



Western Blot Lyme Test: What it is and How to Read it

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August 2013 - Lyme disease is a medical condition caused by a bacterial infection and is often difficult to diagnose, because it mimics a variety of other health conditions. To further complicate the matter, the tick that spreads this infection can cause other infections as well, not just Lyme disease.

Luckily, there are laboratory tests that can help aid in the diagnosis. Lab tests identify antibodies from the bacteria and are more accurate if done a few weeks after the infection. ELISA (enzyme linked immunosorbent assay) and IFA (immunofluorescent assay) are the most common lab tests done to detect antibodies to *Borrelia Burgdorferi*, the bacteria that causes Lyme. However, these tests can sometimes give a false positive result. In order to confirm the diagnosis of Lyme, another test called the Western blot test is ordered. PCR (polymerase chain reaction) is another test that can detect the DNA of the bacteria by using a sample from the joint fluid of patients with chronic arthritis associated with Lyme. A sample from cerebrospinal fluid can be tested if the patient's symptoms are affecting the nervous system.

Western Blot Test

While the ELISA/IFA are quantitative tests, the Western blot provides qualitative data. The newest version of the western blot test to detect Lyme disease is called Immunoblot. The results will look like a bar code, with lines called "bands". Each band corresponds to antibodies of different components of the bacterium *Borrelia Burgdorferi*. The combination of specific bands (rather than looking at individual bands) will help identify if the bacterium is indeed *Borrelia*.

There are two types of antibodies identified in the Immunoblot test, immunoglobulins M (IgM) and G (IgG). The IgM antibodies are produced right after the infection, and thus, this component of the Immunoblot will be positive in the first few weeks post-infection.

IgG antibodies are produced 4-6 weeks after the infection. The test should reveal multiple IgG bands (which means the infected person has multiple antigens) detectable in the lab sample.

It should be noted that the interpretation of Immunoblot requires a skilled healthcare professional to interpret the result. While the Western Blot test can't confirm or rule out completely the diagnosis of Lyme disease by itself, it can offer valuable information that should be used in conjunction with the clinical signs, symptoms and history.

References:

<http://www.cdc.gov/lyme/diagnostictreatment/LabTest/TwoStep/WesternBlot/>

<http://www.mayoclinic.com/health/lyme-disease/DS00116/DSECTION=tests-and-diagnosis>

http://www.columbia-lyme.org/patients/ld_lab_test.html