



# *TVMDL Client Information Packet*



TEXAS A&M  
**TVMDL**  
 VETERINARY MEDICAL  
 DIAGNOSTIC LABORATORY



Thank you for making the Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) the go-to lab for your testing services. Here at TVMDL, we provide quality, affordable and timely diagnostics for large and small animal practitioners, as well as work with the food animal, fair and stock show, and racing industries to ensure animals meet regulations.

Our agency has four laboratories, all staffed with experts in their field, from endocrinology to histopathology, and molecular diagnostics to bacteriology. There are more than 20 board-certified professionals and 30 that hold a DVM and/or PhD. In addition to an expert staff, the agency is a National Animal Health Laboratory Network Level 1 lab, and is accredited by the American Association of Veterinary Laboratory Diagnosticians, the American Association for Laboratory Accreditation Competition Animal Drug Testing Laboratory Accreditation Program, and the Racing & Medication Testing Consortium.

Please take a moment to review our test catalog online. At [tvmdl.tamu.edu](http://tvmdl.tamu.edu) a wealth of information is available for your use, including educational handouts, news items and a podcast that focuses on helping our clients with their diagnostic questions.

Our agency is always available to assist with your diagnostic testing. Thank you for selecting TVMDL.



Bruce L. Akey, MS, DVM  
Director

## CONTACT

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979.845.3414 • 888.646.5623

AMARILLO: 1.888.646.5624  
COLLEGE STATION: 1.888.646.5623

[tvmdl.tamu.edu](http://tvmdl.tamu.edu)



CENTER: 936.598.4451  
GONZALES: 830.672.2834

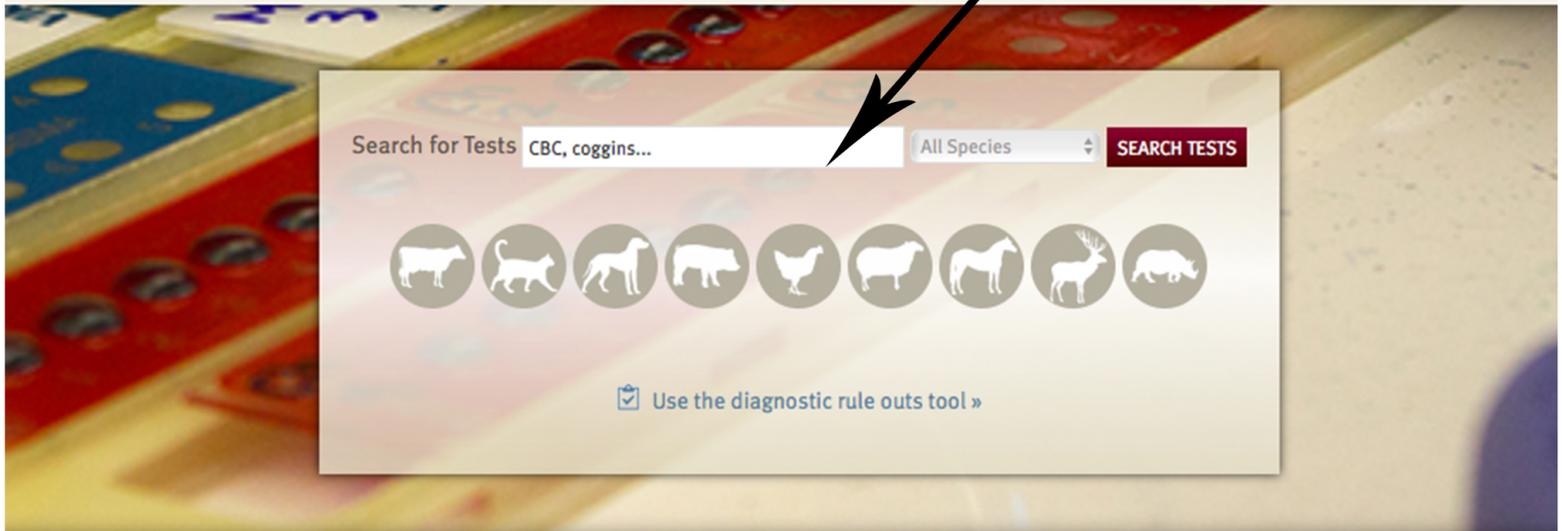
# A Guide to Using Our Website

Looking for our mailing address, phone or hours? Look here.

Print FedEx shipping labels, view test reports and access invoices in the Client Portal.



Looking for a test? Specimen info? Search here.



## After Hours and Emergencies

After Hours Sample Drop-off  
After Hours Necropsy  
STAT Testing  
*For veterinary emergencies, contact your local veterinarian or the Texas A&M Large or Small Animal Hospitals.*

## Testing Information

TVMDL Fee Schedule  
Research Testing  
Texas Pullorum-Typhoid Program  
Rabies and Primates  
Import/Export Testing

## Education Library

Photosensitization: Affected cattle herds  
FAQ: Molecular Diagnosis and Result Interpretation  
LABCAST: A TVMDL podcast  
Texas A&M AgriLife Bookstore  
View more

Looking for our full test catalog in a printable form? Click here.

