Sponsor Message and Podcast Intro

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Thank you, Integrative Peptides. Now let's jump into today's conversation. Welcome to the Peptides and Longevity podcast. Each week, we'll dive into groundbreaking science, innovative therapies, and the future of health and longevity.

Alongside visionary physicians and experts, We'll explore how peptides, cutting edge medicine and lifestyle strategies can redefine the way we age. Get ready to transform your health, optimize your vitality, And unlock the secrets to a longer, healthier life.

Let's get started. Hi, this is Dr. Kent Holtorf, and I hope you're enjoying the Peptide Summit. I want to do just a very brief introduction to peptides and basically the background, the different classes of peptide and their mechanisms so that when the speakers are, you know, we're all talking about different peptids, like, what the heck do each of these do?

Because sometimes they can just reel off a bunch of different names. Like, What the Heck is that? So I want to go through and put them in classifications for you and understand some of the basic underlying fundamentals of peptides.

Peptide 101 Overview and Disclaimers

So it's called peptide 101. And just a little disclosure here. And then our legal department wants me to say, which is true. I am chief medical officer of integrative peptides.

And whatever I say and also the speakers, it's our opinions. We're talking from experience and studies. It has nothing to do with the integrator peptide saying anything.

This is coming from us. And also any studies that are discussed, there's no perfect study. So it could be animal studies, different doses, it's, you know, no studies on the actual products that integrative peptides has.

I want you to keep that in mind that we are talking generally, say educational discussion, peptide in general. And none of these, anything said has not been evaluated or reviewed by the FDA.

And it's not, nothing is intended to diagnose, treat or cure any disease. And to the right there is the legalese that you can read. So let's go here. What we want to kind of achieve here is understand what the heck is a peptide and then understand the multiple types of peptides and and what their targets are to support normal functioning and the core aspects of dysfunctional systems that are involved with aging, poor lifestyle, toxin exposure, and to address symptoms of the multi-system disease.

and understand how peptides differ from hormones. They're a mechanism of action. And understand, again, the

basic classes. We have immune modulating, rejuvenating, and these are pretty arbitrary, but you know, sleep, brain, you're basically in the tropics, antimicrobial, mitochondrial, or energy.

Well, they have the growth hormone releasing hormones, melanotropic, which are great, really anti-inflammatory. than anti-aging and other ones. So they all cross over and they work so well together, but we'll try to make some sense of it and put them in different classes for you.

and understand really the underlying issues of how the heck we get sick and why we age and how peptides can aid in retarding that, you know, basically progression to, multiple illnesses, that multi-system illness, becoming frail.

autoimmunity, cancer, cardiovascular disease, just basically loss of muscle mass, increased body fat, insulin resistance, decline in memory, basically your immune system starts declining.

We'll see some of the things that when you look like, damn, why aren't we addressing those when we look at what really changes as we age? And we see that so many conditions are associated with this immune dysfunction that we find with chronic aging, including stress, allergies, toxin exposure, lifestyle, certainly mold, obesity, insomnia.

sleep apnea, where you get this TH1 Treg. So think of everything as a basically a teeter-totter. You got TH 1 on one side, TH 2 on the other side. TH one gets stuff inside the cell, and TH2 gets get stuff outside the and usually they're unbalanced.

But as we get older, the TH1 gets too low. So now you can't fight intracellular infections or cancer, but now, you have all this inflammation, right? But also, they found that the Th1 goes along with what's called Treg, which is kind of the the balancing immune system in.

It keeps your immune systems from going too far. So when that gets messed up or isn't high enough, it puts the brakes on everything. Then you get autoimmunity.

And then there's on the other side with TH2. So you got TH1, Treg, TH 2, and TH 17. TH17 really is that autoimmune, the inflammatory-driven side of the immune system.

And as we age with any illness and disease, it starts going like this. You have all this TH7, TH2, not enough TH 1, enough T-reg. So we're going to talk about how that snap that back to become younger and, and really have a younger immune system, which then perpetuates everything healing, you know, lack of this degenerative diseases that we see with aging.

And really, we'll talk about how the gut is so important in the Gut-Brain Access. So I just want to bring up these topics so when they're talked about that you have heard of them before.

