Well, A. J. Lanigan, it's always such a pleasure to get to chat with you. I feel smarter anytime I sit and in the vicinity of you. So thank you so much for being here with me today.

Well, I appreciate you. I feel like I should hang around with smart people like you all the time. I love it, I love it, and one thing that you know, when you deal with cancer, you think of immune system.

I mean, you you think, you know, at the end of the day, you look upon that as a police force that is going to be out there checking, making sure that no one wanted cancer cells, you know, settles in, create communities and start to build cities.

And so what can you tell me? I mean, you have the the adaptive immune system. You have the innate immune system. It can you just give a little bit of an overview.

What immune system actually contains of. So when we use that phrase, people are a little bit more of an understanding of what they're dealing with. Yeah, I think I think a little bit of a primer, even for those that maybe advanced and immunology, bear with us a moment, but but I like to start off by saying, you know, we've got two arms to the immune system, the innate that which we had when we drew our first breaths the day we were born.

And then we have the acquired or I sometimes refer to it as the learned or learned side of the immune system, where once we come into contact with something, then it learns it, remembers it with a specific memory.

Whereas on the innate side, typically we we've thought of it for so many years as it's either self or it's non-self. And if it's non-self, we just can't open up a can of, we'll pass on it and get rid of it and go back to at rest.

That's kind of a broad a broad case. Now at some point we may want to touch on something that's happened over the last ten years or so, which is called trim or trained immunity.

But to start off with, let's just establish that we've got those two arms. Now, there's also two other things we need to think of in regards to the being system.

We have those immune cells and their activity which are actually involved in the killing. Okay. We have this other part of the immune system that's more into reconnaissance tagging things.

This is where antibodies come in. Antibodies are certainly important. They don't do the best job of killing, but they do a great job of tagging things, helping the other side of the immune system locate them quickly, and eliminating hopefully before they cause us any challenges.

I know that a tremendous amount of your patient population is vexed with cancer, and that's certainly a big part of what the immune system, disease itself.

I always like to tell people the best way to deal with cancer, of course, is not to get it. So I'm a big proponent of getting way ahead of the curve, even down with the young children, getting those immune systems properly supported throughout their life to raise their odds.

You know the statistic, depending on who you talk to, one out of three men, one out of two, one out of two men, one out of three, one. Whoever's keeping track will be challenged by cancer sometime in their life.

I'd like to cheat a little bit on that. I like to get some odds more in my favor. So that's kind of where we want to steer today. Is is recognizing this immune system is incredible.

And as marvelous as it is, we should do what we can to support it and enhance its already miraculous abilities and

not do the things that are going to suppress it, depress it, and knock it out.

So. So essentially what I'm hearing from you is that you're you're dealing with two aspects. You have the the information gathering and information transport.

So to say that that's one aspect. And then you have the aspect where you're responding to that information and then going out to to kill. So and obviously you are going to be in a much better place if you're able to respond to things faster and have better intelligence available sooner.

Kind of like you have two countries and you have a border control, and these two countries are at odds with each other. And if we allow them things, you know, people from the one country just come in and start to set up big cities, you know, then it's going to be harder to get them out of that country versus if we have an immediate response to at the border, say, hey, you don't belong here, you don't have a passport, you need to get out of here.

Or if they go and disguise and to have, you know, a secret agents that are able to recognize that faster and then bring that to the local police or local agencies.

So to say, to kind of clear them out faster, is that kind of what I'm hearing from you? Yeah. I've got a tech pointed or these different things that exist on both the immune cells and the cancer.

If the cancer cells hijack as an example, these checkpoints, they'll keep the the traffic light red. They'll stop our immune system altogether even though the hordes are coming.

And so now there are different forms of immunotherapy that have all developed, by the way, through our our life to. But if we can't, if we get an understanding that there's nothing fair about the way that cancer deals with us, then we don't need to be fair with it.

That's why, as we bring into the conversation a little bit, our beta glucan ingredients starting not not after the cows over the hill, but before the adult has an opportunity to have a cow.

Okay, we we want to start with them when they're in kindergarten, like, you know, three, four years old, eating the right food, drinking the good water, breathing the good air, getting proper rest, getting proper exercise.

All of these things are critically important. But what we can do that the good diet and these other things cannot and will not do is have a specific effect on our immune cells, causing them to do what they're supposed to do, but more, better and faster.

