

# A Glimpse into the Scary World of Vaccine Adjuvants

By [Edda West](#) - Published in VRAN Newsletter - Winter 2005

Adjuvants are formulated compounds, which when combined with vaccine antigens intensify the body's immune response. They are used to elicit an early, high and long-lasting immune response. "The chemical nature of adjuvants, their mode of action and their reactions (side effect) are highly variable in terms of how they affect the immune system and how serious their adverse effects are due to the resultant hyperactivation of the immune system. While adjuvants enable the use of less \*antigen to achieve the desired immune response and reduce vaccine production costs, with few exceptions, adjuvants are foreign to the body and cause adverse reactions", writes Australian scientist Viera Scheibner Ph.D, (1)

The most common adjuvant for human use is an aluminum salt called alum derived from aluminum hydroxide, or aluminum phosphate. A quick read of the scientific literature reveals that the neurotoxic effects of aluminum were recognized 100 years ago. Aluminum is a neurotoxicant and has been linked to Alzheimer's disease and other neurological disorders. Prior to 1980, kidney patients undergoing long term dialysis treatments often suffered dialysis encephalopathy syndrome, the result of acute intoxication by the use of an aluminium-containing dialysate. This is now avoided using modern techniques of water purification. In preterm infants, prolonged intravenous feeding with solutions containing aluminum is associated with impaired neurologic development. Scientists speculate that aluminum neurotoxicity may be related to cell damage via free radical production, impairment of glucose metabolism, and effects on nerve signal transduction. (2) Vaccines which contain both aluminum adjuvants and mercury based preservative, greatly magnify the neurotoxic effects. (3)

Macrophagic myofasciitis (MMF) is a muscle disease first identified in 1993, and has been linked to vaccines containing aluminum adjuvants. Muscle pain is the most frequent symptom which can be localized to the limbs or be more diffuse. Other symptoms include joint pain, muscle weakness, fatigue, fever, and muscle tenderness. The disorder is associated with an altered immune system in some, but not all patients. A study published in the journal Brain (2001) revealed that 50 out of 50 patients had received vaccines against hepatitis B virus (86%), hepatitis A virus (19%) or tetanus toxoid (58%), 3-96 months (median 36 months) before biopsy. "We conclude that the MMF lesion is secondary to intramuscular injection of aluminium hydroxide-containing vaccines, shows both long-term persistence of aluminium hydroxide and an ongoing local immune reaction, and is detected in patients with systemic symptoms which appeared subsequently to vaccination", write the authors of the study. (4)

But aluminum's neurotoxicity is of less concern to the vaccine industry than the fact that it elicits a lesser antibody response to the so called purer recombinant or synthetic antigens used in modern day vaccines than in older style live or killed whole organism vaccines. "This has created a major need for improved and more powerful adjuvants for use in these vaccines." (5)

For decades, vaccine developers have been tinkering with various substances to trick the body into heightened immune responses. The most effective adjuvants are formulated with oils but have long been considered too reactive for use in humans. Immunologists have known for decades that a microscopic dose of even a few molecules of adjuvant injected into the body can cause disturbances in the immune system and have known since the 1930's that oil based adjuvants are particularly dangerous, which is why their use has been restricted to experiments with animals.

The classic oil based adjuvant called Freund's Complete Adjuvant can cause permanent organ damage and irreversible disease - specifically autoimmune diseases. When scientists want to induce autoimmune disease in a lab animal, they inject it with Freund's Complete Adjuvant, which causes great suffering and is considered by some too inhumane to even inject into animals.

