

# AXIOM

Veterinary Laboratories Ltd  
"The Quality Clinical Pathology Service"

## April 2009

### April 2009

Welcome to the April 2009 edition of the Axiom Veterinary Laboratories Ltd newsletter. In this edition we continue our series on endocrine testing and highlight two significant developments from the clinical pathology service. The first of these is a new facility for viewing and receiving your results on-line. The second involves a complete restructuring of our allergy testing options which we hope will be advantageous to you and your clients.

### New Allergy Testing options

Axiom has long been established as the premier veterinary allergy testing laboratory in the UK, with over twenty years of experience and more than 150,000 tests performed. As many of you are aware, our policy is to deliver exemplary quality and service while maintaining competitive pricing. Now, after extensive research and trials, we are pleased to announce the introduction of new allergy testing options, which we believe better match our ethos.

The details are elaborated in our new **Axiom ALLERGYVET™** brochure and client allergen information leaflets (illustrated on right). We hope that this literature will facilitate client communication and allow you to make clearer diagnostic choices when working up those complicated allergy cases.

We will be mailing this information to practices; the brochures and leaflets will also be available at stand **310** at this year's BSAVA Congress.

To request your copy of our new **Axiom ALLERGYVET™** brochure please email [zoe.briscoe@axiomvetlab.co.uk](mailto:zoe.briscoe@axiomvetlab.co.uk).

### Easter Courier Services

If you normally receive or request an overnight courier these will take place on the Thursday as normal before Good Friday.

### On Good Friday and Easter Monday no courier services will operate.

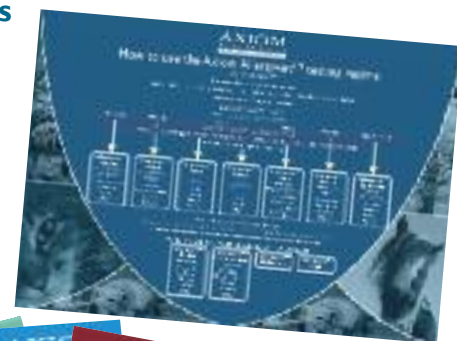


Client Leaflets



Allergy Brochure

### 'How to use' Practice Poster



Allergen Leaflets

### This Month:

New allergy tests - Viewing / accessing your results - BSAVA Congress - Courier Routes  
Choosing the Right Endocrine Test and Pitfalls in Interpretation: Suspected Hypothyroidism in Dogs



[www.axiomvetlab.com](http://www.axiomvetlab.com)  
+44 (0)1626 355655

## Choosing the Right Endocrine Test and Pitfalls in Interpretation

### Part 2 – Suspected Hypothyroidism in Dogs



The diagnosis of canine hypothyroidism is usually straight forward, but there are a few circumstances where the usual screening tests of total T4 (TT4) and thyroid stimulating hormone (TSH) are insufficient to provide a diagnosis. It is useful to understand the situations in which this might occur as

it is more cost effective to request the Comprehensive Thyroid Panel (T4, TSH, free T4 and antithyroglobulin antibodies [TgAbs]) than to add on free T4 and/or TgAbs as individual tests after receiving equivocal T4 and TSH results. Furthermore, we suspect that there are many dogs out there that have been put on inappropriate long term thyroxine supplementation simply on the basis of a low TT4 result, suggesting that the diagnosis of hypothyroidism is not always simple.

Before discussion of the individual tests available, we'll start with a quick recap on the hormonal control of the thyroid gland:

Thyroxine (T4) is produced by the thyroid gland in response to stimulation by thyroid stimulating hormone (TSH) released from the pituitary, which itself is under the influence of thyroid releasing hormone (TRH) from the hypothalamus. 99% of T4 circulates bound to various proteins (thyroid hormone-binding globulin, transthyretin, albumin and apolipoproteins). 1% circulates unbound (free T4), and is the biologically active form which is taken up by cells to be converted into triiodothyronine (T3). This initiates or promotes a wide range of chemical reactions concerned with metabolic rate, heart rate, catabolism, protein synthesis etc.

## The Screening Tests

### Total T4

Indication: Screening test when clinical signs and routine laboratory tests are suggestive of hypothyroidism.

