Introduction and guest background

Welcome, everybody, to another episode of the Exponential Longevity Summit. I'm your host, Doctor Jeffrey Gladden. And as always, we're here discussing leveraging AI to outlive disease and live young for a lifetime.

And today, I have a distinct privilege and honor to welcome Sharon Houseman Cohen, MD. Intelex, DNS co-founder, chief science officer, and medical director, a Harvard grad, family medicine background, really kind of pushed into a very innovative, innovative way.

Unlocking the clinical potential of analyzing DNA and DNA snips. And I will say that as, an unabashed endorsement, we probably have been using her, DNA testing for, I don't know, seven years now, 6 or 7 years, something like that.

So anyway, with that, welcome to the show, Sharon. Good to have you. Thank you so much. I'm really glad to be here. Yeah. So tell us a little bit, because quite honestly, when we look at DNA testing and the audience is probably aware, or you can get 23 and me, you can get Ancestry.com, you can get things like that.

There are other, professional, more professional, DNA tests out there. I will tell you this. I've looked at a lot of them, and there's no chest that really compares to yours in terms of the quality of research and the presentation of the snips to either the patient or the clinician. And, you know, describing what the gene does.

Why it's significant how it works. What kind of interventions are likely to either upregulate or downregulated gene or compensate for its lack of activity?

I mean, it's really impressive what you've done. And, maybe you can just tell the audience a little bit about what was the vision for starting this, and then maybe contrast yourself with some of the other DNA companies that are out there.

Well, in terms of the vision for starting, the reason that Intelex DNA was developed is I'm a family physician by training, and I do have a patient facing practice at this point.

I don't see a lot of patients. But when we started this, I had patients coming to me and they were saying, can you use my DNA to help me prevent cognitive decline?

And can you use it to help with Parkinson's, macular degeneration, heart disease, and on and on and on and on. And I personally also tried out many, many different tools out there.

And there were none that had been built by physicians for physicians that were were evidence based and actionable. And those two key points are really important.

As you mentioned, I started out as a researcher at Harvard, so I didn't want to, as a physician, being making decisions with something that I didn't feel.

I knew how it was coming to conclusions.

Why Intelex DNA was built for clinicians

So the what the other issue was, most of the tools out there were geared at either cancer genomics or pharmacogenomics, which both have their places, or neutral genomics, which is important.

But it didn't help me to understand why is this person prone to cognitive decline? So let me, let me let me interrupt

you for a quick second, just so the audience understands.

So pharmacogenomics is really looking at genes that give you an idea of how you're going to metabolize drugs, certain drugs, and it doesn't cover all drugs.

It's probably maybe covers, I don't know, maybe 20, 25% of the drugs, maybe something like that. But this can be really, really critical. I started using that back in my cardiology days, almost 20 years ago now because people would metabolize certain blood thinners differently.

And we found it to be incredibly helpful. So that's pharmacogenomics. You know what? What statin is going to work for you or not work for you? What beta blocker is best for you?

What antidepressant is best for you? And it can really make a difference instead of, you know, trial and error, like going through five anti-depressants, giving you six weeks on each one before you find the right one, you can actually select it or get close to it right out of the gate. Right.

So that's really important. Yeah. I and I'd love to say something about pharmacogenomics long as we talked about it. So pharmacogenomics might help you know which antidepressant you are able to metabolize.

If you're very fast at metabolizing something, you might need more of it. But what if your depression is not caused by low serotonin? What is your depression is caused by missing some of the basic ingredients methyl folate tetrahedra by Afrin.

What if it's triggered by something of overactive cortisol pathways or all these other different factors? That's right. Even the thyroid conversion in your brain can trigger depression.

So that's a great introduction to why what we built is different than other tools out there is. Intelex DNA was built for physicians and clinicians to be used to help make medical decisions with the goal of understand and root causes.

So whether you're trying to understand what's causing depression or causing heart disease with you as a cardiologist, causing cognitive decline, that's where intelex can really shine.

And then it's not just one thing. It's not like heart disease is caused just by high cholesterol. On every disease. There's lots of different components, including things that are very specific to the heart.

