Nitric Oxide, BH4, and Enzyme Uncoupling

Ethereal nitric oxide. And we have a substance called b h for combines with oxygen, something called nADPh and L-arginine to make nitric oxide. Enos enzyme does that.

And it's also not dependent. This is what won the Nobel Prize in 1960 or not 1998, for circulation support from nitric oxide. However, here is your Inos enzyme.

I'm sorry, your ionized enzyme or not S2, when we're faced with bacteria, viruses, fungus or parasite kicks in, makes a lot of nitric oxide to kill pathogen.

Good thing, of course, unless it's excessive tissue damage, organ dysfunction. Now there's also something called RNase uncoupling for tetrahedra. Upton is what it's Brompton and for hydrogens donates to make the nitric oxide.

If this guy is running too fast and too long, we run out of B four. Now when Bf4 does its job, it turns into b h2 two hydrogens. Quite simply, it has to be recycled.

But there are genetic mutations. Sheep are not enough. NADPh and we're not going to get into it today. But there's two pathways that we make before. And we can actually have mutations along these paths here.

It actually comes from the citric acid cycle. And then we need methyl folate. And we can have genetic mutations along here that we don't make enough pH for when we don't have enough pH for rather than making nitric oxide, we make superoxide free radical bad guy combines with nitric oxide.

Makes something worse called peroxide nitrate further suppresses your b H4. And here is another pathway that feeds upon itself. Now, I've been talking about this for a while.

It's only in the last couple of months that we realize that histamine is one of the things that pushes this from the mast cells. Now, fascinatingly, before plays other roles as well.

It isn't only just here. It helps turn something called phenylalanine into tyrosine, tyrosine into L-dopa. And this is where we'll get tremors. Or if worse enough, one of the contributing factors to Parkinson's.

And that's why many times people have tremors because their tyrosine to L-dopa is inadequate. The amino acid tryptophan turns into serotonin. And if we don't convert our center aniline into tyrosine, we're anxious.

So how much anxiety and depression are we're seeing now compared to before? Now, I'm not going to say that's the case in everybody, but this has to be a contributing factor to people who might be depressed.

And we have just clinically observed, as we stopped the loss of BPH for and boost before. By the way, royal jelly is a source of biotin. Many people in it report not just anecdotal, that's all, but anecdotal reports of feeling much happier when we restore the before levels.

So that's the the cliff notes there on this one. And again, if somebody wants to really dig into this they're welcome to it. You know down here we get into how it creates hydrogen peroxide.

How the NF kappa B stimulates all this. So that's all in there for those who really want to geek out on this. Now I now say activation and platelet secretion minus activation influences platelets secretion.

Inos knockout mice have prolonged bleeding time meaning that they don't have enough platelets. So here's something else that will stimulate those. Those platelets.

And here they're saying the activity levels of Enos enzyme were significantly lower in patients platelets with coronary thrombosis. So what they're saying is that Inos slows down the platelet activation.

So Enos makes your platelets more sticky. Enos calms them down. So the more you have increased Enos and decreased Enos, the more we're going to have sticky platelets.

I think of all of this just to tie it back again. Anything that's increasing superoxide, prox and nitrate beyond that Goldilocks sweet spot is going to increase inflammation.

You think this increasing inflammation is going to trigger massive activation. So this is how it's tying back into what people are experiencing these chronic inflammatory issues.

Absolutely. Now look at what's stimulating in us aluminum mercury uranium I mean we're going to look back someday and say, what were we thinking with Antiperspirants smearing aluminum into our armpits?

More and more evidence is talking about plastics. I just literally somebody sent me an article yesterday that said it's estimated we are consuming the equivalent of a credit card in plastics every week, not year, not month, every week.

We love our cell phones. They've changed our lives, but we don't know the long term effect of EMF. Same way with high fructose corn sirup. This is only been around since the 1970s.

Glyphosate. This hasn't been around forever. And then high homocysteine and high iron. So no wonder we're having trouble. Plastics everywhere. I'm in Pennsylvania and in Pennsylvania they did a study.

They could not find one waterway that was not filled with microplastics. And, and, more and more foods have high fructose corn sirup. So is it any wonder that we're seeing, you know, autism going from one out of 1000 to 1 out of 45?

These poor kids are just exposed to things that those of us who are older, weren't exposed to.

Environmental Toxins and Chronic Inflammation

You know, when I was born, 1954, very little plastic. Most things was in glass. We didn't give our animals growth hormones. There was no high fructose corn sirup when I was born.

Glyphosate wasn't being put on anything. The animals weren't being given growth hormones. So from a historical standpoint, it's an incredibly short period of time that we have changed the environment that we're living in, an idea what we have.

So we have this nutrient depletion across generations. And then in addition to that, we have these chemicals and even mold toxins that cross the placenta and cross through the breast milk.

And there's studies showing the level of chemicals in the cord blood of infants is just skyrocket as well. So children aren't even starting in the same starting point as generations before.

And then they're coming into this world already highly toxic. And this is where we're seeing these young children. I just think they're coming in or younger and younger and younger to the clinic.

And I'm sure you're seeing that too. Oh, sure. You know, when I was young, we used to call it adult onset diabetes, you know, usually overweight and over 40 now eight and ten year old kids are getting diabetes.

And, it's just frightening the way, I mean, the younger people, I think those people that are like 28 to 30, I saw a study that they're sicker now than any other time in history for that age group.

