

# Lyme Disease Vaccine Collaboration Announced



## Press Release Summary

Specialty vaccine company Valneva SE and Pfizer Inc. announced a collaboration to develop VLA15, Valneva's Lyme disease vaccine candidate, which is currently in Phase 2 clinical studies.

According to a Pfizer press release, VLA15 is the only active Lyme disease vaccine program in clinical development today. The program covers six serotypes of Lyme disease that are prevalent in North America and Europe. The vaccine's mechanism targets the outer surface protein A (OspA) of *Borrelia burgdorferi* (*Bb*), the bacteria that causes Lyme disease. OspA is one of the most dominant surface proteins expressed by *Bb* when present in a tick.

Pfizer states that VLA15 has demonstrated strong immunogenicity and safety data in pre-clinical and Phase 1 studies. In July 2017, the program was granted Fast Track designation by the U.S. Food and Drug Administration (FDA). Valneva expects to report on results from the first Phase 2 studies by mid-2020.

"We look forward to working closely with Valneva to continue advancing the VLA15 program and potentially bring a new solution to patients for this significant unmet need," said

Nanette Cocero, Global President, Pfizer Vaccines.

### **Comments From the Lyme Disease Association**

The Lyme Disease Association President, Pat Smith, had this to say about the announcement: “A safe and effective vaccine for Lyme disease has been a goal for many decades. Unfortunately, many stakeholders, especially some vaccine recipients and providers who were then giving the vaccine, felt there were problems associated with the past Lyme vaccine, perhaps connected to its Osp A base. There are still many unanswered questions about what really happened, and like much that happens with Lyme disease, decades later, we still do not have those answers. The prudent thing for the government and/or vaccine developers to have done would have been to hold public meetings regarding a new Lyme vaccine with all interested stakeholders to hear concerns and answer questions about the development of a new Osp A-based vaccine and what research was done to address the previous concerns and any newly arisen concerns.

In general, much research on Lyme disease has still not been done. In fact, ~46 years into Lyme disease, it ranks below leprosy in the number of clinical trials done in infectious diseases (Goswami et al., 2013). Those who have questioned the safety and efficacy and approval process of the past vaccine have been publicly accused of bringing that vaccine down. When the opportunity for dialogue which engages the Lyme community and all stakeholders has not been offered as part of the approval process, it creates an atmosphere of distrust among those whose trust is necessary to accept a new Lyme disease vaccine.”

---

### **Links for You**

[Read Pfizer's VLA15 press release.](#)

[Read articles on the history of Lyme disease vaccines.](#)

---

# Neurological Complications of Vaccination with Outer Surface Protein A (OspA). Marks DH1

Int J Risk Saf Med. 2011;23(2):89-96. doi: 10.3233/JRS-2011-0527.

<https://www.ncbi.nlm.nih.gov/pubmed/21673416>

## Abstract

A wide range of neurological complications have been reported via the medical literature and the VAERS system after vaccination with recombinant outer surface protein A (OspA) of *Borrelia*. To explore this issue, 24 patients reporting neurological adverse events (AE) after vaccination with Lymerix, out of a group of 94 patients reporting adverse events after Lymerix vaccination, were examined for causation. Five reports of cerebral ischemia, two transient Ischemic attacks, five demyelinating events, two optic neuritis, two reports of transverse myelitis, and one non-specific demyelinating condition are evaluated in this paper. Caution is raised on not actively looking for neurologic AE, and for not considering causation when the incidence rate is too low to raise a calculable difference to natural occurrence.

PMID:  
21673416

DOI:

10.3233/JRS-2011-0527

[Indexed for MEDLINE]

---

# New Lyme Vaccine in Clinical Trials: Update!



An article on a new vaccine for Lyme disease, “New Effort for Lyme Disease Vaccine Draws Early Fire,” by Sumathi Reddy, appeared in the Wall Street Journal on July 9, 2018. The article, which includes a quote by LDA

President, Pat Smith, reports that a European company, Valneva SE, is in clinical trials for a vaccine for Lyme disease, which has been fast tracked by the FDA. **(see 4/28/19 update at end of article)**

A company official estimates it will take at least five years before it becomes commercially available. The vaccine is similar to Lymerix, by Smith Klein Beecham (SKB), now GlaxoSmithKline, which was approved by the Food and Drug Administration (FDA) in December 1998 but was withdrawn from the market in 2002 due to low demand.

“We don’t feel that there has been enough research done to answer the questions as to what occurred with the prior vaccine,” says Patricia Smith, president of the Lyme Disease Association Inc., a New Jersey-based national nonprofit group, which raises money for Lyme research, education and patient support. “The vaccine that is now in development is something

with the same base. There were a lot of patients that thought they were harmed from that vaccine. It's very problematic."

