Podcast Session #26

A Deep Dive Into Retroviruses As a Key Factor in Chronic Illness

with Dr. Judy Mikovits

Dr. Schaffner speaks with Dr. Judy Mikovits about the intersection of retroviruses and chronic illness.

0:00:06 Dr. Christine Schaffner: Welcome to the Spectrum of Health podcast! I'm Dr. Christine Schaffner, and today I'm speaking with Dr. Judy Mikovits. Today's podcast is really informative, really science heavy. Dr. Mikovits has such a wealth of knowledge. I rarely wanted to interrupt her when she was giving us such valuable information about how retroviruses are at the root of the chronic illnesses we are seeing in today's patient population, and in the population we see every day at Sophia Health Institute. Please stick with us. I'm going to listen to this podcast myself a second time! There's just so much great information here, and I hope that you enjoy it.

0:00:48 CS: Welcome, Dr. Mikovits. I'm so excited to have you on the podcast today.

0:00:52 Dr. Judy Mikovits: Thank you, Christine.

0:00:53 CS: Dr. Mikovits, we got to know each other when you came to Sophia Health Institute and shared a wealth of knowledge that you have been sitting on for a long time, regarding your discoveries, resources and solutions for how retroviruses impact all these chronic diseases that we see at clinics like Sophia Health Institute. You really inspired a whole new curiosity and innovation in our treatment plans. We've been really pleasantly surprised to see that when adding these retroviral protocols, some of our most stuck patients are seeing the improvements that we want for them. So, we are so grateful to you and your research, and your knowledge, and for sharing that with us.

0:01:41 JM: Oh, thanks so much.

0:01:43 CS: Well, I thought we could just dive in. Because of the work that you've been doing around educating the public, and practitioners, a lot of people are catching onto this idea about retroviruses. (I know Dr. Mercola just did an excellent interview with you). But for people who are listening to us today and for whom this is a new topic, can you give us a brief introduction to what retroviruses are, and how they may be relevant to somebody who has a chronic disease?

0:02:12 JM: Retroviruses are viruses that actually integrate. That is, they get into the DNA of the cell that they've infected, and they stay there really for the life of the cell. In fact, in some cases, if they infect stem cells or other long-lived memory cells, as in the immune system, they can really stay for generations. Retroviruses are about 8,000 base pairs, so they're very, very small. They have a hybrid genome--their nucleic acid is both RNA and DNA, and they reverse transcribe their RNA back into DNA, that's why they're called retro.

0:03:02 JM: Normally, the central dogma of molecular biology is that we go from RNA to DNA, to protein, and the proteins do the function. But in the last 40 years of my career, we've learned that in fact you can go backwards to RNA. And those micro RNAs are actually regulatory, and very important. They have function of their own. Retroviruses from other animals, and even plants, are really important in the evolution of species. When I was first studying this in high school and college, they used to just be called "transposons," or the "endogenous retroviruses."

0:03:55 JM: What we learned when we sequenced the genome, or what we learned even earlier than that, is that approximately 8% to 15% of all of our DNA is viral elements. That is, retroviral elements, pieces and parts of retroviral elements that had been silenced. They're in our DNA, and they can be expressed. When they're expressed, they dysregulate the other gene functions. So, if they're expressed, they can dysregulate micro or regulatory RNAs, that then go back and turn on and off various gene expressions in the systems, to either suppress tumors, or promote tumors. We call them oncogenes, tumor-suppressor genes.

0:04:47 JM: Those transposable elements, as it were, are really the endogenous retroviruses. We distinguish those from exogenous retroviruses, meaning coming from within, as endogenous, and coming from the outside. A power retrovirus, the one we worked with a lot, is bovine leukemia virus. There is a bovine leukemia virus that looks a lot like the first human disease-causing retrovirus, that used to be called the human T-cell leukemia virus. That's the virus that Frank Ruscetti and Bernie Poiesz isolated back in 1980, and that started the entire field of human retrovirology.

0:05:34 JM: Previously it was thought that humans didn't have infectious and transmissible retroviruses, and that other animal retroviruses couldn't and didn't infect humans, so they couldn't cause the same diseases that they're associated with, contributing to, or causing in animals. The endogenous retroviruses are just pieces and parts--some people say 5% of the genome, and it's getting a lot higher. A lot of the reason that it's getting

a lot higher, is because of the animal tissue that we're injecting into people in vaccinations.

0:06:22 JM: Of course, contamination of blood supplies over the years, or decades, was found to be a major contributing factor to HIV getting into the human population. The relative of HIV was called simian immunodeficiency virus--it's an endogenous retrovirus that doesn't cause disease in animals, but when what we call zoonosis occurs, when something comes from the animal into the human, and comes to infect the human, then it's called an exogenous retrovirus. It adapts to the human, it learns to infect the human cells without killing them.

0:07:13 JM: In the human, when the SIV "jumped species" (that's the colloquial way to say it) that's when they start to cause disease, primarily because those viruses are being expressed. The reverse transcriptase is reverse transcribing their RNA genomes into DNA genomes, and then integrating...and they integrate not necessarily randomly, but they can integrate into hot spots, or into cells that are actively dividing. So, a retrovirus has to use all of your cellular machinery. If your genes aren't expressed, if those cells aren't expressing, then those retroviruses aren't being expressed.

0:08:06 JM: So, what our hypothesis has been for many years, which was reinforced with the recent XMRV (Xenotropic murine leukemia virus), is the whole idea that we found in 2009, we isolated infectious transmissible. So, that's the most important part of our paper--that this was the first time that these retroviruses had been isolated from humans. They were clearly not

human, they were very closely related to murine leukemia viruses. And interestingly, those murine leukemia viruses cause leukemia by their name, and also were associated with diseases like Alzheimer's and Parkinson's disease.

