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One Scientist's Search for Truth About Human Retroviruses

Analysis by Dr. Joseph Mercola Fact Checked | April 03, 2022

STORY AT-A-GLANCE

- A retrovirus is a virus that contains RNA encoded genes rather than DNA. Using reverse transcriptase, the retrovirus is able to transform the single-stranded RNA into a double-stranded DNA
- When the retrovirus infects a host, it integrates its DNA into the DNA of the host cell, which allows the retrovirus to replicate itself and spread through the host
- One example of a transmissible retrovirus is the HIV virus, which can cascade into the clinical symptoms of acquired immunodeficiency syndrome (AIDS)
- A retrovirus family known as xenotropic murine leukemia virus-related viruses (XMRV) may play a causal role in chronic fatigue syndrome, chronic myalgic encephalopathy (ME) and other diseases, including autism
- Some retroviruses, including XMRV (but not HIV as far as we know), infect your germ cells, which means they are transmitted to your offspring

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Judy Mikovits, Ph.D., a virologist, researcher and founding research director of the Whittemore Peterson Institute — which researches and treats chronic fatigue syndrome (CFS) in Reno, Nevada — got embroiled in controversy when, in 2009, she was the senior author on a paper which reported that a retrovirus known as xenotropic murine leukemia

virus-related virus (XMRV) may play a causal role in CFS and other diseases, including autism.

Her book, "**Plague: One Scientist's Intrepid Search for the Truth About Human Retroviruses and Chronic Fatigue Syndrome (ME/CFS), Autism and Other Diseases**," details her research and personal trials that arose as a consequence of her work.

> *"Kent Heckenlively essentially wrote it,"* Mikovits says, *"because I write like a scientist. We wrote it using the genre of flashback. He taped hours and hours of me telling the story as he asked me questions — because he's trained as an attorney — and then he turned that into this suspense-thriller. Interestingly enough, it almost has to read like fiction because of the lawyers it took to … make sure we weren't sued."*

What Are Retroviruses?

Before we go further, let's review what a retrovirus is. A retrovirus is a ribonucleic acid (RNA) virus — in other words, a virus that contains RNA encoded genes rather than deoxyribonucleic acid (DNA). Using reverse transcriptase, the retrovirus is able to transform the single-stranded RNA into a double-stranded DNA.

When the retrovirus infects a host, it integrates its DNA into the DNA of the host cell, which allows the retrovirus to replicate itself and spread through the host. As more and more cells are infected, you become increasingly sicker. Mikovits explains:

> *"Humans have a DNA genome. Our blueprint is DNA. Retroviruses have an RNA genome, but they also are unique in the RNA family of viruses, where their RNA genome is reverse-transcribed. That is, written backwards by an enzyme unique to retroviruses called reverse transcriptase. That enzyme writes the RNA into DNA.*
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> *Then they have another enzyme called integrase. Integrase is like a pair of scissors that cuts open your DNA and then inserts the retrovirus, which is only about 8,000 base pairs, a very, very, very small virus, 50 to 100 nanometers on*

an electron micrograph. That piece of DNA — called a provirus — is now in the DNA of your cells forever. Every time your cells replicate, you make more viruses."

Now, this DNA insertion has been ongoing throughout human history. According to Mikovits, about 10% of the human genome is retroviral in origin. These are called human endogenous retroviruses. These, however, differ in that they've been crippled in part by our DNA methylation machinery (which modulates genes expression and the human immune system — so that they can no longer make complete viruses and therefore cannot infect others.

However, when you're infected with a retrovirus such as human T-lymphotropic virus (HTLV-1), HIV HBRV or Borellia as in chronic Lyme disease and develop DNA methylation and immune dysfunction, these endogenous retroviruses begin to be expressed, and this is yet another really important finding.

HIV — One Example of a Transmissible Retrovirus

One example of a transmissible retrovirus is the HIV virus, which can cascade into the clinical symptoms of acquired immunodeficiency syndrome (AIDS). HIV was discovered in 1982, and as mentioned above, was part of Mikovits' early research work. Her book includes the history of that important discovery.

When Mikovits first began studying retroviruses, HIV/AIDS was completely unknown, but they suspected a retrovirus was at play because of how retroviruses affect the human immune system and lead to acquired immune deficiencies and cancers.

