Microbiome & Host Protection from Mycotoxins Transcript

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Introduction to Mycotoxins and the Microbiome

Welcome everyone to the Mycotoxins and Chronic Illness Summit. I'm here with my dear colleague and friend Karen Krishnan, and we're going to be studying and learning more about how the microbiome can really help us to detox and protect us against mycotoxins.

So welcome here. And I always learn so much from you. So I'm really excited to do this interview. Well, thank you so much for having me. This is a great and very relevant topic.

So I'm very excited to talk about it. Great. Well, so many people are realizing the part of their chronic illness is related to mycotoxins. Whether this is from food sources or environmental exposures.

And we're able to quantify them a little bit more with, lab testing being more accessible and less expensive. So we're really seeing this as a key factor in many of our patients pathologies because of mycotoxins can be, you know, they can be hard on our liver, our kidneys.

They can, of course, be immunosuppressive. They have a huge role in. Sure. And how they affect the, microbiome. And then I always like how we can flip it around and how the microbiome can really help us navigate and deal with this exposure.

So in your research and in your learning, through all the people that you reach through your products, what do you really, know today about the role of the microbiome and detoxing from mycotoxins?

Yeah. And so there's actually a, a two sided coin here with the microbiome and mycotoxins that we should and we should address both, like many other things, many other aspects regarding the microbiome, your microbiome can actually be your biggest supporter and friend when it comes to dealing with mycotoxins, whether it's detoxing or resilience, against mycotoxins, but it can also be your biggest enemy.

And we could talk about how that that happens. And there is a perpetual cycle that starts to occur if your microbiome isn't healthy and you are exposed to mycotoxins, right, then we could talk about how that cycle starts to flow.

So on the positive side, there are when you're assuming your microbiome is healthy, which means you have high diversity, you've got, you know, good, good, barrier function.

So you've got is not leaky. You've got low levels of opportunistic pathogens. You've got good fungus in there as well, because some of the fungal species within your gut, like Saccharomyces, can actually play a very important role in the detoxing aspect.

What you're what your microbiome tends to do for you is actually neutralize a lot of the toxins that come in by bio transformation. So it actually converts the microbe, the the oxygenic version of the microbe toxin, to nontoxic compounds.

And then the other aspect of it, it can actually convert it.

How Healthy Gut Flora Detoxify Mycotoxins

Some of these mycotoxins are useful compounds that the microbiome can actually utilize and metabolize to then eventually produce beneficial things for you.

The other part of it is the microbiome can also stimulate the immune system to release antibodies that can actually

bind and neutralize the mycotoxins.

And then the last thing is the microbiome can, actually produce compounds themselves that bind and neutralize to the microbes that bind and neutralize the mycotoxins.

Take them out. Right. So so there's a number of mechanisms that the microbiome has within it in order to protect the host from these micro toxins. Now, as it turns out, the types of organisms that really play an important role in detoxifying from micro toxins are ones that a can function in the small bowel, because that's where a lot of the absorption occurs of micro toxins, right.

And B these are micro organisms that you would pick up from the environment. And part of the reason for that is because environmental microbes that also have a capability of living within the GI tract, are the ones that typically get exposed to mycotoxins out in the environment, right?

So they've adapted to being around these compounds and dealing with them and utilizing them in a, in a favorable way. So, so those are the types of microbes that play a role.

Now, on the other end of the coin, if your gut is dysfunctional, meaning you've got higher levels of pathogens, low levels of protective strains, your gut is starting to get leaky.

There are actually microbes within your gut that will take a, a minimally toxic micro toxin and convert it to something that's even more toxic, right?

And they will also unmask mycotoxins. That's an interesting aspect. So there are mycotoxins that are considered to be mass mycotoxins. And the reason they're masked is because they're actually present within the cell structure of plants.

Right? They're not on the surface. You can't see them. You can't test for them. They're inside the cellular vacuoles, if you will, within the plants. And the idea is that when you start digesting and breaking down the plants, there are microbes that will actually break down those vacuoles and release the micro toxin in the gut that normally wouldn't be released.

Right? So they can do some really egregious things to you, if you don't have the right microbes in place. And then the other part of the perpetuating perpetuation of the cycle is that, when you start getting higher levels of exposure to mycotoxins and you don't have enough of the functional bacteria to break it down, what can tend to happen is some of those mycotoxins actually have anti-microbial effects, so they will actually themselves start killing off some of your bacteria.

