Holtorf: Updated Peptide Protocol

Matthew Cook, M.D. interviewing
Kent Holtorf, M.D.

Matthew Cook, M.D.
Hi, welcome to The Peptide Summit. My name is Dr. Matt Cook. And today I'm very delighted to introduce you to Dr. Kent Holtorf. He was the host of The Peptide Summit last year, and said this is gonna be a piece of cake, it's gonna take hardly no time, you're gonna have a great time doing it. And it actually has been a highlight of our year, although it has been a big responsibility. I met Dr. Holtorf probably more than 12 years ago. We were at the coldest ILADS meeting in the history of ILADS up in Banff, Canada. And I actually remember how freezing cold it was. And I think you may even remember more, how freezing cold it was.

Kent Holtorf, M.D.
Oh, I have a 2 degree temperature tolerance. I'm like, "This is unlivable, people can't live here." I went to put gas in the car, and like you can't breathe. But I think some guy walked by in shorts.

Matthew Cook, M.D.
Yeah.

Kent Holtorf, M.D.
It's like, "This is unlivable." I couldn't believe it, but, yeah, it's interesting. Time flies, man.

Matthew Cook, M.D.
Time flies

Kent Holtorf, M.D.
I did lie to you and tell you, "Hey, it's a piece of cake, don't worry."

Matthew Cook, M.D.
But in terms of medical stuff, you've always told me the truth, and I've actually loved my relationship with you. It's interesting we met, and you were well on your way of being a luminary in taking care of patients with complex illness. And we sat together for that meeting, and I would say really, I've been having conversations with you, here and there over the last decade, and I always look forward to them, I always look forward to what I learned from them. And then when you speak about things, and we'll talk about a handful of these today, I'll hear I was at The Peptide Summit or The Peptide Symposium at A4M last year, and I was like, "You were saying things and I just kept going, oh yeah, that's what I do. Oh yeah, that's what I do. Oh, that's right. That is true." And so I believe that in terms of thinking about complex illness, I think you're one of the most thoughtful, wise, and imaginative, and incredible doctors in the world. And I'm super grateful that you exist, and that you're continuing to work in this field. And you're an influence for me. So, thanks for being here and thanks for taking the time.

Kent Holtorf, M.D.
Oh, well, thank you so much. It's so nice of you. But yeah, it goes both ways. And it's interesting how, when you feel a certain way and go, "Wait a minute, this isn't right, whereas it's kind of the standard." Even the integrative doctors who are thinking one way, are like, "Wait a minute, that isn't right. And then you and I end up saying, "You know what? We both think that isn't right, and this is the way it is." So it's very cool to get that confirmatory person, like, "Hey, what do you think of this?" Like, "Wow, you thought the same thing where everyone else thinks this." So, yeah, I just love my relationship with you as well, and love throwing ideas back and forth and going, "Yeah, I agree." You know like, "Wow, I thought that I'm the only one thinking this."

Matthew Cook, M.D.
So today, we're gonna talk about CIRS, which is basically ... I'm gonna let you define it and we'll get into that. We're gonna talk about taking care of complex immune problems. And I think, you know credit with a lot of gratitude, the opportunity that we get to take care of these patients, because I think in taking care of these problems, it's helped us as we begin to think about the trajectory of where we're going over the next four or five years in terms of complex immune problems, which is gonna be thinking about things like COVID, long COVID, and the overlap of everything from vector-borne infections, to water damaged buildings, to the viral infections. And then how the constellation of all of those things impacts on our biology, and impacts both how we feel, and then how our immune system works.

Kent Holtorf, M.D.
Yeah, I've really found it's amazing, is that it's all the same underlying pathophysiology, which goes along with aging, like why does all this stuff happen? People that are unhealthy, older, and it just all fits, and it kind of simplifies it. And peptides are like the perfect thing to fix this, immunosenescence, T cell exhaustion, and everything is a vicious cycle of medicine. And you find that all these illnesses are just different parts of the same pathophysiology.

Matthew Cook, M.D.
Okay, perfect. So then, given that, let's start with mold associated problems in CIRS and tell us about that at a high level, that I think is gonna introduce us to some biology, and then we'll start to get into some of the ways that we think about treating people, and some of the ways that expresses itself.

Kent Holtorf, M.D.
Yeah, when I was seeing CIRS patients, and learning about CIRS, and Shoemaker, and all his research, and there were just a couple issues I had, like, is this really different? The Chronic and Inflammatory Response Syndrome, which whether you wanna call it the cell danger response or, everyone has this new part, and I think it's really part of this elephant, everyone feels a different part of it, and they all fit, they're all right, but it's just these different parts. And with the CIRS, you try put together a whole thing, and when you see these patients, especially they've had underlying immune dysfunction before they've had diagnosed with mold toxicity. Mold toxicity is a real thing, it's very kind of the new thing. But everything is multifactorial, right? It's immune system, aging, inflammation, stress, EMFs, environmental things, I mean, they all add together. I
haven't seen a CIRS patient that is mold toxic, that doesn't have something else going on. And that's the thing, so you got people in the same house, where everyone else is fine, but there's one person. Well what's the difference? And you really look at the immune system, and we found that is the core start of everything. Yeah, and so when you look at it, as you age, so there's basically two sides of immune system, this is an oversimplification. Anything with immune system is oversimplification. Because you have to, because it's so complex, but you look at Th1 the stuff inside the cell, Th2 is stuff outside the cell, and there's Th17, which causes more auto-immunity, which I thought was Th1 before. But, so as you get older, any stress, any environmental toxins, any EMFs, whatever, the Th1 one goes down, the Th2 goes up. And then you get reactivating infections, you can't basically detoxify mold. And then you get, let's say, an

infection much more prone to it. Let's say you get COVID, much more prone to long COVID. You get reactivating infections, you get mitochondrial dysfunction, which then causes pineal ophthalmic pituitary hormone deficiencies across the board. You get immune activation of coagulation. You get mitochondrial dysfunction. Basically everything is a viscous cycle, and feeds on each other, and then that suppresses the immune system more, you get more reactivating infections, and it just goes around and around. So then it becomes the chicken or the egg. Okay, what is the problem? Is it the infection? Is it the mold? Is it the immune system? Is it the mitochondria? Is it the pineal ophthalmic pituitary hormone dysfunction? So it's all these ... Yeah, you can point all these, these are dysfunctional, this is what causes it, but it's everything. So you really have to treat multiple things, but we're really finding is that the underlying key, basically pathophysiology is the immune system. You fix that, and it's like you got mass cells, you got ... And you look at the natural killer cells, they're just nonfunctional, it's with aging and immunosenescence.

And, like with any toxin, or infection, if it goes along for a prolonged period, then the T cell shut down. So you get, it's called T cell exhaustion. A lot of money and research being put into this, and also immunosenescence, and your immune system doesn't work. And that is the whole key to everything. Because you can't suppress the infection, you can't get rid of the toxins, and you fix the immune system, you're well on your way to getting better, but if you don't, you're not gonna get better. You're gonna be maybe feeling better here or there, fix this, fix this, fix this. But if you don't fix the immune system, or if you kill everything, get rid of every toxin, yeah, the immune system can come back, but that's pretty inefficient way to try and do it. And it's a little like with my own self. And that's where I think I really realized is that, basically since birth Lyme, Babesia, Bartonella, and , it was the highest dose antibiotics, people heard the story before. And, didn't touch anything, nothing was gone. 'Cause my natural killer cell function was zero. And I was in a hospital and there was times for sepsis, and the nurses would say, "Oh, this is the AIDS patient, he was certainly negative for HIV." And until I fix my immune system, nothing worked.

