Laboratory Manual

The UTCVM Veterinary Medical Center is home to eight diagnostic laboratories: bacteriology/mycology, endocrinology, immunology, parasitology, pharmacology, virology, clinical pathology, and anatomic pathology. The faculty and technical staff in these laboratories provide vital medical diagnostic and supporting services for animals, along with cutting-edge research for the improvement of animal, human, and public health. UTCVM offers referring veterinarians accurate and timely laboratory results, phone consultations, courier pickup of samples, and special rates for FedEx shipping. Our full-service laboratories provide diagnostic services for most animal species.

The goal of the UTCVM Diagnostic Laboratory Service is to provide laboratory results with the precision and accuracy you should expect from a professional diagnostic laboratory. This manual provides general guidelines for specimen collection and submission to our specialty laboratories.

Test Results
Test results are automatically faxed to the veterinary practice. If your practice prefers to receive results by email, please call 865-974-5771 or email rdvminfo@utk.edu.

Ownership of Specimens
Submission of specimens to the UTCVM Veterinary Medical Center Diagnostic Laboratory Service signifies acceptance of a contract for test results and interpretation of results. Specimens submitted to the Service and isolates derived from them become the property of the University of Tennessee. The Service maintains the right to refer a portion of the specimen to an appropriate laboratory for additional testing. The University of Tennessee maintains the right to use the specimens for any lawful purpose, including but not limited to performing applied research and test development at the University or other collaborating institutes. Return of specimens to the submitter is determined on a case by case basis and will incur charges related to shipping, handling, and materials cost.

Laboratory Phone Numbers

<table>
<thead>
<tr>
<th>Laboratory Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacteriology/Mycology</td>
<td>(865) 974-5639</td>
</tr>
<tr>
<td>Anatomical Pathology (Biopsy/Necropsy)</td>
<td>(865) 974-5673</td>
</tr>
<tr>
<td>Clinical Pathology (Chemistry, Cytology, Hematology &amp; Urinalysis)</td>
<td>(865) 974-5605</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>(865) 974-5638</td>
</tr>
<tr>
<td>Immunohistochemistry</td>
<td>(865) 974-5673</td>
</tr>
<tr>
<td>Immunology</td>
<td>(865) 974-5643</td>
</tr>
<tr>
<td>Parasitology</td>
<td>(865) 974-5645</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>(865) 974-5646</td>
</tr>
<tr>
<td>Toxicology</td>
<td>(865) 974-5638</td>
</tr>
<tr>
<td>Virology</td>
<td>(865) 974-5880</td>
</tr>
<tr>
<td>Diagnostic Laboratory Service Director</td>
<td>(865) 974-5576</td>
</tr>
</tbody>
</table>

UTCVM Diagnostic Laboratory will be closed on the following days:

- New Year’s Day
- Martin Luther King, Jr.
- Spring Holiday (Good Friday)
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving - Thursday & Friday
- Christmas Day

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- Independence Day
- Labor Day
- Thanksgiving - Thursday & Friday
- Christmas Day
Label Specimen Container

The specimen should be contained in a plastic, spill-proof container or tube. Each primary container should be labeled with:

- Patient name
- Owner first & last name
- Specimen type
- Test
- Collection date/time

Place in Biohazard Bag

Place the primary container into a biohazard bag (or other watertight secondary container) with enough absorbent material to soak up the entire contents. If multiple samples are being included in one package, wrap or separate the samples so they do not come into contact with each other.

Complete Submission Form

A fully completed laboratory submission form should be included with the specimen. It is important that the form be kept separate from the specimen (placed in outer pouch of biohazard bag or in a separate sealed bag) to protect the form from becoming wet or otherwise contaminated. Download individual lab submission forms: vetmed.tennessee.edu/vmc/dls

Prepare Package for Shipping

Specimens that require refrigeration, including fresh blood, serum, and tissues should be sent with ice packs*. Biopsy tissues should be in 10% BNF fixative. Unfixed, air-dried slides should be packaged in a slide holder with bubble wrap. Refrigerated and room temperature samples can be shipped in the same package as long as adequate packing material is used to separate the samples. Use the smallest box possible that will adequately fit the sample. Fill the shipping package with additional packing material to minimize movement of the secondary container during transportation.

*Dry ice cannot be used with UTCVM FedEx labels. Samples that must remain frozen during transit, i.e. Equine Endogenous ACTH, must be shipped using another courier, or with your own FedEx account.


HazMat / IATA Regulations


**If specimen is suspected to contain infectious agents, it is the shipper’s responsibility to comply with international/US domestic shipping regulations: (https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/Transporting_Infectious_Substances_brochure.pdf)
Benefits of a VOLVet Portal account

- Gain immediate access to medical records of referred patients
- Look up results of diagnostic lab samples submitted by your clinic
- Receive FedEx overnight shipping labels for lab submissions at a deep discounted rate
- Request a courier service pick-up for clinics within a 50-mile radius of UTCVM
- Find detailed guidelines for patient referrals and estimates for many common procedures in the Referral Guide

To get started
- Register for a portal account at tiny.utk.edu/VOLVetPortal

FedEx Discount Rate Program

Take advantage of UTCVM’s deep discounted rate with FedEx today! For shipments within the domestic US, FedEx will deliver your samples to our laboratory by the next business morning for $22.00. For Knoxville and surrounding counties, the priority overnight shipping rate is $14.00.

General Shipping Instructions

- Login to your VOLVet Portal account: tiny.utk.edu/VOLVetPortal
- Refer to our packaging and shipping guidelines before sending samples.
- A package with UTCVM’s FedEx priority overnight label must be 3 pounds or less. If the package is over 3 pounds, you will need to separate the items into multiple packages, each with their own label.
  - With overnight deliveries, only one or two small refrigerant packs are needed.
  - To reduce costs, combine several specimens from multiple patients and send to various labs in one package.
- Each label is billed at the time of purchase. No credits will be given for unused labels. Shipping charges will be on your next monthly UTCVM invoice.
- FedEx labels are for Monday through Thursday shipments only. Do not send samples on a Friday. UTCVM Diagnostic Laboratory Service will not be available to receive samples on Saturdays.
- Call FedEx at 1-800-463-3339 for a pick-up or deliver your package to the nearest FedEx drop-off location. For specific FedEx collection times and local drop-off locations visit: http://www.fedex.com/locate

Additional Instructions for International Shipments (discounted rates vary)

The UTCVM Diagnostic Laboratory Service will accept companion animal specimens provided the material has not been inoculated with or exposed to any livestock* or poultry** foreign animal disease agent. A permit for these specimens is not required at the U.S. port of arrival. Primate samples and necropsies are NOT accepted from outside the United States.

Required documentation:
1. Two copies of the written statement must be submitted on producer/shipper letterhead, with one copy placed in the plastic pouch on the outside of the package and one copy between the secondary and tertiary packaging layer. For information required in the statement refer to: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-and-animal-product-import-information/import-live-animals/no-import-permit-reg (Guideline 1102: Feline and Canine Material).
2. Three copies of the commercial invoice must be placed in the shipping pouch on the outside of the package to be reviewed at the U.S. port of arrival and one copy between the secondary and tertiary packaging layer. A commercial invoice will be provided with your UTCVM FedEx shipping labels.
3. For all endocrinology specimens, complete and place the USDA Biological Specimen Shipment Form (https://vetmed.tennessee.edu/vmc/dls/Endocrinology/Documents/USDA-PortEntryInspec.pdf) in the plastic pouch on the outside of the package.

UTCVM Courier Service

UTCVM offers a daily courier service for diagnostic submissions to Knoxville, TN and the surrounding areas within a 50-mile radius. In addition to lab samples, veterinary practices may submit MRI scans, ultrasonograms, radiographs and necropsies (up to 25 lbs) to UTCVM through our courier service. For necropsies, tertiary packaging is required: inner bag, secondary bag or container with ice, outer container (cardboard or styrofoam box). Pharmacy medication orders can also be delivered to your facility by the courier service.

Request or Cancel Courier Pick-up

Submit your request through the online VOLVet Portal.

- Requests must be made by the end of business day to guarantee a next-day pickup.
- Specimens must be prepared and ready for collection prior to the courier’s arrival.
- If samples are not available at the time of pick-up, a service charge will still apply.

Collection Times

Monday through Friday, daily collections begin at 8:00am and samples will be delivered to the UTCVM Diagnostic Laboratory Service by 3:00pm. Turnaround times for test results vary; please consult the specific laboratory’s test directory in this manual for details.

Refer to our packaging and shipping guidelines in the Laboratory Manual before sending samples.

Courier Service Fee

Fees for the UTCVM Courier Service vary depending on the location of your clinic. When you sign in to the VOLVet Portal to submit a request the fee will be noted by your clinic name. If you are interested in signing up for the courier service, please call 865-974-5771 for more information. Charges for this service will be included on your monthly UTCVM statement.

Listed tests and prices are from April 2022 and are subject to change.
SUBMISSION GUIDELINES

Submitting Tissues
• Containers must be labeled with the patient’s name, sealed securely, and have an opening no smaller than the diameter of the jar.
• Use separate containers for separate lesions. For example, if there is a lesion on the leg and on the face, submit these in separate containers so they can be appropriately distinguished.
• There is no additional charge for multiple sites.
» Use a 10:1 formalin to tissue ratio.
• Glass containers are not recommended as breakage can occur in transport.

Tissue Handling
• Minimize the use of electrocautery or laser surgery, as it causes artifacts that make cell identification and surgical margin evaluation extremely difficult, if not impossible.
• Handle specimens gently. Excessive squeezing of tissues (with forceps, or otherwise) also creates artifacts that make cell identification and surgical margin evaluation extremely difficult, if not impossible.

Surgical Margins
• Surgical margins can be evaluated ONLY in samples submitted whole without any incisions into the surgical margins. If the sample is too large to fix whole,
» You may cut into the surface of the skin (but the incision should not extend to the edge/margin of the sample)
» or you may paint the surgical margins, fix a few hours in formalin, then send the pieces you want evaluated.
• Surgical margins should not be requested on diffuse lesions (e.g. dermatitis, inflammatory bowel disease, etc.).

Submitting Large Specimens
• Large soft tissue masses (i.e. spleens) are often too large to fix whole.
» If you are not concerned about surgical margins, please take several representative pieces of the mass and submit those in formalin (discard the remaining mass).
» If you are concerned about surgical margins, you may paint the surgical margins, fix a few hours in formalin, then send the pieces you want evaluated. DO NOT cut into the surgical margin prior to fixation.
• For limb amputations, please submit the entire limb on ice. Please try to plan ahead so that these arrive on a weekday within 24 hours of the surgery.

Submitting Bone
Specimens containing bone (digits, mandibles etc) will require decalcification after formalin fixation. This can result in a delay in processing the tissues and finalizing the report.

Surgical Marking Ink
This can be accomplished with fixed tissues after receipt, but applying ink before fixation often gives superior results.
• Hints for applying the surgical ink:
  » Blot the surface to be inked so that it is dry.
  » Apply the ink with a cotton swab and let it air dry for 3-5 minutes prior to placing the specimen in formalin.

STATE CONTRACT NECROPSY DISPOSAL FEES

All necropsy charges for cattle, sheep and goats that are located in Tennessee are covered by the State of Tennessee contract. Fetuses and placentas also fall under this contract.

The State Contract Submission Form (https://tiny.utk.edu/StateNecropsyForm) should be completed and signed by the referring veterinarian. The state contract does not cover biopsies.

Effective November 1, 2018, owners are required to pay a disposal charge at the time of presentation of their animal for state contracted necropsy. Disposal charges are based on the age of the animal at the time of necropsy registration at the Large Animal Receiving Desk. Necropsy examination (gross/microscopic) and routine ancillary tests deemed necessary by the duty pathologist will continue to be free under the state contract. Fetuses and placentas also fall under the state contract but will incur a disposal charge.

NOTE TO REFERRING VETERINARIANS: For you to maintain your client interaction in the State supported program you, as the referring veterinarian, will need to provide a State Contract Submission Form . In addition, the individual submitting the deceased animal (owner, agent, veterinarian, etc.) will be required to pay for the estimated disposal charges at the time of presentation. These charges are based on the age of the animal supplied at the time of presentation.