And then they can also cause your intestinal epithelial cells to release antimicrobial peptides, which actually further kill your, your your, your beneficial bacteria, which then makes you more susceptible to micro toxin, damage.

And as the micro toxin causes damage, one of the key things that are damages is the intestinal epithelium. The lining. Right now, your gut becomes leaky.

Not only does that allow the mycotoxins to leak through and get into circulation easier, but it also causes all these bacterial toxins and all that from the now abundant pathogenic organisms to leak through.

Now you've got systemic effects, of the mycotoxins, so that when that cycle starts, then you start to really feel the long term degenerative effects of these mycotoxins, and it becomes harder and harder and harder to start detoxifying from them.

Right? Until you start really utilizing the microbiome, trying to reverse it. And thank you for sharing all that. And as you talk, it just kind of reinforces my practice of medicine where I really talk about the terrain.

And I've learned from, of course, my naturopathic mentors and biological medicine mentors that, you know, it's it's

all about how the host response. Right.

And no matter what we encounter in life, you know, some people, you know, we see this all the time with, mycotoxins, right? There will be a partner who's perfectly healthy in a home and doesn't understand why their loved one is sick.

And then someone who's completely debilitated by the same exposure, not the same. It's not affecting the other person, maybe in other ways, but that, you know, huge response that that individual is having within, a exposure to, inhaled mycotoxins.

And so, many people who are listening are probably in that boat. And so let's walk through like, what do you know? Again, because a lot of the, mycotoxins patients might have already also, been treated for a long time in co-infections or looked at other, you know, pathogens that, other practitioners may be focused on and used antibiotics or used other antimicrobials.

And so there's kind of that piece. And then, of course, living on planet Earth right now. Right. There's so many assaults to our microbiome. So what's kind of the profile of, a this biotic microbiome for those who are most affected by mycotoxins.

Yeah. So one of the easiest ways to identify a, this biotic characteristic that that makes you less resilient to dealing with, with mycotoxins. And that's an important way to think about it, because, as you pointed out, two people can be exposed to the same thing and one person gets almost no effect on the other one. It could be absolutely devastating, right?

So that resilience is dictated in large part by what your microbiome looks like. And there's lots of work in the in the feed industry on this, which I'll, I'll touch on as well, because there's some learnings there that are important.

And so the biggest thing so far is diversity in the microbiome. Right. So there are lots of, of, geniuses of microbes within the gut that actually protect within, protect those from microbiome, from mycotoxins, things like the bacillus, bacillus plays a really important role in detoxifying us from mycotoxins exposure.

There's, you bacterium Mycobacterium. There are even some of the Pseudomonas species, which are kind of pseudo pathogens that can play a role in detoxifying from mycotoxins.

And a lot of these organisms you pick up from the outside environment. Right.

Dysbiosis, Leaky Gut, and the Mycotoxin Cycle

And so if we have gone through, antibiotic therapies, long term antimicrobial therapies, if we have remained relatively closed off from the outside environment, then we have diminished our diversity and we have really diminished our population of microbes whose job it is to actually protect us from these mycotoxins.

Studies on on farmed and raised animals have have really revealed a lot because, in the, in the feed industry, one of the things they realize is when they start making feed for pigs and chickens and so on, one of the biggest, egregious factors in the feed is the level of mycotoxins in the feed.

Right? And that has huge impact on the growth and health of the animals. And in fact, a huge impact on the fertility of the animals and the gestation and the survivability of the young.

And this is especially true in pigs and pigs have similar digestive tracks and as we do, and pigs tend to be very susceptible to micro toxin exposure.

Right. So lots of work has been done in this area comparing pigs to cows because cows happen to have high resistance to mycotoxins. Right. And in part is because a cow is a Roman, an animal, and has a ruminant, component within the digestive tract before and enters a small intestine where there's lots of microbes in the in the

ruminant part of the digestive tract that break down the micro toxin before it can ever into the small dot of the cow.

Right. So the cows have picked up all of these organisms and, and have the opportunity in that ruminant component to break it down before it ever becomes an exposure.