So there's, you know, molecules that relate to whether your heart can stop inflammation and then things that are broader, things that relate to, well, do you have adequate absorption of vitamin D or absorption of magnesium or transportation of for cognition?

There's all kinds of transporters that have to work to get into the brain. So, that's what Intelex DNA is about. It's looking at the root causes, including important nutrients, including the important, anti-oxidant pathways, which really relate to your favorite topic of longevity, the ability to remove that kind of oxidative stress, which is the ultimate in aging.

And whether there's your brain or your body, but also things specific to each disease and making it actionable and creating a map for each patient and each clinician as to saying okay for you for heart disease, aspirin is important because you have this particular gene variant and LP little for this person.

Things that address inflammation are important for this person. Statins are important. And then we do also do even go what I call beyond pharmacogenomics.

Because even for that person with statins, classic pharmacogenomics will look at statin metabolism and say, oh this person doesn't metabolize and well, so they're going to get more muscle cramps.

We're going to look at the other causes of muscle cramps as well. Do they not make enough CoQ10? Do they have

mitochondrial problems with, what's called the Carnegie Transporter?

So we look at lot lots of things, but then we take a lot and bring it down to a narrow funnel of saying, for this person, what's the most important? I think one of the most important things for you to think about, if you're listening to this, is that, you know, in our world of longevity medicine, we feel like you can't win the game of longevity if you don't know the cards you're holding and you don't know where you are in the game, right?

So when we talk about, what cards are you holding really? For us, that starts with your genetics, right? And understanding what are your genes? If you don't know that you really can't live a long time without knowing.

That is kind of how I feel. So what what we're talking about here is really critical. And what Intelex DNA has done is really look at, a lot of the big diseases.

Beyond pharmacogenomics: root causes and actionable pathways

It's shied away from cancer, though at this point in time. I don't know if that's on your radar or not, but but you don't have cancer predisposition. Genetics in there at this point, so.

Well, we have so there's two parts of cancer. There are about 250 some different pathogenic gene variants that are associated with cancer syndromes. The breast cancer one BRCA Lynch syndrome.

ET cetera. Because those are there are so many and they're so rare. So for example, if you were to look at the genes that can cause breast cancer in the BRCA pathway.

So BRCA is a gene in that BRCA gene. There are actually hundreds of mutations that can increase your risk of breast cancer. It's not just one. So we have created this very large report.

And other people are doing cancer predisposition. So we didn't do genetic cancer predisposition. We do have some things that increase your risk of melanoma, which is different than the genetic syndrome.

But what you'll actually find is that more than 80% of people who get cancers don't have any of those cancer genes, and their increased risk relates to their detox pathways, which we do extremely well.

So pathways that relate to how you get rid of pesticides and chemicals. Metals. And metals. Yeah. Right. Exactly. Yeah. We love your detox pathways. You know, when I wrote the book, 100 is a new 30 and I was talking about detoxification, I really work, you know, there's phase one, phase two, phase three.

Right? I actually I actually wrote about it as phase three, phase two, phase one, because if you haven't opened up the channel, the downstream channels, it doesn't make sense to activate the the upper channels because you're just going to get a, you know, constellation of intermediates that are potentially more cancerous or cancer causing than the original thing you were detoxing.

So when you think of really detox, you want to start from the bottom and work your way up. But what you guys do and the, you know, three is basically going out through the urine or the stool.

So one and two are in the liver, typically. And so, what they do a great job of is actually helping, you know, how you detox. And I will tell you that a lot of people suffer, in an unknown way with fatigue and, maybe even depression or increased cancer risk or inflammation simply because they're not detoxing.

Well, and so this is really big time stuff. And I think it's overlooked a lot. People are looking at, well, what's my cardiac risk and what's my risk for dementia and all that.

But but detox is important for every, you know, every function in the body. Right. So absolutely. So a lot of aging. So the way I describe detox is again it's just removing.

It's the quicker picker upper. It's the paper towel system of this of our bodies. But when you don't have good detox systems it also creates the oxidative stress type of aging.

