Anti-Ehrlichia canis ELISA Dog (IgG)

- **High specificity due to the use of a recombinant antigen**
- **Efficient automation solutions available**

Technical data

Antigen	Recombinantly produced and highly purified Ehrlichia canis antigen	
Calibration	Semiquantitative:	
	Calculation of a ratio from the extinction of the sample and the extinction of the calibrator	
Result interpretation	EUROIMMUN recommends interpreting results as follows:	
	Ratio < 0.8:	negative
	Ratio ≥ 0.8 to < 1.1:	borderline
	Ratio ≥ 1.1:	positive
Sample dilution	Canine serum or plasma, 1 : 101 in sample buffer	
Reagents	Ready for use, with the exception of the wash buffer (10 x), colour-coded solutions	
Test procedure	30 min (37°C) / 30 min (37°C) / 15 min (room temperature), fully automatable	
Measurement	450 nm, reference wavelength between 620 nm and 650 nm	
Test kit format	96 break-off wells; kit includes all necessary reagents	
Order no.	**EI 220I-9601 GC**	

Clinical significance

Ehrlichiosis is a disease which is transmitted to animals and humans by ticks. In canine ehrlichiosis, especially the pathogen Ehrlichia (E.) canis plays a role, which is mainly transmitted by the brown dog tick (Rhipicephalus sanguineus) and may lead to canine monocytic ehrlichiosis (CME). E. canis is a gram-negative, obligatory intracellular bacterium which mainly affects the mononuclear cells of the blood. CME occurs in tropical and moderate climates worldwide. The geographical distribution of E. canis increases with the further distribution of the vector tick which is accelerating due to climate change.

CME is a multisystemic disease which can manifest in acute, subclinical or chronic forms. After an incubation period of 1–3 weeks, an acute CME manifests amongst others by high fever, lethargy, weight loss, lymphadeno- and splenomegaly and haemorrhages. Frequently, eye damage occurs, which may lead even to complete blindness. Inflammatory changes or bleeding in the meninges may cause various CNS symptoms. Usually, after 2–4 weeks, the subclinical phase begins, in which the dogs appear to be healthy and without obvious symptoms, even though high titers of E. canis-specific IgG antibodies and changes in the blood values are detectable. In some dogs, this is succeeded by a chronic phase. Here the symptoms resemble those of acute CME again, but are often more pronounced.

Diagnostic application

The direct microscopic detection of Ehrlichia is possible by Giemsa stain, but has only limited relevance since dogs are initially symptom-free despite high parasitemia and are only later presented to the veterinarian. Direct detection by PCR is indicated in the case of unclear serological findings and for therapy monitoring. Specific antibodies against E. canis are detectable by serology for approximately 14 days after infection and the serological antibody detection is the method of choice for laboratory diagnostics of CME. Owing to the use of a specific recombinant antigen, the Anti-Ehrlichia canis ELISA Dog (IgG) has a very high specificity and high sensitivity.

Reproducibility

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

	Intra-assay variation, n=20		Inter-assay variation, n=4x6	
Serum	Mean value (ratio)	CV (%)	Mean value (ratio)	CV (%)
1	0.2	4.4	0.2	3.3
2	1.3	3.1	1.4	4.1
3	2.7	4.3	2.8	3.3

Cross reactions

Cross reactions to antibodies against Anaplasma phagocytophilum are difficult to assess since double infections with both pathogens are frequent. Clear results could only be obtained when samples of experimentally infected dogs were used. Generally, cross reactions are unlikely to occur due to the use of a specific recombinant antigen. 50 canine samples with positive precharacterisation for antibodies against Anaplasma phagocytophilum (in-house ELISA) were investigated with the Anti-Ehrlichia canis ELISA Dog (IgG). Only one sample was evaluated as positive. It is unknown whether this sample originates from a dog with a double infection.

Sensitivity and specificity

For the determination of sensitivity and specificity, a total of 132 canine samples were investigated with the EUROIMMUN Anti-Ehrlichia canis ELISA Dog (IgG). 17 samples originated from laboratory dogs with a negative expected value which was confirmed by the present test. The remaining 115 samples were precharacterised with a commercially available ELISA or immunofluorescence test for the detection of antibodies against E. canis. The results yielded a sensitivity of 92 % and a specificity of 100 %. Borderline results were not included in the evaluation.

n=132		Precharacterisation		
		positive	borderline	negative
EUROIMMUN Anti-Ehrlichia canis ELISA Dog (IgG)	positive	77	0	0
	borderline	1	0	3
	negative	7	0	44

Literature

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