Dr. Jules Freund creator of this oil based adjuvant warned in 1956 that animals injected with his formulation developed terrible, incurable conditions: allergic aspermatogenesis (stoppage of sperm production), experimental allergic encephalomyelitis (the animal version of MS), allergic neuritis (inflammation of the nerves that can lead to paralysis) and other severe autoimmune disorders. (6)

Adjuvants can break "tolerance", meaning they can disable the immune system to the degree that it loses its ability to distinguish what is "self" from what is foreign. Normally, the immune system ignores the constituents of one's own body. Immunologists call this "tolerance". But if something happens to break "tolerance", then the immune system turns

relentlessly self-destructive, attacking the body it is supposed to defend. (6)

Scientists theorize that oil based adjuvants have the ability to "hyperactivate" the immune system, and in doing so, create chaos by inducing such an extremely powerful response that the immune system literally goes haywire and starts attacking elements it would normally ignore. (6)

Another theory has to do with "specificity". One of the great distinguishing characteristics of the immune system is something akin to a highly sensitive innate intelligence that has evolved over eons to be able to respond very precisely to what it deems to be a threat to the body. Because the body contains many types of oily molecules and lipids, it may be that when an oil is injected, the immune system responds to it not only specifically, but with heightened intensity because the oil adjuvant resembles so closely the natural oils found in the body. A "cross reaction" then happens, sending the immune system into chaos destroying any oils found anywhere in the body that resemble the adjuvant oil. Demyelinating diseases like multiple sclerosis are an example of this destructive autoimmune process. (6)

To deepen one's understanding of the shadowy world of vaccine development, award winning investigative journalist Gary Matsumoto's new book is a "must read." It documents the secret human medical experimentation conducted on American citizens by doctors and scientists working for the U.S. military. It is a book about "betrayal of the most fundamental rules of medical ethics; and betrayal of the basic duty of military and civilian leaders to protect the people they govern." *Vaccine A: The Covert Government Experiment That's Killing our Soldiers and Why GI's are Only the First Victims*, is a gripping read into the mad science world of the U.S. military's biowarfare vaccine development program which, since 1987 has injected tens of thousands of U.S. troops with an experimental unlicensed anthrax vaccine containing squalene. An oil based adjuvant, squalene has been known for decades to cause severe autoimmune diseases in laboratory animals. Writes Matsumoto, "The unethical experiments detailed in this book are ongoing, with little prospect of being self-limiting because they have been shielded from scrutiny and public accountability by national security concerns." Reading this book, one gets a permanent chill in the spine as we glimpse the "writing on the wall" of what is to come. (6,7)

"When UCLA Medical School's Michael Whitehouse and Frances Beck injected squalene combined with other materials into rats and guinea pigs back in the 1970's, few oils were more effective at causing the animal versions of arthritis and multiple sclerosis", writes Matsumoto. In 1999, Dr. Johnny Lorentzen, an immunologist at Sweden's Karolinska Institute proved that on injection, "otherwise benign molecules like squalene can stimulate a self-destructive immune response", even though they occur naturally in the body. Other research institutes have also shown that the immune system makes antibodies to squalene, but only after it is injected (6) We now know that squalene, added to boost immune response in a formulation known as MF59, is the secret ingredient in certain lots of experimental anthrax vaccine that has caused devastating autoimmune diseases and death in countless Gulf War vets (Canadian, British and Australian troops were also injected with squalene laced vaccine), and continues to be used today. There is a "close match between the squalene-induced diseases in animals and those observed in humans injected with this oil: rheumatoid arthritis, multiple sclerosis and systemic lupus erythematosus", writes Matsumoto. These three illnesses have been proven to be caused by this oil, but there is an additional long list of autoimmune diseases associated with squalene injection into humans. (6) "There are now data in more than two dozen peer-reviewed scientific papers, from ten different laboratories in the U.S., Europe, Asia and Australia, documenting that squalene-based adjuvants can induce autoimmune diseases in animals..observed in mice, rats, guinea pigs and rabbits. Sweden's Karolinska Institute has demonstrated that squalene alone can induce the animal version of rheumatoid arthritis. The Polish Academy of Sciences has shown that in animals, squalene alone can produce catastrophic injury to the nervous system and the brain. The University of Florida Medical School has shown that in animals, squalene alone can induce production of antibodies specifically associated with systemic lupus erythematosus", writes [Matsumoto](#). (6)