<table>
<thead>
<tr>
<th>ANIMAL TYPE</th>
<th>AGE</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATTLE</td>
<td>&lt; 1 month</td>
<td>$25.00</td>
</tr>
<tr>
<td></td>
<td>1 - 12 Months</td>
<td>$70.00</td>
</tr>
<tr>
<td></td>
<td>Over 1 Year - cow/steer</td>
<td>$220.00</td>
</tr>
<tr>
<td></td>
<td>Over 1 Year - bull</td>
<td>$330.00</td>
</tr>
<tr>
<td>GOATS</td>
<td>Up to 12 months</td>
<td>$20.00</td>
</tr>
<tr>
<td></td>
<td>Over 1 Year</td>
<td>$40.00</td>
</tr>
<tr>
<td>GOATS - PYGMY/DWARF</td>
<td>Fetus - adult</td>
<td>$10.00</td>
</tr>
<tr>
<td>SHEEP</td>
<td>&lt; 1 Month</td>
<td>$15.00</td>
</tr>
<tr>
<td></td>
<td>1 - 12 Month</td>
<td>$35.00</td>
</tr>
<tr>
<td></td>
<td>Over 1 Year</td>
<td>$45.00</td>
</tr>
</tbody>
</table>

THIS LAB ACCEPTS PRIMATE SAMPLES WITH PRIOR APPROVAL*
### DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biopsy</td>
<td>No additional charge for up to 5 samples from the same patient regardless of size. Includes bone decalcification, large specimens, large bones, and comprehensive surgical margin evaluation.</td>
<td>10% BNF (Buffered Neutral Formalin) Formalin to tissue ratio is 10:1. Container needs to be labeled with patient ID and specimen type.</td>
<td>72 hrs for routine, 96 hrs for special stains</td>
<td>$100.00</td>
</tr>
<tr>
<td>Additional charge for 6+ samples</td>
<td>Additional sample charge does not apply to gastrointestinal biopsies &amp; dermatologic skin samples. These samples will be considered as one site.</td>
<td>10% BNF (Buffered Neutral Formalin) Formalin to tissue ratio is 10:1. Container needs to be labeled with patient ID and specimen type.</td>
<td>72 hrs for routine, 96 hrs for special stains</td>
<td>$25.00</td>
</tr>
<tr>
<td>Biopsy - STAT</td>
<td>Same as Biopsy except results have a 24 hour + faster turn-around than routine biopsies.</td>
<td>Must have “STAT” written on top of the biopsy request form in big letters. 10% BNF (Buffered Neutral Formalin) Formalin to tissue ratio is 10:1. Container needs to be labeled with patient ID and specimen type.</td>
<td>24-30 hours for verbal report of H&amp;E stained slide</td>
<td>$125.00</td>
</tr>
<tr>
<td>Necropsy</td>
<td>Necropsies can be performed on the patients from referring veterinarians with the final necropsy report in 2-6 weeks. Gross necropsy findings will be phoned or e-mailed to the referring veterinarian within 48 hours.</td>
<td>Complete and sign necropsy request and body disposal release forms.</td>
<td>Verbal gross necropsy findings within 48 hours; final necropsy report within 4-6 weeks</td>
<td>Call Lab</td>
</tr>
</tbody>
</table>

*Pramite samples and necropsies are NOT accepted from outside the continental United States.

Listed tests and prices are from April 2022 and are subject to change.
SUBMISSION GUIDELINES

- Select sample from a site that is expected to be most representative of the infection.
- Aseptically prepare cutaneous collection sites with a quick acting and tissue penetrating antiseptic (e.g., povidone-iodine) followed by a 70% alcohol swab/wipe. Avoid use of chlorhexidine or benzalkonium chloride for this purpose, especially from multiuse containers, as they may become contaminated.
- Transport samples to the laboratory, with appropriate containment and packaging, as soon as possible.
- Inform the lab if the animal is being treated with antimicrobial drugs and if patient is immuno-compromised.
- Inform the lab of the animal’s age, production type and species. This may affect culture interpretation and selective reporting of antimicrobial susceptibility results.
- All specimen containers must be labeled with the patient name, clinic # or owner, body collection site, and date on container. Include history and patient demographic information on referral form.
- Results of Gram stains or other microscopic exams can often be made available the same day the specimen is received, if requested. Microscopic exams may be requested as separate tests and are performed routinely on most culture requests.
- Short-term refrigeration is acceptable (and preferred) for most specimens. Organisms that may not survive freezing or refrigeration include some anaerobes, fastidious respiratory pathogens, zygomycetous fungi, and Pythium insidiosum.

SPECIMEN TYPE & COLLECTION INFORMATION

<table>
<thead>
<tr>
<th>SPECIMEN SOURCE</th>
<th>COLLECTION DEVICE</th>
<th>SPECIMEN PREPARATION AND COLLECTION</th>
<th>TYPICAL TESTS THAT MAY BE APPLICABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abscess or Wound, Skin biopsy</td>
<td>Culture swab plus gel or sterile tube</td>
<td>Aseptically prepare collection site. Aspirate fluid or pus.</td>
<td>Aerobic Culture, Anaerobic Culture, Fungal Culture Dermatophytes only, Mycobacterium Culture, Mycoplasma Culture, Wound Panel</td>
</tr>
<tr>
<td>Blood</td>
<td>Blood culture bottles or green top tubes</td>
<td>Wash venipuncture site with antiseptic soap; rinse with sterile water. Apply povidone-iodine; let dry. Remove iodine with 70% alcohol (use same procedure to sterilize stopper on collection tube); draw blood into sterile syringe. Change needle to inoculate collection tube.</td>
<td>Blood Culture (includes aerobic and anaerobic)</td>
</tr>
<tr>
<td>Cerebrospinal Fluid</td>
<td>Sterile tube</td>
<td>Aseptically prepare site. Avoid blood contaminated specimen.</td>
<td>Aerobic Culture, Fungus Culture, Mycobacterium Culture, Fungal Antigen Tests (specify which)</td>
</tr>
<tr>
<td>Synovial Fluid</td>
<td>Sterile tube, blood culture bottle, or tube containing SPS or heparin anticoagulant</td>
<td>Aseptically prepare site. May collect in syringe-rinsed with heparin or if in sufficient volume, place in blood culture tube or tube containing SPS or heparin.</td>
<td>Aerobic Culture, Mycoplasma Culture, Fungal Culture</td>
</tr>
<tr>
<td>Ears</td>
<td>Culture swab plus gel</td>
<td>Remove superficial debris; collect swab from deep within external canal</td>
<td>Aerobic Culture, Anaerobic Culture</td>
</tr>
<tr>
<td>Eyes</td>
<td>Culture swab plus gel</td>
<td>Suppurative material from conjunctival sites or material from corneal scrapings</td>
<td>Aerobic Culture, Anaerobic Culture, Mycoplasma Culture, Fungal Culture</td>
</tr>
<tr>
<td>Feces</td>
<td>Sterile tube or container</td>
<td>Avoid contamination with urine or soil.</td>
<td>Specify individual agent or combinations desired: (Salmonella, Clostridium, Campylobacter, GI Panel)</td>
</tr>
<tr>
<td>Nail, Skin Scraping, Hair</td>
<td>Sterile tube or container</td>
<td>Clean to remove superficial debris. Use sterile blade to scrape active border of lesion. Hairs should include follicular end.</td>
<td>Fungal Culture, Fungal Culture Dermatophytes only</td>
</tr>
<tr>
<td>Nasal or Sinus</td>
<td>Culture swab plus gel or sterile tube</td>
<td>Clean to remove superficial debris. Collect representative aspirate or swab.</td>
<td>Aerobic Culture, Anaerobic Culture, Fungal Culture, Mycoplasma Culture, Respiratory Panel</td>
</tr>
<tr>
<td>Tissue (from normally sterile body sites)</td>
<td>Sterile tube or container</td>
<td>Aseptically prepare collection site. Tissue or aspirate preferred (culture swab plus gel acceptable for exudates). Add small amount (one drop) of sterile saline to keep specimen hydrated.</td>
<td>Aerobic Culture, Anaerobic Culture, Mycobacterium Culture, Mycoplasma Culture, Campylobacter Culture, Fungal Culture</td>
</tr>
<tr>
<td>Urine</td>
<td>Sterile tube</td>
<td>Cystocentesis recommended; transfer from syringe to sterile tube. Specify collection method.</td>
<td>Leptospira tests, Urine Culture Fungal Antigen Tests (Send-out tests, specify agent-Histoplasma, Blastomyces, Coccidioides)</td>
</tr>
<tr>
<td>Milk</td>
<td>Sterile tube or container</td>
<td></td>
<td>Brucella canis Antibody, Cryptococcus Antigen ELISA, Fungal Antigen Tests (send-out tests, specify agent- Aspergillus, Blastomyces, Histoplasma, Coccidioides), Leptospira tests</td>
</tr>
<tr>
<td>Serum</td>
<td>Sterile tube</td>
<td>Separate serum from clotted blood. Avoid hemolysis.</td>
<td></td>
</tr>
</tbody>
</table>
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<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MICROSCOPY/STAINS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acid Fast Stain</td>
<td>May submit tissue sample or dried impression smear on glass slide</td>
<td>1 Bus. Day</td>
<td>$21.00</td>
<td></td>
</tr>
<tr>
<td>Fungal Microscopy</td>
<td>KOH, Calcofluor, or India ink</td>
<td>May submit tissue sample or dried impression smear on glass slide</td>
<td>1 Bus. Day</td>
<td>$25.00</td>
</tr>
<tr>
<td>Gram Stain</td>
<td>May submit tissue sample or dried impression smear on glass slide</td>
<td>1 Bus. Day</td>
<td>$20.00</td>
<td></td>
</tr>
<tr>
<td><strong>INDIVIDUAL CULTURE AND ANTIMICROBIAL SUSCEPTIBILITY TESTING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerobic &amp; Anaerobic Culture</td>
<td>Includes Gram stain and MIC (when appropriate)</td>
<td>See general specimen collection and submission guidelines</td>
<td>Cultures with no growth held for 5 days; longer incubation required for specified organisms</td>
<td>$85.00</td>
</tr>
<tr>
<td>Aerobic Culture</td>
<td>Includes Gram stain and MIC (when appropriate)</td>
<td>See general specimen collection and submission guidelines</td>
<td>Average 3-5 Bus. Days</td>
<td>$60.00</td>
</tr>
<tr>
<td>Blood Culture (single)</td>
<td>Includes aerobic and anaerobic culture and susceptibilities on aerobes (when appropriate) Refer to Bacteriology Submission Guidelines. Call Lab</td>
<td>Blood culture bottles or green top tubes. Must be submitted within 24 hours. Inquire for special case alternatives</td>
<td>Cultures with no growth held for 7 days; longer incubation required for specified organisms</td>
<td>$80.00</td>
</tr>
<tr>
<td>Blood Culture (set of two)</td>
<td>Each sample collected from different sites with 30-60 minutes apart. Includes aerobic and anaerobic culture and susceptibilities on aerobes (when appropriate) Refer to Bacteriology Submission Guidelines. Call Lab</td>
<td>Blood culture bottles or green top tubes. Must be submitted within 24 hours. Inquire for special case alternatives</td>
<td>Cultures with no growth held for 7 days; longer incubation required for specified organisms</td>
<td>$105.00</td>
</tr>
<tr>
<td>Blood Culture (set of three)</td>
<td>Each sample collected from different sites with 30-60 minutes apart. Includes aerobic and anaerobic culture and susceptibilities on aerobes (when appropriate) Refer to Bacteriology Submission Guidelines. Call Lab</td>
<td>Blood culture bottles or green top tubes. Must be submitted within 24 hours. Inquire for special case alternatives</td>
<td>Cultures with no growth held for 7 days; longer incubation required for specified organisms</td>
<td>$130.00</td>
</tr>
<tr>
<td>Brucella Culture</td>
<td>Hepranized blood for detection of Brucella canis. Call Lab</td>
<td>Green top tube</td>
<td>3-5 Bus. Days</td>
<td>$50.00</td>
</tr>
<tr>
<td>Campylobacter Culture</td>
<td>Fecal screen for C. jejuni or abortion/venereal screen for C. fetus/C. jejuni and related organisms</td>
<td>Fresh feces or tissue, must keep sample refrigerated</td>
<td>3-5 Bus. Days</td>
<td>$35.00</td>
</tr>
<tr>
<td>Fecal Clostridium Culture</td>
<td>Selective screening primarily for C. perfringens/ C. difficile</td>
<td>Fresh feces, may be refrigerated or frozen</td>
<td>3-5 Bus. Days</td>
<td>$27.00</td>
</tr>
<tr>
<td>Fecal Culture, Avian and Exotic</td>
<td>Screen for other misc. pathogens such as Rhodococcus, Shigella, K99 E. coli, Versinia and Citrobacter rodentium. Must specify which. Includes Salmonella screen.</td>
<td>Fresh feces, may be refrigerated</td>
<td>3-5 Bus. Days</td>
<td>$52.00</td>
</tr>
<tr>
<td>Fecal Salmonella Culture</td>
<td>Salmonella screen only</td>
<td>Fresh feces, may be refrigerated</td>
<td>3-5 Bus. Days</td>
<td>$30.00</td>
</tr>
<tr>
<td>Fungal Culture</td>
<td>Includes fungal microscopy when appropriate</td>
<td>Various tissues and body fluids, culture swab not recommended, see general specimen collection and submission guidelines</td>
<td>Dermatophyte cultures with no growth held for 3 weeks</td>
<td>$50.00</td>
</tr>
<tr>
<td>Fungal Culture Dermatophytes only</td>
<td>Screen for common dermatophytes</td>
<td>Hair or skin scraping</td>
<td>Dermatophyte cultures with no growth held for 3 weeks</td>
<td>$34.00</td>
</tr>
<tr>
<td>Fungal Susceptibility</td>
<td>Contact lab for information regarding this test</td>
<td></td>
<td></td>
<td>Prior Authorization Required</td>
</tr>
<tr>
<td>Listeria Culture</td>
<td>For detection of Listeria</td>
<td>Recommended liver, uterine, or brain stem tissue</td>
<td>3-5 Bus. Days</td>
<td>$50.00</td>
</tr>
<tr>
<td>Milk Culture</td>
<td>Includes susceptibilities (when appropriate)</td>
<td>1.0 mL</td>
<td>3-5 Bus. Days</td>
<td>$20.00</td>
</tr>
<tr>
<td>Mycobacterium Culture</td>
<td>Includes acid fast stain</td>
<td>Various tissues, culture swab not recommended see general specimen collection and submission guidelines</td>
<td>Cultures with no growth held for 6 weeks</td>
<td>$50.00</td>
</tr>
<tr>
<td>Mycobacterium Susceptibility for Rapidly Growing AFB and Aerobic Actinomycetes</td>
<td>Contact lab for information regarding this test</td>
<td></td>
<td></td>
<td>Prior Authorization Required</td>
</tr>
</tbody>
</table>
### Bacteriology/Mycology

#### DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mycoplasma Culture</td>
<td>Various tissues and body fluids</td>
<td>Cultures with no growth held for 10 days</td>
<td>Cultures with no growth held for 10 days</td>
<td>$50.00</td>
</tr>
<tr>
<td>Urine Culture</td>
<td>Includes Gram stain and MIC (when appropriate)</td>
<td>Cultures with no growth held for 10 days</td>
<td>Cultures with no growth held for 3 days</td>
<td>$45.00</td>
</tr>
</tbody>
</table>

#### CULTURE PANELS AND ANTIMICROBIAL SUSCEPTIBILITY TESTING

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION</th>
<th>COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic/Anaerobic/ Fungal Culture</td>
<td>Combination test including stains and bacterial MIC (when appropriate)</td>
<td>See individual tests</td>
<td>3-7 days for bacterial culture, up to 6 weeks for fungal culture</td>
<td>$120.00</td>
<td></td>
</tr>
<tr>
<td>Aerobic/Anaerobic/ Mycoplasma Culture</td>
<td>Combination test including stains and bacterial MIC (when appropriate)</td>
<td>See individual tests</td>
<td>3-7 days for bacterial culture, up to 10 days for mycoplasma culture</td>
<td>$116.00</td>
<td></td>
</tr>
<tr>
<td>GI Panel</td>
<td>Includes Aerobic, Anaerobic, Listeria, and Campylobacter</td>
<td>Fresh feces or tissue, must keep sample refrigerated</td>
<td>3 - 5 Bus. Days</td>
<td>$110.00</td>
<td></td>
</tr>
<tr>
<td>Respiratory Panel</td>
<td>Includes Aerobic, Anaerobic, Mycoplasma, and Fungal cultures, stains and two MICs</td>
<td>See individual tests</td>
<td>See individual tests</td>
<td>$160.00</td>
<td></td>
</tr>
<tr>
<td>Wound Panel</td>
<td>Includes Aerobic, Anaerobic, Mycoplasma, Fungal, and Mycobacterium cultures, stains and two MICs</td>
<td>Aspirate or tissue</td>
<td>See individual tests</td>
<td>$200.00</td>
<td></td>
</tr>
</tbody>
</table>

#### SEROLOGY/MOLECULAR/MISCELLANEOUS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION</th>
<th>COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blastomyces Antigen EIA</td>
<td>For Blastomyces dermatitidis antigen</td>
<td>Price includes shipping. Send-out test.</td>
<td>2.0 mL of one of these: urine, serum, plasma, CSF –or- 1.0 mL Bronchial Fluid</td>
<td>72 hr</td>
<td>$95.00</td>
</tr>
<tr>
<td>Brucella canis Serology</td>
<td>Brucella canis antibodies. Includes agglutination and AGID. Send-out test.</td>
<td>1.0 mL serum</td>
<td>3-4 Bus. Days</td>
<td>$60.00</td>
<td></td>
</tr>
<tr>
<td>Cryptococcus Antigen</td>
<td>ELISA for capsular antigen</td>
<td>0.5 mL serum, CSF, BAL</td>
<td>1-2 Bus. Days</td>
<td>$55.00</td>
<td></td>
</tr>
<tr>
<td>Histoplasma Antigen EIA</td>
<td>Histoplasma Antigen EIA</td>
<td>Price includes shipping. Send-out test.</td>
<td>2.0 mL of one of these: urine, serum, plasma, CSF –or- 1.0 mL Bronchial Fluid</td>
<td>72 hr</td>
<td>$95.00</td>
</tr>
<tr>
<td>Leptospira Direct Immunofluorescence</td>
<td>This test is suitable for cattle herd screening. Will perform fluorescent antibody test using polyclonal antibodies. Sensitivity-Moderate</td>
<td>0.5 mL blood, 1 mL urine, or 1-2 inch necropsy sample from liver and kidney tissue</td>
<td>1 - 3 Bus. Days</td>
<td>$15.00</td>
<td></td>
</tr>
<tr>
<td>Leptospira Panel (PCR only)</td>
<td>Lip L32 gene-based Real-Time PCR to detect DNA from pathogenic Leptospira</td>
<td>0.5 mL blood and 1 mL urine</td>
<td>1 - 3 Bus. Days</td>
<td>$60.00</td>
<td></td>
</tr>
<tr>
<td>Leptospira Panel (Serology &amp; PCR)</td>
<td>Leptospira by Real-time PCR &amp; Leptospira Serology [any species]</td>
<td>0.5 mL blood and 1 mL urine for PCR PLUS 1 - 2 mL serum or plasma for Serology</td>
<td>Up to 7 Bus. Days</td>
<td>$95.00</td>
<td></td>
</tr>
<tr>
<td>Leptospira PCR</td>
<td>Lip L32 gene-based Real-Time PCR to detect DNA from pathogenic Leptospira</td>
<td>0.5 mL blood, 1 mL urine, or 1-2 inch necropsy sample from liver and kidney tissue</td>
<td>1 - 3 Bus. Days</td>
<td>$47.00</td>
<td></td>
</tr>
<tr>
<td>Leptospira Serology</td>
<td>Microscopic agglutination [any species]</td>
<td>1 - 2 mL serum or plasma</td>
<td>Up to 7 Bus. Days</td>
<td>$42.00</td>
<td></td>
</tr>
<tr>
<td>Leptospira Large/Farm Animal Herd Screening by IFA</td>
<td>IFA, includes up to 15 samples</td>
<td>2-5 mL urine</td>
<td>1 - 3 Bus. Days</td>
<td>$85.00</td>
<td></td>
</tr>
<tr>
<td>Leptospira Large/Farm Animal Herd Screening by MAT</td>
<td>MAT, includes up to 15 samples</td>
<td>1 - 2 mL serum</td>
<td>Up to 7 Bus. Days</td>
<td>$100.00</td>
<td></td>
</tr>
<tr>
<td>Leptospira Large/Farm Animal Herd Screening by PCR</td>
<td>PCR, includes up to 15 samples</td>
<td>1 mL urine</td>
<td>1 - 3 Bus. Days</td>
<td>$300.00</td>
<td></td>
</tr>
</tbody>
</table>

#### Organism ID PCR With Sequencing | Contact lab for information regarding this test | | | | $100.00 |
Most tests have a one day turnaround unless we have a particularly heavy in-house workload. We do not offer STAT testing for referral specimens. All specimens must be received by NOON in order to be reported on the same day.

**CBC**
- Complete blood counts must be performed within 24 hours of sample collection.
- Submit a whole blood specimen in a properly filled (to the fill line) EDTA (lavender-top) collection tube.
- Additionally make one to two blood smears at the time of collection. We recommend using glass slides with a frosted label area. Let the smear air-dry and place in a cardboard or plastic slide holder.
- Label each specimen (including any slide holder) with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number). For blood smears, use a PENCIL to label the glass slide’s frosted edge.
- Refrigerate the lavender top collection tube until drop off, courier pick-up, or shipping. DO NOT REFRIGERATE BLOOD SMEARS.

**Coagulation Profile**
- Submit specimen in a properly filled (to the fill-line) citrate (blue-top) collection tube.
- Label each specimen with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number).
- If delivering the sample to UTCVM yourself, please call the laboratory to notify us of the specimen arrival.
- If you cannot get the specimen to our lab within 15 minutes of sampling, you must harvest the plasma: Centrifuge the specimen tube, gently remove the plasma using a PLASTIC transfer pipette (without disrupting the cell button), and place the plasma in a plain PLASTIC tube. Store plasma in FREEZER until drop off, courier pick-up, or shipping.

**Chemistry**
- Submit specimen in a properly filled (to the fill line) heparin (green-top) collection tube. This is the preferred sample type.
- Clot tubes (red-top) are also accepted, but be aware that our laboratory’s reference intervals are for heparinized plasma.
- Label each specimen with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number).
- For blood chemistries: If you cannot get the specimen to our lab within 30 minutes of collection, you must harvest the plasma (green-top) or serum (red-top). If using a red-top tube, make sure the sample is COMPLETELY CLOTTED before harvesting serum. To harvest plasma/serum, Centrifuge the specimen tube, gently remove the plasma/serum using a PLASTIC transfer pipette (without disrupting the cell button), and place the plasma/serum in a plain PLASTIC tube. Store plasma/serum in refrigerator until drop off, courier pick-up, or shipping.

**Common Interferents**
- Hemolysis (excess free hemoglobin) and lipemia (excess fat, especially triglycerides) both interfere with many laboratory tests and are best avoided if possible.
- Hemolysis can be endogenous to the patient (e.g., intravascular hemolytic anemia) or an artifact due to difficult blood collection or sample handling errors such as: forcing blood through a needle into the blood collection tube, prolonged sample storage, improper sample storage temperature (extreme heat or cold), and poor centrifugation technique (e.g., centrifuging a red-top or tiger-top tube of whole blood that has not fully clotted). When harvesting plasma or serum, if the plasma or serum is visibly red and iatrogenic sample hemolysis is suspected, a new sample should be collected whenever possible. If a patient has severe intravascular hemolysis due to disease, be aware that some laboratory values may not be reported due to interference with testing.
- Lipemia is most commonly post-prandial but can also occur with endocrine disease and disorders of lipid metabolism. When harvesting plasma or serum, if the plasma is visibly lipemic and post-prandial lipemia is suspected, wait and collect another sample after an 8-12 hour fast. If you must submit a grossly lipemic sample, we can reduce the impact of lipemia on chemistry measurements by ultracentrifuging the specimen prior to analysis.

Proper sample handling helps to ensure accurate test results. Please consult test directory for specific tests and panels. Be sure to use appropriate sample tubes and fill these correctly. Avoid prolonged sample storage and extreme temperatures. Do not freeze samples unless specifically indicated for the test. Do not place specimens in direct contact with ice packs.

**Urine**
- Submit specimen in a urinalysis tube (preferred) or a clot tube (red-top) blood collection tube. A minimum volume of 5 mL urine is required.
- Label each specimen with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number).
- Store urine in refrigerator until drop off, courier pick-up, or shipping.

