

Kansas State University zoonotic disease research

A new federal report shows Kansas State University researchers are tackling the zoonotic diseases of most concern in the U.S.

The report, "[8 Zoonotic Diseases Shared Between Animals and People of Most Concern in the U.S.](#)," is a collaboration of the Centers for Disease Control and Prevention, the U.S. Department of the Interior and the U.S. Department of Agriculture and is the first report to list the top-priority zoonoses for the nation. Zoonotic diseases are those that spread between animals and people and according to the report, sicken tens of thousands of Americans each year.

Kansas State University researchers are actively working on six of the eight diseases named in the federal report: zoonotic influenza, salmonellosis, West Nile virus, emerging coronaviruses, rabies and Lyme disease. University researchers also are addressing other zoonotic diseases of worldwide concern, including headline-makers like Rift Valley fever, Japanese encephalitis, Zika and Shiga toxin-producing E. coli.

The report underscores why the zoonotic disease research, programs and facilities at Kansas State University are critical to national biodefense efforts, said Peter Dorhout, university vice president for research.

"K-State research is crucial to national security and public health," Dorhout said. "We study several diseases — including zoonotic — that are priorities for the National Bio and Agro-defense Facility, and as we do this work, we are training the workforce needed to provide future biodefense."

Just like the real-life story of university alumni Nancy and Jerry Jaax, featured in the upcoming National Geographic limited series "[The Hot Zone](#)" about the arrival of the zoonotic disease Ebola to the U.S., Kansas State University researchers depend on specially equipped biosafety labs where work on deadly zoonotic diseases can be conducted safely.

The [National Bio and Agro-defense Facility](#), or NBAF, is being built by the Department of Homeland Security adjacent to the Kansas State University campus in Manhattan and will be the nation's foremost animal disease facility with biosafety level-4 laboratories. The university also is home to the [Biosecurity Research Institute](#), or BRI, in Pat Roberts Hall, which allows comprehensive infectious disease research on threats to human, animal and plant health in

biosafety level-3 labs.

"The BRI is like no other facility anywhere else in the world," said Stephen Higgs, the institute's research director and university associate vice president for research. "Collaborative research, education and training activities encompass pathogens of livestock, humans, plants and food. Some of the animal and plant disease research can be done at no other universities in the U.S."

For example, Higgs noted that because of the BRI, researchers with Kansas State University and the USDA Agricultural Research Service recently found that white-tailed deer are highly susceptible to the Rift Valley fever virus, and that university researchers were able to conduct the first Japanese encephalitis swine research in the U.S.

"Both of these zoonotic viruses are threats to the U.S. and are listed as priorities for NBAF," Higgs said.

The following is a list of Kansas State University researchers, who in teams or individually, have active projects battling the nation's top zoonotic diseases of concern:

- Zoonotic influenza — Gary Anderson, Jianfa Bia, Sally Davis, Ying Fang, Jamie Henningson, Yanhua Li, Xuming Liu, Wenjun Ma, Lalitha Peddireddi, Jürgen Richt and Bob Rowland.**
- Salmonellosis — Greg Aldrich, Natalia Cernicchiaro, Steve Dritz, Sara Gragg, Terry Houser, Cassandra Jones, Travis O'Quinn, Randy Phebus, Valentina Trinetta, Jessie Vipham, Jason Woodworth and Weiping Zhang.**
- West Nile virus — Yan-Jang Huang and Dana Vanlandingham.**
- Emerging coronaviruses — Kyeong-Ok Chang, Yunjeong Kim and Jürgen Richt.**
- Rabies — Jamie Henningson and Susan Moore.**
- Lyme disease — Brandon Garcia.**

Learn and read more about other zoonotic disease research at Kansas State University at k-state.edu/seek/fall-2018/zoonotic/.

