Introduction to Doctor Talks and the guest

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But it's an almost 30% of the population with one copy. Welcome to Doctor Talks, the podcast where every episode leads to a healthier you. Join us as we navigate the world of optimal health.

Uncovering groundbreaking strategies to conquer chronic disease. In each episode, we'll bring you the latest insights from leading health experts, medical innovators, and wellness warriors.

If you're seeking to transform your health journey, or if you're looking for answers to burning questions, you've come to the right place. Get ready to unlock the secrets of lifelong health and vitality.

This is Doctor Talks, real talk from real doctors on the issues that matter to you most. Well, I am thrilled to tell you about our next guest, doctor Sharon Houseman Cohen.

Sharon is the chief medical officer and co-founder of Intel DNA. She and her co-founder developed Intel DNA as an answer to an unmet need in the medical community.

The need for an accurate, actionable, evidence based genomics tool geared at helping physicians identify and treat root causes of their chronic conditions.

Whether the patient has depression, anxiety, autism, pandas, cognitive decline, medical mysteries, or other concerns. Doctor Houseman Cohen is the coauthor of many publications and textbook chapters relating to using genomics to improve outcomes.

She is proud that Intel DNA is being used in formal IRB and proof studies, as well as by well-respected functional and integrative medicine trained clinicians across the country.

Her work and research is changing the way medicine is practiced. Doctor Houseman Cohen received both her master's degree and medical degree from Harvard Medical School, and in addition to leading the research education team at Intel DNA, she sees patients part time at Resilient Health and Autism.

For access to her publications, podcasts and videos, see Intel x dna.com and that is spelled Intel I n t e l x dna.com. And Sharon, welcome. I really appreciate you being on the podcast.

Thank you so much for having me, Nancy. It's my pleasure always to be here with you. Well, and I know you're such an expert in the field of genomics. You've authored many research articles.

I was recently reading one on genomic and cognitive decline in the frontiers in aging neuroscience. As as I cognitively decline, hopefully not. And genomics as a decision tool in the Journal of Personalized Medicine.

But for me, more than that, you know, you have helped me so much in better understanding genomics and mentoring me through several of my very complex patients.

My own son and I so appreciate your time, your personalized approach, and of course, your wisdom. So thank you. Well, it's always my pleasure. So tell me first how you got into this field and how you started into DNA.

So it started as because there was a need for it. So we about almost ten years ago now, I left my more traditional family practice where I was doing some integrative medicine.

But the setting didn't allow for the kind of in-depth understanding of people that I wanted at that point in my career and the time that I needed to help complex patients.

So I founded a practice that gave me that structure and I was looking for I have a strong background in genetics, and I was looking for a tool to help interpret genetics for physicians.

How Intel DNA was founded

They're the 23 me. Revolution had already happened, and people were bringing me their 23 and me and saying, can you help me use this to solve my family history of cognitive decline, or macular degeneration, or Parkinson's or heart disease or whatever?

And I tried out literally at least ten tools. I mean, things that had whole genomic sequencing, things that were different, neutral genomics platforms, all kinds of platforms out there.

And there wasn't one platform that had been developed, really, for those of us that were in clinical practice that helped improve outcomes. And I also felt very strongly that whatever I'm telling my patients, I needed to make sure that the information was accurate.

So it had to be a validated tool, and a lot of the ones that were out there were more what I call edutainment tools that they didn't necessarily have validated data or even in terms of the genomic data or the information they were providing, and they didn't go into enough depth.

What happened is the first wave of genomics was cancer genomics for working with cancer drugs and neutral genomics, and that was kind of had to do with historic because of a precision medicine initiative that Obama specifically called out.

President Obama called out, let's work towards precision medicine. Here's where we're going to start. And pharmacogenomics. So, farmer, I'm sorry, Farmaco is the other big one.

So then came neutral genomics. But when you're really trying to treat someone with autism or pandas or cognitive decline, I need to know more than just the nutrients I need to know what's going on in their brain in terms of scaffolding, transporters, different things that relate to mitochondria, and all kinds of other stuff.