So when you think of Apple turning brown, that's our body aging. If you're oxidative stress and detox pathways don't work, that gets worse. And that's really a huge factor in Parkinson's and other kinds of cognitive decline.

Losing muscle mass just the way your skin looks. And so yeah, I think those pathways are really important. Agreed. Yeah. I think that the audience, you know, you're probably been thinking about oxidative stress if you've been thinking about it at all, but you've been thinking about oxidative stress is really a byproduct of mitochondrial energy production, right?

Where it's burning oxygen and fuel to sort of make ATP or energy. And one of the byproducts is, you know, kind of like get in your car, the exhaust, if you will, becomes these free radicals, which can cause oxidative stress.

And then there's a primary mover there. But I will tell you that, there are two other really big movers. One is inflammation, which actually causes more oxidative stress.

And the other is a lack of being able to detox properly, which contributes to both inflammation and directly to oxidative stress. Metals in a big way just cause oxidative stress.

So if you're thinking about your longevity, you really want to know your detox genes. And, and, you know, as well as some of these other things. So yeah.

And inflammation as you said, the way I describe inflammation to my patients, as I say. How to address it. That's right. As TNF alpha is a type of inflammation that makes you have leaky barriers, leaky blood, gut, leaky blood, brain.

So that can affect cognition. It can in fact when you combine TNF alpha certain snips. So it's not just the whole gene but certain variants which people before you can have six times the risk of cognitive decline when you combine this one TNF alpha snip with other pathways that relate to gluten, you can have 1015 times the risk of gluten sensitivity because you're getting leaky barriers.

That's addressed one way. But then there's other kinds of inflammation that happen after a heart attack or after being sick, like IL six and I on one.

And all of them are dressed differently. So there's literally over 100 different things we can use for inflammation. And one of the areas where genomics can help is which kind of inflammation are you genetically predisposed to?

Yeah, it's so critical to get this right. Otherwise people are just recommending fish oil and, you know, CoQ10 and glutathione and, you know, either precursors or whatever.

And you don't really get to the underlying cause of what's causing this. Right? Right. I mean, and fish oil is good if your inflammation is more like, that's really good for interleukin one alpha.

And we won't get too much into the names, but one of the kinds of inflammation that can cause tissue destruction. So it can relate to the brain, even the kind of post-Covid type symptoms and and lung symptoms as well.

Well palmar toileting Olamide good pay is better for that and this is better for that. So again if you can know what you're dealing with lion's mane mushroom is great for TNF alpha.

Detoxification, inflammation, and oxidative stress

So there are fine nuances to we can't just have a one size fits all and when people measure CRP that only measures one type of inflammation. Right. Exactly.

So really important to understand this, let's talk a little bit about dementia because I think a lot of the audience is probably heard about Alzheimer's, of course.

And a lot of people are aware of APA we four as being a risk for Alzheimer's. Do you want to talk a little bit about ApoE4 and, you know, ApoE, C1 and Tom 40 and maybe how some of these SNPs sort of play together or don't play together, and what somebodies risk is, you want to talk about that. Yeah.

So I think the big message is if you are an ApoE4 and that's all you know about yourself, that is not enough, because ApoE4 interacts with a whole lot of other genes and they together have their effect.

You mentioned Tom 40. Tom 40 is a mitochondrial membrane gene. And that of if you kind of assign ApoE4 to, on average, having about 3.4 to 3.6 times the risk of Alzheimer's.

And what that means, it's a 240 to 260 times the risk compared to someone without it. More than half of that risk is related to the fact that 75% of the time people get this Tom 40 gene with it, that's 2.5 times the risk.

And again, if you don't have time 40, your risk is a lot less. If you do have Tom 40 they're supporting your mitochondrial membranes. And again how do you support your mitochondrial membranes.

You don't get a better box. Springs. You instead get mitochondrial membrane lipids things like Sida choline plus the total ethanol, amine, plasma allergens, etc.

that can help the way that those mitochondrial membranes work can be really helpful. But there's also genes that cut the risk in half. Or if you don't have certain genes, there are there's a gene called the BCA, GK variant that if you have ApoE4, without that variant, you don't have 3.6 times the risk.

