Introduction and Speaker Background

Welcome back to this episode of the Reversing Marcel activation Syndrome and Histamine Intolerance Summit. I'm your host, Beth O'Hara of Marcel 360, and it's an honor today to have my dear colleague, friend, and genetics mentor, Bob Miller, with us today.

Bob is going to share with us some of his latest genetic and biochemistry research that can have a huge impact on Marcel Activation syndrome. So if you're a health geek or a practitioner, you definitely don't want to miss this one.

First, let me tell you a little bit about Bob. Bob Miller is a traditional naturopath specializing in the field of genetics. Specific nutrition. His practice is called Tree of Life, and he served as a traditional naturopath for 27 years.

He's the founder of the Neutral Genetic research into to researching the relationship between genetic variants, symptoms, and particularly in the areas of Lyme and Tor.

Autophagy in a deep and numerous inflammatory pathways. He's created 72 nutritional supplement products exclusively for health professionals. He's also the founder and president of Functional Genomic Analysis.

This is an online software program that organizes and analyzes genetic snips for functional health professionals across the world. And in 2016, he created an online certification course on genetic nutrition for health professionals.

Now has trained over 900 health professionals in this program. We also have some really great weekly educational webinars for practitioners. Welcome, Bob.

It's so wonderful to have you. And I'm really excited about this talk. Well, it was a pleasure to be with you. You and I go way back. I do believe, and I want to thank you for all the other times you participated to our to our seminars, and you were always a very well received speaker. You always did a great job.

And congratulations to you on putting together this summit. I mean, what a what a major task this must be. And I wish you all the success that this helps a lot of people and I'm sure it will.

Thank you so much, Bob. Now, I know everybody's always curious how people get into their field. How did you get into the area of genetics? Well, interesting.

I was well versed in traditional naturopathic. I was an executive in the cable television industry and came down with a severe, severe case of ulcerative colitis.

Was in the hospital for 21 days, lost half my blood, got near death, and they wanted me to cut out the colon. And being the stubborn Dutchman I am, I thought, there's got to be something else I can do here.

And and that's how I got interested in, you know, herbalism at the time and the natural health. And of course, everything's just fine. So that's been up 30 some years ago.

And I just became totally, fascinated by the whole subject. Then it was maybe 10 or 12 years ago, learned about genetics, and it was that proverbial love at first sight.

Being the geek that I am, I thought, this is really cool, that we can just buy a simple saliva test, you know, get hundreds of thousands of pieces of information and, connect the dots.

And, of course, that's what, that's what we're doing. We're connecting the dots. So that's why I created the the

software. That's only available to, to health professionals.

But what we do is we we connect the dots. I think we've got to move away from. Oh, I have this snip or this mutation. Therefore, this problem, I believe it's much more complex.

And, it, it is interconnection of symptoms and labs and many, many other things. So we we need to look at this in a very in-depth fashion. And that's what we're that's what we're trying to do.

And I love your metaphor. I use this a lot with my own clients that it's definitely not. And if you have more of our it's this if you have this variant, you CVS, you have to cut out all the sulfur and you say a lot of times it's like playing 3D chess underwater.

And so that's what we're looking at. We've got to look at these genetics in the context of people's symptoms, in the context of their lab testing. And then how do we how do we best support them in handling that.

Big-Picture Biochemistry Map

And that's what I love about your approach. So we're going to dive into some significant biochemistry. And I'll do my best to try to translate that for people who may not be as familiar with it, but I know you're going to share some slides, because what we're going to talk about and look at, there's a lot of visual components that will help people.

And if you're if you're driving and you can't watch it, go ahead and listen to the talk. But then you might want to come back and look at it again and look at these slides.

So you have the visuals. Absolutely. Okay. Well let's let's dig in. I'm going to start with a slide share here. And is that working okay. Yeah we're good to go already.

As Beth said I'm Bob Miller and this information is educational and informational. We're not giving any medical advice here. And, a couple of years ago, I had a professional artist, draw this, the 3D chess game played underwater, as we just mentioned.

And, it really is multiple factors. And there isn't a simple, easy things. Now, don't be overwhelmed by this chart, but what I'm going to do is, this is what we're going to be talking about for the entire webinar.

So what I like to do is give you the high view, you know, the view from 10,000ft. Then for the rest of the webinar here, we're going to dig into the details.