0:09:10 JM: We then went on to show a number of cancers, and the very damaging myalgic encephalomyelitis, and things like that. Well, the expression and the activation of the retrovirus, either endogenous or exogenous, can lead to recombination events as they're expressed and they recombine, with several processes of recombination that occur in our bodies all the time, in our cells. What has been recognized now, is that it's simply because we've been injecting very large pieces of DNA in vaccines, contaminants of the cell lines that were growing the viruses in, say, MMR, which are three RNA viruses, which are retroviruses. So, in making vaccines, you have to grow the pathogen in other cells that can support their growth.

0:10:16 JM: With the murine leukemia viruses, then of course we isolated them from many diseases, from children, from humans, and showed that we could take the one we isolated, and infect another person, and in fact cause the same disease. This is how the process went with associating HTLV, the human T-cell leukemia viruses, that are very closely related to the bovine leukemia viruses. There is the idea that the bovine leukemia viruses are associated with breast cancers and leukemias. Just like HTLV1 neuro immune diseases, HTLV1 is associated with what used to be called tropical spastic paraparesis, or HTLV-associated myelopathy.

0:11:08 JM: So, what happens is, they infect the cells, and cause a multiple sclerosis-like disease, where the patients can't walk. They're walking with canes. And it wasn't really associated with HTLV1 infection for many years, because all we were thinking about were the leukemias. So the bovine leukemia viruses actually are also associated with breast cancers, and diseases in cows where they fall down in the field. So, the cows get diseases...the sheep, which transmit lentiviruses, lots and lots and lots of diseases are associated and closely related out in the farms, in the fields, to clusters of disease, where people began getting sick.

0:12:01 JM: It's this process where the virus jumps from an animal species to a human, and there is the inability of the human immune system to silence the retrovirus. Now we know that the endocannabinoid system is also very important in retrovirus infections. Many of the receptors and molecules of the endocannabinoids are channels in G protein-like receptors. So, they're channels. And these retroviruses actually get in through the channel. So, in the case of XMRV, the entry molecule, the receptor is called XPR1, and it's a phosphate transporter. That phosphate is critical in the regulation of proteins, and their expression in their function in our bodies.

0:13:00 JM: Whole fields and drugs are made to look at phosphate signaling and modifications. Now we know that if a cell is infected with XMRV, it's entering through a phosphate transporter, or a calcium transporter, or a potassium transporter. So, we can start to think about how all of the electrical signaling is changed. It really is at an energy level. It's really all about positive and negative charge. So, therapies that we

developed over the years have the similar common attributes of stopping the activation of the immune system, so that the retrovirus stays silent.

0:13:49 JM: It's the same in Lyme and Borrelia. Keep it in the inactive, undetected form, not in an expressed form, and keep the homeostasis, the balance in the immune system. We learned perhaps one of the most important pathways of silencing retroviruses is DNA methylation. And that's not the MTHFR in protein methylation. There are a lot of ways of signaling where we put methyl groups on proteins, and we think it's the DNA methylation that's critical to keeping retrovirus silent. We learned this back in the '80s and early '90s in work we did with Stephen B. Baylin, who is really an expert in methylation in the machinery.

0:14:46 JM: What I did for 20 years of my career... January 1st was the first day, in 1999, 20 years ago. I started as the director of the lab of antiviral drug mechanisms at the National Cancer Institute. Our charge was just to develop therapies for retroviral associated cancers. What happens is, you get the expression... and the first cancer was Kaposi sarcoma. With Kaposi sarcoma, we knew it only to be infecting old men in the southern tip of Italy. We didn't know it had a herpes virus associated with it, mainly because that herpes virus stays methylated and is silenced.

0:15:38 JM: It was only when AIDS patients' B cells, T cells and methylation machinery got dysregulated, did that virus become expressed. It was isolated by Patrick Moore and his colleagues... I've forgotten her name, right when we found the sickest of AIDS patients. So, now you have cross talk between pathogens. In our work with the XMRVs, we've found

significant cross talk between the activation of, say, Borrelia and babesia. This is what Dr. Klinghardt also recognized, is that they travel together. So, one pathogen inactivates part of the immune system, and another pathogen allows the expression of the retroviruses, everybody wants to survive. It's like fighting a war on a couple of fronts.

0:16:40 JM: If you can keep the retrovirus from being activated, then you can keep the disease from progressing, and you can actually go into a remission of the neuroinflammation caused by the combination really of the expression. In our book, "Plague," that we talked about at length in the Mercola article, we had a chapter as we were doing research in Borrelia with Lyme disease. In those who didn't recover from a course of antibiotics, or several, or different treatments, it was usually because the retrovirus wasn't recognized. The murine leukemia immune virus wasn't recognized as playing a role.

0:17:32 JM: It's really important to think about these things--you don't need an infectious and transmissible retrovirus. All you need is that endogenous transposable element, that viral piece and part that's been integrated in your genome, into your DNA for tens of million of years. When the exogenous retrovirus comes in and integrates right next to it, then they're talking to each other every time they're activated. This becomes really important when you think about reservoirs of the disease, particularly in the brain, because most retroviruses can't infect. HIV doesn't infect brain capillary epithelial cells, XMRV does, and it damages it in distance, as we say. But both pathogens disrupt the blood-brain barrier, disrupt the mast cells, disrupt the astrocytes, and the microglia. It's really the communication

of the immune system that's disrupted, and that's really where all our treatments go. So, we developed these drugs there in the lab of antiviral drug mechanisms. In the earliest days of HIV, we were looking at plant products, because that was my job. We would extract natural products and test them in systems to either silence retroviruses, or normalize inflammatory pathways.

0:19:19 JM: In any of these diseases in HTLV1, we knew with the neurological disease tropical spastic paraparesis, all we had to do was put the patient on steroids, and they got out of the wheelchair. Suppress generally all activation of immune cells, and the immune cells won't attack, and thus do collateral damage while they're trying to kill the retroviruses, because some of the inflammatory genes, that's their job. Go there and stop the damage, once the tissue is repaired. Recognize injury, and go fix it. I think that's a pretty long-winded description.