Matthew Cook, M.D.
So, 100% good one. So then, what do you like to do to test the immune system? And then we'll sort of get into how do we fix it?

Kent Holtorf, M.D.
That's a good question. And, I think the problem is we don't have great tests, and the tests are a pain in the ass. It just happens to be, like, if you go through Quest or Labcorp, that natural killer cell function, I think is the biggest key, but they screw it up 80% of the time. You can do natural killer cell number, but it's the number ... Like, let's look at the studies on chronic fatigue syndrome, about 25% of chronic fatigue syndrome patients have low natural killer cell number, about 75% have low natural killer cell function. And that's looking at their standard reference ranges. And I've talked to ... So with natural killer cell function, like Quest which they send out to National Jewish, or wait, that was but another one. But I called the medical director there and just said, "Your reference ranges are ridiculous based on the literature." And he says, "I know, but each lab has to define their own reference ranges." So they're like, "Less, like normal is greater than eight." No, it's really greater than 30, is what the study show.

But they have to do their own little reference ranges. So, because the problem when doctors, even if they do those tests, it looks normal. Let's say they're 10. It looks normal, no, but it's very, very low. So there's problem with ... You'll get in the labs the C4A, even those, they screwed that up. Even for a growth factor beta, which we look for for Th2, so human growth with factor beta, and C4A, probably the best marker for Th2. For Th1 is probably, the downstream is natural killer cell function. The cytokines can really lead you astray, because they are very difficult to do, and also, it's if one side let's say is low, it will try to raise itself or suppress the other side, and it will send you the wrong direction. So it's not what the body is trying to do, it's what the body is doing, right? So the cytokine task tend to be usually worth it. Usually they'll come out zero or all over the place. But, so we look at those downstream numbers of what's really happening with the body. And then Cyrex has some good tests that we're using more of, just started using them, but they look very promising.

Matthew Cook, M.D.
Which ones are those?

Kent Holtorf, M.D.
It's their T cell immunity test.

Matthew Cook, M.D.
Just speaking of the T cell, have you been using the Infectolab T cell immunity in terms of for Lyme testing?

Kent Holtorf, M.D.
No and I keep meaning to, because I've heard great things about it. But, no, and they came to our office, and it sounds very good, I just kind of keep forgetting to.

Matthew Cook, M.D.
That one, I like to do from the perspective of, so if we're thinking about immune problems that can affect people, then one thing could be water damaged buildings, and then that's mold, but that's potentially mold plus season. People have been hearing this potentially gram negative rods. If it's on the tick-borne side, then that could be ... And you know this as well as me, but it could Borrelia, could be Bartonella, could be Babesia, those are like the Holy Trinity. And then all of these other vector-borne infections plus or minus Epstein-Barr and stuff like that. You can look at ... IGeneX, we'll look at the antibodies to those. The Infectolab will look at the T cell response to each one of those. And so then if I'm really trying to weigh in on that, then what I'll do is I'll look and I'll see, okay, how are your B cells making antibodies, how are your T cells responding? And then sometimes I'll see people that don't make any antibodies, that would be thought to be negative for Lyme, but then I'll do the T cell test and it's super positive. And so then, that's been an interesting piece. And then that also ...

Kent Holtorf, M.D.
Are those the sicker patients that you see?

Matthew Cook, M.D.
Sometimes, sometimes. And so then, that's an interesting sort of piece. And the fact that I brought up the mold piece with it, is because there's so much overlap, I think a lot of the people who really struggle on the vector-borne side, actually have mold. Or are somewhere on the spectrum of Chronic Inflammatory Response Syndrome. And then I agree with you, is 'cause it's the whole thing. And then other stimuli that come in, whether that be the gut or whether that be COVID, or whether that be other inflammatory, other things that drive inflammation, or drive toxicity, or heavy metals. But then I think getting a better and better map and model of what's actually happening now, because it's like, "Oh okay, we can delineate to the extent of the

infections, the extent of the toxins, the extent of ... And then begin to think about it." But then one topic that we decided to talk about today was binders, because in the arc of these infections and toxins, probably the most common treatment, that people have used for mycotoxins has been to take a lot of different binders to bind those toxins out. But you've got a little bit of a contrarian perspective on this, so tell me about that.

Kent Holtorf, M.D.
Yeah, I hate binders. No, yeah, people are gonna just scream. But just a mention about the with the positive T cell negative antibodies. If you have low TH1 you can't actually convert IgM, which is basically non complement antibodies against a infection or whatever it may be, it just holds onto it, to IgG, which is complement activating, and kind of blows up the thing. And also you just don't make antibodies in general with low TH1. So, it also goes to those are the sick patient low TH1, they don't have any antibodies, and those are the sickest patients. It's funny, it's like you look at a western broad, and immuno-broad, and the sickest patients have no width bands, it's like, "Yeah, you got Lyme, but you got no bands." And I've learned too, it's like when I say, "Chronic Lyme disease," we don't even know what we're treating one infection. It's just, there's so many that we can't even test for. There's hundreds and thousands of these things, and different strains and all this. So, and myself, all I had was to start with when I got very, very sick and bedbound, was 41 band on the IgM. And then when I treated my immune system, I had eight bands on IgG after that. So it shows that people with no immune, you can't go by the immune response. But, yeah with binders-

Matthew Cook, M.D.
Yeah, hold on a second before we go in on that. I wanted you to talk a little bit more about that, because that's a crucial fact for people to hear about when you start to think about these problems, because I will often get somebody that comes here and they say, "You know, I went to Stanford, and I saw the ID there, and they said I definitely don't have Lyme disease. Because they did one test, and then they didn't have any bands. And they had negative antibodies." But then many times when you start to bring the immune system back, all of a sudden those will appear in that first six months of treatment.

Kent Holtorf, M.D.
Yeah, and that's what we find. And even with Lyme disease, you find if someone has Lyme disease, they probably have multiple other infections as well, right? And we're just so focused on

one thing, which is why all these studies on chronic Lyme disease is so controversial because giving high dose antibiotics for a year or two, it can help, but maybe it doesn't. Because there's so much other stuff going on. And I think we have so many infections. And when you look at, that, I don't even know if you even get rid of like when we treat myself or anyone else for chronic Lyme, do you get rid of it? I don't know. I think you just end up suppressing so many things. But as your immune system drops, then all this stuff starts coming out. 'Cause if you check out a Lyme disease patient, they have Epstein-barr positive, CMV, HHV6, because the immune system can't suppress it. So, but these are things that everyone has. And I think so many people have Lyme disease, that never have symptoms, right? Is that they suppress it, and they're fine, unless all of a sudden they get in an accident, emotional stress which is a killer, which suppresses the immune system especially TH1, doesn't suppress the immune system like steroids, people think, it modulates it, it lowers that TH1.

So emotional stress, divorce, death, spouse or family, some significant stressful event, another infection, a accident, motor vehicle, whatever it may be sets it off, and all of a sudden they're like, "Oh my God." And then now you're looking for all these things, but it's the immune system that's been suppressing this stuff, now releases all these things. And like I just saw a patient the other day who had like positive, Borreila, Babesia, Bartonella, Epstein-barr. I mean, do you think that's what happened? They got all these different infections and then they got sick? No. It's immune system drop, and now these things came back out. So, go to the heart of the problem, not trying to kill the people, put them on Valcyte, and Valtrex, and antibiotics, and all these things. Well, no, fix the immune system, and those things will take care of it. You may have to help it, and treat these other infections in different ways, but we use very little antibiotics now, and no longer do we do ... I was turned the Horowitz pro, which he's amazing. But just doing massive doses of everything, killing it, and it can work. But it's much easier to fix the immune system, and then, maybe a month or two of sorry, antivirals. And we're finding that maybe we don't even need that.

