ENZYME IMMUNOASSAY FOR THE DIAGNOSIS OF LYME BORRELIOSIS IN DOGS

*Borrelia burgdorferi* sensu lato

ELISA kits are optimized and validated for semiquantitative detection of IgG and IgM antibodies in canine serum
Lyme borreliosis is an infectious disease caused by spirochete *Borrelia burgdorferi* sensu lato, transmitted mainly by ticks of the *Ixodes* genus. Lyme borreliosis occurs in Europe, America and Asia. The following genospecies have been identified: *Borrelia burgdorferi* sensu stricto, *Borrelia afzelii* and *Borrelia garinii*. All genospecies occur within Europe but *B. afzelii* and *B. garinii* are the most common.

Diagnosis of the disease is based on clinical manifestation, epidemiological anamnesis and laboratory tests - especially the detection of specific IgG and IgM antibodies in canine serum.

### Clinical Application
- Screening test for the detection of acute infection with *B. burgdorferi* in dogs
- Screening test for the detection of chronic infection with *B. burgdorferi* in dogs
- Evaluating of therapy results using semiquantitative determination
- Differential diagnosis of non-specific signs and symptoms in dogs, e.g. fever, anorexia, claudication, fatigue, aches, apathy, arthritis, erythema or purulent skin affection, swelling of joints, arthrosis, lymphocytosis, lymphadenopathy, glomerulonephritis, heart block and aggressiveness.

### Antibody Response
Diagnostic significance of the antibody classes

**IgM**: The level of IgM antibodies increases in the acute stage of the disease. Nevertheless, they might not be produced by all dogs.

**IgG**: The presence of IgG antibodies indicates contact with *B. burgdorferi*. However, they do not provide any evidence of infection activity. The level of specific IgG antibodies can persist for months or years.
Microtitre wells are coated with the *B. burgdorferi* antigen rich in p100, p41, p39, OspA and OspC.

**Test Principle**

The assay is based on a sandwich type of ELISA method.

**Antigens**

Microtitre wells are coated with the *B. burgdorferi* antigen rich in p100, p41, p39, OspA and OspC.

**User Comfort**

- Ready-to-use components
- Colour-coded components
- Interchangeable components
- Semiquantitative evaluation of results
- Short total assay time
- Easy assay procedure

**Advantages**

- Identical assay procedure
- High diagnostic specificity and sensitivity
- High reproducibility
- High dynamics of antibody response
- Short total assay time
- Ready for automation
- Customer support

**Test Characteristics**

<table>
<thead>
<tr>
<th>ELISA</th>
<th>Diagnostic Sensitivity</th>
<th>Diagnostic Specificity</th>
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</thead>
<tbody>
<tr>
<td>Dog EIA Borrelia IgG</td>
<td>95.5%</td>
<td>96.0%</td>
</tr>
<tr>
<td>Dog EIA Borrelia IgM</td>
<td>96.0%</td>
<td>95.5%</td>
</tr>
</tbody>
</table>

**Clinical Data**

Lyme borreliosis is a multisystem disease.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Occurrence in the sick dogs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>50%</td>
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<tr>
<td>Anorexia</td>
<td>50%</td>
</tr>
<tr>
<td>Lameness</td>
<td>48%</td>
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<tr>
<td>Weakness and inanition</td>
<td>29%</td>
</tr>
<tr>
<td>Pain</td>
<td>16%</td>
</tr>
<tr>
<td>Apathy</td>
<td>13%</td>
</tr>
<tr>
<td>Arthritis</td>
<td>13%</td>
</tr>
<tr>
<td>Purulent skin diseases</td>
<td>4%</td>
</tr>
<tr>
<td>Skin erythema</td>
<td>4%</td>
</tr>
</tbody>
</table>

The other symptoms are jointoedema, arthrosis and stiffness, lymphocytosis, lymphadenopathy, glomerulonephritis, heart block, aggression. (Liebsch 1994)
Company is certified to the quality management system standards ISO 9001 and ISO 13485 for in vitro diagnostics.