And the same thing's true whether I'm looking at heart or eye or metabolic things like blood sugar or anything. And so I basically decided that I would give my patients, I would kind of start building this for my patients and thought it was going to be something that I would just kind of work with the data and use in my practice.

But it very rapidly became clear that it takes a long time and a lot of research to build this. And so we, my co-founder, whose name's Carol, and I, decided that we would have to make it a commercial product that's available to others, because if you're going to spend thousands of hours building something you don't want to use just for a few hundred patients.

Absolutely. And and, you know, from my perspective, I came to Intel DNA kicking and screaming and, you know, because I had tried so many other platforms that I didn't find helpful in my practice, some that you mentioned and many, many others.

And I think, you know, one of the things that I really like about your platform, about Intel DNA is the plethora of information. You know, it's not just about the the snip that you're showing us.

It's about all of the information and research based on diet, on nutraceuticals, on medications, and all of the research articles behind it. And then I think one other thing that I would like you to expand on a little bit is the hotspot summary and how you came up with that and, and why, for people like me, it's so important.

Well, one of the when we first had our genomic reports, because people are so different, we had to go broad. So if you take a child with autism, because I'm sure many of the people listening pediatric that I know parents of children.

So you take a child with autism or pandas or pans, we know that autism and pandas and pans, it's not one disease. There's not one cause of it. The child has this gene and then they get autism.

There are some syndromes like rat syndrome and fragile X, but we wouldn't have had what we saw happen where this used to be, a rare thing that a child would have.

You know, autism used to be one out of a thousand, one out of 10,000, if you go far enough back and now it's one out of 35. So the reason that it's been able to increase is that chronic illnesses that are, you know, as opposed to like sickle cell, which is a true genetic illness or cystic fibrosis, they are the interactions of multiple different genes interacting with the environment.

But there are so many different things that can go on. And we're going to talk more about that with like Pandas and Pans that we had to go broad. But then doctors were like, oh my gosh, Sharon, you looked at 400 different things.

This is making me crazy. How do I do a consult? So we took the concept and said, well, if somebody is doing something a way that only we know that a gene is contributing to, you know, poor transport of a specific nutrient or specifically contributing to autism or pandas or heart disease or whatever topic.

And it's only in 5% of the population. That's probably going to be a more important thing to address first, compared to something and 40% of the population.

And it's just that kind of 8020 rule that we learned in school that if you do the, you know, you can get addressed the 20% most important things, you can get like 80% of the benefit.

So we decided to try it. So the hotspot is basically filtering the report for things that are found in less than 20 to 25% of the population, depending on the panel and then other ones that we, I'm going to say, essentially flagged or forced into the hotspot report because there's so important there's a specific gene that makes it so you don't make enough serotonin.

It's a kind of a broken thermostat. It makes you have 2.3. So 130 times the risk of depression or anxiety, but 30% if you don't get enough of the building blocks, tryptophan and things like that for survival and building.

But it's an almost 30% of the population with one copy, two copies is more like 16%.

What the hotspot report is and why it matters

But we flagged and push that in because it's so easy to address. There's a lot of ways you can increase your serotonin synthesis, and there's a lot of people being diagnosed with depression and anxiety that that could just be instead of being given serotonin medicines, which don't work well if you don't have serotonin to recycle the serotonin SSRI is recycle serotonin.

But if you don't have any to recycle, it's kind of like how can you recycle something you don't have if you just give them the building blocks? So most of the hotspot report error things are less common.

But then you can just kind of scan and you can get your hypothesis. So you can look at that child with pandas and go, is this a child that has blood, gut blood, brain barrier issues because of what's called TNF alpha.

And we can talk more about that. Do they have a compromised immune system? Do they have problems with their mast cells? Do they have problems with some of the other inflammatory pathways?

And it kind of flags everything to the top, because with children you cannot address 20 things at once. If you get if you give a parent a list here, do these 20 supplements, they're looking at you like you're crazy.

You know. Absolutely. And you know, we all know. And we say again and again genetics loads the gun and environment pulls the trigger. And what we're really talking about is the expression of these genes, the precision medicine.

