

## 'Doctor says you are cured, but you still feel the pain.'

Tuesday, July 11, 2017

<http://danielcameronmd.com/doctor-says-cured-still-feel-pain/>

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In an article entitled "[Doctor Says You Are Cured, But You Still Feel the Pain. Borrelia DNA Persistence in Lyme Disease.](#)" Cervantes, from Paul L. Foster School of Medicine, Texas Tech University Health Sciences Center, addresses the persistence of pain as the result of Lyme disease.

Studies indicate that *Borrelia* DNA can persist in animals and humans after antibiotic treatment. Cervantes cites evidence of persistent DNA found in the joint fluid of arthritis patients after therapy, in endocardial biopsy specimens from patients with dilated cardiomyopathy, and in the urine of antibiotic-treated patients, up to a year after treatment. [2]

Furthermore, new evidence suggests that persistent bacterial DNA can lead to ongoing symptoms. An antimicrobial peptide (AMP) activates TLR9, an innate immune receptor that leads to type-I interferon production. That production would translate into symptoms consistent with those typically described by patients suffering from post-treatment Lyme disease syndrome (PTLDS) and explain how illness can persist even in the absence of an active bacterial infection, according to Cervantes. [2]

Bb-DNA can persist for long periods of time in some individuals, even after antibiotic therapy, says the author of a new study.

Cervantes encourages attention to the use of DNA-binding AMPs to limit chronic manifestations of Lyme disease. AMPs may also "increase the ability of human macrophages to efficiently remove extracellular spirochetal DNA," Cervantes says.

In the same article, Cervantes raises an unresolved question: "Where is *Borrelia burgdorferi* (*Bb*) hiding from the immune system? *Bb* is an elastic organism, able to modify its morphology to 'swim' in between the fibrous tracts of cartilaginous tissue."

"Cartilage is a tissue that lacks vasculature, providing the perfect sanctuary for *Bb* to escape from immune cells present in the bloodstream. *Bb* can then remain 'hidden' in the extracellular matrix," he suggests.

Therein lies the \$64,000 question: Can we be sure persistent DNA does not represent persistent infection?

### References:

1. Bechtold KT, Rebman AW, Crowder LA, Johnson-Greene D, Aucott JN. Standardized Symptom Measurement of Individuals with Early Lyme Disease Over Time. *Arch Clin*

*Neuropsychol.* 2017;32(2):129-141.

2. Cervantes J. Doctor says you are cured, but you still feel the pain. Borrelia DNA persistence in Lyme disease. *Microbes Infect.* 2017.

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