

Lyme disease – Are we looking for a wrong culprit?

Tatjana Mijatovic

R.E.D. Laboratories, Zellik, Belgium

Borrelia-related diseases (Lyme disease and relapsing fevers) are increasingly prevalent, severe, difficult to diagnose and treat. The high failure rate of tick-borne infection testing undermine treatments' strategy and monitoring. The goal of this contribution is to bring the focus on the importance to enlarge borreliosis-related testing targets and shed some light on high prevalence of *B. miyamotoi* presence both in ticks and late stage undiagnosed patients. Bacteriophages could become a diagnostic tool based on the principle that if there are phages it is because there are living bacteria. Phelix Charity together with Leicester University microbiology department have recently developed a *Borrelia* Phage-based PCR test searching for 3 major *Borrelia* groups (*Borrelia burgdorferi* s.l, *Borrelia miyamotoi*, Relapsing fever group). This method is efficiently used to assess both human samples and ticks. Testing included ~3500 mainly late stage / chronic patients and the aggregated data are showing 30 % negative results and 70% positive among which over 60 % indicated the presence of specific *Borrelia miyamotoi* phages. Furthermore, ticks from 2019 and 2020 have been analyzed by the same method. The obtained results on ticks showed that over 60% were found positive for *Borrelia miyamotoi* and only 15% for *B. burgdorferi* s.l. This is the first large scale report on prevalence of *B. miyamotoi* in the ticks, as well as in late stages of borreliosis. Thus the overall high expansion of undiagnosed Lyme disease cases worldwide might be linked to the screening choice focusing only on *B. burgdorferi* s.l and only rarely testing for *B. miyamotoi* while the later one seems to be much more prevalent.

Keywords: *Borrelia*, Lyme disease, Phage, new testing method

Biography:

Tatjana Mijatovic holds Ph.D. in Molecular Biology. T. Mijatovic authored 50 publications in peer-reviewed journals (21 as first or senior author/ 29 as co-author) and holds 2 granted patents as first author. Since 2011 she is CSO and Lab Manager at R.E.D. Laboratories, developing and performing specialty tests to assess multifactorial dysfunctions like CFS, chronic immune dysfunctions, chronic infections including Lyme disease, intestinal dysfunctions, autism, etc. Previously, she performed as (i) Head of Biology in Biotech Company specialized in the discovery of new anti-cancer agents, (ii) Publications Manager consultant for Pharmaceutical Companies and (iii) scientist at the University of Brussels.