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## Graduate Scholars: Future defenders

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## Future defenders

*NBAF Scientist Training Program supports student development and biodefense workforce*

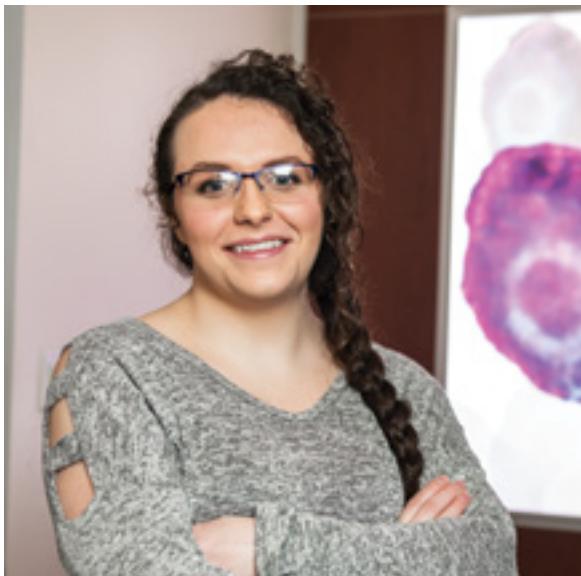
*By Sarah Caldwell Hancock*

As the National Bio and Agro-defense Facility, or NBAF, takes shape adjacent to Kansas State University's Manhattan campus, several graduate students look forward to launching their own careers there.

The NBAF Scientist Training Program offers support for students pursuing master's or doctoral degrees in microbiology, virology, molecular biology, diagnostics, veterinary medicine and other fields related to the facility.

The U.S. Department of Agriculture Animal and Plant Health Inspection Service funds the program, which provides the students with full tuition and supplementary support to build the necessary expertise for the Foreign Animal Disease Diagnostic Laboratory at NBAF. NBAF will be operational in 2022, and Plum Island Animal Disease Center operations will transition to NBAF by 2023.

The first K-State cohort of NBAF Scientist Training Program fellows began in summer 2018. All five students are from the College of Veterinary Medicine and already are working on research that safeguards U.S. agriculture.



*Kaitlynn Schuck, master's student in veterinary biomedical sciences*

**Research focus:** Rift Valley fever virus, which is transmitted by mosquitoes and primarily affects animals such as sheep, cattle, goats and camels, but also can infect humans.

### **What excites you about your research?**

"It is the potential to be involved in innovations that may open new doors to more options for diagnostic and confirmatory testing for Rift Valley fever virus. It's exciting to know that your efforts can translate into real-world applications."

### **Why do you want to work at NBAF?**

"I want to continue my research and expand my skill set in this new state-of-the-art research facility. I also am excited to be part of this first cohort of fellows so that I am able to help with the transition from Plum Island Animal Disease Center and preserve its legacy and crucial role."



*Laura Constance, concurrent Doctor of Veterinary Medicine and doctoral student in diagnostic medicine and pathobiology*

**Research focus:** African swine fever, which is a highly contagious and deadly disease of pigs, and the ways it could be introduced in the U.S. through imported feed ingredients.

### **What excites you about your research?**

"I find my work very gratifying because it will help protect our country against introduction of foreign animal diseases. African swine fever causes severe disease and deaths to pigs in other countries. Preventing entry of this disease in the U.S. is critically important."

### **Why do you want to work at NBAF?**

"I want to expand my knowledge of foreign animal diseases and help prevent their introduction into the country. Eradication of many foreign animal diseases is still in progress; I want to be a part of the team that helps with this process. I also am interested in teaching and training future scientists, veterinarians and students about these diseases so they can help prevent disease entry and potentially develop treatments."



*Chester McDowell, concurrent Doctor of Veterinary Medicine and doctoral student in diagnostic medicine and pathobiology*

**Research focus:** Portable sequencing technologies for the detection, characterization and surveillance of emerging animal diseases and diseases that affect both animals and humans.

**What excites you about your research?**

“I am able to utilize novel technology for the rapid detection and surveillance of high-consequence and emerging pathogens that may be missed using conventional technology. It is very exciting to work with cutting-edge equipment that can be used in a field setting rather than only in a laboratory environment.”

**Why do you want to work at NBAF?**

“It will allow me to work closely with leading experts in the field of high-consequence animal pathogens in a state-of-the-art setting. NBAF will possess the equipment and personnel necessary for the development and validation of novel diagnostic assays for an array of diseases and will provide a unique opportunity to conduct research that is beneficial to both human and animal health.”



*Victoria Ayers, doctoral student in diagnostic medicine and pathobiology*

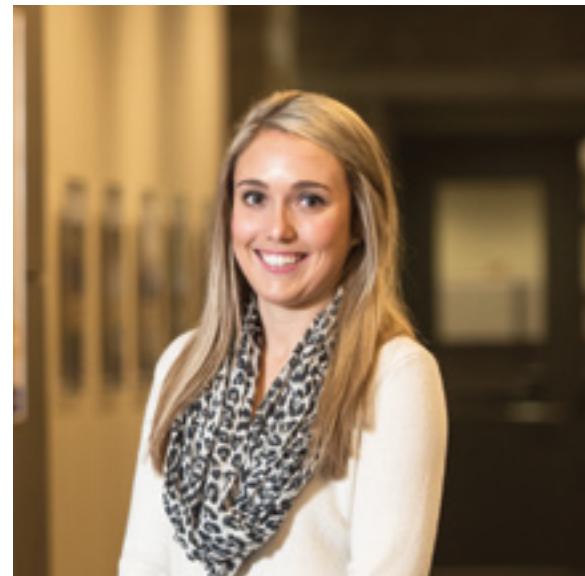
**Research focus:** Bunyaviruses, which are spread by mosquitoes and ticks and can cause fever or brain swelling in humans or animals, and vaccine development for ruminant animals, such as cattle, sheep, goats and deer.

**What excites you about your research?**

“I’ve always had a passion for animal health, and working in the research field allows me to make a direct or indirect impact on animal and human health.”

**Why do you want to work at NBAF?**

“Working at NBAF would allow me to work on new diagnostics tools in high biocontainment to assist in the improvement of animal health and protection.”



*Christian Cook, doctoral student in diagnostic medicine and pathobiology*

**Research focus:** Japanese encephalitis virus, which is transmitted to humans by infected mosquitoes.

**What excites you about your research?**

“It will determine the role of swine species in the evolution of Japanese encephalitis virus and determine its contribution to transmission cycles outside endemic regions.”

**Why do you want to work at NBAF?**

“I want to research and develop diagnostic capabilities for foreign animal and zoonotic diseases. I aim to be involved in research to prepare for and prevent potential threats to agriculture.” 

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Read more about the fellows.  
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