Dr. Guoquan Zhang will present his works toward developing a safe and effective vaccine against a bioterrorist agent, Q fever. It is a worldwide zoonotic disease caused by the obligate intracellular gram-negative bacterium, *Coxiella burnetii*. Infection in most animals is mainly subclinical, but abortion and infertility are common manifestations in ruminants. Domestic animals, especially cattle, sheep and goats, are important reservoirs of the agent and are mainly responsible for infection of humans. Human Q fever usually manifests as a flu-like, self-limiting or treatable acute illness, although some infections develop into a severe and sometimes fatal chronic disease. Infection in humans commonly occurs via the respiratory route by inhalation of infectious aerosols produced by domestic livestock. Recent epidemiological evidence suggests that infected pet animals, such as cats and dogs, play an important role in the transmission of *C. burnetii* infection to humans. More importantly, the highly infectious nature of *C. burnetii* and its hardiness in adverse environmental conditions, make the organism potentially useful in bioterrorism and biological warfare. The CDC has identified *C. burnetii* as a category B bioterrorist agent. Since human Q fever can develop into severe chronic disease, vaccination is a logical approach to protect individuals at risk for contact with naturally infected animals or other exposures to the agent. There is no licensed vaccine in the US, creation of a safe and effective new-generation vaccine for preventing Q fever is an important public health and national biosecurity goal. Dr. Zhang’s research involves understanding the host immune response to *C. burnetii* infection and identification of vaccine candidates in animal models. This talk will provide interesting information about the biodefense program and discuss current strategies for preventing human Q fever.

Dr. Zhang is an assistant professor in the Dept. of Veterinary Pathobiology at the University of Missouri-Columbia. He received his D.V.M. degree at the Agricultural University of Inner Mongolia in China in 1988 and earned his M.S. degree in animal infectious disease at the Graduate School of Chinese Academy of Agricultural Sciences in 1991. Following graduation, he worked as a veterinarian at the Beijing Animal & Plant Quarantine Bureau in China. After that, Dr. Zhang pursued a Ph.D. degree in Microbiology and Immunology at the Gifu University in Japan and completed the degree in 1998. In 2001, he joined the Dept. of Medical Microbiology and Immunology at the Texas A & M Health Science Center as a postdoctoral scientist. In 2006, he was promoted to a research assistant professor in the Dept. of Medical Microbiology and Immunology at the Texas A & M Health Science Center. In February 2008, Dr. Zhang joined the Dept. of Veterinary Pathobiology at the University of Missouri-Columbia as a tenure-track assistant professor. Dr. Zhang’s research focuses on understanding the mechanisms of protective immunity against *C. burnetii* infection and development of a safe and effective vaccine for preventing human Q fever.

Tuesday, September 30, 4:00 pm • Ag Eng Bldg 105 • Refreshments