What the heck is a peptide? It's basically a protein, but it's arbitrary if it is less than 50 amino acids. So it has amino-acids connected. If they're longer than fifty, some people say forty or fifty.

They're a proteins. And if they are less, they consider them a peptide. Now, how do they differ from hormones? People say, well, is peptide a hormone?

There are a lot of peptides that they're called hormones and vitamins that are actually hormones, but peptids will generally work on the cell surface.

They work quicker. The work, what's called the pleiotrophically, does have cells signaling. and they signal multiple messengers and have multiple effects.

It's much like a vitamin. So when you say, what does the vitamin do? It has multiple affects. And actually, it's actually much safer. Sounds like, wow, we don't know what it does.

Drugs tend to be very targeted.

Immune-Modulating Peptides

and that's when you get into problems, is that it blocks one thing, but you don't think of all the other things that are basically effects when your just trying to block one things.

But the peptides will generally have multiple effects and they also work epigenetically and turn on and off genes. When you look at your genome, people think our genes are what's going to happen, but really when you do a genetic test, your genes or about 20 percent of what can happen to you.

Eighty percent is what affects those genes epigenetically. Whether it's lifestyle, toxins, pesticides, plastics, exercise, medications, whether they be hormones, peptides, all those things, acting on those genes can turn them on or turn it off.

For instance, a peptide may turn off 100 genes and turn on 200 genes. So when you have, let's say you're, oh my gosh, I have an Apple E4, then we get Alzheimer's, but if you turn that gene off, You're fine.

You only have 20% is set in stone. 80% Is not. So, and then hormones, in contrast, actually go into the cell, go in the nucleus, work on nuclear receptors, very slow on, slow off.

And they tend to have broader effects and actually be more side effects. and not as safe. In some of the peptides, you can give a thousand times the normal dose and there's no toxic effects.

Not for all of them, but some it's like you, can't do that with water. But they are in general, very safe and that they work basically in a different mechanism.

They're very synergistic with other peptide hormones. I don't know, even I've thought in my head, any peptidae you cant give with X treatment. So peptides, we thought, you know, hormones are the master regulators, but we found that peptide really regulate almost every process in the body, and they're very tissue and cellular specific, And they are more precise than hormones.

Hormones are kind of like hitting it with a bat and this is like, with the scalpel. They didn't have tissue specific effects, while hormones have more broad effects.

Again, mentioned extremely safe and more and, more peptides are going to clinical trials. The drugs coming out are peptide hormones or peptid, whether they be antibiotics or, you know, basically a big thing now is mitochondrial peptids and things for diabetes.

About 30% now, I think it is, are coming. It'll probably be about 50% of new drugs. Coming out or. So what are the general categories? This is somewhat arbitrary.

You can break them down in so many different ways. But let's talk about immune modulating. We talked about that Th1, Treg, Th2, and Th17 balance. So thymosome beta-4 or TB4 frag, they basically are kind of even though they'll increase Th1 and lower Th2 and do both of those.

The difference is now thimosomes beta 4 is a very long for peptides, 43 amino acids. So it has multiple what they call domains that do different things.

and one of the domains actually stimulates mast cells. Now if you give TB4 to someone who has actually mast cell activation syndrome, too much mast-cell activation, it will probably help even though it has a domain that stimulrates mast modulating the immune system will actually suppress the mast cell activation.

But the TB4FRAG is what it is. It's taken out the part that has all the immunomodulating, all those good parts and the rejuvenating effects, but leaves out that part, that stimulates mast cells.

So it's also much smaller, so it crosses the blood-brain barrier, gets into actually biofilms, It gets into very small

nooks and crannies in the body and has a much better effect in a lot more places.

BPC157 is just a core treatment, body protection compound. It is basically produced in my gut and it's one of the few peptides that are stable in that gut.

Even though it is a longer peptide, it actually absorbs very well and is shown to be equal potent whether you give it orally or subcutaneously or IM or however you want you to inject it, IV, it's for the same dose.

It has the effect if you take it aurally or systemically. Let's say you have a knee that hurts. The same dose orally in the study show that it will work the same as if you give it IV.

Now, I think if the inject in that joint is going to be more compressed in a joint, then you'll get a higher level of reduction in inflammation and all that in there.