Long List of Side Effects Referring to squalene in her extensive article on adjuvants, Dr. Scheibner writes, "This adjuvant contributed to the cascade of reactions called "Gulf War syndrome", documented in the soldiers involved in the Gulf War. The symptoms they developed included arthritis, fibromyalgia, lymphadenopathy, rashes, photosensitive rashes, malar rashes, chronic fatigue, chronic headaches, abnormal body hair loss, non-healing skin lesions, aphthous ulcers, dizziness, weakness, memory loss, seizures, mood changes, neuropsychiatric problems, anti-thyroid effects, anaemia, elevated ESR (erythrocyte sedimentation rate), systemic lupus erythematosus, multiple sclerosis, ALS (amyotrophic lateral sclerosis) also known as Lou Gehrig's disease, Raynaud's phenomenon, Sjorgren's syndrome, chronic diarrhoea, night sweats and low-grade fevers. (1)

Matsumoto punctuates his book with poignant interviews of military personnel who suffered many of these extreme and devastating syndromes, all of whom tested positive for anti-squalene antibodies which has become THE definitive marker for people who have been injected with this adjuvant and who have gone on to develop catastrophic diseases.

Immunologist, Dr. Pamela Asa was the first person to recognize that the autoimmune diseases she was seeing in military personnel mirrored those in experimental animals injected with oil formulated adjuvants. When she met a patient with similar autoimmune symptoms who had participated in an experimental herpes vaccine trial, who also knew he had been injected with MF59, a squalene adjuvant being used as a 'placebo' in that study, everything began to fall into place. Pam Asa contacted Dr. Robert Garry, a leading virologist at Tulane University Medical School, whose specialty is developing antibody tests and asked him to develop a test for the detection of anti-squalene antibodies - a test that ultimately became the most important forensic and diagnostic tool identifying patients whose autoimmune diseases followed injection with squalene laced anthrax vaccine. (6)

Juxtaposed to heart wrenching testimonies of shattered health and ruined lives is the military's defiant stonewall and denial that a squalene laced anthrax vaccine was injected into thousands of its people without their informed consent - this despite the fact that the FDA and independent researchers have tested and identified varying amounts of squalene in specific lots of the vaccine.

Even more stunning is the fact that by 1997, hundreds of millions of dollars had already been spent testing vaccines formulated with squalene adjuvants by leading research institutes like NIH (National Institutes of Health) who tested its efficacy in HIV vaccines, the National Cancer Institute who for nearly two decades conducted research with squalene-boostered vaccines, and the National Institutes of Allergy and Infectious Diseases (NIAID) had been testing it in animals since 1988 and began human clinical trials in 1991. Nineteen of NIAID's 23 trials were for prototype HIV vaccines. Writes Matsumoto, "Squalene adjuvants are a key ingredient in a whole new generation of vaccines intended for mass immunization around the globe." (6)

Immune System Sees Squalene as an Enemy to Attack Researchers at Tulane Medical School and the Walter Reed Army Institute of Research "have both proven that the immune system responds specifically to the squalene molecule. Squalene's pathway through the body has been tracked with a radioactive tracer in animals by none other than Chiron, (well known flu vaccine manufacturer) and maker of MF59, the squalene-based adjuvant, now also a component of FLUAD, an Italian influenza vaccine. (6)

The immune system does in fact "see" squalene and recognizes it as an oil molecule native to the body. The key is "route of administration". As Gary Matsumoto says, "Squalene is not just a molecule found in a knee or elbow - it is found throughout the nervous system and the brain." When it is injected into the body, the immune system sees it as an enemy to be attacked and eliminated.(6)

As any immunologist will tell you, the way an antigen encounters the immune system makes all the difference. You can eat squalene - no problem as it is an oil the body can easily digest. But studies in animals and humans show that injecting squalene will "galvanize the immune system into attacking it, which can produce a self-destructive cross reaction against the same molecule in the places where it occurs naturally in the body - and where it is critical to the health of the nervous system." (6)

This phenomenon is also known as 'molecular mimicry', where the immune system forms antibodies against one of its own structures and will continue to attack the 'self' molecule in the body that resembles the one in the germ, or as is the case with squalene, an identical substance that is naturally present in the body. Once this self-destructive process begins, it never stops as the body continues to make the molecule the immune system is now trained to attack.