Information on testing and diseases is available here for free download.

Visit our LABCAST page to hear our free podcast.

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# TVMDL Submission Form Guide

The Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) aims to provide clients with timely and accurate diagnostic testing services. The first step in testing is receiving the submission form and specimen. The more descriptive information provided on our submission form, the faster we can begin diagnostic work on the case.

First, download our fillable submission form at [tvmdl.tamu.edu/forms/](http://tvmdl.tamu.edu/forms/).



**TVMDL**  
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**TVMDL Submission form**

Revision: 4

All samples submitted to TVMDL for testing become the property of the agency and may be tested as part of state/federal surveillance programs, utilized for research purposes and/or development of new assays. TVMDL is unable to return samples to the client unless prior arrangements are made and approved by the agency Director or designee.

<p style="text-align: center;"><b>College Station Lab</b></p> <p>PO Drawer 3040      1 Sippel Rd College Station TX 77841      College Station TX 77843 Ph: 979-845-3414 Ph: 888-646-5623      Fax: 979-845-1794</p>	<p style="text-align: center;"><b>Amarillo Lab</b></p> <p>PO Box 3200      6610 Amarillo Blvd West Amarillo TX 79116      Amarillo TX 79106 Ph: 806-353-7478 Ph: 888-646-5624      Fax: 806-359-0636</p>	<p>Accession # _____</p> <p>Client PO # _____</p> <p>Assignments _____</p> <p>Opened By _____</p> <p>Carrier _____</p> <p>Date Shipped _____</p> <p>Comment _____</p>
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**Owner** \_\_\_\_\_ **\*\*\* Information Below REQUIRED \*\*\***

**Research Agreement #** \_\_\_\_\_ **ACCOUNT #** \_\_\_\_\_

**Address** \_\_\_\_\_ **Clinic** \_\_\_\_\_

\_\_\_\_\_ **Address** \_\_\_\_\_

**City** \_\_\_\_\_ **City** \_\_\_\_\_

**State** \_\_\_\_\_ **Zip** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**E-mail** \_\_\_\_\_ **E-mail** \_\_\_\_\_

**Phone #** ( ) \_\_\_\_\_ **Phone #** ( ) \_\_\_\_\_

**Fax #** ( ) \_\_\_\_\_ **Fax #** ( ) \_\_\_\_\_

**DVM** \_\_\_\_\_ **A signature of an accredited veterinarian must be provided**

**Signature** : \_\_\_\_\_ **for release of results on regulatory disease tests.**

**Animal IDs** \_\_\_\_\_ **List Multiples Below**

**Check One**  Bovine  Equine  Porcine  Caprine  Ovine  Canine  Feline  Avian  Zoo/Wildlife  Non-Animal Specimen

**Sex:**  M  F  M-cast  F-spay **Breed** \_\_\_\_\_ **Age:** \_\_\_\_\_ Yr  Mo  Day  Fetus **Weight :** \_\_\_\_\_ lb  Kg **Check One**

**Test(s) Requested :** For a complete list of tests see the website at <http://tvmdl.tamu.edu/>

\_\_\_\_\_

Check for Gross Necropsy only  **EXPORT CASE** Yes  **Legal/Insured?** Yes

**Specimens Submitted:** \_\_\_\_\_

\_\_\_\_\_ **If biopsy, was entire lesion submitted?** Yes  No

**Clinical History** (Please print) - (Clinical signs, Nutrition, Management, Environment, Vaccinations, Treatment, etc.)  
*Reporting individual animal results requires ID NUMBERS to be LISTED HERE or on an attached sheet.*

**Specimen Collection Date:** \_\_\_\_\_ **Previous TVMDL Case #:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Clinical Diagnosis:** \_\_\_\_\_ **\*\*Results by:**  E-Mail  Fax (Check One)

*\*An accession fee of \$6.00 is charged on all submissions.\**

1 of 2

Download & save the form with your practice's information & client account ID.

If questions arise during testing we contact you via phone; be sure to list a number checked regularly.

Noting if a specimen is for EXPORT or if it affects a LEGAL case is important.

The more detailed info given on the clinical signs of disease aid proper test advice and/or selection.

The second page of the submission report allows for additional clinical history input space. Please note that you can order shipping materials when you send samples.

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# Tube Submission Reference Chart

Each test description in the online test catalog lists the proper sample submission, including collection container and shipping instructions. Follow the chart below and submit the sample in the correct tube.

For individual test information, visit [tvmdl.tamu.edu](http://tvmdl.tamu.edu).

## SERUM



## PLASMA or WHOLE BLOOD

Once sample is added to anti-coagulant type tubes, IMMEDIATELY INVERT tube several times to prevent clotting.



## ZINC TRACE MINERAL



Questions regarding sample type, shipping or test specific information can be answered by calling the laboratory. Discounted shipping services for TVMDL clients are available. Visit [tvmdl.tamu.edu/shipping](http://tvmdl.tamu.edu/shipping).