But in general, it'll be the as let's say subcutaneous or oral the the dose with the systemic effect. and they've shown that for studies on models of Alzheimer's and whether it be diabetes and metabolism, tendons, joints, all those things.

Thymus nalphalum is actually an approved peptide. It's approved as an orphan drug here in the US, so you really can't get it, but it's proved in over probably 30 countries for everything from cancer to basically infections like hepatitis B, things like that.

So it really increases that TH1 and really so kills those intercellular infections. Thymulin and thymogen are other thymosins that are produced in the thimus gland, which we're going to talk about.

And they all have generally similar effects, but a little difference. You know, some have more modularity effects. Like for instance, thimerin alpha 1 is really on TH1 raises that, dimethylamine beta-4 basically is more even.

We'll raise TH-1, lower TH2, and then TH17. Now, finulin is kind of like dimethylamin beta 4, but it is anti-inflammatory, I think. And it's probably one of the best for a Herxheimer reaction, although the other ones work as well.

When you add like TB4 or TB 4-frag, with BPC lowering that TH2 and then the TB4. Now, the thing that TB 4 and TB-4-FRAG has over thymus and alpha-1 is more rejuvenating effects, more growth factors, where thimus alpha 1 is kind of that boosting that immunity for infection.

I put pitalin and pinellium, they're pineal hormones, and they actually will stimulate the thymus to make thamic hormones. And what's interesting, you can take out the pituitary and give the pineal hormones and it will stimulate the thyroid.

It will somehow stimulate TSH receptor when there's no pituitary making T SH. And it's really a balancing hormone, probably the best anti-aging hormone Uh, study show when you take it, like done studies, basically people over 65 years old, significant cardiovascular disease for 14 years, dramatic reduction, immortality, morbidity, they live longer.

They're actually cardiovascular function gets better while the people on standard therapy get worse. And they basically have dramatically less cancer, heart attacks, and they lived long.

Sleep peptides, some of these are just a miracle for people who can't sleep like myself, is a combination of the epitalin or pinellium, which again, the pineal hormones.

And those are shown to actually, just those will raise your melatonin levels for an older person up to youthful levels just by itself.

Sleep, Brain, and Growth Hormone Peptides

But they have much more effects than that. Now, when you add that to delta sleep inducing peptide, what it sounds like a sleep-inducing peptide. You had that, and then a growth hormone, secretagogue, that increases growth, hormone or AOD, which is an anti-obesity drug, but it's a fragment of growth-hormone.

It really resets that sleep, the whole system where you can actually get deep sleep that deep wave sleep. So the delta sleep-inducing peptide, it's not like a sleep med where you fall asleep.

It changes over time, takes a couple of weeks, but it kind of resets that where can actually get sleep. We find that combination of those three, the basic pineal hormone peptides, Italian, pinellian, delta-sleep-reducing peptid, and either growth hormones, Cretogog or AOD or growth hormone.

And you get great sleep or see if an improved sleep with deep wave sleep after a couple of weeks. So there's a lot of, you know, talk about, all the growth, hormones Creteogogg, just growth from releasing hormones growth or releasing peptides and shows they work better together.

It's very complicated. I won't go into that, but just so you'd know that. And the problem is people start associating that with like bodybuilders and things like that.

But you can't overdose because if you take too much, it doesn't basically raise your growth hormone more than it should. Excuse me. And then AOD is a fraction of growth.

It does not increase IGF-1, which is how most of the effects of Growth Hormone, but it has its own rejuvenating effects. and also does boost metabolism.

So hence, anti-obesity drug. Brain peptides, CMAX and C-LINK, those are shown to improve memory, attention, ADD, OCD. They increase brain connections.

And all these have almost no side effects. I've never heard of any. Even healthy people, they improve test scores and things like that. Strip a license has been around for 40 years.

It's basically based on seeing brain peptides combination and it's been given IV for a long time, but Now the FDA says you can't do it because it's now called, it is a biologic, so you cannot give it IV or as an injection, but it does absorb oral and the studies show that.

And it has shown to help with traumatic brain injury, recover that, improve memory, autism, increase brain connections, protect the brain from toxins, and so many great things with the cerebral license.

