BattLab Quality Veterinary Diagnostics from Disease to Optimal Health

# Newsletter 07 / 2016

**We are pleased to welcome you to the monthly BattLab newsletter. This newsletter will bring you the latest news and information about our laboratory and all tests that we can offer to all our clients.**

## Seminar "Essential haematology"

We are pleased to announce the third of our series of seminars at BattLab, addressed to all veterinarians.

**Title:** **"Essential haematology for the general practitioner"**

**Date:** Thursday 1st of September 2016

**Starting:** 19:30

**Venue:** The Venture Centre, University of Warwick Science Park, Sir William Lyons Road, Coventry CV4 7EZ (Free parking)

**Speakers:** *Francesco Cian*, Clinical Pathologist at BattLab
*Noel Clancey*, Clinical Pathologist at BattLab

**Program:**
19:30-20:00 - Light refreshment
20:00-21:30 - Seminar

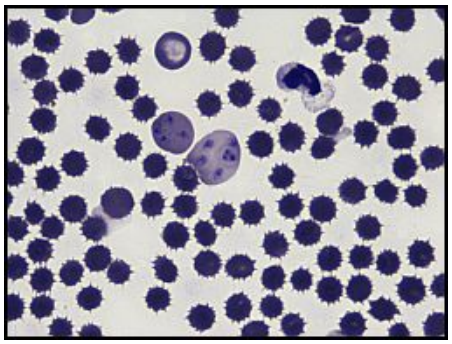
**Spaces still available!** **Contact the laboratory (admin@battlab.com) for registration.**

More seminars will follow soon. Keep an eye to our Facebook page for more information: www.facebook.com/BattLab.

## Canine babesiosis

**Canine babesiosis is an important tick-borne disease** caused by various species of the protozoan genus *Babesia*. Hard ticks are the main vectors for *Babesia* species. Sexual conjugation and sporogony portions of *Babesia* species life cycles occur within the intestinal lumen and within the haemocoel of ticks. Sporozoites are then transmitted from

the tick's salivary gland to the new vertebrate host. The life-cycle is completed by asexual reproduction within host erythrocytes where the parasites appear as merozoites.



*Babesia* species have traditionally been classified based on their morphology within erythrocytes, being divided into either large or small forms. **Large *Babesia* species** include *B. canis*, *B. rossi* and *B. vogeli*. **Small *Babesia* species** include *B. gibsoni*, B. *conradae* and *B. microti*-like species. **Knowing the form and species of *Babesia* is clinically relevant** because the range of clinical manifestations, which can vary from subclinical to multi-organ failure and risk of death, depends on the infecting species. Other host factors have also been shown to be important to clinical disease, including age, immune competence, splenectomy and concomitant infection or disease. The most virulent species is *B. rossi*, which is thought to be found only in Africa. *Babesia* species found in Europe include *B. canis*, *B. vogeli*, *B. gibsoni* and *B. microti*-like species. With the exception of *B. vogeli*, the pathogenicity of these species is considered moderate to severe. To date, there has a single *B. vogeli* case and four *B. canis* cases of autochthonous babesosis in the UK. All dogs infected with *B. canis* were from Essex.

**Frequent clinical signs include weakness, lethargy, anorexia, pale mucous membranes and general poor condition**. All *Babesia* species can cause anaemia, thrombocytopenia, pyrexia, lymphadenomegaly, pigmenturia and jaundice. Varying degrees of thrombocytopenia are frequently observed, however, petechiation or ecchymosis is less common. Anaemia is multifactorial, the result of intra- and extravascular hemolysis due to parasite-caused injury and rupture of erythrocytes, increased erythrocyte fragility and secondary immune-mediated processes.

Diagnosis can be made from **blood smear examination** where merozoites of large forms of *Babesia* are readily identifiable. However, blood smear examination has lower sensitivity compared with **molecular diagnostics**, and small forms of *Babesia* can be difficult to observe, often requiring a degree of expertise to identify. Obtaining blood samples from capillary blood such as from an ear vessel may improve sensitivity due to the increased abundance of parasites in this type of sample. **Quantitative serology tests are available**. However, no universal antigen has been developed against all *Babesia* species for serology screening purposes. Additionally, patients with acute infections may be seronegative in the initial 3 to 4 weeks post-infection. **Molecular testing is deemed very useful** because of three reasons. First, it is more sensitive than blood smear examination and secondly, it allows for species identification of the specific pathogen. Finally, when DNA of a specific pathogen is detected in a patient with appropriate clinical signs, it is considered evidence of an active infection. **Use of PCR can also be beneficial for monitoring treatment**.

