

Hope in a Bottle — Immune Modulation as a New Frontier in Chronic Lyme Disease

THE PROBLEM

Chronic Lyme disease affects an estimated 1.9 million Americans. Standard antibiotic treatment resolves the illness in many — but a substantial subset develops persistent, debilitating symptoms: brain fog, fatigue, joint pain, sleep disruption, and cognitive impairment that can last for months or years. The International Lyme and Associated Diseases Society (ILADS) defines Chronic Lyme disease as a multisystem illness caused by active ongoing *Borrelia* infection, present continuously or intermittently for a minimum of six months. There is no FDA-approved treatment.

THE SCIENCE — WHY CYTOKINES?

Published research confirms that Chronic Lyme patients experience abnormal TH1 immune activation — a state where effector memory T cells overproduce pro-inflammatory cytokines including IFN- γ , TNF- α , IL-2, IL-1 β , and MCP-1. These cytokines are the direct molecular cause of Chronic Lyme's signature symptoms. In 2014, researchers at Institut Pasteur (Loison et al., PLoS ONE) demonstrated that thimerosal at concentrations 100 times lower than those in any vaccine selectively induces apoptosis in overactivated T cells and inhibits production of exactly these cytokines — with no shift toward dangerous immune states.

THE CLINICAL EVIDENCE

Dr. Jason Bachewich, ND (ILADS voting member) enrolled 73 confirmed Chronic Lyme patients in a 14-day observational study using CelWel™ — a sublingual supplement delivering ultra-low-dose thimerosal alongside Guduchi (*Tinospora cordifolia*) and piperine. Patients were confirmed positive by IgG serology for *Borrelia* spirochete and round body forms, plus EliSpot assay confirming active TH1 immune activity. Results via Wilcoxon signed-rank testing:

- Cognitive function: $p = 0.008$ ✓ significant
- Energy / Sleep: $p = 0.00008$ ✓ significant
- Joint / Muscle pain: $p = 0.008$ ✓ significant
- Emotional symptoms: $p = 0.002$ ✓ significant
- Overall survey total: $p = 0.000004$ (age 51+) ✓ highly significant
- Zero adverse events reported.

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THE ASK

Thimerosal is a generic, off-patent compound. No pharmaceutical company will fund a trial for a treatment they cannot patent. This is exactly the drug-repurposing gap that HHS, NIH NCATS, and LymeX were designed to fill. We call on HHS to fund a randomized, placebo-controlled trial of ultra-low-dose thimerosal as an immunomodulatory adjunct for Chronic Lyme disease. The mechanism is established. The pilot data is compelling. One million American families are waiting.