"You don't just one day get this virus and you're sick. In fact, we now know millions of people have HIV and will never develop AIDS. We talk about that in the book, because the book ultimately is one of hope that we fix HIV.

I can honestly tell you in 1999, when I was running the lab of antiviral drug mechanisms, I did not ever expect we would solve that problem. Now, AIDS

patients on antiretroviral therapy are probably healthier and develop fewer cancers … than most of the rest of society."

Some retroviruses, including XMRV (but not HIV), also infect your germ cells, which means they not only cause continuous infection in your body but also transfer to your offspring.

"XMRV, the xenotropic murine (mouse) leukemia retrovirus, is the mouse-related retroviruses that cause cancer and lots of neurological diseases. Those affect the stem cells, the egg, the sperm — every cell in your body. That was one of the big 'Oh, my Gods,' about our discovery," Mikovits says.

When it comes to treatment, the key is to keep the virus silent, because when they're not, each time your cells divide you're making more retroviruses. For this, antiretroviral treatments are used, some of which will be discussed later in this article.

From AIDS to ME/CFS

After 9/11, Mikovits started working with a woman whose daughter was severely ill with chronic fatigue syndrome. "Basically, that was the first time I ever saw the disease called ME/CFS (myalgic encephalomyelitis/chronic fatigue syndrome)," she says.

"This person was looking at a herpes virus known as human herpesvirus 6 (HHV-6). This is a virus prominent in people with Kaposi sarcoma, [which] became associated with HIV and AIDS. Dr. Patrick Moore and Dr. Yuan Chang [discovered] that Kaposi sarcoma was actually caused by a herpes virus — then known as Kaposi sarcoma herpes virus; now, it's HHV-8.

Because the immune system is crippled, you wake up the sleeping herpes viruses. People with autism, ME/CFS and cancers have a lot of chronic active infections, so we often see the Epstein-Barr virus (EBV) associated with outbreaks of ME/CFS …

This woman introduced me to Dr. Dan Peterson and Annette Whittemore in Incline Village, Nevada, where he had been studying outbreaks of ME/CFS for probably 25 years. He said he had a bank of samples. We went up there. I met all the patients.

I interviewed them in great length and developed a hypothesis, which had actually been shown before by Elaine Defreitas, Ph.D., another scientist many years earlier …

Defreitas had isolated retroviruses from patients with ME/CFS. A doctor … named Sidney Grossberg had also isolated retroviruses from at least one patient with ME/CFS. So, the retroviral hypothesis wasn't new. Everything about it fit …

One of the most severely injured patients at that time was Whittemore's daughter, Andrea. That summer (2006), I went up there … and started studying it … I used the systems biology approach, because there's a lot of heterogeneity.

We know AIDS patients who have HIV and will never get AIDS … I interviewed patients in Peterson's office all summer and took blood, urine, saliva and all kinds of samples to isolate that virus, which is what you need to do to show it's associated with a disease."

The Discovery of Infectious Retroviruses

Eventually, she brought together several of her former and current colleagues who were world experts in HIV sequencing to look at ME/CFS. Among them was the world's leading electron microscopist, Kunio Nagashima, who has done the electron micrographs of every family of human retroviruses discovered: the human beta retrovirus, human delta virus, lenti-virus (such as HIV) and gamma retroviruses.

Working in collaboration with the Cleveland Clinic, Mikovits and her team isolated the virus and spent the better part of 2008 and 2009 putting a paper together, proving the

XMRV retrovirus was infectious and transmissible and not just another crippled human endogenous retrovirus.

> *"To our horror, we learned these [retroviruses] could be aerosolized. This was in 2011 … That was really the first nail in my coffin, pun intended, because the national academy member, John Coffin, Ph.D. — who had told Frank Ruscetti, 'There is no such thing as human retroviruses. Don't study them' — then made a fortune out of HIV and did everything he could to destroy me and the patients,"* Mikovits says.
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> *"Prior to publication in 2009, we wrote a patent on the detection of these retroviruses, these pieces and parts as contaminants of the cell cultures, of the cell lines from which we make vaccines.*
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> *After they destroyed my reputation and career and forced the retraction of our paper from [the journal] Science, Coffin turned around and wrote a patent on the detection of these viruses in contaminating cell linings and contaminating biologicals in our labs."*

This PDF includes emails, letters and supporting documentation showing how the retraction of Mikovits' Science paper was forced, after which Coffin filed his own patent for a detection method of the contaminants in cell lines used for vaccines and other biologicals. There's also documentation detailing the scientific fraud Mikovits asserts in this interview.

