



**ANTECH**  
D I A G N O S T I C S

# News

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## Lab Locations

Atlanta  
Georgia

Chicago  
Illinois

Dallas/  
Fort Worth  
Texas

Denver  
Colorado

Honolulu  
Hawaii

Houston  
Texas

Los Angeles  
California

Memphis  
Tennessee

New York  
New York

Phoenix  
Arizona

Portland  
Oregon

San Francisco  
California

Tampa  
Florida

## SAMPLE PREPARATIONS FOR AVIANS AND EXOTICS

Appropriate specimen collection and careful sample handling is of paramount importance for us to provide you with accurate and prompt results.

### Phlebotomy

For birds less than 500 g body weight, and small reptiles and mammals, 25- to 27-gauge needles and 1 mL insulin syringes are suitable. Blood from larger birds (> 500 g), reptiles and mammals is best procured with a 22 g needle and 3 mL syringe.

### BIRDS

The jugular and medial metatarsal veins are preferred sites for avian venipuncture. When bleeding small birds using the medial metatarsal vein, the syringe plunger should be removed so that blood is allowed to fill the syringe by capillary action. Blood collection by toe-nail clip or skin prick is *not* recommended.

Total blood volume in birds is approximately 10% of body weight, and up to 1% of the bird's weight can be safely collected at one time from most birds (see Table 1). For multiple samplings or for ill birds, lesser amounts should be drawn, especially if the sampling interval is less than 2 weeks.

### RODENTS AND REPTILES

Use the ventral coccygeal vein in iguanas, cardiac puncture or the ventral coccygeal vein in snakes, and the jugular vein for chelonians. Rabbits and ferrets can be bled from the jugular or medial or lateral saphenous veins. The central ear artery can also be used in rabbits. Guinea pigs and chinchillas can be bled from the lateral saphenous, cephalic or jugular veins. The cranial vena cava can also be used.

The volume of blood that can safely be taken from healthy rodents and reptiles is approximately 0.5% of body weight (see Table 2).

### Submitting Samples to Laboratory

#### HELPFUL HINTS

- Double-check the specimen requirement(s) beforehand by referring to the Antech Avian and Exotic Quick Test Guide or the Services Directory.
- Do *not* overfill the tubes as the blood may clot.
- Do *not* use outdated tubes.
- Remove the needle from syringe before adding blood to the tube to minimize hemolysis.
- Many centrifuges require use of the hematocrit setting to adequately spin Microtainer™ tubes.
- Keep specimens refrigerated until transported to the laboratory.

#### CHEMISTRY PROFILES

The preferred specimen for blood chemistry testing is a spun green top tube (GRT) containing a separator gel. This tube is often referred to as a *plasma separator tube*. The tube needs to be filled to the top line (0.6 mL) to ensure adequate sample volume, inverted 6-8 times to ensure proper mixing of blood and heparin anticoagulant, and centrifuged immediately.

#### HEMATOLOGY

For avians and reptiles, a blood smear and 2 microhematocrit tubes are preferred. Use microscope slides for blood smears, as cover slips produce less than optimal smears and are easily broken. Smears that are too thick or lack a "feathered-edge" will compromise the accuracy of results obtained. Microhematocrit tubes should be at least half full.

For small mammals, a lavender top (LT) Microtainer™ tube is preferred. Fill the tube between the 2 lines and invert 6-8 times to ensure proper mixing of blood with the EDTA anticoagulant.

## SAMPLE PREPARATIONS (CONT'D.)

### MISCELLANEOUS TESTS

Serology (antibody testing) can be performed from either a spun GRT *with* gel or spun Microtainer™ serum separator tube (SST).

PCR (DNA) testing on birds requires whole blood. A Microtainer™ GRT *without* gel is preferred. A GRT *with* gel can also be used, but *must not be centrifuged*.

A Microtainer™ LT is the specimen of choice for measuring lead concentrations. Whole blood in an unspun GRT is also acceptable. For determination of zinc concentrations, submit a spun GRT *with* gel or a spun Microtainer™ SST.

For other test requirements, refer to the Antech Avian and Exotic Quick Test Guide (included in the 2000 Services Directory), the Antech Services Directory, or contact one of our specially trained Avian and Exotic Client Service representative.