Matthew Cook, M.D.
Now, I agree. I a hundred percent agree. And, but then, again with that in mind then I'd like to ... I saw this great lecture, Hopkins professor that was speaking about Lyme, and he said ... And speaking about neurological, I mean, he was talking about neurological Lyme and he said, "You need a model for neurological Lyme, and it's drug resistant neurological TB." And so then their model is, you need to get penetration into the central nervous system of antibiotics, and they basically would do these four antibiotic cocktails that are trying to basically get penetration in

there. And there's an aspect of it that I liked. But then I said, "What are the antibiotics that we use?" And so then one would be like Ozone. One would be Thymosin Alpha One. One would be LL-37. So then suddenly we've got, potentially one is to some extent Vitamin D would be a like low, you know what I mean? And so then we're thinking about all of these things and would we add in something occasionally? Yes. But for the most part I have not been profoundly impressed that big antibiotic cocktails will be helpful, but I have been impressed that antimicrobial strategies. And then often we'll do two or three herbal antimicrobials. And so then between peptides, and herbals, and managing the immune system, and sort of thinking comprehensively, and paying attention to stress. I was so nervous about it. I echo what you said about emotional stuff. And I had always been a little nervous about doing stellate ganglion block and a lot of the big emotional recess that we do. And now we do with everybody that has Lyme. And they are some of our really great responders. And it's because there's such an impact of this physiology on the emotional system. And a lot of times' emotional stress just like you said, triggered that. And then resetting that, I do find then begins to reset, all of a sudden TH1, TH2 starts to come back.

Kent Holtorf, M.D.
I think that that's a great treatment, and not a lot of doctors can do that. But it is, and they get hardwired that way. And they're fight or flight constantly. And it's so hard to get someone better. I have a couple patients that are at home, and they're living at home with their parents, and their parents are totally emotionally dysfunctional. So they're just in this constant, just terrible toxic environment, and they're not gonna get better. It is so difficult, if not impossible to get them better, because they're just constantly stressed. So that's what they need, is like a ganglion block, or something to relieve that stress.

Matthew Cook, M.D.
Good. Binders, tell me about binders.

Kent Holtorf, M.D.
You know, with binders, I'm very ADD, which is why I also bought into this, and I'm not saying is wrong, but just massive antibiotics, I wanna get someone better, I'm gonna do more antibiotics than the next guy, I was going destroy this thing, right? And then I'm like with binders, they did all these different ... But I'm like, "No one gets better." It's just like people coming in, "I've been on this for years. Yeah, I think I'm better, and da, da, da" And I'm like, "How long has it been? "Four

years." And I'm like, "Okay." And I think binders can help, no doubt. And there's people that are just upset with binders. But, it's that it's the same thing with mass cell. It's the people with mass cell are looking to directly influence a mass cell, they're just, "Okay, anti-inflammatories, and anti-mass cell stabilizers." But look upstream, that's what you need to do. And so the body is not releasing the toxins, because of low energy, low mitochondria function. You look at on heavy metals, that people with low mitochondrial function, can't get rid of heavy metals. And you see this classically with autistic kids, right? And if you look at autistic kid's blood and a Lyme patient, they're almost exactly the same. They have the same immune dysfunction, they have the same mitochondrial dysfunction, neither of them can dump heavy metals. It's the same thing with mold toxins, is that they can't get rid of them 'cause there's no cellular energy. So if you fix the cellular energy, which means mitochondrial function, modulate the immune system, you can get rid of these things, and instead of just trying to take the little scraps that are coming out for years, when the cellular, you need to detox cellularly, not what's in the blood, it's what's in the cell, what's basically the toxin. And so I just think it can help. But it's just an inefficient way of you're not fixing the problem, you're just trying to stay even with a, I think of a bucket with water, and a hole in it, and you're just trying to make that hole a little bigger instead of fixing, turning off the spigot.

Matthew Cook, M.D.
You know, I have been ... There is this huge conversation on binders, and I've been somewhat skeptical of binders myself. What I've personally evolved into doing is, is that I work out and then I take a sauna every morning, and then I do a cold plunge every morning. And what I'll do is I'll intermittently take some bitters sometimes as kind of the push, to get your bile duct empty, and then I'll take a little charcoal. But, basically I'll take a little charcoal, and mineral water, and lemon, and then that, and then I'll take a modified citrus pectin with that, because that actually has some anti-inflammatory effects. And let's say it's a mild binder, but it's an anti-inflammatory. And I'll take that with a little charcoal, and with the idea that I'm catching any detox from my liver that happened overnight. And, I'm in a detox sauna experience. And so then I'll do that as my one binder thing, but then I'm done at that point for the day with binders. So, I basically take two modified citrus pectins, and some charcoal, and then that's it. And I have to say I'll feel better, or I feel great when I do that, but that's a real light binding type of algorithm.

Kent Holtorf, M.D.
Yeah, I mean, I really think we're gonna see so many people sick and I think we're already seeing it. And we're just being bombarded with so many toxins, and EMF's, and pollution, and heavy metals. And it's like, "You go get sushi, I'll take some binders when I eat sushi or something. But, we're just being bombarded with so many toxins. And I think you see that, I carry lab slips in my pocket, whenever I go to a party, because everyone comes up and goes, "Oh my God, I'm so sick, or my daughter's sick, or my friend's sick or whoever." Someone is really sick, like in every family it seems like now, and we didn't have that 20 years ago. And all these conditions like CIRS, you never heard of that. And mold's been around forever.

Matthew Cook, M.D.
Right, and so then now if you are like you and me walking around in our lives, that's exactly right. And that's how I got into this, because basically I would be taking care of families, and then next thing you know, there's somebody in every family with-

Kent Holtorf, M.D.
Yeah.

Matthew Cook, M.D.
One of these problems. And so then it just became something that I had to figure out. Like Barb sent me up to Canada where I met you, because we were trying to figure out Lyme disease like 12 years ago, you know what I mean? And so then that that happened. And at that time, and then from that moment until the last few years, if I had a hundred dollars for every person that I heard was on a protocol where they were taking binders, and then they were hoping that they were gonna take binders for a long time, and that that was somehow gonna bind out all of the mycotoxin in their body, and then at some point they would be ready to take this magical peptide called VIP, that was gonna miraculously solve everything.

Kent Holtorf, M.D.
Yeah, exactly.

Matthew Cook, M.D.
That would be a lot. And then you would say, "Well, there must be thousands of people that you heard about that did that protocol, and then that protocol was really, really amazing." And then I

would be like, "I almost don't know anybody that did that, and then that worked. And I think that, that ... I'm guessing that that probably is a similar experience that you had, which has led us both to try to go upstream and say, "Is there something else that might help people feel better, which would be optimizing the immune system?" But tell me your perspective on that one.