So before we dive into pans, pandas specifically just talk a little bit about the difference between genomics, which is what we're talking about today, and genetics.

Absolutely. So I just found out that in England they call what we call genetics genomics. So that was pretty interesting because we were we were reading some things and like that's really interesting.

They're calling it the center for Genomic Disease when it was the true genetic. But for the most part in the United States, genetics by definition is the study of inheritable disease.

So even though there's a genetic component to autism, it's not an inheritable disease. We say that you can have two parents. Neither of them does not a carrier status.

You're a carrier for autism. And then, you know, so a genetic disease would be something where if you get one copy or two copies of it, depending on whether it's a dominant or recessive genetic disease, you get the disease.

So sickle cell cystic fibrosis, genetic diseases are also diseases where a piece of a gene is missing that piece of a gene, a piece of a chromosomes missing.

So people would refer to trisomy 21 is it's a genetic disease because it's a very identifier. Although that's not inheritable it changes in utero. Right.

And such by genetic disease or generally you're thinking of one event happening. So one particular gene, Tay-Sachs, which is now almost eliminated was a genetic disease.

And they could screen for carrier status and then say, okay, you need to be careful. You're at high risk. And screen babies, you know, fetus is such, but genomic illness has to do with none of the genes that are in italics DNA report are pathogenic, meaning they don't cause the disease.

We don't have one gene that if you get it, you're for sure going to get autism, or for sure going to get Alzheimer's, or for sure going to get heart disease.

But there are genes in the report that have fivefold increased risk of autism or even a 12 fold increase risk of pandas or pans, but you have to have other things happen with it.

And so it's a mixture. So in what we're finding is environment is a big deal. You can have a genes that make you at risk for having specific kinds of brain inflammation, but it also can depend on having other genes that make you have more of a leaky gut, or having different nutrient deficiencies can contribute to your mental health.

And so with a typical child with autism or Pandas or pans, when you are looking at coming up with a plan for them, you're really considering at least what am I going to do for these six or 7 or 8 or 9 or 10 things?

It doesn't all have to be medicines. There's genes that you can address with avoiding certain foods, adding certain foods. Lifestyle. We've had a case that you and I are going to be discussing with some of our fellow clinicians of a child who has autism, but has since forget EMF sensitivity because of two copies of a gene.

So there's a lot of different these are genomic things. The other thing has to do with frequency. Most genetic illnesses are. So if you do whole genomic sequencing, they're only going to report on things that are in less than five out of a thousand people for the most part, right, because they don't consider it a big deal if it's in 1 or 2 or 5% of the population.

But that is going to be a problem, because almost everything that's in the entire DNA report, you're not going to get from whole genome sequencing or whole exome sequencing.

And it's a problem because you would only identify if you had one of those known pathogenic causes of autism of, you know, there are some few for heart disease or cognitive decline for the adults.

And that's a very small percentage. So, I mean, how many hold genomic sequencing have you run where you've seen nothing come back? Oh, almost all of them. Yeah.

And that's a problem. Whereas how many text is italics DNA. Had you had nothing helpful come back. That just doesn't happen. Exactly. And you know as you know I've been using it more in my very complex patients.

The ones that what am I missing? But I think as you're talking and as you and I have talked in the past, this is really a great tool for our newer practitioners, for for our families very early on to help guide the things, like you said, EMF or gut or immune to help guide the management early on in their care.

Yeah, we're definitely finding that we've been doing a little bit of interviewing of some of our newer clinicians, and we're so excited and hopefully we'll get this together and publish because so many of them are starting with that hot spot address thing in these children, the top 3 or 4 things, and they're going and these children who hadn't had words yet are now having some, you know, having starting to have words and it's because there were things they wouldn't have thought of.

Or we had one physician and she wasn't new to the field of autism, but she was new. She's a naturopath, was new to to italics DNA. And she's like, in literally less than a month, I took a child from a kindergarten reading level to a fourth grade reading level, and he was a fourth grader.