0:20:00 CS: No, you're brilliant, Judy. I don't ever want to interrupt you. You gave so many great insights that I want to take a step back and flush out for some of our listeners, for whom this might be new information. You basically explained the difference between endogenous and exogenous retroviruses. The endogenous type we can inherit, they're part of our DNA that we all come to the planet with, but they can be triggered and exposed by things like vaccinations and even other exogenous retroviruses that come into our system. You made this point, but I just would love for you to share a little bit more...how are people getting exposed to the exogenous retroviruses? Is it mainly through vaccinations due to the way that the viruses are grown with the animal tissue and that foreign DNA, or are there

other exposures since this is, as you said, infectious and transmissible to get these exogenous retroviruses in our bodies?

0:21:07 JM: Until recently I would have said mainly vaccinations because of the sheer numbers, but what I've now started to realize is that at the same time we've got to think about how we're vaccinating our animals, and eating them as food. So there are a number of papers that a friend made me aware of, old papers that I was aware of before--the whole idea of poultry science. We use eggs in making MMR vaccines. Measles, mumps, rubella, flu whatever...whatever we use, we use eggs in making a number of vaccines as well as animal cell lines. What happens is, eggs have three bird avian retroviruses and normally their endogenous retroviruses are not expressed, but because now our animals have heavy vaccinations and antibiotic use, which might change your microbiome and your microbiome is a critical part of regulating the expression of endogenous elements as well and just the dysregulated gene expression.

0:22:42 JM: So now you can go in and look at the FDA, and look into poultry science in journals, and see in fact that the retroviruses are being expressed. If you cook an egg and the retrovirus doesn't express, it's just DNA, and that DNA won't be transmitted because you're eating it, and it goes through your immune system in your gut, where you've got all of the mechanisms to degrade these, that is, to break them down. We use RNases which break down RNA, DNases which break down the DNA, so they're usually cleared so you wouldn't necessarily eat as much.

0:23:35 JM: But now, our gut microbiomes and our guts are so leaky from a lot of the toxins, glyphosate and things like that. Dr. Stephanie Seneff and I have been working for a long time to understand glyphosate, which is a glycine molecule with a phosphate group on it, so you take your most flexible amino acid and you put a phosphate group on it, and that changes its flexibility, it gets incorporated into proteins and you've messed up the proteins. Well, we found a lot of work where the glyphosate is also dysregulating or keeping retroviruses from being turned off, from being silenced by the immune system. I think our food is also now a major source of contributors to zoonosis of animal and plant retroviruses.

0:24:31 JM: Plants have retroviruses too, so when we grow genes and make some of these recombinant drugs and tobacco plants, you're pulling different kinds of retroviruses and they do main functions, but then they can get inserted into the wrong place, and by definition, a cow virus in a person is not going to be a good outcome, and we see that in the most susceptible of people. Of course, all people don't have problems and that's probably just in relationship to the sheer number.

0:25:05 JM: So with the vaccines today--just the sheer number of these liability-free vaccines that are mandated to be injected at critical times when we're developing that microbiome, when our methylation machinery is very busy in growth processes, normal development, stem cells, times like puberty--and a lot of this we're just regulating the expression of the retroviruses and the endocannabinoid system and the immune system kind of all at one time. So primarily it's the vaccines and a very close second it's other contributing factors from contaminated food.

0:25:49 CS: That's a new insight for me and that makes sense because as you explained, these retroviruses are at the root of the increase in neurological diseases that we're seeing, and also at the root of cancers that are only increasing during our lifetime now. It makes sense that if we've evolved with these retroviruses, the reason why we are seeing more illnesses now is the multiple exposures that we're constantly being bombarded with, is that correct?

0:26:21 JM: Maternal immune activation. Studies still say, "the vaccines are bad because you can't do maternal immune activation with an infection." Well, why would you inject and cause the same thing? So it's the immune activation of the endogenous elements. We've crippled our DNA methylation machinery, we've used up all the EDS, the N-acetyl-L-methionine is in our food, it's required in food and now we've got where protein methylation and folic acid and that cycle is dysregulated. So you run out of substrate to silence all the retroviruses and every piece of DNA and bacteria source has what's called CPG. It's a cytosine next to the guanine and there's a phosphate in between. That's the site in your ATCG, in your nucleic acid, that gets methylated.

0:27:21 JM: So, it's C before G and pathogens have naked CPGs, so this is why they're used. Just last year, the Council on Immune Practices, the Academy on Immune Practices said, "Oh, we're going to add a new adjuvant to the C, and it's basically CPG, and so we're gonna take even more of our methylation machinery and cause the expression of the transposable elements." This is a nightmare in the communication of your

immune system and your endocannabinoid system--they are essentially just slowly destroyed. We call it accelerating the disease engine. So you want to keep from immune activating.

0:28:16 JM: That's the important thing, and that's why until very recently, we didn't vaccinate HIV-infected people. Now we're saying, "Oh, we can cure them that way," and what I'm saying is, "Oh, you didn't kill them the first time." I'm also reading the latest versions of Nature and Science. And what do we see now? So, some commentaries in Nature said, "Oh, we have jumping genes as the cause of Alzheimer's." Well, isn't that what I said in 2009, 2010, and 2011, when I made that slide showing the damage at a distance with the microglia and the macrophages holding the link? Oh, and didn't I put Alzheimer's? Isn't that what murine leukemia virus is doing? Well, now they're just calling them jumping genes, transposable elements. I want your audience to hear how the language changes, and just January, no, maybe December, in one of the Nature review journals, they talked about transmissible Alzheimer's.