So then the question is, okay, so pigs don't have the same capability. Can we pre-treat the feed with microbes in order to reduce the micro toxin exposure?

And sure enough, lots and lots of data has been produced in the agricultural industry showing that if you use microbes like Bacillus to pre-treat the feed so that the bacteria break down the feed as the breakdown of micro toxin in the feed, then you feed it to the pigs, then they have no negative impact at all.

Right? So at the end of the day, what that's telling us is these microbial exposure, from the environmental microbes become really important. And that has a huge impact on the diversity.

So all of the things that we do to deal with chronic illness are lots of the things that we do impact diversity in a significant way. Right? We do elimination diets.

So we really reduce the number of foods that we consume that has an impact on your diversity. We we isolate ourselves. We can't go out as much because we don't feel well. Right?

So we're not out. We're not running through parks and we're not going on hikes and so on because we don't feel well. So we're inside a lot more. That impacts our diversity.

You're not sleeping well, so that impacts your diversity. You might have gone through courses of antibiotics and antimicrobials that impacts on diversity.

And ultimately it's that diversity. That is what you need to recover from this. So that's the catch 22 in you know what a lot of people are going through.

No thank you for sharing that. And I just wanted to share that you guys have a test right. Do you have a microbiome lab GI test to look at biodiversity.

So that could be if people are thinking oh my gosh I don't even know what my gut microbiome is, but the it does. Your tests kind of give a a good, read on.

Like where, you know, if people have a good spectrum of different diversity and then if they're too high in one pathogenic or dis biotic bacteria versus another.

I love, this to be solutions oriented too. So please share your test. Yeah, yeah. No, that's, I'm glad you brought that up because it's it's really hard to understand where you are with the microbiome. Right.

And how resilient you are. And to me, that's always the biggest aspect of health is we have to be able to be resilient because we can't be perfect in our choices, in our behaviors.

Right? We have to have some leeway in being able to to be resilient to things that, may impact us. So the biome has that's what it's, it's called the biome effects really gives you a very strong picture of what your microbiome looks like from a number of aspects.

The first part of the test really goes through all of these resilience factors, things like your diversity, and tells you exactly how many organisms were identified.

And how does that compare to healthy populations, of which there are, you know, thousands upon thousands of samples already collected. And then it looks at your resistance, which is how, not only your diversity, but it looks at how stable your population is, you know, how susceptible is it to significant changes?

Should you introduce something that could be, you know, this, this disarming to the microbiome, like an antimicrobial antibiotic of some sort, you know, travel even, like, if you go overseas, that can be, yeah, impactful to your microbiome, right?

In some cases, in a negative way. So it does go through all of these parameters and gives you a really strong handle on where your microbiome is. And the best part about it is everything that we test also will give you action steps for what you can do to improve it.

You know, and these are lifestyle action steps, dietary action steps, supplemental action steps, you know, and so that you can actually do something about it.

So I'm glad you brought that up because that's really the one way to know, you know, where you are with your microbiome. If you've been dealing with chronic, micro toxin issues and you're having that hard time making progress, it'd be great to understand where your microbiome is and there are likely things you need to do within your microbiome to start detoxifying properly.

Yeah. I think that's a really tangible action step in. A lot of us know of course the importance of the microbiome. But you know we're in clinical practice and we're like focusing on okay we got to quantify the mycotoxins.

And then we got to know what other gut bugs to treat ear you know to kill rather. And then, you know, sometimes I mean, as you pointed out beautifully in the beginning of our interview, like this whole spectrum of the microbiome is there to help support us.

We don't have to make it this hard, you know, if we can get the microbiome imbalance it really serves, you know, our health and our resilience. And so, no, I, I don't think about that.

Enough with a Michael Jackson patient to look at, you know, microbiome diversity. So I'm, I'm taking that pro with me. And you mentioned, I mean, how we've gotten to know each other, carrying this through, mega spore, that probiotic that I use and I love and that has bacillus spores.

And so it seems like what you shared with the feed peas, I'm just thinking, like, you know, we have a lot of, you know, of course, we deal with a lot of inhaled, micro toxin exposure, but there's the food aspect, too.

So, you know, just like having maybe digestive enzymes with your food, but having, you know, mega spore, potentially with foods that might be higher in mycotoxins, potentially could help to decrease that, potential, assault or stress to the body.