## ANTECH DIAGNOSTICS BLOOD SAMPLING FOR AVIANS AND EXOTICS LABORATORY TESTING

**TABLE 1.**

Amount of blood that can be safely taken from *healthy* birds

Species	Weight (g)	Blood (mL)
Budgerigar	25 – 35	0.3
Lovebird	35 – 55	0.3 – 0.5
Cockatiel	75 – 100	0.7 – 0.9
Senegal	100 – 120	1.0 – 1.1
Conure	110 – 180	1.0 – 1.8
Macaw (small)	180 – 300	1.8 – 3.0
African Grey	350 – 450	3.5 – 4.5
Amazon Parrot	280 – 500	2.8 – 5.0
Cockatoo	300 – 600	3.0 – 6.0
Macaw (large)	1,000 – 1,200	10 – 12

In general, 1% of the bird's weight in grams can be taken from an adult healthy bird (1.0 mL of blood for each 100 g of bird). If the bird is ill, less blood should be taken.

**TABLE 2.**

Amount of blood that can be safely taken from *healthy* rodents and reptiles

<b>Reptiles:</b>	~ 0.5% of body weight
e.g.,	100 g      0.5 mL
	1000 g      5 mL
<b>Rabbits:</b>	~ 0.5% of body weight (as for reptiles) or 3-6 mL per 1,000 g
<b>Ferrets:</b>	4 - 6 mL per ferret, depending on size
<b>Rodents:</b>	1 mL of blood from small rodents > 100 g 2 - 3 mL from larger guinea pigs and chinchillas

## UPDATE ON THYROID TESTING

### TOTAL T4 ASSAY

In the last year, results of T4 measurements occasionally have been spuriously too high (~ 20%). These results are verified on repeat analysis but apparently do not accurately reflect the basal thyroid levels or clinical/therapeutic status of the patient. The reason for this randomly, but consistently, seen problem is not understood. It occurs nationwide with the standard methodology and T4 antibody reagents most commonly used by clinical diagnostic labs.

This confounding situation serves to emphasize the importance of using other tests like the free T4 along with T4 testing, rather than relying solely on T4 for diagnostic evaluation of thyroid function or thyroid post-pill therapeutic monitoring. [For a more in-depth discussion of thyroid function testing, see November 1998 Antech News.]

### CANINE THYROGLOBULIN AUTOANTIBODY (TGAA) TESTING

The TgAA assay is a valuable screening test for the heritable form of canine autoimmune thyroiditis. Results are reported as a percentage with the normal reference range being < 200%. Low-grade false positive results may occur if the dog has been vaccinated in the previous 30-40 days. In these cases and for results just below the 200% cut-off, the test should be repeated in 2-4 months. Discontinue use of thyroid supplement for at least 90 days to obtain an accurate thyroiditis assessment.

Positive results are consistent with the presence of autoimmune thyroiditis, which usually will progress to clinical hypothyroidism within months to several years, especially in dog families or breeds at high risk for thyroid disease. Because of the heritable nature of thyroiditis, it is recommended that these dogs not be used in a breeding program.

From Antech's large data base, the dog breeds at highest risk are: Golden retriever, Shetland sheepdog, American cocker spaniel, Boxer, Doberman pinscher, Labrador retriever, German shepherd, Akita, Irish setter, English setter, Old English sheepdog, Collie, Standard poodle, Skye terrier, Bull mastiff, Scottish terrier, and Siberian husky. Only 4% of cases in the thyroiditis data base were dogs of mixed breeding.

### CANINE ENDOGENOUS TSH TESTING

Although endogenous TSH levels should be elevated in primary hypothyroidism, this assay used alone has relatively poor predictive value of true hypothyroidism in the dog. This is in contrast to humans where endogenous TSH levels are very accurate in predicting thyroid function status.

Because of the significant (up to 40%) discordancy found with canine TSH testing (i.e. high in euthyroid dogs, and low or normal in hypothyroid dogs), Antech Diagnostics does **not** recommend using this test as a sole predictor of thyroid function in dogs, and accords less significance to the TSH result than to other thyroid analytes measured and the clinical status of the patient.

**References:** Nachreiner *et al*, AJVR 59: 951-955, 1998; Antech News, November 1998; Bruner *et al*, JAVMA 212: 1572-1575, 1998; Dodds, Proc AHVMA, pp. 77-79, 1999.