So that was a big deal. And so I think that we're not going to fix every child. But if we think about what the frequency of autism used to be and what it is now, our goal is to bring it back down.

The kids that had autism before glyphosate, before all the pesticides, before all the mercury, all those and the pollutants in our world, when we put kids were eating more high zinc foods because of organ meats and all kinds of things, we may never be able to get rid of that.

A lot of that is truly genetic, but if we can get it back from one out of 35 to 1 out of 1000 to 1 out of 5000 or 10,000, that would be huge. And we are seeing, you know, obviously somebody who was, I'm going to say, more neurotypical at birth, not some a child who is child who's born and is seizing and having and clearly, critically have something wrong at birth.

That's an absolutely better person to help. Yeah. But many of the children in the autism community, in the Pandas and Pans community, their parents report that they were neurotypical, developing pretty typically until they were one and a half to three.

Those are the kids that it's generally really much more genomic than genetic. Right. And and, you know, as you said decades ago, it was 1 in 10,000. That was when I was teaching children with autism.

And a genetic disease does not go from that to where we are now.

Genomics vs genetics

1 in 35, 1 in 27 boys, that is the snips that are affected by the environment. Yeah. So go ahead, give a little shout

out and credit to this with doctor Heather way, who is the center head of the center for us, the Australian Center for Genomic Analysis.

She's a PhD who is an autism mom, had two children with autism. With that kind of a story. They were neurotypical and doing well and then regressed. In this case, it was after vaccines and one was more severe than the other.

And on her second maternity leave, she was like, I'm going to start to study genetics and genomics. And she used her beginning knowledge in what she could find out to start to see huge improvement.

And she was the one who saw what I was doing with cognitive decline and adult medicine and said, can you do this for autism? I've gotten somewhere, you know, I've made some progress, but I know there's so much more than just neutral genomics.

And I said, we can do it with any disease. I just don't know a lot about autism. And she was like, she introduced me to maps. She and she, which is for people who don't know, really, the organization for physicians to get trained on autism.

She introduced me to many thought leaders from maps, and she also helped tremendously with my understanding and thinking about what genomic pathways we needed to start looking at.

So yeah, she's a great lady and and we thank her for bringing you to us. So let's dive a little bit more into specifically Pans Pandas, because this podcast is demystifying pans and pandas.

So what are the main contributing genomic factors and why do they contribute to Pans and Pandas? That is a great question. And there are two in the literature, but there are about 3 or 4 more that are emerging that need, that are clearly related, that are more what I'm calling pending publication.

So the the two most important factors in the literature are something called TNF alpha and mannose binding lectin. So TNF alpha is a specific kind of inflammation that can affect barriers.

So all autoimmune disease if you watch late night TV ask your doctor about you know, Humera and all this. Those are all TNF alpha inhibitors because TNF alpha, by making leaky barriers.

So leaky blood gut barriers, leaky blood brain barriers, it allows antigens, which is basically junk from your gut to enter into your bloodstream. We're not supposed to allow things other than very, very simple molecules enter into our bloodstream.

You're not supposed to let protein into your bloodstream like, you know, even from the foods you eat or carbohydrates. You're supposed to allow carbonic acids, amino acids, fatty acids, like broken down to these building blocks.

But when you make a lot of TNF alpha, you, instead of having these very tight barriers, have looser barriers and junk gets through into the bloodstream, your immune system gets overwhelmed and you start making antibodies.

But then the same thing and some of them are kind of false antibodies. But then the same thing happens to the brain and stuff gets into the brain that shouldn't the blood brain barrier.

So some people get a much bigger immune response to their infections. And those antibodies can cross into the blood brain barrier. And many of the kinds of antibodies that we see for peanut, a build part of the Cunningham test can get triggered to be made antibodies that affect dopamine and other things that create those repetitive movements.

But they're kind of false antibodies. So that's one factor. Just so you know, it can be exacerbated because TNF alpha has been shown to be very high in autism.

So sometimes they'll have as much as 45 times higher in their blood, in their cerebrospinal fluid than in the average person's. But that gene has always been around.

