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New Price List

We have reviewed our price list (enclosed) and have made adjustments. Our in-house tests have increased in line with CPI.

Some of the increases in tests that have to be sent to external laboratories have had more of an increase to reflect the costs of transport (especially frozen samples). Vetnostics still remains extremely cost competitive to other laboratories. As a policy we try to keep our send away tests as low-priced as possible (compared with our competitors) so as to allow veterinarians to investigate their cases as comprehensively as possible.

This list which includes 95% of tests or our fully comprehensive list including less frequently requested tests can be emailed as an Excel file to you.

Please contact Vetnostics Manager Shaun Hickey on **(07) 3121 4013** or **shaun.hickey@qml.com.au.**

NEW CONTACT NUMBER NOW IN USE 1300 VET QML (1300 838 765)

Our new QML Pathology Vetnostics contact number 1300 838 765 is now in operation. For a fast, efficient service, this number will take you directly to the following options:

1 - Results enquiries
2 - Added tests
3 - Speak to a Pathologist
4 - All other enquiries.

Calls will be charged at local rates from landlines. Mobile charges may vary.

Introduction

As many of you are aware the ownership of Vetnostics has changed with the acquisition of Symbion Health by Primary Health Care Ltd. The commitment of Primary Health Care to the veterinary pathology business can be seen in the employment of additional pathologists and plans for further expansion of our existing services in Victoria and Queensland. This will ensure a major presence in all Eastern States as well as in WA through Vetpath. We will now have a team of 14 clinical pathologists and anatomic pathologists and two registrar pathologists undergoing training. We will continue with our internal veterinary medicine consultants.

During this year two new pathologists (Brett Stone, commenced June, David Taylor, starting 4 August) and a trainee pathologist (Matthew Silverstein, February) are expanding the Vetnostics team. As well as supporting the training of future pathologists in-house, Vetnostics continues to support a resident in veterinary pathology at the University of Queensland.

The commitment to the veterinary profession will continue through our support of research projects within Universities as well as within our own laboratories using the enormous clinical case information available. We hope to continue our seminar program. We will continue supporting our testing of Delta Pet Partner dogs, the Port Macquarie Koala Hospital and offering a discount for staff for our regular veterinary users. Feedback has indicated that access to our medicine consultants is greatly valued in investigating and treating cases, as well as assisting in deciding whether cases can be adequately handled in-house or whether they should be referred on. We are therefore pleased to confirm that access to our internal veterinary medical consultants will be expanded.

New full time veterinary pathologist at QML Pathology - Dr Brett Stone

Dr Brett Stone is now our full-time Veterinary Pathologist based at our Murrarie Laboratory in Brisbane. This will ensure faster result turnaround times and Brett will be available to discuss results. Please see page 3 for a full profile.

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New Tests & Test Alterations

Canine Geriatric Profile

Vetnostics has introduced a geriatric profile in addition to its wellness profile for general health check in the older animal. Included in the test profile: FBC exclusive of a differential, urea, creatinine, glucose, total protein, albumin, globulin, ALT, ALP, Ca, Phos and trig.

Cost: $54.00

Mycobacterium & Nocardia Identification

After initial culture and an indication that one of these organisms is present, culture plates are sent to the National Mycobacterium Laboratory for further identification and if required sensitivity determination.

Cost:

1. Initial culture (up to 2 months) **$35.00**
2. Identification of organism **$60.00**
3. Sensitivities **$55.00.**

Equine Health & Fitness Profile

Magnesium will now be included in this profile.

Equine Uterine & Clitoral Swabs

A decreased cost has been introduced if both samples are submitted.

Cost: $71.00

Urine Cytology*

As we have been receiving increasing requests for cytological examination of urine samples we have introduced a Urinalysis plus Cytology panel.