And there's a long history of safety and efficacy. Dihexa is a angiotensin 2,7 analog basically that is shown to improve Alzheimer's and memory. Cortigen, another brain neurotropic, increases brain metabolism, and all these are very synergistic.

With, for instance, TB4, Tb4FRAG and BPC are shown to protect the brain from traumatic brain injury, increase memory. I know when we give people Bpc and TB 4, they go, God, I can think clearer.

Well, that's what they say a lot of times. We will get right back to the episode, but first a quick thank you to our sponsor, Integrative Peptides. If you are enjoying today's conversation and want to support your health and longevity, visit integrativepeptides dot com and use the code PODLIFE for an exclusive listener discount.

That's integratvepep-tides-dot-com. Code P. O. D. L. I. F. E. Now back the the The growth hormone scretagogues, yeah, we can spend a lot of time on this, but essentially now there's growth or releasing peptides and growth releasing hormones, and they're shown to work better when they are used together.

And then the anti-obesity drug, which is a fragment of growth. and again, most of these peptide are naturally produced, um, But some are synthetic and some more drugs for instance, like diamonds and alpha one is approved as a drug.

Antimicrobial peptides, LL37 is a big one for a broad range of antimicrobal properties that your body secretes, actually stem cells secrete them. It also stimulates stem cell.

So again, it's a good vicious cycle. Thymusin Alpha-1 is approved for infections that raises that TH1, Thymosin Beta-4 and TB4 FRAG also. BPC157, all the studies have shown that it, It's very, I haven't seen any studies on bacteria, but every study on viruses shows like, for instance, it outperformed acyclovir at one 100th dose.

So it killed the herpes virus better than accyclovir at 1 100 the dose, um, But there's not that many studies. On other things. We find that it really helps with a lot of infections, there are no studies to really back that up, and extremely safe.

And rejuvenating, again, will bring in a lot of these peptides. BBC 157 increases healing. I want to give lectures on it and show all the studies. It's kind of embarrassing.

Like snake oil, how could it help everything? Everything from Alzheimer's, joint pain, autoimmune disease, skin problems, any inflammation, just so many things.

And the TB4, the Tb4 frag, immune modulation. The battalion and pineal ion again will stimulate the fineness, but also has even higher upstream effects.

For instance, working on the pain centers and the sleep center. um delta sleep does like what it says is a sleep center but it's very anti-inflammatory so one of the things it likely does is lower the inflammation in the hypothalamus and that really helps you get deep sleep so all these people with Lyme and chronic infections they have inflammation hypothalamas and they can't sleep they're just So it is great at lowering inflammation there, as is the melanocortins, which we'll talk about, especially KPV, can actually get in there.

The growth from releasing hormones, growth releasing peptides will actually do the same.

Antimicrobial and Rejuvenating Peptides

Mitochondrial peptide, there are so many studies now in trials with boosting mitochondrial function because it is a core cause of aging. Your cells don't have enough energy.

their immune system doesn't have enough energy to fight infections, to find cancer. And actually it's called autophagy, where these, they're called senescent cells.

They just kind of sit there and they are dysfunctional and the mitochondria get dysfunction, and it starts to creating all this reactive oxygen species, a lot of oxidative substances and so become very, you know, tagging the body with all these oxidated compounds.

and but boosting the mitochondria actually reverses that. So for instance, there are also any chronic illness, especially lots of studies on Alzheimer's, Parkinson's even in terms of muscle strength that you want mitochondrial function.

You need energy for all these things to work. So there's MOTC, which actually usually do as an injection twice a week or so, five amino one MQ, what we've had really interesting success with, with kind of psychiatric issues such as OCD, ADD, depression.

For instance, we had one patient who basically pulling out young girl, all her eyebrows. And after three days on five minute one MQ, she stopped. And humanin, which is, has some amazing things going on with it and lots of clinical trials or for diabetes and all these mitochondrial things also boost metabolism and metabolism drops as you get older.

So you'll type two diabetes, obesity, you know, basically there's not enough energy for all of these systems to work. SS31 is in tons of trials, it improves mitochondria.

It's basically an antioxidant inside the mitochondrion. For right now, It is very expensive to get the dose that works, but a lot of great studies coming out on that.