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# Volume Discount Rewards Program

The Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) wants to formally recognize the importance of the business supplied to us by our regular, loyal customers. The TVMDL Volume Discount Rewards Program provides an incentive to customers who utilize our services on a regular basis. This is our way of saying thank you for choosing TVMDL for all of your diagnostic testing needs.

## GUIDELINES

Participation in the TVMDL Volume Discount Rewards Program provides a testing credit to our clients for dollars spent on your TVMDL invoice.

Participation in the program is available to any TVMDL customer who:

- a) Reaches testing dollar volume limits established by the program;
- b) Agrees to be part of this program;
- c) Pays their invoice, in full (net 30 days) each month; and
- d) Is approved by TVMDL and agrees to follow the terms and conditions of the Volume Discount Rewards Program.

Clients who reach limits outlined above and who meet eligibility requirements are automatically credited at the end of a calendar year.

## DISCOUNT REWARD CATEGORIES

**Preferred Account:** 0.5% credit to your account for use in the next calendar year for any account that reaches \$15,000 in sales during the previous calendar year.

**Silver Account:** 1% credit to your account for use in the next calendar year for any account that reaches \$25,000 in sales during the previous calendar year.

**Gold Account:** 2% credit to your account for use in the next calendar year for any account that reaches \$50,000 in sales during the previous calendar year.

**Platinum Account:** 3% credit to your account for use in the next calendar year for any account that reaches \$75,000 in sales during the previous calendar year.

- Qualification for participation in the TVMDL Volume Discount Rewards Program is based upon customer's TVMDL account numbers. Customers may request that multiple accounts be combined. Such requests will be reviewed on a case-by-case basis. Such requests for combinations will not be unreasonably denied.
- Clients whose business is based on specific contracts, purchase orders or other negotiated discounts are not eligible for this program.
- Other laboratories that utilize TVMDL on behalf of their clients are not eligible for this program.
- Accounts receive credits based on their volume during the calendar year of January 1 to December 31. Credits are applied to a client's account at the end of a calendar year, for use by the client in the next calendar year. Credit expires one year after it is posted to a client's account.
- If an account is past due at the end of the calendar year, the credit earned for the year is forfeited.

TVMDL reserves the right, at its sole discretion, to change the program rules, regulations, benefits, conditions of participation or associated status benefits and/or any other term or condition that governs customer participation in the program, in whole or in part, at any time and without specific notice to the customer, even though such changes may affect the value of the credit already accumulated. TVMDL also reserves the right, at its sole discretion, to discontinue the program at any time without notice.

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The logo for TVMDL (Texas A&M Veterinary Medical Diagnostic Laboratory) features the letters 'TVMDL' in a large, bold, sans-serif font. Below 'TVMDL' are the words 'TEXAS A&M' in a smaller font, followed by 'VETERINARY MEDICAL' and 'DIAGNOSTIC LABORATORY' in two lines of even smaller font. A small circular icon with a crosshair is positioned above the 'V' in 'VETERINARY'.

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# Choose Your Discounted Courier

Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) encourages clients to select overnight carrier companies to ship samples. Reduce delays in shipping and receive your results faster than with the United States Postal Service. In the past several months, customers noticed a frequent delay in sample arrivals when shipping via USPS, though the postal service is working as diligently as possible under budget constraints.

Plus, overnight delivery significantly improves the chances of your sample arriving in good condition for diagnostic testing.

Take the guesswork out of shipping: By using carriers such as Federal Express, LSO (formerly Lone Star Overnight) and UPS, samples arrive in a timely manner. The initial cost of an over-night courier may be slightly higher; however, clients receive verifiable delivery and will see a quicker turnaround for results.

Choose Your Discount Carrier:

- **LSO**, regional carrier
  - Operates in Texas and Oklahoma, with select cities in Arkansas, Louisiana and New Mexico.
  - Guaranteed on-time delivery by 8:30 or 10:30 a.m.; Saturday delivery options. Pick-up by request, scheduled daily or convenient drop boxes.
  - Perks include late night pick-ups, live customer service, online tracking and a 99-percent on-time delivery rate.
  - Texas veterinarians that set up an LSO account through TVMDL receive discounts shipping to either Amarillo or College Station.

To set up an account with LSO, visit [lso.com/vets](http://lso.com/vets). Please contact Chris Garbade with questions, [cgarbade@lso.com](mailto:cgarbade@lso.com) or 1-800-299-8677 ext 1321.

- **Federal Express, national carrier (FedEx)**
  - The national courier is available in all 50 states.
  - Online packing tracking, increased drop-off points and scheduled pick-ups are available through FedEx.
  - Enter TVMDL's online client portal to access discounts special to TVMDL clients through FedEx.
  - Via the portal, clients can find links to secure online forms that generate specimen labels for delivery to the Amarillo and College Station labs.

Contact a TVMDL location with questions.

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# How to safely package a sample for shipping to TVMDL

There are four steps to safely preparing a sample to send to the Texas A&M Veterinary Medical Diagnostic Laboratory: classify your sample, package your sample, mark or label the package, and document your shipment.