All three methods of diagnosis are available from BattLab. If organisms consistent with large or small forms of *Babesia* are observed on a blood smear, or if organisms are not observed but babesiosis is highly suspected, **PCR testing is recommended**. An EDTA blood sample and/or the infecting tick itself can be submitted for PCR analysis. In the event of a negative PCR result serology is recommended, which includes an initial serum sample followed by a repeat sample 4-8 weeks to assess for seroconversion.

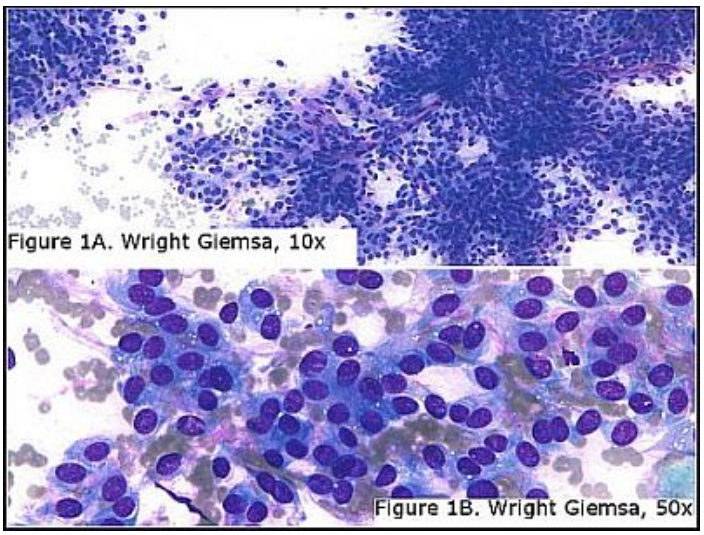
For an excellent review of canine babesiosis, please see the following article: A review of canine babesiosis: the European perspective. Solano-Gallego L, Sainz Á, Roura X, Estrada-Peña A, Miró G. Parasit Vectors. 2016 Jun 11;9(1):336.

## Cytology picture of the month

**These pictures are from an aspirate from a large shoulder mass of an adult dog**

(Wright Giemsa, 20-50x)

**What is your diagnosis?**




**Description:** The aspirate is slightly haemodiluted and harvested high numbers of well-preserved nucleated cells. These appear slightly elongated and tend to form bundles adherent to the surface of capillaries (elongated pinkish structures) (Fig1A). Cells have moderate amounts of basophilic cytoplasm, occasionally elongated, containing small numbers of intracytoplasmic clear vacuoles, and with poorly defined cytoplasmic borders. Nuclei are round to oval, paracentral, with granular chromatin, and poorly distinct nucleoli. Anisocytosis (cell size variation) and anisokaryosis (nuclear size variation) are mild.

**Interpretation:** Perivascular wall tumour

**Comment:** Perivascular wall tumours (including hemangiopericytoma) are relatively common skin neoplasms affecting the canine species. They originate from the pericytes/myopericytes of the wall of blood vessels, adjacent to the endothelium. They are often solitary, with predilection for the limbs. Treatment involves wide surgical excision (if possible), since local recurrence is common. Metastases are uncommon. Histopathological examination of these lesions is also recommended and is helpful to further confirm the diagnosis. Nerve sheath tumours (PNSTs) and soft tissue sarcomas of different origin should also be considered as possible less likely differentials, since they share similar cytological features.

**For more information about our cytology service please visit our website.**

## 60 seconds with...

**We hear from John Perry, Courier Driver at BattLab.**

### How long have you been at BattLab?

I have worked at Battlab for eight years during which time I have been lucky to visit all of the locations over the Midlands area and I get to meet some really friendly people.

### What is your role at BattLab?

My role as Courier at Battlab is to visit the Veterinary practices over a certain area to collect various samples and deliver them back to the laboratory as soon as possible. I enjoy what I do because I love being outdoors, I enjoy driving and the social interaction with the people I meet makes it all worthwhile. It has also really improved my geography of the Midland areas!

### What do you enjoy doing in your spare time?

I work three days of the week for Battlab which usually gets me home around early to mid afternoon. My passion is motorcycling - or anything with an engine and I enjoy all motor sports, cycling,

walking, DIY, and spending as much time with my family and friends.

**Yours sincerely,**

**The BattLab team**

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