

# Feline haemoplasmas

Haemotropic mycoplasmas (haemoplasmas) are wall-less bacteria that parasitise red blood cells and can induce anaemia. Clinical haemoplasma infection (haemoplasmosis) was previously known as haemobartonellosis and more than one species of haemoplasma can infect cats. The first haemoplasma described in cats, formerly referred to as *Haemobartonella felis*, was renamed *Mycoplasma haemofelis* following DNA sequencing analysis that showed it was closer to other mycoplasmas than the rickettsial-type organisms that it was previously grouped with. Other haemoplasmas subsequently found in cats: 'Candidatus Mycoplasma haemominutum' and 'Candidatus Mycoplasma turicensis'.

## FAQs

### What is the prevalence?

All three feline haemoplasmas have been described worldwide in domestic and wild cats, sometimes in combination. In the UK, around 10% of the general feline population are infected with 'Candidatus M. haemominutum', around 3% with *M. haemofelis*, and 1-2% with 'Candidatus M. turicensis'. They are more likely in older male cats with outdoor access – likely reflecting the subclinical carrier state and exposure to infected cats.

### What are the clinical signs?

Many of the clinical signs of haemoplasmosis (lethargy, weakness, collapse, depression, pallor, tachycardia, dyspnoea, hepatosplenomegaly, lymphadenopathy, dehydration, pyrexia, weight loss, pica, icterus) are due to anaemia or systemic inflammation.

An association between anaemia and infection is not always found in the epidemiological studies done to date – likely due to the large numbers of subclinical infections. We know that subclinical 'carrier' cats infected with haemoplasmas exist, similar to the situation seen in dogs, so it is important that quantitative (q) PCR test results for feline haemoplasmas are interpreted in conjunction with clinical history and haematological results.

*Mycoplasma haemofelis* is known to cause potentially fatal, relatively severe, haemolytic anaemia in cats (i.e. PCV can drop to around 10%, normal 27-40%). In contrast 'Candidatus M. haemominutum' appears to cause mild anaemia in cats, although more severe disease has been reported in immunosuppressed cats, such as those with FeLV and/or FIV infection or those on chemotherapy. 'Candidatus M. turicensis' can also cause a severe haemolytic anaemia, particularly in immunosuppressed cats.



## Reception Hours

Mon-Fri 9am - 5pm

## Contact Us

T: 0117 394 0510

E: [labs@langfordvets.co.uk](mailto:labs@langfordvets.co.uk)

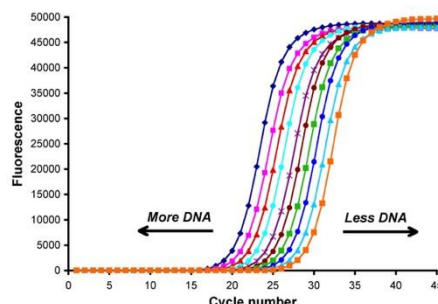
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## How is feline haemoplasma infection diagnosed?

### PCR is the **ONLY** reliable way to diagnose haemoplasma infection!

The Molecular Diagnostic Unit uses sensitive and species-specific quantitative PCR (qPCR) tests for the detection and quantification of all three recognised feline haemoplasmas in blood. These tests are of most use: 1) in the diagnosis and treatment of cats with haemolytic anaemia, particularly those that are retrovirus-positive; and 2) in the screening of potential blood donors prior to use of their blood. We know subclinical carrier cats exist and it is important to prevent inadvertent infection of cats via blood transfusions.



All samples submitted for testing are automatically screened for all three feline haemoplasma species. These tests are able to detect and quantify the amount of each haemoplasma DNA in your patient's blood; allowing response to treatment to be monitored by repeat qPCR testing.

We would recommend testing during treatment if a clinical response has not been seen. Repeat qPCR testing at the end of treatment can be used to ensure that haemoplasma DNA is no longer detectable in the blood if treatment has been effective.

## What samples are required for submission?

The sample required for the triple haemoplasma qPCR test is 0.5 ml of EDTA anticoagulated whole blood (plasma / serum is not a suitable alternative). Additionally, each haemoplasma qPCR includes an internal amplification control to ensure that a valid diagnostic result is produced for every submitted sample.

## How is feline haemoplasmosis treated?

In cats with clinical haemoplasmosis, the treatment of choice is doxycycline 10mg/kg once daily (or 5mg/kg twice daily). A second-line drug would be a member of the fluoroquinolone class (e.g. marbofloxacin 2mg/kg once daily or pradofloxacin 5-10mg/kg once daily; where possible enrofloxacin should not be used in cats due to risk of irreversible retinal atrophy). An extended course (4 weeks+) is likely required. Care must be taken to follow doxycycline with food or water to prevent oesophagitis as a result of the medication lodging in the oesophagus, as some preparations cause oesophageal ulceration.

The qPCR can be used to evaluate response to treatment and should be considered prior to discontinuation of treatment. A protocol to clear cats of *M. haemofelis* infection has been described – this comprises four weeks' of doxycycline followed by a minimum of two weeks' of

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[langfordvets.co.uk](http://langfordvets.co.uk)

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marbofloxacin, with qPCR used to monitor response to treatment. 'Candidatus M. haemominutum' infection is, sadly, often poorly responsive to antimicrobial treatment. Recommended treatment for 'Candidatus M. turicensis' infection is doxycycline 10mg/kg once daily for at least two weeks.

Cats that are very anaemic also require blood transfusions. Steroids are often not indicated; however, are not indicated in the short-term pending results (i.e. when primary idiopathic immune-mediated haemolytic anaemia is a differential).

Since fleas, and possibly ticks, have been implicated in the transmission of feline haemoplasmas, we recommend that cats infected with haemoplasmas are given regular ectoparasite control. Positive cats should also not be used as blood donors, even if considered clear of infection.

***Updated December 2021 by Dr Emi Barker***

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