

Employing state-of-the-art technology for diagnostics



The Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) invested in advanced diagnostic equipment to improve laboratory efficiency and accuracy. Here is a brief list of diagnostic technology TVMDL can utilize to perform your tests. With the newest in analytical equipment backing highly skilled diagnosticians, TVMDL can continue to bring timely, accurate results to clients.

The Bacteriology Section in College Station transitioned to routine bacterial identification to the Matrix-Assisted Laser Desorption Ionization-Time of Flight Mass Spectrometer, also called the MALDI-TOF or MALDI.

• MALDI-TOF

The MALDI identifies bacteria by measuring the charge-to-mass ratios of ionized proteins and comparing the patterns to those in a validated database. While initial culture to obtain isolated bacterial colonies is still required, the MALDI can then identify bacteria in less than an hour. The technology is being used alongside traditional identification methods to compare results. Though the MALDI will soon become the primary means of bacterial identification, the Bacteriology Section will maintain the full complement of identification methods required by a state-of-the-art diagnostic bacteriology laboratory.

The Toxicology Section has a LCMS and a Gas Chromatography/Mass Spectrometer. On both of these instruments we can detect a variety of chemicals, drugs, petroleums and some anticoagulant rodenticides.

- **Fourier Transfer Infra Red Spectrometer** gives a nice "fingerprint" of the composition of bladder stones.
- **UV spectrometer:** Generally used for detecting levels of potassium bromides and cholinesterase.
- **Graphite Atomic Absorption & Flame Atomic Absorption:** These instruments allow us to detect a variety of minerals/metals in tissues, bloods and serum.

In the Drug Testing Laboratory at the College Station facility, two new state-of-the-art machines are helping chemists find the illusive needle in a haystack—that one drug that could be hiding among the many molecules in samples. The TVMDL drug laboratory conducts testing for the Texas Racing Commission as well as drug screening for many livestock shows across the country.

• QE+

The Q Exactive Plus (QE+) is a liquid chromatograph mass spectrometer (LCMS). With increased sensitivity and selectivity, chemists can put up to 324 samples in the machine and test for upwards of 350 drugs.

• TSQ Endura

When the QE+ detects a drug, the new TSQ Endura, also an LCMS, is used to confirm the presence and then measure the amount detected. The TSQ Endura can accurately quantitate in the picogram per milliliter range; this sensitivity is required for TVMDL's work with equine racing samples.



QE plus in the Drug Testing Lab at TVMDL.