



Science ● Innovation ● Chronic Illness ● Solutions  
A patient-driven grassroots project of P.A.N.D.O.R.A. in partnership  
with the LANFORD FOUNDATION-LIFELYME™, Inc.

**SUMMARY OF CONFERENCE**  
**"THE CHALLENGES OF LYME DISEASE:**  
**EMERGING RESEARCH-PEDIATRIC CARE,"**  
**University of New Haven, New Haven, Connecticut**  
**May 8, 2010**

By Lesley Fein, MD

**1. DAVID LUECKE**

*Researcher at the University of New Haven, CT.*

Using sophisticated microscopic techniques, he demonstrated that *B. burgdorferi* exists in multiple forms: motile form, round bodies (cystic form, granular bodies, and blebs). The spirochetes attract each other to form a very large conglomerate of spirochetes, which then secrete a biofilm made up of polypeptides and polysaccharides (EPS-extra cellular polymeric substance). This biofilm protects the spirochetes from phagocytosis and allows them the potential for antibiotic resistance. In a culture medium, Luecke used 1,000 times the normal dose of antibiotics to kill organisms. This is not a possible option in humans. The biofilm also enhances the bacteria's ability to perform gene transfers, thus increasing the potential for antibiotic resistance. In general, if a bacterial organism has the ability to change its morphology, there is an increased likelihood that it will be able to persist in a host. Eighty percent of bacterial species create biofilms, one of which is *H. pylori*.

Luecke demonstrated with microscopy that the spirochetes become entangled and that two large masses of spirochetes have the ability to attract each other. With Atomic Force Microscopy, he showed that inside the large masses covered by biofilms there are live organisms that stained positively for both RNA and DNA as well as calcium. Using real time imaging, one can clearly see that on the outer edge of these masses are live, moving organisms.

Luecke stated that the biofilm is regulated by an auto-induction pathway called "quorum sensing" and that the genes coding for biofilms were expressed 16 fold—apparently a very high augmentation of gene expression. By comparing his results with other genetic studies regarding specific genes involved in biofilms, Luecke demonstrated similar patterns. He concluded that *B. burgdorferi* creates a mass of organisms that protect themselves with a large biofilm. Luecke also showed a very alarming image of live organisms persisting after being washed with bacteriocidal detergents.

## **2. DR. EVA SAPI**

*Associate Professor, Research Scholar, University of New Haven*

Dr. Sapi has studied 1,000 ticks! She agrees that some individuals have certain pheromones that selectively attract ticks, making them vulnerable to repeated infections. She began her discussion by explaining that *B. burgdorferi* has a very large number of DNA base pairs (over 910,000) with 17 plasmids. It is very difficult to culture and prefers to survive at 32 degrees C (even though the typical temperature of human beings is 37 degrees C). (My thought: Maybe the temperature is lower inside the biofilm? Perhaps that is why so many patients with CNS Lyme have a lower body temperature: by affecting the hypothalamus, it lowers the host body temperature?).

Dr. Sapi quoted several studies in which researchers have demonstrated that the organisms survive despite antibiotic treatment, even in early cases (Smith et al., 2002: 5-10% treatment failure after treatment of patients with erythema migrans rashes). She quoted studies by Moody that show treatment failures and by Brorson et al., who showed that the cystic form of *B.b* reverts back to the motile form in the CSF. She also emphasized that *B.b* is found during biopsies/autopsies in the hippocampus—an area affected in Alzheimer's disease. She quoted Barthold et al. (2010), who found positive PCRs 3 weeks and 4 months after treatment.

Dr. Sapi studied the effects of multiple agents on both the motile and round bodies and found that:

1. Plaquenil increases round bodies (European data show that it decreases round bodies).
2. Although Tigecycline is very effective in vitro against round bodies, mouse studies show persistent infection when this antibiotic is used.

3. Penicillin alone increases round bodies.
4. Doxycycline alone also increases round bodies, and 3 weeks after it is stopped the motile form emerges.
5. Combination of the 2 above is more effective but still result in persistence.
6. Flagyl is better than all of the above in curbing both forms.
7. Tinidazole is even better than Flagyl.
8. Alinia decreases both motile and round bodies
9. Doxycycline and Flagyl are very efficient in decreasing both motile and round bodies.
10. Doxycycline and Tinidazole are also very efficient at killing both motile and round bodies.
11. Doxycycline and Alinia are not as effective as the above combinations.

Dr. Sapi then looked at antibiotic effectiveness on organisms in biofilms. She still found the combination of Doxycycline and Flagyl or Tinidazole to be the most effective. Zithromax and Tinidazole came in third. She studied the agents used in the Cowden protocol. Both Samento and Banderol increased the round bodies in a manner similar to the other antibiotics. The use of Banderol alone was better but comparable to Doxycycline alone. The combination seemed very effective when they looked for live bacteria on biofilms.

**NEW STUDY:** Dr. Sapi is conducting a new study looking for XMRV in ticks.

### **POSTER BY DR. SAPI**

Sixty-six per cent (66%) of ticks tested positive for Filarial DNA. Multiple species were found. Of 150 ticks tested: 56% positive for *Mycoplasma genitalia*, 51% positive for *Mycoplasma fermentans*, and 9% positive for *Mycoplasma pneumonia*.