You've got instead about 1.7 times the risk. And then there's genes in the hormone pathways and in the detox pathways and in the inflammation pathways, and on and on and on and mitochondrial pathways that interact to increase the risk.

So it might be six times the risk or 14 times the risk in some cases, or different kinds of risk factors. And Intelex is not about being a risk calculator.

It's about being actionable because we don't put anything in the report that is not modifiable. But if you can map out and say, okay, a lot of my risk is because of this kind of detox and this kind of inflammation, and then you can address it.

You can not only lower your risk, but we have seen and have published for many people with cognitive decline, even though they're ApoE4, cause we can get significant improvement by addressing these different modifiable risk factors.

So it's about making your life actionable by empowering you to understand your risk. And then for a lot of people, we've helped them be less scared. So I just had a patient and this is probably one of your favorite genes, who had ApoE4.

But they also had the classic variant, what's called the VZ haplotype, which those are big words to mean I make more colorful. Colorful is the most important anti-aging protein that cuts the risk down by 40% 2.6 for when you have the risk.

So that's a huge benefit because they make less oxidative stress and kind of overcome some of the factors and also has a lot of downstream effects. So I think it's it can be very empowering.

But then if you find out that you make low cal ortho, we can give you really specific things. So for low ortho you know resveratrol is really helpful.

Fish oil can be really helpful. Aerobic exercise can be really helpful. But resistance training is bad. So really what my goal why did I help co-found Intelex DNA and spend thousands and tens of thousands and hundreds of thousands of hours over the past few years with my head in this literature is we can improve the quality of health and life and longevity by understanding ourselves and our DNA is the ultimate guide to that.

But we need a tool to be able to interpret our DNA. And there wasn't one out there that I felt was academic enough, hooked to the literature so people could count on and follow and go, why did this happen?

Or, you know, what does this cause? What is it linked to and what you can do about it? And so we only put in gene variants that we've done the research regarding how you can modify them.

You know beautiful. You know I will say to for the audience's sake too that, it's very important to have your genetics, but your genetics, are really they're not your destiny and they're really more of a sense of predispositions, if you will.

And so we have come across in our practice, we're looking at clothes. So now cloth has been added to the, to the profile. And I don't know, in the last nine, ten months, a year or something like that.

And it's been interesting to us to see that there are some people that, have the most, the best, configuration for production of clothes out.

Genetics and dementia risk, especially ApoE4

And yet when we measure their clothes, our levels, they are super low, which is interesting. We also have people who have the worst configuration of clothes.

So and when we measure them, they're actually quite high. And so my point is that if you have a gene that's a good starting place, but you also have to do the functional testing.

You know, what is my hormone level. What are what are my toxin levels. What is my clothes. So level. You know, what is my, arterial function like? Things like that.

So again the genes are used to set the table, but then you've got to look at the other, the, you know, the next layer to actually really know what's going on with the with an individual is kind of what we found.

So no, I absolutely agree. You can have somebody that has very difficult times removing mercury, removing molds and how they're going to respond depends on their exposures as well.

But what I do think is helpful is when you do the reverse, you have someone coming to you that has diabetes or heart disease or cognitive decline. And now you're like, where do I start?

That's right. Give you an idea of how do you help them get well. So sometimes you can avoid having to do as kind of random extensive testing because we can at least point in the direction and say, because nobody's most I won't say nobody.

Most people are going to take 30 or 40 different things and just kind of do a shot in the dark approach for their brain. That's right. If we know where to start, we can get and then you measure improvement.

So we'll use it, you know, CNS vitals or Moca or different things to go out. We get where we want to go. Yeah. No, I think that's right. There is interplay on both sides. Right.

The, the what I would call the phenotypic expression like what's actually happening biochemically here and then the genetic underpinnings. Right. Those two really interplay with each other.

I think if you're listening to this, you want both quite honestly. You don't just want one. And so think about that. And

the other thing is if you've had a chest down and you have a snip, I have ApoE4.

You know, that is just an invitation to actually learn more about what's really going on. And a test like Intelex DNA can actually give you that kind of answer.