We could get into the tall weeds on that, but that's from this 50 600 zero square feet that that's what we're all about. So and because, I mean, it sounds like the I mean, because that immediate response or more immediate response is our innate immune system.

Yeah. And and like you're saying, I mean, now researchers come out showing that innate immune system, which is that kind of the media response which we didn't realize could be trained.

Now we understand that it can be trained. Can you talk a little bit about that research? 20 or 30 years ago, the immune cell that's actually the most abundant, the neutrophils.

When you do blood work you get a panel and the any you. So those are your neutrophils. And they give you basically a gross count. How many do you have.

And there's a range that we consider to be normal. That's based on these bell shaped curves where if you're dead in the middle of all the people that we looked at, that's perfect.

But some people may just naturally have a higher level. Some people may have a naturally lower level. In regards to count. The big question that I asked, and this is where we start to get in the tall weeds, is how well are those

neutrophils functioning?

I used the example of going into the Empire State Building and counting how many light bulbs there are. Well, that's an interesting number. There's going to be thousands, possibly tens of thousands.

But how many of those light bulbs are working properly? So the next time we do blood work we look at the cell counts. But we also need to ask how well are those numbers functioning.

And so neutrophil function looking at phagocyte or phagocytosis or the phagocytic index. As an example we look at other numbers. We look at monocytes MONO.

We look at natural killer cells. Very important. But there is a natural killer cells function test. We can go down the list. But the general numbers tell us.

Oh you've got a lot of immune cells going on there. But it's that next layer. And the layer after that when we start getting down to, hey, I've got a great army assembled here, but how many of them are laying in the bunks asleep?

How about how many of them are otherwise impaired? And your immune system must recognize and respond to that picture, however it's being offered to then provide us with the proper antibodies.

Now again, we're dealing with the immune system. Now that works in a specific form. One shot, one target, a second shot, a second target. Not like the innate side.

The innate said says, I'm going to surveil, I'm going to identify. I'm going to if it doesn't identify properly, I'm going to kill, and I'm going to eliminate.

Those are the four things that our immune system generally has to do. One just does it differently. One does it rapidly and helps you to survive. That's another thing.

The acquired side of the immune system takes days and door weeks to mount this specific response. The innate side we're talking about minutes, hours in a day or so.

You get a splinter in your big toe while you're out there grounding. Okay, next morning, if you don't get that splinter out, what you you've got redness, you've got pus.

That's what you don't want. A cancer cell shows up if a cell starts getting screwy, if a group of cells start going sideways and not acting the way that they're supposed to, they may not be cancerous.

It may not even be precancerous yet, but you don't want them in a and immune cell that's functioning. Or a group of immune cells that are are responding properly, competently, are going to knock out that cell, get rid of it, that cell will be properly replaced.

And you live a long life and you look good doing it. And this is the Nate that has that immediate response. And but the the thought in the past was that it's kind of like it learned as it was going and and then it forgot for the next attack and then whatever memory was passed on to the adaptive.

But the innate didn't have any memory. But but we're understanding now that even the innate, you know, the faster responder now can also have a trained aspect so that they faster can recognize what they for future attacks, future fast attacks that they can respond to that.

Imagine imagine a group of highly qualified soldiers have a book in front of them that when non-self shows up, they typically go through the book, do step one, step two.

And there are multiple steps, by the way, depending on if you're neutrophil or you're a natural killer cells or you're a monocyte or you're a macrophage, there's a book and the book gets open to certain pages and certain things get

done in proper order.

We takes the same book and it puts some post-it notes in 1 or 2 places so that when something comes a second time or a third time, they don't have to go through page one through 15, they can get right to the page where they start nailing this target.

And so we're actually talking about here epigenetic changing. We're shortening the book and the cliff notes. Not everybody used cliff notes I would use them occasionally.

Can I say I read every single page of the Iliad and Odyssey? No, but I, I certainly wore out a pair of cliff notes. Same thing with Moby Dick. I still was able to do well when it came time to write the book report.

So what we're doing is we're getting the odds more on our side when we take that innate immune system and we get it to do the same thing that it was designed to do.

Our material is not going to make it do something. It's not supposed to be doing that. That might lead to auto immune disorders and so forth. We don't want that.

These changes, doc, go all the way back up into including the bone marrow after a certain number of weeks, actually months. Because again, this process of trained immunity happens over a period of time after around 3 to 4 months.

And we've never really nailed down a particular number of days or weeks. But we know it takes time to establish trained immunity. We've got modest sites and so forth, coming right out of the bone marrow that have this trained immunity.

