

Ehrlichia

BioSystems

What is Ehrlichia?

Ehrlichia spp. are obligate intracellular, Gram-negative bacteria. Canine ehrlichiosis is spread by the bite of an infected tick. Infection occurs when the tick ingests blood from its host and salivary secretions contaminate the tick's feeding area. The primary disease vector is the brown tick (*Rhipicephalus sanguineus*). Ehrlichia reproduces within the cells of canids in two ways: monocytic ehrlichia (infects monocytes and lymphocytes) and granulocytic ehrlichia (infects neutrophils and granulocytes). In the bloodstream, ehrlichia spreads to different organs, causing inflammation in them.

Ehrlichia stages

Three stages occur in canine ehrlichiosis, each one varies in severity: **acute phase** occurs several weeks after infection, can last up to a month, and causes fever and blood disorders. It occurs more frequently in the spring and summer. In the second stage, called the **subclinical phase**, the animal has no external signs and can last up to five years. The third and most serious stage of the infection is called the **chronic phase** and occurs when the immune system of the infected animal is unable to eliminate the ehrlichia, and it spreads through the liver, spleen and lymph nodes. Circulating infected cells adhere to the vascular endothelium, especially in the lungs, kidneys, and meninges, and induce vasculitis and infection of the subendothelial tissue, leading to platelet damage, sequestration, and destruction.

Veterinary analysis

human - centred biotech

Why diagnose the Ehrlichia?

An early diagnosis is extremely important to control the onset of the disease in infected animals as soon as possible, and there is also an emerging need to evaluate zoonoses that often go unnoticed in humans, since they frequently debut subclinically, and their diagnosis is usually not made. Surveillance of the animal-human binomial will enable the timely detection of zoonoses that can be serious for humans.

Diagnostic

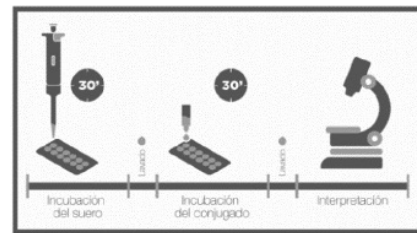
The diagnosis of ehrlichiosis in dogs is generally made from an hemogram or biochemical profile. The most prominent alterations are an increase in ALT and alkaline phosphatase, as well as hyperproteinemia, hyperglobulinemia, and hypoalbuminemia. However, these symptoms do not allow a differential diagnosis since the mildest cases can be confused with flu. To ensure an accurate diagnosis, other diagnostic methods are used, such as serological tests (ELISA and indirect immunofluorescence) as well as molecular diagnostic tests (PCR). Within serological tests, indirect immunofluorescence (IIF) for the detection of anti-Ehrlichia antibodies is the reference method and Gold Standard for Ehrlichia and other vector-borne diseases. The determination of anti-Ehrlichia antibodies by IIF in *Ehrlichia canis* has a high diagnostic specificity and sensitivity for dog infection (67-100% and 82-100%, respectively).

Performance characteristics: IF

Serum anti-ehrlichia antibodies bind to their corresponding antigen present on *Ehrlichia canis*. Once bound, the antibodies are revealed by incubation with a fluorescein-conjugated anticanine immunoglobulin antibody and visualized by fluorescence microscopy. The **specificity** of the ehrlichia positive control has been verified against an internal reference canine serum.

Interferences: Hemoglobin (<500 mg/dL), triglycerides (<1625 mg/dL), and bilirubin (<30 mg/dL) do not interfere. Other substances and drugs can interfere.

Cross-reactivity: between species of the ehrlichia genus and in samples with high titers with *A. phagocytophilum*.



Reference values

Reference values are positive with an IIF titer of >1/80. A titer equal to or higher than the cut-off point will indicate contact with the infectious agent, and possible disease.

Ordering information

Product	Code	Presentation	Format
Substrates			
Anti-Ehrlichia Antibodies (Ehrlichiosis) kit	44955	120 tests	-
Anti-Ehrlichia Antibodies (Ehrlichiosis) slides	44956	120 tests	-
Conjugates			
Conjugate IgG FITC/EVANS Dog (LH/EHR)	44960	10 ml	Liquid
Conjugate IgG FITC/EVANS Dog (LH/EHR)	44952	3,5 ml	Liquid
Immunofluorescence controls			
<i>Ehrlichia canis</i> Canine Positive Control	44957	0,3 ml	Liquid
Canine Negative Control	44954	0,3 ml	Liquid
Auxiliary reagents			
Mounting medium	44959	3 ml	Liquid
PBS 10X	44958	100 ml	Liquid
PBS 10X	44962	500 ml	Liquid
Coverslips 24 x 60 mm (100 u.)	44897	100 u.	-
Blotting paper	44669	10x12 poc.	-
Instrument and auxiliary material			
iPRO, Immunofluorescence processor	84101	-	-
Dilution tube (1.1 ml)	AC14682	960 u.	-
iPRO Microtube 2ml adaptor (68 units)	AC14680	68 u.	-
Concentrated washing solution	BO13416	100 ml	Liquid

veterinary@biosystems.es