So I just want to tell people, because this is downloadable, we're going to have this link available for you at mass 360 dot Coms Summit, where you can get all your summit resources, you'll find your coupon codes, and you can download this map.

Absolutely. So for those people who like to, to geek out on this, they feel free to, to download it. And there's a good chance that, what we'll be downloading in October because this, this was recorded maybe even improved upon from what we're looking at here.

Now, what I'd like to point out where you see these little purple circles or ovals. These are enzymes and enzymes. Take one substance combined with something else and make something new.

And as you learned earlier, you can have what are called snips, where the enzyme can be upregulated or downregulated. Then I'll explain some of these other things as well as we move along.

So I'm going to, get a little bit bigger picture here. And I'm going to start up here. Here's where we're going to start. There is an enzyme called tumor necrosis factor alpha.

And we'll talk about that in detail. And it's our friend because when we're exposed to mycotoxins Clostridium

Bartonella lipopolysaccharide, this guy kicks in and says, hey, we have a problem here.

We need to take care of this. So it stimulates inflammation and stimulates another inflammatory enzyme. And these names don't really much matter. Just just know that they're inflammatory.

But it's called NF kappa B. Then that stimulates another enzyme called nADPh oxidase. Then we have some friends the sirtuins. Maybe some people have heard of those already.

They're related to longevity. Sirt1 actually calms these guys down a little bit. The NOx enzyme stimulates a cytokine called interleukin six. I'm sure with Covid, people have heard of the cytokine storm.

This whole summit is based upon mast cells. Many ways we get mast cell, but the NOx enzyme stimulates it. And of course, you all know that Marcello stimulates histamine.

I'm sure you all know that. Now here's something that you may not know. There's an enzyme called Inos inducible nitric oxide synthase, and Enos and Ethereal nitric oxide synthase.

Endothelial nitric oxide synthase makes the nitric oxide that dilates our blood vessels and does good things for us. The illness kicks in when we have a pathogen of some sort and creates a lot of oxidative stress.

And if this ion Rs is running too fast, we suppress RNA. So I'm sure, Beth, you see this many times that people have cold hands and feet, because their anus is overrunning and Enos is inhibited.

Now, again, I'm going through things quickly. I'm going to go through all of this in detail for the rest of our talk. Then that in us will do something called it'll activate our platelets.

And, you know, when I first started out, I thought platelets were cool little things that floated around. And if we had a cut or an injury, it would clot.

So we didn't bleed to death. End of story. Much more complex. And we'll talk about them. The main thrust of our talk here today is going to be about something called rantings.

And I would suspect that very few people have heard about this. So hold on. I'll explain that in a little bit. The activated platelets stimulate something called as cd40 L, and we'll get into that a bit later.

Now the next thing that happens is we call this veg F as well, because some of these markers people are used to looking out with Lyme and Texas has inflammatory markers.

They may have actually had that blood run. And what we're looking at or we know mast activation syndrome is an inflammatory condition. And we're looking at the actual mechanisms that are happening that are stimulating these mast cells across the various 200 different types of receptors.

Absolutely. Yeah. We'll get into detail on veg F and MDS. Then tumor necrosis factor also stimulates an enzyme called the Cox enzyme that actually pull something called arachidonic acid out of the cell membrane.

Then we'll get into phospholipids H2 that then comes down creates something called the round box. And E2 again activates the platelets. And then finally there's a third pathway that we're going to dig into.

There is an enzyme called interleukin six. That again is our friend. Unless it's over active. And we'll talk about all the things that stimulate that.

But look what it does. It creates a free radical called superoxide mast cells, histamine. Histamine stimulates the rantings. The anti stimulates the mast cells that stimulates the histamine.

So we have a feedback loop here. And I'm sure many people who are dealing with mast cells and histamine are

frustrated because they try to do so many things.

Nothing seems to work. And in the Cascades we're does we keep flaring and it gets worse and more out of control. Absolutely. Then we all know the benefits of the omega threes.

Well there are enzymes called fatty acid desaturate and he alluvial two. We'll show more charts on these. Talk about them. They make something called protections and resolve ends and they calm down.

These platelets. So what we've been finding is that people who are exposed to mycotoxins Clostridium, Bartonella, any other form of lipopolysaccharide.

And this even appears to be the what's happening with the the Covid long haulers that this whole thing gets revved up. The person is over there, they're Covid, it's gone, but they're still sick.

And, one of the hypothesis is out there. It kicks off this pathway, and then it just, keeps feeding upon itself. So that's the big view. And if you're a little overwhelmed at this point, don't worry about it.