0:29:29 JM: So the language doesn't change, well what does that? Oh, retroviruses. Oh, or pieces and parts of retroviruses. If you're injecting them and you're bypassing the gut immunity, if you bypass the skin, all bets are off, and your macrophages can't do their job and clear them. So generally, when you eat them it's not an issue, but we're also disrupting our guts and our primary immune defense, our skin. Think about how many of these vaccines cause these horrific skin eruptions and things which are highly inflammatory, so then it's totally activated and on, and you've got any number of cells expressing any number of retroviruses in those situations.

0:30:18 CS: I always say I'm an optimist, even in light of what we see on the front line of what people are going through with their health. We can ultimately say that probably no one is not going to be exposed to exogenous retroviruses at this point, unless they live in a bubble, just because of the food contamination and the vaccine exposure and all of the things that you've shared. And so there is this idea of immune modulation, where often what we've said in our practices is that we're not going to get rid of every bug or every virus. The goal is not to kill all of these things, but to rather silence them, or, how do we get our immune system to not be over-reactive, as you've shared? Let's really dive into the endocannabinoid system as you already shared. How do we leverage this system to help support our immune system, so we're not symptomatic and so that we're not on this path of disease acceleration?

0:31:28 JM: The important thing too to remember--the endocannabinoid system has really only been described in detail since the early '90s, since '94, a full 15 years after HTLV1 and HIV, so we're only now, as I mention, going back and looking at retroviruses with an eye on the endocannabinoid system. We know very well that the endocannabinoid, let's just say, has a cannabinoid receptor number one, CB1 and CB2. The CB1s are primarily in the brain, the CB2s are primarily in the immune system. CB1 is on mesenchymal stem cells. So this goes all the way to stem cell biology where we start thinking of the endocannabinoid system and how retroviruses can dysregulate it at the level of the stem cell, and certainly CB2, which is the receptor that's primarily in the immune system in the gut that we just talked about.

0:32:46 JM: So that is on what we call the hematopoietic, the blood stem cell, the stem cell that makes your blood and has to regenerate every single day. 10 to the 9th or so. We think about stem cells in the colonic epithelial and we know that we turn over a lot of the colonic epithelia in our feces every day. And the mesenchymal stem cells again end up being brain-muscle-neuron interaction, so it's the communication. We know that the retroviruses are altering the expression of the immune activation, this will activate inflammatory molecules like interleukin-1 beta, IL-6, interleukin-6, this whole Th17 to T regulatory cell access. So you regulate, and you use immune suppression when the danger is cleared. But if the danger isn't cleared then you go in this relapsing-remitting mode where it's, I like to say, like whack-a-mole, in which it becomes expressed, your immune system goes after it, and then clears or silences it, and then another one comes up over here in another tissue, so you're in a constant inflamed state. We know what those cytokine and chemokine patterns are, they are key to our discoveries, they were the key to associating retroviruses with ME/CFS and autism because it's those same overlapping, same cytokines and chemokines.

0:34:27 JM: IL-1 beta is a key in neuroinflammation. IL-1 beta is now known to be a key in cardiovascular disease, in heart attacks. So it's the inflammation that is driving, say, when these kids are dying on athletic fields because they're in a major growth spurt and everything is on, and then you hammer them with a Gardasil or a DTaP or some vaccination. So really the first thing we need to do is stop, I mean, the annual flu shot, the pneumococcal, they're just loading them all up. So as you said, the level of

exposure and key critical times, if you have a strong immune system, you likely didn't even realize infectious and transmissible retrovirus in the few vaccines we got starting back in previous times, I'm 60 years old, so I got two things, smallpox and polio.

0:35:31 JM: And it wasn't injected, it was ingested. So again, they're not as dangerous depending on the delivery. So at the end of the cannabinoid system, what we're seeing is that THC, that's the psychoactive part, actually regulates and can modulate the CB2 receptor on the hematopoietic stem cell. So just as TGF beta can, there's a cross-talk between the very important regulator, TGF beta, which controls hematopoiesis and is critical, as you know from much of your and Ritchie Shoemaker's work in chronic Lyme disease and all of these things. TGF beta dysregulation, and it's really a dysregulation, which is why we often don't test for it, but when we do, we use patterns...we look at 20 or 30 molecules at a time, and we look it up and down, and we look at it at the same time and from the same tissue to get an idea of where the dysregulation is, and then you can come in and literally just turn off, or inhibit IR1. So we now know that the big lie we've probably been told is that cholesterol is the key to cardiac disease and heart attack, and that's not true at all--it's inflammation. It's inflammation, inflammation, inflammation and real estate-- location, location, location.

0:37:04 JM: It's a fire, and how do we put it out? We don't fight the bugs because the bugs are at war and peace, and I'll send you this paper again, "War and Peace Among the Microbes". It's something that was published somewhere around 2008, from my colleagues in HIV. The first author was

Andreas Lisco...these are friends we worked with in HIV. We applied what we saw in the associations with HTLV-1. There is a dementia associated with HIV, called HIV-associated neurodegenerative disease, or HAND. And I know you know when we first isolated the XMRVs and showed the neuro disease, we called it XAND. The government quickly made that go away because we were correct.

0:38:10 JM: But right here with HAND, an HIV-associated neurodegenerative disease, it's not the expression of a retrovirus. So in all of our studies, we only look at the expression. It's not that it's there, it's that it's expressed. And most of our drugs don't work directly, virucidally--they don't just kill the bug. They talk to the immune system, and the immune system does its job. So nutritionally, for the drug Baicalin, Scutellaria baicalensis Georgi was the actual strain of the plant that we tested. It limits the inflammatory cytokines.

0:38:55 JM: It limits the entry of the molecules to infect new cells. The drug Suramin, which is a synthetic drug, it's basically a very large molecule, which has a lot of positive charges or a lot of negative charges, so it acts like a sponge, so the retroviral charges get stopped before they interfere with the cell membranes, before they can get a chance to dysregulate the signaling of the DNA. It's so fascinating as we go back and look at Suramin, which is a 100-year-old drug, which not inconsequentially, was used for, and is still used for, African sleeping sickness. So you've got one of the places where HIV was endogenous, just like Kaposi sarcoma virus didn't used to be in the United States--it was the southern tip of Italy.