## Step 1: Classify your sample

**Category A infectious substance:** Infectious substance in a form that, when exposure to it occurs, is capable of causing permanent disability, life threatening, or fatal disease in otherwise healthy humans or animals (IATA Dangerous Goods Regulations §3.6.2.2.1). For examples of Category A infectious substances, visit <http://tvmdl.tamu.edu/library/files/Table36D.pdf>. If you suspect you have a Category A infectious substance, please contact us at (979) 845-3414 or (888) 646-5623.

**Category B infectious substance:** An infectious substance that is transported in a form that, when exposure to it occurs is NOT capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals. TVMDL recommends all suspect infectious disease shipments be classified and shipped as a Biological Substance Category B.

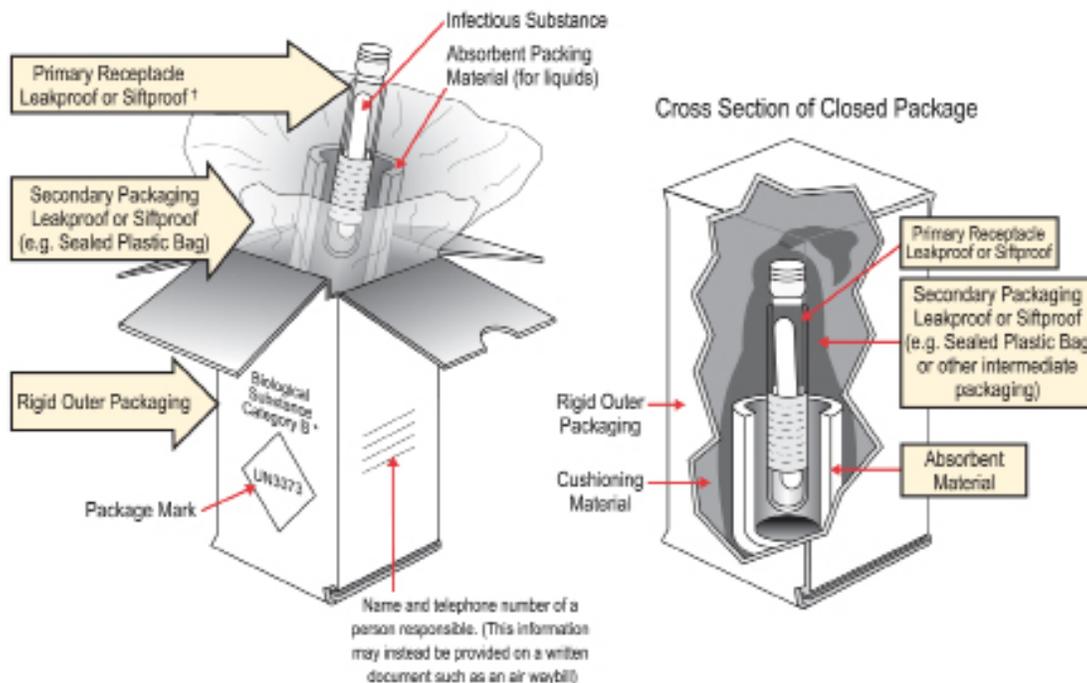
**Exempt animal specimen:** Specimen collected directly from animals for research, diagnosis, disease treatment and prevention which there is a minimal likelihood that pathogens are present. Examples include: chemistry panel, CBC, endocrine testing, surveillance serology, export or movement testing, and vaccine titer).

## Step 2: Package your sample

The packaging must consist of three components: a primary receptacle, secondary packaging, and a rigid outer packaging.

Primary receptacles must be packed in secondary packaging in such a way that, under normal conditions of transport, they cannot break, be punctured, or leak their contents into the secondary packaging.

Secondary packaging must be secured in outer packaging with suitable cushioning material. Any leakage of the contents must not compromise the integrity of the cushioning material or of the outer packaging.



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# How to safely package a sample for shipping to TVMDL, cont.

Primary receptacles must be packed in secondary packaging in such a way that, under normal conditions of transport, they cannot break, be punctured, or leak their contents into the secondary packaging.

Secondary packaging must be secured in outer packaging with suitable cushioning material. Any leakage of the contents must not compromise the integrity of the cushioning material or of the outer packaging.

An itemized list of contents is enclosed between the secondary and outer packaging. A properly completed TVMDL submission form may be used for this purpose.

At least one surface of the outer packaging has a minimum dimension of 100 mm x 100 mm (4 inches x 4 inches).

Ice packs, dry ice or other refrigerant, if needed, may be placed around the secondary packaging, but must not compromise the paperwork or inner/outer containers upon melting, sweating, etc.

### **For Liquid Substances:**

- The primary receptacle is leak-proof;
- The secondary packaging is leak-proof;
- Absorbent material is in sufficient quantity to absorb the entire contents placed between the primary and secondary packaging;
- If multiple fragile primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated so as to prevent contact between them.

### **For Solid Substances:**

- The primary receptacle is sift-proof;
- The secondary packaging is sift-proof;
- If multiple fragile primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated so as to prevent contact between them.

