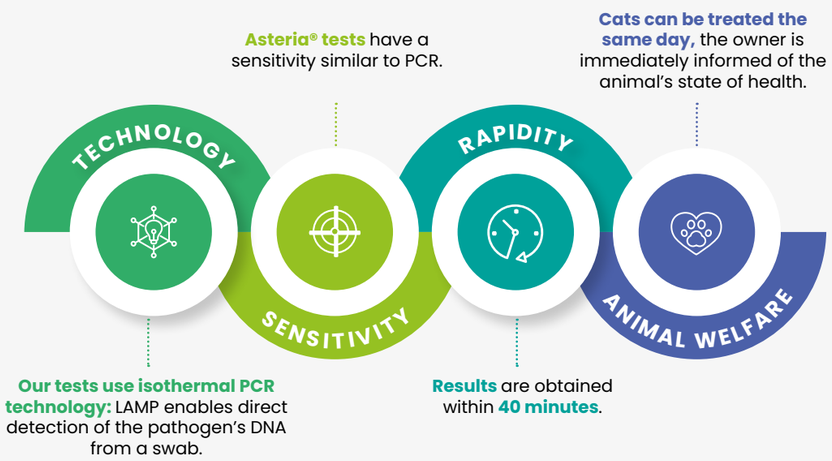
WHAT THE ENALEES *MYCOPLASMA FELIS* TEST DOES



Asteria® tests have a sensitivity similar to PCR.

Cats can be treated the same day, the owner is immediately informed of the animal's state of health.

Our tests use isothermal PCR technology: LAMP enables direct detection of the pathogen's DNA from a swab.

Results are obtained within **40 minutes**.

Enalees has expanded its range of products to include the *Mycoplasma felis* test for a more **comprehensive diagnosis of feline respiratory infections.** The **Coryza Panel,** already available and allowing the detection of **FHV, FCV** and ***Chlamydia felis***, is also available in a new offer named **Feline Respiratory Panel** allowing the detection of the pathogens of the **Coryza Panel plus *Mycoplasma felis*.**

COMPARATIVE OF DIFFERENT DIAGNOSTIC METHODS

	Microscopy at clinic	Serological at clinic	Laboratory PCR (external)	Astéria® Tests (LAMP-Technology)
Specificity	–	–	✓	✓
Precise identification of the pathogen species	✗	–	✓	✓
Sensitivity	–	–	✓	✓
Response time (> 1 hour)	✗	✗	✗	✓

IF YOU WANT TO KNOW MORE

Please visit our website for all the publications references

ENALEES
Le Nouvel Art du diagnostic

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INFORMATION LETTER **N°9**

MYCOPLASMA FELIS

AN OPPORTUNISTIC BACTERIUM RESPONSIBLE FOR RESPIRATORY TRACT INFECTIONS

MYCOPLASMAS: POLYMORPHIC BACTERIA WITH OPPORTUNISTIC IMPLICATIONS

Mycoplasmas are small bacteria widely distributed in nature and belonging to the class Mollicutes. They are characterised by the absence of a cell wall, which grants them great flexibility and allows them to adopt various forms. Although mycoplasmas appear to be part of the normal flora of the upper respiratory tract of cats[1], *Mycoplasma felis* (*M. felis*) can be identified in cats showing clinical signs or in healthy cats living with infected animals[2]. Today, it is regarded as a primary opportunistic pathogen of the upper respiratory tract.

GEOGRAPHIC DISTRIBUTION AND HEALTH RISK

The distribution is global. *M. felis* has been found in both domestic and wild cats, whether or not clinical signs are present. It is occasionally detected in horses[9].

MODE OF TRANSMISSION

M. felis is transmitted **directly from an infected cat to another** through **aerosol contact.**

It can also be spread through **grooming**. Indirect transmission is probably low since mycoplasmas are not capable of surviving long outside the host[3].

Stress factors such as **overcrowding, concurrent viral respiratory infections (FHV, FCV) and poor hygiene conditions** may promote the **proliferation of mycoplasma**s and their transmission between cats[4].

CLINICAL SIGNS: WHEN TO SUSPECT *A MYCOPLASMA FELIS* INFECTION?

M. Felis is generally associated with infections of the **upper airways**, although it may occasionally affect the lower respiratory tract. Signs of upper respiratory tract infections may include:

- a **clear or coloured discharge** from the **eyes** or **nose,**
- **coughing**, **sneezing**, **conjunctivitis** with swelling of the conjunctival mucosa,
- **lethargy** and **anorexia**.

In rare cases, cats may have difficulty breathing. **Very young, very old and immunocompromised cats are more likely to develop severe disease and eventually die,** usually due to secondary infections (e.g. causing pneumonia), anorexia (fatty liver) and dehydration[5].