So, tell us a little bit about what's on the horizon for you and your company. What are you pushing into next? I know I've been twisting your arm to do a longevity panel for a minute or two here.

But we are. We already have a lot of longevity snips in the report, but definitely longevity is on the horizon for this year. Okay. Yes. Women's health, in terms of fertility, is a topic that's coming out really soon.

Like maybe by the time this airs it will be available. But it is going to be important because just like cognitive decline is on the rise in fertility amongst women and is on the rise and it's being blamed on.

Oh, well, women are just getting older, as are having their children, and certainly that is part of it. But when you can understand coagulation, things that relate to how the lining of the uterus forms, things that relate to endometriosis and PCOS and inflammation and oxidative stress, you can improve a woman's fertility.

And if you can save someone IVF, that's great. Yeah. There's also we just released a brain research panel. That is because there's new there's new options now for people who have FTD, other kinds of dementia and vascular dementia that relate to, something called galectin three.

And so to support the idea this and we can talk more about that if that's something you want. Yeah. Let's talk about I want to talk about anti galectin three because and and quite honestly in the reports we're getting back I don't think we're getting your research brain profile.

It does. You have to ask for it. Oh okay. Well raise my hand. You can send. I'll make sure you get that. We don't we want people to make sure they understand.

So we again we like arm not harm which means galectin three. So let's go back a step frontal like FTD. It's a it's a word for frontal temporal lobe dementia.

It's related to different proteins that are low or high in the brain. If you make too much tau, if you don't make enough, some of this protein called pro granule in or granule, and vascular dementia can also have tau involved.

And this TB 006 is the name of the anti galectin three antibody that is now being studied. And the cool thing about it is when we talk about dementia is whether or not you are having cognitive decline because of ApoE4, which creates inflammation and amyloid, or you're having a different kind of dementia, that's and amyloid is not the endpoint.

Tau is actually probably the endpoint event. And that ultimately we get a lot of brain tangles and brain inflammation. So the tangles and inflammation are what makes the brain not work.

Well. That's right. I've been impressed that pretty much everybody was related to any kind of neurodegenerative disease or even brain fog. It's a function of of neuroinflammation.

But onset either from the food you ate or the seed oils that got in or the genetic predisposition or a medication you took or, I mean, or a hit on the head that you took.

And pretty much all boils down to neuroinflammation. Yeah. And I think that the example of being hit on the head, a traumatic brain injury, is a great one when you get hit on your head.

We have these built in garbage collectors in our brain and they're called microglia.

Brain research, galectin-3, and TB006

And they're in this kind of resting state. But then they get activated, they're alarm. It's causing alarm and from the trauma. But they can also get activated from inflammation and all these other stuff.

And amyloid and infections. And then they become overactive and kind of go they become pro-inflammatory. Well, galectin three turns that off. It actually interacts with the microglial signals, turns off brain inflammation.

But it also helps untangle the tangles. So I always describe galectin three for people who, a long time ago had Tinker toys. You know, how you could hook your Tinker toys together and make like, a big connected molecule?

Yeah. Looks like a snowflake on steroids. That's right. So galectin three is what hooks all those proteins together. The antibody against galectin three, which is called TB 006, can unhook that and lower the inflammation.

So part of what we made the brain research panel is we now had something we could do about all these other kinds of dementia. It also works in Alzheimer's.

So that was one. So the thing about I. We think it would work across a whole host of neuro inflammatory disorders or maybe even Parkinson's, ALS, you know, frontal temporal lobe dementia.

I don't know about Lewy body, but I think all these have a common denominator in there. They do, so far from the research is looking like it works again, most cases the FTD Lewy body, most of those ALS only about 25%, 25% in in their initial research Parkinson's.

And so there's again, it's still early enough that in the whole world there's probably only 500 people who have gotten maybe 900, 500 to 900 people who have gotten this medication.

Okay. So far, it's was rapidly increasing. But what's exciting is it had such great safety profiles and efficacy, where in the study, in the initial studies in people who had mild to moderate, you know, cognitive impairment to mild dementia got about a 216% improvement compared to placebo.

And even overall 70% improvement compared to placebo, that the FDA is allowing early access to this through physicians offices. So it's a very exciting thing.