### **Step 3. Mark or label your package**

The outer packaging must have the following information:

- The name, address, and telephone number of a responsible person on the waybill or on the package.
- The shipper's and consignee's addresses.
- For "Biological Substance, Category B", this label must be present in letters at least 6 mm high must be marked on the outer package adjacent to a diamond-shaped UN3373 label.
- For "Exempt Animal Specimen", this label must be present on the outer package in letters at least 6 mm high. NOTE: this classification still requires proper packaging (see Step 2 above).
- If packaged with dry ice, a Class 9 label, including UN1845 label, and net weight.

### **Step 4. Document your shipment.**

- A Shipper's Declaration is NOT required.
- Air Waybill — If applicable, the text "Biological Substance, Category B" and "UN 3373" should be documented on the waybill.
- If shipping with dry ice, UN 1845 and net weight of dry ice must be indicated.

**Got questions about shipping? For answers, call any of TVMDL's four locations.**

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# Poultry Diagnostic Services



The Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) Center Poultry Diagnostic Laboratory and the Sam & Sally Glass Poultry Diagnostic Laboratory in Gonzales provide accurate and precise data to aid in the diagnosis and classification of various poultry diseases. The two poultry-focused labs strive to provide accurate laboratory data with a rapid turnaround time.

## Experienced Personnel:

Our poultry laboratories work together with a poultry pathologist located in College Station to service the commercial poultry industry and small breeders with diagnostics. TVMDL poultry professionals are highly educated and experienced in their field:

- 2 DVM/PhD/Board-Certified Poultry Pathologists
  - 1 Board-Certified Anatomic Pathologist in Gonzales
- 6 Certified Technicians: 3 in Gonzales, 3 in Center
- 1 Molecular Microbiologist in Center

In addition to technically diagnosing disease, each laboratory has a board-certified poultry veterinarian available for telephone consultation for clients. Some diagnostic tests, such as PCR, require interpretation, and TVMDL's professionals are skilled at providing insight.

TVMDL offers the following specialized services:

### • Necropsy/Histopathology

The laboratories offer full necropsy services for all avian species (commercial, back-yard, exotic). This is supplemented by full histopathology services in conjunction with necropsy or for tissues submitted from the field.

### • Serology

The laboratories offer a range of serological services for diseases including Avian Influenza, Newcastle Disease, Infectious Bronchitis, Infectious Bursal Disease, Reovirus, Avian Encephalomyelitis, Salmonella pullorum, Salmonella gallinarum, Salmonella typhimurium, Mycoplasma gallisepticum and Mycoplasma synoviae. Testing formats include enzyme-linked immunosorbent assay (ELISA) tests, plate and tube agglutination tests, hemagglutination inhibition assays, and agar gel immunodiffusion assays.

### • Bacteriology

Conventional aerobic and anaerobic bacteriological assays are offered on site with full backup of sophisticated state-of-the-art bacteriology isolation and identification at the College Station site. Both poultry labs offer an approved FDA Salmonella Enteritidis Rapid Test for environmental samples from poultry farms.

### • Virology/Molecular Diagnostics

Virus and bacteria detection in the form of polymerase chain reaction (PCR) assays are offered for Avian Influenza virus, Newcastle disease virus, Infectious Laryngotracheitis virus, Mycoplasma gallisepticum, and Mycoplasma synoviae.

Isolation of viral pathogens is done at the College Station site and can be forwarded from the poultry laboratories.

### • Parasitology

The laboratories offer parasitology examination at necropsy via direct examination, and skin and internal organ scrapings. Fecal flotation is offered on fecal samples for detection of internal parasites.

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# Sending Samples for Molecular Diagnostics

Daily, hundreds of samples arrive at the Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) for testing. Testing accuracy often depends on submission of the proper specimen for the assay, and in particular molecular diagnostics.

To ensure the appropriate sample is submitted for molecular diagnostics at TVMDL, please consult the website for specific details associated with the desired test (click "details" next to the test description). The information below is general and is not a substitute for test specific information, this is particularly important in regards to avian Influenza and Trichomonas testing. If additional questions arise, please do not hesitate to contact TVMDL and speak with one of our professional staff.

## **BLOOD:**

For most species, the blood specimen type for the PCR test is EDTA whole (unclotted) blood (e.g purple top tube). Heparinized blood (e.g. green top tube) is not recommended since heparin may inhibit PCR. However, heparinized whole blood is acceptable for some avian testing, as indicated.

## **SWABS:**

Swabs submitted in gel media or Ames media cannot be used for PCR due to the inhibitory effects of the media. The preferred type of swab is a Dacron or polyester swab with a plastic handle. A bacterial culture swab may be used, however do not place the swab in the bacterial media. Swab(s) should be submitted in a sterile container such as a red top tube (dry or with a drop or two of sterile saline).

## **TISSUE:**

Fresh tissue is preferred. Autolyzed tissues are not recommended; as the tissues begin to degrade, degradation of the nucleic acid target for PCR testing can occur.