Check out the history of Lymerix and efforts by the LDA and others to get the facts behind the vaccine and its withdrawal—individuals who took the vaccine who spoke at the FDA on the problems they felt were related to the vaccine; class-action lawsuits that alleged it caused serious side effects; and a meeting requested by LDA at the FDA where LDA brought in a vaccine expert and physicians who were seeing patients with problems they felt were connected to receiving the vaccine.

**Update on Lyme vaccine 4-28-19** On July 2017, Valneva received from the Food & Drug Administration (FDA) a Fast Track Designation for VLA15. On April 4, 2018, Valneva presented Phase 1 interim results of the vaccine at the World Vaccine Congress in DC. In December of 2018, Valneva announced the initiation of Phase 2 Clinical Trial Development to determine the optimal dosage level and schedule for use in Phase 3 field efficacy studies, based on immunogenicity & safety data.

[Click here for a history of the LDA's involvement with the FDA and the Lymerix vaccine](#)

[Click here to read full Wall Street Journal article](#)

---

# **Lyme Vaccine Meeting: FDA**

# Vaccines & Related Biologics Products Advisory Committee

Food And Drug Administration Center For Biologics Evaluation And Research. Open meeting of: The Vaccines & Related Biologics Products Advisory Committee, June 7, 1994, Silver Spring, MD. [Click Here for Lyme Vaccine Meeting](#)

## PARTICIPANTS

EXECUTIVE SECRETARY NANCY CHERRY, Scientific Advisors & Consultants Staff, CBER, FDA(HFM-21) Rockville MD 20852-1448

COMMITTEE MANAGEMENT ASSISTANT STEPHANIE MILWIT, Scientific Advisors & Consultants Staff, CBER FDA(HFM-21) Rockville, MD

## COMMITTEE MEMBERS

STANLEY LEMON, MD CHAIRMAN, Prof. Of Medicine, Microbiology & Immunology, University Of North Carolina, Chapel Hill

MARY GLODE, MD, Prof, Pediatrics, Children's Hospital Of Denver, U. Colorado School Of Medicine, Denver, CO 80218

ALISON O'BRIEN, PhD, Professor Of Microbiology, Uniformed Services Univ. Of Health Sciences, Bethesda, MD 20814-4799

RAYMOND ROOS, MD, Professor Of Neurology, Dept Of Neurology /MC 2030, Univ. Of Chicago, Chicago, IL 60637

## TEMPORARY VOTING MEMBERS

CLAIRE BROOME, MD, Acting Deputy Director, CDC, 16013 Clifton Road, N.E., Building 1, Room 2000, D-14, Atlanta, GA 30333

THEODORE EICKHOFF, MD, Professor Of Medicine, Division Of Infectious Diseases, Univ. Of Colorado Health Sciences Ctr, Mall Container B-168, 4200 E. Ninth St, Denver, CO 80262

PATRICIA FERRIERI, MD, Professor Of Pediatrics, Laboratory of Medicine And Pathology, University Of Minnesota, Box 296, Delaware Street, S.E., Minneapolis, Minnesota 55455

RICHARD JOHNSTON, MD, Med. Dir, March Of Dimes Birth Defects Foundation, 275 Mamaroneck Ave, White Plains, NY 10605

## CBER CONSULTANT

DR. DAVID CARZON, Department Of Pediatrics, Division Of Infectious Diseases, Vanderbilt University Medical School, 1161 21st Avenue, South, Nashville, Tennessee 37232-e-2581

## GUESTS AND SPEAKERS

DR RAYMOND DATTWYLER, Div Of Allergy, Rhumatology & Clinical Immunology, SUNY School Of Med., Stonybrook, NY 121794-8161

DR DAVID DENNIS, Bacterial Zoonoses Br, Div. Of Vector-Borne Infectious Diseases, CDC, Box 2087, Fort Collins, CO 80522

DR. ALLEN STEERE, New England Medical Center, Box 401, 750 Washington Street, Boston, Massachusetts 02111

---

# **Class Action Suit Filed Against Smithkline Beecham For Vaccine**

On December 14, 1999, a lawsuit was filed in the Chester County Court of Common Pleas, alleging that SKB manufacturer of Lymerix, the Lyme vaccine, failed to warn doctors and the public at large that about 30% of the general public could possibly be predisposed to a degenerative autoimmune arthritis that can be triggered by the vaccine. According to the complaint, the autoimmune reaction, once triggered, is unstoppable, and the victim can only be treated for symptoms thereafter.

