



## Anti-Leishmania ELISA Dog (IgG)



- Detection of antibodies against *Leishmania infantum*, *L. chagasi* and *L. donovani*
- High specificity due to the use of a recombinant antigen
- Efficient automation solutions available



### Technical data

<b>Antigen</b>	Recombinant antigen of the <i>Leishmania donovani</i> complex
<b>Calibration</b>	Semiquantitative: Calculation of a ratio from the extinction of the sample and the extinction of the calibrator
<b>Result interpretation</b>	EUROIMMUN recommends interpreting results as follows: Ratio $\geq 0.8$ : negative Ratio $\geq 0.8$ to $< 1.1$ : borderline Ratio $\geq 1.1$ : positive
<b>Sample dilution</b>	Canine serum or plasma, 1 : 101 in sample buffer
<b>Reagents</b>	Ready for use, with the exception of the wash buffer (10x), colour-coded solutions
<b>Test procedure</b>	30 min (37 °C) / 30 min (37 °C) / 15 min (room temperature), fully automatable
<b>Measurement</b>	450 nm, reference wavelength between 620 nm and 650 nm
<b>Test kit format</b>	96 break-off wells; kit includes all necessary reagents
<b>Order no.</b>	EI 2232-9601 GC



### Clinical significance

Leishmaniasis is a zoonotic infection that is caused by protozoa of the *Leishmania* genus. These monocellular parasites are transmitted to humans or animals via the bite of female sandflies of the genera *Phlebotomus* (Africa, Asia, Europe) or *Lutzomyia* (Central and South America).

Up to now, canine leishmaniasis has been considered as an imported disease, brought from travelling abroad. However, the vector is further spreading to central and northern Europe, benefiting from the increasing climate change. Canine leishmaniasis is endemic in Mediterranean countries, where it is assumed that 50% to 80% of dogs are infected with *Leishmania*. Leishmaniasis in humans causes around 40,000 deaths worldwide, with one to two million new infections every year. Dogs are the main reservoir. Due to the zoonotic potential, infected dogs are a major problem in veterinary and human medicine. However, *Leishmania* infection is not synonymous with canine leishmaniasis. Less than 10% of infected dogs show clinical symptoms. Certain dog breeds, such as Boxer, Cocker Spaniel, Rottweiler and German Shepherd, and the age of the dog are associated with the manifestation of leishmaniasis.

*Leishmania* infection is characterised by long incubation periods (months to years). The various zymodemes of the individual *Leishmania* species can cause different clinical manifestations. In canine leishmaniasis it is often impossible to discriminate between the visceral and cutaneous form because visceral leishmaniasis is also often accompanied by skin changes. Symptoms include fever, weight loss, anorexia, various skin changes (e.g. alopecia, dermatitis, hyperkeratoses, paw pad fissures), eye problems (e.g. uveitis, keratoconjunctivitis, loss of eyesight) and e.g. glomerulonephritis, hepato- and splenomegaly, diseases of the musculoskeletal system (e.g. due to polyarthritis) and haemogram changes (e.g. hyperglobulinaemia, hypoalbuminaemia, proteinuria). Clinical symptoms of canine leishmaniasis can improve or even subside with chemotherapy. However, relapses are possible since the treatment does not allow complete elimination of the parasite. A vaccine for dogs is available. Vaccination is highly recommended before travel to endemic areas.



## Diagnostic application

Direct detection of *Leishmania* is possible, for instance, via cytological smears from lymph node aspirate, conjunctiva smears or histopathological tissue samples. For a quick laboratory diagnosis of canine leishmaniasis, serological antibody detection is the method of choice. The antigen originates from a protein that is conserved in the *Leishmania donovani* complex (*L. chagasi*, *L. infantum* and *L. donovani*). Thus, the Anti-Leishmania ELISA Dog (IgG) is suited for the detection of leishmaniasis in both Europe and America.

## Reproducibility

The reproducibility was investigated by determining the intra- and inter-assay coefficients of variation using three sera. The intra-assay CVs are based on 20 determinations and the inter-assay CVs on four determinations performed in six different test runs.

Serum	Intra-assay variation, n = 20		Inter-assay variation, n = 4 x 6	
	Mean value (ratio)	CV (%)	Mean value (ratio)	CV (%)
1	1.1	2.8	1.2	5.4
2	1.6	2.4	1.7	3.8
3	3.7	4.9	3.7	6.5

## Cross reactivity

A cohort of 11 sera from dogs that were negative for *Leishmania* in the IIFT and positive for either *Hepatozoon canis* (6 sera) or *Babesia canis* (5 sera) were investigated using the Anti-Leishmania ELISA Dog (IgG). A negative result was obtained for all 11 samples. There were no cross reactions with samples positive for *Hepatozoon canis* or *Babesia canis*. Antibodies against *Trypanosoma cruzi*, *Ehrlichia canis*, *Toxoplasma gondii* and *Neospora caninum* may also show cross reactivity in serological tests for canine leishmaniasis. This applies particularly to areas that are endemic for these pathogens. In order to minimise cross reactivity, a recombinant antigen is used in this ELISA.

## Sensitivity and specificity

The sensitivity and specificity of the ELISA were determined by investigating a total of 1301 canine sera with the EUROIMMUN Anti-Leishmania ELISA Dog (IgG) and by comparing them to the results yielded with a commercial immunofluorescence test or to the expected value, which was given as negative for samples from laboratory dogs and normal dogs from Sweden. The sensitivity amounted to 97%, with a specificity of 99%. Borderline results were not included in the calculation.

n = 1301		Precharacterisation		
		positive	borderline	negative
EUROIMMUN Anti-Leishmania ELISA Dog (IgG)	positive	106	0	7
	borderline	2	1	4
	negative	3	3	1175

## Literature

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