True
Health is a matter of trust

RESULTS OF OUR RESEARCH

Dr. Rath RESEARCH INSTITUTE

Lyme disease (LD) is the most common vector-borne disease in the USA (approximately 30,000 cases annually) and in Europe (approximately 65,000 - 80,000 cases annually). However, current statistics reflect only reported cases, and the actual numbers may be even 5 - 10 times higher due to frequent misdiagnosis of the disease.

New Findings in Lyme Disease Research

Lyme disease manifests itself as an inflammatory disease that can affect many organs in the body. In its early stage (localized) it affects mainly the skin. In later stages (disseminated and chronic) the inflammation spreads to the joints, nervous system and, to a lesser extent, the heart, muscles or other organs.

The human transmission of Lyme disease starts from ticks, which are external insects that feed on blood sucked from humans and animals. The tick becomes infected by pulling bacteria of the genus *Borrelia* from the infected host (animal, human). *Borrelia sp.* exists in three morphological forms which allow them to withstand and survive changing, and even hostile, environments. These are: active form (i.e., spirochetes), and latent forms (i.e., rounded forms and biofilm).

There is a common perception that patients treated with antibiotics in the early stages of Lyme disease recover rapidly and completely, and that the later disease stages can also be treated effectively, although recovery is slower. However, in reality, approximately 10-20% (and even up to 50%) of the patients who follow appropriate antibiotic treatment may face significant, persistent or recurrent symptoms of Lyme disease such

Lyme disease is an infection caused by bacteria of the genus *Borrelia*. The bacteria are transmitted to humans through tick bites. Investigations carried out at the Dr. Rath Research Institute prove that certain micronutrients have a high efficacy when used against *Borrelia*.

as joint and/or muscle aches/pains and fatigue. The symptoms can last for many months or even years, lowering the patient's quality of life and making subsequent treatments more difficult to succeed. Long-term antibiotic treatments are often associated with serious side effects and are not recommended by many physicians. The fact that these treatments do not prevent reoccurrence of the disease indicates that antibiotics cannot effectively eliminate or disable these bacteria in the body.

In search of an effective LD therapy we have tested 45 natural compounds against two species of *Borrelia*: *Borrelia burgdorferi sensu stricto* (the pathogen causing Lyme disease in the USA) and *Borrelia garinii* (the pathogen causing Lyme disease in Europe), taking into consideration all their morphological forms. The results have shown that all tested compounds inhibited the bacterial growth of spirochetes. The most effective substances that induced the death of latent rounded forms of *Borrelia* were cis-2-decenoic acid, rosmarinic acid, baicalein, monolaurin, luteolin, and kelp (iodine). Five of the compounds, baicalein, luteolin, monolaurin, cis-2-decenoic acid, and kelp (iodine), could also reduce biofilm-like colonies formed by *Borrelia* burgdorferi, although only baicalein and monolaurin could reduce biofilm formation by *Borrelia garinii*. The details of our work can be viewed in our publication in the Journal of Applied Microbiology 2015.

http://onlinelibrary.wiley.com/resolve/doi?DOI=10.1111/jam.12970

Goc, A., Niedzwiecki, A. and Rath, M. (2015), In vitro evaluation of antibacterial activity of phytochemicals and micronutrients against Borrelia burgdorferi and Borrelia garinii. J Appl Microbiol, 119: 1561–1572. doi:10.1111/jam.12970 (http://onlinelibrary.wiley.com/resolve/doi?DOI=10.1111/jam.12970)

Important Health Information for All

This information is provided to you courtesy of the Dr. Rath Research Institute. Led by two former colleagues of two-time Nobel Laureate Linus Pauling († 1994) this Institute has become a leader in the breakthrough of natural health research in the field of cancer, cardiovascular disease and other common diseases. The Institute is a 100% subsidiary of the non-profit Dr. Rath Foundation.

The groundbreaking nature of this research poses a threat to the multi-billion dollar pharmaceutical "business with disease." It is no surprise that over the years the drug lobby has attacked Dr. Rath and his research team in an attempt to silence this message. To no avail. During this battle, Dr. Rath has become an internationally renowned advocate for natural health saying, "Never in the history of medicine have researchers been so ferociously attacked for their discoveries. It reminds us that health is not given to us voluntarily, but we need to fight for it."

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- This information is based on scientific research results. It is not intended to substitute for medical advice to treat, cure, or prevent any disease.
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Art.-Nr. 6556