## **FECES:**

Fecal samples should be submitted in leak-proof containers. There is a greater chance of cross contamination when samples leak or are packaged inappropriately.

## **SERUM:**

Serum samples are not used for most PCR testing at TVMDL. Please verify with the TVMDL website or call the laboratory to confirm sample types prior to collection or shipping.

## **GENERAL:**

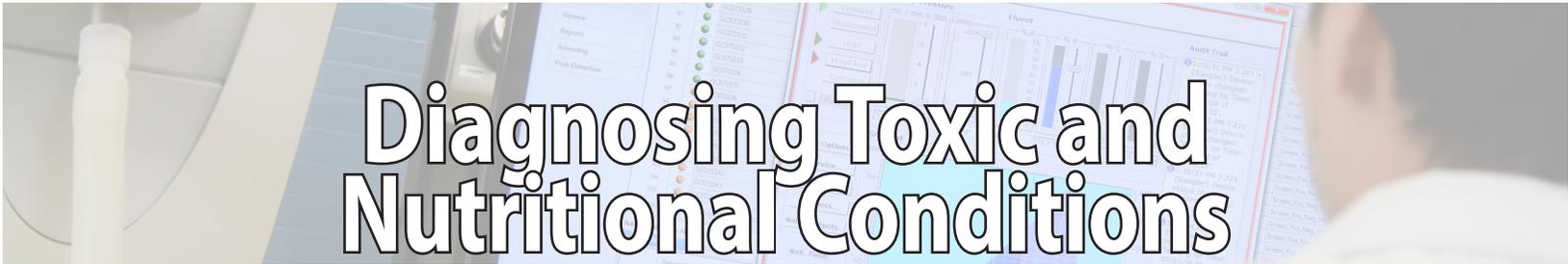
Samples for PCR testing should be submitted appropriately packaged per suggestions on [tvmdl.tamu.edu](http://tvmdl.tamu.edu), and sent with an ice pack. Samples should preferably be overnighted to the lab.



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# Diagnosing Toxic and Nutritional Conditions

The Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) Analytical Chemistry Section has the ability to offer toxicology and drug testing services to livestock producers and practitioners. The lab offers a variety of tests to aid in diagnosing many conditions of both toxic and nutritional origin. Our highly trained and qualified personnel use state-of-the-art analytical techniques to obtain results using cutting edge methodologies; gas chromatography – mass spectrometry (GC/MS), liquid chromatography – mass spectrometry (LC/MS), high performance liquid chromatography (HPLC), atomic absorption (AA) and microscopy. TVMDL focuses on precision and accuracy, and takes pride in the agency's ability to offer a broad diversity of test procedures. The agency's priorities are to produce timely results in emergency situations and work with clients to offer the quickest turnaround times possible with accurate and reliable results.

## • Toxins

TVMDL is equipped to identify a variety of toxicants that include pesticides, herbicides, rodenticides (anticoagulants and strychnine), mycotoxins (aflatoxin and fumonisin), ionophores, heavy metals (lead and arsenic), petroleum products, blister beetles (cantharidin), and antifreeze (ethylene glycol). We can test for these poisons in an assortment of biological sample types including blood, urine, gastrointestinal (GI) content, and tissues, as well as non-biological samples such as water, grass/hay, and soil. Please refer to TVMDL's website for specific sample requirements for each test, or call if we can help you with a specific case. Additionally, TVMDL can test forages and hay for unsafe levels of nitrates and cyanide.

## • Microscopy

Microscopy is performed daily by highly trained scientists using microscopic characteristics to identify a wide range of materials. Different plant species have distinct cellular structures that make many recognizable microscopically. Microscopy is used to confirm toxic plant ingestion by evaluating fragments in GI content. Microscopy is also used to identify toxic algae, blister beetles, pesticide bait formulations, and a variety of plants. This special expertise is known nationwide, and the agency's toxicologists provide training to other scientists and receive samples from all over country.

## • Nutritional Testing

We provide results that can be utilized in evaluating an animal's nutritional status. We can measure vitamins A and E, as well as trace minerals such as copper, zinc and selenium, in blood serum and liver. We also measure bone ash to determine the percentage of mineral in either femoral or humeral bone.

## • Heavy Metals

TVMDL utilizes atomic absorption spectroscopy (AAS) to detect and measure concentrations of heavy metals, like lead and arsenic, in blood and tissues. While arsenical usage has become mostly historical, we are still diagnosing cases related to animals exposed to old storage containers and burn piles. We test for lead regularly in companion and food animals.

## • Urolith Analysis (Calculi ID)

Fourier transform infrared (FTIR) spectroscopy is used to analyze bladder stones and identify their components. Calculi identification is quick and can assist the veterinarian by determining the stone composition so that the proper protocol to prevent reformation can be implemented.

## • Therapeutic Drug Monitoring (Potassium Bromide)

TVMDL uses ultraviolet (UV) spectroscopy to measure potassium bromide levels in blood serum. This test allows veterinarians to monitor the therapeutic drug regimen and ensure the animal is receiving the proper therapeutic dose.