Another example involving autoimmune 'molecular mimicry' is when the immune system has been sensitized to attack myelin, the insulating fatty coating around nerve fibres which insures the smooth relay of nerve signals. The body would continue to make myelin in order to replenish and repair the protective sheath around its nerve endings. But says Matsumoto, "In the act of doing so, the body immunizes itself against itself, administering over and over again what amounts to a booster dose of something that the immune system now wants to get rid of. This vital constituent (myelin) is now the enemy, and the immune system is now programmed to obliterate it in an endless loop of self-destruction" - the process involved in MS (multiple sclerosis), and ALS (Lou Gehrig's disease).(6)

Tying molecular mimicry to the autism epidemic, many children have regressed into autism spectrum disorders after injection with the triple live virus MMR (measles,mumps,rubella) vaccine. Dr.Vijendra Singh's research at Utah State University suggests that auto-antibodies are attacking myelin in these children. He has shown that many autistic children have auto-antibodies to brain myelin basic protein (MBP) as well as elevated levels of measles virus antibodies. "Immunoblotting analysis showed the presence of an unusual MMR antibody in 60% (75 of 125) of autistic children, but none of the 92

normal children had this antibody. In addition, there was a positive correlation (greater than 90%) between MMR antibody and MBP auto-antibody, suggesting a causal association between MMR and brain autoimmunity in autism. This is one of the most important findings in autism to date, which prompted us to link measles virus in the etiology of the disorder", writes Dr. Singh. (8,9,10)

Immunologist Dr. Bonnie Dunbar has also done extensive research on the mechanisms of injury inflicted by hepatitis B vaccine and has observed similar autoimmune processes involving molecular mimicry in people who developed devastating neuroimmune syndromes after injection with this vaccine. (11)

Molecular Mimicry as a Bio-Weapon Matsumoto reports that Soviet bioweaponers used the principal of molecular mimicry in the 1980's to engineer a 'designer disease' that would attack myelin. By splicing a fragment of myelin basic protein into legionella bacterium, they created what amounted to a living "nano-bomb", which they injected into guinea pigs. What they found was that the immune system quickly cleared the legionella bacterium, but the myelin molecule, smuggled in by this microbial "Trojan horse" initiated a second wave of disease which caused experimental allergic encephalomyelitis, the animal version of MS. The Soviets recognized this creation for what it was - a biological time bomb!! (6)

"Squalene is a kind of trigger for the real biological weapon: the immune system. When the immune system's full repertoire of cells and antibodies start attacking the tissues they are supposed to protect, the results can be catastrophic," writes Matsumoto. His assessment is seconded by Dr. Pam Asa - "Oil adjuvants are the most insidious chemical weapon ever devised." (6)

"Molecular mimicry, seen for its diabolical potential as a weapon by the Soviets as far back as the 1980's, also applies to squalene. But the real problem with using squalene, of course, is not that it mimics a molecule found in the body; it is the same molecule," writes Matsumoto. "So what American scientists conceived as a vaccine booster was another "nano-bomb", instigating chronic, unpredictable and debilitating disease. When the NIH (National Institutes of Health) argued that squalene would be safe because it is native to the body, just the opposite was true. Squalene's natural presence in the body made it one of the most dangerous molecules ever injected into man!" (6)

The main proponents for the use of squalene in vaccines have been the U.S Department of Defense and the NIH. The anti-squalene antibodies in sick American and British military personnel are evidence that military experimentation has caused an unprecedented health catastrophe in tens of thousands of people onto whom the vaccine was forced and who were denied the right to make an informed decision based on existing scientific knowledge of the dangers of injecting squalene. "By adding squalene to their new anthrax vaccine, they did not make a better vaccine, they made a biological weapon." (6) .