Yeah, that's that's really awesome. And over what period of time how long did it take to see those kind of gains? Was that like in a matter of weeks, months, years?

What what what are we talking about? It is so in the study, because their study got interrupted due by Covid, they'd only been able to give people one month of dosing when they had to start measuring endpoints.

But you do get generally get rapid effects, within like say within months, not within weeks to months, not years. Okay. So I'm sure the audience was wondering, you know, how would they get involved with this?

Is there even the possibility to how is it administered? Is there a cost to it, these kinds of things. What what are what's the data there? Yeah. So unless you're enrolled in a trial and there are a couple of sites that have trials like a pass and Parkinson's trial setting, if you're getting it through early access, you do have to buy pay for it.

And it is a fairly expensive, but the way you'd find out more about it, you can go to the it's the company that you can go to look up TB 006. Go to the I'm a patient practitioner.

Then find a practitioner who's been approved for early access to learn more. Got it. So that's T is and Tom B as in boy 006. Yes. Yeah. Exactly. Well that's I mean it's super exciting nine.

And it's, it's just so people know it's an IV monthly infusion monthly to every you know after people do. Well sometimes they can stretch it out a little longer but sure.

Okay. Yeah. Well again, it's it's super exciting and the work you're doing is great. And, you know, you and I are kind

of coming together in new ways to work together, which is also exciting.

So we have yet to explore all that. And that's, we're, we're, we're excited about that on this, on this. And to forward to that. Yeah. I think the future, you know, some of what we've been doing by hand where we are saying this snip in the literature interacts with this snip and this snip, right.

Future panels, report updates, and how to access Intelex DNA

The future is going to be bright for us to be able to help people figure out more and more and more about themselves. And I think that when people are looking at investing in genomics, they just need to think about it's a want that your DNA doesn't change.

So it's something you do once and, it's your roadmap for life. I will say this to about your reports and correct me if I'm wrong. But if you do your, testing through Intelex DNA, we'll talk about how you can locate and tell you'll spell that for you and and, all that.

But if you do it through them, they're updating their reports. So, if a report was done a year ago and there's new information, your report will be updated.

Which is pretty cool. Or at least that's been the way it is in the past. So, so this is a whole new topic, like women's health that's not going to pop in if you ordered a brain report last year.

No. That's right. And when we add sirtuins or we add cloth or we add something new to an existing report. Then that's right. Really depends on how old of a report you have it.

Right? There's a lot of times it will automatically pop up or when we add new interventions. We've recently added quite a few new interventions based on the literature.

Yeah. And we've seen that for a lot of our clients. And to your point, some of the tests that were done 4 or 5 years ago, it's required an updated everything is current.

So but nonetheless, it is nice that you're, I mean, most reports are static. So the fact that you are updating the reports for people is important. So where would people get an intelex DNA done?

I mean, they can get it a at and longevity of course. But you've got, you've got a network of people and right. You probably don't have bandwidth for the whole, the whole world.

So, they can go to Intelex dna.com, and there's two tools and two axes for an intelligent approach to DNA. And the fact that my co-founder and I are both women are the zts and they can go find a provider.

So there are, there are hundreds of clinicians across the country that can help you with, with obtaining access to your genomic. Right. So this is really only available through physicians is not like you can go online and just do this yourself. It's not like 23 and me.

Is that correct? Correct. Because we have so much information in our report. Our report is a clinical decision support for me. We have to support the physician almost like a textbook of medicine in their integrative medicine where it gives for the clinician typical dosing all the references, the literature.

So it is ordered by a clinician. But then there is a patient version that you can have as a portal with all the gene variants that you have and such. So it, and there's a lot on our website for people who are interested.

Doctor Bredesen and I did a webinar on, coauthor on longevity and cognition and the intersection. Mark Hyman and I did a webinar. So you can also look at some of the webinars and podcasts to learn more.

Beautiful. Well, sure. And it's been a pleasure having you on, on the podcast here on the show. And, thanks for

taking the time to, to enlighten us about what you're doing.

Thank you, Jeff, for having me.