

PORK SAFETY

Title: Development of Methods for Surveillance of Retail Meat for *Toxoplasma gondii* – NPB# 00-024

Investigator: J. P. Dubey, Microbiologist

Institution: USDA, ARS, ANRI, PBESL, Bldg. 1040, Rm. 103, BARC-East, Beltsville, MD 20705, Phone: 301-504-8300, Fax: 301-504-6273, Email: jdubey@anri.barc.usda.gov

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Abstract:

Toxoplasma gondii is a single-celled organism that causes mental retardation and loss of vision in children born infected with this parasite. Humans become infected with *T. gondii* by ingesting undercooked meat from infected animals or by ingesting food and water contaminated with oocysts excreted by cats. The ingestion of infected meat is considered to be the main source of human infections in the U. S. Among food animals, pigs are considered the major source of *T. gondii* infections for humans in the U. S. However, there has been no systematic effort to evaluate the level of contamination of retail meats with *T. gondii*, and there are no reliable, simple methods to detect viable *T. gondii* in meat. Among all methods available to detect *T. gondii* in meat, bioassay of meat samples in laboratory-raised cats and mice and detection of the parasite DNA have been used.

In this project funded by NPPC, scientists from ARS, USDA have found that bioassay of meat in cats is the most sensitive method to detect *T. gondii* in meat. Cats fed as few as 1 infective *T. gondii* (called bradyzoites) shed millions of oocysts in their feces whereas 10-100 bradyzoites were needed to infect mice. A sensitive PCR method using unique primers was developed that detected DNA from as few as 4 bradyzoites. These results will now be used to conduct a survey of *T. gondii* in meat samples from retail meat stores.

These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed

For more information contact:

National Pork Board, P.O. Box 9114, Des Moines, Iowa USA

800-456-7675, Fax: 515-223-2646, E-Mail: porkboard@porkboard.org, Web: <http://www.porkboard.org/>