RANTES and Inflammatory Feedback Loops

But for those who like the big picture, we thought we'd give the big picture first. Then we're going to dig in to the, to the details. This is a perfect example of why we can't just look at a single SNPs, because you can see just this one section is so interrelated with so many other areas.

Now, remember when we were creating the the first big neutral genetic map and the biochemistry map and finding all these pathways that said and each other, this is why we really have to move beyond if we have in our throats another way that somebody.

And then there's a timing in the introduction of these things as well. Absolutely. And that's why so many people, you know, we I'm sure both of us talk to folks all the time who say, oh, I can't take anything.

And, and, and the reason being is, there may be and one of my responses to that, well, the reason you may be having a negative response is because it's working.

And they look at me like, what do you mean? Well, it's trying to turn something on and the body's so inflamed it can't handle it. Yeah. It's too early to.

Yeah. Early. Yeah. I should have had another slide here, but I had another slide that shows a house burning down and people are watching the windows and, mowing the lawn.

So one of my favorite sayings is when the house is burning down, don't wash the windows and mow the lawn. Put out the fire and too many people try to do other things first.

Oh, I'm tired. Let me take some things for energy. Oh, I've got heavy metals. Let me do a big detox many times we have to just calm everything down first.

One of my favorite sayings is I'd rather be a little too late than to sell. Now let's move on to rants. It's a funny, funny name. Regulated upon activation.

Normal T cells expressed in secreted. Seriously. So how did how did they come up with that name. But it's also called CCL five. It's a pro-inflammatory mediator of the cytokine and chemokine family.

It this is the keyword right here regulates the mobilization and survival of immune inflammatory cells from the bloodstream into tissues and other areas of injury infection.

Is that a good thing? Sure. Unless it's over active. So this is the study that says sustained production is associated

with several detrimental effects.

And treatments that interfere with rants are associated with improved outcomes. So that's what rant is, is and everything we're going to talk about today is how multiple things will cause the the rants to be to be upregulated.

And for people who this is all brand new for, I just want to explain to them that cytokines and tumor kinds of cell signaling is in the immune system.

Mast cells make lots of cytokines, and these other cells make cytokines and chemokines. So this rant is is helping to regulate those. And some of these cytokines chemo clients are pro-inflammatory.

Some are anti-inflammatory. So it's modulating the inflammation response which should be a good thing until you have of of a big issue where it's out of control.

And a lot of people now know the name cytokine storm. So there are some roles in all of what you're talking about with that as well. Absolutely. Now rant is is produced by all of these things.

But we're just going to focus on the platelets because that's our discussion here today. But key point here rant is stimulates histamine secretion by mast cells.

It recruits T cells. Macrophages assign a fills and basophils to sites of inflammation. Again a good thing unless it's overactive. And that's the key point of being overactive.

Now I'm going to burn through these pretty quickly. But here's a couple of conditions. Is plays a fundamental role in histamine and serotonin generation.

We'll talk about serotonin later and cell function in mast cells. And here is a study of eczema. And they were shown to play an important role in the orchestration of this unofficial infiltration and making eczema.

Worst was shown to reflect the severity of the disease. Now this has been pre-print as of this time. Maybe it'll be peer reviewed by the time this plays.

But they're talking about our study shows that Covid 19 is very much Arantes disease demonstrating. So these this, this doctor and his team started measuring rats in the long haulers and in Covid demonstrated 100 times normal levels of rats in critically ill, five times normal levels, even in mild, moderate cases.

And this came from Bruce Patterson, M. D. so what they found is that when they when they lowered the rats, these people, had reduced viral load in the Covid 19.

So again, this isn't a cure for the Covid. We're not saying this this is this cures it. But clearly once it starts running in, you're that long haul. This seems to be what's happening.

The rent is this is much higher. Here is and again, I'm not going to read all of this, but they're just talking about, that the rants, increases the liver damage and liver disease.

I'm going to burn through these quickly. Autism spectrum disorder rants and other chemokines were shown to be higher when compared with typically developing children.

Supports the hypothesis that altered chemokine levels are involved in autism spectrum disorders studies, saying that this could be a potential biomarker for autism spectrum disorder makes sense that since all these are inflammatory conditions in different areas of the body, neuro inflammation, chemokines like grants control the recruitment of leukocytes and something called MIT grants that knocked it down was shown to reduce progression of heart disease.

