TICKBORNE DISEASE

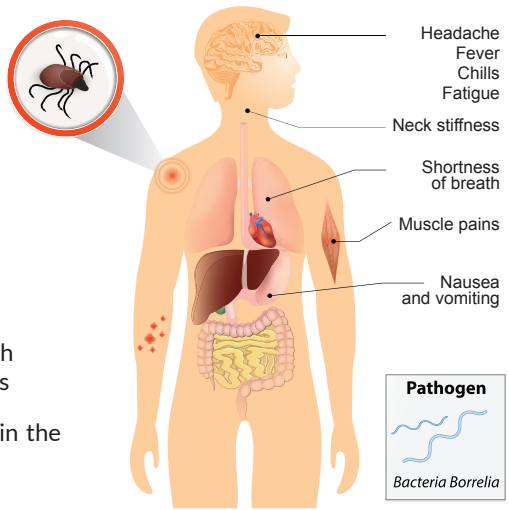
Which Patients Should be Tested for Tickborne Diseases?

Tickborne diseases can be acquired throughout the United States from a variety of ticks, which carry and pass on different microorganisms to humans and animals. Symptoms may be generic and have overlap with other conditions, and therefore, be difficult to associate with a tickborne disease.

Symptoms Associated with Tickborne Diseases Include:

- Fever and/or chills
- Headache
- Bell's palsy
- Neck stiffness
- Fatigue
- Muscle or joint aches/pains
- GI symptoms: nausea, vomiting, diarrhea
- Change in cognitive or psychological status
- Loss of appetite
- Weight loss
- Anemia
- Enlarged, tender lymph nodes
- Rash
- Painful abdomen
- Dizziness or shortness of breath
- Numbness or weakness in limbs

Tickborne disease symptoms and disease progression can also often be more severe in the elderly and immunocompromised.



Facts About Tickborne Diseases

- Tickborne diseases have more than doubled in *13 years* and are *77%* of all vector-borne disease reports
- The most common tickborne diseases (TBDs) in the United States are ***Anaplasmosis, Babesiosis, Bartonella infections, Ehrlichiosis, Rickettsiosis, Rocky Mountain spotted fever (RMSF), and Lyme disease***
- Lyme disease accounts for the *majority (82%)* of all tickborne disease cases
- From 2004 to 2016, tickborne diseases have risen dramatically:
  - Anaplasmosis and ehrlichiosis: ***5750 cases in 2016, up from 875 in 2004***
  - Rocky Mountain Spotted Fever: ***4269, up from 1713 in 2004***
  - Babesiosis: ***1910, up from 1128 in 2011 (tracking started for the disease in 2011)***
- Ticks usually need between *24* and *72 hours* to effectively transmit any diseases they are carrying and if found in time on the host, can be removed before they transmit infectious microorganisms to the host

Because many symptoms of tickborne diseases are generic or mimic other conditions, these diseases often go undiagnosed for months, increasing the suffering and disease progression of the patient.

1(866) 364-0963
support@vibrant-wellness.com

www.vibrant-wellness.com

1360 Bayport Ave. Ste. B
San Carlos, CA 94070

VibrantWellness

Clinical Connections to Tickborne Diseases

- Recent research has revealed that the standard two-tier testing recommended by the CDC can lead to false positive or false negative results. Recent studies, in fact, report that the ELISA and Western blot tests can miss up to 60% of well-defined Lyme disease cases.[1] Diagnosis is made even more challenging by the fact that Lyme disease symptoms closely resemble other diseases.
- ***The Vibrant Immunochip*** is made from recombinant proteins of several species of Borrelia burgdorferi, and not just from B31 used by other Western blot tests.
- The Vibrant ***Tickborne Diseases panel*** is the first of its kind to be run on ***a silicon micro-array platform using chemiluminescence detection*** that provides improved sensitivity & specificity.
- Patients often present with a range of non-specific symptoms that may be Lyme, or other conditions that have symptom overlap. Patients with diagnosed Lyme may also experience resurgence of symptoms, which might suggest co-infections. Co-infections are complex and should be included in an initial screen of Lyme and related illnesses.
- Vibrant has the most comprehensive ***antibody (indirect)*** and ***DNA (direct)*** test for detection of ***Lyme and co-infections***.
- Because standard treatment for tickborne diseases usually involves courses of antibiotics that are prolonged, this can also leave the patient at risk for multiple chronic inflammatory symptoms or conditions due to impact to the microbiome. It is recommended that patients being treated for tickborne diseases undergo regular microbiome screening during antibiotic therapy, such as the ***Vibrant Gut Zoomer*** or ***Vibrant Gut Pathogens tests***.
- The Vibrant Tickborne Diseases panel provides the ***earliest identification between different tickborne disease.***

What Does the Vibrant Tickborne Diseases Panel Include?