BPC and TB4 and Tb4 frag being smaller gets into the Mitochondria, those are also mitochondrial boosters, and you'll see a boost in mitochondry. The melanotropic peptides, the basis is alpha melanocytes simulating hormone.

So you think of that as, you know, increasing melanocyte, right? So basically getting a tan response to the sun, but they're also very anti-inflammatory.

and you'll find a lot of people, they just love laying out or getting the tanning beds because it just makes them feel good. And that's what we find is that it's very anti-inflammatory, boosts serotonin and dopamine, and things you can't really give, alpha-mellanotide, semen hormone, it breaks down very quickly.

There's melanotan 1 and then 2, which is available. You get tan, you lose weight, increase libido, increased erectile function. So it's kind of called the Barbie doll or the Ken doll peptide.

But the problem is if you're young, that's great, and you get tanned. If you are older, it will bring out dark spots in that. Now, KPV is a tiny tripeptide fraction of alpha melanocytes stimulating hormone that has more anti-inflammatory effects actually than the whole peptide, but it actually does not stimulate the melanocyte, so you don't get the darkening of the skin, which is good.

Plus it's small, it can absorb orally, can cross the blood brain barrier, and we're having great results with that for mast cells, for autoimmune disease, PT-141 is approved for libido and women, it just got approved.

It's an interesting peptide. I don't know if I've ever seen it not work. That's a little strange though. There's side effect of nausea, which does tend to go away, but for rectal function, You know, nothing beats it.

And then, you know some libido improvement. Again, it's approved for increasing libidio in women. Side effects of nausea. You can get a local reaction.

It's interesting when I was very sick and I would inject the peptides, I get this red mark which looks like I'm allergic to them. But as I got better, it went away.

So really it was that abnormal TH2, TH17 that would basically react, but once a balance by a immune system, I could do the hormones. You should see that with the growth hormone releasing peptides.

and you'll see it looks like that you're allergic to them, but we see that really in the people, the Lyme patients, serious patients that have really abnormal, abnormally balanced immune system.

Those are also the People that do not do well with vaccines and get harmed with vaccine. So We are serving a vaccine risk mitigation program or test and then modulate that immune system so you're less likely to get any problems from vaccines.

I'm not an anti-vaxxer. Vaccines have done more for for humanity than so many things. And they're a huge part of health and why we're here. But we need to talk about them just like every other drug.

Hey, what's a good? What's the bad? And what the best way to take them? How do you lower your risk from vaccine injury? People want us to pretend, oh, they are totally safe, 100% safe.

Which is ridiculous. I've seen people's lives. They've got a flu shot. and they were totally healthy, and their bedbound, they're never the same. But that's not a very small percentage, but it happens.

It doesn't mean each person has to decide whether or not to take each particular vaccine.

Mitochondrial and Melanotropic Peptides

You're preventing very serious illnesses, some studies show you have 30% increase in immune disease, obesity, so you're you're trading off those side effects for something that's really bad.

Where is that point where you say yes or no? I think it's different for different people. Again, I'm not saying Vaccines are a good thing for a lot of people.

A lot are good. But we may be giving way too many. For instance, why are we giving hepatitis B vaccines to a newborn? Are they going to start doing drugs and being a prostitute when they're born?

I mean, it's crazy. And it has shown to cause developmental delay. So it is everything in moderation. What's the safest way to do the vaccines is the question.

And start about immune dysregulation. So, so many things associated with immune dysregulation, chronic infections, and that's what we see so much of, again, Lyme, parasites.

And you look at chronic flake syndrome, fibromyalgia, Sears, mass activation syndrome. They're just immune systems are just way off. So we can look someone's immune system and really know exactly how sick they are and the extent of their symptoms to a very high degree of accuracy.

Stress, we've lectures on stress. Stress is thought to lower the immunity, it does not. It modulates it, and increases inflammation, that Th2, but lowers that TH1.

Aging is a big problem, you just go on like this. Dysbiosis, It's a vicious cycle, any gut issues, cardiovascular disease, high cholesterol, post-traumatic stress, they basically have leaky brain, leky gut, PMS even.