And it certainly makes sense with all they're being exposed to. Absolutely. So here's Mercury inducers NF kappa B and it so it, it also and then expresses Cox to an Enos so that Mercury just goes down through glyphosate.

This is a a Great Plains glyphosate test. That's a lot of guys to say to this. Yeah, this is one of our clients. Oh, boy. Glyphosate exposure inhibits superoxide dismutase, catalase, good of iron per oxidase.

It promotes the expression of NF kappa B Enos tumor necrosis factor alpha, which, of course is going to then lead to the to the rants. This is just a little clip from our software.

There's actually a gene called Pon, one that's partially responsible for clearing, glyphosate. Whenever I see someone who has a lot of porn ones, we usually recommend that we take a peek at their, glyphosate levels.

Uncannily correlated when there's a lot of twos down through here. I mean, this one isn't too bad, but there's a lot of twos down through here. Many times these people have high levels of glyphosate, particularly.

I'm in a farming area. So many people on have wells next to farms and their glyphosate is just incredibly high. Very, very sad. Here again, histamine stimulates sinus expression.

I think this is just another study, but we just want to reinforce that histamine stimulates the the Enos interleukin six. Again, if somebody really find this fascinating and they want to hear me drone on for one hour and 51 minutes, interview number 42, talking about, interleukin six, because we're going to get into that, in a little bit.

So nervous uncoupling. We we spoke about that a little bit. I mean, you mentioned it and I showed the, the chart. So I won't spend a lot of time on this, but here's your Enos enzyme.

And if we have before we make nitric oxide, if it's before it gets depleted and we have to, we make superoxide. And I'm going to show you in a moment there's an enzyme called poly two that is stimulated by superoxide.

So hold on to that thought. One of my favorite sayings now is I believe superoxide is public enemy number one. Now here's what can increase the iona's function.

In addition to all those environmental factors, there is gain of function mutations in the ionize enzymes that when you have these mutations, the illness is over active.

And here's the number 2779249. And when it's the the the the a the a is the risk. There's a 4.73 increased off expression when, when someone studied this.

So we don't know why this happened, but I'll just give you a, a speculation. There was probably a time in history where there was a lot of, pathogens, you know, maybe some parasites or something.

And the people who had this overactive, it was probably to your advantage at one point in history. And that's just, Miller thinking out loud, but, I can't think of any other reason why this would would persist.

And just for anybody who's new to genetics, reminder that you can go watch the the mini presentation on the genetics 101 to get the background on that and then come back into this deep dive here.

Absolutely. Then here's another one. There's the number again. Increased ionized activity, increased nitric oxide production. It's associated with early onset Crohn's disease ulcerative colitis and, irritable bowel disease.

Now this is the last two enzymes. And interestingly, many of you know, Doctor Joe Carnahan, well known, functional medicine doctor, she's one of our speakers.

Oh, cool. She speaks openly about this. I mean, this isn't any secret. When she was young, she had, Crohn's disease and breast cancer, and she's, she's allowed us to to show this.

She says, yeah, if I can be of help to people by. She calls herself the lab rat. Yeah. So she says, go right ahead. So here's that. Nods to mother and father gave her a mutation.

Mother and father gave her a mutation and had one. One bad copy from both parents on each of these snips. Yes. And that's why we've named it after her.

The Carnahan reaction. So, so this is an honor of her willingness to show this. And, and show people that, despite that, that, by using functional medicine, she was able to, to get, well.

But here again, aluminum, mercury, uranium, plastics, EMF, high fructose corn sirup, chlorine and fluoride, glyphosate, excess iron. And these are all the mutations that could affect this loss to gain a function.

And there's actually not three lack of function if you don't make enough antioxidants. Superoxide dismutase again, the Sirt1. Sirt1 helps make superoxide dismutase and helps, you know.

So that's why that's so important. Typo here. This should be DFR that recycles your urea before the MT, Fra 1298. And there's many others that are involved in before production.

I just didn't want to list them all here. But there's a lot that can go wrong here. And then again, bottom line is this will activate the, the platelets.

Now, if somebody wants a deep dive into this and can listen to this for an hour and 15 minutes, go to Doctor Jill Carnahan's YouTube channel and listen to our, our talk on, minus.

Now, this is the next pathway. Pathway number two. We've now covered pathway number one. Fascinated by this one. There's an enzyme called play two phospholipids A2.

And when it's stimulated two what. Let me just, zoom in on that a little bit. There we go. There we go. So when phospholipids A2 is stimulated by superoxide peroxide nitrite kill module in for MF again lipopolysaccharide histamine excess mTOR smoking or ozone allergens or injury.

This guy kicks in and pulls arachidonic acid out of the cell membrane. Our adrenals may corticosteroids Ginkgo biloba curcumin something called CDP choline that I'm really becoming a fan of inhibits this play too.

So when we have any of these things stimulating, arachidonic acid gets pulled out, which is an omega six, which we need.

Platelet Activation, CD40L, and Disease Risk

But an excess goes down a pathway here and makes something called from boxing A2, which then on your head stimulates platelets, which then creates rants that then stimulates mast cells and histamine.

So yet another pathway. So one of the things that we've been doing there is simple, finger prick test that you can do that measures your arachidonic acid.

I'll show that towards the end of the presentation. And there's urine tests that you can measure your thrombus A1, a2 and I'm now doing hundreds of these.

And perhaps by the time the the conference comes around, we might even actually put in some of our results. Because what I want to do is I want to look at mutations associated with arachidonic acid being high, omega three is being low and in box in a two being high.