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# Clinical Pathology Services

The Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) Clinical Pathology Section provides accurate and precise data to aid in the diagnosis and classification of various animal diseases. In addition to validated results, our tests come with clinical interpretation, when applicable or requested, at no additional charge. The section strives to provide accurate laboratory data with a single day turn-around time for most tests. This section staffs two clinical pathologists who bring over thirty years of experience or board certification by the American College of Veterinary Pathologists. In addition, we staff an American Society for Clinical Pathology (ASCP)-certified Medical Laboratory Scientist and four full-time clinical pathology technicians. With easy access to published literature and many in-house specialists at TVMDL, our clinical pathologists can find the answer to most inquiries.

The Clinical Pathology Section specializes in the following test types:

## • **Complete Blood Count (CBC)**

Hematologic evaluation is performed on state of the art instrumentation, which is validated daily to ensure accurate laboratory results. CBC panels include a wide variety of instrument data as well as microscopic evaluation of all submissions. Our hematology instrument provides advanced scattergrams, histograms, automated reticulocyte counts and calculations to allow for detailed classification of peripheral blood findings. We offer CBC panels for many species, including small animals, livestock, equines, avian and several exotic species.

## • **Chemistry**

Our Clinical Pathology Section offers advanced, quality controlled chemistry instrumentation to allow for full characterization of organ function and electrolyte concentrations. In addition, we offer in-house evaluation of serum phenobarbital concentrations. When applicable, we are happy to offer written interpretations or phone consults on any chemistry panel. Performing research? We offer customized panels to provide clients with cost efficient panels that cater to their research needs.

## • **Cytology**

Cytologic evaluation of fine needle aspirations, body fluids and impression smears can provide quick, non-invasive diagnostic information on a variety of lesions. We offer competitive pricing with no limit on the number of slides submitted and a nominal fee for additional sites. Our laboratory offers high quality standard staining and specialized stains to allow for complete evaluation of samples. With two clinical pathologists, consultation between pathologists

provides increased accuracy of cytologic interpretation. At TVMDL, we work diligently to correlate cytologic findings to the clinical picture. We also offer phone or e-mail consultations free of charge.

The section performs additional diagnostics that aid practitioners in diagnosing companion animal and livestock diseases or disorders.

## • **Serum Protein Electrophoresis (SPE)**

SPE offers detailed classification of protein fractions in serum. Evaluation of these fractions can aid in the diagnosis of certain inflammatory and neoplastic diseases. In addition, this test is considered the gold standard for protein evaluation in most reptile and avian species.

• **Urinalysis** A full urinalysis is an underutilized diagnostic test in many patient workups. This simple test can provide an abundance of information, especially in conjunction with serum chemistry data. In addition, our lab oratory offers specialized equipment for concentration of urine samples to allow for cytologic evaluation of transitional epithelial cells.

And there are more test offerings to come! The Clinical Pathology Section works hard to offer what our clients need. We are constantly reviewing new tests, developing new reference intervals and initiating research endeavors to expand the section. Please visit our website at [tvmdl.tamu.edu](http://tvmdl.tamu.edu) for a complete list of tests offered at TVMDL.

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# Histopathology Services

The Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) Histopathology Section provides accurate and timely interpretation of lesions important to the diagnosis of various animal diseases. The agency staffs 10 anatomic pathologists with a broad array of expertise including diseases of horses, cattle, small ruminants, companion animals, deer, poultry, pet birds, amphibians, reptiles and zoo animals. Six of the pathologists are board certified by the American College of Veterinary Pathologists and two by the American College of Poultry Veterinarians. A complete listing of pathology services is available online at [tvmdl.tamu.edu](http://tvmdl.tamu.edu).

Requests for routine pathology testing come from two basic sources – surgical specimens and necropsy specimens. Surgical specimens, or biopsies, are submitted by a veterinarian from a live animal and can be incisional or excisional. Examples include masses/tumors, resected portions or whole internal organs, bone, muscle, soft tissues and skin. Samples typically are obtained by the veterinarian and can range from endoscopic biopsies to entire amputated limbs or resected organs such as the spleen or kidney. Necropsy specimens may include pieces or whole organs collected in the interest of determining the cause of death or underlying disease.

For the best results, regardless of origin, tissues should be placed in ample 10% neutral buffered formalin for proper fixation. It is recommended to use a 10:1 ratio of formalin to tissue, as this will ensure the best possible preservation of tissues and, thus, best results for histopathological study.

Tissue samples should be relatively thin with uniform thickness (1/4 inch) to allow adequate penetration and fixation. Samples thicker than this remain raw or unfixed internally and are of poor quality for examination.

**Note:** *Fresh tissue samples for culture, PCR, toxicology, etc. can be thicker and should be collected and submitted in addition to thinner samples for histopathology. When fresh tissue is submitted with formalin fixed tissue, the formalin container should be securely closed double bagged to ensure that there is no leakage.*

## • Immunohistochemistry (IHC)

IHC uses the specificity of an antibody-antigen reaction to identify a wide variety of targets. These include cancer markers and a whole host of infectious agents including bacteria, viruses, fungi, protozoa, parasites and prions. No special fixation is required for IHC testing. It is also done on formalin-fixed tissue samples and typically will be run on the tissue already submitted to the lab for routine histopathology.