**Cytology Smear**
- Submission of 2 to 3 highly cellular smears per site is optimal. Smears should be thin (e.g., using “blood smear technique”) and contain a monolayer of intact cells.
- We recommend using glass slides with a frosted label area.
- All slides must be clearly labeled with a PENCIL using patient’s first and last name and anatomic location. Without proper labeling, samples will be rejected by the laboratory.
- Allow smears to air dry. Place dry slides in a cardboard or plastic slide holder. Label slide holder with TWO unique patient identifiers.
- Leave smears UNFIXED and UNSTAINED. (We do accept previously stained smears, but these are not preferred.)
- Complete one Cytology Submission Form per anatomical location (even if all specimens are from the same patient), with these exceptions:
  - Smears from up to 3 lymph nodes from the same patient may be submitted using one form.
  - Smears from up to 3 synovial fluids from the same patient (cytology only) may be submitted using one form.
- Anatomic site of the aspirate is required information. A concise clinical history and lesion description will facilitate the pathologist’s interpretation and help maximize diagnostic yield.
- DO NOT REFRIGERATE cytology smears. Protect smears from moisture and keep them away from formalin fumes and other fixatives.

**Submission Guidelines**
- Anatomic site of the aspirate is required information. A concise clinical history and lesion description will facilitate the pathologist’s interpretation and help maximize diagnostic yield.
- Submit a whole blood specimen in a properly filled (to the fill line) EDTA (lavender-top) collection tube.
- If you cannot get the specimen to our lab within 15 minutes of collection, you must harvest the plasma: Centrifuge the specimen tube, gently remove the plasma using a PLASTIC transfer pipette (without disrupting the cell button), and place the plasma in a plain PLASTIC tube. Store plasma in FREEZER until drop off, courier pick-up, or shipping.
- Label each specimen (including any slide holder) with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number).
- Label each specimen with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number).
- If delivering the sample to UTCVM yourself, please call the laboratory to notify us of the specimen arrival.
- If you cannot get the specimen to our lab within 15 minutes of sampling, you must harvest the plasma: Centrifuge the specimen tube, gently remove the plasma using a PLASTIC transfer pipette (without disrupting the cell button), and place the plasma in a plain PLASTIC tube. Store plasma in FREEZER until drop off, courier pick-up, or shipping.
- Label each specimen with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number).
- Label each specimen with TWO unique patient identifiers (e.g., pet name and owner last name, or pet name and medical record number).
- Complete one Cytology Submission Form per anatomical location (even if all specimens are from the same patient), with these exceptions:
  - Smears from up to 3 lymph nodes from the same patient may be submitted using one form.
  - Smears from up to 3 synovial fluids from the same patient (cytology only) may be submitted using one form.
- Anatomic site of the aspirate is required information. A concise clinical history and lesion description will facilitate the pathologist’s interpretation and help maximize diagnostic yield.
- DO NOT REFRIGERATE cytology smears. Protect smears from moisture and keep them away from formalin fumes and other fixatives.

*Primate samples and necropsies are NOT accepted from outside the continental United States.
Centesis Fluid Analysis

- Submit specimen in a properly filled (to the fill line) EDTA (lavender-top) collection tube. DO NOT SUBMIT SPECIMENS IN SYRINGES.
- If you are submitting fluid for culture, place specimen in a clot (red-top) collection tube; please follow instructions for submission of culture specimens (see page 4-5).
- If you are submitting fluid for chemistry analysis, e.g., creatinine, potassium, or bilirubin measurement, please follow instructions under the “Chemistry” section on the previous page.
- Complete one Cytology Submission Form per anatomic location (even if all specimens are from the same patient), and check “Centesis Fluid Exam and Report”.
- Each specimen must be clearly labeled using patient’s first and last name and anatomic location. Without proper labeling, samples will be rejected by the laboratory.
- Refrigerate the lavender top collection tube until drop off, courier pick-up, or shipping.
- Additionally make one to two direct smears of the fluid at the time of collection using a “blood smear” technique. Allow smear(s) to air dry. Place dry slide(s) in a cardboard or plastic slide holder. Label slide holder with TWO unique patient identifiers. Leave smear(s) UNFIXED and UNSTAINED. (We do accept previously stained slide holder with TWO unique patient identifiers. Leave smear(s) UNFIXED and UNSTAINED. (We do accept previously stained smears, but these are not preferred.)
- DO NOT REFRIGERATE smears. Protect smears from moisture and keep them away from formalin fumes and other fixatives.

Sample Drop-off

- Local veterinarians or their staff are welcome to drop off laboratory specimens. The sample drop-off areas are located at the small animal clinic lobby entrance and outside the pharmacy window on the large animal side.
- Specimens in EDTA (lavender-top) (e.g., CBCs, fluids), heparin (green-top), and clot (red-top) tubes, plasma/serum in plain plastic tubes, and urine specimens should be placed in individual plastic sample bags together with the appropriate submission form and left in the REFRIGERATOR.
- Cytology smears (in an appropriate slide holder) should be placed in a plastic sample bag together with the appropriate submission form and left in the CYTOLOGY DROP-OFF BOX.
- Lab personnel collect samples from the drop-off area multiple times throughout the day.

Sample Shipping

- Specimens in EDTA (e.g., CBCs, fluids), heparin, and clot (red-top) tubes, plasma/serum in plain plastic tubes, and urine specimens should be placed in individual plastic sample bags together with the appropriate submission form and shipped OVERNIGHT with an ice pack. Blood smears accompanying CBC specimens and smears accompanying fluid specimens may be shipped in the same box as the EDTA tube; however, take care to protect the smears from moisture and keep them separated from the ice pack.
- Smears (tissue aspirate smears, smears of fluids, and blood smears for cytologic evaluation) may be shipped via regular mail (do NOT use ice packs), although if there is risk of exposure to high ambient temperatures (e.g., middle of summer), consider expedited shipping (no ice pack needed). DO NOT SHIP CYTOLOGY (OR BLOOD) SMEARS AND BIOPSY SAMPLES IN THE SAME BOX due to risk of exposing cytology/blood smears to formalin fumes.

DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, (ACCEPTABLE SPECIES), COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALB</td>
<td>Albumin</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>ALK Phos</td>
<td>Alkaline phosphatase</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Alk Phosphatase, Heat Stable</td>
<td>Corticosteroid-induced isofom of Alk Phos</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$22.75</td>
</tr>
<tr>
<td>ALT</td>
<td>Alanine aminotransferase</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Ammonia</td>
<td>Special and immediate handling required, please call lab.</td>
<td>Lavender top, 1 mL - Immediately spin and separate from cells, MUST be frozen if not submitted within 30 minutes of collection.</td>
<td>Next Bus. Day</td>
<td>Call Lab</td>
</tr>
<tr>
<td>AST</td>
<td>Aspartate Aminotransferase</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Avian/Herp Chem Panel, Major</td>
<td>ASTM, creatine kinase, urea nitrogen, phosphorus, calcium, glucose, total protein, alb, globulin, albumin/globulin ratio, cholesterol, uric acid, bile acid post prand.</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$35.00</td>
</tr>
<tr>
<td>Avian/Herp Chem Panel, Minor</td>
<td>AST, CK, calcium, glucose, total protein, uric acid</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$21.00</td>
</tr>
<tr>
<td>Bile Acids Fasting</td>
<td>Fasting bile acids</td>
<td>Red top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$35.75</td>
</tr>
<tr>
<td>Bile Acids Fast &amp; 2 Hr Pp</td>
<td>Paired samples (fasting &amp; post-prandial)</td>
<td>Red top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$60.00</td>
</tr>
<tr>
<td>Bile Acid Postpran</td>
<td>2 hours after meal</td>
<td>Red top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$35.75</td>
</tr>
<tr>
<td>Bilirubin, Total</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>C-Reactive Protein (CRP)</td>
<td>Canine only</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$21.50</td>
</tr>
<tr>
<td>Calcium</td>
<td>Total calcium</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Cholesterol</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
</tbody>
</table>