0:39:51 JM: But now, we're not only bringing in retroviruses, but many, many, many are disrupting the signalling of the endocannabinoid system. So with the endocannabinoid system, we've focused on TGF beta, and I can certainly send a slide show that we just gave for CME for MDs, where we were showing them the cross-talk between the immune signaling, and regulating it with the appropriate cannabinoids. By saying appropriate, I mean it's the right molecule or family of molecules, group of molecules, and in the right place at the right time. We'll deliver a lot of cancer medications that are heavy in psychoactive THC. We'll deliver that via suppositories, because that's where most of the CB2 receptors are, in the lower gut, in the bone marrow, at the heart of the bone marrow there--even though the affinity, the magnet is stronger for the ones in the brain.

0:40:57 JM: So if you deliver it by ingesting it or putting it sub-lingually, or even smoking it, it's gonna make you high, but it's going to deliver essentially no THC to the hematopoietic stem cell to deliver it, to regulate it, to get it to stop the damage. So THC can turn on TGF beta, which then has a, sorry about the science, a negative feedback loop, where it turns off the stem cell. So THC will stop the immune activation indirectly. But too much will turn on the stem cell, because you overwhelm the balance of the TGF beta. So, it's complicated, but it's no more complicated than any plant medicine that we've been using for thousands of years.

0:41:50 JM: This is what we do, phorbol ester, this is what we do in cancer research. It's interesting, we looked at the incidence of HIV infection, and this is a paper that we published probably a decade ago, where we looked at the incidence of HIV infection across Africa, and it's essentially the

same. But in Northern Africa, I'm just making this up, they die 10 times faster than Southern Africa. I don't know which part of Africa it was. But we worked in the fermentation chemistry program with Dave Newman, who went around the world and pulled samples of plants, of soils, and of other things. And we basically said, "Look, why don't we hypothesize that there's something that the people in Northern Africa are eating that is activating their HIV such that they get sick? Or, that there's something that in Southern Africa that they're eating or drinking that is silencing their viruses, so they get well?"

0:43:04 JM: Dr. Newman through the repository in the various locations and we did a whole genome screen and we published this. I don't even know when, it was years after we did the work, because nobody believed it. I've had this happen with a lot of papers, I don't worry about that.

0:43:25 JM: At any rate, that's exactly what happened. They were eating a plant that was rich in a phorbol ester and that was activating the pathway that was expressing the phosphate transporters and expressing the NF-kappaB in the nucleus and turning on the inflammatory cytokines. So, if you think very simplistically in that way...that's why we don't test for pathogens, because it's not the incidence, it's the expression--it's what it's doing to your immune system and your methylation and your endocannabinoid system. So, if you turn on the expression of these pathogens and their entry into the cell is via a cannabinoid receptor, you're going to dysregulate and cause pain syndromes. The pain syndromes are normally going to be CBDs, and only inflammatory pain syndromes like rheumatoid arthritis or those kinds...because there are lots of different kinds of pain. And that's no

susception in anti-emetic and all of these things are something that is central to the endocannabinoid system and its regulation.

0:44:42 JM: I think it's really the fact that since the early 1930s, we've taken the plant, and we've taken the use of these--this used to be our medicine. We had tincture after tincture after tincture from Upjohn, a company I worked for in the past, of cannabis. So you take the hemp and you use the CBDs for pain, you use a lotion to stop dermatitis...you use one that might even have THC in it from cannabinoids to deal with inflammatory psoriasis, and things like this, which have an inflammatory component. It's really thinking about the use of the plant and going back to good old-fashioned medicine, because what we've basically found is, the recombinant technology is actually causing a great deal of dysregulation of our genes, of animal genes, and of plant genes. So the food we eat, these recombinant foods, they are dangerous, because they're allowing the aberrant expression of lots of things, not just retroviruses, and they're not really food sources. I gave a talk on that back in 2014, and I laugh now when I see how complex that talk was.

0:46:06 JM: I'll send you that talk again so that you can see--there's one critical paper that Stephanie Seneff gave to me where GMOs were linked to all of these processes. We have to think about any genetically-modified organism, because they're not an adequate food source, and it encourages dysregulation of our immune system and our endocannabinoid system.

0:46:34 CS: Judy, there's so much great information here. For the average listener who is dealing with a chronic illness and not seeing the results that

they would like to see, obviously, we need to encourage them to look at this retroviral immune expression that's happening. Is there any good, objective lab information that paints this picture, so that people can start asking maybe their Lyme-literate doctor or their doctor who's open to looking at these things, to guide them in demonstrating that this is happening in their immune system?

0:47:19 JM: I think what we looked at, and this is what I tell doctors is, one look at dysregulated DNA methylation machinery. We've got whole-genome assays for that. We made them back in Epigenex in 2000, when I left the NCI and got married.

0:47:39 JM: So the kind of tests, the kinds of things we've been doing in cancer, is to look at flow cytometry, for a doctor, diagnose myelodysplasia. That means dysregulation of DNA innate immune response. Do a flow cytometry assay and simply test for that, look for integration hotspots, one is called TET2 and it's key in DNA methylation machinery and it's an integration hotspot of the viruses. You can overcome a TET2 deficiency with intravenous vitamin C. I can make any of those papers available to you.