Cost: $52.00

(All prices excl. GST)

**Preparation of smears/slides from concentrated unfixed urine at the time of sampling minimises morphologic changes, results in superior cell preservation and allows for a more accurate cytological assessment.*

(Continued from page 1)

We believe that Vetnostics is the longest serving laboratory. It has a tradition of aiming to provide an ever improving service as evidenced by the continual expansion of available tests in-house and employment of increasing numbers of pathologists. We have the most comprehensive range of in-house companion animal laboratory tests with competitive prices. Our excellent relationship with university researchers and support of research programs is a further indication of our commitment to the development of the profession and its ability to provide the best testing for animals in their care. For these reasons and our 7 days a week service, rapid turnaround of results and team of experienced pathologists, we hope to remain or become your pathology provider.

Also in this Newsletter

We have an article on Mast Cell grading. This has been adapted by George Reppas from a recent article by our colleagues at Vetpath.

Sue Foster has kindly updated and expanded a previous article on the use of the ACTH stimulation test in diagnosis and monitoring treatment of hyperadrenocorticism. This excellent article answers many of the questions we are frequently asked. If her advice is followed, considerable savings to your clients can occur.

We also have an article on phenobarbitone and its effects on triglyceride levels.

Activated Clotting Time Tubes

Over the past few months we have had numerous requests for the supply of activated clotting time tubes. Unfortunately the manufacturer has informed us that supply has been discontinued. We are presently investigating sourcing another supply of tubes for this test. As yet these tubes have not been validated for use in veterinary practice. They will also be considerably more expensive so free supply will no longer be possible. Availability of these will be notified through our website.

Requesting Tests not Listed on our Request Form

These tests need to be requested in the space under OTHER TESTS and NOT as part of the history, otherwise our touch typists may not enter the information as a specific requested test and the test will not be carried out.

Discounts for Vets and their Staff

We believe that we offer very competitive discounts to veterinarians and their staff for their own pets. This will be maintained throughout 2008 and we will have a 50% discount except on referral tests where a discount will not apply.

Seminars

We will be looking to hold several seminars in late 2008 and would then like to continue these in 2009. Seminars will be held in Brisbane as well as in regional areas.

If you would like to discuss the possibility of holding a seminar in your region or would like to provide further information regarding topics you would like covered, please contact Dr Brett Stone at the Brisbane Laboratory on **(07) 3121 4343** *or* **drbrett.stone@qml.com.au.**

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Dr. Brett Stone

Dr. David Taylor

Matthew Silverstein

New Pathologists

Dr. Brett Stone

B.VSc(Hons) B.Biomed.Sc(Hons) MACVSc

Prior to commencing BVSc studies, Brett completed a Bachelor of Biomedical Sciences with Class I Honours at James Cook University, North Queensland. His honours research was in the field of Microbiology and Immunology and focused on the detection of Helicobacter pylori in domestic cats. Brett graduated as a veterinarian from the University of QLD with Class I Honours in 2001 and worked in mixed animal practice on the outskirts of Brisbane for two years before returning to the University of QLD to undertake an internship/residency funded by QML Vetnostics in veterinary pathology. As a pathology intern Brett also concurrently undertook a research masters project investigating the colonisation and excretion of E.coli serotype O157 in adult cattle. In 2006, after completing the internship, Brett lectured in clinical pathology at the University of QLD, was a contracted pathologist at QML Vetnostics and attained membership qualifications with the Australian College of Veterinary Scientists in Veterinary Pathology. In 2007-2008, Brett worked as a diagnostic pathologist at Cytopath Ltd in the UK and commenced Fellowship training in clinical pathology. This practice run by ex-Australian pathologist Chris Belford has an extensive throughput of cytology, allowing Brett to gain extensive experience in this area as well as anatomic pathology. Brett's experience in cytology and interest in immunohistochemistry and microbiology will allow further development of these in QML Vetnostics.