So what's made it worse? Well, in the 1990 we added much more glyphosate to our system because they found that they sprayed crops with roundup, which is glyphosate.

The crops matured more and you got a better harvest of wheat, a better harvest of oats, a better harvest of these grains. But then because the grains and the water got so contaminated with them, more recently, they increased the allowable amounts in our children's and in our adults food by over 300 times.

Now, what it used to be so kept going up what's considered the legal limit. And they'll say, oh, but it's measured in parts per million. It doesn't matter if parts per million cause leaky gut.

So that's the kind of environment access the other big gene that affects the that affects the environment, I mean, that affects pandas and Pans is mannose binding lectin.

And again, let's kind of give our simple name. So we'll call TNF the TNF alpha the leaky gut barrier. You know gene and bloom and binding lectin is missing your first defense of your immune system.

So I like to think of MDL two like a pink gut paintball gun you're targeting. You're kind of marking what your immune system needs to take out because it's a foreign invader, whether it's yeast like Candida, whether it's Lyme disease, whether it's strep, whether it's E.coli, there's a whole lot of different things.

Even viruses, mannose binding, lectins, kind of first line of defense. So when people have made two certain variants, they are 14 times more likely to have pandas or pants.

Just you know, the TNF alpha snip is more like 80 times more likely if you've got two copies of that one. So these are big deal right now. And I want to bring go ahead. You guys.

Key genomic factors in PANS and PANDAS

Now what made it worse in the environment. Because you go well look again we've always had matters binding lectin antibiotics. Because one of the things that is affecting I believe the pandas and pans is yeast mannose.

Finding lectin in particular is really important for clearing yeast and you'd be much better to speak as to the role of yeast in pans and molds, and also affects molds.

Right. And I think, you know, two really important points I wanted to hand hone in on one with the mannose binding lectin. You're absolutely right. This defective immune system really affects all of our kids with pans, pandas and this yeast fungus.

Mold Canada is such a big piece of that that I think so many people are missing. But many of these children have this underlying genomic snip. And then the other piece with the tumor necrosis factor alpha, I think, you know, you said it, but I think we want to hone in for our listeners.

It's not just about a leaky gut. We hear so much about that in the literature. And of course the gut is our first brain, not even our second brain. But it's also about the leaky brain blood brain barrier.

And that's what these kids are really suffering with. So these two snips are very important. So, hey, why don't we just take these two snips? Why why the whole genomic panel?

Well, that's a that's a great thing for a couple different reasons. One, the literature. Remember, we didn't even have a whole genomic sequencing. The first human genome was sequenced in 2003 at a cost of a couple billion dollars.

So we the genomic literature is still young, and not every child that has the pandas pans like picture is going to

have those snips. First of all, we're finding that Il6 is emerging as really important in the literature.

Just again, for our listeners, I know we have both physicians and parents. IL six interleukin six is your goes up in response to infections, but it's another one that can cross the blood brain barrier.

And just to let you know how important it is, if somebody has, it goes up not only in spots to infections, but also tissue damage like surgery. It goes up after a stroke for adults.

If somebody has high IL six genes and then they have heart surgery or have a heart attack, they have increased risk of depression for 20 years after that.

It's really crazy how important Il6 is in the brain. Well, it's looking like that's going to be important because how you get that anything that causes brain on fire brain inflammation creates pandas like symptoms.

We're finding some of the different intellects DNA. We look at the mast cell panels and different things that contribute to mast cell activation. We've had a couple of children where we for sure thought it was going to be a classic pans or pandas.

They didn't have the TNF alpha or the amount of spending lectin, but they had really, really severe mast cell abilities. And there's certain genes that when you have infections or mold exposure, if you have them in combination, you are going to create in response to allergens.

So things that you normally would just create an allergic response, you create a bigger inflammatory infectious type response and in fact even start triggering B cells against it.

So that's I l for and I l13 doesn't really matter. There's new genes that we have definitely seen. And it's not just my cells. Doctor Bowles, who's a very well-respected pediatric geneticist that relate to TNF receptors that relate to common variable immuno deficiencies that are mild, that affect it.

