NWL News

The Newsletter of **NationWide Laboratories** Winter 2007

Welcome to the NationWide Laboratories quarterly newsletter.

The previous Newsletter (5) dealt with the subject of "Ehrlichiosis", laboratory updates from the histopathology department and a refresher on the use of "Free T4 by equilibrium dialysis" for diagnosis in the dog and cat. We continue the "Infectious Diseases" series of articles with part 4 on Feline Leukaemia Virus in the cat. Dr Peter Graham announces the latest developments in Laboratory services.

Infectious Diseases…

Part 4 – Feline Leukaemia Virus

General

The prevalence of FeLV is not clear, but has probably fallen to <1% (Gruffyd Jones 2006). Virus is excreted in the oronasal secretions of infected cats. Cats exposed to FeLV usually become persistently infected or mount an immune response (via neutralising antibodies) and eliminate the infection. Of the persistently infected cats, most are viraemic, but individual cats may develop a latent infection or become immune carriers (see below). Cells infected with FeLV release free viral proteins (p27) which circulate in the plasma where they may be detected by In-Clinic and laboratory tests. Viraemic cats are a source of infection.

Tests for FeLV infection

ELISA

(enzyme-linked immunosorbent assay): ELISA and rapid immunomigration methodologies are commonly employed in In-Clinic tests. They detect a free viral protein (p27), in plasma, tears or saliva. Testing serum or plasma is preferred: the use of saliva or tears is not recommended. The specificity of many of these tests is 98-99%, but because of the very low incidence of FeLV, approximately half of the positive tests will be false positives. True positive results could reflect transient or persistent viraemia and confirmatory testing (see below) is recommended initially. Confirmatory testing is also recommended for a negative result in a cat showing signs consistent with FeLV associated disease.

IF (Indirect immunofluorescent testing): IF detects viral protein (p27) in the cytoplasm of leucocytes and positive results are highly likely to reflect persistent infection. IF or virus isolation are the recommended confirmatory tests for results obtained using ELISA or RIM.

Status	ELISA	IF	Virus +ve Marrow Culture
Non-infected	-	-	-
Viraemic	+	+	+
Latent infection	-	-	+
Discordant	+	-	+
Immune Carrier	+	-	+

FeLV status

The likely FeLV status of a cat can be determined using the results of ELISA and confirmatory tests. However, collection of multiple samples over many months may be required for clarification.

Non infected: The cat has never been exposed or has recovered.

Viraemic: The cat is viraemic and at risk of FeLV associated disease. Healthy and sick viraemic patients shed virus constantly and are a source of infection for others.

Latent infection: The cat has cleared the viraemia due to the presence of neutralising antibodies, but infection persists in the bone marrow. The virus may persist for along time in a small number of cells, but if antibody production decreases, then proliferation of the virus increases again. Most infections probably go on to be eliminated and the cat is not a source of infection while the infection is latent. However, the stress of kittening and immunosuppressive therapy may result in viraemia. Cats with a latent infection could be negative by ELISA and IF. Recently small quantities of viral DNA have been identified (using PCR) in cats with presumed latent infection ((Gruffyd Jones 2006).

Discordant results: Many cats with this pattern of test results are in the early post-exposure period (or recovery phase) and go on to clear the viraemia. For discordant results, isolate the cat and re-test in four to twelve weeks. If both tests are negative then re-test in a further eight weeks to confirm. If the cat is persistently discordant then it may be an immune carrier.

Immune carrier: Cat is persistently ELISA +ve and IF -ve. These cats may have a focal infection, kept in check by an immune response. They should be considered a potential source of infection to other cats.

When to test for FeLV

The American Association of Feline Practitioners recommendations (2005) include testing cats when:

- They present with clinical illness.
- They are to be re-homed (even if there are no cats currently in the household). Kittens may be tested at any age but infection may not be detected until weeks or months after birth.
- There has been potential exposure. Test at least four weeks after the potential exposure.
- When the FeLV status is unknown. Cats may be viraemic, but without signs for many years, acting as source of infection for others.
- Prior to FeLV vaccination. FeLV vaccination does not affect the test result.

PCR test: *This can be performed on blood and bone marrow samples.* This can be POSITIVE on blood when other tests are NEGATIVE. Recommended use: when FeLV is suspected (e.g. cytopenias) and other tests are NEGATIVE. Not currently recommended as a screening test.

