FAQs VBDDL Sample Submission and Testing

How do I ship samples to the Vector Borne Disease Diagnostic Lab?

Samples should be submitted overnight via UPS or FedEX with a freezer pack to the address at the top of our sample submission form. Padding and containment must satisfy federal shipping regulations in the event of breakage/leakage, i.e. wrap in absorbent towels or bubblewrap and place in sealed plastic bag within a Styrofoam or cardboard box. Optimally, use non-glass tubes. Each tube must be fully labeled to pair it with its completed test request.

The VBDDL is closed on the weekends. Blood samples drawn on Friday or Saturday, can be held in the refrigerator and shipped on Monday. Samples may be stored in the refrigerator for up to two weeks allowing for batching of multiple samples. Our University closes for energy conservation during the winter holiday. Please check our website for details on hours of operation.
We regret that the VBDDL cannot provide prepaid shipping packaging.

PCR or Serology Testing?

Current evidence suggests that paired PCR and Serology results provide the most comprehensive information to assist in the diagnosis of vector borne infectious diseases. Serology tests detect the presence of antibodies that typically develop in the first 3 weeks after infection and that may persist for months to years following exposure, sometimes regardless of effective treatment. **PCR** procedures amplify the DNA of infecting organisms in circulating blood; therefore a positive result is indicative of active infection. Since vector borne pathogens circulate in very low numbers, a negative PCR result is not conclusive proof that an animal is not infected.

Can samples from animals other than cats or dogs be submitted for testing?

Any animal species can be tested for known vector borne diseases through PCR testing. However, IFA Serology is limited to cats and dogs as our assays depend upon reagents that are host species specific.

What blood tubes are required for testing?

Serology IFA and/or the Snap® 4DXPlus component requires 2ml of Serum, spun down from serum or serum-separator tubes (Red, Gold, Tiger Top Tubes), sufficient for individual or IFA Panels or Combos.
PCR testing requires 2ml of EDTA anticoagulated whole blood (Purple Top Tubes), sufficient for a complete panel or any combination of single PCR assays requested.
The Comprehensive Panels require both EDTA and Serum, 2ml each.

Can I submit Tissue Sections or Aspirates for Testing?

Yes, we can accept aspirates or fresh, frozen, or paraffin embedded tissues, although a charge of $75 must be added to cover the costs of the special handling required. Fresh samples stored in a Red top tube with sterile saline, on ice packs are preferred. Tissue samples stored in formalin solution are not recommended as prolonged exposure to formalin cross links DNA leading to false PCR results.
For instructions on properly obtaining and submitting Lymph Node aspirates please see https://cvm.ncsu.edu/wp-content/uploads/2016/05/Lymph_node_aspirate_PCR.pdf

What if my patient has already been treated with Antibiotic/Anti-protozoal medications?

Serology testing would be the more reliable testing method for an animal currently being treated for vector borne diseases. Antibiotic/ anti-protozoal medications can inhibit the number of circulating organisms to levels below detection for PCR testing. We would recommend samples collected prior to or at least 20 days after the completion of antibiotic treatments.

What if my patient has already been treated with steroids or immune suppressing medications?

Immunosuppressive therapy is not a contraindication for PCR testing. The effect upon antibody development is not clear in all vector borne diseases. Prior steroidal treatment should not deter further testing.

I have a POSITIVE PCR test result- Now what?

Treatment is recommended. See information on specific diseases at https://cvm.ncsu.edu/research/labs/clinical-sciences/vector-borne-disease/
Efficacy of treatment, or clearance of circulating organisms, may be determined by repeat PCR testing at 30, 60, and 90 days post treatment.

I have a POSITIVE Serology test result- Now what?

The VBDDL defines titers equal to or greater than 1:64 as Positive to avoid confusion with background autofluorescence that may occur at more concentrated serum dilutions. Submitting convalescent samples drawn 10 days to 3 weeks after the initial sample is considered the optimal way to identify acute infection. Such sampling in an active infection would show "seroconversion" with titers increasing several dilutions between dates as the host immune response is activated. Many vector borne infections result in antibody titers that persist for months to years regardless of effective treatment. In some diseases (RMSF), immunity is established, but in others, re-exposure to infected vectors can cause new infections. Titers without accompanying clinical signs may be noted in medical records, but do not always require action or treatment. Exposure histories based upon antibody titers indicate risks in the host animal's environment that may warrant more stringent acaracide control.

How can I find the most current recommendations for treatment?

See information on specific diseases at https://cvm.ncsu.edu/research/labs/clinical-sciences/vector-borne-disease/

I believe that I have an unusual presentation of an infectious disease, what should I do?

We recommend paired IFA and PCR panels to uncover underlying stealth pathogens as well as classically presenting diseases. We have seen cases that present oddly or that appear nonresponsive to antibiotic treatments that are actually infections exacerbated by co-infecting agents or cases in which, once one infection is cleared, an underlying agent surfaces or lingers. To facilitate comprehensive testing, our service is offering such panels at significantly discounted rates.

Is there a possibility of a false negative test result?

PCR procedures amplify the DNA of infecting organisms in circulating blood; therefore a positive result is indicative of active infection. Since vector borne pathogens circulate in very low numbers, a negative PCR result is not conclusive proof that an animal is not infected. Negative IFA results can occur in the early stages (first three weeks) of infection as the host immune response is building. In some as yet unexplained circumstances, host animals may remain seronegative even with documentation by PCR or culture of active infection. Such results would be misleading but not necessarily considered "false".

Can I receive a false positive test result?

Quality control measures in our lab are stringently maintained in order to minimize false positive results. Serum samples that are positive at screening dilutions undergo a second testing in order to determine the endpoint titer. Positive amplicons from PCR at the genus level are further tested to determine species, with gene sequence analysis performed in most cases. If any test results are unexpected, we do not hesitate to repeat testing and to verify by alternate methods, usually before results are released to our clients.

Payment / Billing.

Payment should not be submitted with samples. Billing through the University accounting services occurs monthly and any questions or concerns can be directed to **Denise Crowell** at **(919) 513-6390**. Please have invoice number and/or account number available for reference.

Disclaimers and Purpose:

The focus of the VBDDL at NCSU-CVM is research to benefit animal health. It is our intention to provide quality answers to diagnostic questions. The assays, antigens and controls used are developed and validated as a component of our research. We reserve the right to modify methods or reagents as needed to achieve the best analysis possible without reliance on any proprietary methods or reagents.

It is our intention to give each case with which we become involved the highest quality and attention possible. We will handle the sample with care and appropriate speed to obtain the most informative and accurate result. We intend to collect and utilize descriptive information imparted with that sample (address, age, breed, sex, history) in ways that reveal the useful and pertinent context for the diseases we study without using information in any way that might insult or harm the animal, owner, or veterinarian concerned.

All samples of sufficient volume are stored for potential future testing for a minimum of 2 years. We reserve the right to use archived samples for research purposes, always respecting privacy rights of the contributing animal, owner and veterinarian.