### **3. DR. JUDITH MIKLOSSY**

*University Medical School of Lausanne, Switzerland*

*"Alzheimer disease-A Neurospirochetosis. Analysis of the evidence following Koch's and Hill's Postulates"*

Very convincing evidence that spirochetes are isolated from plaques seen in brains of victims of Alzheimer's disease. Alzheimer's disease characterized by the deposition of beta amyloid, and she demonstrated that spirochete infected brain cells can secrete beta amyloid proteins.

Dr. Miklossy showed syphilitic brains and stated that in Alzheimer's disease (AD) patients, the researchers have found different types of spirochetes, including at least 6 periodontal spirochetes. She proved the hypothesis by infecting rats and then culturing the astrocytes that were positive for beta amyloid and tau protein.

Overall, looking at these studies, 67% of AD brains had spirochetes! Dr. Miklossy had a very sophisticated slide explaining the mechanisms of survival, including the binding of B.b to factor H, which stops their destruction by macrophages and binding to complement receptors that disable the complement pathway, which is part of the immune response to infection. She had to stop her presentation, but this was the most complicated slide and I wish we could have heard more!

Dr. Miklossy described 2 cases who had typical plaques seen in AD, tested positive for multiple DNA probes specific for Lyme disease and had multiple antibodies on Western Blots specific for Lyme disease. She has also examined the association of Lyme with Chlamydia pneumonia and Herpes Virus type 1 and she believes that more studies should be conducted to look at other infections that could be associated with the pathophysiology of AD.

### **MY COMMENTS**

This is landmark research. The University of New Haven research group has proven that:

1. There are far more infections in ticks than we previously thought, including filaria (which, I was told by a pathologist conference attendee, are the same species found in raccoons). We do not test for these in Lyme patients, and even if we did, the pathologist says the tests would probably be negative. He said the only way to prove it is by biopsy and staining or biological experiments (i.e., get uninfected mosquitos which we know transmit filaria, allow them to bite the patient, and then test the mosquitos)! We need to always include mycoplasma testing of ticks and patients, but antibodies are useless because the vast majority of the mycoplasma species were not M. pneumonia, which is the antibody test normally done.
2. The causative agent for Lyme disease exists in multiple forms, has a huge DNA and 17 plasmids that can code for resistance and definitely work together to form giant globs, one of which looks like an alien ship from Star Trek. They definitely communicate with each other and secrete biofilms that protect them from destruction by both the immune system and antibiotics.
3. Researchers have demonstrated that combinations of Doxycycline and Flagyl or Tinidazole are the most effective at controlling all forms in culture. They also showed that the Cowden protocol does work in culture media.

Dr. Miklossy has elegantly proven that spirochetes cause Alzheimer's disease. This is not just Lyme, but also mouth spirochetes. She suggests other infectious agents may be involved and should be studied further.

**ALL RESEARCHERS AGREE THAT INFECTION WITH LYME IS VERY UNLIKELY TO BE EASILY TREATED AND WILL PERSIST IF NOT AGGRESSIVELY TREATED.**

#### **About Dr. Lesley Fein**

Lesley Fein, MD, MPH can be contacted at [Dr.LAFein@gmail.com](mailto:Dr.LAFein@gmail.com). She currently serves as a member of P.A.N.D.O.R.A.'s Medical Advisory Board and as the Senior Vice-President -Medical Advisory, of the [NeuroEndocrineImmune \(NEI\)™ Center](#) project to be established in New Jersey. Dr. Fein has a thriving medical practice in the area of neuroendocrineimmune disorders specializing in Lyme disease and tick borne-illnesses, chronic fatigue syndrome and fibromyalgia. Her medical office is located at 1099 Bloomfield Avenue West, Caldwell, New Jersey 07006. Phone: 973-575-0338. Fax: 973-575-9340.

#### **About the NEI CENTER™**

The [NeuroEndocrineImmune \(NEI\) Center™](#) is a community patient-driven grass roots project of P.A.N.D.O.R.A, in partnership with the Lanford Foundation-Lifelyme, Inc. It is the first research center to incorporate biomedical engineering scientific and clinical research, and integrating patient computer aided disease diagnosis and treatment (CADDT) specifically designed for multi-system illnesses and complex diseases.

#### **About The LANFORD Foundation-Lifelyme™, Inc.**

Our mission has been to share the latest research with patients, and health care professionals on Lyme disease and related Chronic Fatigue Syndrome and Myalgia Encephalopathy/Encephalitis (CFS/ME), Gulf War Syndrome, Lyme disease and Multiple Chemical Sensitivity. Lifelyme provides an educational resource for patients, advocates, physicians and other health care professionals. and as such, Lifelyme™ can spread the truth about Lyme disease and CFS/ME bringing about an heightened awareness of the seriousness of these diseases.



255 Alhambra Circle, Suite 715, Coral Gables, Florida 33134 - 501 c 3 - ID # 550795076  
Phone: 305-441-1591 Volunteer Help line: 954-783-6771 - [www.pandoranet.info](http://www.pandoranet.info)