See if there's any correlations. I think that'd be absolutely fascinating to to find. So I'm going to get back to this later. But this is a yet another pathway that this can be a upregulate.

If you remember when I showed you that bigger picture, tumor necrosis factor A comes over here and stimulates the Cox two enzymes to pull that arachidonic acid out.

So yet another pathway to stimulate the the platelets. And then we need our adrenal glands to make cortisol to knock down histamine but also to make the corticosteroids.

So I'm sure most everybody listening this has heard of parts where their adrenal glands get a little tired. They get dizzy if they stand up quickly. CDP choline inhibits this.

Interestingly, aspirin and your N Z's and Cox inhibitors this would be your Advil Aleve, ibuprofen actually block this pathway a little bit. And that's why I know it's controversial now.

But that's why in the past they'd recommend maybe a baby aspirin. I know that that recommendation has been taken away, but that was the thought behind it that it slowed this pathway down, to prevent blood clotting.

So here's phospholipids, A2, it liberates arachidonic acid, by catalyzing the hydrolysis of the SN2 position. The membranes, and when rat platelets are incubated with phospholipids, A2, that thrombus in A2 like activity and prostaglandins that are inflammatory are formed.

So in that phospholipids A2 gets stimulated, they now show that the the thrombotic scenes get activated, which constricts blood vessels and makes your platelets get sticky.

Great Plains used to measure this. Then they were not able to get the region that was needed, and I'm leaning on them. Come on, guys, let's try to get that back.

I want to get that back to I ran that on everybody because there's a link directly between this PLA to this arachidonic acid massive activation. That was one of my one of my core markers to look at.

And what I've asked them to do is, if possible, if they could combine that with, throwing boxing in A2. So we'll see if that. Let's see if that happens.

Now play two again. It's not our enemy that breaks down the membranes of bacteria, fungus and parasites leading to their death. So it's not just this guy that hurts us.

However, inflammation often becomes excessive. How many times? Now about that. We use the word excessive when it's overshooting. So the same phospholipids that attacks infectious agents may also attack the cell membranes of the human host, damaging or killing those cells.

So our protection becomes our enemy under some conditions. And here they're just saying that it's the arachidonic acid, which we talked about. Superoxide stimulates phospholipids A2.

This could be prevented by superoxide dismutase scavenging agents. So there are people who have mutations that their superoxide dismutase production is weakened.

Okay. Or the Sirt one weakness will do that. So they're saying that this the products of phospholipids A2 may be responsible for mitochondrial damage during the oxidative stress.

Play and tumor necrosis factor A study of cultured intestinal cells has shown that TNF alpha potentiated, the release and metabolism of arachidonic acid.

I've spoken to people who have the cleanest diet no omega sixes, and they look and they're arachidonic acid. And so what is going on here? Okay. Well it's because the TNF alpha or other things is causing that academic acid to to be increased, you know, actually taken out of the cell membranes.

And that again, just to remind people, is getting stimulated by things like mycotoxins, Bartonella, having these gram

negative bacteria issues in our gut that are passing into the bloodstream and have the lipopolysaccharide, the LPs in the cell wall.

Well now we're going to soon talk about test Cd40 L we haven't covered that yet. So the activated platelet stimulates the Arantes but it also stimulates.

Cd40. L side note there's some experimentation going on by some doctors that there are some Aids drugs that block these cell receptors. And when they take those, a lot of the pain and discomfort from the Arantes goes away.

But, there's a side effects from that. So certainly not, you know, we're not in any position to recommend a drug. I'm just passing that on that that experiment is happening that people are getting pain relief by taking Ccr5 antagonists.

Now, interestingly, we all know the benefit of olive oil, and this type of sun is one of the benefits of the Mediterranean diet. One of the components is only in like acid.

It actually induces an enzyme that shunts this away from going down this direction, making something called PGE two. Prost, a cyclin, which is a vasodilator and calms down the platelets.

So interestingly. And that's where that's where aspirin does its job as well. It shunts over here. So that's why that olive oil can be so important. And that might be the benefit that it takes us over to the cyclin rather than throwing boxing a to.

Yeah. How cool is that. That's very interesting. And you know olive oil is one of those things that is naturally a little higher histamine. But some people find that it gives them a good amount of relief.

And I have a couple clients. Bob, I never knew why they had to do this, but they they have found that they had to have about a fourth to a half a cup of olive oil a day to keep their their inflammation levels down.

And they're using one of the lower histamine ones that we can link to on our resources page. So this is such a great pearl, Bob. This explains why that's working for them.

Absolutely. So I wouldn't be surprised. It'd be fun to look at their, genomics, to see if maybe they have tumor necrosis factor or something else that's really pushing this and therefore they have the need for it.

So again, we have to be careful. We can't just say oh olive oil fixes that problem. It did for them right. For somebody else. If this is not the pathway being upregulated I mean the olive oil is good for them.

But it may not give the relief if this is not what being regulate. And that's where this index look at. The genetics can be a game changer for people.

Absolutely. So anyway, there's the the Mediterranean diet benefit as the olive oil may take us over to this good guy to cyclin that vaso dilates and also makes little platelets less sticky.

Now prostaglandin counterbalances the thrombotic and vasoconstrictor properties of a txa two, this balance can become dysregulated. And that increased activity of that thrombus and could be associated with myocardial infarction, stroke, arteriosclerosis, and bronchial asthma.