Do you think of it in that way or am I am I wrong? Yeah. No. And that's absolutely right. So, so we like you mentioned this inhaled mycotoxins is ones that come in through the diet through the digestive tract. Right.

Testing Microbiome Diversity and Resilience

And there is a deep connection between the two. Right. So and how they're connected is through your immune system because, of course, your digestive tract is the largest sampling site, of your immune system.

And so what you may inhale, even if it doesn't go through your digestive tract, but if your immune system learned about it in the digestive tract, it can deal with it in the in the respiratory tract.

Right. So that's the part that's really important. So one of the key aspects of the bacillus and those spores, that are found in Mega Spore is that not only do they has bacillus been shown to be able to directly break down and neutralize mycotoxins that are coming in?

They also enhance the expression of T cells and B cells in your digestive mucosa, which is the biggest sampling site for your immune system. So if you've got mycotoxins coming into the digestive tract and you've got a probiotic in there enhancing immune response, then you have a better shot at building antibody neutralizing antibodies

against those mycotoxins that then get translated throughout the rest of the body, right?

That the immune system uses the digestive tract as a training ground for dealing with everything else that enters the body in different locations. And so being able to support your immune system's ability to identify and learn about the mycotoxins that are coming in and then mount antibody responses against it, will help you deal with, with, the same mycotoxins that you get exposed to through the respiratory tract, through through your skin, through your, your general tract, any other way that it enters into the body.

So that part is really important because that's the immune sampling, oral tolerance, component of dealing with these things systemically. As you're talking kind of taking a little detour into the nasal microbiota because that is obviously on top of a lot of people's minds who've been in unhealthy homes and in the series and mold on this community.

There's a lot of looking at different types of bacterial overgrowth that can be a hallmark sign of mold exposure. And then, you know, also fungal overgrowth and biofilm and all the things that can be, you know, just like how we have dysbiosis in our gut, right?

We can get defenses in the nasal microbiota. And so, what have you learned around, that piece, specific to mycotoxins and even mold? Yeah. So, you know, one of the things is the opportunistic microbes love anything that enters into the system that disrupts normal immune function, right?

And hence their name opportunistic. They're looking for those opportunities for them to express their resilience factors. So, when you have elevated levels of opportunistic microbes in any part of the body, including the sinuses and upper respiratory tract, any time you're exposed to anything that's inflammatory, like a micro toxin, those microbes will actually make things much worse because they see that now as an opportunity to start increasing virulence factors production.

Right. So one example of that is both staff and strep. So people with chronic sinusitis or renal sinusitis tend to have an overpopulation of staff and strep in their sinuses and in their upper respiratory tract.

They may even have some pathogenic mold in there as well, which is which compounds everything else. So now you get exposed to a mold toxin, a micro toxin that will then, initiate an inflammatory immune response in that tissue.

Opportunistic bacteria will see that inflammatory response and use that as an opportunity to start enhancing its virulence factors. So now you've got the micro toxin, component of it driving inflammation and tissue damage.

And then you've got this bacteria that goes, hey, this is a great time for us to start creating havoc. And then they start enhancing their, their toxic genic, compounding, production and exposure as well.

So now you've got this double whammy going on and it becomes really hard for your immune system to deal with both at the same time. Right. And so that that is the part that really creates, to me a compounding factor in people.

And that's one of the key factors of bringing down resilience and being able to be exposed to things and, and walk away from it without, without all of the damage.

Right. So that that's a big key. So if you've had chronic sinus issues, you know, and then you get exposed to respiratory mycotoxins, you're going to be in a lot more trouble than somebody who has not had chronic sinus issues because they're not colonized by these opportunistic organisms.

Clinically, we've, had people actually use the bacillus spores and mega spore and neti pot solutions and, you know, irrigate the sinuses. Is that still, good clinical thinking as a tool to help, you know, reregulate the immune system in the, in that tissue or any other pearls, for helping with this, the sinus piece that's so often affected with, these patients.

Yeah. So actually that that's really, a great way to do it. And in fact, we've been working on setting up a really nice clinical trial with the ENT group in, in, British Columbia to study this specific, yeah, nasal irrigation with the bacillus spores, because there is already data showing that the bacillus spores do compete against those opportunistic organisms and enhance the immune response against those organisms when they enter into the sinus mucosa.

