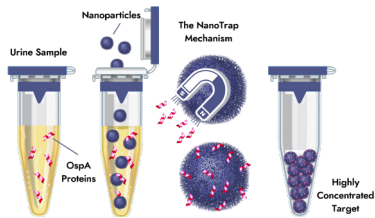


Galaxy Nanotrap® Direct Testing for Lyme Borreliosis Goes Beyond the Limits of Detection

Lyme borreliosis can be clinically diagnosed by a healthcare provider based on a patient's medical history, current symptoms and exposure risk. Laboratory test results are often used to confirm or support diagnosis.

Galaxy recommends combining two methods: Nanotrap® and Antibody testing to maximize diagnostic sensitivity.

1 Nanotrap® Antigen Test for Lyme borreliosis



More Sensitive than PCR

2 CDC-recommended two-tier testing

In-house developed and validated Western blot and ELISA panels detect IgM/IgG antibodies specific to *B. burgdorferi*

Detects Cases Missed by Antibody Testing

The Galaxy Difference

Galaxy's testing is powered by sample enrichment and revolutionary detection methods, including Nanotrap® capture. Galaxy Diagnostics is globally recognized for scientific expertise in flea and tick borne disease research.

- ▶ Galaxy's Nanotrap® Testing for Lyme borreliosis concentrates target to improve detection by >10x.
- ▶ Revolutionary sample enrichment technology identifies positive cases missed by conventional testing.
- ▶ Easy-to-collect urine sample means no needles or blood.
- ▶ Combines direct detection with CDC recommended two tier testing for enhanced diagnostic confidence.

Borrelia: Find it. Treat it. Prevent it

Borrelia infection can result in severe, life-threatening symptoms in both humans and companion animals.

The good news is that infection is both treatable and preventable, especially when detected early.



Prevention is best. Protect you and your pets.

- ▶ Use year-round flea and tick prevention on your animals as recommended by a veterinarian
- ▶ Treat clothes with permethrin prior to hiking, hunting, or other activities
- ▶ Treat your yard to reduce tick exposure
- ▶ Perform body checks following outdoor activities, especially during warm weather with high humidity

Galaxy Diagnostics offers the only testing solutions powered by revolutionary sample enrichment technologies for elusive flea and tick borne pathogens.

Learn more at www.galaxydx.com

Galaxy Diagnostics, Inc.
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Email: contact@galaxydx.com

Advancing diagnostics based on 20+ years of research experience and over 400 scientific publications on flea and tick borne diseases in human and animal medicine.

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Understanding hidden infection: Lyme borreliosis (*Borrelia*)

If you suffer from a chronic illness in which symptoms are not improving and

you have had exposure to ticks or spend time outdoors...

ask your doctor about testing for Lyme Disease and other *Borrelia* infections. These infections can present with a wide variety of symptoms and it can be difficult to diagnose.

GALAXY™
ADVANCED MICROBIAL DIAGNOSTICS

Go Beyond the Limits of Detection

Lyme Borreliosis

Lyme borreliosis infection can present many ways after the tick bite, and has been documented as a cause of both acute and chronic illness.

Symptoms and Conditions

Two types of presentations:

1 Acute 2 Chronic

Characterized by flu-like symptoms and may be accompanied by a bulls-eye rash (*Erythema migrans*) 2-4 weeks following a tick bite

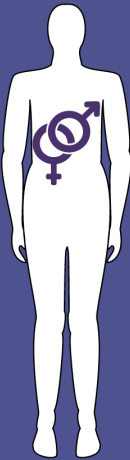


Moderate-to-severe conditions affecting the joints, heart and central nervous system. Symptoms may include the appearance of additional skin rashes, facial palsy or swollen knees/elbows

LYME DISEASE SYMPTOMS

ACUTE SYMPTOMS

Fatigue 76%
Headache 70%
Rash <70%
Fever 60%
Sweats 60%
Chills 60%
Muscle Pain 54%
Joint Pain 48%
Neck Pain 46%
Sleep Issues 41%



CHRONIC SYMPTOMS

Fatigue 79%
Joint Pain 70%
Muscle Pain 69%
Other Pain 66%
Sleep Issues 66%
Cognitive 66%
Neuropathy 61%
Depression 62%
Heart Related 31%
Headache 50%

*Aucott 2013 **Rebman, Aucott 2020 (moderate to very severe symptoms) Estimates of rash range from 25.8% to 80% <https://www.lymedisease.org>

Risk Factors



Acute Infection Risk

- ▶ Living in or traveling to a Lyme endemic area
- ▶ Outdoor or indoor exposure to ticks or lice
- ▶ Working or living with animals exposed to ticks

Chronic Disease Risk

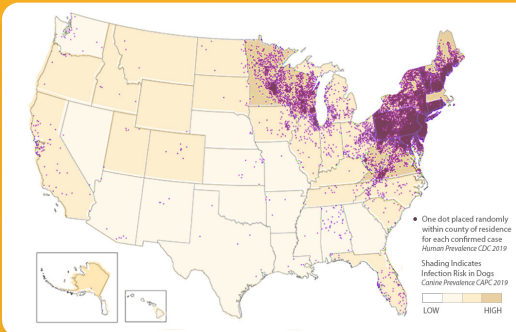
- ▶ Naturally weakened or compromised immune systems due to age (younger children, adolescents, aging adults), cancer treatment, HIV or other immune disorders, immune suppressive therapy and pregnancy

Geographic Prevalence

Lyme borreliosis impacts almost 500,000 people in the United States each year*. This number is likely higher due to:

- ▶ Underreporting, because Lyme borreliosis cases must meet certain criteria to be reported to public health officials.
- ▶ Annual IDEXX Laboratories data reported by the Companion Animal Parasite Council (CAPC) suggest prevalence is high for pet dogs in areas that contradict the CDC maps for people.

Overlay of CDC Reported US Cases of Lyme Disease with CAPC US Dog Infection Risk 2019**



*CDC 2019

**map adapted from published CDC and CAPC data 2019

Ask your doctor for the most sensitive testing available

Borrelia is notoriously difficult to detect. Conventional testing methods alone are unreliable. Here's why:

Serology (antibody testing)

CDC recommends Two Tiered Testing (ELISA & Western blot)

- Detectable antibodies can take 4-6 weeks to develop after infection occurs. Some patients never develop a detectable immune response.
- Does not confirm active infection
- Cross-reactivity with other pathogens has been documented

Standard PCR

- Lyme *Borrelia* exit the bloodstream 1-2 weeks after infection occurs, resulting in a high PCR false negative rate

Culture

- *Borrelia* are difficult to grow due to complex nutritional needs

Microscopy

- Cannot differentiate between a low-level *Borrelia* infection and other microorganisms (spirochetes)

Borrelia hides in the body

- Research shows Lyme *Borrelia* migrate out of the bloodstream to various areas of the body, including the joints, heart, bladder and other tissues that are difficult to test.

Adapted from Harms, 2012

Sample Enrichment is Key

Only Galaxy Diagnostics uses Nanotrap® particle sample enrichment to enhance the sensitivity of direct detection test methods that confirm active *Borrelia* infection.