Dr. David Taylor

BVSc, Diplomate ACVP

Dr. David Taylor, BVSc, Diplomate ACVP will join the pathology staff at Symbion Vetnostics in August. David received his BVSc from the University of Sydney in 1990. He spent the next few years in New South Wales and Victoria broadening his experience in private practice, university and government positions until he joined the Animal Health Laboratory in Launceston in 1998 as a veterinary pathologist. In 2001 David moved to the University of Florida for residency training in anatomic pathology. Following the two year residency he was appointed as a clinical assistant professor in anatomic pathology and was board-certified in veterinary pathology in September 2004. While at the University of Florida David was a consultant pathologist for the dermatology and ophthalmology services, coordinated a dermatopathology biopsy service and served as anatomic pathology residency coordinator. His professional interests include dermatopathology, ophthalmic pathology and oncopathology. He also enjoys clinical research, writing and collaborating with clinicians on interesting and challenging cases. In his spare time he enjoys swimming, digital photography, digital retouching and art. With his wife Jacqui and children Hannah and Ben, he is looking forward to spending time with family and settling back into Australia.

Matthew Silverstein

BVSc(Hons)

Matthew completed his veterinary science degree in Queensland in 2002. After this time he worked in private small animal practice around NSW and Victoria over a two year period. Following this he pursued his interests in veterinary pathology by undertaking an internship at the University of Sydney Rural Veterinary Clinic in Camden. During this period he had a wide exposure to all facets of pathology in small and large animals and valuable microbiology training. He then continued on to a training program at the University of Wisconsin-Madison in clinical pathology. This was a great opportunity to learn from very experienced people within this field and to experience life overseas. He has now become a registrar in veterinary clinical pathology at Symbion Vetnostics and is preparing for membership of the Australian College of Veterinary Scientists.

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OTHER SYMBION VETNOSTICS PATHOLOGISTS

(Further details on Vetnostics website **www.vetnostics.com.au**)

David Snow
BSc(Vet)DVSc PhD MRCVS Clinical Pathologist and Chief Veterinary Pathologist (Eastern States)

Bruce Duff
BVSc Dip. Vet Path MComm. AFAIM (Clinical Pathologist)

Angela Begg
BVSc Dip.Vet Path. PhD (General Pathologist)

George Reppas
BVSc Dip.Vet.Path FACVSc (General Pathologist)
Dip. ECVP MRCVS (Anatomic Pathology)

Dr Terry Rothwell
DVSc PhD MACVSc (Consultant Anatomic Pathologist)

Prof. Rolfe C Howlett
BVSc PhD MACVSc MRCVS (Consultant Anatomic Pathologist)

Dr Ken Mason
BVSc MVSc FACVSc (Consultant Dermatohistopathologist)

VETERINARY MEDICAL CONSULTANTS

Dr Sue Foster
BVSc M.Vet.Clin.Stud. FACVSc (Feline Specialist)

Dr Martine Perkins
BVSc MACVSc (Canine Medicine)

Dr Richard Malik
DVSc PhD Dip. Vet Anaesth M Vet Clin Stud FACVSc (Feline Medicine) FASM

VETPATH

Dr John Jardine
BVSc MMVet (Path) Dip ACVP MRCVS (Head, General Pathologist)

Dr Sue Beetson
BSc(Hons) BVMS PhD (Clinical Pathologist)

Dr Mary McConnell
BVSc Grad Dip Clin Path PhD (Clinical Pathologist)

Dr Leanne Twomey
BsC BVMS PhD DipACVP (Clinical Pathologist)

Dr Jenny Hill
BVSc DipACVP (Clinical Pathologist)

Dr Sue Foster
Veterinary Medical Consultant

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Dr George Reppas
Specialist Veterinary Pathologist

UPDATE:
Canine Mast Cell Tumours

Dr George Reppas

Specialist Veterinary Pathologist - *adapted from article by Vetpath*

Mast cell tumours (MCT) are one of the most common skin tumours in dogs and are lesions that are frequently encountered in clinical practice. These skin lesions have a wide variety of behaviours from small localised slow growing lesions with benign behaviour to multiple large and aggressive lesions with rapid growth and early metastasis to regional and distant sites.

A recent paper published in the Journal of Small Animal Practice (JSAP) has reviewed the recent literature and highlighted the advances in the diagnosis and management of cutaneous mast cell tumours.

