



Lyme Borrelia



Borrelia burgdorferi is the active causative agent for (Lyme-) Borrelia-disease.

Borreliae are thin, flexible, helically wound, highly motile spirochetes (see fig.).

The pathogens are transmitted by the bite of various tick species, in Europe mostly by *Ixodes ricinus* (sheep tick). The incubation period varies from 3 to 30 days. Left untreated, the disease goes through three stages (see tab.) though individual courses often deviate from the classic pattern.

Lyme disease occurs throughout the northern hemisphere. There are some endemic foci where the infection is more frequent. In endemic areas of Germany, approximately 3-7% of the larvae and 10-34% of nymphs and adult ticks are infected with *Borrelia burgdorferi sensu lato*. The annual incidence of acute Lyme disease (stage I) in central Europe is 20-50 cases per 100.000 inhabitants. Wild animals from rodents on up to deer are the natural reservoir of the Lyme disease Borrelia, although these species seldom come down with the disease. The ticks obtain their blood meal from these animals.

Species	Disease	Symptoms	Mechanism of infection
<i>Borrelia burgdorferi</i>	Lyme-Borreliose	<p>The disease goes through 3 stages:</p> <p><u>Stage I:</u> After 4-8 weeks an Erythema chronicum migrans (ECM) develops on the skin (sting).</p> <p><u>Stage II:</u> After 3 more weeks the generalisation of the pathogen starts. Influenza-like symptoms appear. 80% of the patients get a lymphocytic meningoradiculitis Bannwarth with facialis paresis and aseptic meningitis as well as brief attacks of arthritis and carditis.</p> <p><u>Stage III:</u> Neurological diseases (Chronic encephalomyelitis), Acrodermatitis chronica atrophicans, Lyme-arthritis</p>	<p>Transmission by the bite of various tick species</p> <p>In Europe by <i>Ixodes ricinus</i></p> <p>In USA by <i>Ixodes damini</i></p>

Infections may be diagnosed by:

- Microscopy: Direct determination of the pathogen is possible, but laden with uncertainties
- Serology: Determination of specific antibodies based on the ELISA-technique

! Because of several uncharacteristic symptoms (neurological, dermatological, cardial and rheumatic manifestations may occur) the diagnosis of Lyme-disease is mostly difficult and happens pretty late. But only the earliest diagnosis leads to an efficient therapy with antibiotics. In the chronic stage the pathogens are almost untouchable.

NovaLisa™ Lyme Borrelia IgG/IgM ELISA:

The NovaLisa™ Lyme Borrelia IgG/IgM ELISA is intended for the qualitative determination of IgG-/IgM- class antibodies against *Borrelia burgdorferi* in human serum or plasma (citrate).

Antigens:

IgG: **VisE** (recombinant) and Lysatantigens of *B. burgdorferi*, *B. afzelii*, *B. garinii*

IgM: Flagellin (recombinant) and purified OspC

Specific performance characteristics:

	Intraassay		Interassay		Sensitivity %	Specificity %
	n	Vk %	n	Vk %		
IgG	96	2.2	3	3.4	>95	96.7
IgM	96	3.3	3	6.5	85	94

Order information:

ELISA	Number of determinations	Product number
Lyme Borrelia IgG	96	BORG0320
Lyme Borrelia IgM	96	BORM0320