Kent Holtorf, M.D.
No, I totally agree, same experience. And I just started ... You know, 'cause I really respect Shoemaker and all the research he's done. But I'm like, "Something doesn't make sense." When I look at what VIP does, and it lowers TH1, it lowers natural killer cell function, raises TH2. And I'm like, "I don't understand why this... I don't understand why. He says "Don't give it with inflammation, it'll make it worse." But if you get rid of everything, it's like a steroid shot, where they're gonna feel better, right? For a period of time, but you're not helping them. It's actually making them worse. So, VIP actually will suppress everything, and but do more of a suppress TH1 and TH2. So people go, "Oh, I feel better," but then they're never healed. They're never over it. And if they get in a moldy thing again, they're just really very likely to just respond. And, so that's what didn't make sense to me. And so, looking at the studies, yeah, it can help people in the short run, but you're making them worse in the long run. And it also, which I found out, that it dramatically increase your risk of many, many cancers, basically prostate cancer, all the colon cancer.

And it makes sense 'cause it's suppressing the natural killer cell function. And so it's something that it doesn't make sense to me to use, and it didn't. But I had some people say they felt better. But it's interesting, so another doctor came up to me and said, "You know ... And she treats Lyme, she had Lyme, and all this and she was feeling much better, but then she did some sprays of VIP for a number of days, and all of a sudden she just crashed. And she has not been ... And she said, "It's been months, and she's just been horrible. And she was feeling fine." And I'm like, "It makes sense with what VIP does." So she was good, but she says, "Oh, VIP better, boom. It just sent it like this, which is the last thing you wanna do." It does exactly ... It stimulates the immune response which is the same thing as T cell exhaustion, immunosenescence, and which you don't want. But it can make you feel better in the short run, but in the long run it's a negative.

Matthew Cook, M.D.
But then I would say that one of the theories is that, with chronic inflammatory response syndrome, what happens is, is that at a genetic level, the transcriptome gets upregulated and all of these inflammatory genes.

Kent Holtorf, M.D.
Absolutely.

Matthew Cook, M.D.
And so then what we find is, is that, it's almost like we got driven into fight or flight, and we start to print the more inflammatory genes. And there's this test called the genie, that we'll try to look at that. And one of the theories is that, if you could bind and detox people to a point that they would be ready to take VIP, then that would down regulate basically that transcriptome.

Kent Holtorf, M.D.
Yeah and I think ... Then that's the thing, is when you look at VIP in an ideal situation, it may be helpful. But especially if you have inflammation though, which everyone has, especially humans for growth factor beta, that it sends it off in this inflammatory TH2. But in the short run, yeah, it may be good. But you look at the genomic effects of these, bio-activators, and Vilon, TB4-FRAG, Thymogen, BPC, they're really modulating genes, and that's the thing. And you like totally agree. Everything's about the genome. And it's what is upregulated, downregulated. And that's really nice about the peptides. And you look at Vilon, Thymogen, let's see, upregulate like 450 immune genes, and downregulate like 50 genes, something like that. And everything is epigenetic, or most things. I mean in the long run, that is the key.

Matthew Cook, M.D.
And so then within ... And what I would say, and this was like my thing that I wanted to say to you, which is is that, "I know that we both have hundreds and hundreds of examples of just walking around our life, and then you hear somebody go, "Oh, I did all of this stuff, and then I took VIP, and then it got worse." And whether they took it at the beginning, middle, or the end, even though it's supposed to be at the end. And even when they thought they were at the end, they got worse. Vilon ... But also like Crystogen, Thymogen, the neurological bio-regulators, when patients who are really sick start taking those, they start to feel better. And those patients start to feel better, like the majority I find feel better, they tend to be on the anti-cancer end of the spectrum, and they're regulating gene expression. And I think a safer, more functional way, people feel better. I heard you give a lecture where you mentioned a case of somebody who started to have less POTS physiology, that's postural orthostatic hypertension, when they were taking Vilon. And then I also have echoed the same thing, had the same thing, where we started to use bio-regulators for people with really substantial problems, both on long COVID, and a

chronic Lyme perspective. And so then I was like, "Oh, this information has to get out, because I think it's an alternate perspective on how to think about CIRS." And then, the intriguing aspect is, is that the peptide component of treating CIRS, is actually moved up to the front, because we're trying to regulate at a epigenetic level, and at a cell physiology immune level. And then that really is the foundation of where I think we should be thinking about these complex problems.

Kent Holtorf, M.D.
I totally agree. And that's the key or foundation of ... And that's the thing I'm like, "Damn, this has become the foundation of everything." I was talking to you about the patient just called Alzheimer's and all these, whether it's Neurogen disease, auto immunity, CIRS, chronic Lyme, is fix the immune system. And you can do these things right off the bat, totally safe. The risk of side effects is so low. And I think that's the word that has to get out, you're right. And it's changed our practice. Like I can't fathom not using peptide to treat patients. And yeah, there's other treatments and Ozone, but all my favorite treatments are immune modulatory it turns out, right?

Matthew Cook, M.D.
A hundred percent, yeah. A hundred percent. So, then, clue us in 'cause then we could go down this road a little bit, what is immune modulation? Because then in a way, all of your favorite treatments and then this is really the foundation, 'cause if somebody is out there sick and really struggling, then what you're hearing is is that at the beginning, we're thinking about modulating your immune system as sort of step one. Walk me down that road a little bit.

Kent Holtorf, M.D.
Yeah, and has anyone talked about that in the summit?

Matthew Cook, M.D.
You're gonna talk about it better. So just keep going all the way in on this.

Kent Holtorf, M.D.
You're so funny. But, yeah, so I'll have an e-book finishing up on CIRS, but it really can ... The immune modulatory treatment of CIRS or rapid treatment of CIRS, whatever it's gonna be called. So I'm finishing that up for your summit. And it really talks about how to focus on this with the peptides. But you can replace really CIRS with anything, honestly. And it's really immune

modulatory. So, I do this so much with the TH1, you can really tell the health of a person I'm telling you, if you check their TH1, TH2, which is a immune system. That will tell you how healthy or sick that person is. And you look at ... We're getting better tests. But natural cell function, you look at Infecto, potentially as well, you know how many infections they have, and also Cyrex. But, and then the C4A you look for growth factor beta. And also we find all these patients have immune activation coagulation. And they have D-dimer super high, like long COVID, and see they all fit in this same pattern. Long COVID is just like Lyme, it's just like autism actually, and all these things. So, is that the immune system, we have low TH1, high TH2, or they're balance, and then it starts going like this as you age its from aging, and evolution of a thymus.

So the thymus involutes and causes aging. You look at even the CDC states that 80% of age related ill ... Sorry, 80% of people have at least one age related illness, which is due to the involution of the thymus. That's the CDC. Okay, if that's the case, why wouldn't you either rejuvenate the thymus if you can or give thymic peptides, and prevent the cause of all these age related illnesses? Right there, the CDC says 80% of people have at least one age rated illness due to thymus involution. Why not give thymus back to the patients, right? And fix that immune system, and you look at ... So it involutes, it's actively around 9, 10, 12, but then drops around 40. And that's all of a sudden, you start getting all these diseases of aging, whether it's cardiovascular disease, autoimmunity, cancer, and there's a little lag, when the immune system is low, and then it goes up. Why not give those thymic peptides back and prevent that? It's just seemed like, hello, like, it's a no brainer.

Matthew Cook, M.D.
Almost like if you're ... If something else was really low, if your testosterone was 50, we would support that testosterone back up. If you have no immune support going on in your body, then pneumonia is gonna be the old man's friend. But why not just lift your immune support up, and then suddenly maybe there's no problem?

Kent Holtorf, M.D.
Right, unless because big pharma doesn't have a drug for it, so they say, "Well, it's normal to be low." Like you do with testosterone, they just keep lowering the normal range, right?