0:48:23 JM: So, there are indirect ways, like looking at those inflammatory cytokines--we do it in cancer, we do it certainly in gastrointestinal cancers. We can look at the methylation machinery and then if you really want to say, "retrovirus," we look at the primary ones like HERV-K, which actually makes a particle, most just make sequences. So, HERV-K, which is a beta retrovirus, it's not a gamma retrovirus. People said that's what we were

looking at, we're a little bit smarter than that. There is a HERV-W, which is a very interesting retrovirus, and its expression will give you essentially the same cytokine/chemokine profile. That's too much CCL2, loop 1 alpha, loop 1 beta, IR1 beta, down regulation of the interferons. So you get a down regulation of your anti-viral response, and I share that in a paper, where cannabinoids got in a talk, where cannabinoids containing THC will actually turn back on your interferon response pathways, which is key to your innate immune system, clearing retroviruses at the dendritic cell level. This was another one of Frank Ruscetti's expertise which we showed in the whole XMRV story.

0:49:44 JM: So we always look at the immune system and everything in HIV, lots of tests. You can look for reverse transcriptase, that first key enzyme. But right now, it's difficult, because the government shut down these assays to practitioners, and you can't get it covered by insurance, or you can't get them to allow you to do this, because everybody knows these things don't have anything to do with autism or chronic Lyme or ME/CFS or whatever you call the disease, which is another problem. They're calling the same disease, clinically, different things, just in order to keep things confusing so that you can't treat or diagnose them. And of course, the gatekeepers are the insurance companies.

0:50:36 JM: So, we should always diagnose myelodysplasia. And you can really dig down--these are reticular viruses. A lot of the earliest families from the chicken eggs and things like that, they affect your red blood cells. So we all know by looking at red blood cells when they get sticky, the

platelets dysfunction--such as in the disease called ITP, Idiopathic Thrombocytopenia, which is a known risk of MMR vaccination.

0:51:11 JM: When we associated that with XMRV infection...you can't get the RNA viruses out of the RNA vaccines and retroviruses are RNA viruses. Can't get them out of there, can't filter them out of there, that's why the most likely place for where the retroviruses are doing the most damage, transmission-wise, is the live viral vaccines, attenuated ones, because you can't get the retroviruses out of there without destroying the ability to activate the immune system, which is what a vaccine does. So if we test for myelodysplasia, where there is an ICD-9 code, I don't know if it's in 10 or 11 because of the controversy, but there was a diagnostic code that the AIDS community, ACT UP, got legislated, and I think it's called "other human retrovirus." So you can do the tests for "other human retrovirus," like HERV-K and other things, and the insurance companies have to pay for it.

0:52:19 JM: I don't like HERV-K because most of this isn't HERV-K expression-derived, most of what we're seeing is the XMRV. So if you want to take the approach we took, look at everything common to a retrovirus, so look for reverse transcriptase. That's an assay that I'm not sure if anybody does clinically.

0:52:47 CS: Judy, this is great information. Would it be too non-specific to look at interleukins, would that be helpful to paint the picture as well?

0:53:00 JM: Absolutely, because when I say flow cytometry, that's what we do, we look at interleukins. We published the chapter a couple of years ago

that looked at all the cell subsets, so you can quickly see the dysregulation of the cell subset, you can quickly see if you've got more TH2 response. There's a test now that's called CHIP, Clonal Hematopoiesis of Indeterminant Prognosis---but it's a CHIP assay. What they're looking for is the balance of something called CD39 and 73, so CD39, it's the receptor for the immune suppressive adenosine, which leads you to have too much of a TH2 response. So absolutely, but the problem is looking at the tissue level. If you're getting a snapshot, you're getting 10 or 15 cytokine, chemokines and growth factors at a time, you can really target where the tissue problem is in the B-cell compartment. Common variable immune deficiency--that's a retroviral-associated problem of integration of these retroviruses in the B-cells.

0:54:11 JM: We have a lot of work that they stopped from getting published, but I can show you the slides and the data, because this is what's happening in 10% or 20% of the people. These are people for whom Rituximab, or some of these other therapeutics, might be indicated, so it's really important. I gave a talk to a TV show called Medical Hope a few weeks ago, and he only wanted to know about cannabis and cancer. So we talked about that and I said, "You know, one of the things is with Mr. Trump and changing the policy on using medicine, changing the "right to try" law."

0:54:51 JM: So, the "right to try" in a terminal disease. These diseases are terminal. If you're heading down the road of, "There is no treatment in ALS, in dementia, in Alzheimers, in Parkinson's," and you want to try a cancer drug based on the marker like the flow cytometry, like the cytokine and chemokines, you can do it as flow cytometry, Luminexes, of course, flow

cytometry on a B. I work with Pacific Biomarkers there in Seattle. Actually, I don't work with them, but I have a dear friend there, Mary Beth Raines, and I'm happy to have her come to talk to you and come on the show because we've worked together since about 2003. I was developing Luminex assays and she was developing what we call companion diagnostics, based on not only cytokines and chemokines but also these other molecules that you target. All of these tests are available in the cancer world, in the AIDS world. And that's why I keep saying, these are acquired immune deficiencies.

0:56:04 JM: There is the work of Mike Lenardo, he's one of our former colleagues from working on HIV/AIDS, he's focused in on the minerals, on the imbalance of calcium, zinc, and magnesium. Therapeutically, there's a lot we can do about this, thinking even about things like NAD-ribose, thinking about sirtuins and other family members, and using simple nutritional therapies that we anecdotally know work, in fact, like the whole bone broth revolution.

0:56:38 JM: You just have to make sure you have clean bone broth so you're not causing more of a problem. It's the same thing for cannabis, and I can't stress it enough. You just can't eat the plant. The plant's job is to detox all these heavy metals and things like that. So the plants detox from it, but if you eat them, and it's in the lysozyme of the plant, you're ingesting it, and you can get sick. So it's important really not to smoke marijuana unless you know exactly what's in it, and you don't inhale it really deep in or whatever, that you understand how to use it in things like COPD. 99% of the testing for these docs is gonna come out of creating foods, drugs and

cancer drugs. But those diseases, we're creating. And those are the population experiments that we're doing. As we know, with vaccines, as we've ramped up, we see more and more.