It's a resistance and diabetes. They all have immune dysfunction, they all low thyroid, even though they have normal levels. Obesity, excuse me, immune disfunction, low-thyroid, and most have autoimmune thyroid that's not detected on standard tests.

Depression, just dieting. Dieting will wreck your immune system and actually lower your thyroid if you seriously diet. And then when you start eating normally, your metabolism does not go back to normal.

So when people say they've wrecked their metabolism, they have, unless you do something about it. Neurodegenerative diseases, definitely migraines, inflammation, cancer, traumatic brain injury immediately just messes up the immune systems, all disease of aging, infertility.

If people can't get pregnant, fix their immune system, give them some T3, oftentimes some heparin, they have immune activation of coagulation, and they get pregnant naturally.

And again, the abnormal immune systems causes low thyroid, but it's not detected on standard blood tests. So I spent about four hours doing these teeter-totter graphs here so we can gaze at those for a second.

So yeah, what's going on? So the thymus, so thynus is here in your breastbone. And basically about at age 15, you get a sharp decline in the femus. It just starts involuting, just start shriveling up.

So you give that basically, it controls your TH1, TH2. You start getting this, and you start aging much quicker. And then, so here is the graph, I think you can see my cursor, where right around, you know, age 15, 14, 15 you just get this big drop in the thymus and you get just this.

And so, immune disease, cancer, degenerative diseases, neurodegenerative to start happy when you get older. People, yeah, so when they get to your 40, you're like, oh my gosh, I'm getting all this stuff, especially at 50. You've got a couple of years of bad immune system.

That's when all the bad stuff starts happening. Now, according to the Centers for Disease Control, the CDC, approximately 80% of age individuals are afflicted with at least one chronic disease as a result of the decline in

thymic-related immune function.

So again, CDC, 80%, but just the thymus abnormality, people suffer from at least one disease from that. And what actually speeds it up obesity, calorie intake, toxins.

So the thymic and the pineal gland and age. So again, many things have negative effects and then the subsequent immunity, age, genetics, inflammation, lifestyles, huge toxins, pesticides, plastics, pregnancy, more times you're pregnant, hypothyroidism, low growth hormone, zinc deficiency.

You hear a lot about zinc with the whole COVID thing. And then immune dysfunction can worsen and also be associated with thyroid dysfunction that's not picked up on standard blood tests.

You're much more susceptible to infections. Toxins are a big issue. Mold toxins, you know, micro toxins. Plastics, pesticides. We're just bombarded with all this stuff.

EMFs don't get me started and all that. So you get autoimmune disease. This is basically that high TH2. Your body starts attacking itself. increased cancer risk, depression, bipolar, obesity, with all that inflammation, so inflammation of the hypothalamus, you basically, your brain doesn't, basically you're, when you gain weight, You increase leptin.

Leptin should go back to the brain, tell the bring, hey, we got stored energy. We don't need to eat any, We need slow down our eating. we need increase metabolism, all of that, but the brains doesn' see it.

So the brain thinks the body is starving. So it lowers your thyroid, increases your appetite, lowers you metabolism, and tells the body to store fat. So inflammation in the brain does that.

And PCOS, gut dysbiosis, We're getting all the chronic fatigue syndrome, fibromyalgia, musculoskeletal degeneration. People become frail. They become weak and fraile and they break a hip and that's how they end up with pneumonia or whatever in a nursing home, neurodegenerative diseases.

And they have terrible immune system, terrible mitochondrial function, and then they're all infected. It just infections, these low-lying infections that no one tests for is speeding up aging so much.

Immune Dysregulation, Aging, and the Thymus

It is so common. Stress, you know, we talked about stress, so you look at stress as not lower immunity, it modulates it, and you get actually the cortisol, corticotropin releasing hormone, which stimulates ACTH to make cortisol hugely stimulants mast cells.

So stress increases inflammation, increases mast cell. So you want to, and all these, you know, there's all of these amazingly smart geeks that just are in the mass activation syndrome, which no one else will touch, but they're still just focused on direct suppression of mass cells.

But you really want look upstream and that's where you get the best effects. So especially the people with Sears, mast cell activation syndrome, Chronic Fatigue Syndrome, Lyme, and restoring that, looking at that TH1, Treg, TH2, Th17 balance, much more beneficial than trying to suppress the mast cells with antihistamines and those things.