Matthew Cook, M.D.
Right.

Kent Holtorf, M.D.
But unless they have like a statin for cholesterol, which they don't go by normals anymore, they don't go by ... So a normal level, they take the population lowest two and a half percent, and highest two and a half, those are abnormal, the rest is normal. But with statins they don't do that. I mean, with cholesterol they don't do that, because they have a statin to treat it, right? So they do optimal. So really we should be looking at optimal, but they would say that, "Well, it's normal to have low thymic function so you don't need thymic peptides," right? But it's also normal to get cancer, cardiovascular disease, so don't treat those, right? See, it's hypocritical. But unless they have a drug to treat it, which, again with like cholesterol, and stuff like that. So they say what's optimal instead of what's normal.

But with thymic peptides it's, yeah, we replace that, you just anti-age person. And you look at Epitalon combined with a thymic peptide, oh my gosh, the anti-aging effects like, they looked at people with cardiovascular disease over 15 years, with significant cardiovascular disease, they gave them actually only six doses of thymic peptide, and a pineal peptide, and followed them. And the people with significant cardiovascular disease, the people that were on placebo declined, and the people on the two peptides, just for six doses actually had improve in their cardiovascular symptoms, improvement in their quality of life, dramatically less cancer, dramatically less cardiovascular events. And then the people that they actually gave further doses to, they had a fourfold decrease in cancer and cardiovascular disease, I mean, it's just crazy. And this stuff is so safe.

Matthew Cook, M.D.
Are you talking about Khavinson here?

Kent Holtorf, M.D.
Yeah.

Matthew Cook, M.D.
He's the greatest. I think he's just like one of the 10 most important doctors in the world for sure to me. And then what will happen is, is people are not gonna be really aware of this, and for like another 10 years, but his importance is going to grow over time I think.

Kent Holtorf, M.D.
Yeah see, you're not important until you're dead.

Matthew Cook, M.D.
Hopefully he's gonna stick around for super a long time.

Kent Holtorf, M.D.
Yeah, we'll see, right?

Matthew Cook, M.D.
That is my wish for Professor Khavinson.

Kent Holtorf, M.D.
He should be taking the peptide, so he'll be like Yoda.

Matthew Cook, M.D.
That's right. But so then that indicates a point that maybe if that immune component is being supported, and then you are hearing that people have less cardiovascular events, that's because cardiovascular disease is immune disease.

Kent Holtorf, M.D.
Everything's immune disease, I promise you.

Matthew Cook, M.D.
And so then within that, one thing that I'm beginning to talk to a lot of people about is that, does that mean you need to be on thymic peptides all the time? No. Okay, even just all the short boluses, seem to have some support. But so then, there's a lot of people that I work with that feel great most of the time, but then something happens, and the wheels are coming off the bus. And so then, being able to manage through those moments, and there can be multiple things impacting that. But then from a thymic peptide perspective, one thing to think about is thymus is not for one, One thing to think about is the immune bio regulators, Thymogen, Crystogen, Vilon. One thing to think about then ... And, I don't really use thymus and beta-4 anymore, I'll use the fragments, because I think the fragments are more anti-inflammatory, more potent. And, can work better.

Kent Holtorf, M.D.
The TB4 is basically a number of different peptides combined. That it has a section like the TB4 Ac-SDKP I think were in the peptide cells. That will lower human growth factor beta, immune modulatory. But then there's a section on the TB4 that actually stimulates mass cells, is inflammatory. And then they have ... And you look, and you go through there's some other domains. And then ages at the other end is also another one that is very rejuvenative. So it's really a number of like five peptides combined.

Matthew Cook, M.D.
Right. And so then, why not isolate down and take the one that you want? I was leading up to have you say that. And you've used the Thymosin and beta-4 fragments a lot.

Kent Holtorf, M.D.
Yeah, yeah, and integrated peptide has that. And then they're coming out with the age, what's the other end of the end terminal is the C terminal, which is shown to be very rejuvenative as well. Yeah, so take the parts that you want, and leave the parts you don't.

Matthew Cook, M.D.
And now interestingly, 'cause on the peptide front, this kind of dovetails into an interesting topic because peptides are proteins, and so big proteins if you take them in your mouth, they're just gonna get chopped up and absorbed, which is why you can't take insulin by mouth, you've gotta inject it with an insulin syringe. And, there's a good bio availability when you're injecting peptide subcutaneously. But the small peptides, and especially either the fragments, or the bio regulators, or some of the other ones like KPV, GHK, I think are the best peptides. There's less immune reactivity to them, they are better at regulating at an epigenetic level, 'cause those are the ones, they're gonna go in, and actually have an effect at the genetic level in terms of the transcriptome. And then finally you can take them orally.

Kent Holtorf, M.D.
Yeah, and that's the thing. So there is ... Let's see, the BPC is an anomaly, that it's 14 amino acids, but it absorbs orally whole. And now as long as it has acetylated, right? And there's the stable BPC, people are saying stable, but if you have salt, the body will naturally acetylate something that it wants to protect against enzyme degradation. So if you don't acetylate it, then it gets broken down. So it's interesting to me that they're saying stable BPC and because they're stable

in the gut, at very low pH, but there's so many studies showing BPC acetylated been stable in the gut for 24 hours and more, but they just happen to find out that they say it's not. But if it's not acetylated, it's gonna get broken down very quickly by the digestive enzymes in the gut. But they're calling it stable BPC, when it's really an unstable BPC, and BPC will absorb whole. TB4-FRAG will absorb whole. And it's interesting, so the KPV, so there's a nano KPV coming out that is altered, but not altered, if you alter it, it becomes a drug, but that it is like a hundred times more potent, which is very interesting. And the body will do that on its own, but you gotta know what it did to do that. So, KPV, I love. And I always said, "It is gonna be the best selling." And it was huge, but now, it's gonna be a game changer I think, with the super potent KPV, that's resistant to degradation, and attach the receptor with a hundred times affinity.

Matthew Cook, M.D.
And then tell me about KPV, and just sort of as a peptide, how you think about that?

Kent Holtorf, M.D.
So KPV is a fragment of MSH, when I say so many hormone, which Shoemaker talks about the anti-inflammatory, which is a core issue with his ... With the whole protocol that he says is low, right? All the things he does, is trying to increase MSH, in the Shoemaker Protocol, right? Well, you can't give MSH, you can't, one, it will be broken down very quickly, you get stimulation of melanocytes, which sounds good. You got Melanotan one and two, which are basically analogs of that and stimulates it, they call it the Barbie doll peptide, because you get reduced inflammation, you get weight loss, you get increased libido, and you get tan. But it's great if you're young, but if you're older you get dark spots, and all these things. And I remember taking it and I'm ADD, so I'm like, "This isn't working." And all of a sudden I was, "Oh my God, I was so black. Oh my God, this is so weird." But, and a lot of like ... I know Corey Chicher talks about, giving it, and Melanotan one and two for Lyme patients, he's been doing it for a long time. But you're getting that double edged sword. Now they're all blotchy and stuff. But KPV, it's substantially more potent, and doesn't cause stimulate the melanocytes, but dramatically anti-inflammatory. But it also does not decrease, it's like not giving an opposite of steroid. It increase the bodies ability to fight an infection. And it has huge antimicrobial effects, antiviral, anti parasitic, antibacterial. It is like the ideal peptide that everyone should take. I think it's gonna just change the lives of so many people. And so, the standard KPV has been out, but it just had a run, and the IP ran out, but they're going to get the ... Should be a week or two, hopefully for

