

Leptospira Testing Options

SERVICE AVAILABLE Monday-Friday- 8AM-5PM
CONTACT: bacteriology@utk.edu, 865-974-5639

UTCVM BACTERIOLOGY & MYCOLOGY LABORATORY

Diagnosis of Leptospira infection- FAQ

How do I choose a diagnostic test?

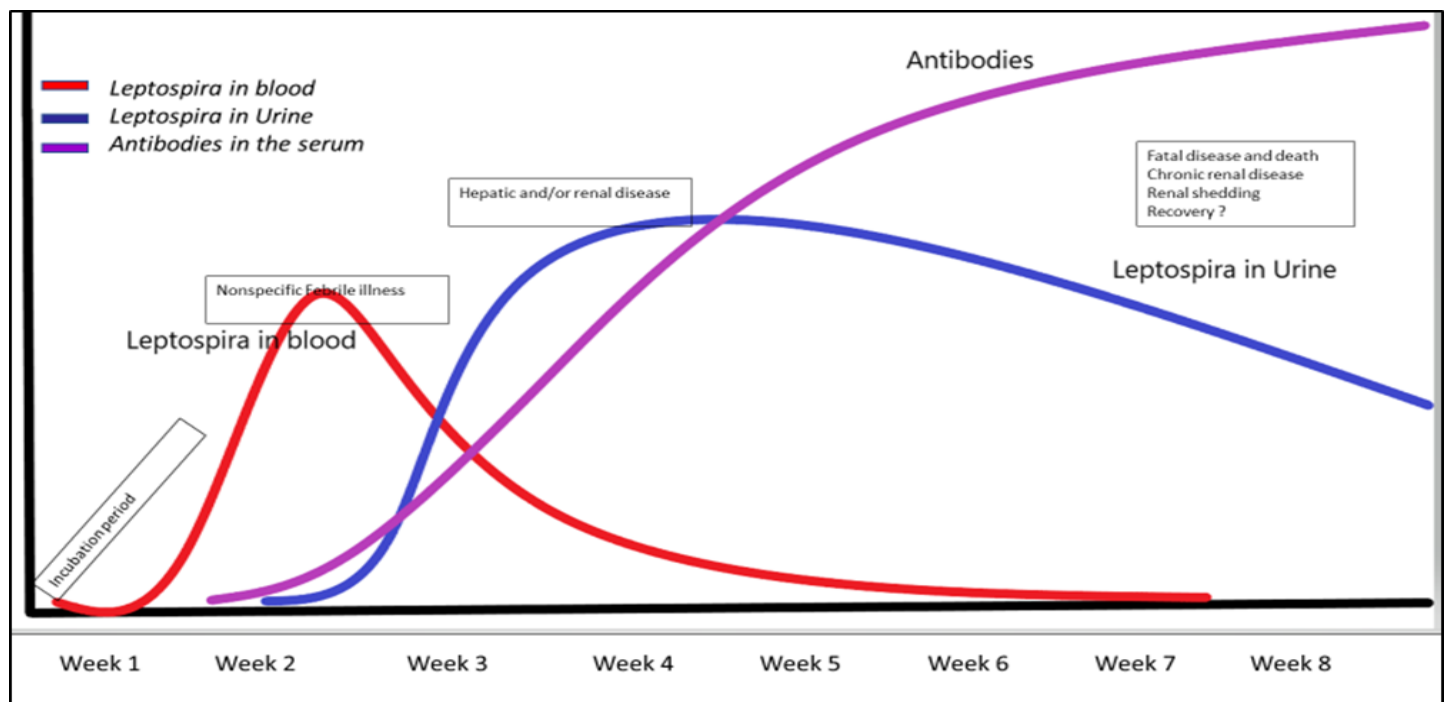
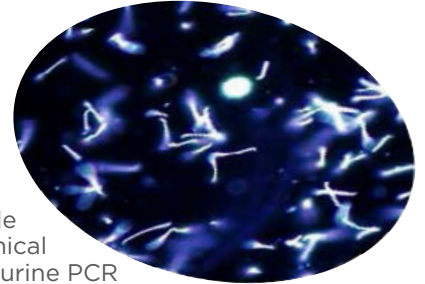
Careful selection of diagnostic tests is necessary to interpret the true nature of infection involving clinical disease vs. reservoir status. Leptospirosis can be manifested as biphasic infection. The sample and test selection can be based on the figure shown below. This diagram provides a reasonable representation of what happens in a canine patient with clinical leptospirosis. Please review the table provided for available tests and prices in our laboratory.