Why , one would obviously ask, would anyone knowingly inject such a dangerous substance into humans? Certainly in terms of the U.S. military's decision, they chose to turn a blind eye to the existing science, which for decades had documented the immune destructive properties of squalene. They justified its use because they knew they had a weak and ineffective vaccine which needed a serious boost. In the face of weaponized biowarfare agents like anthrax already developed by Russia and fear that it was also possessed by Iraq, they were desperate to increase the vaccine's effectiveness as they launched into the first Gulf War. Additionally, explains Matsumoto, "scientists in the United States are now literally invested in squalene. Army scientists who developed the second generation anthrax vaccine have reputations to protect and licensing fees to reap for the army..[and] .worldwide rights to develop and commercialize the new recombinant vaccine for anthrax." (6)

He goes on to explain, "the National Institutes of Health (NIH) has been supporting both animal and human research with squalene since the 1980's. Squalene has become perhaps the most ubiquitous oil adjuvant on the planet, which is something that should concern everyone. Many of the cutting edge vaccines currently in development by the NIH and its corporate partners contain squalene in one formulation or another. There is squalene in the prototype recombinant vaccines for HIV, malaria, herpes, influenza, cytomegalovirus and human papillomavirus. Some of these prototypes like HIV, malaria and influenza are intended for mass immunization around the globe." (6)

Squalene Adjuvants Enter the Global Market FLUAD, the squalene boosted flu vaccine has been licensed in Italy since 1997. It contains MF59, the squalene adjuvant made by Chiron. Although all the published papers co-authored by Chiron-employed scientists and Italian researchers have reported MF59 to be safe, Gary Matsumoto suggests a flaw in study designs may "prevent researchers from seeing the vaccine's real risks." Testing of FLUAD was limited to elderly people in nursing homes - average age was 71.5 which would tend to obscure autoimmune problems that might arise for a number of reasons. If autoimmune symptoms like joint pain and fatigue did occur in geriatric Italians, doctors might not connect these complaints to anything but old age. (6)

"Autoimmunity is notorious for taking years to diagnose because the early symptoms (e.g. headaches, joint and muscle pain and fatigue) are so vague; primary care physicians often fail to recognize it...a large Phase IV trial did not even bother to analyze the "common-post immunization reactions" in study participants, recording only those adverse events severe enough to require a doctor's visit within 7 days of immunization." In another study patients were observed for 180 days, but only serious events like "admission to hospital or death" qualified as a reaction - nothing else was recorded. Symptoms of adverse reactions listed in the FLUAD package insert are almost identical to the Air Force case-definition for Gulf War Syndrome, and include rashes, malaise, fever, myalgia, arthralgia, weakness, sweating and various autoimmune reactions and neurologic disturbances. (6)

"The question is whether scientists working for pharmaceutical companies are intentionally designing studies so as to miss adverse reactions that inconvenience their marketing strategy?" asks Matsumoto. "Chiron's conclusion about squalene's safety are at odds with recent data from studies in both animals and humans." (6)

Just in from the newlists on February 9, 2005 is an item informing of the European "debut" of a new adjuvant approved for use in a new high-potency hepatitis B vaccine. Fendrix, the new enhanced hepB vaccine is being launched by pharma giant GlaxoSmithKline for use in people with poor immune responses (like dialysis patients) and those at high risk for developing hepatitis B. It is formulated with a new adjuvant that can "significantly improve the effectiveness of immunizations." AS04, the 'proprietary' adjuvant based on MPL, originally developed by U.S. company Corixa, "increases the immune potency of the new vaccine, allowing two dose administration rather than three. It has been shown clinically to be more effective than alum, the most widely used adjuvant in vaccines." (12)