Bacillus Spores, Food Exposure, and Immune Support

And then there's also real world relevance to that, where studies show that we inhale these kind of these beneficial organisms, all the time. You know, in desert dust that blows from the Sahara Desert across Europe and much of Asia, there's high levels of the spores in them.

Right? So it's very normal and natural to be inhaling when you're outside to be, to increase your exposure to these beneficial microbes that then help combat against the opportunistic microbes.

And so there's there's that empirical real world application. There's good scientific data already. And then you guys already know from clinical practice that that's, that can be very beneficial to people.

And that's exactly the key. Right? That's a lot of what we need to do in dealing with things like chronic mold exposure and chronic mycotoxins. Syndromes is we have to change the terrain in which the micro toxin is present, because the terrain will dictate what the impact of that, you know, of that variable is, right?

Whether like, you might get exposed to a virus, but one individual is perfectly fine and the other one gets sick for weeks on end. Right. And the big difference is that the virus, the virus is exactly the same as what terrain did that virus enter into?

And I think one of the things that we really need to start helping with, with these, individuals is how do we reform their terrain so that they have a chance at really actually dealing with this and building more resilience against future relapses?

Right. Because that's another thing that I've seen, too. And, you know, I don't and I don't see patients, the way you do, but I interact with lots of people that, that, you know, I deal with chronic problems is that they may go through a period where they can control it, but then they relapse very quickly, right?

A single exposure to something that they weren't aware they're being exposed to are now put them, put them back on their back for the next couple of months.

So we want to continue to build that resilience. And I think these kind of tools like the right probiotic. And then we should talk about the immunoglobulin as well.

And then also understanding what your microbiome looks like through, a test well provided with that can really help build and modulate the terrain. Yeah.

I think there's this great. You know, and I understand when people are suffering, they're trying to, you know, do the best that they can. But yeah, there's this, in our community, this desire to like have the perfect home or the perfect environment.

And while there can be, you know, place for healing in that space, it's not reality, right. You know? Right. And and it goes back to that resilience idea.

And so with the, everything you're sharing, I gives, you know, I'm hoping people feel really empowered that we can really support this part of our body.

And let that do the work. Great. And really, you know, we've co-evolved, you know, with the system and we're more, you know, microbes and human cells.

So I mean, we we have to take this into account. I want to go into some more tools and therapeutics, especially that you've created. But before we do that, quickly, you know, I remember even when I first, listened to you lecture about Mega Spore, you know, years ago that you were starting to see this, histamine connection brain and this mast cell connection.

And so a lot of our patients and I think that it's either it's knowledge and awareness, but there's this increased sensitivity. I treat a highly sensitive patient.

So I, I treat that community. So I'm always looking to how to support them. And you know, when we think about, you know, in one spectrum there is mast cell activation syndrome, right.

That's the fullest expression. But there's you know, I see this as a spectrum and I see, you know, mast cells are in the matrix and all in the gut and everywhere.

And so, a lot of us see that there are these, triggers right there, these, things like molds, mycotoxins, even parasitic infections that can, make our mast cells more excitable to not only release histamine, but all the other things, they release and create this sensitivity in the system.

And so any, like, new insights or insights to share how we can look at the microbiome as a solution for mast cell activation. Yeah. In fact, in fact, there's a lot, we could do a whole we could do a whole lecture on that.

Totally. Maybe I'll do another interview with you. I'm super curious because it's it's literally my patient population every day. So. Yeah. Yeah. And here's, here's a really interesting thing I've learned from the research and the work we've even done over the last few years is that, mast cells and the sort of cells and all that, that, that perpetuate this histamine ID type of response in the body.

Your immune system goes to that as a default if other systems aren't functioning as well. Right. So one of the first and the main ones that that if it's dysfunctional defaults to the mast cell type of response is if your secretory IgG levels are low.

Right. So it's really quite interesting. And and that's your immune system actually trying to protect you because it's trying to get some sort of antibody population, population out throughout the system.

Right. It's trying to create this antibody abundance and concentration in your secretions, in your mucosa and all that. So that you're protected against incoming, viruses and bacteria and all that.