Meaning overall, I mean, response is better. This innate side cooperates fully with the acquired side of the immune system. You you have this group of cells called dendritic cells.

And as the macrophages and neutrophils, they're kind of sloppy in the way that they eat. And they leave little tidbits little crumbs of the pathogen the added genetic marker.

And they grab it with these tentacles. And they run over through the lymph nodes. And they present it to various T cells. And then the T cells says oh well I don't recognize that.

They'll present it to another and another. And finally we'll have in the population of one or more that will embrace it and say, that's important, I need to teach this now to my B cells, to create plasma cells, to make antibodies, because both sides of the immune system downstream are going to now work together and give us a more global chance, a better chance, better odds to overcome, whether it's cancer, whether it's influenza, whether it's whatever Covid is, you know, these are all things that living here on this planet are going to continue to challenge us.

And if we're living here on this planet, we need all the odds we can get moved in our favor. So even the bone marrow. So when you're talking about the trained immunity, you know, the innate trained immunity, then even the cells that are then produced in the bone marrow.

So they're actually epigenetic changes, like you're saying they're, you know, you have these genes are switched on, switched off. And from my understanding, there's also kind of how the the immune cells, how they gain energy is shifting.

And that also triggers some of these epigenetic changes within that cell. And now because of those switches within your gene, how they're turned on, turned off are now optimized within those immune cells to go after these offenders.

You know, if they are there again, you know that those immediate attack immune cells and that actually so these cells that are produced and in the bone marrow, the white blood cells, they are actually now ready to go.

They have the perfect training, perfect switches turned on, turned off so that when a cancer cell that has been, like you said, it's been identified. Now they can attack that, you know, the, you know, much faster.

It speed is speed is is the key. Just like with an American football, if you've got the fastest runner, they're going to dart right past the defense. If you've got a fast linebacker, a fast defensive back, the defensive back is going to intercept the pass.

That blitzing linebacker is going to sack the quarterback. We want speed, which is part of the effectiveness part. If it normally would take, let's say three days for a series of events to occur, we won't have to happen in one day again.

When I, I keep coming back, we're going to win the battle against cancer. Not by playing fair, not by, you know, a flat playground. We want to pile on as much as we can pile on to make sure that the cancer cells don't have a chance.

You spend so much of your time with people that have run the gantlet. Maybe they've been through chemo, radiation, surgery, a conglomeration of 2 or 3.

Who knows? Gosh, would it be great if met those people years before and say, look, I'm going to read the future for you and lay out the statistics in our message back over the hill before the devil pops up.

Yeah, that's the thing. Like you're saying, cancer doesn't fight fair and so why should we? And then you talk about glue. Can you know in in regards to our ability then to upgrade our game and be able to speed up that recognition, speed up that training, all that innate immune system.

So, so talk to me a little bit how beta glue can play a role in speeding up the, you know, the training and the memory of the innate. Our sales go up.

I don't reject that. But that's not what we do now. It is a complex carbohydrate, the material. And if you take enough of it, it definitely will affect your cholesterol numbers and so forth.

But our main ingredient comes from the cell wall of what you would know as a Bakers East, specifically Saccharomyces cerevisiae. And beyond that, a specific strain of that material.

Now the Chinese, the Japanese, the other Asian populations have been telling stories about mushrooms for give or take, 3000 years. And yes, all fungal forms and mushrooms are fungal forms.

So is smut moles, yeast, which we we we bring it from yeast. All of these have glucans, but every form, every source has a different molecular structure.

They have a different molecular weight. They have different side branching. Some from say you Gleaner only has a one three backbone, where the others may be a variable 1314 glucan chain.

That's going to be your cereal grains. Our material has at one three backbone. And every so many glucose molecules there'll be a side chain, that one six side chain with another little short one three glucan tail dropping.

Now a lot of people will say, but I want to say for sure, I did choose this stuff, okay, the immune system chose this molecule or this fake source, Saccharomyces cerevisiae.

And of all the different strains out there, this particular strain, and it says of all of it out there, we will bind to this one. We will recognize this, this one better than all the others they think of.

And we're talking now about a receptor called deck and one deck. That one is a very important protein that's on the source of sales and not just one. There's a bunch of kind of like a hairy porcupine.

And when one of them really gets a good grip, then it will start to attract other deck and ones to that same area and

form a what we call a phagocytic area that, that, that starts to engulf and pull that beta glucan particle in.