And they're saying this is a potentially new therapeutic strategy for cardio vascular disease, inflammatory bowel

disease. So they looked at the the the clinic tissue from patients with various IBD.

And that was greatest in the severely inflamed tissue. The chemokine expressing cells rantings was expressed infrequently by T lymphocytes in normal colon.

So the bottom line of this study is significant redundancy in the generation of these chemokine signals. In chronic inflammation in inflammatory bowel disease that your Crohn's and ulcerative colitis lung disease found profound elevation of plasma il6 in the SARS covid to the in the up Covid 19 and also for respiratory virus infection of respiratory epithelial cells had an upregulation of the CCL five, which is the the rantings and the level of the rants in the upper airway secretions correlate positively with this disease severity.

Here's a study showing that it's higher in, prostate cancer. And I'm sure as we do research, we're going to find more and more where this is upregulated.

Because if you think of the the rants as being part of the lowering the immune system, increasing the histamine, increasing the mast cells, the list is probably going to get longer and longer.

So I'm sure this is just a snippet. Of all the things involved with the with the elevated ramp TS and we know there's a huge MSL connection with cancer.

Absolutely. So this is just filling in more of these links that we and we got nasal connections with the different disorders you just went through. Now this is just a beginning of what stimulates grantees.

So platelets will stimulate durante. And as I said, we we looked at different ways that, the platelets can get, activated Lyme disease. So here they're showing that the, that we were exposed to the Borrelia, the bacteria responsible for Lyme, it's strong inducer of the chemokines.

So and I'm sure you see many people who have, mycotoxins and Lyme together, and these are the ones that are, that are really struggling. Now, we showed you earlier that, that, the tumor necrosis factor stimulates NF kappa B, but they're saying that the strength and kinetics of Arantes has been shown to be highly dependent on the preexistence of NF kappa B, and I'll show you another chart of that in just a moment.

And, ion, you know, we, what's interesting, back in 2016, we won the research award in Helsinki for our Lyme disease because we showed that the people with chronic Lyme had a more than five times, more five times more absorption of iron through a gene called the the HIF genes.

We just observed it. Now, what we're finding is that, this ion stimulates NF kappa B and tumor necrosis factor activity. So we knew that excess iron was always a problem.

But it's just based upon this new research that we find that this iron is not regulated or in excess, stimulates when we I just want to that's a great pearl.

And many people are so worried about low iron.

Triggers of RANTES and TNF-alpha

But these inflammatory conditions, especially men and women who aren't menstruating, will see that iron start to accumulate. And we've got to look at a whole iron picture.

But what you're saying is that has a role in stimulating these inflammatory pathways as well. Yeah. That was a, that was a new one for me. I mean, we talked about the Fenton reaction for a long time.

And, as we'll show later, iron even stimulates the, the inner sense one. Here's a peer reviewed study. The histamine from the mast cells has been shown to enhance the production of rants.

All right. So here's back to this chart here. So now we'll look at it one more time. The mycotoxins Clostridium Bartonella lipopolysaccharide stimulates TNF a nerve kappa B.

And I didn't mention that in the quick review. But you can have genetic mutations in the HIV genes which causes you to over absorb iron, which you can see also stimulates these guys right here.

And then interestingly mercury induces NF kappa B, the Cox enzyme that we'll show you later in the illness. Glyphosate increases NF kappa B. So why do we see, you know, mast cell activation getting worse?

Yes, there's a genetic component, but nothing has changed genetically. There's nobody running around today different than they were before. I believe what's changing is the environment, the mercury, the mold getting stronger, more Lyme disease, glyphosate.

So people who had genetic predispositions 75 years ago, it didn't matter. But now those who have genetic weakness and were exposed to this ever increasing amount of environmental toxins are being impacted.

That's the only reason why I can think mast cell activation is so much higher today, because our genetics are different today than they were before, but the environmental factors are absolute.

When I say that often we're the canary in the coal mine, and that's of us with mass activation syndrome are the ones waving the flag saying, hey guys, this world is too toxic.

We're the ones getting hit first, but this is toxic for everybody. Yes. My, my grandfather was a coal miner, and he told me stories of how they would take the, the cage with the canary.

And if the canary ever fell over dead because he had smaller lungs, they knew that if they didn't get out, they'd be next, because they were toxic gases in the in the mines.