[Read whole article here – Reprinted with permission from the Lyme Disease Association's \*Tiny Tick Tales\*, Volume III Fall 1999](#)

---

# Vaccine Remarks

Remarks of Pat Smith, President, Lyme Disease Association, Inc. before the Vaccines and Related Biological Products Advisory Committee, January 31, 2001, Bethesda, Maryland.

Mr. Chairman and Committee members:

The Lyme Disease Association's mission is Lyme disease education, prevention, and research funding, so one might automatically assume we're favorable to a safe and effective vaccine for Lyme disease. That's certainly a valid assumption. The Association's board consists of patients and families of patients—all of whose lives have been personally touched by this disease, and all who are dedicated to preventing others from experiencing the physical, mental, and emotional devastation Lyme disease can produce. To that end, we fund research projects, sponsor medical conferences and continue to work with Members of Congress developing federal legislation providing \$125 million for Lyme disease research, physician education, and prevention.

---

I am here today because we do favor a safe and effective vaccine, but we are unsure whether an OSP A based vaccine can meet those criteria. Since the inception of OSP A vaccine trials, we heard from individuals experiencing difficulties after immunization. The information was startling, not only because of the problems described, but also because of doctors' apparent incomprehension of the problem. At a vaccine meeting sponsored by the LDF where pharmaceuticals reps were discussing how well the trials were going, I questioned, without satisfaction, the issue of these trial-patient complaints.

After vaccine approval, LDA received inquiries about the



vaccine, many from individuals who had received all or some of the vaccination series. Most proceeded to talk about symptoms they developed subsequent to receiving the vaccine. When asked if they had reported this to the administering doctor, and if the doctor had reported the adverse event, the usual response was that the doctor did not take the complaint seriously or did not think the symptoms were related.

Sadly, none were aware of the HLADR4 situation, and several were in the midst of the immunization series and did not know whether to continue taking the shots. Some called to ask if they should get the shots if they had had Lyme in the past, a question which appears to have no clear answer—particularly in light of the unreliable antibody response tests used to determine who has or had Lyme disease. A few insisted they had gotten

“full blown Lyme” from the shots, and after further discussion, indicated they had had Lyme disease in the past.

I want to share an email I received Monday. “I live in Wisconsin. I received your name from person X who told me you may be able to give me some direction. I received two vaccines in the spring of 2000. Couple days within the first shot my neck and higher back stiffened up severely. In a month I went back for the second shot and asked the nurse and doc to check for side effects before I took the second. They informed me there were none. I took the second dose and the problem with my neck and back worsened within a couple of days. My family doctor gave me anti-inflammatories but they did nothing. I’ve tried a chiropractor but the only relief was for a couple of hours. Never tried one before but am getting desperate. Then I went to a orthopedic and am now on anti inflammatories again but not helping. He told me that I have a disc that is somewhat smaller than the others in my neck and maybe the vaccine somehow aggravated it. Prior to the vaccine I have had 0 neck or back problems. I am looking for treatment somehow someway.” I called him. He is 39 years old. He asked me to

help him. He wants treatment for what he has.

Today you are hearing about how this vaccine has physically impacted human lives. It appears that little can be done to stop whatever process triggers some of these reactions, or if something can be done, it remains as yet undiscovered. I listen to the despair and bewilderment of those adversely impacted: How can this happen from a medicine to keep me from getting sick? Who can help me get better? I can only comfort them as I do not have any answers, and I do not know who does.

This committee has the authority to formulate recommendations that may prevent others from potentially suffering the same fate. You can revisit the original data and research which appears to show a link between OSP A and adverse reactions and view it in light of the adverse events you have now heard about. You can recommend further studies. You can find out why many doctors who treat chronic Lyme disease are not giving the vaccine.

The Advisory Committee on Immunization Practices recommends under future considerations in their report on the Lyme disease vaccine, June 4, 1999 MMWR, "establish post licensure epidemiological studies of safety, efficacy, prevention effectiveness, cost effectiveness, and patterns of use." We concur with that recommendation and would like to see a moratorium on vaccine administration until those studies are completed and the results critically analyzed.

Thank you for your time.

---

# **Conflicts of Interest in Lyme Disease: Treatment, Laboratory Testing, and Vaccination**

*Conflicts of Interest in Lyme Disease: Treatment, Laboratory Testing, and Vaccination.* Lyme Disease Association, Inc. April 2001. The Lyme vaccine is discussed on p.40-70.