Listed tests and prices are from April 2022 and are subject to change.
<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CK</td>
<td>Creatine Kinase</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>cPL SNAP™ Test</td>
<td>Canine pancreatic-specific lipase</td>
<td>Red top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$26.00</td>
</tr>
<tr>
<td>Creatinine</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Electrolyte Panel</td>
<td>Na, K, Cl, TCO2</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$19.50</td>
</tr>
<tr>
<td>Fecal Occult Blood</td>
<td></td>
<td>Feces</td>
<td>Next Bus. Day</td>
<td>$14.50</td>
</tr>
<tr>
<td>Fructosamine</td>
<td></td>
<td>Green top, 1 mL</td>
<td>1-4 Bus. Days</td>
<td>$48.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Batch run on Tuesdays &amp; Fridays</td>
<td></td>
</tr>
<tr>
<td>GGT</td>
<td>Gamma-glutamyl transferase</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Glucose</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Ionized Calcium Panel - Whole Blood</td>
<td>Ionized calcium, Na, K</td>
<td>Special and immediate handling required, please call lab.</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
</tr>
<tr>
<td>Iron Panel</td>
<td>Total Iron, TIBC, % Sat</td>
<td>Green top, 2 mL</td>
<td>Next Bus. Day</td>
<td>$20.00</td>
</tr>
<tr>
<td>Ketones, Serum</td>
<td></td>
<td>Red top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$10.75</td>
</tr>
<tr>
<td>Large Animal General Chemistry Panel</td>
<td>GGT, AST, creatine kinase, urea nitrogen, creatinine, phosphorus, calcium, glucose, total protein, alb, globulin, albumin/globulin ratio, total bilirubin, magnesium, SDH, total iron</td>
<td>Green top, 2 mL</td>
<td>Next Bus. Day</td>
<td>$43.25</td>
</tr>
<tr>
<td>Large Animal Panel and Electrolytes</td>
<td>LA general chemistry panel, plus electrolytes (Na, K, Cl, TCO2)</td>
<td>Green top, 2 mL</td>
<td>Next Bus. Day</td>
<td>$50.25</td>
</tr>
<tr>
<td>LDH</td>
<td>Lactate dehydrogenase</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Lipase</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$29.25</td>
</tr>
<tr>
<td>Lipid Panel</td>
<td>Cholesterol and triglycerides</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$35.00</td>
</tr>
<tr>
<td>Mg</td>
<td>Magnesium</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$26.50</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td></td>
<td>Green top, 1 mL</td>
<td>5-7 Bus. Days</td>
<td>$48.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Batch run on Thursdays</td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Pre-Op Panel, Large Animal</td>
<td>Na, K, Cl, TCO2, glucose, creatinine, AST</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$26.00</td>
</tr>
<tr>
<td>Pre-Op Panel, Small Animal</td>
<td>Na, K, Cl, TCO2, glucose, creatinine, ALT</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$26.00</td>
</tr>
<tr>
<td>Refeeding Panel</td>
<td>Na, K, Cl, TCO2, calcium, phosphorus, magnesium, ALB</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$37.25</td>
</tr>
<tr>
<td>Renal Panel</td>
<td>Electyotes, BUN, creatinine, phosphorus, calcium, albumin</td>
<td>Green top, 2 mL</td>
<td>Next Bus. Day</td>
<td>$33.50</td>
</tr>
<tr>
<td>Serial Glucoses</td>
<td>Up to 5 timed Collections</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$77.75</td>
</tr>
<tr>
<td>Small Animal General Chemistry Panel</td>
<td>Alkaline phosphatase, ALT, AST, creatine kinase, urea nitrogen, creatinine, phosphorus, calcium, glucose, total protein, alb, globulin, albumin/globulin ratio, cholesterol, total bilirubin, magnesium, total iron, (and CRP if sample is for canine)</td>
<td>Green top, 2 mL</td>
<td>Next Bus. Day</td>
<td>$39.50</td>
</tr>
<tr>
<td>Small Animal Panel and Electrolytes</td>
<td>SA general chemistry panel, plus electrolytes (and CRP if sample is for canine)</td>
<td>Green top, 2 mL</td>
<td>Next Bus. Day</td>
<td>$54.50</td>
</tr>
<tr>
<td>Sorbitol Dehydrogenase-SDH</td>
<td>Serum should be harvested and frozen prior to pickup.</td>
<td>Red top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$22.75</td>
</tr>
<tr>
<td>Total Protein</td>
<td>Bluret method</td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Triglycerides</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Urea Nitrogen - BUN</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Uric Acid</td>
<td></td>
<td>Green top, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Urine Creatinine</td>
<td></td>
<td>Urine, 1 mL</td>
<td>Next Bus. Day</td>
<td>$18.25</td>
</tr>
<tr>
<td>Urine Electrolyte Panel</td>
<td>Na, K, Cl</td>
<td>Urine, 1 mL</td>
<td>Next Bus. Day</td>
<td>$19.50</td>
</tr>
<tr>
<td>Urine Panel</td>
<td>Na, K, Cl, creatinine, phosphorus</td>
<td>Urine, 1 mL</td>
<td>Next Bus. Day</td>
<td>$26.00</td>
</tr>
<tr>
<td>Urine Protein Quant</td>
<td></td>
<td>Urine, 1 mL</td>
<td>Next Bus. Day</td>
<td>$28.50</td>
</tr>
<tr>
<td>Urine Protein/Creatinine Ratio</td>
<td>UPC</td>
<td>Urine, 1 mL</td>
<td>Next Bus. Day</td>
<td>$45.25</td>
</tr>
</tbody>
</table>
### DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>CYTOLOGY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Smear Exam</td>
<td>1 mL EDTA whole blood</td>
<td>Next Bus. Day</td>
<td>$47.00</td>
<td></td>
</tr>
<tr>
<td>Bone Marrow Cytology and Report</td>
<td>Slides prepared from bone marrow. A concurrent blood sample (lavender top) for CBC and a freshly made blood smear should also be submitted.</td>
<td>Next Bus. Day</td>
<td>$75.50</td>
<td></td>
</tr>
<tr>
<td>Buffy Coat Exam</td>
<td>EDTA blood, 1mL</td>
<td>Next Bus. Day</td>
<td>$44.25</td>
<td></td>
</tr>
<tr>
<td>Centesis Fluid Exam and Report</td>
<td>Lavender &amp; red top, 1 mL aspirate of abdominal, thoracic or pericardial fluid.</td>
<td>Next Bus. Day</td>
<td>$93.50</td>
<td></td>
</tr>
<tr>
<td>Centesis Fluid Exam with Rivalta test</td>
<td>TP, TNCC, RBC, Rivalta test, and cytologic examination</td>
<td>Next Bus. Day</td>
<td>$108.00</td>
<td></td>
</tr>
<tr>
<td>CSF Analysis w/Cytology and Report</td>
<td>Cerebral spinal fluid; cell counts, protein and concentrated smear exam</td>
<td>CSF, 1mL in sterile tube no additive.</td>
<td>Next Bus. Day</td>
<td>$86.50</td>
</tr>
<tr>
<td>Cytology Smear Evaluation and Report</td>
<td>Slides prepared from FNA or impression</td>
<td>Next Bus. Day</td>
<td>$76.25</td>
<td></td>
</tr>
<tr>
<td>Synovial Fluid Exam and Report</td>
<td>Synovial fluid, 1mL in EDTA tube (Lavender top)</td>
<td>Next Bus. Day</td>
<td>$93.50</td>
<td></td>
</tr>
<tr>
<td><strong>HEMATOLOGY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avian / Herp CBC</td>
<td>WBC, spun PCV, absolute white cell counts, cell morphology</td>
<td>Heparinized whole blood (green top tube), 0.5 mL minimum</td>
<td>Next Bus. Day</td>
<td>$37.25</td>
</tr>
<tr>
<td>CBC</td>
<td>Complete blood count with examination of blood smears</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size</td>
<td>Next Bus. Day</td>
<td>$34.50</td>
</tr>
<tr>
<td>CBC &amp; Reticulocytes</td>
<td>Complete blood count and absolute retic count</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size</td>
<td>Next Bus. Day</td>
<td>$49.25</td>
</tr>
<tr>
<td>CBC With Fibrinogen</td>
<td>Complete blood count and fibrinogen by heat precipitation</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size</td>
<td>Next Bus. Day</td>
<td>$42.00</td>
</tr>
<tr>
<td>Coagulation Profile &amp; Platelet Count</td>
<td>CALL LAB before submitting. PT, PTT and platelet count</td>
<td>Blue top tube filled to required level plus EDTA tube for platelet count.</td>
<td>Next Bus. Day</td>
<td>Call Lab</td>
</tr>
<tr>
<td>Differential Count (Blood)</td>
<td>WBC differential read from EDTA blood smear</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size or smears made from tube.</td>
<td>Next Bus. Day</td>
<td>$17.25</td>
</tr>
<tr>
<td>Fibrinogen, Heat Precipitation</td>
<td>Semi-quantitative assay of fibrinogen for large animals</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size</td>
<td>Next Bus. Day</td>
<td>$14.50</td>
</tr>
<tr>
<td>PCV &amp; TPP</td>
<td>Spun packed cell volume and refractometer plasma protein</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size</td>
<td>Next Bus. Day</td>
<td>$14.00</td>
</tr>
<tr>
<td>Platelet Count</td>
<td>Instrument count confirmed with examination of blood smears</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size</td>
<td>Next Bus. Day</td>
<td>$15.75</td>
</tr>
<tr>
<td>PT (Prothrombin Time)</td>
<td>Prothrombin time. CALL LAB before submitting.</td>
<td>Blue top tube filled to required level</td>
<td>Next Bus. Day</td>
<td>Call Lab</td>
</tr>
<tr>
<td>PTT (Activated Partial Thromboplastin Time, aPTT)</td>
<td>Partial Thromboplastin Time. CALL LAB before submitting.</td>
<td>Blue top tube filled to required level</td>
<td>Next Bus. Day</td>
<td>Call Lab</td>
</tr>
<tr>
<td>Reticulocyte Count</td>
<td>Absolute retic count</td>
<td>Lav. top tube (EDTA) minimum at least half of required volume for tube size</td>
<td>Next Bus. Day</td>
<td>$20.50</td>
</tr>
<tr>
<td><strong>URINALYSIS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinalysis</td>
<td>Urine dipstick and microscopic sediment exam Refrigerate sample</td>
<td>Urine, minimum 5 mL</td>
<td>Next Bus. Day</td>
<td>$22.25</td>
</tr>
<tr>
<td>Urine Hb - Mb Diff</td>
<td>To differentiate urine hemoglobin/myoglobin First morning void is best</td>
<td>Fresh urine, minimum 5 mL</td>
<td>Next Bus. Day</td>
<td>$25.50</td>
</tr>
</tbody>
</table>

Listed tests and prices are from April 2022 and are subject to change.
Proper sample collection and handling are essential to accurate test results.

- Do not send whole blood for any test procedure.
- Please do not send samples in serum-separator tubes (polymer-gel tubes). This causes hemolysis of samples.

Serum is required for all endocrinology tests except Endogenous ACTH (plasma-EDTA).

Label sample containers adequately

- Owner’s name
- Animal’s name
- Test desired
- Time of collection (baseline, post-stim., etc.)

### DIRECTORY OF TESTS

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>ENDOCRINOLOGY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-Hydroxyprogesterone, Baseline</td>
<td>Canine and Ferret [Feline-castrated/spayed only]</td>
<td>0.5 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$25.00</td>
</tr>
<tr>
<td>17-Hydroxyprogesterone, Pre &amp; Post (ACTH Stim)</td>
<td>Canine, [Feline-castrated/spayed only]</td>
<td>0.5 mL of serum each</td>
<td>7-10 Bus. Days</td>
<td>$48.00</td>
</tr>
<tr>
<td>Adrenal Panel - ACTH Stim Canine</td>
<td>Baseline and post-ACTH cortisol, progesterone, 17-hydroxyprogesterone, estradiol, androstenedione, testosterone, [Canine]</td>
<td>2.0 mL of serum each</td>
<td>7-10 Bus. Days</td>
<td>$175.00</td>
</tr>
<tr>
<td>Adrenal Panel - ACTH Stim Feline, castrated/spayed only</td>
<td>Baseline and post-ACTH cortisol, progesterone, 17-hydroxyprogesterone, estradiol, androstenedione, testosterone, aldosterone [Feline-castrated/spayed only]</td>
<td>2.0 mL of serum each</td>
<td>7-10 Bus. Days</td>
<td>$180.00</td>
</tr>
<tr>
<td>Adrenal Panel - Ferret</td>
<td>Baseline estradiol, androstenedione, 17-hydroxyprogesterone, [Ferret]</td>
<td>0.5 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$80.00</td>
</tr>
<tr>
<td>Adrenal Panel - Rabbit, castrated/spayed only</td>
<td>Baseline cortisol, progesterone, 17-hydroxyprogesterone, androstenedione, testosterone [Rabbit-castrated/spayed only]</td>
<td>2.0 mL of serum each</td>
<td>7-10 Bus. Days</td>
<td>$70.00</td>
</tr>
<tr>
<td>Adrenal Panel Combined Dex Supp/ACTH Stim</td>
<td>Analyze cortisol, androstenedione, estradiol, progesterone, 17-hydroxyprogesterone and testosterone in baseline, post-dexamethasone, and post-ACTH samples, [Canine]</td>
<td>2.0 mL of serum each</td>
<td>7-10 Bus. Days</td>
<td>$225.00</td>
</tr>
<tr>
<td>Aldosterone, Baseline</td>
<td>Canine and Feline - castrated/spayed only</td>
<td>0.5 mL of serum</td>
<td>Samples run once weekly</td>
<td>$27.00</td>
</tr>
<tr>
<td>Aldosterone, Pre &amp; Post (ACTH Stim)</td>
<td>Canine and Feline - castrated/spayed only</td>
<td>0.5 mL of serum each</td>
<td>Samples run once weekly</td>
<td>$52.00</td>
</tr>
<tr>
<td>Androstenedione, Baseline</td>
<td>Canine, Ferret [Feline - castrated/spayed only]</td>
<td>0.5 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$42.00</td>
</tr>
<tr>
<td>Androstenedione, Pre &amp; Post (ACTH Stim)</td>
<td>Canine [Feline - castrated/spayed only]</td>
<td>0.5 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$81.00</td>
</tr>
<tr>
<td>Cortisol, Baseline</td>
<td>Canine, Equine [Feline - castrated/spayed only]</td>
<td>0.5 mL of serum</td>
<td>Daily</td>
<td>$18.00</td>
</tr>
<tr>
<td>Cortisol, Pre &amp; Post (ACTH Stim)</td>
<td>Canine [Feline - castrated/spayed only]</td>
<td>0.5 mL of serum each</td>
<td>Daily</td>
<td>$35.00</td>
</tr>
<tr>
<td>Cortisol, Combined Dex Supp/ ACTH Stim</td>
<td>Analyze cortisol in baseline, post-dexamethasone, and post-ACTH samples, [Canine]</td>
<td>0.5 mL of serum each</td>
<td>Daily</td>
<td>$43.00</td>
</tr>
<tr>
<td>Cortisol, High Dose Dexamethasone Suppression</td>
<td>Analyze cortisol in baseline sample and post-dexamethasone samples (4 and 8 hours), [Canine]</td>
<td>0.5 mL of serum each</td>
<td>Daily</td>
<td>$38.00</td>
</tr>
</tbody>
</table>

THIS LAB DOES NOT ACCEPT PRIMATE SAMPLES
### Directory of Tests

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test Description, [Acceptable Species], Comments</th>
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<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cortisol, Low Dose</strong></td>
<td>Dexamethasone Suppression: Analyze cortisol in baseline sample and post-dexamethasone samples (4 and 8 hours). [Canine]</td>
<td>0.5 mL of serum each</td>
<td>Daily</td>
<td>$38.00</td>
</tr>
<tr>
<td><strong>Endogenous ACTH</strong></td>
<td>Baseline sample [Equine]</td>
<td>1.0 mL of plasma. Collect in purple top on ice, spin immediately and separate and transfer to plastic tube. Store sample frozen and send on dry ice overnight.</td>
<td>Samples run once weekly</td>
<td>$30.00</td>
</tr>
<tr>
<td>Estradiol, Baseline</td>
<td>Canine, Ferret, [Feline - castrated/spayed only]</td>
<td>0.5 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$30.00</td>
</tr>
<tr>
<td>hCG Stim Test (Progesterone)</td>
<td>Baseline and post-hCG stimulated progesterone [Canine, Feline, Rabbit]</td>
<td>0.5 mL of serum each</td>
<td>7-10 Bus. Days</td>
<td>$45.00</td>
</tr>
<tr>
<td>hCG Stim Test (Testosterone)</td>
<td>Baseline and post-hCG stimulated testosterone [Canine, Equine, Feline, Rabbit]</td>
<td>0.5 mL of serum each</td>
<td>7-10 Bus. Days</td>
<td>$45.00</td>
</tr>
<tr>
<td>Insulin</td>
<td>Baseline sample [Equine]</td>
<td>1.0 mL of serum. Collect in a red top, allow to clot, then spin and separate. Store sample frozen and send on an ice pack standard overnight.</td>
<td>Samples run once weekly</td>
<td>$28.00</td>
</tr>
<tr>
<td>Progesterone, Baseline</td>
<td>Reproductive Hormones (E, P, T)</td>
<td>0.5 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$31.00</td>
</tr>
<tr>
<td>Reproductive Hormones (E, P, T)</td>
<td>Baseline estradiol, progesterone, testosterone, Canine [Feline - castrated/spayed only]</td>
<td>1.0 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$80.00</td>
</tr>
<tr>
<td>T3</td>
<td>[Canine, Feline]</td>
<td>0.5 mL of serum</td>
<td>Daily</td>
<td>$18.00</td>
</tr>
<tr>
<td>T3, T4</td>
<td>[Canine, Feline, Equine]</td>
<td>0.5 mL of serum</td>
<td>Daily</td>
<td>$34.00</td>
</tr>
<tr>
<td>T3, T4/TSH</td>
<td>[Canine]</td>
<td>1.0 mL of serum</td>
<td>Daily</td>
<td>$49.00</td>
</tr>
<tr>
<td>T4</td>
<td>[Canine, Feline]</td>
<td>0.5 mL of serum</td>
<td>Daily</td>
<td>$18.00</td>
</tr>
<tr>
<td>T4/TSH</td>
<td>[Canine]</td>
<td>0.5 mL of serum</td>
<td>Daily</td>
<td>$35.00</td>
</tr>
<tr>
<td>Testosterone, Baseline</td>
<td>Testosterone, Baseline [Feline - castrated/spayed only]</td>
<td>0.5 mL of serum</td>
<td>7-10 Bus. Days</td>
<td>$26.00</td>
</tr>
<tr>
<td>TSH</td>
<td>[Canine]</td>
<td>0.5 mL of serum</td>
<td>Daily</td>
<td>$20.00</td>
</tr>
</tbody>
</table>