A4M, getting the potent version in. In fact, I'll send you some, I'd love to see what your thoughts are, because just like it literal, this is gonna be the best thing for so many people. But yeah, so that that's gonna be very anti-inflammatory, modulatory, but they all work together, right? And then looking at the bio modulator, the thymic peptides, with the pineal peptides, and then you add BPC, KPV, and lower that inflammation. Then let's say they have sleep disorder, delta sleep inducing peptide, mitochondrial dysfunction at a mitochondrial, , SS-31. And also you look at protecting against mold and mycotoxins. Right? So the peptides will not only treat it, but they'll protect you, and not allow the effects of the microtoxins increase IL6, and all the oxidative stress, the peptides will prevent that. And also even activating the calcium channel. Basically we see with EMFs, will stimulate the calcium channel, the calcium channels where you get flood of calcium in the cells, you get palpitations. In fact my stepson, he started getting palpitations and racing heart, and the WiFi's right in his room. And I'm telling him, "Minimum turn off the WiFi at night, just unplug it or whatever." And we did that and then it stopped. And ...

Matthew Cook, M.D.
I've heard that, I have heard that. I think that that's a big one.

Kent Holtorf, M.D.
Yeah and electric cars. Yeah, it's like you're driving next to a high tension wire. And I have some case studies showing that people didn't get better, and then I'm asking what car they drive, and it's a electric car, and they stop, and they get better.

Matthew Cook, M.D.
That's an interesting one. We'll have to keep a conversation on that going. On a scale from 1 to 10 being helpful for mass cell activation, where would you put KPV?

Kent Holtorf, M.D.
9.5.

Matthew Cook, M.D.
Brilliant. What do you think the mechanism of that is?

Kent Holtorf, M.D.
I think direct suppression of mass cell, and also immune modulatory.

Matthew Cook, M.D.
So then that's so awesome to kind of think about, because the two things that I think a lot of patients with complex illness are struggling with, is POTS. They stand up and they get lightheaded, and their heart rate gets discombobulated, or they get mass cell activation. Tell us what mass cell activation is, 'cause that's a useful one for people to hear about.

Kent Holtorf, M.D.
Yeah, and so the thing is with mass activation, so mass cells are the cells that will go in when you have injury or infection. I mean, they're good to ... And that's the thing, everything's a balance, right? Is that they stimulate inflammation and they'll actually... A lot of things that they thought they weren't involved with because they would basically have packets of histamine, and they'd say, "Well, they would release histamine," and that's what they thought their function was. But it's not. A lot of times they don't de-granulate the histamine, but they secrete a ton of inflammatory cytokines, right? And so you stimulate the mass cells, and it just causes all this inflammation and this TH1, TH2, TH17 shift in immunity. But, they thought it was always just mass cells were allergy, but no, they are way more important than that. So mass activation has all the symptoms that you can pretty much imagine with everything. And I think mass cell activation has a place in chronic Lyme disease, certainly CIRS, all those things. And the doctors who are experts in this, and with the mass cell mastermind groups I mean, they're the most intelligent doctors I've ever met.

But they're just stuck on directly stimulating them, like inhibiting the mass cells, right? Look upstream, because the biggest proportion of the mass cell stimulation ... Because the mass cells aren't abnormal, the mass cells they're not dysfunctional, they're not crazy, it's what's stimulating them, right? So you wanna look upstream, and stop the stimulation, not direct, yeah, you can certainly you want to direct and suppress the stimulation of them, but it stopped the stimulation, but they're stuck in here. And so you modulate the immune system, it's just like, POT series, they are a mass cell symptom, the bladder, all of that stuff. So many symptoms, gastrointestinal, is you fix the immune system. I don't even think about like POTS anymore. It's like people have POTS like, "Okay, yeah, that will get better. Okay, let's da, da, da," and it just goes away, because you treat the immune problem, the mass cells dramatically get better. So I rarely ... I'll maybe give them Claritin to start with, just to do it, but you look upstream, and that's the key.

Matthew Cook, M.D.
And there's a host of all of these medications that are histamine blockers, like Benadryl and Claritin and then a whole bunch of other categories of medications that treat, and calm down, and stabilize mass cells. But then also, I 100% agree that if you start to work at a cellular level, and upstream ... And I think that's part bio-regulator, that's part things like KPV, that's part things like the small fragments, that's even I think things like GHK are helping.

Kent Holtorf, M.D.
Good point, yes, I think GHK is pretty amazing, and it suppresses inflammation, and I think that's gonna have a bigger place it's more cosmetic right now. But I think it is gonna be a bigger player in anti-inflammatory respects, I totally agree. And yeah, doing injectable, looking at oral, like we don't have the data right now to show that it can absorb transdermal, it seems to get through, depending on what study you look at. But I think that's a huge, beneficial peptide as well.

Matthew Cook, M.D.
And then we're going to start to teach about what you can do with all of these things from an intravenous perspective. And there's ... You know what I would say the exciting thing is, is that we're really having an international conversation at this point, and then we're working with clinics in multiple jurisdictions. And so then the intravenous use of peptides is going to be, I think, one of the defining game changers in terms of how we manage. And I think that as we embark on that, we're gonna have a lot of success, and it's going to be ... It's easy, it's so much easier to do compared to a lot of the approaches of having traditional, tried and true approaches of antibiotics, and things that really disrupt our internal biology in the process of getting better versus just little small influences that are working at a cellular level. I love that you mentioned the mitochondrial. And I don't know if you wanna go into that a little bit more, because I feel that all of these ... We mentioned all of these things that can impact biology. They almost all drive mitochondrial dysfunction in some way. and even infections can steal energy from basically mitochondrial pathways.

Kent Holtorf, M.D.
Oh, it goes hand in hand. And you look at every illness, every age related, every auto immunity, diabetes, neurodegenerative disease especially, they all have mitochondrial dysfunction, all of them. And so you look at the cell danger response and that is looking at that specifically, but it just goes along with everything. And you modulate the immune system, you're gonna get

significant improvement in the mitochondria, but not also give mitochondrial peptides? And things like SS-31, will protect the body from toxins like mold or Lyme. And it will prevent that, or treat it if you have abnormality, but it is a component of every illness. They all have mitochondrial function. And which also causes, I've written all these review articles on low thyroid. But the issue is not the thyroid, it's mitochondrial dysfunction, and it's active transport into the cell, so you don't transport especially T4 and less so T3, it's because of mitochondrial disfunction. I have this whole review on thyroid, but it's really about mitochondrial. If you fix the mitochondria, your thyroid is gonna be fine.

Matthew Cook, M.D.
And as you ... I've spoken to so many patients who talk about fatigue. And then why do we have fatigue? Because we have mitochondrial dysfunction. And so then I spoke to so many people who said, "Oh yeah, I started taking SS-31, then I started feeling better." And then part of that is, is that your energy comes up. And then, things that regulate immune function, immune peptides regulate that, stem cells modulate the immune response. Other cells that can be given can regulate immune response, exosomes or acellular growth factors, can regulate immune functioning response. And so then, suddenly begin to realize, we have almost like a whole bunch of control panels and dials where we can begin to carefully start to track numbers, and then manage that immune response, manage energy, and then dial people into feeling basically good, and balanced, and clear. And basically, the thing that I've figured out is once you do that, then all of a sudden you basically feel good, and then you start making great choices in your health. It's like a ...