Vibrant's Tickborne Diseases panel includes two tests:

- Protein microarray antigen and PCR detection of Lyme disease and TBRF
- Protein microarray antigen and PCR detection of co-infections of tickborne diseases (Anaplasma, Babesia, Borellia, Bartonella, Ehrlichia and Ricketsia species)

Lyme + TBRF

Lyme Immunochip IgM
Borrelia burgdorferi VlsE1 IgM
Borrelia burgdorferi C6 peptide IgM
Borrelia burgdorferi spp. 18 kDa IgM
Borrelia burgdorferi spp. 23-25 kDa IgM
Borrelia burgdorferi spp. 28 kDa IgM
Borrelia burgdorferi spp. 30 kDa IgM
Borrelia burgdorferi spp. 31 kDa IgM
Borrelia burgdorferi spp. 34 kDa IgM
Borrelia burgdorferi spp. 39 kDa IgM
Borrelia burgdorferi spp. 41 kDa IgM
Borrelia burgdorferi spp. 45 kDa IgM
Borrelia burgdorferi spp. 58 kDa IgM
Borrelia burgdorferi spp. 66 kDa IgM
Borrelia burgdorferi spp. 83-93 kDa IgM

Lyme Immunochip IgG
Borrelia burgdorferi VlsE1 IgG
Borrelia burgdorferi C6 peptide IgG
Borrelia burgdorferi spp. 18 kDa IgG
Borrelia burgdorferi spp. 23-25 kDa IgG
Borrelia burgdorferi spp. 28 kDa IgG
Borrelia burgdorferi spp. 30 kDa IgG
Borrelia burgdorferi spp. 31 kDa IgG
Borrelia burgdorferi spp. 34 kDa IgG
Borrelia burgdorferi spp. 39 kDa IgG
Borrelia burgdorferi spp. 41 kDa IgG
Borrelia burgdorferi spp. 45 kDa IgG
Borrelia burgdorferi spp. 58 kDa IgG
Borrelia burgdorferi spp. 66 kDa IgG
Borrelia burgdorferi spp. 83-93 kDa IgG

Lyme PCR
Borrelia burgdorferi spp.
Borrelia afzelii
Borrelia garinii

TBRF Immunochip IgM
Borrelia miyamotoi IgM
Borrelia hermsii IgM
Borrelia turicatae IgM

TBRF Immunochip IgM
Borrelia miyamotoi IgM
Borrelia hermsii IgM
Borrelia turicatae IgM

TBRF PCR
Borrelia TBRF spp.
Borrelia lonestari
Borrelia miyamotoi

Coinfections

Babesia Immunochip IgM
Babesia microti IRA IgM
Babesia microti p32 IgM
Babesia microti p41 IgM

Babesia Immunochip IgG
Babesia microti IRA IgG
Babesia microti p32 IgG
Babesia microti p41 IgG

Babesia PCR
Babesia microti
Babesia duncani

Bartonella Immunochip IgM
Bartonella henselae 17 kDa IgM
Bartonella henselae 26 kDa IgM
Bartonella henselae SucB IgM

Bartonella Immunochip IgG
Bartonella henselae 17 kDa IgG
Bartonella henselae 26 kDa IgG
Bartonella henselae SucB IgG

Bartonella PCR
Bartonella spp.

HGA Immunochip IgM
Anaplasma phagocytophilum Msp5 IgM
Anaplasma phagocytophilum p44 IgM
Anaplasma phagocytophilum Msp5 IgG
Anaplasma phagocytophilum p44 IgG

HME and HGA PCR
Anaplasma phagocytophilum
Ehrlichia chaffeensis
Ehrlichia ewingii

Chlamydophila pneumoniae
Chlamydophila pneumoniae IgM
Chlamydophila pneumoniae IgG

Chlamydophila pneumoniae
Chlamydophila pneumoniae

Mycoplasma PCR
Mycoplasma spp.

RMSF PCR
Rickettsia rickettsii

Tularemia PCR
Francisella spp.

Reference:

1. Molins CR, Ashton LV, Wormser GP, Hess AM, Delorey MJ, Mahapatra S, Schriefer ME, Belisle JT. *Development of a Metabolic Biosignature for Detection of Early Lyme Disease.* Clin Infect Dis. 2015 Mar 11.