0:57:46 JM: We're getting things earlier and earlier, and this is that CHIP assay, Clonal Hematopoiesis of Indeterminate Prognosis, it's because you're getting a clonality instead of a diversity in your immune response, and that, from our experience, is a bad thing always. So we get the clonality, but we lose the diversity in our microbiome, and this is why people are putting back probiotics back in, but if you put probiotics in and you haven't healed the gut with something like fulvic-humic restore, 30,000 volts mineral products where you restore the minerals and you seal up the tight junctions, you're just putting good bacteria in the wrong place, which is by definition, bad.

0:58:36 JM: This is why it's so difficult to teach and think about this, because we're like five-year-olds on a soccer field and we run to the next miracle cure and there really isn't a miracle cure. It's almost a step-wise fashion of recognizing--we did this successfully in HIV, which is why I keep talking about it, because the hope for everybody in the patient population is, when I started the AADM 20 years ago, I didn't think... I'm looking at the cancer and the malignancies, I'm looking at the cancer with HIV, I'm looking at people dropping like flies. I'm looking at cancer, cancer, cancer, things we don't understand, and a virus that is replicating like mad, which is not what's happening with the XMRVs, and I'm thinking, "How are we ever going to get a handle on this?" But we did, and we did it with the same simple thought processes I'm telling you today. Think about the whole

immune system, think about making the terrain as healthy as possible. And of course, we had a lot of failures. When somebody had mycoplasma and they had HIV, if you didn't deal with the mycoplasma, forget it. We had the same problem with TB, forget the retrovirus destroying their immune system over a period of years. You've gotta think about, in the development of cancer and the development of all of these diseases, it's not an overnight phenomenon, it's a step-wise dysregulation of the immune system where one day, the straw breaks the camel's back, and they show up in your office, in your clinic.

1:00:22 CS: Yes, absolutely. None of this happens overnight. I completely agree with you and I'd love, Judy, to continue to work on a clinical panel. I know you introduced a lot of complex thoughts and there's not a straightforward test, but a panel could maybe find more of these patterns that we can recognize to see this retroviral expression. I know Dr. Klinghardt would love that too. The Pacific Biomarkers lab... that's fun that they're in Seattle, maybe we can work together with them to create a clinically useful panel that's maybe not too complex, so a lot more clinicians can be trying to identify and treat this. I think that would be much needed. Judy, for when we're looking at how to silence the retroviruses, you mentioned a few really helpful and useful tools.

1:01:21 CS: Obviously, cannabis that has the THC is useful, not using it in a form that's smoked, but rather using in a suppository or a tincture or a clean source. You had shared with me the CBD suppositories that have been working really well for some of our patients, so I'm excited to get to know that product more. And Chinese skullcap, the Baikal skullcap, is more

and more available. There's a tincture and then there's powdered extract. Do you have a preference?

1:01:54 JM: Well, I use powdered extracts because they're validated to be free from contaminants. So as long as you've got a sheet on it and you understand what's in it, because there's a lot of Scutellaria, and that's why I always say (type of recmmended Scutellaria unintelligible) because our experiments were done with that one. And so we do experiments in the lab in the natural products divisions of the Cancer Institute where I worked for the 22 years, when we do those, we don't do whole plant extracts in general, we work our way from whole plants, all the way to the purified material with the most activity.

1:02:34 JM: So I tend to use more purified things or semi-purified things. We do have several brands that we endorse as we know that patients and doctors find them valuable. Again, if I have a certification sheet that says there's no heavy metals, no mold, mycoplasma, or endotoxin--we test for endotoxin in all drugs, and yet we're injecting endotoxin which turns on the TLRs and everything, just sends everything screaming in the vasculature, which is a real problem of LPS. And so testing for endotoxin in any product is really important. What we tend to do is tell you which we have found to be beneficial, and we haven't found any pot contamination that we're aware of. So we try to put forth the cleanest sources available that we can endorse as either options we have worked with, or that our close colleagues have worked with.

1:03:40 JM: So those are the formulations I like. I also shared with you a formulation of cannabis where the CEO of the company actually mixed it with various things like Scutellaria. There's some skullcap, there's some turmeric--so the idea of taking advantage of what they call adaptogens--helping the immune system with the synergies formulated all into a product. That company is called C2C Life Sciences, and they're here in California, the CEO is Andrew Serafini. That was the one I sent you called Reduce, and there's another called Attack. Some patients are finding those combinations useful. So it's CBD with no THC whatsoever, but it's taking other plants that modulate that hematopoietic stem cell, so I don't need the THC in states where laws won't let me use it. So I take advantage of my knowledge of the chemistry and the inflammatory markers and other things that modulate those, that we can put into formulations or into protocols, and thus just use CBDs.

1:04:56 CS: That was a great recommendation and we're going to continue to explore that. You had mentioned IV vitamin C that I know a lot of holistic doctors have used. It's widely available, most people can get it no matter where they live. So that's great, another use of IV vitamin C. Suramin is not available, and it's not in the PDR, I believe, in the US, but Suramin obviously has a lot of promise. Is there anything that was an interesting discussion about the charge, and how retroviruses are affecting the charge of the cell. Are there any other substances you've played around with? I know that there's this idea of hydrogen water now--are there any biophysics tools or anything else that can help with re-regulating this dysregulated charge that the retroviruses set in place?

1:05:53 JM: Well, certainly the deuterium.

1:05:56 CS: That's a good point.

1:05:57 JM: Dilithium is a big deal, in connection with cannabinoids, that can give a bit of benefit, because again, it's charged, positively charged. Quercetin.

1:06:16 CS: You got a lot in there, Judy.

1:06:19 JM: Yes, it's funny because at the time, you don't even recognize...so it's nice that I've had a lot of time to sit around and think about it over this last decade of being unemployed...unemployable, I should say. But it's nice because I just sit at my computer, and when you give me a topic, I can search in different ways and look at old literature in new ways. So this is why I mention Mike Lenardo, because I know that a lot of the patients have a problem with EBD. EBD was something that was a big problem in HIV, so that was one of the AIDS-associated malignancies. So the herpes virus is in the cross-talk where Mike Lenardo has written a number of papers now on those minerals; zinc, calcium and things, and how EBD cross-talk with regulation HIV can cause these diseases, and we found genetic susceptibilities.