Infections of the lower respiratory tract can cause coughing, lethargy, anorexia, tachypnoea or dyspnoea, nasal discharge and pyrexia[6 7].

Since the first isolation and identification of *M. felis* by Cole *et al* (1967)[8], *M. felis* has also been described as an agent potentially implicated in various syndromes (chronic rhinosinusitis, ulcerative keratitis…)[9 10].

DIAGNOSTIC

A mycoplasma infection may be suspected in cats with upper respiratory tract infections. It should also **be considered in those suffering from chronic respiratory diseases,** such as **asthma** and **chronic bronchitis.** Additionally, it may affect cats that **show no improvement despite treatment with medications targeting cell wall synthesis.** These treatments are ineffective against mycoplasmas, as they lack a cell wall.

Veir *et al.* (2008)[11] suggested **collecting samples from the nasal and pharyngeal sites of cats with upper respiratory tract infections.** Lee-Fowler and Reinero (2014)[12] recommended **endotracheal or bronchoalveolar lavages for sampling the lower respiratory tract in felines.**

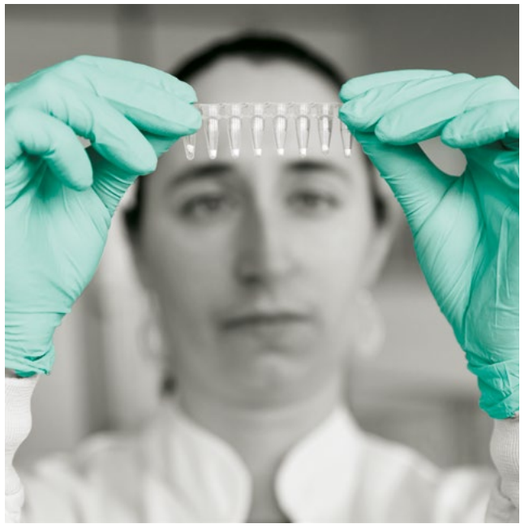
M. felis can also be detected from **ocular swabs in cats with conjunctivitis[13].** *M. felis* can be detected by **cytology, culture,** or **genetic amplification.**

Cytology provides important information about inflammatory reactions and/or concomitant infections. However, **mycoplasmas can be difficult to visualise by coloration, so this technique has low sensitivity and specificity.**

Isolation and culture are not systematically carried out, as **a specific medium is required** and mycoplasmas do not survive well outside the host. In addition, **the culture may be negative as a result of bad handling, excessive transport time or collection errors.**

As a result, visualisation of mycoplasma can be complex and error-prone due to possible confusion with artefacts.

Gene amplification is a preferred option as it offers high sensitivity as well as simple and rapid mycoplasma species identification. However, as reported by Reed *et al* (2012)[14], if the organism is not cultured and only DNA is detected, the possibility of commensal contamination should be considered due to the higher sensitivity of gene amplification compared to culture.



Gene amplification is useful for **interpreting positive results in clinical scenarios such as: On conjunctival cells** (in cases of conjunctivitis), **On bronchoalveolar lavage samples** (when there are signs of lower respiratory tract involvement), Or **on lung samples** from deceased cats.

Conversely, in cats with no clinical signs, ***M. felis* can be detected through gene amplification in oropharyngeal** cells and, less frequently, in conjunctival cells.

TREATMENT

Antibiotic treatment is commonly used to treat respiratory mycoplasma infections. **Doxycycline is a good first-line agent** because it is well tolerated by cats and has a relatively narrow spectrum[15].

Oxytetracycline or chlorotetracycline ophthalmic ointment can also be used to complement topical treatment. Macrolides (azithromycin), lincosamides (clindamycin) and fluoroquinolones (marbofloxacin or pradofloxacin) can be used as second-line agents[16 3]. As mycoplasmas do not have a cell wall, **ß-lactam antibiotics (such as penicillin) are not effective[12].**

The length of treatment required is difficult to assess and will depend on the evolution of the clinical symptoms during treatment. **Clinical signs usually disappear within a week, but chronic infections may prevent complete elimination of mycoplasma[17].**

PREVENTION

Since no vaccine is currently available, the prevention of mycoplasma infections relies on controlling concurrent infections and proper management of cat communities

GUIDE TO BEST PREVENTION PRACTICES

01 For example, in **shelters, efforts are needed to avoid overcrowding, reduce stress factors and concurrent infections[15].**

02 It is necessary to **wash hands** and **wear gloves,** as part of normal infection control, when handling a cat with respiratory clinical signs to reduce the spread of pathogens between animals[12].

03 Furthermore, it is recommended **to isolate cats with respiratory signs and to systematically use effective disinfectants[18].**