

Diagnosing active Lyme Borreliosis

- One single blood test
- Confirmation of a reaction to Borrelia
- Results key for proper treatment

The clinical symptoms of Lyme disease may be vague, vary between patients and may mimic other diseases. Consequently, Lyme disease may be misdiagnosed as chronic fatigue syndrome, fibromyalgia, rheumatoid arthritis, or other autoimmune and neurological diseases, leaving the infection untreated. Additionally, standard laboratory testing may be unable to give a clear diagnosis. MELISA testing has been developed to improve the diagnosis of Lyme disease. The test will show if the patient's health problems are related to Lyme disease and if therapy is needed. Further, follow up testing can show if antibiotic treatment has been successful.

Lyme disease is an infection caused by a spirochete, a type of bacteria, called *Borrelia burgdorferi*. The most recognised symptom is a skin rash called erythema migrans, which may look like a bull's eye, but is not present in all cases. Other symptoms include fever, headache, fatigue and neck pain. If the disease is untreated, infection can spread to the joints, heart, and nervous system, causing a variety of symptoms, such as arthritis, which may persist over months or years. This is called chronic Lyme or late stage Lyme disease.

Lyme disease diagnosis is based on clinical symptoms and exposure to infected ticks. Laboratory testing can be performed to confirm the infection (presence of antibodies in the blood as measured by ELISA, Western Blot and PCR), but is not always conclusive. Affected patients will also develop Borrelia-specific memory lymphocytes. The lymphocytes of a person with an active Lyme will react to Borrelia bacteria, while in a healthy person lymphocytes will remain inactive.

MELISA Lyme testing can measure the activity and proliferation of these Borrelia-specific memory lymphocytes when they come in contact with Borrelia-derived antigens. Testing has proved especially useful in cases where symptoms remain after therapy, as it will establish whether further treatment is necessary.

MELISA testing is also used for the diagnosis of metal-induced inflammation (hypersensitivity) to for example to mercury, nickel and titanium. Metal exposure typically comes from dental fillings, crowns and orthopaedic implants. The symptoms of Lyme disease and metal hypersensitivity are very similar, so if a patient is exposed to metals it is worth considering testing for metals in addition to Lyme.

MELISA Lyme testing measures the current disease caused by the infection, using antigens from subspecies present in Europe and North America (*Borrelia afzelii*, *Borrelia garinii*, *Borrelia burgdorferi sensu stricto*).

References

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LYMPHOCYTE TESTING

MELISA is an optimised lymphocyte transformation test (LTT) which measures the reactivity of lymphocytes to active infections of Borrelia. MELISA Lyme testing uses a comprehensive range of highly purified recombinant, and therefore highly specific, Borrelia-derived antigens. The testing panel consists of the three relevant strains (*garinii*, *afzelii*, and *sensu stricto*). The test helps diagnose active Lyme disease in ambiguous cases and is used to determine if treatment has been effective.

TESTING REQUIREMENTS

- 5 x 9ml blood in sodium citrate tubes is needed
- Blood must arrive 24-48hrs after drawing and must be kept at room temperature
- Patients should not be taking steroids and leave 4 weeks after treatment with antibiotics
- Results are available in 10 days