Listed tests and prices are from April 2022 and are subject to change.
## Immunology

### Submission Guidelines
- Surface antibody testing including neutrophil, platelet, and red blood cells are performed on EDTA blood.
- Patients should not have a recent history of steroid medication.
- 2 Samples, patient and normal control, are requested for the Neutrophil Surface Antibody Flow test.
- 2-3 ml of EDTA blood is REQUIRED for antibody testing.
- Ship Monday through Thursday FEDEX or UPS overnight.
- Ship in an insulated package with ice packs.
- Results will be faxed or emailed as requested on submission form.

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<tbody>
<tr>
<td><strong>IMMUNOLOGY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antinuclear Antibody (ANA) by IFA</td>
<td>IFA, [Canine, Equine, Feline]</td>
<td>0.2 mL serum</td>
<td>2-4 Bus. Days</td>
<td>$55.00</td>
</tr>
<tr>
<td>Bartonella henselae by IFA</td>
<td>IFA</td>
<td>0.2 mL serum</td>
<td>2-4 Bus. Days</td>
<td>$55.00</td>
</tr>
<tr>
<td>Blood Typing - Canine</td>
<td>DEA1 Pos. or Neg, [Canine]</td>
<td>0.5 mL EDTA blood</td>
<td>1-2 Bus. Days</td>
<td>$46.00</td>
</tr>
<tr>
<td>Blood Typing - Feline</td>
<td>Card test, [Feline]</td>
<td>0.5 mL EDTA blood</td>
<td>1-2 Bus. Days</td>
<td>$46.00</td>
</tr>
<tr>
<td>Bovine Pregnancy ELISA</td>
<td>ELISA, [Bovine]</td>
<td>1ml milk or serum</td>
<td>3-5 Bus. Days</td>
<td>$4.25</td>
</tr>
<tr>
<td>Crossmatch</td>
<td>Agglutination</td>
<td>0.5 mL serum and EDTA blood Patient and donor</td>
<td>1 Bus. Day</td>
<td>$46.00</td>
</tr>
<tr>
<td>Crossmatch (After Hours)</td>
<td>Agglutination</td>
<td>0.5 mL serum and EDTA blood Patient and donor</td>
<td>1 Bus. Day</td>
<td>$98.75</td>
</tr>
<tr>
<td>Crossmatch STAT</td>
<td>Agglutination</td>
<td>0.5 mL serum and EDTA blood Patient and donor</td>
<td>2-3 Hours</td>
<td>$67.50</td>
</tr>
<tr>
<td>Ehrlichia canis Titer by IFA</td>
<td>IFA, [Canine, Feline]</td>
<td>0.2 mL serum</td>
<td>2-4 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td>Equine Tapeworm Antibody Detection ELISA</td>
<td>ELISA, [Equine]</td>
<td>0.2 mL serum</td>
<td>2-4 Bus. Days</td>
<td>$32.50</td>
</tr>
<tr>
<td>IgG Level (RID) - Camelid, Equine</td>
<td>RID, [Camelid, Equine]</td>
<td>0.5 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$46.00</td>
</tr>
<tr>
<td>Johnes by ELISA</td>
<td>ELISA</td>
<td>0.5 mL serum or milk</td>
<td>2-4 Bus. Days</td>
<td>$6.50</td>
</tr>
<tr>
<td>Protein Electrophoresis</td>
<td>Electrophoresis w/Path Interp, [Canine, Equine, Feline]</td>
<td>0.5 mL serum, thoracic or abdominal fluid, urine</td>
<td>3-5 Bus. Days</td>
<td>$74.00</td>
</tr>
<tr>
<td>Urine Electrophoresis</td>
<td>Electrophoresis</td>
<td>0.5 mL serum</td>
<td>3-5 Bus. Days</td>
<td>$81.00</td>
</tr>
<tr>
<td><strong>FLOW CYTOMETRY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunophenotyping Flow - Lymphocyte</td>
<td>Panel includes CD4, CD5, CD8, CD21, CD34,CD45, MHC Class II. Flow cytometry. Special handling required. Please call.</td>
<td>2.0 mL EDTA blood or aspirate</td>
<td>3-5 Bus. Days</td>
<td>$110.25</td>
</tr>
<tr>
<td>Platelet Bound Antibody Flow</td>
<td>Flow cytometry, No steroid</td>
<td>3 mL EDTA blood</td>
<td>2-4 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td>Red Blood Cell Surface Antibody Flow</td>
<td>Flow cytometry/Coombs by flow, No steroid Ship sample in styrofoam box with ice pack</td>
<td>0.5 mL EDTA blood</td>
<td>2-4 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td><strong>PCR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anaplasma (platys and phagocytophilum) PCR</td>
<td>PCR, [Canine, Equine]</td>
<td>0.5 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$55.00</td>
</tr>
<tr>
<td>Anaplasma marginale PCR</td>
<td>PCR, [Bovine]</td>
<td>0.5 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$55.00</td>
</tr>
<tr>
<td>Bartonella Genera PCR</td>
<td>PCR</td>
<td>0.5 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$55.00</td>
</tr>
</tbody>
</table>
# DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demodex gatoi PCR</td>
<td>PCR</td>
<td>Skin Scraping or Hair Pluck</td>
<td>3-5 Bus. Days</td>
<td>$32.50</td>
</tr>
<tr>
<td>Dermatophilus congolensis PCR</td>
<td>PCR</td>
<td>Skin, hair, crust (scab)</td>
<td>3-5 Bus. Days</td>
<td>$40.50</td>
</tr>
<tr>
<td>Ehrlichia canis PCR</td>
<td>Real-time PCR</td>
<td>0.5 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td>FIV PCR</td>
<td>PCR</td>
<td>0.2 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td>Lyme Disease by PCR</td>
<td>PCR, [Canine, Equine]</td>
<td>0.2 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$55.50</td>
</tr>
<tr>
<td>Mycoplasma haemofelis PCR</td>
<td>Real-time PCR (Hemobartonella), [Feline]</td>
<td>0.5 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td>Mycoplasma haemolama PCR</td>
<td>Eperythrozoonosis, [Camelid]</td>
<td>0.5 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td>Rocky Mountain Spotted Fever by PCR</td>
<td>PCR, [Canine, Feline]</td>
<td>0.5 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$56.75</td>
</tr>
<tr>
<td>Sexing, Psittacine Blood PCR</td>
<td>PCR, [Avian]</td>
<td>0.2 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$46.00</td>
</tr>
</tbody>
</table>

## PANELS

<table>
<thead>
<tr>
<th>PANEL NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canine Ehr+Anaplas PCR Panel</td>
<td>Canine Ehr + Anaplas PCR Panel, [Canine]</td>
<td>0.5mL blood in Lavender top tube</td>
<td>3-5 Bus. Days</td>
<td>$92.25</td>
</tr>
<tr>
<td>Coombs Panel</td>
<td>Agglutination</td>
<td>0.5 mL EDTA blood</td>
<td>1-2 Bus. Days</td>
<td>$40.50</td>
</tr>
<tr>
<td>Feline Tick Panel PCR</td>
<td>Feline Ehrlichia and Anaplasma by PCR, [Feline]</td>
<td>0.3mL blood in Lavender top tube</td>
<td>3-5 Bus. Days</td>
<td>$95.00</td>
</tr>
<tr>
<td>Tick Panel PCR</td>
<td>RMSF, E. canis, Lyme, Anaplasma (all four tests by PCR), [Canine, Equine]</td>
<td>1 mL EDTA blood</td>
<td>3-5 Bus. Days</td>
<td>$162.00</td>
</tr>
</tbody>
</table>

Listed tests and prices are from April 2022 and are subject to change.
Parasitology

SUBMISSION GUIDELINES

Fecal Samples
Routine fecal procedures require a golf ball size refrigerated sample, collected the same day for each test request.

Serology and Heartworm Testing
Refer to the submission form for sample types and minimum volumes.

CHOOSING FECAL PANELS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>COMPONENTS</th>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Fecal Panel (Sugar and Zinc) Routine</td>
<td>Centrifugal* Sucrose</td>
<td>• Increased sensitivity for Roundworm &amp; Tapeworm eggs, Cryptosporidium &amp; Coccidian oocysts</td>
<td>Specific gravity of solution (1.275) distorts Giardia cysts &amp; Fluke eggs</td>
</tr>
<tr>
<td>Centrifugal* Zinc</td>
<td>• Increased sensitivity for Giardia cysts, Fluke eggs &amp; lungworm larvae</td>
<td>Poor sensitivity for whipworm eggs and Cryptosporidium oocysts</td>
<td></td>
</tr>
<tr>
<td>Giardia Panel &amp; Sugar Float FOR SMALL ANIMALS</td>
<td>Giardia ELISA</td>
<td>• Giardia ANTIGEN in symptomatic cats &amp; dogs</td>
<td>Increased false positives in asymptomatic dogs</td>
</tr>
<tr>
<td>Centrifugal* Zinc &amp; Sucrose</td>
<td>• The most comprehensive fecal exams for animals with diarrhea</td>
<td>Specific gravity of solution (1.275 vs. 1.19) require both sugar &amp; zinc for comprehensive detection</td>
<td></td>
</tr>
<tr>
<td>Fecal Panel FOR LARGE ANIMALS</td>
<td>McMaster chamber for strongylate eggs</td>
<td>• Assess environmental contamination</td>
<td>Does not provide a comprehensive fecal exam; low sensitivity for Anoplocephala, Oxyuris, and Parascaris eggs.</td>
</tr>
<tr>
<td>Centrifugal* Sucrose</td>
<td>• The most comprehensive fecal exams for large animals</td>
<td>Specific gravity of solution (1.275) distorts Fluke eggs</td>
<td></td>
</tr>
</tbody>
</table>