They work, they help, but you can do much. And there was a misnomer, if you read, you'll see there's TH1 autoimmunity. And for instance, type 1 diabetes, multiple sclerosis, Hashimoto's, it's thought to be type one where Graves is type two.

But when I was taught that, I'm like, well, why don't they respond to the same treatments, you know, like even this lotus ultrexone, modest immune system, type 1 or type 2, wouldn't it be different?

What they found is that it was not TH1, it actually looks like TH 1, but it's actually a subset called TH 17, which

actually is more on the TH 2 side.

So that whole TH one autoimmunity is completely wrong. It's a TH17. And TH1 actually suppresses TH17. So thymacins, again, that involutes and you stop creating thylacin.

That's when your immune system goes awry and start feeling the effects of aging. And you lose all that healing, restoring properties is required to maintain normal antimicrobial activity, mitochondrial function, Thymus works in so many different ways to a secondary messenger for healing.

It's anti-inflammatory. Again, without thymous, you're just up here with so much inflammation, nitric oxide, which dilates the vessels. antioxidants, boost stem cells.

The thymus is needed to maintain healthy gastric mucosa. Also, people have brain on fire now. People are stressed, they can't sleep, the got ADD, depression.

It's brain inflammation. So it's that immune system that TH2 is activating the microglia in the brain to modulate that, that brain information goes away.

It also binds and blocks the effects of toxins, such as micro toxins. So people with mold toxicity and EMFs actually make it worse and actually speed the growth of mold, by the way.

And the electromagnetic fields are actually very activating the brain and the microglia. You don't get deep sleep when you're around EMS. I recommend you turn off your wifi at night.

boost natural killer cell function, which is that TH1. Also those thymacins, especially the small ones like thimacin beta-4-frag, gets into the biofilms and busts them up.

So gut-brain access, you got to think of it as a is basically a two-way street. We're finding so many things that gut controls, so may aspects of our health.

And we've evolved with these organisms for millions of years, and we can't live without them. And we find when that gets messed up, it messes up the health of the body, but also when you have a healthy body and mess up.

The gut. So, you know, they've done the studies where thin people have certain set of bacteria in their gut and obese people off different set. If you replace them, then the skinny people get fat, the fat people will get skinny, But they tend to go back to where they were because of the dual aspect where the unhealthy body actually also controls what bugs are growing in the gut.

So it's much more complex than, hey, just take these probiotics. And then when you get into the viral, micro virome, there's, you know, We have more bacterial DNA than we do human DNA, and we have way more viral DNA that we had bacterial, DNA.

So the viruses that actually they're called bacteriophages. They're very specific to the bacteria, they don't harm us, but they go out to bacteria. But they'll actually are a major part of controlling the level of the different bacteria in the gut.

And it's a whole new, you know, we think like this whole, new revolution of microbiome just wait till we start learning about the viral. That's one of those things with you.

The more, the more you don't know. But yeah, if you're a leaky gut, so leaki gut is such a problem with all processed foods, all the inflammation, you know, the many of the peptides, BPC, thymusins will fix the tight junctions and one of best things to heal the gut.

Remember it's a two-way street. And just shows you're really a big part of it. The vagus nerve, it affects, you know, they say gut brain access, but it's really got everything access because it works at really all levels.

But the brain will affect everything else, But it just inflammation, inflammation of the gut. You have inflammation everywhere else. And so basically unhealthy gut, You're going to, be unhealthy.

So just in summary, wide range of diseases really have this commonality of this low TH1, T-rig, high TH2, TH17. And a key is, is bringing that back to a youthful, healthy balance.

Remember the gut brain access is a core contributor to overall health and the peptides can control many aspects of these. in improper functioning or deficiencies, such as the finest is gone, are not replaced by the hormones and can really be a major contributor to all these diseases of aging.

So that's it. I hope that gives you a little background. Sorry for my raspy voice, but when you listen to these talks, so you kind of have a sense of, you know, where everyone's coming from with the peptides.

So again, I hop you're enjoying the summit and hope you find it useful. And thanks for joining us. All right. Goodbye. Before we wrap up, we want to thank our sponsor, Integrative Peptides, for supporting this episode.

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