Diagnosis of mast cell tumours is usually based on fine needle aspirate cytology or on histological assessment. Grading of tumours on histological examination is currently regarded as one of the primary determinants of the prognosis. However, the reliability of histological tumour grading alone has been questioned with significant inter-observer variation reported in recent studies.

Much of the grading is based on cell morphology, mitotic activity, as well as growth patterns of the tumour. The published grading parameters are a little vague with grey areas between grades, and few hard and fast criteria.

Much research effort has been directed at increasing the reliability and repeatability of the cutaneous mast cell grading system. Although the JSAP article discussed recent advances in predicting individual MCT behaviour (e.g. staining for argyrophilic nucleolar organising regions (agNORs) or using immunohistochemical stains to detect proliferating nuclear antigen (PCNA) and Ki67 antigen, as well as assessing KIT expression in MCT with c-kit mutations), these tests are not currently applicable to routine diagnostic pathology.

A very interesting recent development from UC Davis has been published in the May 2007 issue of Veterinary Pathology, which was not discussed in the JSAP paper. Their study uses the mitotic index (MI) as an indirect measure of the cell proliferation. MI is a simple measure of the number of mitotic figures in 10 standard high power fields. This is a simple and quick test to perform. In their study the MI was shown to be directly correlated to the tumour grade.

Furthermore the authors have shown that the median survival time for dogs with a MI of <5 was significantly longer (70 months) than for those with a MI >5 (2 months), regardless of tumour grade. Even in grade 3 MCT the dogs having tumours with a MI of <5 will have a long survival time compared to <2 months for dogs with a MI of >5.

It appears then that this relatively simple test can provide very valuable information at no extra cost to the client. The case numbers examined in this study were significant but not enough to dispel all doubt. More research is needed but may be slow to be published.

In future QML Pathology VETNOSTICS will endeavour to provide a MI as well as the tumour grade in all mast cell tumour cases submitted for histopathology.

"It appears then that this relatively simple test can provide very valuable information at no extra cost to the client"

REFERENCES:

1. Mitotic index is predictive for survival for canine cutaneous mast cell tumours. EM Romanski et al. Vet Pathol 44:335-341 (2007)
2. Cellular proliferation in canine cutaneous mast cell tumours: associations with c-Kit and its role in prognostication. JD Webster et al. Vet Pathol 44:298-308 (2007)
3. Advances in the diagnosis and management of cutaneous mast cell tumours in dogs. JM Dobson et al. Journal of Small Animal Practice 48,424-431 (2007)

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The ACTH Stimulation Test Revisited

Dr Sue Foster

Veterinary Medical Consultant

1. Screening Test for Hyperadrenocorticism

Advantages:

- only requires dog to be in clinic for 1hr (compared to 8hrs for the LDDST)
- only requires two blood samples (not three as for the LDDST)
- detects iatrogenic hyperadrenocorticism
- less affected by disease stress than LDDST (better specificity).

This is the test of choice in an animal that has a reasonable chance of being concurrently affected by non-adrenal disease e.g. poorly controlled diabetes mellitus, renal disease, hepatic disease etc.

Disadvantages:

- the ACTH stimulation test is usually reported as being less sensitive than the LDDST for both pituitary dependent hyperadrenocorticism (up to 20% false negatives) and for adrenal tumours (up to 40% false negatives) although some authors have found similar sensitivities on both tests (Van Liew et al 1997). In the author's opinion, if dogs are carefully assessed for disease likelihood and appropriate cut-off points chosen for the ACTH stimulation test results, then this test appears to have good sensitivity.
- the test does not differentiate between pituitary dependent disease or that due to adrenal tumour(s).

2. Monitoring Test for Therapeutic Efficacy

a) Mitotane: test needs to be run 36 to 48 hours after any dose of mitotane.

Mitotane interferes with cortisol synthesis in addition to causing adrenocorticolysis and as adrenal reserve is what is actually being monitored, direct mitotane effects on synthesis need to have worn off (otherwise adrenal reserve will appear less than it really is).

