

USDA Researchers Evaluate Prion-Free Cattle

The U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS) announced Dec. 31, 2006, that initial results of a research project involving prion-free cattle are available online at www.nature.com/nbt. ARS

scientists evaluated cattle that have been genetically modified so they do not produce prions, and they determined there were no observable adverse effects on the animals' health.

"These cattle can help in the

exploration and improved understanding of how prions function and cause disease, especially with relation to bovine spongiform encephalopathy, or BSE," said Edward Knipling, ARS administrator. "In particular, cattle lacking the gene that

produces prions can help scientists test the resistance to prion propagation, not only in the laboratory, but in live animals as well."

Prions are proteins that are naturally produced in animals. An abnormal form of prion is believed to cause devastating illnesses called transmissible spongiform encephalopathies (TSEs), such as BSE.

ARS studied eight Holstein males that were developed by Hematech Inc., a pharmaceutical research company based in Sioux Falls, S.D. The evaluation of the prion-free cattle was led by veterinary medical officer Juergen Richt of the ARS National Animal Disease Center (NADC) in Ames, Iowa. The evaluation revealed no apparent developmental abnormalities in the prion-free cattle.

"The cattle were monitored for growth and general health status from birth up to 19 months of age," Richt explained. "Mean birth and daily gain were both within the normal range for Holsteins. General physical examinations, done at monthly intervals by licensed veterinarians, revealed no unusual health problems."

ARS, with assistance from researchers at Hematech and the University of Texas, evaluated the cattle using careful observation, postmortem examination of two of the animals, and a technology that amplifies abnormal proteins to make them easier to detect. Further testing will take at least three years to complete.

The evaluation was reported in December 2006 on the online version of the scientific journal *Nature Biotechnology*.



Editor's Note: This article was written by Sean Adams, current information branch chief with ARS, which supplied this article.

