

CLINICAL SPECIFICATIONS

BORRELIA BURGENDORFERI

Pathogen Type:

Borrelia burgdorferi (*B. burgdorferi*) is a spirochete class bacterium. Array 12 assesses immune reactivity to *B. burgdorferi sensu stricto*, *B. burgdorferi sensu lato*, *B. burgdorferi afzelii* and *B. burgdorferi garinii*.

Associated With:

Lyme disease^{1,2,3}
Lyme borreliosis⁴
Lyme neuroborreliosis⁵
Lyme arthritis⁶

Known Cross-Reactions: *Treponema pallidum*,⁷ *Yersinia enterocolitica*,⁸ thyroid stimulating hormone receptor,⁹ multiple foods¹⁰

Clinical Significance:

The detection of antibodies to *B. burgdorferi* indicates the patient has increased risk of Lyme disease, Lyme arthritis, Lyme neuroborreliosis, blood-brain barrier damage and neurological disorders. *Borrelia* spirochetes enter the human body through tick bites. Mixed with tick saliva, *Borrelia* travels through the circulation and enters different tissue. In some untreated cases, symptoms of pathogenic invasion have involved neurologic, cardiac, or articular complications.¹ Early spirochete dissemination mainly affects the nervous system and can present as meningitis and cranial neuritis predominantly in children, while some patients experience heart disorders such as atrioventricular blockade, myopericarditis and cardiomyopathy, and more common in the US than Europe, the musculoskeletal system can be involved resulting in arthritis.^{reviewed in 6} *B. burgdorferi* was shown to induce inflammatory mediators in glial and neuronal cells leading to glial and neuronal apoptosis.⁵ Indeed *Borrelia* pathogenesis can break the blood brain barrier, which allows invasion of the central nervous system, resulting in neuroborreliosis.³

This array tests for IgG immune reactivity associated with *Borrelia burgdorferi*. This is not a measurement of acute infection. Equivocal or out-of-range results indicate IgG antibody reactivity to the tested antigen. We tested 288 blood donor sera against *Borrelia* antigens at optimal dilution, 13% of these donors were IgG and IgA reactive.

References:

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