Of course, the downside of the antibodies and the, and, antibody and histamine producing cells, like many cells in the Sana fills, is that it creates massive inflammatory responses.

So what tends to happen is if you have low diversity in your microbiome, you have low IGA production. Right. Because IGA production is dictated in large part by the diversity in your microbiome.

Because it's the microbes sitting on the top layer of your mucosa that send the signals down and activate something called tumor like receptors that then create the excretion of our secretory idea.

Right. So now if you have low diversity, you know, microbiomes impacted your it's a dis biotic gut. And because of that low IGA production your immune system sees that and goes, oh, we have to overcome that.

And so your immune system actually produces more mast cells and more sort fills, and then creates a higher population of IGT rather than IGA to make up for it. Right.

So one of the ways to really combat that and shift it back towards a more protective IGA is to increase the diversity within the microbiome, I mean, and that will bring the IGA levels up.

Sinus Dysbiosis, Mold, and Nasal Irrigation

And when the IGA levels come up, then the mast cell, production and then thereby activation actually comes down. And those are, those are contradicting, you know, pathways for the immune system.

Right? So when one is one, one is down, the other one's going to be up. And one of the only ways to bring the other one down is to get the first one. You know, and if we were using conventional medicine, what we would do is create drugs to just go and beat this one down. Right.

But then both of them are down, and now you're susceptible to all kinds of other things, right? So in our world where we look at root causes and all that, we know that, okay, this is down.

So then the the mast cell and Sano fill IgG type of response is up. So we need to just bring this one back up so it goes back to normal. That to me is one of the most interesting thing aspects of people.

And a lot of times the sensitivity of, of the patients we deal with comes secondary to other issues. Right? It started with something else. And then all of a sudden they become more and more and more sensitive over time.

And that's because of the loss of oral tolerance or lack of IGA production. The lack of mucosal sampling through the production of secretory IGA, which is actually a tolerance antibody.

And then this overexpression of Sana fills mass cells and histamine. Now the other aspect of histamine is, your microbiome can actually produce quite a bit of histamine as well.

Right. And it does so in response to chronic, and latent infections. So you've got lots of latent viruses, for example, in your system, your microbiome is trying to signal your immune system to go, hey, you got to deal with this.

And it does it through the production of histamine, and, indole, and, and those are the two main compounds that your microbiome will produce to try to signal to your immune system in this chronic, viral infection as well.

So a lot of times in the very sensitive patients, at some point a latent viruses is set up shop and it's continuing to drive more histamine production.

But this time through your microbiome, you know, so, so working and dealing with perhaps a chronic viral infection could also help things like lower side.

It might be useful you know. Yeah. That's a great clinical probe because we a lot of the Marcel type patients will do a total IgG. You know, see that that being elevated as a clue.

And then you know stool tests often look at Secretary IGA. So that's again, a great clue. And, you know, the body is so wise, right? So it's like, you know, the body isn't confused or, you know, just doing something, you know, random right there, there is some intelligence.

And so I think always looking at from that perspective is always enlightening. So no, that's that's great. Yeah. And then keep in mind the body's the ultimately the body's goal is survival, right.

It's not necessarily quality of life. So the body has you right. These default systems. Yeah that may suck but will keep you alive. Disintegrate. Right.

So the body's thinking, hey, you don't have IGA. You're better off with IgG than no antibodies, right? Right. So so that's that's the way the body goes.

But it's sucks to have this elevated IgG histamine production. You know from a quality of life standpoint. And so yeah, it's super interesting. And so much of that is dictated by the microbes.

Yeah. No that's yeah. Always great. You know Pearl too because yeah I mean you know you see our patients quality of life and they suffer way too much right.

You know. So but yeah this is a great perspective to alleviate the suffering. Right. And so what we're talking about immunoglobulin. And we wanted to talk about your mega IgG as a tool in this picture.

So can you just share with us what that is and the role it plays in everything. You know we're talking about here. Yeah. You know, I mentioned earlier that ruminant, animals are highly resistant to mycotoxins exposure.

Right. And in part because they've got all these microbes in that ruminant component of their digestive tract that will break down the mycotoxins and neutralize it.

And then they get a lot of immunological response in that ruminant component of the digestive tract as well, which is for those animals where the largest sampling tends to occur.