Yeah. And the canary had the effect of it before the workers did. So that's where that term comes from. Canary in the coal mine. Now these are just some of the environmental factors cause tritium, Bartonella libel polysaccharides, mercury, glyphosate.

And then I listed the the snips that are involved here as as you had mentioned, we've, formulated some products. These are just the names of them, and there's one under development.

We'll probably have this by the time this summit plays, something called hydroxyl blocks to slow down the ion cytochrome six, to calm down the interleukin six, nADPh protect to calm this down.

So with precisions, we have to go in there and decide where we need to do support. In other words, it's not the do this for the mast cells. We have to find out where the overactivity is and jump in and give precision care and for people who aren't familiar, could you just tell them about lipopolysaccharide?

And also what gain of function mean. Oh sure. Yeah. Label polysaccharides is this gram negative bacteria. And yeah I should have explained that. So when there are mutations in the in the snips or the, in the genes, many times you've probably heard that it slows down.

In other words, if there's one snip, it's estimated at 70%. It's efficient two snips, maybe 30 or 40, but there are a couple of genetic mutations that the when it's mutated, it actually runs faster.

So you can see here this TNF a we'll talk about this in a little bit. The mutation there actually makes it respond more mutations in HIV causes it to absorb more iron not less.

So sometimes also called a upregulation upregulation. Yes there's upregulation and downregulation. So here's tumor necrosis factor. This is the specific number in genetics.

There's an Rs number that goes with everything. And this is what we measure in functional genomic analysis. And when this one's mutated it's a gain of function.

So TNF is an inflammatory cytokine produced during acute inflammation. And it's signals to leading to either necrosis or apoptosis. Clearly our friend unless it's excessive.

So it's important for resistance to infection and cancers. But what it does it stimulates something called play two. And I showed you that earlier. But I'll go back to it later.

That result in increased arachidonic acid thrombus in a two as leading to platelet activation and increased ranta's. So the key here is when it's excessive.

We didn't have this life wouldn't exist. It's not bad. But if it's too much that's when it harms us. You sometimes talk about this like Goldilocks. Can you explain that? Oh, sure.

We all know Goldilocks and the Three Bears. You know, one was too hot, one was too cold, one was too hard, one was too soft. But Baby Bear's was just right.

So I often say, let's refer back to the only logs in the three bears. Too little or too much is a problem. There's like a bell curve for many things. So TNF is our friend.

Unless it's excessive. And if Kappa B is our friend unless it's excessive and it's a problem if we didn't have it, if this was too low, we'd be overrun by by bacterias or or pathogenic diseases too high.

It attacks us. That's the key. Finding that sweet spot, so to speak. So nf kappa B and by the way, I probably ought to get an artist to, to draw something like that. That'd be cute.

I have a drawing like a, nf kappab as a family of of transcription factors that, conserves roles in immune system. They regulate inflammation, cell survival primarily through the activation of the NF kappa B pathway.

So again, a good thing unless it's excessive. So we have been finding just observing that many times people who have a heterozygous but particularly when people have homozygous here, which is not very common, these people have inflammation.

They just can't seem to get under control. And no wonder okay, so here's a study that says in response to endotoxins, the lipopolysaccharide like LPs is due to gram negative sepsis.

Human monocytes are triggered to produce large quantities of the tumor necrosis factor. So when we get exposed to these things, that's when we get the TNF a moving and do an action.

And then it also includes activation of the NF kappa B. And the concentration of Arantes has been shown to increase due to the addition of the tumor necrosis factor alpha and lipopolysaccharide.

So again it all comes down to when it's excessive. Now mold this is a Great Plains mold test.

Sirt1, Mast Cells, and Histamine Breakdown

Here is Oka toxin via toxin. Super toxin I'm sorry. Say again that's a lot of a toxin. It sure is. Yeah. This person wasn't doing too well. Ocher toxin is a natural fungal secondary metabolite, and it significantly modulates IL two and tumor necrosis factor alpha.

So there's the reference to the peer reviewed study that the okra toxin will stimulate TNF a and begin that cascade. Now we're going to be adding to this list.

But these are some of the TNF inhibitors. Blackmon for human quercetin and milk thistle. And of course some

people can't take quercetin because of Comt issues or others.

But that's all part of the stuff we're putting into the software to give people warnings when something may not be appropriate. But I'm personally a big fan of, like human seed oil.

The ancients used to say that it cures everything but death. I think that's, a little bit of an exaggeration. But it is, pretty powerful. That's a great antiviral as well as a nasal stabilizer.