#### Advantages:

- Simple and quick to perform (same day turn-around)
- Inexpensive
- A result within reference range almost certainly rules out hypothyroidism
- Point of care assays are available for in-clinic testing
- Useful for monitoring treatment

#### Disadvantages:

- Is commonly decreased secondary to significant non-thyroidal disease
- Can be decreased secondary to use of the following drugs: glucocorticoids, phenylbutazone, barbiturates, potentiated sulphonamides and clomipramine.
- Certain breeds (sighthounds, and greyhounds especially) have lower TT4 levels in health than other breeds
- Can be falsely increased if anti-T4 autoantibodies are present in the serum (not usually a problem; most cases of primary hypothyroidism are due to autoantibodies against thyroglobulin, not T4)

### TSH

Indication: Screening test when clinical signs and routine laboratory tests are suggestive of hypothyroidism.

#### Advantages:

- Simple and quick to perform (same day turn-around)
- Inexpensive
- Significantly increases the diagnostic utility of TT4 when run concurrently
- Useful for monitoring treatment

#### Disadvantages:

- May be within reference range in up to 20% of hypothyroid dogs
- Can be falsely increased with prolonged use of sulphonamides

**Please note:** Axiom strongly recommends that these two tests are run concurrently as the initial screening test, due to the non-specific nature of a low TT4 result. It is also recommended to measure both tests when monitoring response to treatment.

This Month:

New allergy tests - Viewing / accessing your results - BSAVA Congress - Courier Routes

Choosing the Right Endocrine Test and Pitfalls in Interpretation: Suspected Hypothyroidism in Dogs



www.axiomvetlab.com  
+44 (0)1626 355655

# AXIOM

Veterinary Laboratories Ltd  
"The Quality Clinical Pathology Service"

## Tests for Further Evaluation of Thyroid Status **Free T4**

Indication: If screening results are equivocal or discordant, or if additional factors complicate interpretation of T4 and TSH (e.g. breed, recent medication, concurrent disease etc). Axiom uses the dialysis radioimmunoassay to measure free T4, which has been shown to be far more accurate than measuring free T4 without dialysis.

### **Advantages:**

- Corroboration of screening tests allows for increased confidence in diagnosis
- More sensitive than TT4 so may pick up early cases
- Less affected by non-thyroidal disease than TT4 (though not completely immune)
- Not affected by anti-T4 antibodies as they do not diffuse through the dialysis membrane

### **Disadvantages:**

- Increased cost
- Turnaround time of up to a week
- Radioimmunoassay more subject to variability than the chemiluminescent assays used to measure TT4 and TSH
- Can transiently increase above reference range before returning to reference range in non-thyroidal disease

## **Antithyroglobulin antibodies**

Indication: as for Free T4

### **Advantages:**

- Positive result provides strong evidence of active thyroid gland destruction
- Only test that can provide a definitive diagnosis of primary hypothyroidism as opposed to reduced thyroid gland function secondary to neoplasia, drugs, non-thyroidal disease, radioactive substances etc.

### **Disadvantages:**

- Can be negative in genuinely hypothyroid dogs as immune-mediated destruction of the thyroid gland is episodic
- Increased cost
- Turnaround time of up to a week



## Other Tests Available (not commonly necessary)

### • **T3 and free T3 :**

T3 can be useful in addition to TT4, TSH, free T4 and TgAbs in sighthounds where the diagnosis of hypothyroidism is confounded by breed-specific anomalies. In other situations, T3 and free T3 are less sensitive than T4 and free T4, and usually provide no additional information.

### • **TSH response test:**

Not easily available since withdrawal of bovine TSH from the market. Recombinant human TSH can be used, but this is very expensive. TSH response test therefore now limited to research setting.

### • **TRH response test:**

Very insensitive (positive predictive value is only 50% - you might as well flip a coin).

### • **Autoantibodies against T4 and T3:**

Not widely available. Less sensitive than measuring TgAbs, but occasionally may be present in the absence of TgAbs. Can be useful to establish anti-T4 antibodies as the cause of an erroneously high T4 – see above.

### • **Autoantibodies against thyroid peroxidase:**

Diagnostic value has not been established.



## **BSAVA Congress**

Visit us at **Stand 310**

at this year's BSAVA Congress. As usual we would be delighted to meet you and discuss your usage of our services, discuss issues raised in this newsletter and give away a few freebies!

## **This Month:**

**New allergy tests - Viewing / accessing your results - BSAVA Congress - Courier Routes**  
**Choosing the Right Endocrine Test and Pitfalls in Interpretation: Suspected Hypothyroidism in Dogs**



SCVCP APPROVED TRAINING FACILITY

**www.axiomvetlab.com**  
**+44 (0)1626 355655**