*Parasite detection significantly increases with centrifugation

CHOOSING HEARTWORM TESTS

<table>
<thead>
<tr>
<th>ROUTINE TEST COMPONENTS</th>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Dirochek™ ANTIGEN</td>
<td>Highest sensitivity for as few as 1-2 adult females</td>
<td>Poor sensitivity for male only infection or immature female worms</td>
</tr>
<tr>
<td>• Knot's Exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Idexx SNAP™ ANTIGEN</td>
<td>High sensitivity for at least 2 adult females</td>
<td>Poor sensitivity &lt;2 female worms, male only infection, or immature female worms</td>
</tr>
<tr>
<td>• Knot's Exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Idexx 4DxPlus™ Heartworm ANTIGEN &amp; Borrelia burgdorferi, Anaplasma species &amp; Ehrlichia species ANTIBODIES</td>
<td>• High sensitivity for at least 2 adult females</td>
<td>• Poor sensitivity &lt;2 female worms, male only infection, or immature female worms</td>
</tr>
<tr>
<td>• Knot's Exam</td>
<td>• Detects Borrelia antibodies from natural infection; not detected from specific vaccines</td>
<td>• Tick-borne pathogen antibodies presence/absence only (NO numerical titer)</td>
</tr>
<tr>
<td>• Dirochek™ ANTIGEN</td>
<td>• Highest antigen sensitivity for as few as 1-2 adult females</td>
<td>Poor sensitivity for male only infection or immature female worms</td>
</tr>
<tr>
<td>• Knot's Exam</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECIALTY TESTS &amp; COMPONENTS</th>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verification Panel • Dirochek™ ANTIGEN</td>
<td>• Confirmation of POSITIVE result using multiple tests</td>
<td></td>
</tr>
<tr>
<td>• Idexx SNAP™ or SNAP 4DxPlus™</td>
<td>• Aid in diagnosis for complex cases</td>
<td></td>
</tr>
<tr>
<td>• Knot's Exam</td>
<td>*** Exclusive to UTCVM Parasitology Lab! ***</td>
<td></td>
</tr>
<tr>
<td>Knott's Exam (Post-treatment)</td>
<td>• Evaluate 3 months after treatment initiated</td>
<td>No microfilariae present in male only infections, or immature female worms</td>
</tr>
<tr>
<td></td>
<td>• Kills and stains microfilariae</td>
<td>Microfilariae can survive for up to 2 years</td>
</tr>
<tr>
<td></td>
<td>• Differentiates D. immitis from Acanthocheilonema reconditum</td>
<td></td>
</tr>
</tbody>
</table>
## DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMALL ANIMAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giardia Panel &amp; Sugar Flotation (Zinc &amp; Sugar Flotation, ELISA)</td>
<td>Motile protozoa and select nematode larvae, Centrifugal zinc sulfate flotation (cysts), direct smear (trophozoites) and ELISA-antigen, Centrifugal sucrose flotation for eggs, cysts, oocysts detection, including Cryptosporidium and whipworms [Canine, Feline (litter-free)]</td>
<td>4 g fresh/refrigerated fecal</td>
<td>2-3 Bus. Days</td>
<td>$58.75</td>
</tr>
<tr>
<td>Lungworm Panel (Baermann, Zinc &amp; Sugar Flotation)</td>
<td>Respiratory parasite larval and egg stages, excluding heartworms, [Canine, Feline]</td>
<td>8 g fresh/refrigerated fecal</td>
<td>Submit Mon. through Thurs. ONLY, Overnight incubation.</td>
<td>$60.00</td>
</tr>
<tr>
<td>Routine Fecal Panel (Sugar &amp; Zinc Flotation), Small Animal</td>
<td>Centrifugal sucrose flotation for eggs, cysts, oocysts detection, including Cryptosporidium and whipworms. Centrifugal zinc sulfate flotation for Giardia (cysts), lungworm (larvae), and fluke (eggs).</td>
<td>4 g fresh/refrigerated fecal</td>
<td>2-3 Bus. Days</td>
<td>$34.50</td>
</tr>
<tr>
<td><strong>LARGE ANIMAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Egg Count</td>
<td>Useful for egg count reduction test (evaluate deworming efficacy), [Bovine, Camelid, Caprine, Equine, Ovine]</td>
<td>8 g fresh/refrigerated fecal</td>
<td>2-3 Bus. Days</td>
<td>$18.25</td>
</tr>
<tr>
<td>Fecal Egg Count (Herd)</td>
<td>Useful for egg count reduction test (evaluate deworming efficacy), [Bovine, Camelid, Caprine, Equine, Ovine] Submit 3+ samples from Herd</td>
<td>8 g fresh/refrigerated fecal</td>
<td>2-3 Bus. Days, depending on number of samples in herd</td>
<td>$16.25</td>
</tr>
<tr>
<td>Fecal Float/Egg Count Panel</td>
<td>Fecal Flotation Sugar and Fecal Egg Count [Bovine, Caprine, Equine, Ovine, other large animal]</td>
<td>8 g fresh/refrigerated fecal</td>
<td>2-3 Bus. Days</td>
<td>$38.25</td>
</tr>
<tr>
<td>Large Animal Lungworm Panel</td>
<td>Fecal centrifugal flotation zinc sulfate and fecal Baermann</td>
<td>4 g fresh fecal</td>
<td>2-3 Bus. Days</td>
<td>$40.00</td>
</tr>
<tr>
<td><strong>ANY SPECIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Sedimentation</td>
<td>Ethyl acetate sedimentation for fluke eggs, [Canine, Feline (litter-free)]</td>
<td>3 separate fecals collected over a 5 day period, labeled individually</td>
<td>2-3 Bus. Days</td>
<td>$33.50</td>
</tr>
</tbody>
</table>

*Pramite samples and necropsies are NOT accepted from outside the continental United States.

Listed tests and prices are from April 2022 and are subject to change.
## DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test Description, [Acceptable Species], Comments</th>
<th>Sample Submission</th>
<th>Turnaround Time</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEROLOGY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CANINE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heartworm 4DX Plus SNAP™ &amp; Knott's</td>
<td>ROUTINE AND WELL-CHECK</td>
<td>2 sample types required: 2 mL EDTA whole blood AND 1 mL serum or EDTA plasma</td>
<td>2-3 Bus. Days</td>
<td>$51.00</td>
</tr>
<tr>
<td>Heartworm Dirocheck™ &amp; Knott's</td>
<td>ROUTINE AND WELL-CHECK</td>
<td>2 sample types required: 2 mL EDTA whole blood AND 1 mL serum or EDTA plasma NO GREEN TOP</td>
<td>2-3 Bus. Days</td>
<td>$40.50</td>
</tr>
<tr>
<td>Heartworm Verification Panel</td>
<td>FOR CONFIRMATION OF POSITIVE RESULT</td>
<td>2 sample types required: 2 mL EDTA whole blood AND 1 mL serum NO GREEN TOP</td>
<td>2-3 Bus. Days</td>
<td>$67.50</td>
</tr>
<tr>
<td>Heartworm Microfilaria</td>
<td>PREVIOUS POSITIVE CANINE ONLY</td>
<td>2 mL EDTA whole blood</td>
<td>2-3 Bus. Days</td>
<td>$24.25</td>
</tr>
<tr>
<td>Neospora Serology</td>
<td>IgG for Neospora caninum immunofluorescent antibody, [Canine]. Send-out test.</td>
<td>1 mL serum</td>
<td>3-5 Bus. Days</td>
<td>Call Lab</td>
</tr>
<tr>
<td><strong>FELINE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heartworm Antigen</td>
<td>Feline</td>
<td>1 mL serum</td>
<td>2-3 Bus. Days</td>
<td>$27.00</td>
</tr>
<tr>
<td>Heartworm Panel, Feline</td>
<td>Dirofilaria immitis antigen and antibody. Send-out test. [Feline (domestic &amp; exotic)]</td>
<td>1 mL plasma or serum</td>
<td>2-3 Bus. Days</td>
<td>Call Lab</td>
</tr>
<tr>
<td><strong>OTHER SPECIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxoplasma TgMAT</td>
<td>Modified agglutination test for the detection of Toxoplasma IgG antibodies. [Any species]</td>
<td>0.5 mL serum</td>
<td>Test runs weekly on Thursdays</td>
<td>$64.75</td>
</tr>
<tr>
<td><strong>MISCELLANEOUS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parasite External ID</td>
<td>Whole organism (Do not preserve in formalin) Ticks, lice and fleas etc., [All]</td>
<td>Do not submit in formalin or on scotch tape</td>
<td>7-14 Bus. Days</td>
<td>$39.50</td>
</tr>
<tr>
<td>Parasite Internal ID</td>
<td>Whole organism (Do not preserve in formalin) Worms, [All]</td>
<td>Do not submit in formalin</td>
<td>7-14 Bus. Days</td>
<td>$39.50</td>
</tr>
</tbody>
</table>
Virology

**SUBMISSION GUIDELINES**

- Samples for virus isolation or PCR MUST BE KEPT COLD.
- Tissue imprints and conjunctival scrapes should be air-dried. **DO NOT FIX.**
- Conjunctival scrapes should be made **BEFORE** application of fluorescein.
- Tests may be ordered **STAT** at an additional cost. Call for details.
- Recommended swabs for PCR should have plastic stems, dacron or rayon tips. Break off into sterile tube. **DO NOT IMMERSE IN GEL.**

**DIRECTORY OF TESTS**

<table>
<thead>
<tr>
<th>TEST TYPE</th>
<th>USE</th>
<th>SAMPLE</th>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serology</td>
<td>Detects antibody response</td>
<td>Serum</td>
<td>Shows exposure</td>
<td>Acute testing may be negative. Vaccination can interfere with interpretation.</td>
</tr>
<tr>
<td>Isolation</td>
<td>Detects the virus</td>
<td>Tissue, swab in sterile saline, blood (depends on the virus)</td>
<td>Highly sensitive</td>
<td>Requires fresh, refrigerated sample: virus must be viable</td>
</tr>
<tr>
<td>IFA (Immunofluorescent Antibody)</td>
<td>Detects viral antibody</td>
<td>Serum</td>
<td>Inexpensive to perform</td>
<td>Poor sensitivity</td>
</tr>
<tr>
<td>PCR (Polymerase Chain Reaction)</td>
<td>Detects the nucleic acid in DNA viruses</td>
<td>Tissue, swab, blood, fluid (depends on the virus)</td>
<td>Highly sensitive: virus does not have to be viable</td>
<td>Expensive test to perform</td>
</tr>
<tr>
<td>RT-PCR (Reverse-transcriptase Polymerase Chain Reaction)</td>
<td>Detects the mRNA in RNA viruses</td>
<td>Tissue, swab, blood, fluid (depends on the virus)</td>
<td>Highly sensitive: virus does not have to be viable</td>
<td>Expensive test to perform</td>
</tr>
</tbody>
</table>

**TEST TYPE**

- Serology
- Isolation
- IFA (Immunofluorescent Antibody)
- PCR (Polymerase Chain Reaction)
- RT-PCR (Reverse-transcriptase Polymerase Chain Reaction)

**TEST NAME**

- **Adult Diarrhea QPCR Panel**
- **Bovine Abortion Real-time PCR and RT-PCR Panel**
- **Bovine Enteric Panel**
- **Bovine Diarrhea Viral RT-PCR Panel**
- **Bovine Parainfluenza-3 RT-PCR Panel**
- **Bovine Respiratory Real-time PCR and RT-PCR Panel**
- **Bovine Viral Diarrhea Virus by IFAT (Titer)**
- **Bovine Viral Diarrhea Virus (BVD) RT-PCR**
- **Canine Distemper IFAT (Titer)**
- **Canine Distemper RT-PCR**
- **Canine Distemper Sequencing**
- **Canine Distemper Serology (G & M)**
- **Canine Distemper Titer IgG**
- **Canine Herpesvirus by Real-time PCR**
- **Chlamydophila by Real-time PCR**

**TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS**

- **C Diff Tox A/B, Lawsonia, Potomac Horse Fever PCR, C Perf Enterotoxin, Eq, Coronavirus, Salmonella SPP**
- **BVD RT-PCR, IBR PCR, Lepto PCR, [Bovine]**
- **Bovine Coronavirus, Bovine Rotavirus, E. Coli (K99+), cryptosporidium Parvum, Salmonella SPP, [Bovine]**
- **Bovine Viral Diarrhea Virus, Coronavirus PCR and Rotavirus Reverse-transcriptase Polymerase Chain Reaction, [Bovine]**
- **Bovine Viral Diarrhea Virus, Coronavirus PCR and Rotavirus Reverse-transcriptase Polymerase Chain Reaction, [Bovine]**
- **BVD RT-PCR, IBD PCR, RSV RT-PCR, [Bovine]**
- **IFA (Titer), [Bovine]**
- **Reverse-transcriptase Polymerase Chain Reaction, [Bovine]**
- **Reverse-transcriptase Polymerase Chain Reaction, [Bovine]**
- **Reverse-transcriptase Polymerase Chain Reaction with Sequencing**
- **IFA, [Canine]**
- **Screening only, no endpoint by IFA, [Canine]**
- **Real-time PCR, [Canine]**
- **Chlamydia by Real-time PCR, all species, [All]**

**SAMPLE SUBMISSION**

- Preferred sample is feces. (Calcium alginate and gel bacterial swabs are not accepted.)
- Tissue
- Diarrheic Feces or Intestinal Content
- Respiratory swab or tissue
- 0.5 mL serum
- 2.0 mL whole blood, purple top or tissue
- 0.5 mL serum or 0.2 mL CSF
- Whole blood, CSF, tissue or 4-5 mL urine
- Iml of ETDA blood, feces, swab, or urine
- 0.2 mL serum
- 0.2 mL serum or CSF
- 2.0 mL serum
- Fecal, swab (avian cloacal/choanal swab), or tissue

