

Molecular Diagnostics FAQ

After reviewing the FAQ, if you still have questions, please don't hesitate to call us at (334)844-2648, or email us at moleculariagnostics@auburn.edu.

1. What are the basics of your “molecular diagnostics”?

We first extract the nucleic acids from the samples, then use a technique called polymerase chain reaction (PCR) to detect the presence of pathogens. PCR is a Nobel prize-winning molecular biology technique that amplifies certain nucleic acids exponentially, with the help of an enzyme called *Taq* polymerase. With this technique, we can detect single copies of the target DNA and amplify it to billions of copies that we can easily detect and quantify. For the RNA viruses (such as canine distemper virus, influenza virus and FIP virus), we do RT-PCRs which involves conversion of RNA to DNA followed by PCR.

2. What samples do you need and how much?

We use EDTA-whole blood in most cases. We also accept other samples for certain tests and they may be more indicative of the positivity/negativity. For example, we can use cerebrospinal fluid (CSF) for canine distemper; abdominal fluid, feces or tissue/organ biopsies for FIP. Recommended samples are mentioned in the notes on each assay. Please make sure to ship EDTA-blood (purple-top tubes) instead of untreated blood, which will clot and cause problems during nucleic acid extraction and PCR. Blood treated with heparin (green-top tubes) for prevention of clotting should not be used because heparin interferes with nucleic acid extraction and PCR.

For undiluted fluid samples, we use 400 microliters for our test, but we can process sample volumes as low as 10 microliters. So it's OK if the sample submitted is less than 400 microliters, although that may decrease the sensitivity of the test. For swab samples, we don't have a threshold for how much we can accept. If the sample is too large, we will extract just an aliquot.

3. Should we ship the samples by express shipping? What courier do you accept?

It's OK to ship the EDTA-blood samples by regular mail, but any other sample should be shipped by express courier (FedEx, UPS, DHL, etc. are all acceptable). Nucleic acids degrade slowly during shipping, which affects the sensitivity of detection. It is recommended to ship the samples using our Sample Submission Kit, which helps preserve the nucleic acids. (see Specimen Submission).

4. Do you accept samples on weekends?

There are no weekend deliveries of mail or express courier at Auburn University. So please make sure to ship for delivery on Friday, or store the sample over the weekend in your refrigerator and ship on Monday.

5. Do we ship the samples frozen?

No. Please ship the samples at room temperature or refrigerated. Freezing and thawing releases enzymes that rapidly destroy nucleic acids. Since frozen polar packs, added as refrigerant to a shipment, will freeze the sample, avoid the polar packs and ship at room temperature.

6. **How much do the tests cost?**

The tests are \$80/test. If you request two different tests on one sample (for example, a Babesia test and an *Ehrlichia* test for one blood sample), the second test is \$70. We also provide the FIP mRNA Multi-test for \$150 or \$230, in which we process two or three different samples (usually fluid, biopsy, and blood).

7. **How do you bill us?**

You can write a check to us when you ship the sample. Otherwise we will send a monthly bill. Checks should be payable to: Department of Pathobiology or Molecular Diagnostics. We cannot accept a credit card as payment. There is no need to open an account with us before sending a sample.

8. **What is the turnaround time?**

The turnaround time is usually one day. For any sample we receive, we will fax or email the report by the end of the next business day.

9. **What is the Sample Submission Kit? How much is it and how do we get it?**

Please check our webpage Sample Submission Kit. We provide the kit with 10 individually labeled tubes with buffer in them to help stabilize the nucleic acids. Enclosed are also 5 HistoBrush swabs for collection of swabs. All specimens must be immersed, and liquid specimens mixed with the buffer. The Sample Submission Kits have a shelf life of at least 1 year.

There are three ways to order the Sample Submission Kit:

- Call us at (334)844-2648
- Fill in our MD Submission Form and fax to (334)844-2652. Please note attention to Molecular Diagnostics Lab;
- Email us at moleculardiagnosics@auburn.edu.

Please specify how many Submission Kits you would like to order, your physical address, recipient name and contact information.

10. **What tests do you provide now?**

Currently we provide tests for:

- *Bartonella henselae*
- Canine / feline Anaplasmosis (*Anaplasma phagocytophilum* / *platys*)
- Canine Babesiosis (*Babesia gibsoni* / *canis*)
- Canine Distemper Virus
- Canine *Ehrlichia* spp. (*E. canis*, *E. chaffeensis*, *E. ewingii*)
- Canine Hepatozoonosis (*Hepatozoon americanum* / *canis*)
- *Chlamydia* spp.
- *Escherichia coli* O157:H7
- Feline Infectious Peritonitis mRNA
- Feline / canine hemotropic Mycoplasmosis (*Mycoplasma haemocanis* / *haemofelis*)
- Heartworm (*Dirofilaria imitis* / *repens*)
- *Leptospira* spp. (pathogenic)
- *Listeria monocytogenes*

- Lyme *Borrelia* spp.
- Pan Influenza A Virus
- Pathogenic *Leptospira* spp.
- *Pseudomonas aeruginosa*
- *Salmonella* spp.

11. How sensitive are the tests?

We can detect single copies of the pathogen DNA or RNA, which translates to approximately 10 copies in each milliliter of the original sample.