



## Study of Lyme disease Immunology and Clinical Events

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*SLICE* is a landmark study sponsored by LymeMD. A collaborative initiative with the division of Rheumatology at Johns Hopkins, the study examines the impact of Lyme disease on the human immune system and on patient health. We believe that understanding how immune system responds in Lyme disease is the key to understanding why between 10 and 20 percent of treated patients experience persistent symptoms *even after* antibiotic treatment of their Lyme disease. We must understand the causes of chronic illness associated with Lyme disease *before* we can formulate effective treatments for suffering patients.

Our *SLICE* study examines - for the first time - the patterns of immune response in patients who develop the disabling chronic symptoms of fatigue and pain *after* treatment of their Lyme disease.

Each of us has an immune response designed to control infection. But sometimes, this response creates damage and actually perpetuates symptoms. With Lyme disease, the patient's immune system's 'good' response fights the infection, but there can also be a 'bad' response (autoimmunity) to the invading bacteria of Lyme disease. The goal of our *SLICE* study is to examine both the good and bad responses of the immune system in patients before and after their initial antibiotic treatment. In addition, we will examine risk factors, severity of symptoms, cognitive dysfunction, and associated biomarkers (blood tests that may show a correlation with disease activity or prognosis) in patients who develop different patterns of immune response.

For the study, we are recruiting 100 patients with acute, untreated Lyme disease who will be treated and followed for two years. Their symptoms and cognitive function will be measured with standardized instruments such as surveys completed by the patients to record their symptoms and intelligence tests administered by our staff to measure their cognitive function. Samples of their blood, immune cells, DNA, and RNA will also be collected and stored for future research and analysis.

We predict that our *SLICE* study will provide fundamental insights into the relationship of immune pathways, biomarkers and the persistence of symptoms in patients with Lyme disease that may be clues to the cause of persistent symptoms or may serve as the basis for future diagnostic tests.

This holds promise for identifying new biomarkers that are essential for developing new diagnostic tests, ways to monitor progress of the disease, and strategies for future treatment. It is an exciting undertaking.