[Click here to read report](#)

---

## **LDA Remarks Before Vaccines & Related Biological Products Advisory Committee**

REMARKS OF PAT SMITH, PRESIDENT, LYME DISEASE ASSOCIATION, INC. BEFORE THE VACCINES AND RELATED BIOLOGICAL PRODUCTS ADVISORY COMMITTEE, MAY 21, 2002.

DISCLOSURE: No money from SKB.

The Lyme Disease Association, LDA, an all-volunteer organization with five nationwide affiliates, consists of patients and families of patients. The LDA has provided funding for research coast to coast, some published in peer review journals including *JAMA*. Along with our Greenwich affiliate, we were recently honored at a luncheon by Columbia University for partnering with them in the establishment of an endowed

chronic Lyme disease research center at Columbia, and we also co-sponsored a fully accredited medical conference for physicians with Columbia. Working with legislators, we developed a bill in Congress, HR 1254, which will provide \$125 million for Lyme disease research, prevention, and physician education.

The Lyme Disease Association provided testimony to this committee in January 2001, seeking a moratorium on the vaccine, but felt no action was taken by the FDA, and to that end, in January 2002, the LDA had a private meeting with the FDA's Center for Biologics Evaluation and Research (CBER) and brought several experts to discuss the vaccine issue with FDA officials including Karen Midthun, Susan Ellenberg, Peter Beckerman, Norman Baylor, Miles Braun, and Robert Ball.

Donald H. Marks, MD, PhD, former lab director for Cannaught, fourteen years of clinical research and regulatory affairs experience in the pharmaceutical industry including Director of Clinical Research, in charge of the Lyme disease vaccine program at Aventis Pasteur, presented to the FDA. Dr. Marks was the leader of the competitive effort to manufacturer a virtually identical vaccine.

Currently, his focus is diagnosis of adverse events from medications, vaccines, biologicals, and medical devices. Lymerix associated cases he reviewed included athralgias and arthritis as well as complicated neurological problems and include adverse events that are long-lasting. A summary of Dr. Mark's power point presentation follows.

#### WHY MORE ADVERSE EVENTS WERE SEEN AFTER THE VACCINE REACHED THE MARKET:

- People receiving Lymerix after product launch lived in Lyme-endemic areas.
- Many people may have had prior exposure and clinical or subclinical infection. In these cases, Lymerix could be triggering or reactivating the damage caused by old and presumably cured Lyme disease.
- Pattern of symptoms experienced after Lymerix mimicked pattern of prior infections in many individuals. In these patients, Lymerix-related symptoms seemed to respond to antibiotics, as did the

initial infection, bolstering the theory of disease reactivation.

#### ISSUES WHICH CONFUSED THE VACCINE PICTURE

- As proof of safety, the company inoculated arthritis-prone mice with Osp-A. But since the mice did not possess the HLA marker known to interact with Osp-A in humans, rendering the experiment meaningless.
- The company masked serious causally-related adverse events behind qualifiers, such as "...and which may have no causal relationship with the vaccine" and "...cannot be distinguished from the natural history of the underlying disease."
- The company says that "the possibility of a severe rheumatologic, neurologic, autoimmune adverse event is inherent in Lyme disease," attempting to shift the blame onto the patient and their illness, and does not inform physicians that the same adverse events can be separately caused by the vaccine, in addition to the symptoms of an underlying disease
- As a result of these actions, GPs in the US were kept in the dark about the life-threatening side effects of Lymerix, severe rheumatologic, neurologic, autoimmune adverse events.

#### SOME BASIC PROBLEMS.

- Non-specific hyper-activation of the immune system, often evidenced through swollen hands or arthritis, is an adverse event associated with Lymerix. This may be due to the presence of adjuvant.
- This hyper-activation creates "dirty" Western blots in which multiple Lyme disease bands appear, whether the individual has Lyme disease or not.
- The dirty banding makes it impossible for physicians to differentiate between Lymerix vaccination, new infection with *Borrelia burgdorferi*, or reactivation of infection.
- The net result is that cases of Lyme disease will go undiagnosed and untreated. Adverse reactions to Lymerix will be misdiagnosed as Lyme disease and people will be unnecessarily treated with antibiotics.
- The vaccine manufacture provides no warnings as to these possibilities.

- Physicians unaware of the spectrum of problems cannot appropriately treat these patients.
- The intention of FDA regulations is to provide a vaccine that is safe and effective. The intention of prescribing regulations is to provide sufficient information to prescribing physicians to enable safe and effective use of the vaccine. In both regards, SKB's actions appear to be contrary to FDA regulations and intentions, and contrary to accepted standards within the vaccine industry.