Kent Holtorf, M.D.
Well, it is true when you don't feel good, you just don't make good choices, period. And I think it's totally true, it's like I used to say, "When I first started this integrative give me T3, basically you could help so many patients, right? And then, now it's really give me peptides, number one, some Ozone, stem cells, T3, maybe a little heparin, you're gonna fix 80% of the people that have seen 15 doctors."

Matthew Cook, M.D.
Now that one was one, and is a crucial piece to think about in the arc of that whole conversation is that, if you get these infections, then your immune system is overactive, and it's making too many antibodies, and it's all ready to go fight that infection, that realistically is not like sepsis, it's

not an out of control infection, it's a self infection that's just hiding out, and triggering you. And so triggers this overactive immune response, which is why immune regulation is central to our perspective. Now, one thing that can happen is your mitochondrial dysfunction, low energy, you feel terrible. Another thing that can happen is things like POTS, and mass cell activation, which can derail your life in terms of feeling okay. But then, this could be like a final little theme for us to think about, and you referenced it. But take me through the hypercoagulability, that so many of these people have, which is why you mentioned heparin, because the blood becomes thick, and then there's a whole bunch of consequences to that, and then that's an important piece of the puzzle, to pay attention to as we go through.

Kent Holtorf, M.D.
Yeah. And so you mentioned is that, chronic stimulation, you get this reactivating infection chronic stimulation. And so that is the key, is if you still have chronic stimulation of an infection or toxin, what the body's immune system does, it down regulates TH1 unfortunately, so it's called T cell exhaustion. And it totally is, will happen with it matters the amount of stimulus and the length of time. So if let's say you get a viral infection, and your body gets rid of it like it normally does, that doesn't happen. If it doesn't for whatever reason and continues on, the T cells shut down. So you get T cell exhaustion. And that's what you see with all these, chronic fatigue syndrome patients, chronic Lyme, mold patients, they all have T cell exhaustion. Now they'll also over time get immunosenescence, which is a little different mechanism, but where T cell exhaustion takes weeks to months, immunosenescence takes months to years, and occurs with aging, which you'll see with diabetes, heart failure, that the cells, they don't die like they should, normally the TH1 cells, like natural killer cells will kill the cells that are dysfunctional, but if that's low, they don't, so they hang around, and they're not functional, but not only just not functional, they get mitochondrial dysfunction in which then causes the mitochondria not to make energy, but to start secreting all this reactive oxygen species and inflammation. So these cells basically start just pumping out inflammatory cytokines and then it recruits other cells to become immunosenescence. So they found that for instance the sinolytics, which help the body kill the cells that are in senescence, that all of a sudden you get heart failure, like 50% of the cells are immunosenescence, their cells are in senescence, and you kill those now that it starts working, and reverses diabetes. So there's so much money being put into this basically sinolytics that are killing that. But what's the key to that, is that TH1 needs to be high. And so the body's not killing those. And also with T cell exhaustion it's the same thing, but more short term, but you can rescue those cells. But they both have mitochondrial dysfunction. And so fixing that is if you can

simulate them to improve, you can actually reverse the situation. So really the immune modulation is key. And the problem is, is that when you get ... It's very interesting, and the studies are showing that if you get rid of this infection, or the toxin, or whatever it is you'll find, but if it goes on, now you get worse, and so it's like a vicious cycle.

Matthew Cook, M.D.
And I think that you'll hear we had a patient that was a really nice person I had dinner with, and then got a COVID vaccine, and had a fairly big neurologic thing, but just thought I shouldn't say anything, I gotta just keep doing it. And so then the time came for the booster, and then got a booster, and then three hours later had a stroke. And I think there's a significant percentage of people who were somewhere on the spectrum of chronic illness, that because they're in a hypercoagulable state, their blood is thick, they're very susceptible to forming clots. We're talking a lot about managing and modulating immune response, but then doing something to think about how thick the blood is, I think is gonna be-

Kent Holtorf, M.D.
And, sorry, I didn't even answer the question you asked me. Yeah, so what happens with this, basically immune system 'cause immune activation of coagulation in like overwhelming number of patients. So the body has developed this, it actually works to kill infections, so it will lay down vibrant and trap the infections underneath the fibrin and starts secreting antimicrobial peptides into that layer on the vessels. And so it will do that, which is good in the short term, and beneficial, but over the long term, also like Lyme and a number of infections have developed ways that they either cover themselves with fibrin and the body doesn't see them, or they'll stop, the coagulation process at a certain point. So they don't get trapped in that thing, or basically stimulate it where it bypasses them. So the coagulation is part of our immune system, right? And so about 90% plus of patients with chronic Lyme, CIRS, you name it, even Neurogen diseases have immune activation coagulation. So the body lays down this fibrin which is beneficial in the short-term. In the long term, now the body can't get at those infections if they're able to resist all the basically way that the body uses that to kill them, that they evolved over the millions of years. And also nutrients can't get in, therapeutics can't get in, the supplements, hormones, waste products can't get out, and oxygen that usually takes two seconds to get into the cells, now can take up to two minutes. And so you look at these patients that nothing works on them right? Then you treat them with heparin, some basically, enzymes and you break that

down. But all of a sudden the things that you used before that didn't work, now work, because they're actually getting in. And you can do a little, it's not totally perfect, but it's like a party thing. But take your patient, put the pulse socks on them. And they'll be a hundred percent. People go, "Oh, that's great." But, you can't have them blow out all their air, and hold their breath. And when they do that ... So a normal person, let's say a healthy person, it will almost after a period of time will start dropping, right? And because the oxygen is cut off going from, you're not breathing, so going into the blood, and then it should go into the cells, so the blood coming back is low. But people with the coagulation defect you'll find that it doesn't drop, or are very little. Like a normal person will drop like 15, 20 points on the Pulse Ox. But people who have this coagulation they'll drop like five points or less. And well, that's good, they got oxygen in their blood. No, it's not getting into the cells.

Matthew Cook, M.D.
Yeah, this is an interesting theory. But then eventually if they hold their breath long enough, then it will go off the cliff.

Kent Holtorf, M.D.
No, it doesn't, that's the thing.

Matthew Cook, M.D.
Well I mean, if they hold their breath long enough.

Kent Holtorf, M.D.
I mean yeah, then they're gonna be in big trouble. But it's interesting, it depends on the motivation of the person, but it's a pretty good tests. But if you check like in the Shoemaker Protocol, you test like three things, but really you check eight things, 8, 10 things. And you'll find that really we assume everyone has it, but if they have anything abnormal, it shows, and you treat it. And oftentimes I have seen so many pages come in, that have done massive treatments from great doctors, and nothing worked. You give them a little heparin, boom, all of a sudden it works. Also fertility, oh my God, we have so many fertility patients. One, you give me Epitalon right? But which shown to increase ovarian reserve, we can increase antibioma. But you give them T3, and heparin, and it's people who had multiple IVFs that didn't work, now they get pregnant naturally, it happens so often.

Matthew Cook, M.D.
I love that. And then that goes to show that I think I will use Epitalon as a a stress support, almost like a-

Kent Holtorf, M.D.
No one uses it.

Matthew Cook, M.D.
A thymic thing. And then will microdose that often, you know, a milligram a day, but then I'll give 10 milligrams a day during a big stress, and then I found that to be fairly supportive for a host of different things from not sleeping to big stress.

