Biosecurity, Biosafety and Biocontainment Research, Training and Education

Background

In the late 1990s, Kansas State University made a programmatic commitment to the area of food safety and security. The state of Kansas made a strong investment in K-State's research priorities by funding the construction of the Biosecurity Research Institute, or BRI. Further, the Department of Homeland Security has acknowledged K-State's leadership within this area and is currently constructing the National Bio and Agro-defense Facility, or NBAF, adjacent to the BRI.

Description

The BRI is well poised to train students, government personnel and technicians in biosafety and systems approaches to working in high-containment facilities. Resources include not only beautiful physical spaces designed for learning but also experienced faculty and staff members who are experts in developing and delivering training. The BRI stands ready to train the future workforce of NBAF and researchers of high-consequence pathogens.

The BRI is unique in its capacity to perform multidisciplinary research on multiple pathogens and host species within a single facility. The ability to work with livestock/food animals — cattle, sheep, goats, pigs, chickens — enables studies aimed at developing and testing diagnostics and vaccines related to high-consequence pathogens. Of the 113,000 square feet total space, 31,000 is dedicated to research. The 14 biosafety level 3, or BSL-3, enhanced laboratories include dedicated BSL-3 agriculture rooms that are approved for research on livestock species, and BSL-3 rooms for studies on food safety and security, and on exotic plant pathogens.

Over 10,000 square feet is dedicated to education, including an integrated classroom and laboratory space, to make students' learning expeditious and efficient. A tiered classroom seating 25 people is adjoined to a fully-equipped biocontainment laboratory. A wall-size glass window allows students to observe and learn procedures as they will be performed in an actual laboratory setting. The laboratory is then used to provide hands-on training activities in a pathogen-free training area. Students gain foundational skills in a realistic work environment without the risk of biosafety concerns or biocontainment breaches. The BRI also includes world-class high-definition video capture and streaming technology allowing the training suite and research areas to broadcast live video or serve as filming studios. Students can view laboratory techniques and monitor disease progression in challenged animals without the need to enter high-risk research spaces.

Individuals seeking careers in biosafety and biocontainment, as well as professionals seeking careers in high-consequence infectious disease research, will benefit from the research-based training in biocontainment practices and procedures.

Federal initiatives such as the National Institute of Health's National Biosafety and Biocontainment Training Program offers just one example of groups with which we develop synergistic, collaborative graduate education programs.

Relevance

Utilizing Kansas State University's world-class resources to educate tomorrow's biosafety and biocontainment professionals provides our students with a competitive edge as they apply for technical or faculty positions. The BRI is prepared to provide necessary training and experience for the future workforce at NBAF and biotech companies in the expanding animal health corridor.

With thousands of BSL-2 and BSL-3 laboratories in the United States, a graduate-level research and educational program for biosafety and biocontainment professionals provides valuable hands-on skills to ensure safe and secure operations.

Research and training agreements with the U.S. Department of Agriculture, the Department of Homeland Security, Australia's Commonwealth Scientific and Industrial Research Organization, and Kenya's International Livestock Research Institute provide unique opportunities for students, staff, and faculty to gain experience for NBAF and related projects that complement existing programs.

Agency Contact Information

NIH Office of NBBTP
Marcus Hodges, Fellowship Program Director
301-451-3290
info@bnntp.org

Dean M. Evasius, Division Director
Directorate of Education and Human Resources
Division of Graduate Education, NSF
703-292-2604
devasius@nsf.gov

USDA/NIFA
Peter Johnson, National Program Leader
202-401-1896
pjohnson@nifa.usda.gov

Homeland Security, Science & Tech.
Matthew Coats
202-254-6018
matthew.coats@hq.dhs.gov