When activation of thrombus in A2 is uncontrolled, there could be pathological consequences. I'm not going to read all of this, but it just talks about, all of the things that happens when, when platelets get too activated.

But the key that I want to point out here is they express as Cd40 L. And that's what we're going to talk about. So encourage people to get the slides and not read this because I just don't want to be a slide reader here.

Can we just start with the very last part of that slide though, that there is a role and the cardiovascular disease is uncontrolled inflammation, which I always say if there's uncontrolled inflammation in two or more systems, you've

got mass involvement somewhere, but also tumor metastasis and the neurodegenerative diseases, including Alzheimer's.

I just I just wanted to pull that part in. Oh, sure. Glad you did. Yeah. So it, it binds to damaged blood vessels, aggregates to form thrombi. And, so I can cause all kinds of problems for us, our heart disease.

And. Well, when we think about platelets just being involved in the cardiovascular system, that's where I thought that part was. So important that we're looking at in terms of the the neurology and the neurodegeneration we're looking at in terms of cancer as well.

Now serotonin, I was blown away when I learned that platelets carry serotonin. Serotonin I had no clue. Serotonin is transported by platelets and released upon activation.

Now I'll be honest, this is an area I haven't dug into a lot and I this is one of my next areas of research. I don't know how that affects the serotonin in the brain.

I don't know if it creates the serotonin storm. But interestingly, I, I was sharing this with a psychiatrist, and she said, well, that's what the SS our eyes do.

They interfere with this in some way, and I don't know the mechanism of it yet, but we need to know more. But the serotonin induces constriction of injured blood vessels, enhances platelet aggregation to minimize blood loss.

So we all thought serotonin was the feel good hormone. So, there's almost so much more to learn. And, stay tuned for this. Maybe we'll do a, you know, a Facebook Live with Doctor Jill in the future when we really dig into this.

But we don't have this down yet. Platelets contain high amounts of serotonin and a dysfunction of that system is, depression, anxiety disorders and self aggressive disturbances.

And we're seeing such a high level of that occurring now. Platelets are able to take up dopamine and express various dopamine receptors, which make them to an interesting tool to study the underlying mechanisms of schizophrenia.

So, I was kind of surprised by this, that platelets are playing a role in psychiatric disorders. Yes. Very interesting. And this is also saying that there's a role with dopamine as well.

Yes. Well yeah. So they're saying that platelets in the brain which makes them studying the psychiatric disorders such as Alzheimer's, depression, schizophrenia and anxiety.

I never connected those together. That's all brand new to me. It's like well and and this was published all the way back in, 2012, nine and a half years ago.

So this isn't anything new, but, a lot of times these studies get done, they're published, and it doesn't get out to the up to the public to understand it.

So, so much more to, to learn here. Platelets store large amounts of serotonin they release during the thrombus formation in modulates the inflammatory response.

And also gets involved in the release of hydrogen peroxide.

IL-6, Mast Cells, and the Renin-Angiotensin Loop

The thought that as we know, that's what we've been talking about for years, that if we don't have enough to found Catalase and Thrum and three a toxin, we don't clear then hydrogen peroxide that combined with iron to make hydroxyl radicals that are very inflammatory and gray hair and gray hair too. Yes.

All right. Now, off the Cd40 L and that's why, you know, sometimes when I see that people aren't clearing hydrogen peroxide, I'll say what I. What age did you start going gray?

And they'll say, oh, my early 20s. And, that's a telltale sign that you're not clearing your hydrogen peroxide. All right, now we're off to CD 40 L, and we are just beginning to see some some blood results.

There are labs available that can measure the rants. The CD 40 L, the veggie, the, and the tumor necrosis factor and the interleukin six. So activated platelets are a major source of cd40 L, which has been implicated in platelet and leukocyte activation.

So, the cd40 L is related to inflammation and vascular disease. So high early cd40 L levels in trauma patients reflect tissue injury shock crack ability and, simple sympathetic, adrenal activation and predict mortality.

As cd40, IL has pro-inflammatory active activity and it inactivates the endothelium as cd40 L may be involved in trauma induced and ethereal damage and blood clotting.

So you can see how when somebody is having an event, having these cd40 L higher is a problem. Here's a chart that shows when the platelets get activated and this cd40 L gets, gets higher.

We stimulate VEGF, which is related to the to the growth of new blood cells can increase tumors. And the MDS c reduces the immune system. Not a good combination.

So this is really showing us this link between chronic inflammation vessel activation and cancer. I mean you're really building this biochemical linking here for us.

And why managing massive activation and managing the inflammation and getting to these root triggers are so critical, even in helping reduce the likelihood that we may some some of these cells may turn into cancer cells.

Absolutely. So these myeloid derived suppressor cells are characterized by the ability to suppress the immune responses. And the role of this in solid tumors has been extensively characterized as pro tumor circulating or infiltrating masses of the tumor site were associated with poor prognosis in patients with solid tumors.

So there's handled and get this information down. In a study of breast cancer patients the overall survival with MDS C levels greater than one with stage four disease was significantly shorter compared to other disease stages when compared with patients with the MDS.

C levels less than 1%. So they're saying the MDS C levels could work as a good prognostic indicator, especially in those with advanced breast cancer. And if anybody wants to look them up, here's the here's the peer reviewed studies.

Now the veggies increase is angiogenesis the formation of new blood vessels from preexisting vasculature. Obviously we need this. But if we've got a tumor that's the last thing we want to have because it just increases.