All of these are curcumin, quercetin. They're good nasal stabilizers as well. Now, Sirt one, I'm really getting a lot of, respect for Sirt one. Some people say it's sirtuins, other people say sirtuins.

It does more, but we're emphasizing how it inhibits NF kappa B and NOx. So you'll see here that Sirt one when this line goes this way. And here means it inhibits NF kappa B and NOx.

And if you you know, start researching sirtuins. You'll find that anybody who's looking at longevity is looking at the sirtuins and how to to boost them, to one of the most well-studied sirtuins.

Significant role in development yet decreases during our aging, by the way, it is nad dependent. We may talk about that a little bit. Decreased levels are found in the aging liver and, it regulates a lot of enzymes.

I mean, your Ampk, which is autophagy, your fox, those which ran on inflammatory or superoxide dismutase, your Noss three, which is your circulation and inhibits these inflammatory ones, including IGF one and mTOR.

By the way, when our 2017 or 2018 study on Lyme disease, we showed that those with chronic Lyme had many factors that would cause mTOR to be upregulate for those who don't know, mTOR stands for a million target of rapamycin.

The growth of new cells is that important for sure. If we didn't have that, the sperm in the egg would never become the baby. The baby would never become the adult.

We wouldn't have new cells. But there's also something called autophagy, the cleaning of the cells. So if we have mTOR running all the time, we don't clean the cells.

And then mTOR is inflammatory. Now, this one really surprised me. I mean, we all know that high fructose corn sirup is probably not good for us, but this blew me away.

High fructose corn sirup inhibits Sirt1. Wow. That's a big deal. So as you can imagine, there are mutations that weaken Sirt1. So if somebody's got a weak Sirt1 and they're reading a lot of high fructose corn sirup, they're really more prone to inflammation.

So have you ever read that if you ever heard the analogy where where does high fructose corn sirup exist? And the answer is everywhere. It's so it's just in so many foods, so many packaged foods have have it even things that you wouldn't think of as being sweet and sodas.

And so this is a great look at how this can have an inflammatory mechanism beyond just raising blood sugar and having insulin issues. And then you combine that with having too much iron.

You really going to be in trouble there? What we've been observing, I mean, this is just a clinical observation. When somebody has an upregulation of TNF, a upregulation of iron, downregulation of Sirt one, these are the folks that are just going to one clinic after another.

What's wrong with me? Particularly when they're exposed to mold and or Lyme disease or some other pathology. And it's stimulating. This, resveratrol, quercetin and intermittent fasting may activate Sirt one activity.

What also should have been put on here is NAD feeds Sirt one. That's your Nika to mine. Mine a nucleotide that

makes the the NAD plus. I'm not going to read this.

I mean, are people going to have access to the slides about them? If you will send them to me, we can make sure some. Yeah. So we'll make these slides available.

And, again, I'm not going to read this. This would be just too boring to read all this. But for people who want to understand what the Sirt one does, I would highly encourage you to look at this slide and look at how many factors this Sirt one is related to.

So we are finding Sirt one mutations to be incredibly significant. Now this slide we will dig into a little bit Sirt one supports Inas that the endothelial nitric oxide synthase the blood flow.

It supports the production of an antioxidant called Sod. And as we discussed inhibits NOx and NF kappa B. But it's probably worth repeating that a couple of times.

It also inhibits mTOR. MTOR inhibits autophagy, and Sirt one also helps an enzyme that clears histamine. So you can see why this is so important. High fructose corn sirup inhibits resveratrol supports and nitrates like from your from your beet root.

But you know some people can't do that for the for the oxalate. I really was good source. Oh that's right yes. Arugula yes Sirt one. Here's the right number.

And nobody seems to know why. But when this is homozygous there's a lot of anxiety. Not quite sure what causes it. But again the people who are really struggling often have the the Sirt1 mutation, maybe neuroinflammation likely. Yeah.

And I don't know if it's if it's just histamine or glutamate, but it really wreaks havoc on the non individuals. Now here is a a little bit more on the mast cells.

There is a gene called the Kit genes that when they are mutated the I'm sorry I don't have them on here but they'll be right here. Mutations in the kit genes again are gain of function and the mast cells over respond when there's get changed.

And then there's a product called mk stabilizer that the Beth was the formulator for. And we use a lot of that to calm down the the mast cells. So you can just see how this pattern just keeps going down through here.