Presently, TVMDL offers CD3 (T cell lymphocyte) and CD 20 (B cell lymphocyte), with additional IHCs under development. TVMDL is also approved to perform testing for the Chronic Wasting Disease and Scrapie IHC National Surveillance Program. In addition, our pathologists have access to a nationwide network of laboratories that allows us to source a broad offering of IHC testing to meet the needs of our clients.

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# Trusted Expertise

## **Judy Akins, DVM, MS**

*[jakins@tvmidl.tamu.edu](mailto:jakins@tvmidl.tamu.edu)*

Dr. Akins was in mixed & small animal practices for 4 years before completing residencies in anatomic and clinical pathology. She works in the College Station laboratory, and her areas of interest include the emerging field of veterinary forensic pathology & diseases of the equine species.

## **Andres de la Concha-Bermejillo, DVM, PhD**

*[adelaconcha@tvmidl.tamu.edu](mailto:adelaconcha@tvmidl.tamu.edu)*

Dr. de la Concha provides macroscopic and microscopic pathology diagnostic services for livestock & companion animals at the College Station lab. His special interests include ruminant species (bovine, caprine, cervid, ovine) reproductive systems and infectious diseases. Dr. de la Concha is fluent in both Spanish and English.

## **Martin D. Ficken, DVM, PhD**

*[mficken@tvmidl.tamu.edu](mailto:mficken@tvmidl.tamu.edu)*

Dr. Ficken is an expert source for poultry (avian) diseases & pathology, with emphasis on highly pathogenic avian influenza. He is a licensed veterinarian & board-certified in both veterinary pathology and avian pathology working out of the Gonzales laboratory. Dr. Ficken has extensive experience in animal vaccine development & manufacturing, this includes protocol development, animal procurement, experiment execution and data collection.

## **William Gilmore, DVM, PhD**

*[w-gilmore@tvmidl.tamu.edu](mailto:w-gilmore@tvmidl.tamu.edu)*

Dr. Gilmore has more than 30 years' experience as a veterinary pathologist working in the Amarillo laboratory, focusing on ruminant pathology. He has extensive experience with diseases relating to beef and dairy production.

## **Gabriel Gomez, DVM, PhD**

*[ggomez@tvmidl.tamu.edu](mailto:ggomez@tvmidl.tamu.edu)*

Dr. Gomez specializes in respiratory and alimentary systems. Dr. Gomez completed his graduate work in Brucella subunit vaccinology using the mouse model. His primary interest lies in intracellular bacterial diseases & host immunobiology. He is interested in zoonotic, emerging & re-emerging infectious diseases of livestock. Dr. Gomez works in the College Station laboratory, is a board-certified veterinary pathologist & is fluent in Spanish.

## **R. Gayman Helman, DVM, PhD, MA**

*[ghelman@tvmidl.tamu.edu](mailto:ghelman@tvmidl.tamu.edu)*

Dr. Helman's 35 years' hands-on experience in food animal diagnostics, toxicology, pathology & companion animal diagnostics makes him an expert on a number of veterinary diagnostic topics, especially large animal related. He is the Amarillo laboratory resident director. In addition, he is a board-certified veterinary pathologist.

## **R. Jay Hoffman, DVM, PhD**

*[jhoffman@tvmidl.tamu.edu](mailto:jhoffman@tvmidl.tamu.edu)*

Dr. Hoffman is a board-certified veterinary pathologist, and he performs necropsy & histopathology with specified scrapie & chronic wasting disease experience at the College Station laboratory. Additionally, he has experience & great interest in neurologic and cardiac case study.

## **Barbara C. Lewis, DVM, MS**

*[blewis@tvmidl.tamu.edu](mailto:blewis@tvmidl.tamu.edu)*

Dr. Lewis is a board-certified veterinary pathologist working in the College Station laboratory. She is available for consultation on mammalian pathology (necropsy and histopathology) including large & small animals, zoo, wildlife and exotic species. She has special interests in surgical pathology, ocular pathology, parasitology & orthopathology of equine catastrophic racetrack injuries.

## **Randle Moore, DVM, PhD**

*[rmoore@tvmidl.tamu.edu](mailto:rmoore@tvmidl.tamu.edu)*

Dr. Moore is a board-certified poultry veterinarian performing necropsy and pathology services at the laboratory in Center. He completed his graduate work in poultry physiology, immunology and endocrinology. He also has research experience in poultry bacteriology including salmonellosis and has expertise with poultry physiology diseases.

## **Eric Snook, DVM, PhD**

*[esnook@tvmidl.tamu.edu](mailto:esnook@tvmidl.tamu.edu)*

Dr. Snook is a board-certified veterinary pathologist working in the College Station laboratory. He previously conducted research in comparative neuropathy. His current diagnostic interests include exotic animals (specifically reptiles and amphibians), & dogs and cats.

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