Dr. Marks provided some case assessments based on stringent parameters and his extensive experience in the field. "The adverse events I have examine from Lymerix are similar to those I am familiar with from another vaccine." In the cases Marks examined –in his opinion, the adverse events were not anecdotal but a medical certainty.

- 4 of 4 neurological adverse events were related to Lymerix with presentations including transverse myelitis, inflammatory polyneuropathy, radiculopathy and cervical throacic myelopathy with multiple neurologic, including CNS, symptoms, memory loss and difficulty concentrating with immune-related complex of joint pain and fatigue.
- 15 of 17 rheumatologic adverse events were related, including inflammatory seronegative spondyloarthropathy, polyarthropathy, arthralgias, and arthritis.
- 2 of 2 miscellaneous reports were unrelated. These included chest pain and myofacial pain.

Based on his research, Marks said, "SKB should have devised and conducted clinical trials, epidemiological studies, or after-the-fact investigations to study the causal relationship between severe rheumatologic, neurologic, autoimmune and other adverse events and the use of Lymerix....there is sufficient evidence that Lymerix is causally related to severe rheumatologic, neurologic, autoimmune, and other adverse events in some individuals. This evidence is such as to warrant a significantly heightened degree of warnings and possible limitations or removal from marketing of Lymerix."

Andrea Gaito, MD, a rheumatologist seeing 35 patients with vaccine problems described three categories (**bold**) of problems to FDA. The first

case, no history of Lyme, presented with acute synovitis, tests showed negative rheumatoid factor, Western Blot suggestive of active Lyme disease, with eight IgM and three IgG bands. Patient had minimal response to doxycycline, was prescribed and continues on anti-inflammatory medication. Conclusion: **autoimmune disease.**

The second case, **asymptomatic at time of inoculation, with a history of IV treated Lyme** meningitis. After Lymerix, patient experienced the onset of Obsessive Compulsive Disorder, headache, and fatigue. Upon testing, he had a positive ELISA and a Western Blot with every band positive. Retreatment with IV was not effective. Patient remains sick.

The third case, three shots of Lymerix, then bitten by a tick. **She went on to develop symptoms of Lyme disease**, including night sweats and fatigue. Tests showed: a Western Blot with every band positive; positive for the HLA markers that have been associated with Lyme-related autoimmune disease. Two courses of antibiotics produced no response. This patient now has Lyme disease but does not respond to treatment.

Dr Gaito is concerned about the efficacy of this vaccine and boosters. Will vaccinated individuals with prior Lyme who ultimately present with symptoms respond to retreatment? Is the vaccine itself retriggering an autoimmune response? She felt it is possible that the difference between the pre- and post-marketing results of Lymerix relates to the fact that those using it post-marketing lived in endemic areas for Lyme disease.

The LDA is concerned that despite presentations to the contrary by individuals at both the Vaccine Advisory Committee hearing in January 2001, the private meeting above, VAERS data, and other communications from the public, the FDA has not seemed to find any problems with this vaccine. LDA's concern stems from the fact that although the approved vaccine is not on the market currently, since it was a unilateral decision by the company to remove the product, this same or a similar product may be remarketed without the full implications of the safety and efficacy of the current vaccine having been fully assessed or integrated into the Lyme vaccine picture. The LDA asks this committee to advise the FDA that significant arguments have been raised about safety and efficacy of this vaccine and that objective studies should continue on safety and efficacy of this vaccine or any other future vaccine that may seek FDA approval. Thank you for your time.

---

# **The LYMERix™ Story: FDA Approval to Market Withdrawal □ Learning from History**

This is a piece on the Lymerix Vaccine controversy, written by Patricia V. Smith, President, Lyme Disease Association, Inc., in 2013 and published on LDA website.

[2013 version published on LDA website](#)

It was published in the **Lyme Times Special Issue Sept. 2018**  
*The LYMERix™ Story: FDA Approval to Market Withdrawal – Learning from History*

[2018 version published in Lyme Times](#)

---

# **FDA Powerpoint on Lymerix Vaccine**

This is an FDA powerpoint by Robert Ball, M.D., M.P.H., Sc.M., on the Lymerix Vaccine, *LYMERix® Safety Data Reported to the Vaccine Adverse Event Reporting System (VAERS)*, January 31, 2001.

Robert Ball, M.D., M.P.H., Sc.M., Division of Epidemiology,



Office of Biostatistics and Epidemiology, Center for Biologics  
Evaluation and Research, Food and Drug Administration (FDA),  
Rockville, MD

[CLICK HERE FOR THE POWERPOINT](#)