And a lot of the people in, you know, even traditional medicine are looking at ways how do we slow down angiogenesis. And if you slow that down, the tumor will grow.

The F is a potent and specific angiogenesis factor. And the inhibition of that Jeff, significantly inhibits tumor growth. So again inhibition is one thing but maybe not encouraging it by high cd40 L which goes back to the platelet activation which goes back to everything else we've spoken about today.

Now the next pathway is the last pathway that makes it, I call this the, the home cycle. And, don't let this, worry you too much. I mean, I know it looks complex, but bottom line is here, there's many things.

We just blow this up here a little bit. Here we go. So these are, histamine, dopamine, angiotensin two enzymes, bradykinin. I'm not going to read these.

All will stimulate interleukin six. Then environmental things will stimulate interleukin six. And again I'm not going to read that whole list. But just oxalates there. Yes.

To stimulate the IL six. That's important for people as well with mast activation. Absolutely. Yeah. And again some of your omega sixes like no oil pesticides, any mTOR stimulator.

Now I all six is like Bob, you said this before is our friend. Unless it's our enemy. Okay, so Il6 is a cytokine. And when we're faced with a pathogen, it says, whoa, we got somebody here that shouldn't be here.

Let's make some superoxide, stimulate some cells, make some histamine. Let's get rid of this guy. That's a good thing. You've heard me say this. 4 or 5 times now.

Yes, unless it's excessive and you can have genetic gain of functions. And IL six, or you can have all these factors that are stimulating you. Then on top of that, if you'd have a kid gene that makes this overactive difficultly that you don't degrade your histamine, all of that will just get this thing going in a cycle.

Histamine stimulates interleukin six. We've got a pattern going on here that just feeds upon itself. The hamster wheel. Then what's also fascinating is that mast cells, histamine and superoxide stimulate what's called the renin angiotensin system, which stimulates angiotensin one and two.

That then stimulates interleukin six. And again, another pathway going on. But look at this. Angiotensin two stimulates Randy's. And then the rantings stimulates histamine.

The histamine stimulates more interleukin six. And we've got another hamster wheel spinning along here. And here's another Covid connections. There's a lot of research looking at that Ace2.

Yes and IL six and Covid. Yeah the Ace2 takes what's called angiotensin one and two that are pro-inflammatory, turns it into angiotensin one seven, which is anti-inflammatory.

Then also Ace2 degrades something called Brady Keenan, which lowers your blood pressure. That's why sometimes people take Ace inhibitors. But bradykinin will stimulate interleukin six.

So the angiotensin two stimulates interleukin six. The Brady kind of stimulates interleukin six. And we're on another little merry go round here. And then more stimulation of ferrantes.

And here's some potential IL six inhibitors. Again I mentioned it before Doctor Jill and I did a nearly two hour talk on interleukin six. And we go through all the conditions that are related to interleukin six, all the literature on all these things that will overstimulate them, and then all the things that will help calm them down.

So as you can see now, this could be the case of the rants and the histamine. The arachidonic acid could be the case. The tumor necrosis factor could be for some combination.

So we don't have a way to say oh yeah. Here's what causes mast cell activation. There's just so many of them that can cause this to to have. So that's why we call the, the home cycle mast cells histamine and superoxide stimulating the renin angiotensin system now occurs to me to Bob that these are getting out of control when we have these chronic trigger exposures or these chronic infections.

But when we have a new active infection, we also don't want to start taking 30 things that are going to shut these pathways down if it's just starting to go, because then we're going to be shutting down that immune response.

And this is where that timing of everything is so critical. Absolutely. Yeah. You don't want to shut this down when you've got something to to fight. Not going to read these, but these are all the snips that would impact this going too fast.

And of course we measure this all in the your genomic resource genetic test, major pathway that just gets people

into a lot of trouble. And then I just put this in again.

I mean, it's probably the third time you've seen this, but, the mast cells create the histamine, stimulates the production of the rants. We put that in because the the histamine is again being stimulated by the, by the il6.

Now mast cells are an additional renin source. So mast cells by themselves can actually stimulate that angiotensin system or the rest of the, the, the renin system.

So they're saying mast cells could be targeted along with renin angiotensin system inhibitors to manage angiotensin two related dysfunctions. And by the way, to know if you have a little problem with this, angiotensin two makes aldosterone, which causes you to hold on to sodium, excrete potassium.

One of the common things is, a little bit of swelling of the ankles. Like if you wear socks with an elastic band, you take it off at night and there's this indentation.

And that's often when you're holding sodium and excreting, potassium along with high blood pressure. Right. Whereas then we might see that similar indentation in Aids, but we're more likely to have that low blood pressure.

So then you can start to differentiate that. Absolutely. And these are just the studies that histamine shows has been shown to stimulate the release of renin.

And superoxide activates renin as well. So both histamine and superoxide will stimulate the renin angiotensin system. And this is a study that was published I think all the way back in 2016, the angiotensin two induced activation of the nADPh oxidase is creates this cascade that we just showed you, and it acts as an upstream regulator of the renin angiotensin system, creating a vicious cycle that amplifies the pathways.

So, I was so surprised to find this that somebody actually, you know, did a, did a paper on this. And, and I think this needs more attention so that we can realize these, these pathways.

So here it is, interleukin six, the good, the bad and the ugly. If somebody wants to listen for an hour and 51 minutes, feel free YouTube and just top, search doctor Joe Carnahan, interleukin six.