1:07:20 JM: So I should mention there are genetic susceptibilities to HAND. Everybody gets that if they're infected with HIV. There are genetic susceptibilities to EBV associated disease called XMEN. That's where a magnesium transporter was found, that it wasn't the NK cell. It couldn't

work because the transporter of the magnesium didn't work well. What he found bypassed that genetic defect in the NK cell transporter was magnesium threonate. So some people have found help in the magnesium threonate--so all magnesium isn't created equal, and too much of a good thing is too much. So just like with folates and DNA methylation machinery and things, the vitamin Bs--we do a lot in the cannabis place with camel milk and hump fat.

1:08:16 JM: The camel milk and hump fat--I make a lot of skin formulations with hump fat, it's very rich in some B vitamins, and very rich in zinc and other things, so that if I give the signaling molecules and proteins and lactoferrins and things people are allergic to because of vaccine contaminants, we might be able to take advantage of the synergies especially at a skin level. It also has the nanobodies that go right directly through the brain. It is very important to have the nanobodies.

1:08:55 CS: How do people get camel milk these days?

1:08:58 JM: Well, there are several sources, there's a Michigan consortium, desertfarms.com, that is one I've used in the past. Some people like them, some people don't. My go-to source for information on camel milk is Barry Smeltzer in Austin, Texas, and I'll give you that contact. But again, there are a lot of the products in Desert Farms I've used, I use the one from Desert Farms in the hump fat. MARC Inc is a member of the Michigan Camels Milk Association. So there are three or four sources in the country. They get backed up, but the health benefit of those nanobodies are just so, so, so, so important because they go through the blood-brain

barrier. So, before I would ever use IVIG, which is pooled plasma and things like that, which can be contaminated with everything we've talked about today, except retroviruses--CVID, variable immune deficiency, was an early step in the march toward the cancers and the march toward the diseases. So when those immunoglobulins get messed up, the B-cell nature of the insertional mutagenesis of the retroviruses, you really need to replace them and IVIG is not the answer.

1:10:25 CS: You have educated us on your concern and I know there are a lot of people in the chronic illness world that get that recommendation because, you know, not many practitioners know how to treat it more elegantly. Judy, I think you probably have everyone's head spinning who is listening right now. I, myself, am going to listen to this again, because you just gave us so much great information. I'll have to have you on the podcast again as I know this work continues to evolve. I just really want to thank you for your efforts. I know this journey has not been easy and you've been so committed to having integrity and to really helping people with this important information. I want to give you a deep bow of gratitude for all that you're doing to fight to get the science to the public.

1:11:24 JM: Thanks so much, Christine, I can't tell you how much it means that you and Dr. Klinghardt have picked up, and others now, because of your efforts in treating people, because all we really want to do and all we've ever wanted to do was stop it, was fix it, prevent it, and we know how and we have the tools, we just need clinicians like yourself with the vision and the willingness to try to help us achieve our lifelong goals as well.

1:11:55 CS: Thank you so much, Judy. How can people find out more about you and your work, and connect with the resources that you've shared today?

1:12:07 JM: Well, most people connect us through our website, which is marcinc.org. It's just Mikovits and Ruscetti Consulting Incorporated. It's just Mikovits and Ruscetti, and a few lovely people who help us with things like websites and things we can't do. On marcinc.org, there's an info@ email and it comes directly to my mailbox. I know people out there are saying, "I wrote you a month ago." So if you wrote me before, I remember a couple over the Christmas holidays and I appreciate the severity of it, some Gardasil injury and things like that--I didn't get back to this young man yet because I got a few thousand emails since that time and I'm trying to find the email. So if I haven't answered you in a few days, write me again, don't be shy because in this case, the squeaky wheel gets the grease...

1:13:26 JM: There is a phone number on the website, that is our office in Carlsbad. That phone number is not one that will get answered very often, because you have to get lucky and I have to be sitting there, and Dr. Ruscetti and I are rarely in this office more than two days a week. It's better to contact me through email, and when you contact me through email, one of the most important things to tell me is, especially on a cannabis or endocannabinoid question, or on treating with cannabinoids, is what state of the country you are in. If you want to be on a Skype or a call, we can arrange that, and I'll give you my cell phone number. As you know, people can contact me, and we'll try to set up something. We don't tend to charge

anything, just because it's information freely available and our only job is putting it together.

1:14:41 JM: We're not practitioners. We endorse things, we help, we work with people like you as much as possible. We're not MDs and a lot of our work is in vaccine court and they say, "Oh, you're practicing without a license." No, we're not. People call us and they want to pay for our services, so we work the best we can to just get these evaluations. We try to find clinicians in your neighborhood to work with you so that we can expedite healing and teach more, because we teach clinicians, that is the goal of our company, it's an education company. So marcinc.org, Mikovits and Ruscetti are just about educating physicians in all of these topics.

1:15:30 CS: Again, Judy, I cannot thank you enough for your time and your dedication, and we look forward to learning more from you this year, and hopefully together creating more innovative strategies so people can really get well.

1:15:51 JM: I'd love that. Thanks so much.

1:15:56 CS: Thank you for listening to the Spectrum of Health Podcast. You made it to the end. I know this was a really jam-packed, informative podcast and I hope you enjoyed it. Please share this information with anyone that you know who may be struggling and who may benefit from this information. My goal is to share what we are learning on the front lines of chronic disease and to share that with more people in our community. I would love to hear your feedback, your recommendations, and anything

that you would like me to know, or anyone that you'd like me to consider interviewing. My email is info@drchristineschaffner.com, and thank you so much for listening.