Infectious Retroviruses May Taint Blood Supply and Vaccines

In her book, she also details how infectious retroviruses are still likely infecting many biological solutions used clinically today, such as vaccines and other therapies. To say that this is a concern would be an understatement. Mikovits explains:

> *"That was really at the heart of the big 'Oh, my God.' The worst I learned in this whole experience is how corrupt scientific journals are. In fact, Ruscetti now calls Science, that prestigious journal, 'The National Inquirer,' because they*

literally engineered the whole thing to destroy MEC/FS patients and any association this virus [XMRV] had with these diseases …

All of the studies showed that the control population was between 3.75 and 6.8% infected. When you do a study and there's evidence of infection in 6% of the human population, that's 25 million Americans. To put that in context, at the height of HIV/AIDS in 1995, it was 1 million Americans. It would crush our health care system if they had to pay for what they caused."

The result of Mikovits' findings was nothing short of personal devastation. Not only was her paper retracted by Science, she was even arrested for "stealing" her own lab notes. Charges were ultimately dropped, but the damage to her reputation was a done deal.

"Basically, our paper came out on October 8, 2009. It was literally like 'the shot heard around the world.' I was on the road every single day. Everywhere I went doctors were like, 'She's got it. She's got it. She's got it,' and not just with MEC/FS but also with cancer, leukemia, lymphoma, with prostate cancer.

When you start looking at the inflammatory events in the acquired immune deficiencies, with autoimmune disease, with Lou Gehrig's disease, the problem became this [retro]virus. Well, there's no single virus. There's no HIV. There's a whole family of HIVs. There's an HIV 1. There's an HIV 2. There's a strain A, B, C and D.

Why do we do influenza vaccines for this strain de jour or every year? [Because] there are strains of viruses. There are families of viruses … The second that we published this paper, we started working to get a diagnostic test for the blood supply to show it wasn't contaminated, which, in fact, it was.

Later that year, the last talk I ever gave was on a science paper that came out September 22, 2011 … That talk was basically a debate for the evidence that there are human retroviruses of the XMRV family that aren't VP62 (the infectious molecular clone, not the natural isolates of our paper).

We could show in the original paper that there was evidence of murine leukemia viruses, gamma retroviruses that were infectious and transmissible, just as we had said.

Coffin was on the other end of that debate. He said it was all a recombination event. He published a paper in 2013 saying, 'When we worked with mouse cells, they expressed a lot of pieces and parts of retroviruses. This just happened to happen in the laboratory.'

[Hence, he claimed] that's what we had isolated. [Coffin claimed] that what we were looking at were just contaminants in the laboratory. 'It's all a lab contaminant,' [Coffin said], 'You can all go home. You're safe.'"

Massive Public Health Concerns Swept Under the Rug

As one might expect, Mikovits' research caused massive concern in the professional community, because here was a newly identified, infectious and transmissible retrovirus that no one was screening for, and it was potentially contaminating 10% of the human blood supply. But rather than face the problem head on, it was rapidly swept under the proverbial rug.

"My mom was watching Good Morning America one morning. Across the bottom of the ticker tape said, 'XMRV all a hoax' … It was horrible. We started to realize our fake news and fake science."

Today, the blood supply is unlikely to be contaminated, thanks to a decontamination procedure developed by a California-based company called Cerus and which Mikovits proved to inactivate XMRV, rendering it noninfectious.

Other biologicals, including vaccines, however, may not be routinely decontaminated using this process, in large part because they're not required to do so, and drug companies are not liable for vaccine-induced harm. What's more, decontaminating the vaccine may render it ineffective.

"It won't work. It will no longer be a vaccine … The Cerus method cleans up Ebola. It cleans up Zika. It cleans up essentially any RNA viruses, including HIV and all three human retroviruses. The Cerus system is extremely valuable to cleaning up the blood supply.

