

## Glycophospholipid Formulation with NADH and CoQ10 Significantly Reduces Intractable Fatigue in Western Blot-Positive ‘Chronic Lyme Disease’ Patients: Preliminary Report

Garth L. Nicolson,<sup>1\*</sup> Robert Settineri,<sup>2</sup> and Rita Ellithorpe<sup>3</sup>

<sup>1</sup>Department of Molecular Pathology, The Institute for Molecular Medicine, Huntington Beach, California 92647, USA; <sup>2</sup>Sierra Research, Irvine, California 92606, USA; <sup>3</sup>Tustin Longevity Center, Tustin, California 92780, USA

\*Corresponding author: Prof. Garth L. Nicolson, Office of the President, The Institute for Molecular Medicine, P.O. Box 9355, S. Laguna Beach, CA 92652, USA

Submission date: February 14, 2011, Acceptance date: March 27, 2011; Publication date: March 28, 2012

### **Abstract**

**Background:** An open label 8-week preliminary study was conducted in a small number of patients to determine if a combination oral supplement containing a mixture of phosphoglycolipids, coenzyme Q10 and microencapsulated NADH and other nutrients could affect fatigue levels in long-term, Western blot-positive, multi-symptom ‘chronic Lyme disease’ patients (also called ‘post-treatment Lyme disease’ or ‘post Lyme syndrome’) with intractable fatigue.

**Methods:** The subjects in this study were 6 males (mean age =  $45.1 \pm 12.4$  years) and 10 females (mean age =  $54.6 \pm 7.4$  years) with ‘chronic Lyme disease’ (determined by multiple symptoms and positive Western blot analysis) that had been symptomatic with chronic fatigue for an average of  $12.7 \pm 6.6$  years. They had been seen by multiple physicians ( $13.3 \pm 7.6$ ) and had used many other remedies, supplements and drugs ( $14.4 \pm 7.4$ ) without fatigue relief. Fatigue was monitored at 0, 7, 30 and 60 days using a validated instrument, the Piper Fatigue Scale.

**Results:** Patients in this preliminary study responded to the combination test supplement, showing a 26% reduction in overall fatigue by the end of the 8-week trial ( $p < 0.0003$ ). Analysis of subcategories of fatigue indicated that there were significant improvements in the ability to complete tasks and activities as well as significant improvements in mood and cognitive abilities. Regression analysis of the data indicated that reductions in fatigue were consistent and occurred with a high degree of confidence ( $R^2 = 0.998$ ).

**Conclusions:** The combination supplement was a safe and effective method to significantly reduce intractable fatigue in long-term patients with Western blot-positive ‘chronic Lyme disease.’

**Keywords:** Lyme disease, Lipid Replacement Therapy, NT Factor, mitochondria, chronic fatigue, NADH, coenzyme Q10