Kent Holtorf, M.D.
Oh, it resets like so many things. So in Pinealian, I mean, it just ... You know, there's more studies on Epitalon, but Pinealian is shown to reverse mitochondrial dysfunction, predict the body against mycotoxins, and which is right there with Epitalon. So we'll use both of those. And yeah, it's just that and everything is, again, the Pinealian, hypothalamic, pituitary, hormone function. And I think we're so barbaric in that, well, let's look at cortisol level, let's look at testosterone level. We don't look at all these things going on the upstream.

Matthew Cook, M.D.
Right.

Kent Holtorf, M.D.
And that's where you need to reset it. And that's what these things do, and which is so, I'm so excited to talk about it. And I can't imagine being in California where, you know, it's big pharma basically, 'cause peptides are so safe and effective, it's only state that's basically disallowed a lot of them. But, so we gotta go work around that. But, it's game changing. You know, any doctors listen to this, it's like, it will change your practice.

Matthew Cook, M.D.
I would agree. And then it's an adjacent maybe we finish on this, as an peptide adjacent question because a lot of people will ask about rapamycin, and then about senescence, and in

general. At a high level, maybe give me your thoughts on those topics of how you're thinking about what are herbal approaches versus meds? How's that going for you?

Kent Holtorf, M.D.
In terms of what I mean, yeah-

Matthew Cook, M.D.
In terms of, well, maybe just start out with senescence for now.

Kent Holtorf, M.D.
I've got my senescence in here, you know. So yeah, I'm always trying stuff myself, but I don't believe until I try it myself, but yeah, I think anti-aging is gonna be huge in the next 10 years, and peptides are gonna be on the forefront, and these antiaging effects where NAD, boosting mitochondrial function, really boosting mitochondrial function. And I think, mitochondrial peptides, do a better job than NAD. And I mean, all the things are good, but it's like, how much stuff can you take, you know? And like the senolytics, Dasatanib, and Fisetin, or Crocumen, I have to say with the typical protocol Dasatanib, 250 milligrams not 200, I took 200, then went on to travel, I thought I was gonna die, I felt horrible. But you can have a bunch of senescence cells, right? And I know a doctor called me and he was, they were doing, oh shoot, what was it? IV.

Matthew Cook, M.D.
ODRI?

Kent Holtorf, M.D.
Yes, yes, yes, yes, exactly. And which I've been trying to get, but I haven't found it, but he got some, they did IV, and he felt horrible, everyone else felt great. So, and he had like diabetes or insulin disease. So I think he had a bunch of senescence cells, and it just killed him all off, and so he felt like he was gonna ... You know, he felt horrible. So, yeah. And, things like some peptides, like, FOXO4, and Humanin, I think is gonna be awesome, but I can't find it less than ... I mean, so expensive, the dose about 10 milligrams a day, and it's like $300 for 10mg. But I think the whole anti-aging movement is huge. And I think it will, if they really embrace it and allow it, we'll prevent all these ... Like right now we're on the pathway to have people just chronically ill, whatever you wanna call it, they got chronic Lyme, they got CIRS, they got autoimmune disease, they got, you know, name it, chronic fatigue syndrome. And now it's just exploding, right? And to

turn that, I think this antiaging movement, which hopefully they'll allow peptides to be part of it, but we'll reverse it.

Matthew Cook, M.D.
And then, at a high level, if you put together this conversation, I think our goal was to talk about immune function today. And I think that was a good introduction, and a high level of thinking about it. We're thinking about mitochondrial function. We're thinking about senescence, we're thinking about autophagy, we're thinking about managing cell biology. And, what I want you to hear about some of those final things that we're talking about is we've got big meds that can affect it at a high medium and low doses. We've got supplements like Quercetin, and things like that that can be begin to affect it. And then you're gonna have super healthy people with no problem. Or, and you got peptides like FOXO4-DRI that will then take senescence cells out. And so then you can impact these with healthy people. And then they do it, and almost nothing happens to them. And sick people, you do a little bit, and then it can still affect them. And so then now, then anti-aging is going to be this thing where we think about long term immune system management and modulation, and then managing all of these aspects around biology, and then getting that dialed in, and then just keeping that dialed in, and then that's gonna be like kind of the name of the game. Because if you can do that, that solves like almost all the problem.

Kent Holtorf, M.D.
Yeah, and the problem is, with the model now, is that you don't get the med till you've got ... Like they wanna prove it, for instance, whatever the GLP-1, unless you got diabetes. Why not take it earlier and prevent? You know, it's like, and I've had patients say, "Oh my God, I'm gonna gain weight, so I can take this meds, and get it approved." And so it's the model now is not to make you healthy, it's to keep you alive after you're sick. Yeah, the GL-

Matthew Cook, M.D.
So then that's another peptide that helps with blood sugar, but it's kind of amazing. I've got some few have really experienced, incredible weight loss with that one. Have you also had that?

Kent Holtorf, M.D.
Oh, I think it's awesome, yeah. And I've learned too, is that with the GERD, is the biggest problem, and I had the worst problem with and finally, "Let me check my H-pylori," positive. And if they

have a problem with the gut, and GERD with it, look for H. pylori. And H. pylori also causes immune dysfunction. And it's a marker for immune dysfunction as well. So yeah, no, I think the GLP-1s are huge.

Matthew Cook, M.D.
And then the other piece of that whole that ... So, the good thing about it is this incredible peptide that helps manage blood sugar and stuff and can cause acid reflux, but it can also just cause nausea. And so then I've also found that doing ... And you talk to pharmacists and they're like, "You don't need to go to lower dosing." And then even Dr. McElroy was talking about like, you know, he had a long experience using it at the county hospital, and he says, "You know, patients there just really never complained about it." But then he said, "You know, now people complain about it a little bit more. And then we started going to lower dosing, and then working our way up on the dose very slowly." Because as a weight loss algorithm, then you're gonna be on that longer, and so then starting at a quarter a dose, and then sort of working your way up, it's sometimes a better strategy.

Kent Holtorf, M.D.
No, I think it's awesome, in that you find people and myself, 'cause if I'm on it, I don't, all of a sudden I'm like, "I just gained like five pounds, whatever." And they don't change anything, and when I'm on that, I just lost five pounds. And which results in lower inflammation, and all the other things. So I think if it's like used right now, it's like so hard to get approved unless you've got all these diabetes, with about kidney dysfunction all that, but it should be used much earlier.

Matthew Cook, M.D.
A hundred percent. And then, that sort of is an introduction to our next conversation because then the concepts that we're talking about in terms of complex illness, are basically the same concepts for antiaging, and the same concepts for weight loss, and living a long time, and being super functional, and getting lots of stuff done. And so now we just have to dial that in, and that just means optimal strategic inputs early, and then being upstream and managing small biology. And the side effect of that is, is that basically, the problems of our day become less prevalent.

Kent Holtorf, M.D.
I think that was a amazing summary, because it is the same stuff for, we treat the sickest patient, is the same stuff we do for the anti aging patient. Totally true, so that was a great summary.

Matthew Cook, M.D.
Well, you gave us a great summary today, and I'm delighted to get to know you, and I'm gonna continue to follow everything you're doing and keep talking to you because I think you know, I would say the most exciting thing for me is that, 10 years ago is like pulling teeth to try to figure out what protocols people what we're doing. And now, you know, everybody's sharing information for the most part. And then, and that is going to lead to an exponential increase in information. And you know, that we're gonna make the world a better place. So, I look forward to continuing to learn, and benefit from your clinical experiences in the years to come.

Kent Holtorf, M.D.
Hey, thanks for having me, Matt. Awesome.

Matthew Cook, M.D.
Awesome, thanks.