



# MICROBIOLOGY

## MICROBIOLOGICAL SURVEILLANCE AND DIAGNOSTIC SUPPORT OF RESEARCH



Innovative Research Services:

- Bacteriology
- Mycology
- Parasitology
- Virology

## Services Provided

### Bacteriology

The Microbiology Division Surveillance /Diagnostic Program operates a state-of-the-art, full-service lab, employing highly trained microbiologists and sophisticated instrumentation, such as thermocyclers for polymerase chain reaction (PCR) and automated processors (Vitek and Biolog), for the identification of bacteria and fungi.

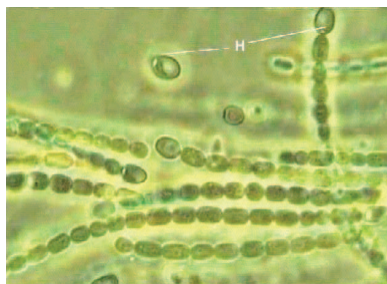


### Virology

Representative blood samples of breeder, experimental, sentinel and quarantine animals from outside vendors are prepared for testing by Multiplex Fluorescent Immunoassay (MFI) at the University of Missouri.

### Parasitology

Intestinal contents of animals and fecal samples are routinely screened for endoparasites using wet-preparation and fecal flotation/iodine staining techniques. Additionally, during necropsy procedures, the animal's skin, pelt and ear canals are thoroughly examined for the presence of fleas, mites, ticks and other ectoparasites.



### Mycology

Comprehensive microbiological testing of mold counts and pathogenic fungi are routinely carried out on the air, food, bedding, water and room surfaces of all animal housing areas.

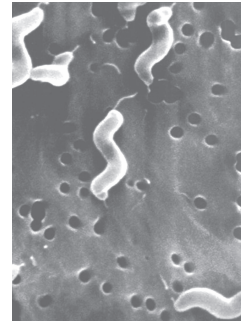


**The primary mission of the Surveillance/Diagnostic Program in the Division of Microbiology is the assurance that NCTR research data is not compromised by the use of infected or unhealthy experimental animals.** Additionally, the Surveillance/Diagnostic personnel provide Division of Microbiology and other NCTR researchers assistance with microbe identification, media preparation and stock culture maintenance.

### **Strategic Plan**

#### **Conduct systematic microbiological surveys on animals and their environments.**

- Detect and identify pathogenic organisms which could adversely effect experimental results.
- Anticipate and prevent entry of harmful organisms into the animal colonies.
- Determine the adequacy of NCTR systems and procedures to maintain the test animals and their environment in an acceptable microbiological condition.
- Investigate new methods for detection, recovery, and identification of pathogenic agents.



#### **Why is Microbiology Surveillance Important?**

- Aberrations in research results due to infections often occur without any clinical symptoms.
- Early detection of an infection allows for the treatment or removal of the infected animals, minimizing damage to the whole experiment.
- The results from the animal studies conducted at NCTR are being used by the FDA and the Scientific Community to make decisions on public health and safety.
- Environmental monitoring is essential for the early detection of problems in room sanitation and breakdowns in operational procedures.

## Suite of Methods Used to Identify Animal Pathogens by the Surveillance/Diagnostic Program Division of Microbiology



Molecular Biology  
DNA Sequencing  
PCR

MIDI  
Cellular Fatty Acids

VITEK  
Biochemical Substrates

BIOLOG  
Carbon Source Utilization

[www.fda.gov/nctr/science/divisions/micro.htm](http://www.fda.gov/nctr/science/divisions/micro.htm)

March 13, 2006



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