



Anti-Brucella ELISA Camel (IgG)



- Efficient screening test for the detection of anti-*Brucella* antibodies in camels
- Broad antigen spectrum for high sensitivity
- Efficient automation solutions available



Technical data

Antigen	Suitable components of <i>Brucella</i> , native
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	Camelid serum or plasma, 1 : 101 in sample buffer
Reagents	Ready for use, with the exception of the wash buffer (10x), 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 number	EI 2189-9601 GK



Clinical significance

Brucellosis is a long known zoonotic disease which is caused by the gram-negative bacterium *Brucella*. *Brucella* is classified as risk group III by the WHO. The species *Brucella abortus* and *Brucella melitensis* were identified in camels. The disease was first described in 1931. Even though clinical symptoms are generally mild in camels, *Brucella* can be transmitted to humans via fresh milk or raw meat and turn into a serious health problem in the affected regions. The worldwide camel population encompasses almost 26 million animals, which, in theory, could transfer the disease to 1050 million people in Africa and 2870 million people in Asia (excluding China), which shows the significance of the disease.

Camels of the species *Camelus bactrianus* and *Camelus dromedarius* are often infected with *Brucella*, especially if they live in direct vicinity of infected ruminants such as cattle, sheep or goats. Entry sites for *Brucella* are the lungs, intestinal tract, mucous membranes and the skin. The pathogen travels via the blood to various organs such as liver, spleen, or the haematopoietic system. Experimental infection of camels with *Brucella abortus* led to mild clinical symptoms, e.g. inappetence, minimal lameness due to arthritis, and bilateral lacrimation. Orchitis and epididymitis occurred with *Brucella abortus* and *Brucella melitensis*. Retained placenta (retentio secundarium), placentitis, infections of the urogenital tract, abortion with mummification, and infertility were also observed. The economic loss by abortion, decreased milk production and fertility, and the transmission of the disease to other species, including humans, is significant.

In most developed countries, brucellosis is under control. In economically underdeveloped regions, however, it is often unknown or ignored, in particular with respect to the transmission via dairy products or meat.



Diagnostic application

Reliable diagnosis can only be achieved by direct detection of *Brucella* in the affected tissue, e.g. from the placenta or lymph nodes. This procedure, however, is complicated, and also constitutes a large infection risk for the laboratory staff. For this reason, various serological test systems for the detection of antibodies against *Brucella* have been developed, including the complement fixation test (CFT) and Rose Bengal test (RBT). But these tests are time-consuming and limited with respect to sensitivity and standardisation. The RBT can only be used for monitoring in *Brucella*-free regions. The World Organisation for Animal Health (OIE) names various serological tests for the diagnosis of bovine antibodies against *Brucella*, including the above-mentioned CFT and RBT, as well as ELISA. However, the OIE also points out that a positive result should always be verified using a confirmatory test. Due to its large antigen spectrum the Anti-Brucella ELISA Camel (IgG) provides a high sensitivity and is therefore ideally suited for screening.

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	0.9	3.5	1.1	9.3
2	4.1	3.7	4.2	4.8
3	5.6	1.1	6.0	5.5

Sensitivity and specificity

The sensitivity was determined by investigating 147 sera from camels from Dubai. The results were then compared with those of a commercially available multi-species ELISA for the detection of antibodies against *Brucella*. The specificity was determined by analysing 20 camelid sera from German zoos and 156 camelid sera from Gran Canaria, all with a negative expected value. The sensitivity and specificity of the Anti-Brucella ELISA Camel (IgG) were 100%.

n = 323		Precharacterisation		
		positive	borderline	negative
EUROIMMUN Anti-Brucella ELISA Camel (IgG)	positive	4	0	1
	borderline	0	0	0
	negative	0	0	318

Literature

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