Which samples should I collect, and how do I submit them?

An ideal sample/test choice will be a blood (purple/ green/ yellow top) AND urine sample for PCR, and serum or plasma sample for microscopic agglutination test. The agent and antibody detection together using multiple samples/tests will increase the confidence in test results and interpretation. Samples should be stored and transported overnight under refrigeration conditions. A minimum volume of 0.5 ml of blood and 1ml of urine for PCR, and, 0.5ml of serum for MAT is required. A 2-5 ml of sample volume is ideal. Please submit 0.5-2 inch pieces of tissue for PCR or Immunofluorescence.

How do I interpret the test results?

A positive blood PCR test indicates that there is leptospiemia, and in a clinically symptomatic patient, this is compatible with the diagnosis of clinical leptospirosis. A positive urine PCR test confirms renal colonization observed in clinical disease and animals with asymptomatic renal colonization. A positive microscopic agglutination test (MAT) titer indicates the presence of agglutinating antibodies to *Leptospira* serovars tested in the MAT panel. A positive MAT test suggests that the patient serum contains antibodies to the positive serovar. Antibodies can be a result of vaccination or previous exposure. A serum titer above 800 with compatible clinical signs in an unvaccinated animal is suggestive of active infection. The test detects only antibodies and thus does not confirm active infection. The test is useful when performed using paired serum samples, and the titers can be carefully interpreted utilizing other clinical data and history.



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How can I test livestock/ equine or other species?

In addition to fatal disease, abortion and reproductive failures can be a manifestation of *Leptospira* infection in livestock. To investigate *Leptospira*-related abortion, submit stomach fluid, fetal tissue (liver, kidney, and spleen), and placenta for PCR. A paired serum sample taken 2-4 weeks apart from the dam can be submitted for serology. In cattle herds with reproductive failures, perform a herd level screening of 15-30 animals per herd. Submit 5-20 ml of midstream urine preferably collected after administering a diuretic (Lasix) and corresponding serum samples. PCR and Immunofluorescence tests are available. Please call for a price break if you are interested in herd screening. In cases of equine patients with equine recurrent uveitis, submit serum and aqueous humor for MAT testing. Aqueous and vitreous humor can also be tested using PCR.

Do you test wild animal species for *Leptospira* infection?

Leptospira surveillance and epidemiology are a part of our research. Please call if you are interested in pursuing wild animal studies.

Does your laboratory culture *Leptospira*?

We have protocols in place for *Leptospira* culture and frequently perform them in our epidemiology studies. Please call for more information.

What are serovars included in your MAT Panel?

Our laboratory has an active *Leptospira* research program involving epidemiology, microbiology diagnostic, and vaccine development. We offer serology for an extended panel of 12 *Leptospira* serovars. For research, a 22 serovar panel MAT is available.

List of Serovars:

- Autumnalis
- Ballum
- Bataviae
- Bratislava
- Canicola
- Copenhageni
- Grippityphosa
- Hardjo
- Icterohemorrhagiae
- Mankarso
- Pomona
- Tarassovi

**Contact Dr. Sree Rajeev (srajeev@utk.edu)
to further discuss topics related to *Leptospira* infection.**

NOTE

For PCR testing, same day service if submitted before 10 AM on weekdays MAT is performed once a week on Wednesday or Thursday. DFM is only available to UTCVM patients suspected of clinical leptospirosis. Sample should reach the lab within an hour of collection