.

### **Research Topics**

1. Foot and Mouth Disease (FMD):
  - Pre-clinical and pen-side diagnostics (for individual animals and herd level);
  - Pan-serotype-specific and type-specific lateral flow devices (LFDs);
  - Improved



- methods for predicting the antigenic match between vaccines and field isolates;  
Development or validation of DIVA compatible serologic tests with increased sensitivity
- FMD vaccines that are safe to produce and capable of inducing immunity to a broad antigenic spectrum of viral strains; Vaccines with a longer duration of immunity; Vaccines capable of preventing the establishment of chronic infection; Efficacy of current vaccine candidates in swine
2. Classical Swine Fever (CSF):
- Reliable and easy-to-perform penside tests (LFDs); improved tests for serological differentiation of CSFV; DIVA ELISA tests with increased sensitivity; DIVA tests for marker vaccines; improved diagnostic reagents
  - Efficacious and innocuous live DIVA compatible vaccines suitable for vaccination of domestic pigs; Efficacy, safety and onset of immunity for attenuated marker vaccine candidates; DIVA vaccines suitable for oral administration for wild boar and backyard pigs
3. African Swine Fever (ASF):
- Rapid pen-side tests validated for sensitivity and specificity for use in managing an outbreak of ASF in a disease-free country; Prototype diagnostic test applicable for DIVA strategy for recombinant, vectored, or genetically altered MLV vaccines. Antibody, antigen and nucleic acid detection in meat juice samples utilizing moderate to virulent ASF strains
  - Prototype attenuated, vectored or subunit ASF vaccines; ASFV proteins as potential vaccine candidates; proof of principle studies for ASF vaccine candidates
  - Specific neutralizing antibodies in protection against ASFV infection; Methods of induction of protective serum neutralizing antibodies; Cross-protective immunity between ASFV serotypes; Role of Cytotoxic T cells (CTLs) in immunity to ASF and mechanisms of CTL induction; Protective epitopes and cross-protection among genotypes. Characterization of global ASF strains and development of diagnostic signatures
  - Role of individual ASFV genes in virus replication and virus-host interactions; Effects of individual and multiple gene deletions on virus pathogenesis and induction of protective immune responses



4. Novel and Cross Cutting Research:

- Novel and cross cutting research that will significantly improve countermeasures against high impact TAD of swine. Cross cutting proposals include those that integrate two or more research focus areas (i.e. vaccines and diagnostics) Novel research White Papers include new concepts and approaches in development of vaccines and diagnostics applicable to high impact TAD of swine; improved methods of biosurveillance; advanced models for decision making

5. Biosecurity (Swine Specific):

- Development of biosecurity tools or strategies that focus on prevention, intervention, containment and control of TAD through the pork chain.
  - Transmission of TAD
    - Animals/Genetic Material
    - Fomites, including survivability & transmissibility through:
      - a. Transportation of live swine
      - b. Fresh or processed meat products
      - c. Diagnostic samples entering the U.S. from other countries
    - Pig-free or Downtime Issues
    - Feral swine
  - Cleaning and Disinfection
    - Swine and Packing Facilities / Equipment including the lairage area.
    - Transport Vehicles, Personnel, and Farm Equipment
  - Risk management protocols for prevention of TAD spread to and from points of concentrations where swine are routinely commingled (e.g. sale barn, consolidators, lairage, fairs, etc)

6. Risk Analysis (Swine Specific):

- Risk analysis of foreign animal disease introduction into the U.S. swine herd from animal and non-animal products that are used as inputs for pork production in the U.S.