Now we're going to switch over to histamine as you make this histamine the mast cells make the histamine. So there is a lot of enzymes involved with clearing histamine.

One of the ways we do it is by cortisol which comes from progesterone. You can have genetic mutations that will slightly inhibit the progesterone. The cortisol.

You can also have progesterone deficiency. There's an enzyme called diamine oxidase made by the ABP one enzyme that degrades histamine. There's the histamine raising foods, of course, that will raise this.

There's an enzyme called histamine and methyltransferase that degrades histamine. And what's interesting, you can have perfect H and MT. But if you don't have something called Sami the cofactor for methylation, it's like having a brand spanking new car without any gas.

It just sits there and does nothing. Then here's your email away. And again, there's something called fad from riboflavin. So if you don't have enough riboflavin doesn't matter whether you have mutations here or not, it's not going to work.

Just be to yes. And then Sirt1 also inhibits this. So if you've got a Sirt1 mutation don't have enough AD and you have perfect genetics on Mayo, it's not going to do any harm.

You want to do something but it'll be way underperforming. So either one is signaling to turn the Mayo on. It's a regulator. Yes. So that's why we have to look at more than just the snip.

You know people can say oh I don't have any HMT I'm okay. Well maybe not. If you have difficulty with methylation and don't have enough Sammy, it's not going to work. Okay.

And this is a great chart Bob, because so many people only think about D0 or M2 with breaking down histamine. But we know that it's much more complex than that.

And I want to cover two more here. There's a process called glucose. Have you ever heard of that bit a little bit. Can we can we tell that story. Sure. Go ahead. Okay.

So we had a conference what three years ago maybe. And and we wanted to look at the phase two detox pathways. And I talked to Beth and I said, there's a couple subjects here.

How about if you speak on glucagon? And I think your response was glucose. What? And I remember saying, oh, it won't be that hard. Yeah. I've got two pages in my big biochemistry, you know, detoxification textbook.

And then six months later I have the slide deck done because of the mounds of research on it. And let me just say, I was so impressed and so proud of you.

The job that you did. I mean, you really dug deep and, that a clearly, I think that goes down is probably one of the best presentations ever on glucose validation.

So thank you. And then and then I think you, Yeah, the the privilege to work with Neil Nathan to, doctor Neil Nathan to look at the literature. And you found that glucagon adoption is probably one of the biggest, clearers of, of mycotoxins. So.

That's right. It's been a game changer. Yeah. So anyway, congratulations to you on doing that. So, you went from glucose, right? To probably one of being one of the top experts on glucose annotation. So, now, this is so if you have problems specifically with the, one, two, three, four, you're not going to clear histamine through glucose.

Nitric Oxide, iNOS, and Immune Defense

And people probably don't even know that clinical observation only but when we see people have a lot of snips on, you get one, two, three, four. These are people they usually have a lot of histamine and can't seem to to clear it now. Another one that most people don't know anything about is h DC histidine.

The carboxylic. And this is what actually makes histamine. It takes the amino acid histidine along with B6 and makes histamine. Now I didn't listed here, but there's actually genetic mutations that can slow your degradation of B6.

So what do you think happens if some well-meaning person says, oh, you need a b-complex with 50 to 100mg of B6, and this HDC is upregulate, and there are genetic mutations that upregulate HDC, that b-complex can just drive that histamine through the roof.

And I'm sure you've seen that people taking a B-Complex or B vitamin having a horrible result. Am I correct on that sometimes. Absolutely. Especially sensitive people.

And you know, this really drives home as well. Bob. People developing histamine intolerance after exposure to all these different things that are cleared by gluten renovations, mold, toxins, chemicals, a vast majority of chemicals, medications, our hormones.

So much goes through this pathway. It's our most important phase two pathway. Absolutely. No Bob Miller hypothesis. You know, everything I talk about, I, I make sure there's peer reviewed studies on.

And if I ever just give you a hypothesis, I always want to tell you that. So this in three bucks will get you a cup of coffee. But I think when mast cells are firing, they send a signal to HDC that says give me more histamine.

Yes. It's part of that cell danger response. And that's documented in that literature. So it's it there is studies on that, Bob. Oh, there is a part of cell danger response is upregulation and HDC and that cell danger response, which we've got a whole talk on as well for the summit.

But part of that cell danger response being triggered by things like muscle toxins, chemical toxicity, pathogens like Lyme will increase that production, or that conversion of that histidine amino acid to histamine.