And, this is her most viewed video. I think, around 3500 people of, have watched it. And by the way, right behind that is your interview, so. Well, we're we're neck and neck. We're the.

So, we are the, we are the ones that are the most popular on there, doctor. And so YouTube channel, she does great interviews. She really does. And, and maybe you'll pass me someday on.

It was, I believe there was one on mast cells, wasn't it? I talked to mass cells and mold and, Yeah, but I always see us as collaborating labs supporting each other.

We're great capsules of one another. Absolutely. I'm just teasing you. All right, there's another one on understanding the NOx pathway, explaining that, that home cycle and the creation of angiotensin two and and histamine.

All right. We're going to wrap things up now with the omega threes resolve and protectant. This is exciting because this is what we're going to do about it.

Yes. About Ramses. Yep a meta analysis revealed an association between your polyunsaturated fatty acid supplementation and a reduction in platelet aggregation.

So this is a lot here. But I do want to cover all this when when you look at your fish oils you see things like EPA and DHA. They get incorporated into platelet phospholipids at the expense of arachidonic acid.

Omega-3s, Resolving Inflammation, and Testing

How about that which may help reduce platelet aggregation via reduction of the arachidonic acid derived platelet aggregating pro Agilent metabolites. It competes with arachidonic acid for that Cox enzyme, reducing action EPA both directly and indirectly reduces the formation of arachidonic acid and thrombus A1, A2.

It also gets incorporated in neutrophils and red blood cells at the expense of linen like acid and arachidonic acid. Oops. The incorporation seems to decrease whole blood viscosity and increase red blood cell flex flexibility, thus likely reducing the risk of thrombosis. Wow.

So we tend to think, oh, I will have to do is take fish oils. Right. Well maybe so if it's not tolerated fish oils because they're high histamine. Or for some people that cause other issues, keep listing because Bob's going to give you another option here.

Sure. So what happens is your omega threes. They go through multiple processes. And I'm going to show you a chart I probably should add that chart first here.

It'll it'll be coming. But they go through multiple steps and they create something called protections and resolve. Now what do they do. Associated with beneficial effects.

Immune modulation helps with autoimmune disease, rheumatoid arthritis, cardiovascular, Alzheimer's type two diabetes and cancer. So here when you have tissue injury, prostaglandins and leukotrienes are involved.

Next to the acute inflammation. And if you just keep going with prostaglandins leukotrienes, chronic inflammation scar formation. But if you got like toxins resolve into protections complete resolution.

That's pretty exciting. And that's huge for resolving mast cell activation. Well, I think we can now see why. I mean, there might be multiple processes in here, but if we slow down the rantings, that might be one of the processes that calms it down.

They're potent lipid mediators. They're the molecular basis for the health benefits to your mega three fatty acids. And we're not going to go over this chart in detail, but here is arachidonic acid, right.

It's inflammatory. There are some ways that arachidonic acid can actually be anti-inflammatory. I'm hoping over the, the rest of the year here, we really dig into the genetics that helps us understand, you know, like, are there mutations in the Cox two that caused this to be upregulated?

I'm sure there's we're going to find some nutrients that can calm down that Cox to but here's your EPA and DHEA your mega threes. And these are all your protections and resolvent.

Which is the resolution of inflammation and homeostasis. So again we tend to think oh well let's just take some omega threes. Can we stop for just a second. Sure.

I think this is the first time I've seen this. But there's been research coming out in the past few years about that. It's really about the balance of the omega threes and the Omega sixes not cutting out all the Omega sixes.

Oh, absolutely. This just shows why. Because it depends on which pathway they're going down for. So for some people cutting out the omega sixes if they're upregulated, the pathway on the left in inflammation is going to reduce that.

Arachidonic acid. But if they. If they're going to flow down into that resolution of inflammation for some people they need they're going to need that balance of those omega threes omega sixes.

And we're missing out on something important here. And it's not really knowing what's happening in those pathways could be really key in sorting out who who's going experience what with those.

Excellent point. And look who's over here. Cox two, which is stimulated by tumor necrosis factor. So that all goes

back to the Lyme to the all the other things that may upregulate this to make this happen.

Possibly more than coming over here to the resolution. Yeah. Arachidonic acid is not all bad. We need it for various purposes inside the body, but it can be used for for good or for for bad.

So we need to know what flow, what what causes it, what else causes it to flow down those pathways on the left. And then how can we support it in coming down the resolution of inflammation if we've got chronic inflammation?

But to remind people again that acute inflammatory phase is so critical, we first catch a virus or have a bacterial infection. We don't want to always shut it down.

It's just when it's out of control. Then we need to bring it back into balance. Very well said. So here's resolvent E1. It's generated during the resolution of inflammation.

Study has shown that it has potent agonist specific antiplatelet actions. These words together agonist means helps antiplatelet actions. We think of antagonist is going against agonist helping this could underscore some of the beneficial actions of EPA in in humans.

Now this is the chart I probably should have shown first. Here's your Omega sixes. And I just saw a study that showed that when people have excess linoleic acid, if they have a burn, they do much poorly, much more poorly than those who don't have the little acid.

Fascinating. But this is where you get your, arachidonic acid. On the other hand, there's enzymes called fat fatty acid. The saturations and these FAD enzymes.

Take your fish oils and move them down through fads. One fads to then there's something called LDL. Two. We just started looking at this in the last few months.