**TURNAROUND TIME**

- 4 Bus. Days
- < 3 Bus. Days
- 1-3 Bus. Days
- < 3 Bus. Days
- Respiratory swab or tissue
- 1-2 Bus. Days
- 1-2 Bus. Days
- Whole blood, CSF, tissue or 4-5 mL urine
- 5 Bus. Days
- 1 Bus. Day
- < 3 Bus. Days
- 2 Bus. Days

**PRICE**

- $185.00
- $150.75
- $90.00
- $158.75
- $135.00
- $155.00
- $36.00
- $60.00
- $36.00
- $36.00
- $61.00
- $77.25
- $72.00
- $36.00
- $36.00
- $51.25
- $48.50
### DIRECTORY OF TESTS

<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, [ACCEPTABLE SPECIES], COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronavirus by IFAT (Titer)</td>
<td>IFA (Titer)</td>
<td>0.5 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$36.00</td>
</tr>
<tr>
<td>Coronavirus RT-PCR</td>
<td>Reverse-transcriptase Polymerase Chain Reaction, [Bovine, Canine, Equine, Feline]</td>
<td>1 mL feces, fluid, or tissue</td>
<td>&lt; 3 Bus. Days</td>
<td>$57.75</td>
</tr>
<tr>
<td>EIA (Equine Infectious Anemia) Routine AGID</td>
<td>Coggins test, [Equine]</td>
<td>1.0 mL serum</td>
<td>1 Bus. Day</td>
<td>$12.00</td>
</tr>
<tr>
<td>EIA (Equine Infectious Anemia) Routine AGID - Digital</td>
<td>Coggins test by ELISA, [Equine] Electronic submissions to Global Vet Link</td>
<td>1.0 mL serum</td>
<td>2 hours with prior notice</td>
<td>$26.50</td>
</tr>
<tr>
<td>EIA (Equine Infectious Anemia) STAT by ELISA</td>
<td>Coggins test by ELISA, [Equine] Electronic submissions to Global Vet Link</td>
<td>1.0 mL serum</td>
<td>2 hours with prior notice</td>
<td>$29.25</td>
</tr>
<tr>
<td>Equine Herpesvirus 1 by Real-time PCR - Neurotropic</td>
<td>Real-time PCR, [Equine]</td>
<td>Swab, tissue or EDTA blood</td>
<td>&lt; 3 Bus. Days</td>
<td>$51.25</td>
</tr>
<tr>
<td>Equine Herpesvirus 1 by Real-time PCR</td>
<td>Real-time PCR, [Equine]</td>
<td>Swab, tissue or EDTA blood</td>
<td>&lt; 3 Bus. Days</td>
<td>$51.25</td>
</tr>
<tr>
<td>Equine Herpesvirus 4 by Real-time PCR</td>
<td>Real-time PCR, [Equine]</td>
<td>Swab, tissue or EDTA blood</td>
<td>&lt; 3 Bus. Days</td>
<td>$51.25</td>
</tr>
<tr>
<td>Equine Herpesvirus Panel (1&amp;4) by Real-time PCR</td>
<td>Real-time PCR, [Equine]</td>
<td>Swab, tissue or EDTA blood</td>
<td>&lt; 3 Bus. Days</td>
<td>$77.75</td>
</tr>
<tr>
<td>Equine Influenza (Serology)</td>
<td>Hemagglutination inhibition (HI), Send-out test, [Equine]</td>
<td>0.5 mL serum</td>
<td>Up to 10 Bus. Days</td>
<td>$40.50</td>
</tr>
<tr>
<td>Equine Respiratory by Real-time PCR and RT-PCR Panel</td>
<td>Equine herpesvirus 1, neurotropic strain, Equine herpesvirus 4, Equine streptococcus equi Real-time PCR, and Equine influenza RT-PCR [Equine]</td>
<td>Swab or wash</td>
<td>&lt; 3 Bus. Days</td>
<td>$173.25</td>
</tr>
<tr>
<td>Equine Streptococcus equi by Real-time PCR</td>
<td>Real-time PCR, [Equine]</td>
<td>Swab or wash</td>
<td>&lt; 3 Bus. Days</td>
<td>$48.50</td>
</tr>
<tr>
<td>Feline Calicivirus RT-PCR</td>
<td>Reverse-transcriptase Polymerase Chain Reaction, [Feline]</td>
<td>Oropharyngeal or corneal swab in sterile tube</td>
<td>&lt; 3 Bus. Days</td>
<td>$52.50</td>
</tr>
<tr>
<td>Feline Calicivirus Titer</td>
<td>IFA, [Feline]</td>
<td>0.2 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$36.00</td>
</tr>
<tr>
<td>Feline Herpes &amp; Calici Real-time PCR and RT-PCR Panel</td>
<td>Real-time PCR and RT-PCR, [Feline]</td>
<td>Corneal or oropharyngeal swab</td>
<td>&lt; 3 Bus. Days</td>
<td>$93.00</td>
</tr>
<tr>
<td>Feline Herpesvirus by Real-time PCR</td>
<td>Real-time PCR, [Feline]</td>
<td>Corneal or oropharyngeal swab</td>
<td>&lt; 3 Bus. Days</td>
<td>$48.50</td>
</tr>
<tr>
<td>Feline Respiratory Real-time PCR and RT-PCR Panel</td>
<td>Feline herpesvirus, Chlamydia (Chlamydophila) by Real-time PCR, Feline calicivirus RT-PCR [Feline]</td>
<td>Con or oropharyngeal swab</td>
<td>&lt; 3 Bus. Days</td>
<td>$332.75</td>
</tr>
<tr>
<td>Feline Vaccinal Titer Panel</td>
<td>FHV, Calici, Panleukopenia screening titers by IFA, [Feline]</td>
<td>0.2 mL serum</td>
<td>1 Bus. Day</td>
<td>$75.00</td>
</tr>
<tr>
<td>FeLV IFA</td>
<td>IFA, [Feline]. Send-out test. Price includes shipping.</td>
<td>Blood smear on slide, air dry</td>
<td>Up to 10 Bus. Days</td>
<td>$70.00</td>
</tr>
<tr>
<td>FeLV by Real-time PCR</td>
<td>Real-Time PCR</td>
<td>1 mL whole blood</td>
<td>&lt; 3 Bus. Days</td>
<td>$50.25</td>
</tr>
<tr>
<td>FeLV/FIV Panel</td>
<td>SNAP™-test, [Feline]</td>
<td>0.5 mL serum, whole blood or plasma</td>
<td>1 Bus. Day</td>
<td>$46.00</td>
</tr>
<tr>
<td>FeLV/FIV/FIP</td>
<td>FeLV/FIV SNAP™ test + FIP titer, [Feline]</td>
<td>0.5 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$52.50</td>
</tr>
<tr>
<td>FIP by IFAT</td>
<td>IFA (Titer), [Feline]</td>
<td>0.5 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$36.00</td>
</tr>
<tr>
<td>Foal Diarrhea QPCR Panel</td>
<td>C Diff Tox A/B, Lawsonia, PHF Feces, P Eneterotoxin, Eq. Coronavirus, Cryptosporidium Parvum, Salmonella SPP, Eq. Rotavirus, C Perf NetF, C Perf AG, R Hoagii</td>
<td>Preferred sample is feces. (Calcium alginate and gel bacterial swabs are not accepted.)</td>
<td>4 Bus. Days</td>
<td>$195.00</td>
</tr>
<tr>
<td>Herpesvirus by IFAT</td>
<td>IFA (Titer)</td>
<td>0.5 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$36.00</td>
</tr>
<tr>
<td>Herpesvirus PCR with Sequencing</td>
<td>PCR with Sequencing, [All]</td>
<td>Swab or tissue</td>
<td>5 Bus. Days</td>
<td>$71.75</td>
</tr>
</tbody>
</table>

Listed tests and prices are from April 2022 and are subject to change.
<table>
<thead>
<tr>
<th>TEST NAME</th>
<th>TEST DESCRIPTION, (ACCEPTABLE SPECIES), COMMENTS</th>
<th>SAMPLE SUBMISSION</th>
<th>TURNAROUND TIME</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infectious Bovine Rhinotracheitis by Real-time PCR</td>
<td>IBR Real-time PCR</td>
<td>Swabtissue</td>
<td>&lt; 3 Bus. Days</td>
<td>$48.50</td>
</tr>
<tr>
<td>Influenza A by RT-PCR</td>
<td>Reverse-transcriptase Polymerase Chain Reaction (any mammalian species)</td>
<td>Deep nasopharyngeal swab or tissue</td>
<td>&lt; 3 Bus. Days</td>
<td>$55.50</td>
</tr>
<tr>
<td>Lyme Disease Titer</td>
<td>IFA</td>
<td>0.2 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$42.00</td>
</tr>
<tr>
<td>Mycoplasma PCR with Sequencing (Reptiles)</td>
<td>PCR with Sequencing, (Reptile)</td>
<td>Swab</td>
<td>5 Bus. Days</td>
<td>$53.50</td>
</tr>
<tr>
<td>Parvovirus by IFAT</td>
<td>IFA (Titer)</td>
<td>0.5 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$36.00</td>
</tr>
<tr>
<td>Parvovirus by Real-time PCR</td>
<td>Real-time PCR</td>
<td>Feces or tissue</td>
<td>&lt; 3 Bus. Days</td>
<td>$50.25</td>
</tr>
<tr>
<td>Parvovirus Strain Sequencing</td>
<td></td>
<td>Feces or tissue</td>
<td>Up to 10 Bus. Days</td>
<td>$71.75</td>
</tr>
<tr>
<td>Parvovirus Vaccine Screen</td>
<td>Screening only, no endpoint, by IFA</td>
<td>0.2 mL serum</td>
<td>1 Bus. Day</td>
<td>$36.00</td>
</tr>
<tr>
<td>Potomac Horse Fever Panel (Serology &amp; Real-time PCR)</td>
<td>Real-time PCR + serology</td>
<td>0.5 mL purple top + 0.2 mL serum</td>
<td>&lt; 3 Bus. Days</td>
<td>$74.00</td>
</tr>
<tr>
<td>Potomac Horse Fever Real-time PCR</td>
<td>Real-time PCR, [Equine]</td>
<td>0.5 mL purple top</td>
<td>&lt; 3 Bus. Days</td>
<td>$52.50</td>
</tr>
<tr>
<td>Potomac Horse Fever Titer</td>
<td>IFA, [Equine]</td>
<td>0.2 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$42.00</td>
</tr>
<tr>
<td>Ranavirus by Real-time PCR</td>
<td>Real-time PCR</td>
<td>Swab</td>
<td>&lt; 3 Bus. Days</td>
<td>$52.50</td>
</tr>
<tr>
<td>Respiratory Syncytial Virus RT-PCR</td>
<td>Reverse-transcriptase Polymerase Chain Reaction, [Bovine, Caprine, Ovine]</td>
<td>Conjunctival, nasal, oropharyngeal swab, lung</td>
<td>&lt; 3 Bus. Days</td>
<td>$55.50</td>
</tr>
<tr>
<td>Rocky Mtn Spotted Fever Titer</td>
<td>IFA</td>
<td>0.2 mL serum</td>
<td>1-2 Bus. Days</td>
<td>$42.00</td>
</tr>
<tr>
<td>SARS-CoV-2 RT-PCR</td>
<td>Reverse-transcriptase Polymerase Chain Reaction [Domestic and wild animals]</td>
<td>Nasal swab, oropharyngeal swab, tissue and/or rectal swab</td>
<td>3 Bus. Days</td>
<td>Call Lab</td>
</tr>
<tr>
<td>Small Ruminant Abortion PCR Panel</td>
<td>Chlamyphila Real-time PCR and Leptospira Real-time PCR [caprine, ovine]</td>
<td>Tissue</td>
<td>&lt; 3 Bus. Days</td>
<td>$83.25</td>
</tr>
<tr>
<td>Tick Titer Panel</td>
<td>RMSF, LYME, E.canis titers by IFA</td>
<td>0.2 mL serum</td>
<td>2-4 Bus. Days</td>
<td>$117.00</td>
</tr>
<tr>
<td>Turtle Respiratory Panel</td>
<td>Turtle Respiratory Panel (includes: Ranavirus Real-Time PCR, Mycoplasma and Herpersvirus by PCR w/Sequencing), [Turtles only]</td>
<td>Swab</td>
<td>5 Bus. Days</td>
<td>$144.75</td>
</tr>
<tr>
<td>Virus Isolation</td>
<td>Virus isolation in tissue culture</td>
<td>Fresh tissue, swabs, fluids - call for best sample</td>
<td>1-4 weeks</td>
<td>Call Lab</td>
</tr>
</tbody>
</table>