So the reason that you go broad is one, because the that every child is different and the, the cost of checking and there's also ethnicity. There might be one TNF alpha snip that is very common in Asians and a different one in Caucasians.

So you have to even look at more than one TNF alpha snip. But also there's other things that add to it. If a child is low on zinc, that affects their immune system.

If a child is low on vitamin D, but it's not just you can't just check vitamin D levels because there is a vitamin D receptor that can increase the risk.

50% of autism and how we upregulate vitamin D receptors is different than vitamin D. We do that with sulforaphane or resveratrol, and you can see it taking a step back until DNA is used by clinicians to help parents.

But you can see why we mean, in addition to the legal issue, that we are a clinical decision support tool so we can only sell to clinicians. You can see this gets complicated, but if you don't look broad, you're not going to get optimal improvement in the child.

And so if you're going to bother to optimize your child genomically, if you can know which nutrients they need more of, that's really helpful. Zinc used to be not a problem in the American diet or in the world diet, because people eat everything they eat organ meats.

But now the liver is so contaminated with pesticides. We actually generally, as physicians, don't encourage our patients to eat liver, right? Right. And I think one of the other points in which you're saying, you know, with pans and pandas, we're always looking for at the immune system, looking for inflammation.

And we've talked about the tumor necrosis factor alpha and the ML two. And you're mentioning the nutrient levels.

The other one that I have been surprised in a lot of these kids is their ability to detoxify.

And we can also see the snips that make that harder. And that has changed my management in some of these children where I've been focusing on the infectious trigger, the blood brain barrier, the inflammatory triggers, but but missing their ability, their inability to detoxify.

Absolutely. And that's a great point. We have one pediatrician and she practiced on her own children, which, you know, when she was learning italics. And she she wasn't the one.

We were talking about her case because her children, they didn't meet the criteria of ADHD. They didn't meet the criteria of of oppositional defiant disorder.

But she kind of almost wanted to say, what do you do if your kid's just being a butthead? That was kind of a weird call. And we got a lot of those. Yeah.

And it was so amazing because she said this child had such severe detox pathways, and not every detox pathway is a glutathione an issue? There's a lot that are going to fly on, but there's other ones that relate to pesticides that you address differently.

And she did. The child also wasn't good at transporting B12 to their brain, but she did just a few again, tweaks. Didn't let them run barefoot on like the golf course that was near them because it had something like states got that did more with the glutathione and the glyphosate pathways, did more with some of the pesticide pathways, gave them some B12.

They also were low on CoQ10. And she was like, not only did she notice huge difference in her two children, one was four and one was eight, but the children noticed a difference in.

Our eight year old came to her and said, mom, I feel so much more calm now. I, you know, so that was really amazing. So I think that you're absolutely right.

The role of toxins and how it's affecting, again, children and adults and children, it affects more because they have more surface area. And so they tend to sit on the grass, play on the grass.

So sometimes they can have a bigger effect than the parents because we spend so much more time indoors. But it can affect all of us and it can depend on if you live near a freeway or, you know, gas stations or whatever, right?

Absolutely. And I think along those lines, we also, you know, we see one kid with pans and pandas. We've seen one kid with pans and pandas, although there are you know, subtypes and and patterns.

Every child is different and many have other diagnoses. I mean, certainly many have anxiety, tics, OCD, many have ADHD or ADHD. But but those pieces of the puzzle in pans, pandas are very important.

And genomics can also relate to that. You know, one that comes to mind is the the Foley receptor antibodies and and the way the follower one snip affects that.

So can you talk about a little bit more how the genomics relates to topics that are in the umbrella of pans pandas, so to speak? Absolutely. So again, when we were building the first autism report, because Pandas and Pans came later, we started with these panels on autism and, you know, neurobehavioral research that was ongoing.

But then one thing led to another because then we were like, oh, contact in, which has to do with auditory processing and language development. It related to autism, but it also related to ADHD, because if a child can't auditory process, they're going to get labeled, you know, you're learning in a classroom is ADHD.

