

# Lyme & TBD Testing



This testing section is provided for informational purposes only. You need to discuss all your questions and concerns with your health care provider.

There is no gold standard test for Lyme disease. A number of peer-reviewed articles indicate the testing may be approximately 50% accurate, very specific but not very sensitive. CDC surveillance guidelines (not meant for diagnosis but often inappropriately used for diagnosis by clinicians) require a two-step test—ELISA followed by a confirmatory Western blot if the ELISA is positive or equivocal. There can be both false positives and false negatives on both ELISAs and Western Blots.

Antibody response tests are most effective beginning 4 weeks or more after a tick bite, and even then, accuracy rates vary. When antibody response testing is done later, research has shown the antigen and the antibody can come together to form a complex. There is currently no commercial test that can test for the antibody in a complex, thus you can test negative even though you may have produced sufficient antibodies to the bacteria that should enable you to test positive.

Tests for other tick-borne diseases vary in types, availability, and accuracy. **See below for more information on different types of Lyme & TBD testing.**

## **Lyme Disease Tests (click to expand):**

### **• Antibody Response (or Serology)**

– measures antibody levels produced in response to the disease. Includes: ELISA, C6Peptide, IFA (rarely used), IgG & IgM Western Blots. In the first year after a tick bite, less than 65% of patients produce antibodies, & they may not last. By year two, less than 50% of patients still have an antibody response. Antibody response tests are most effective starting 4-12 weeks after a tick bite, & accuracy rates vary considerably. If antibiotic treatment is inadequate, antibody levels may remain low causing tests to be negative.

### **• Antibody Capture**

– an antibody test with the same problems as the test listed above.

### **• Culture**

– grows actual organism. Difficult to do, but when positive, it confirms a Lyme infection

### **• Antigen Capture**

– a highly defined antibody captures pieces of the Lyme organism. Actually checks for the presence of a piece of Lyme bacteria & supports the diagnosis of active infection. Includes LDA (Lyme Dot Antigen Assay for Urine and CSF).

### **• Polymerase Chain Reaction (PCR)**

– checks for the presence of the organism's genetic material (DNA/RNA). Positive results are highly specific but negative results are meaningless. Can be performed

on all body tissues.

## **Babesia, Anaplasma, Ehrlichia, Bartonella, Rickettsia Tests (click to expand) :**

### **• Babesia**

– blood smears, IFA (IgG & IgM), FISH (Flourescent in-situ Hybridization) and PCR may be ordered.

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### **• Anaplasma**

– blood smears, IFA (IgM & IgG), PCR. Recommended to use more than one type of test.

### **• Ehrlichia**

– blood smears, IFA and PCR for *E. equi* (HGE) and/or *E. chaffeensis* (HME) and PCR for HGE and HME are available. *Bartonella henselae*, *Bartonella quintana* – an IFA and PCR are

### **• Rickettsia spp.**

PCR available.