So there's another avenue where you're increasing the histamine from that inflammatory protective response, but then it's getting overdone. And then the glucagon addition pathway to to clear this is broken down the guts impacted by all these things.

So you lose your Dao and your ability to produce the Dao. This is where we get these huge increases in histamine intolerance. Absolutely. I should point out, you know, again, many people that are tired that it I need some amino acids. Gosh. That's good.

Well, if you would take too much histidine, you could in theory feed this pathway as well. So there's so many ways that we can think we're doing good things and we're actually shooting ourselves in the, in the foot.

I know in my consulting sometimes, I've often said, I think I help people just as much by taking them off things. So, they can, you know, if you're taking a lot of things that I B6 and you don't degrade the B6, it's like, I think your shooting yourself in the foot here now I'm not and I b6 I mean B6 is needed for so many processes.

But if you don't degrade it and it's hanging around and you have access back to Goldilocks to three bears, not too much or not too little, got to clear that.

Clear out these pathways and just clear this load so things aren't clogged up. And then you can get back to doing things like amino acids or B6. But it goes back to that order of operations and doing things in the right order, the right the right process, in the right order, at the right time for each person.

Absolutely. Now you'll find this interesting. Iodine, testosterone and SGC, calm down. HDC. That's why we formulated a product that doctors use called DL support.

It not only has Domin oxidase but a little a little bit of iodine SGC and black human seed oil to calm this guy down. That can be very important. Now, what's happening to young boys?

Testosterone levels is dropping. If you talk to college professors, they say, you know, tell me about the young boys. The the term that always comes up is fragile.

They don't have the resilience and the strength. They do. And that possibly could be because of, testosterone levels going down. I mean, testosterone does a lot.

This isn't the only thing. But interestingly, we need testosterone to keep HDC under control. All right. Histamine stimulates ileus expression and NF kappa B signaling pathway.

So look at all the damage this histamine is doing and I just release. I mean, it's probably in the last 3 or 4 months that we found these studies. I mean, you're really going to dig through the medical literature to find this stuff, but it's astonishing.

I when I saw this, that histamine stimulates in us. It's like, seriously? And then, we saw this one before, but it's worth putting again. Enhances, rants.

So if somebody really wants to dig into histamine, I think most people know Doctor Jill Carnahan. We've done a

couple of, videos with her. And if you go to YouTube, Doctor Jill Carnahan, histamine intolerance, this will pop up.

And we do a 45 minute talk just on, on histamine. Now, I want to talk about nitric oxide. It's one of the simplest molecules, two atoms, nitrogen and oxygen.

That's it. But it's considered one of the most significant molecules in the body. Crucial to your well-being. I mean, there it is. Just two molecules.

It's a vasodilator. Causes the blood vessels to expand, obviously needed for the circulatory system. Blood pressure, nutrients to the muscles and organs, stimulates the brain, helps men with erectile function.

That's why they take Viagra and Cialis. Increases energy, supports wound healing, supports the immune system, a signaling molecule in the cardiovascular nervous systems influencing every body organ, including the lungs, liver, kidneys, stomach, genitals, and of course, the heart.

And that's why sometimes people carry nitroglycerin with them. You know, they get chest pain. They put the nitroglycerin in their mouth in a boost, their nitric oxide.

Again, I'm not going to read this. This is way too much to read. If you download the slides, you can see all the benefits of nitric oxide. Now you're probably going to say I've heard that before, Bob.

We can have too much or too little. Now, the anus enzyme is what makes the nitric oxide the dilates our blood vessels. The anus enzyme is your body's defense.

So different types of nitric oxide here. Yes, but it's it's a lot more of it. The Enos makes small amounts to dilate the blood vessels. The anus makes massive amounts of it to kill pathogens.

So once again, our immune system has to protect us. Anus generates very high amounts to fight bacteria, virus and fungus. Total elimination has shown to increase susceptibility to various infections.

So without anus, we probably die of infection. But once again, when we overshoot and we create too much, we have a problem. So excessive nitric oxide for minus upregulation has been associated with many health concerns, tissue damage and organ dysfunction.

Again what's there to help us in excess hurts us. Now again, you can download the map here or we're going to have it in the we're going to have it in the, in the links.

If somebody really wants to dig in. And I'm not going to go through this, this entire map, and I'm just going to show a little bit of it here. So here's your, your Inas.