Why a broad genomic panel is needed

And so what we decided to do is have a broader pediatric base. And it's really for every a human base. So when we look at pandas and pans, when we look at autism, we also look at snips that contribute to OCD, depression, anxiety, ADHD, and even ADHD medication response addiction.

And so some of those things like the the tics, those you're going to see, then you'll go, oh my gosh, in the OCD panel, these children have really high glutamate.

If they have high glutamate, that's a big factor that can contribute to tics. And so then they may really do well with something like an Acetylcysteine or NEC, but other kids with kind of that OCD behavior, they have more problems with serotonin.

And so the interventions will be different. With ADHD there's problems with auditory processing, but there's also problems with dopamine norepinephrine imbalance and problems with adrenaline for anxiety versus serotonin.

So we ended up building out what we call our mental health report at the same time. Because what we and we, we call it mental wellness because we don't want to be building labeled.

And that's a really important point. We've become a society that labels our kids this kid's ADHD, this kid's anxious. And what we want to do with Intelex DNA is empower clinicians as well as parents to say, don't label your kid with a diagnosis.

Let's understand it. We've had children that had been labeled severe ADHD where the the schools have wanted to medicate them at eight years old or six years old or ridiculously young children, where when you look at their nutrient transporter is it's like, well, of course they can't focus because they have all these different problems with getting the things they need in their brain that will allow them to feel calm.

If you don't get B6 in your brain, you can't make Gaba. If you can't make Gaba, you can't calm yourself down. If you can't make zinc, you can't calm yourself down because you don't get serotonin.

So yeah. So intelex DNA, you know, people, everyone. We get this multiple times a week. People are like, can you make a simple version with just like 40 snaps?

It's like we did actually make a simple version for depression and anxiety with 48 snaps, because there are some really big important ones, and we still have important nutrients.

And that's that's pretty effective if the only thing going on is depression or anxiety. But when you have somebody a little more complicated, or if you just want to really, truly optimize, you have to go broad because we're all different.

And by going broad, you're going to identify the 5 or 6 things most important for the human being sitting across from you. Right. And and two, that I wanted to talk about a little bit more that I have found very helpful.

And, and one of them is the, the FLIR one for clinic asset. And you and I talked about this after we published our paper this summer on folate receptor alpha antibodies.

Can you delve into that a little bit more. Because I think it's important in pans pandas as well as autism as well as other chronic diseases. Absolutely.

So the work from Doctor Fry's and Ross and Goal had what made it very clear that and and other people have published on this topic as well, that folate receptor antibodies are a big factor in autism, pandas, pans.

And in fact, that's a lot of why we say to have children go dairy free, because you get higher, more problems with folate receptor antibodies when you have dairy.

And that's kind of a complex immune interaction. But it turns out that 11% of the population have one copy, a much smaller percent less than about 1.5%.

Two copies of a defective folate receptor alpha. And what folate receptor alpha does is it's the main receptor that methyl folate can use to cross the blood brain barrier.

So fire became a big deal because we realized that 47% of the population have one copy and another 14% of two copies, and they can't just get the dietary folate in what we're putting in our in our grains and cereals and flour that doesn't cross the brain.

Well, in fact, it kind of junks it up and makes it so the natural methyl folate, it makes things worse. If anything. But the most people can use methyl folate is a really great brain source.

However, if you're a receptor that actively transports the methyl folate across the brain doesn't work well, it's kind of shaped funny. Then you are going to do better using the minor folate receptor called RFC reduced folate carrier, which only allows splenic acid across the brain.

So kalinic acid is a hack for people who have followed one, and getting enough methyl folate or kalinic acid to the brain is really important for not only mood, but also for speech.

And so we've had cases of children who were antibody negative to folate receptor antibody negative. But who have regained speech with splenic acid still and other things addressing their genomics because it was a follower.

One issue, similarly, there's all kinds of, you know, of other things that can contribute and other things that can contribute to speech as well. So don't think that it's just that.

But there's also, you know, we have all these brain neurotransmitters. And I think the important point here is everything that the brain needs has to be actively transported.

