BSL-3 Training/Transboundary Animal Disease Disease
Summer Program
AAVLD/USAHA Annual Meeting, Providence, R.I.
October 25, 2015

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Four Areas of CEEZAD Focus

For high-threat diseases (foreign, emerging, zoonotic):

I. Vaccines
II. Detection
III. Epidemiology/Modeling
IV. Education and Outreach

Communicate findings to critical audiences; educate/train on high-threat diseases
CEEZAD Education and Outreach

Professional Development/Outreach

- **Web-Based Continuing Education Courses**
  Curriculum development and expanded outreach for 4 online courses:
  - *Emerging and Exotic Diseases of Animals (EEDA)*
  - *Zoonoses: Protecting People and Their Pets*
  - *Preparedness for Animal Health Emergencies*
  - *Animal Disease Emergencies (In progress)*
    - New awareness level course for inclusion in Approved Federal Sponsored Course Catalog for future FEMA personnel training

Target audience:
- Veterinary students, veterinarians, animal health and homeland security professionals (first responders);
- Government, industry, academia, private practice

CEEZAD Partners:
- Center for Food Security and Public Health, Iowa State University
- Kansas State University

Workforce Development

- **Fellowships in Infectious Disease and Pathology**
  - Dual-degree DVM/PhD Program
- **ABSL-3 Lab Animal Medicine Residency Training**
- **Summer Program: BSL-3 Training /Transboundary Animal Disease**
- **Career Development Program:**
- **Minority Serving Institution Support**
- **DHS Summer Research Team Program for Federal Service Academies**
- **USDA Borlaug Fellowship Program**
  - Graduate Students from South Africa, 2013
- **Traditional Undergraduate/Graduate Students**
BSL-3 Training/Transboundary Animal Disease Summer Program

- **Purpose**
  - To provide BSL-3 training to graduate students (MS, PhD, DVM)/post-docs interested in research and careers in the field of high consequence transboundary animal diseases.
  - To increase awareness of activities to be conducted at the future National Bio and Agro-Defense Facility (NBAF)

- **Program structure**
  - June 15-25, 2015
  - **Week 1**: Hands-on BSL-3 training at BRI
  - **Week 2**: National & international speakers/Industry visits to KC Animal Health Corridor
Program Objectives

- To increase awareness of general biosecurity practices when dealing with select agents;
- To expose students to the BSL-3/Ag research environment and careers in high containment research;
- To expose students to animal health industry activities, needs and opportunities through site visits in the KC Animal Health Corridor;
- To increase awareness of current practical and scientific considerations of select transboundary emerging and zoonotic diseases of animals;
- To provide networking opportunities with peers and subject matter experts in the field of high containment research and transboundary diseases of animals.
Student eligibility

- US citizenship
- GPA of 3.3/4.0
- Currently enrolled as a full-time graduate student or post-doc position at a CEEZAD-affiliated institution

Competitive application process

- National call for applications via [www.ceezad.org](http://www.ceezad.org) and email announcement to all CEEZAD PIs
- Applications evaluated by outside committee of subject matter experts
- Class size limited to 10 students

Travel stipend provided

BSL-3 Training/Transboundary Animal Disease Summer Program
# Participants

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Degree Program</th>
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<tbody>
<tr>
<td>North Carolina State U</td>
<td>DVM/PhD – Comparative Biological Sciences</td>
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<tr>
<td>KSU/CVM (VRSP)</td>
<td>DVM</td>
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<tr>
<td>Iowa State U</td>
<td>DVM</td>
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<tr>
<td>George Mason U</td>
<td>PhD/Microbiology &amp; Infectious Disease</td>
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<td>KSU</td>
<td>PhD (post-DVM) Virology</td>
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<tr>
<td>U of Florida</td>
<td>PhD/Epidemiology</td>
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<tr>
<td>U of Kentucky</td>
<td>PhD (post-DVM) Virology</td>
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<tr>
<td>KSU/Biology</td>
<td>PhD/Microbiology (Virology/Immunology emphasis)</td>
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<tr>
<td>U of Wyoming</td>
<td>PhD/Infectious Disease Epidemiology &amp; Molecular Diagnostics</td>
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Week 1: BSL-3 Training at the BRI

- Purpose: To provide an in-depth understanding of standard microbiological practices, and principles and techniques necessary to safely and successfully conduct research in a BSL-3 setting
  - Classroom discussion and hands-on laboratory experiential exercises
  - Risk group classifications and biosafety levels
  - Risks associated with executing standard laboratory practices
  - High containment practices required when manipulating agents and toxins
  - Essential biocontainment practices for use in BSL-3, ABSL-3, & BSL-3Ag settings
Week 2: Industry Site Visits

- Purpose: To expose students to industry activities and opportunities in the KC Animal Health Corridor

- Boehringer-Ingelheim Vetmedica, Inc.
- Ceva Animal Health
- Bayer Health Care
- Xenometrics
Week 2: Seminars and Lectures

- Academic and government experts in containment research and transboundary animal diseases
- Lecture topics:
  - Rift Valley Fever virus
  - African Swine Fever virus
  - Classical Swine Fever
  - Foot and mouth disease research at Plum Island Animal Disease Center and future projects at NBAF
  - HPAI
  - Chikungunya
  - Necropsy considerations in high-containment research
  - The role of wildlife in transboundary animal diseases
Week 2: Joint BRI/CEEZAD Mini-symposium

Transboundary Diseases of Importance to U.S. Agriculture and One-Health

- **Bluetongue: Research Accomplishments and Unanswered Questions**
  Dr. James MacLachlan, U.C. Davis

- **African Horse Sickness: Recent Advances**
  Dr. Alan Guthrie, University of Pretoria, South Africa

- **MERS-CoV: One Health Can Solve this Crisis**
  Dr. Darryl Falzarano, University of Saskatchewan, Canada

- **Foot-and-Mouth Disease: A Painful Lesson**
  Dr. Young Lyoo, Konkuk University, Seoul, Korea

- **Intervention Strategies to Support the Global Control of Foot-and-Mouth Disease**
  Dr. Luis Rodriguez, Plum Island Animal Disease Center

- **A More Inclusive One Health Strategy: Finding Balance at the Interface of Animal, Plant and Human Health**
  Dr. James Stack, Kansas State University
End-of-Program Reception for Students and Speakers
Program Requirements

- Final project/report
  -- Students completed BRI team projects/presentations on high-containment considerations for a research project with specific assigned pathogens (e.g. HPAI, VSV, RVF) in a hypothetical BSL-3 facility

- Completed post-participation program survey
  -- Designed and evaluated by the KSU Office of Educational Innovation and Evaluation (OEIE)
  -- Compared program objectives to actual outcomes and to help guide future planning
OEIE Final Report Highlights

- Program successfully met its objectives
- Participants reported the goal of attending was to “gain skills and knowledge that may be of benefit for future employment opportunities”
- The program impacted students’ educational and career goals by expanding their awareness of transboundary animal diseases and increasing their interest in infectious disease research or careers.
- Students reported training and networking to be the most beneficial aspects of the program.
- Recommended improvements centered on the specific needs of the Ph.D. students (comprising about half of the participants), some of whom reported that the program was oriented too heavily towards veterinary students.
Thank you
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