

# TICK-BORNE DISEASE IMMUNOSEROLOGY AND WESTERN BLOT PANEL

*Lyme disease is an infection caused by a bacteria, a spirochete called Borrelia. Tick bite can not only develop Lyme disease but also co-infections that impact many organ systems in the body. Diagnosis can be difficult because symptoms of LD share commonalities with ALS, Alzheimer's, autism, chronic fatigue, fibromyalgia, lupus, Parkinson's and rheumatoid arthritis.*

Lyme serology is a sensitive method for the detection of Lyme disease and other tick-borne diseases (Babesia, Ehrlichia, Bartonella) measuring antibodies to antigens of Borrelia grown in culture (the traditional method), as well as antibodies against antigens expressed in vivo during the invasion of the human immune system. The antigenic diversity of Borrelia burgdorferi in the host suggests that antigenic variation plays an important role in immune invasion. This antigenic variation is detected by a very new technique called in vivo induced antigen technology. This technique identifies pathogen antigens that are immunogenic and expressed in vivo during human infection.

## SYMPTOMS AND CONDITIONS ASSOCIATED WITH LYME

Fatigue	Neurological symptoms
Fibromyalgia	Depression
Multiple chemical sensitivity	GERD
Immune deficiency	Low exercise tolerance
Flu-like symptoms	Erythema migrans rash
Headache	Pressure in the head
Hair loss	Tingling of nose, tongue
Facial paralysis	Difficulty breathing
Dental problems	Jaw pain

## Immunoserology of Lyme Disease

Lyme serology blood testing will determine whether antibodies to Borrelia infection are present. Prompt diagnosis and treatment of Lyme disease (LD) is the key to avoiding chronic Lyme borreliosis and its serious effect on the human system. Lyme serology testing uses two methodologies, namely Enzyme-Linked ImmunoSorbent Assay (ELISA) usually used as an initial test, followed by a more sensitive or confirmatory Western Blot, an immunoblot that looks for antigens.

The analytes measured are:

- Lyme specific antibodies
  - B. burgdorferi antigens (IgG & IgM)
  - OspA + OspC peptides (IgG & IgM)
  - OspE peptide (IgG & IgM)
  - Leukocyte Function Associated antigen (IgG & IgM)
  - Immunodominant protein (IgG & IgM)
  - Variable Major protein (IgG & IgM)
- Borrelia subspecies antibodies
  - B. b. sensu stricto (IgG & IgM)
  - B. garinii (IgG & IgM)
  - B. afzelii (IgG & IgM)
- Lyme co-infection
  - Babesia (IgG & IgM)
  - Ehrlichia (IgG & IgM)
  - Bartonella (IgG & IgM)
- Western Blot
  - Borrelia Burgdorferi IgG & IgM

The IgM is generally regarded as the body's response to recent exposure to Lyme disease. IgG is generally regarded as the body's response over time (i.e. longer term) to Lyme disease. Because the immune system is compromised in Lyme disease, often IgG and IgM responses can become mixed up.

## TICK-BORNE DISEASE IMMUNOSEROLOGY & WESTERN BLOT [3412]

- ❖ Borrelia burgdorferi IgG & IgM, OspA + OspC peptides IgG & IgM, OspE peptide IgG & IgM, Leukocyte Function Associated antigen IgG & IgM, Immunodominant protein IgG & IgM, Variable Major protein IgG & IgM; Borrelia b. sensu stricto IgG & IgM, Borrelia garinii IgG & IgM, Borrelia afzelii IgG & IgM; Babesia IgG & IgM, Ehrlichia IgG & IgM, Bartonella IgG & IgM

## Other Lyme disease serology tests available

- **B. burgdorferi Immunoserology (blood) [3409]:** Borrelia burgdorferi IgG, IgM (*tested by ELISA*)
- **B. burgdorferi Western Blot (blood) [3410]:** Borrelia burgdorferi IgG, IgM (*tested by Western Blot*)
- **Tick-borne Disease Immunoserology Panel (blood) [3411]:** Borrelia burgdorferi antigens (IgG, IgM), OspA + OspC Peptides (IgG, IgM), OspE Peptide (IgG, IgM), Leukocyte Function Associated Antigen (IgG, IgM), Immunodominant Protein (IgG, IgM), Variable Major Protein (IgG, IgM); Borrelia b. sensu stricto (IgG & IgM), B. garinii (IgG, IgM), B. afzelii (IgG & IgM); Babesia (IgG & IgM), Ehrlichia (IgG, IgM), Bartonella (IgG, IgM)

## How to order a test kit:

To order a test kit simply request the test name and/or test code on a NutriPATH request form test code and have the patient phone NutriPATH Customer Service on 1300 688 522.