Now use the term particle because there are water soluble versions of the same material with all these different sources. And it's not that it doesn't recognize it.

It just gives kind of a weak handshake, the kind of handshake that you you really can't embrace. This is what you want. And that's what you get with this particular material.

Now there's a second receptor that for the first 20 years I've been at this now 30 years for the first 20 years, we talked about complement receptor number three.

Now think of it as a dual system. The one side will embrace the water soluble molecule. But then there's got to be a target that has been opsin or something stuck to it called complement specifically C three.

There's an enzyme C three convertase that splits it in half. C3A goes down the road and leaves red markers to bring other immune cells. The C three, B six.

They're kind of like chewing gum to the soul of your foot. And in the literature you'll see I see 3BI means inactivated. So you've got a target that's been verified, a cell that's been invaded by a virus, viruses.

They don't do well out in the open. Turn it into Looney Tunes so that everybody can maybe understand it a little better and embrace it. So. So you have the ones essentially you have the fungal beta glucans that you're talking about from the east, and then they can bind them to detect and one and then they that initiates and that receptor signaling.

And from my understanding that shifts a kind of the changes how that cell produces energy and that changes and different cellular signaling and epigenetic changes within that cell, that then modifies how that cell is going to respond in the future to be faster and how it's responding.

The epigenetic change doesn't happen on first contact. Epigenetic change happens over time. This is this is one of the things that I've continued to try to explain to people.

It's not like taking two aspirin and your headache is gone in 30 minutes. No, it takes time. Now what will happen? The immune response, in other words, the degree.

And again let's go back to neutrophils because they are critically important. Whoever made our immune systems gave us more neutrophils than anything else.

So let's talk about those we can actually measure. And this has been done hundreds and hundreds of times. Published in the literature. We give salt water phosphate buffered saline as a base.

And let's say 30% of our neutrophil will respond to a challenge. Okay. We can increase that from 30% to 35%, 40%, 45%, and so forth. By increasing the dose, every time we increase the dose, we get a a higher immune response.

Now, even from first dose, it takes whatever that dose is, whether you're taking one X or whatever you're taking, it takes about 72 hours for that first dose to reach its peak at that dose.

If you give a two x dose or a three x dose, you get a higher immune response each time, taking about 72 hours. If you didn't use any more product, you slowly over roughly a ten day to two week period of time, go back down to baseline.

Now that's a B in response. Trained immunity is additional to immune response. Again, this 72 hour take is based on maybe somebody never having taken the product before.

Once you get into the trained immunity track where you've got cells that will be coming right out of the bone marrow, you're not looking at a 72 hour and you're not looking at a two week dwindle.

You're looking at something that comes right out of the gate, right at the position that you have been operating on. And let's say you 3 or 4 months down the road, you have a heating bill and you just can't afford the dose that you've been using.

Fine. Don't cut the dose in half. Take that same dose every other day. That's the advantage that trim are trained to be. It's going to keep you up there on top of the roof, even though you're using the product every other day, effectively cutting your cost in half.

You want to have as many face cards in your deck as you can for those that can relate to gambling. And so when we're looking at cancer and we know cancer is evolving, we know that they are continually trying to figure out how to evade the immune system.

So they're there. They have changes. You have sub clones. You have all these different aspects in regards to cancer. And so it becomes an important to have this innate immune system to continually be trained, you know, so that when they recognize a new version, there are now new white blood cells are produced in the bone marrow.

And when they're coming right out of the gate, they remember all the kind of past sub clones and past, and that continually happens so that the immune system doesn't stay on top of essentially the evolution of cancer.

And that's why you're saying making the point that, you know, taking it for months. That's great. And but let's say financially it is difficult. And obviously if that is the case, then do it every other day so that you can still be on top of whatever changes in adjustments that, that the cancer may, may be doing.

That's why it's so important to continually have. I mean, it's like you, you don't have just a police force to go out there and then clean up the criminals, and then you send all the police force home.

You want to stay on top of things and ask things change and how things evolve. You want to be there, ready? If I've got a military force this designed to protect me, and then in the case of an attack, kill things and blow things up you right down to the nitty gritty.

That's what we're talking about there. We don't want them sleeping in the foxhole. We don't want them playing, you know, with their neighbors and picking their nose while the enemy is creeping up on us.

