

Could monoclonal antibodies prevent Lyme disease better than a vaccine?

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<http://danielcameronmd.com/could-monoclonal-antibodies-prevent-lyme-disease-better-than-a-vaccine/>

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In a recent article by NBC News, entitled [Lyme Disease Treatment Would Prevent Infection, Researchers Say](#), Dr. Mark Klempner, of the University of Massachusetts' nonprofit vaccine development arm, MassBiologics, describes a study where lab-developed monoclonal antibodies prevented Lyme disease in mice.

Klempner's group presented their findings, claiming the monoclonal antibody could protect mice against the Borrelia bacteria, during a meeting with infectious disease experts in San Diego, California. [1] More details on the study should be available once it is published in a peer-reviewed journal.

Researchers say study brings "promising results" for new approach in preventing infections from Lyme disease agent.

Klempner explained the difference between monoclonal antibodies and vaccines to NBC News. "The way a vaccine works is that you give people pieces of the bacteria or the virus that you are interested in preventing and then the body mounts a big immune response."

Monoclonal antibodies, however, are not vaccines "but an approach that builds on the gamma globulin shots that were once frequently used to try to prevent tuberculosis and hepatitis." The monoclonal shot offers immediate immunity but must be injected every year.

The NBC News piece summarized concerns with the Lyme disease vaccine, "There once was a human Lyme disease vaccine on the market, but its maker, GlaxoSmithKline, stopped making it after rumors about its safety and multiple lawsuits filed by people claiming it made them sick. The company said it couldn't sell enough doses to make it worthwhile."

The Lyme disease vaccine was removed from the market in 2002. The CDC website warns, "Protection provided by this vaccine diminishes over time. Therefore, if you received the Lyme disease vaccine before 2002, you are probably no longer protected against Lyme disease." [2]

Klempner finds the mouse study encouraging. He tells NBC News, "the company is laying the groundwork now to start testing its monoclonal antibody in people next year."

The investigators at MassBiologics will need, however, to address several questions:

Will the monoclonal antibodies work for the growing number of strains of the infection?

Will the monoclonal antibodies work for new species, e.g. *Borrelia miyamotoi*, which is related to the bacteria causing tick-borne relapsing fever (TBRF) described by the CDC? [3]

Will there be monoclonal antibodies for other tick-borne illnesses, e.g. Babesia, Anaplasmosis?

Will there be any side effects in people not evident in the mice?

Will the monoclonal antibodies be affordable, as the NBC News article points out, “They are often very expensive, costing upwards of \$100,000 a year.” Klempner says, “the university’s goal is to make it available cheaply.”

References:

1. Lyme Disease Treatment Would Prevent Infection, Researchers Say, by Maggie Fox at NBCNews.com Available from: <http://www.nbcnews.com/health/health-news/lyme-disease-treatment-would-prevent-infection-researchers-say-n441946>. (Last accessed 10/11/15).
2. Lyme disease vaccine, Centers for Disease Control and Prevention, Available from: <http://www.cdc.gov/lyme/prev/vaccine.html>. (Last accessed 10/11/15).
3. What you need to know about *Borrelia miyamotoi*. Centers for Disease Control and Prevention (CDC) Available from: <http://www.cdc.gov/ticks/miyamotoi.html>. (Last accessed 10/11/15).

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