Quick, affordable and accurate test to diagnose debilitating Lyme disease

20 July 2015

Focus On Lyme, an initiative sponsored by the Leadership Children's Foundation of Gilbert, Ariz., has donated $75,000 to the Translational Genomics Research Institute (TGen) to support research into the development of a quick, affordable and accurate method of diagnosing Lyme disease.

The most common vector-borne illness in the U.S., Lyme disease affects an estimated 300,000 Americans annually.

Today, no perfect test for Lyme disease exists due to three main barriers: multiple strains of Lyme bacteria often confound test results, the existence of related bacteria may cause false positive test results and most Lyme infections typically present at a level not detectable by current testing methods.

Scientists at TGen's Pathogen Genomics Division in Flagstaff, Ariz.—TGen North—will use the power of targeted DNA sequencing to develop and validate a test to measure the presence and severity of tick-borne Lyme disease at the genomic level.

By analyzing a sample's DNA, the new test should be able to pinpoint Lyme disease, identify multiple Lyme strains, detect other tick-related infections, and show non-Lyme causes of disease.

"With recent advances at TGen and genomics overall, we can finally develop a diagnostic test that will put more actionable information into the hands of the physician than previously possible. We are thrilled to be working with Focus On Lyme on this project," said Dr. Paul Keim, Professor and Director of TGen North and Director of the Center for Microbial Genetics & Genomics at Northern Arizona University (NAU), which will help develop the test.

The bacterium that causes Lyme disease occurs naturally in mice, squirrels and other small animals. The infection spreads as ticks feed on these animals and then bite humans. Although deer are not a source of the bacteria, they are important for the life cycle the ticks.

This infection can manifest with a bulls-eye rash or a non-specific rash, but not always. Flu like symptoms, such as fever, headache, body aches and fatigue can last a few days to a few weeks.

Undiagnosed and untreated cases can lead to fatigue, painful and swollen joints, memory loss, insomnia, heart palpitations, difficulty with concentration and other changes, including those that mimic other diseases, complicating a clinical diagnosis.

This is why an accurate diagnostic tool is essential.

"We chose to partner with TGen because they have the best and most experienced pathogen researchers in the world," said Tammy Crawford, Executive Director of Focus On Lyme. "TGen has a proven record of success. I am convinced there is no one more qualified to develop an improved diagnostic test for Lyme disease."

Lyme disease was first described in 1977 following investigation of a cluster of arthritis cases among children living near Lyme, Conn. Further study indicated that arthritis was a manifestation of a tick-transmitted disease.

If detected early, most cases of Lyme disease can be successfully treated with antibiotics. Lyme disease can be prevented by using insect or tick repellent, promptly removing ticks, applying pesticides, treating pets for ticks, and reducing tick habitat. The ticks that transmit Lyme disease also can transmit other tick-borne diseases.

Focus On Lyme plans an inaugural Scientific Conference about Lyme disease on Feb. 11-13,

2016. This invite-only event will bring researchers, clinicians and more together to discuss diagnosis and treatment for Lyme patients. A fundraising dinner is planned Feb. 12, 2016. Proceeds will assist clinical trials and FDA approval of TGen's diagnostic tool.

Provided by The Translational Genomics Research Institute

APA citation: Quick, affordable and accurate test to diagnose debilitating Lyme disease (2015, July 20) retrieved 3 October 2022 from https://medicalxpress.com/news/2015-07-quick-accurate-debilitating-lyme-disease.html