

C6 peptide test for Lyme disease may indicate *Borrelia miyamotoi* infection

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[Koetsveld and colleagues examined](#) C6 reactivity in sera from both mice infected with *Borrelia miyamotoi* and from 46 patients with PCR-positive *Borrelia miyamotoi* disease (BMD).

They found, “Cross-reactivity against the C6-peptide was confirmed in 21 out of 24 mice experimentally infected with *B. miyamotoi*.” And a C6 antibody response was present in 39 of 46 patients. ¹

Interestingly, another recent study “showed that in a set of 43 sera from 24 patients with [*Borrelia miyamotoi* disease] from the United States the C6 ELISA was also positive in the vast majority (>90%) of convalescent phase serum samples.” ²

Koetsveld warns, however, that since “BMD [*Borrelia miyamotoi* disease] and Lyme borreliosis are found in the same geographical locations, caution should be used when relying solely on C6-reactivity testing.”

They recommend further testing if the Western blot is negative.

“We propose that a positive C6 EIA with negative immunoblot, especially in patients with fever several weeks after a tick bite, warrants further testing for *B. miyamotoi*.”

Testing for the glycerophosphodiester phosphodiesterase (GlpQ) gene may be helpful in detecting *B. miyamotoi* infection.

“Our results demonstrate that cross-reactive antibodies against the C6 peptide regularly occur in patients with [*Borrelia miyamotoi* disease],” writes Koetsveld.

He adds, “with as much as 90% (95% CI 68.3–98.8) of patients being C6-reactive in samples taken 10 to 19 days after onset of disease.”

Editor’s note: It is also possible that the patients could have seronegative Lyme disease concurrent with *B. miyamotoi*. In fact, 10 of their 39 patients were reactive by Western blot for Lyme disease.

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References:

1. Koetsveld J, Platonov AE, Kuleshov K, et al. Borrelia miyamotoi infection leads to cross-reactive antibodies to the C6 peptide in mice and men. Clin Microbiol Infect. 2019.
2. Molloy, P.J., Weeks, K.E., Todd, B., and Wormser, G.P. Seroreactivity to the C6 peptide in Borrelia miyamotoi infections occurring in the northeastern United States. Clin Infect Dis. 2018; 66: 1407–1410

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