But this is where the EPA turns into the Rd. And then FAD two finishes the job of getting your protectant and resolvent. So one of the things we have observed is that people that are struggling oftentimes have genetic weakness in their fad one, fad two, and the yellow the L two consistently.

So this is what calms down that platelet aggregation. And the Arantes. So over here we just talked about the arachidonic acid. But we could certainly put all three pathways in here.

But I just put the one. But these omega threes are so important. But if somebody has got mutations in here it doesn't make it. So that's why there are supplements now available called Protectant and Resolve.

And that you can actually just get right down to here. And I believe you're going to have a link for that somewhere. Yeah. So the sperms, there's a couple different types of products that are pretty and protected and resolve.

And they do. They are fish oil derived. But I don't know why, Bob. But something in the processing makes them lower histamine. I don't find that everybody tolerates them.

But I in my population anyway, it's much, much better tolerated than fish oil which can be higher histamine. And we're bypassing the conversion here. So that issues in those fatty acids or the a I'm not sure how to pronounce that.

The, the level to guess yellow blues. Then if we have issues in that pathway converting we've just bypass it. It's like having an activated an activated product.

It's it's further down the chain. And then you can skip over any blockages in here. Absolutely. Big fan. Now, another thing I'd like to point out, if you get too many Omega sixes, they'll use up the available fats to.

So even if you don't have mutations on fats two and you're getting way too many omega sixes, you can further

impair this. Now, it's estimated that our diet used to consist of 1 to 1 ratio of omega sixes to three.

People have really poor diets, can have a 20 to 1 ratio, and no wonder we are not doing well because of all of our processed foods. And unfortunately, the processed foods has a lot of these omega sixes.

Just throwing this way out of balance. So for anybody who's concerned, I highly recommend, there's a couple of tests out there that can measure your kinetic acid, your EPA can look at the ratios.

And I'm going to show a slide here in a minute. But first I want to talk a little bit more about the fads. And here they're saying fads and evil. Two genes may play a role in the differences in omega three requirements and in the software.

Here's our fads one and Fads two. And this is not unusual I'm sure you see this a lot as well. Fads one and fad two. This person has a what's called heterozygous.

These two are considered pathological. So when and I sometimes you'll see some people that each of these is homozygous. And these are the people that are down all the way down.

Yeah. And these are the folks that they're going from one clinic to another help me with the inflammation. And they can't seem to get the help. And it's simply because they're not utilizing their, their fat to make those protections and resolvent.

And they're very, very inflamed. And here's information. Here's the, there's one yellow L two, and this is the one regulates the, polyunsaturated fatty acids metabolism by altering the expression.

And when this one is homozygous, in other words, from both parents, again, it's not the only cause of inflammation, but many of these people have lots of inflammation inside the body.

And here we're saying marine omega three is provide antiplatelet effects. In healthy borderline overweight men, three grams of omega three polyunsaturated fatty acids for four weeks lowered fibrinogen, which is related to clotting, thrombin and factor five levels.

And that occurred mainly in those with high for aboriginal both EPA and get incorporated into platelet phospholipids at the expense of the arachidonic acid, which may help prevent platelet aggregation by a reduction of the rare academic acid derived platelet aggregating protocol.

Metabolites, and then additionally, the EPA competes with the arachidonic acid for that Cox to reducing action on the breakdown of acid so they directly and indirectly reduced the formation of the arachidonic acid thrombus in A2.

Now what this is specifically talking about marine omega threes. Some people take the algae forms. Do you know if that has the same benefits here? I don't, but what I've been experimenting with I've been experimenting with an algae based hydra.

So we're going to see how people do on their. I'd love to hear. Yeah. Yeah, it's it's way too early. Now, here's a, a test. It's called Omega qual. And this is an individual who was really struggling.

And you can see here the, the omega threes should be in the 8 to 12% range. They were down here three and a half. The ratio of omega six should be 3.1 to 5.1 and almost 12 11.9 off the charts.

In other words, the chart didn't even go that high. And then the arachidonic acid, the EPA should be 2.5 to 11.1, again off the chart at 35.1. And this was a person who was struggling and, called us in a panic, said, I don't know what's going on.

All I did was I had some, some crab cakes with, peanut butter and banana, and I had to go to the hospital due to, palpitations. And, those were all histamine liberating and, but this is probably one of the most severe imbalances.

And this person's really struggling. We're working now to try to bring that into balance. So, people can even order this themselves. It's called make a quant.

And, I mean, there's other blood tests that your a health professional can do. And I know that for me, we'll put a link for that. Okay. Yeah. And I have no association with them.

I mean, I'm not I have no personal interest in that company. But it's called a major quant, and you can just prick your finger, put on a piece of paper, send it to the lab, email it back to you.

And I think this is valuable information that everybody should have. Now, if you're out of balance, you know, work with a dietitian or a health professional or do something to figure this out.

We are looking at, you know, I'm I'm suspecting that this arachidonic acid might be related to, again, that, tumor necrosis factor in play being upregulated.

And what we're going to do, we are going to be we're getting hundreds of these. We want to put this into a spreadsheet, look at these along with the thrombus in A2 and the genetic mutations, and see if there's any correlations.

That'll be a fascinating study. Maybe we'll have that done by the time this, this summit is playing. Then here's a test that measures through on Boxing Day two measures in the urine, which is from boxing, B2, which comes from A2.

And this is the same individual that's from boxing A2, ideally should be less than 141 643. So we're in the process of measuring their, Durant's and Cd40.