So what exactly is this new high potency adjuvant? We're told by the press release that MPL (AS04), is a "derivative of the lipid A molecule found in Gram-negative bacteria, is extracted from bacterial cell walls and is one of the most potent regulators of the immune response, used by the body to alert itself to bacterial infections."(12) Full name of the lipid is [monophosphoryl lipid A \(MPL\)](#)

This news should put everyone on high alert because guess what? Lipids are oils/fatty acids and according to Matsumoto, MPL is identified in declassified documents as one of two squalene emulsions used in the Army's new "recombinant protective antigen anthrax vaccine (rPA) which the FDA, the National Institutes of Health (NIH) and the Department of Defense fast-tracked into clinical trials in 1998. The other squalene adjuvant they used was Chiron's MF59. (6)

It appears that Fendrix is only the first of a whole new generation of "enhanced potency" vaccines coming down the pipeline using the new high potency lipid adjuvant, MPL. "The adjuvant is also being used in a number of GSK's developmental vaccines, including one that could be the first effective vaccine for malaria", says the article. MPL (AS04) adjuvant is also a component of GSK Bio's genital herpes vaccine, as well as a component in their cervical cancer vaccine and a new tuberculosis vaccine." (12)

In the unraveling of the squalene story, we find that a [squalene](#) emulsion first known as Triple Mix (based on Freund's adjuvant) was later given the commercial name "Ribi". Triple Mix (renamed Ribi) was tested by Dutch scientists on rabbits who found it caused "severe effects the largest number and most severe lesions when compared with the other adjuvants."(6) Then in June 1999, Ribi ImmunoChem its manufacturer was acquired by Corixa Corporation for \$56.3 million, who presumably also own the Ribi formulation. Whether MPL(AS04) is a formula related to Ribi is undoubtedly "proprietary" information, but from Matsumoto's research, we know they are all squalene based. And it doesn't end there. MPL, Corixa's multi-million dollar baby, is slated for inclusion not only in the "enhanced potency" vaccines already mentioned, but will also be a strategic component of new allergy and autoimmune vaccines in development. (13)

From their inception, mass vaccinations have acted as a biological weapon, undermining health, manipulating and crippling the immune system, and instigating cycles of new and debilitating diseases. Monopoly medicine's solution? Inject us with more powerful, genetically engineered high potency vaccines. Never mind they are seeding us with "nano-bombs" that will further attack our already compromised immune systems.

The concept of stimulating a hyperactive immune response by using oil-based adjuvants has clearly backfired since we now know that the stronger the antigenic response, the more damaging the adjuvant itself is to the normal functioning of the brain and nervous system. The precedent for mass medical experimentation via an ever increasing recommended vaccine schedule has been set. We can now predict the grim future of mankind: an epidemic of neurological disorders and autoimmune diseases never before imagined.

**Notes & Resources**

Adjuvants listed by Scheibner: "Today the most common adjuvants for human use are aluminum hydroxide, aluminum phosphate and calcium phosphate. However, there are a number of other adjuvants based on oil emulsions, products from bacteria (their synthetic derivatives as well as liposomes) or gram-negative bacteria, endotoxins, cholesterol, fatty acids, aliphatic amines, paraffinic and vegetable oils. Recently, monophosphoryl lipid A, ISCOMs with Quil-A, and Syntex adjuvant formulations (SAFs) containing the threonyl derivative or muramyl dipeptide have been under consideration for use in human vaccines

\*Definition of Antigen (Scheibner): "Micro-organisms, either bacteria or viruses, thought to be causing certain infectious diseases and which the vaccine is supposed to prevent. These are whole-cell proteins or just the broken-cell protein envelopes, and are called antigens"

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