We want to make sure that they remain trained, razor sharp, but we don't want them out there cutting things. If there's no target. Now, don't again, don't don't confuse training of our innate immune system with the acquired side of immune system work, which is specific, again, the intelligence officers that are looking for a particular antigen, they're going to tag it with a specific antibody complement this.

Another thing. Anybody's tagged something. Guess what. Here comes compliment. And vice versa. If complement tags something here comes antibody. So each one is a unique and specific system.

Whereas with innate immunity again you're either non-self or self. If you're non-self I'm going to attack I'm going to eliminate and go back to it. Rest with training our trim I'm going to do it faster.

That's the specificity non specificity. But some of this Bruce Lee stuff okay. And you can mention in regards to because there are many different glucans.

And you talked about the different structures. And we have glucans from, from different substances like the mushrooms. And then you have, you know, so and they have different quality and different impact on the system.

So the, the this beta glucan is the one that is, is doing has the best impact of the strongest impact in regards to doing this kind of trained innate immune system that initiating the trim in addition to like you're talking about the KR,

you know, the KR three, the complement receptor where you kind of tagging and then, you know, the adaptive part of the immune system kicks in with a material called k creston.

Now K creston is a mushroom sauce made a glucan also 1316 in structure but have a peer reviewed. We're talking about a pharmaceutical here a true pharmaceutical.

It's only available with prescription. Nobody in America is selling a glucan from mushroom that is equivalent to PSA crest. And I know this because much of what I've done, particularly over the last 20 years, is have universities test side by side hundreds and hundreds of different materials, mushrooms being part of that.

It's not that the mushrooms have made or 16 times the dose. Can you drink enough water to swallow it? No, but don't let that stand in the way of millions.

In fact, some cases tens of millions of dollars of sales because people are easily persuaded by these slick brochures. And it's not really fair in my mind, to use pesky Creston studies to talk about my product.

It's I don't mind either, because I think at the end of the day, we'll have helped a lot of people. And you talk to just want to kind of expand a little bit again.

On you talked about the the PD one or Pd-l1. Can I checkpoint inhibitors, you know that the tumor cells use so that the immune system can't recognize them.

And, you know, just going to highlight that studies actually showing, you know, the beta glue can you know, the type of beta glucan you're talking about actually enhances the immune system's ability then to see these cancers.

So if you bring in like immunotherapy, beta glue can actually enhance the impact of that and has the effect. So the immune system has a chance. And to recognize that that cell and go after it and kill it.

So it is phenomenal how such a substance can have such an impact on the muse system. It's almost like like you're saying when you're picking teams that our immune system evolve with knowing that this exists and that this is something that we can benefit from to real enhance our immune, you know, immune function in fight against cancer, in the fight against infections and fight against whatever that may be.

If we did not have the relationship that I described, where I said the immune system's constantly adapting, overcoming whatever challenge, whether it's radiation, whether it's toxicity, whether it's plastics, whatever it is, our immune systems.

But we we as individuals, we've got to participate. We can't just get up and pray and nothing against praying. I'm all about it to cover all the bases, but we need it doesn't hurt though, and I'll quote doctor.

Doctor, I love that because he is arguably not only one of the top immunologists in the world, but particularly in this arena of how the immune system responds to glucans.

As a family, there's no telling how many thousands of comparative evaluations that he's done over 30 plus years. But he has said that if you want your immune system to recognize and kill more cancer cells, you'll use a little bit of this product each and every day.

And I tell him, I said, doctor, I'm 100% with you, but the FDA will not let me put that on the side of the bottle. I might have to, you know, get Doctor Karlfeldt and his colleagues understanding these things.

Then they can say it. And you do. I know you do a great job of helping your patients, their families and so forth, but it's so simple. And I've said it before, I'll say it again.

The immune system and genetics, whatever the answer is that we one day be cancer free. I will assure you that those things are going to be part of the puzzle.

Genetics. We have learned a tremendous amount. That's part of what we've learned with trim. We've seen these thousands and thousands of genetic switches being clicked on to be able to leave those post-it notes in certain places, giving us better odds of beating cancer.

So there you go. I love it. Oh, it's I mean, you're such a wealth of information. And thank you so much for being the voice in the desert, you know, and to really kind of drive this message forward, you know, thank you so much.

I appreciate you. And thanks to all that. Come and listen. We hope that some pearl of wisdom stays with you to help yourself, your family, your loved ones, your your colleagues, your patients, whoever.

And so cherish that pearl of wisdom and pass it along. Okay. Thank you.