For good control of hyperadrenocorticism, both pre and post-stimulation results need to be <75 nmol/L. Poststimulation results 75-100 nmol/L tend to be associated with difficulty in achieving stable control though some dogs do remain stable at this level of adrenal reserve.

Post-stimulation results > 100 nmol/L are usually an early warning of loss of control if adequate induction results achieved. Clinical signs of loss of control are usually noticed by astute owners when post-stimulation cortisol concentration reaches 120-150 nmol/L. Less aware owners or owners of dogs that secrete less ACTH from their pituitary adenoma each day, may not notice loss of control until cortisol concentration reaches >200 nmol/L.

b) Trilostane: test needs to be run 4-6 hours after the morning-dose of trilostane to assess the peak effect of trilostane on cortisol synthesis. As trilostane does not usually last for 24 hours, an ACTH stimulation test 12-14 hour post-dosing may be needed to assess duration of effect.

Post-stimulation cortisol concentration with trilostane treatment should be 20-75 nmol/L.

Indications:

- screening test for spontaneous hyperadrenocorticism
- diagnosing iatrogenic hyperadrenocorticism
- monitoring efficacy of treatment with mitotane (Lysodren®) or trilostane
- diagnosing hypoadrenocorticism.

QML Pathology Vetnostics Protocol:

- take a 0h blood into a serum tube
- inject 5µg/kg Synacthen® IV
- take another blood sample 1hr later into a serum tube
- QML Pathology Vetnostics' post-stimulation reference range and thus interpretation is based on this protocol.

Note: this dose has been validated in numerous studies (Watson et al 1998, Kerl et al 1999, Frank et al 2000, Behrend et al 2006, Martin et al 2007)

Other protocols:

- another frequently used protocol is to administer 250µg Synacthen® IV or IM with testing 1hr later. This protocol is more expensive for the client. In addition, it may produce higher post-stimulation cortisol concentrations than the 5µg/kg IV protocol so if this protocol is used, you need to indicate both dose and timing on your submission form so that they can be taken into account when interpreting the result
- lower dose protocols with IV or IM Synacthen® (see below).

Older textbooks recommend that this test be performed in the morning. As dogs do not have a circadian rhythm for cortisol secretion, there is no scientific justification for this recommendation. This test can be run at any time. As fasted blood samples are preferable for chemiluminescence assays (radioimmunoassays are unaffected by haemolysis or lipaemia), this means that when performing an ACTH stimulation test in a diabetic dog with hyperadrenocorticism (e.g. usually fed before coming to the clinic), the test can be run late in the day with no problems.

Note: Synacthen ® is only registered for IM use in humans but does not seem to have caused problems in animals when given IV. A rare side effect, regardless of route administration, is acute adrenal necrosis!

IDEXX Pathology | Vetnostics

ABBREVIATIONS:

ACTH: adrenocorticotropic hormone

IM: intramuscular

IV: intravenous

LDDST: low dose dexamethasone suppression test

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1. Behrend EN, Kemppainen RJ, Bruyette DS et al. Intramuscular administration of a low dose of ACTH for ACTH stimulation testing in dogs. J Am Vet Med Assoc 2006:229:528-530
2. Frank LA, De Novo RC, Kraje AC, Oliver JW. Cortisol concentrations following stimulation of healthy and adrenopathic dogs with two doses of tetracosactrin. J Sm Anim Pract 2000;41:308-311
3. Frank LA, Oliver JW. Comparison of serum cortisol concentrations in clinically normal dogs after administration of freshly reconstituted versus reconstituted and stored frozen tetracosactrin. J Am Vet Med Assoc 1998;212;1569-1571
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To Reduce the Expense of Frequent Monitoring

1) Reduce the amount of Synacthen® administered.

As Synacthen® is expensive, use a low dose ACTH protocol e.g. 5µg/kg IV for small dogs and 1 µg/kg IV for large dogs and store the remaining sample for future monitoring. Both doses have been proven to produce maximal cortisol secretion in healthy dogs (Martin et al. 2007). If using really low doses, attention to timing of the post-stimulation sample is required. Timing needs to be PRECISELY one hour post injection for doses of 1 µg/kg or less (Martin et al. 2007).