So, so with cows, they have this amazing capability of giving high exposure to mycotoxins, but then getting good immunological response against them while their microbes are breaking them down and and allowing those mycotoxins to not be a problem for the for the animal.

And so when you look at, IgG in cows and in ruminant animals, they have a really amazing array of antibodies that neutralize mycotoxins. And our full array of microbes.

We're talking about aflatoxin dons. E all of this, all these really egregious mycotoxins. And so these ruminant animals, when you can pull their serum and isolate their antibodies, and utilize them from a dietary standpoint can be a huge help in binding, neutralizing and inactivating mycotoxins in the system.

And so and that's one of the, one of the big applications of our mega IgG product, which is a high concentration of, bovine immunoglobulins. And it's all IgG and, and globulins.

There's some IDM in there and some idea as well. But we've worked with a lot of clinicians. We use that quite a bit for their high micro toxin patients.

Because those, those antibodies bind in utilizing, Mike toxins, because the nature of these animals is that they're super resistant to it, you know, and so, so we can utilize, you know, their, their capabilities to really help us with, with reducing the micro toxin load.

Mast Cells, Histamine, and Secretory IgA

I love that. And, you know, many people are going to be like, okay, I'm sensitive to dairy. Can I take the colostrum? What is your input on that. Yeah.

So this one, the good news is it doesn't come from the from the colostrum portion. This is a serum. Oh from that from the animals. So there's no dairy component of it at all.

It doesn't come through the milk. It comes directly out of the blood. Yeah. Perfect serum. Yep. And I knew it was, you know, dairy safe, but I, you know, I confuse that, so that's great.

That gives me more confidence to everyone, right? Yeah. Yeah. So there's this whole issue for them at all. Yeah. Great. No. And I use it in clinical practice and I've seen it, work.

Well, I haven't really put the pieces to exactly this mechanism. And so can we think of this as a mycotoxins binder? I mean, yeah, so you know, when we think about binders, you know, we're thinking about charcoals and Volvic and humic acid and, you know, all of these things.

So would you classify, this as just kind of a obviously different mechanism for the same effect to reduce the mycotoxins load? Yeah, that's absolutely a great way to look at it, because the other part of it is that not only is it a micro toxin, binder, it's highly specific, you know, to micro toxins and bacterial toxins and bacterial components and so on.

So it actually does, a number of things, including binding and neutralizing mycotoxins. It can actually bind and, to, to mold, it can actually bind to a whole bacteria bind to viruses.

Because again, anything that the cow has developed immunity against being out in the world. Now you've got that protective antibody in your, in your GI tract from taking the product.

And it's very specific. And that's a really good part about it. Right. Because there's, there's a there's a the secondary side of using things like other binders that can actually bind good stuff to, and the benefit here is that you're really only going after the things that are potentially problematic.

So and then, they there's also, studies on mucosal integrity leakiness in the gut with the IgG, which shows that even in cases like HIV interrupting, these are HIV positive patients that go through a really severe leaky gut, process for HIV in property, they've been able to show that you can actually rebuild the mucosa even under that condition using just the IGI.

So not only is it going to play a role in binding and neutralizing the things that are causing the toxic response and the inflammatory response in the body, but it's also going to support the rebuilding of the gut lining.

And we know with high certainty that 100% of people with mycotoxins exposure have leaky gut. And it just goes hand in that right. And that leaky gut is perpetuating a systemic response that is really not helping their system.

And so if we can deal with both at once, that would be a real big benefit. Yeah I know it's like doing everything we need for these patients. What kind of dosing do you recommend.

Like if someone has well I guess two questions as we're wrapping up like there's, you know some clinicians get really specific. They see like oh we're toxin A we need to use this tired me and or you know like really specific with what kind of mycotoxins and what type of binder do you have that type of information.

Yeah. Like what? Mycotoxins. We should really be thinking about to use the mega IgG product for. Yeah. So that's the that's a beauty. The the array of immunoglobulins.

So it binds over 15 different types of symptoms. Yeah. So it actually takes care of the full array of what is commonly part of the exposure. And so you don't have to think about it that specifically.

And then the patients don't have to take many different things based on understanding what their mycotoxins are. Right. And then so it provides more broad spectrum protection for the patient.