But they cannot clean up the vaccines for another reason. If they do, they prove Andy Wakefield right. They prove me right. They prove they've got 25 million Americans, who they have to support for the rest of their lives and pay damages [to] …"

The Price of Making an Unpopular Scientific Discovery

On a personal level, Mikovits has taken an enormous personal hit. September 29, 2011, she was fired from the Whittemore Peterson Institute for insolence and insubordination, and was driven into bankruptcy after being falsely arrested for stealing her own lab notes. (She never was and to this day is not in possession of her notebooks or any of the two offices full of her work done in her entire career.)

She explains her firing saying that Whittemore had been selling a diagnostic test and the director of their for-profit commercial laboratory was using federal grant funds to do that work (with full knowledge and under the direction of Annette and Harvey Whittemore), which is misappropriation of federal funds. Mikovits became aware of this in August that year, and wrote him off the grant.

"The Whittemores basically fired me immediately in an attempt … to get this scientist, Vince Lombardi, Ph.D. … to recreate the work while I was out of town and say I was a lunatic — that he'd been doing the work all along, and he hadn't misappropriated any of the funds.

They fired me on September 29 and immediately locked down the entire university to me or my staff … The insolence and insubordination was I had refused a direct order to misappropriate federal funds, basically. I wasn't ever

going to do that. The insolence I'm trying to learn not to do, because it probably would have gone a lot better for me if I didn't say 'F-you,' at the same time …

It was September 22, 2011, when I gave my last talk. They had three weeks to get a Science paper out there that would destroy my reputation in the ME/CFS community … Ruscetti had to sign that paper, or he and Sandy Ruscetti would be fired … [and] lose their entire retirement, which is 75 years.

That was one of the few times I sobbed. I was sitting in my bed screaming … It was 6 o'clock in the morning. They were on the East coast and they needed to get this paper published fast by Science.

I called the Ruscettis and said, 'Frank, they agreed to change the language. They agreed to change the title. They agreed it wasn't an association study … [they say] we didn't have a diagnostic test. Either way, the Whittemores are going to kill me because they're selling the diagnostic test.'

So Frank [Ruscetti] signed the paper. They didn't change the wording. [What they did] is pure fraud. Here, the head of the National Heart, Lung, and Blood Institute published pure fraud in the journal Science, just as two years later, Ian Lipkin published pure fraud. It is fake news. It is so corrupt, everything about it.

It's not [the researchers]. It's the top of the line. It's Dr. Tony Fauci. We're only allowed to make incremental advances. When you make a discovery of this nature, it changes all of everything. This is misogyny … This is a bunch of little boys … fighting over who gets credit, while the world dies, while you kill an entire continent.

That's why I do shows like this. Because we're going to teach doctors. When doctors understand the science — and they're coming around a lot — because the science is there. Nothing about our paper, except the sequence of the virus, has ever been wrong. We knew that in the beginning."

People Infected With Retroviruses Should Avoid Vaccinations

According to Mikovits, retroviruses such as XMRV affect entire families, as it can be transmitted to your offspring. Many of these families also have children with autism, which Mikovits believes may be connected to the retrovirus. The question is, what can you do if you're infected? For starters, Mikovits recommends avoiding vaccinations.

> *"Until 2011, not inconsequentially, we didn't vaccinate AIDS patients the same way. It's in the book. You don't vaccinate the immune-compromised … By definition, you have an immune system that doesn't work. Why would you vaccinate them? Why would you vaccinate somebody under 3 years old, who has an immune and detox systems that don't work?*
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> *This was the key of the RNaseL story (a genetic susceptibility not to degrade RNA viruses), of the Thompson fraudulent paper* [Editor's note: This refers to William Thompson, Ph.D., a former senior scientist at the CDC's National Center for Immunizations and Respiratory Diseases, who confessed he conspired to cover up links found between the MMR vaccine and autism].
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> *All they had to do was wait for Black boys to be 3 years old, and they would have been able to degrade the RNA virus. That's criminal. That's beyond comprehension …*
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> *The pearl of wisdom is this DNA methylation. Keep the violent virus silent … DNA methylation has to silence them. You can't inject them in a vaccine. We're injecting millions of pieces in parts of retroviruses in every vaccine, by definition (and admission).*
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> *I am working on an ongoing cancer lawsuit that says vaccines cause childhood cancer, a lymphoma. By these same mechanisms, you've destroyed the DNA methylation machinery's ability [to silence the virus]. You've simply overwhelmed the substrate. You've overwhelmed the ability to methylate.*
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> *Every time those viruses integrate, you have a better chance at insertional mutagenesis. Don't expose anybody to human (or animal) retroviruses. Use*