Oh, we don't we don't have it. You and this was someone who, who is just getting over Covid. All right, wrap it up here with, what do we do? And there's a lot, but I just hit some of the key components here.

Make sure you're out of mold. I'm sure you talk to people all the time. Say, do you think you have any mold? No, no, no, there's no mold in my house. And then it turns out, or there is, you can do some urine testing to see if there's mold.

Check for heavy metals. Glyphosate. Check for Lyme disease, Clostridium lipopolysaccharide. Probably a good idea for everybody to cut high fructose corn sirup, but I realize everybody's not going to do that.

But if you got that certain mutation, probably a good idea. Probably this audience. Well, they're they're pretty well educated and and eating pretty clean.

Absolutely. Low histamine diet if recommended. And I know you've got a zillion resources on this. I mean, I hear when I talk to people all the time, they sing your praises, that you have got such great information that you give out.

So thank you for them. Check omega three six arachidonic acid. Work with a health professional to balance. Might be a good idea to check that from in a, you know, this is if you really think it's upregulated. But there are blood tests now that you can do that, you can even order yourself.

You don't need a health professional. Check the anti cd40 al veg f TNF a an IL six. And if you want to know the genetics consider the your genomic resource test to find the mutations that can make exposure to all of these worse.

So that's that's what we're, we're presenting for that. Just a quick commercial here. This is for the health. And I use this a little bit. Oh, sure. I just I just want to share with people that your, neutral genetic research institute and I've been on your, your board with you and that this institute was one of our, our sponsors and supporters to make this summit possible.

So I want to thank you greatly for that. Oh, my honor. And I have gone through your certification course. It's

amazing. It's the best genetic course I've ever seen.

And I've studied genetics for a long time. Well thank you. So this is where we do the research then? This is the saliva test that measures 260,000 snips.

Totally confidential. Never shared. I know there's people that are concerned in my DNA. You going to get out there somewhere? Nope. We have it locked up.

If somebody is really concerned, use a fake name. Nobody will ever know is it's a saliva test. Functional genomic analysis, the software that crunches all that data.

And then we've created some supplements called functional genomic nutrition, where Beth has formulated some of them as well. So the software and again this is only for health professionals.

I'm sorry. If you're just general public, you can't have access to this. You have to show that you're health professional. But for the health professionals watching this, consider, looking at this to get that data.

Now, there's a lot to learn. So that's why we have an online certification course. And this is not for the faint of heart. I mean, this is for people who are serious about what they want to do.

So the first few modules are free. And then you can see if you like it or not once you decide to move forward. The the course is 595, but if you use this coupon code MSL 360, you'll save $100.

So we try to make I mean, there are courses out there that charge thousands. So we are, very reasonably pricing this mutagenic research talent LMS scam.

But we can put up a link in the resource. So we have it in the summit page. Yeah. NASA three 60.com/summit and your coupon code will be there. Yeah. So check it out.

And then also on the software, if somebody is not sure if they want to do it, just apply for a free account. We have a sample in there. If you have like an old 23 and me version three and four, you're welcome to load it up.

Take it for a test drive, see if you like. It doesn't cost you a cent. We only want you to use it if, if you like it. And, it's only $25 a month for the licensing fee, and then the cost of the the genetic test, so we're trying to keep it very reasonable.

So if anybody who's a nonprofessional wants to contact our clinic, there's our information to ya'll. Health.com health professionals functional domain analysis.com is where you can request a free account.

Here is the the contact people Yvonne Lucchese and Christy Bannon. Who can answer any questions. And the the nutrition we use is a freedom to formulate, outcome.

And you can check it out there. And if you're a health professional, you can order again, this is only for health professionals. This is not for the for the public.

So, so there we go. I'm looking for my way to stop the share. There we go. Okay, now I want to share Bob, too, that your platform is what we use for our in-depth genetic analysis in our clinic.

And it's I was in there when you first released it, and it has gone through. It's so powerful. Just the amount of analysis that's in there, the reports, and then the way that you have the genes embedded into the the biochemistry charts like you were showing, so people can drill in to the charts and just open up and see for each person they're working with their genetics at each point in time.

It's it's huge. And it's made analyzing the genetics so much easier for us. And then if people aren't health care practitioners that they want to order some of the supplements that you've talked about, they want to order some of

the formulas that we discussed and they can call your office.

Is that right? Sure. Okay. That's great. And just really want to thank you for the extent of your expertise, all of your generous sharing. This was like a graduate doctoral level masterclass in MSL and Covid genetics and a number of areas, and you have both.

What you put out in the world has changed me as a practitioner. I wouldn't be where I am today without the work that you do, and I know that there are so many other people out there that feel the same way.

Thank you for all of this. Well my pleasure. Our goal is to make a contribution to humanity. And we're we're hoping to do that because there's so many people that are that are struggling.

And again, so proud of the work that, that you're doing. You're doing a phenomenal job. And I'm sure it takes a boatload of effort to put together this summit.

So congratulations to you and for doing all of this. Thank you, Bob, and thank you again for your support to make this summit happen. I really appreciate it.

Check out our mass on three 60.com/summit page, where you're going to find the links to the various things that we talked about. You'll find coupon codes both for the practitioner resources that we talked about.

But also if you're not a practitioner you can find lots of resources there. And that's where you'll find access to is all these various things you learned about from Bob.

Thank you again, Bob. My pleasure. For.