References:

- **Green C.E.** (1998) Infectious diseases of the dog and cat 2nd Edition. WB Saunders, Philadelphia
- **The University of Glasgow Companion Animal Diagnostics** (http://www.gla.ac.uk/companion/index.htm)
- **The American Association of Feline Practitioners** (http://www.aafponline.org/)
- **The Acarus Laboratory** (http://bris.ac.uk/acarus/welcome.htm)
- **Gruffyd Jones T** (2006) FeLV and FIV: How to make a reliable diagnosis. Abstract. BSAVA Conference Proceedings

UPDATE! The Growth of NationWide Laboratories

It has been six months since the acquisition of Leeds Veterinary Laboratory and everything is running very smoothly.

We have expanded the laboratory by building new laboratory space for biochemistry, haematology and histology on the upper floor to provide a more efficient service for our clients in the North East.

The acquisition has also enabled NWL to offer a comprehensive cost effective farm animal service providing practices with an additional resource. In addition to general farm animal laboratory services, we are proud to launch **ADVANCE**, a CHeCS approved herd health scheme.

For a price list, and more details, please contact Tariq Shah.

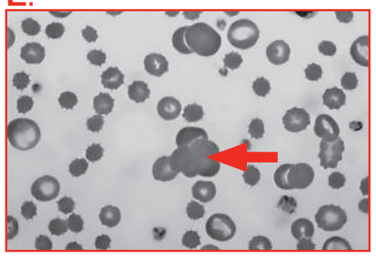
ADVANCE cattle health scheme

Picture Quiz…

The following pictures demonstrate types of cells or cell morphology that may be seen on blood smears, cytology aspirates or bronchoalveolar lavage fluid samples. Can you identify them? Answers below.

1.

2.



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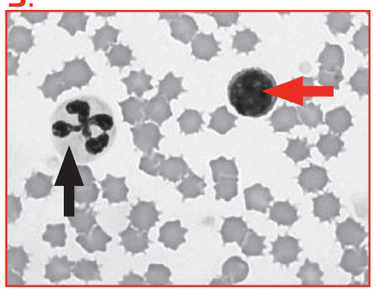

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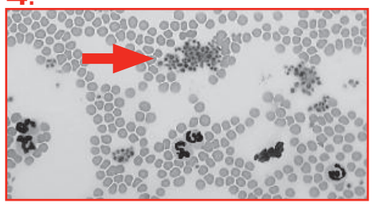

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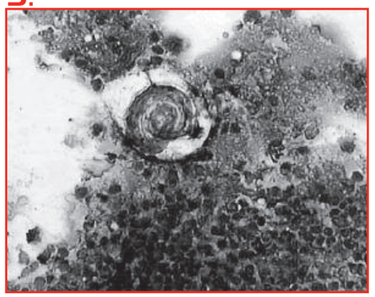

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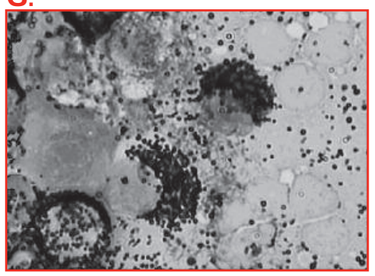

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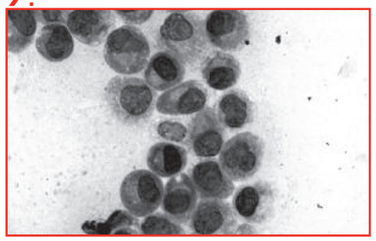

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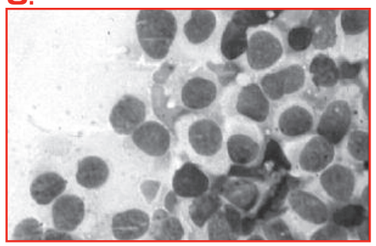

Answers…

Pictures courtesy of Dr. Joan Duncan

1) RBC agglutination (gross appearance) in immune mediated haemolytic anaemia.
2) Microscopic appearance of 1) with anisocytosis, polychromatic cells [clump – arrow].
3) Mature neutrophil [black arrow], small lymphocyte [red arrow].
4) Platelet clumps seen with apparent low automated thrombocyte count [arrow].
5) Lungworm in a lavage (BAL), spp cannot be determined in the sample but commonly Crenosoma vulpis or Angiostrongylus spp [DOG], Aleurostrongylus spp. [CAT].
6) Mast cell tumour.
7) Plasmacytoma.
8) Canine histiocytoma.

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Coming up next issue…

- *Infectious Diseases Part 4*
- *Services Update*
- *Case Report*

Please feel free to contact the Editor if you have any queries or would like us to include articles or cases on a particular subject.

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