antiretroviral therapy, which are natural products … There are lots of natural products. We published on them. Those are actually therapy for these kids.

[A 100-year-old drug called Suramin] was one of the first antiretroviral therapies for HIV … [It] worked best against the murine leukemia virus-related viruses, against the mouse retroviruses, the gamma retroviruses …

[Dr. Robert] Naviaux [professor of medicine, pediatrics and pathology at University of California San Diego School of Medicine] did a small clinical trial.[1] *These kids got their life back.*[2] *They started talking again. What did Bayer do? They stopped the trial and took the drug away from everyone. Now, you can't get it …*

We could help millions of people get over [autism]. But when you show cure, you know cause. That's it. I would be right … Millions of people would get their lives back, and it's all about money."

XMRV Is a Significant Threat

As mentioned, there are several different retroviruses, which are part of four viral families (delta, lenti, beta and gamma). Aside from HIV and XMRV, there's the human T-cell leukemia lymphoma virus (HTLV-1) family. There are five or six HTLV viruses, but HTLV-1 is the only one known to cause severe disease.

Human beta retrovirus is another virus associated with primary biliary cirrhosis. Many patients with MEC/FS also have family members with primary biliary cirrhosis. As for which one might be the most significant threat, Mikovits believes XMRV is among the most pressing, because while HIV is well-contained at present, XMRV is not, and it appears to play a significant role in diseases of methylation.

Disturbingly, they're now using murine leukemia viruses as vectors for gene therapy and a novel cancer therapy called chimeric antigen receptor (CAR) T-cell therapy. In other words, they're causing cancer and other retroviral illnesses.

"The same thing with Gardasil … We're causing these diseases and we know it because we're using these [retroviruses] as vectors. We don't need infectious viruses. That's one thing that's really important to know. You don't need infectious viruses if you're injecting the provirus, or the pieces and parts. You inject it, past your immunity, past your gut, past RNA cell, past everything. You bypass the immune system. They don't need to be infectious.

All you need is an envelope to cause that prostate cancer. That's a paper that was published 2013. In most of our studies, all we detected was the envelope. The envelope alone causes vasculitis … Another strain of XMRV gamma retrovirus from mice was identified by Gary Owens … associated with cardiovascular disease. This is just a nightmare that we've unleashed in our environment."

Retroviruses and ME/CFS

According to Mikovits, 6 to 8% of the general population are infected with infectious and transmissible XMRV-retroviruses, and in the chronic fatigue population, that prevalence shoots up to about 30 to 40%. As with HIV, antiretroviral therapies can be very helpful in the treatment of ME/CFS, including low-dose naltrexone.

"You have to silence the other pathogens, so taking care of mycoplasma, taking care of mold, absolutely supporting the gut microbiome [will help]," Mikovits says. *"We learned with AIDS and cancer patients that if they don't have the diversity in the microbiome, just like in autism, just like in MEC/FS, it's because the retrovirus is causing leaky gut …*

The nonspecific inflammation [is] the retroviruses. If you keep the gut healthy, you can heal. The primary is the diversity in the microbiome, or you can't respond to the drugs. There's a lot of hope. That's what we end the show with. There are therapies. We could fix this tomorrow. That's why I do it."

To learn more, be sure to pick up a copy of "**Plague: One Scientist's Intrepid Search for the Truth About Human Retroviruses and Chronic Fatigue Syndrome (ME/CFS), Autism and Other Diseases**," which reads more like a fictional thriller than a nonfictional book about the science of disease.

Sources and References

- [1] US San Diego Health, Suramin and Autism
- [2] Moving Autism Forward, March 8, 2018