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VETERINARY DIAGNOSTIC LABORATORY

Featured in this issue: Featured Faculty, Feline Heartworm Testing, Fructosamine as a Diagnostic Tool

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Director's Message

Thank you for your continued support of the VDL. Let us know how we are doing. E-mail us with comments or suggestions at vldirectoroffice@vetmed.illinois.edu or call 217-333-7259.

Walter E. Hoffmann, DVM, PhD, Interim Director

Featured Faculty

Dr. Amy MacNeill joined the clinical pathology faculty in 2006. Dr. MacNeill received a DVM degree from the University of Florida in 1998 and a PhD from the University of Florida Medical School in 2005. She was certified as a Diplomate of the American College of Veterinary Pathologists in 2004. Her research interests are in the area of virology with a special interest in utilizing genetically engineered pox viruses as safe treatments for cancers in domestic species. Currently her laboratory is working in collaboration with Dr. Ed Roy to design optimal virus treatments that will eliminate brain tumors in mice. In the near future, clinical trials will begin to treat naturally occurring tumors in dogs and cats. While Dr. MacNeill is very knowledgeable in all areas of clinical pathology, she is especially interested in hematology and diseases or conditions altering hematologic parameters and in diseases affecting the immune system. She can be reached by e-mail at almac@illinois.edu.

Feline Heartworm Testing: Dr. Walter Hoffmann

Heartworm disease in cats is found where heartworm disease is prevalent in dogs. While the prevalence in cats is not well defined, there is reported evidence that approximately 12% of cats in the Midwest have been infected with heartworms at some point in their lives. Testing for heartworms in dogs has now centered on the detection of heartworm antigens derived from female heartworms. However, in cats, testing for heartworm antigens is relatively insensitive for reasons including the possible presence of only male heartworms, immature heartworms, or 1-3 heartworms. The preferred test in cats is the test for antibody produced against *Dirofilaria immitis*. This test is positive even with low heartworm load, infection with heartworms at various stages of maturation, and infection with either sex heartworms after as little as 50 to 60 days post infection. It should be noted that although the antibody test is more sensitive than the antigen test, false negative test results are reported. A negative test result does not rule out heartworm infection. A positive antibody test result implies current or previous infection. Since a positive antibody test may reflect continued presence of the antibody for weeks to months after the cat has cleared the heartworm, interpretation should be made in light of clinical signs consistent with heartworm infection, chest radiographs or echocardiography, and possibly a heartworm antigen test. While the antigen test is insensitive, a positive is highly specific for presence of heartworms. The VDL is now offering feline heartworm antibody testing. Cost is \$15 with results reported as positive or negative, generally the same day of sample receipt. Submission of 0.5 ml of serum or plasma is requested.

Fructosamine as a Diagnostic Tool: Dr. Rimme Singh and Dr. Anne Barger

Occasionally, diagnosing diabetes mellitus can be difficult. As a clinician, you may have a patient with hyperglycemia, such as a nervous or high-strung cat, and be asked to differentiate between diabetes and a stress-induced increase. One way to differentiate may be serial blood and urine samples, but another involves testing serum fructosamine concentration. Fructosamine, a glycolated serum protein, occurs in the blood when glucose concentrations remain elevated over time and combine with proteins permanently by glycation. Fructosamine concentrations are easily measured and reflect the average blood glucose concentration over the past few weeks; therefore, an elevated fructosamine sample indicates that hyperglycemia has been occurring for approximately the past two weeks or longer, rather than a single incidence of stress-induced hyperglycemia. Another use for fructosamine includes monitoring the diabetic dog or cat over time for effective treatment. The sample submitted for testing should be serum that has been separated from whole blood within 30 minutes of collection. The test itself is an assay that detects the reduction of fructosamine, and since it measures the average over time, a fasting or post-prandial sample is not needed. The test results obtained should be looked at in conjunction with protein or albumin concentrations, since the formation of fructosamine is dependent on the presence of albumin and other proteins. In small animals, and cats especially, hypoproteinemia or hypoalbuminemia can decrease fructosamine concentrations, making interpretation more difficult. On the other hand, normal protein concentrations with a decreased fructosamine concentration may indicate hypoinsulinism, and the patient may need to be evaluated further. Please submit 1.0 ml of serum. The cost is \$25 with the test results available the same day as sample receipt. Please call 217-333-5342 with questions regarding the test.