And so the, the dosing when it comes to people with high mycotoxins, load and, and exposure, would be around 4 to 5g a day. And it's done so in capsules.

So, we would recommend them doing something like, four capsules in the morning for capsules in the evening. You know, they can do it for capsules is the first thing that they do on an empty stomach is fine.

And then for capsules in the evening before bed or five and five, five and five would give them five grams of the, of the, immunoglobulin. That's a really good dose for patients who are acutely dealing with micro toxin exposure.

Mega IgG for Mycotoxin Binding and Gut Repair

And then if they want to go to maintenance, once they get much better, a great maintenance dose is just for total per day rather than for the morning.

For the evening. And you can do that any time of the day. Nice. And it seems like beneficial to be away from food but it's not going to have all those other effects that other binders have to be away from food for binding to other nutritional products or medications or that sort of thing.

It's safe to take, away from food and might not interact with as many things. Is that what I'm hearing? That's exactly right, because it's so highly specific in its ability to bind just the toxic genic compounds.

You really don't have to, you know, separate it from food intake and so on. And in fact, if you're concerned about food being a source of mycotoxins, right, which is which is a huge source of micro toxin exposure for people, then taking it with the food can actually be beneficial because it's going to bind up any mycotoxins in the food.

Nice, nice. I kind of have this visual of like, okay, of course we want the happiest healthy cow in the grass fed, you know, pasture and all of that because of, you know, of course, that's the natural habitat.

And then I'm like, and then we want the cow in the really toxic environment because, you know, whatever it's surviving through, you know, that's going to, you know, how best survive, right too.

So so yeah, because again, it just increases what the resilience of the cow is. Right. And, and it improves the array of immunoglobulins of the cow has.

And so all of that provides us with additional protection. Well sure. And I always learn so much from you and I'm taking notes and I'm going to go to my office today and you know, prescribe a lot of these things from this lens.

You know I use your products obviously, but it's always good to have these tips and tools to help shift people more quickly. And, you know, as we wrap up, is there anything else you want to share about what you're excited about or what you're, wanting people to know and who are listening to the summit?

Yeah. You know, I mentioned diversity a number of times. Right. And and really, at the end of the day, when you look at all the microbiome research, if you have high diversity, that is probably one of the biggest markers of overall health and wellness and in fact, longevity, as well as lots of data now coming out that that shows that your diversity in your microbiome dictates how long you live.

So it plays such an important role, but it's a very difficult thing for people to figure out how to increase. Right.

Building Diversity with Good Biome Foods

And so in order to help them with that, we've recently, developed and we're launching this good Biome Foods product line, which the whole focus of this is simple, convenient, delicious foods that take a minute to prepare.

And if you consume one every day, you're going to dramatically increase your diversity over a relatively short amount of time, 2 or 3 weeks. So we want to make diversity an achievable, you know, feature for people in the US, because one of the biggest factors in our increase in chronic illness over time, over the last several decades is a significant loss in diversity in the in our microbiomes, in our Western population.

If you look at our most closely related, hunter gatherer tribes that still exists today, like the tribes in Papua New Guinea, the Hadza tribe in Tanzania, they tend to have double the amount and, species of bacteria than we do.

Right? So over the last several decades, we've lost half of our resident microbes, which is a very, very scary notion because our microbes conduct 80 to 90% of all our functionality.

Right? So if we lose the microbes, we lose function and we lose the protective features. And so for us, it becomes paramount as a microbiome company to to illuminate, educate and, make people understand how important diversity of the microbiome is and to maintain at least what we have now so that we can pass it on to our next generation.

Because each generation is being born with less and less diversity within the microbiome. It's a like losing organ systems, you know, so so we want to maintain and maintain that diversity.

And just I would stress, you know, to your audience, it's this thing that keep in mind that diversity is really important

to test your microbiome, see what your diversity is like, you know, utilize the tools that we've talked about to increase diversity.

And then the good biome foods should really help as well. I'm going to check those out and, see, you know, if my three year old will eat them as well because, yeah, it's going to be you know, that's the key.

Yeah. Absolutely. So. Oh, well, it's always a pleasure. And, you know, thank you so much for this awesome information and all the hard work that you're doing to innovate in our space.

And yeah, thank you for being part of the summit. Yeah. Thank you. It's my pleasure. Thanks for having me.