Intramuscular dosing with 5µg/kg has also been shown to cause maximal cortisol secretion (Behrend et al. 2006). In the author's opinion, IV dosing is preferable unless patient difficulties preclude its use, as it ensures that the dose does reach circulation.

Only a small amount of Synacthen® is administered when using a 1- 5 µg/kg dose so **freeze any remaining sample**. Draw up the left-over Synacthen® in a 1 ml syringe (or draw up accurate doses into multiple 1 ml syringes), leaving a small air space at the end of the syringe. Cap each syringe, label it with dog name and date (frozen Synacthen® is stable for 6 months; Frank and Oliver 1998) and place it in the freezer. When that dog needs another ACTH stimulation test, **thaw** it, draw up the required dose and **re-freeze** the remainder. By doing this, multiple doses can be obtained out of one vial. This significantly decreases the cost of monitoring treatment: the owner can be billed for the whole vial initially but thereafter, until another vial is required, there is no more cost for Synacthen®, just fees for cortisol measurement and procedure.

2) Test only the post-stimulation cortisol concentration.

For monitoring efficacy, the important result is the poststimulation result as it indicates the extent of cortical destruction (mitotane) or decrease in cortisol synthesis (trilostane) or both (mitotane, if testing within 36 hours of dosing on suspicion of iatrogenic hypoadrenocorticism).

The first cortisol concentration really acts as a check on the endocrine assay. Whilst it is ideal to know the basal cortisol concentration as it can enable both practitioner and laboratory errors to be detected, it is often better for the client to be able to afford two good tests than one perfect test.

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Phenobarbitone and Effects on Triglyceride Levels

Over the past four years Symbion Vetnostics Laboratory has been running concurrent triglyceride (TG) levels with each phenobarbitone (PB) assay in dogs. This was a background study as part of a PhD research project conducted at Sydney University, which was aiming to determine the following:

- The prevalence of epileptic dogs on chronic PB with hypertriglyceridaemia
- The mechanism/s behind hypertriglyceridaemia
- The significance of hypertriglyceridaemia.

From this research, approximately 30% of dogs studied on chronic PB had elevated fasting TG's. In addition, three dogs with normal fasting TG's prior to PB use developed severely elevated fasting TG's (> 40 mmol/L) within 1 month of initiating PB therapy. Although the exact mechanism for this is unknown, it is likely due to an increase in hepatic TG production due to PB induction, which in some dogs appears transient. Many dogs on PB are also overweight, which can lead to insulin resistance, another cause of increased TG levels. Obesity in combination with an increased hepatic TG production is the likely cause for the fasting hypertriglyceridaemia seen in many dogs on PB therapy.

As we suspect PB has a direct effect on raising serum TG levels, baseline fasting TG levels prior to commencing PB and regular monitoring of TG with PB drug levels throughout therapy should become a standard part of treatment in epileptic dogs. In most epileptic dogs with elevated TG levels and no evidence of concurrent disease, weight loss (if overweight) and a low fat diet should be sufficient to lower TG levels. Hypertriglyceridaemia in dogs can lead to vomiting, diarrhoea, abdominal pain, pancreatitis and even seizures, although it is unlikely this is the underlying cause for idiopathic epilepsy.

In dogs that have been fasted for approx. 14-16 hours, the reference range for fasting triglycerides is 0.3 – 1.7 mmol/L. There are many factors such as diet and concurrent disease (e.g. hyperadrenocorticism, hypothyroidism, diabetes) that influence both fasting and post-prandial TG levels in dogs, however as a rough guide, peak TG levels after eating should not exceed 5.0 mmol/L.

If you require further information or wish to discuss specific cases please contact the researcher involved **Elissa Kluger 0410 572 966** or **ekluger@vetresearch.net.**

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In an effort to reduce our carbon footprint we would like to distribute this newsletter by email where possible. If you would like to receive this newsletter by email in future, please send your email address and contact details to Sandra Rolls **sandra.rolls@qml.com.au.**