And that's a protection because we don't want if somebody gets sick with flu, sick with Covid, sick with strep, we don't want the viruses sick with Lyme disease.

We don't want things crossing into the brain that can kill you, that can cause cognitive decline because it can cause tissue destruction. So that active transport is super important.

Neurotransmitters are also super important and so the problem in medicine is we'll come up with the solution. This is step one. This is step two I think again depression and anxiety is a classic example.

Give a serotonin and drug like Lexapro or Prozac. Second step give Effexor this or that. But what is the child's problem is that they're missing something called tetrahedra by Opteron.

And they can't make those things to start with. Those drugs aren't going to help, and it might only be 4% of the population. But if your child's in that 4% of the population, they're not going to get well unless you give them tetrahedra by Opteron.

Right. And I think that's a very important point. You know, we talk a lot about name it, blame it tainment medicine. You know, that was Doctor Baker's big term for it.

You know we name it anxiety or depression or ADHD. And then we blame all of the symptoms on that and tame it with the drug. But as you're saying, often like ADHD, there are many other problems in the background genomically nutritionally and so many other areas that we're missing in this labeling and treating the symptom without getting to the root cause and without getting to their their root genomics.

Right. And and even in ADHD, I haven't had a case like this, but some of my pediatric friends have. They've had cases where the child had the gut overridden with yeast and other things were infection, were also part of the ADHD.

So there's just, you know, they say saw the mannose binding lectin pathway and only about, you know, just two

different snips. And so one has 1% with two copies, one is 4%.

But again there's some snips that are associated with 14 times pandas that is in 14 copies. But in the more severe ones they saw it. And then they're like, wow, we need to really address the gut.

And you know, you have a child in front of you. You can't do every single test. That would be it's a lot of blood, a lot, until it's DNA is a cheek swab.

It's no blood at all. But it's just a lot of of cost and shooting in the dark. And so if you have a map to the child, you're going to be able to be much more specific.

And and ultimately, I think that we're hopefully going to see in our lifetime, Nancy, the change in the way medicines practiced to that we go, what's the root cause?

Let's get some genomics. What's the root cause? Let's see if we can't figure this out. Yeah, absolutely. And you're reminding me of the first child I brought with me when I moved from my general pediatric practice to my functional medicine practice, was a little boy with ADHD who I was about to put on his stimulant medication.

And when I started my functional medicine practice, I finally did a diet history, and the kid was eating nine bananas a day and I said, you know, let's just take the bananas out.

And he was missing the enzyme that that digested them appropriately.

Folate receptor alpha and other root causes

When we took the bananas out, he had no more ADHD, which interesting as I just remet the family. The child's an adult now, and they had just done his genomic profile and found it.

And yet, you know, all those years ago before I, I knew anything really. You know, if we had done that, we would have seen it much earlier on, thankfully.

You know, at least we picked it up because of his weird diet history. But it's this precision medicine is where we need to be. So anyway, parents often ask after your you do the DNA and and respond to it.

Repeat the test. And I know the answer is no, but but just explain that a little bit more. So the parents on the call understand why. Well, luckily your DNA doesn't change.

So your DNA is the same. You know, some people go like, well, why is the pediatric test the same for mental health as the adult test? Well, because your genes don't change.

We don't order a cognition test on a two year old, because why get all this information that, you know, let's let's order the the information that we want to start with, but your DNA doesn't change, so you address it.

And then people will also say, well, how do I know if it's being expressed? That is a really common question. And that's kind of what I call a neutral genomic urban legend, that you have to decide if you're and it came out of more of our because more of our is associated with higher homocysteine.

And then they would say, but we have people who have the MT of our variant and don't have high homocysteine. So the gene must not be being expressed. Know if the the particular MT of our C6 770 gene.

If you've got two copies of it, you have 70% less ability to convert folate into methyl folate. No questions ask. Your homocysteine might not be high because you might have an overactive CBS metabolism gene that is converting that homocysteine into something.

So it's there's no one pathway. So you only the the way that we use it is you don't need to start if somebody is not

having symptoms of ADHD and they have some genes show up in the ADHD panel, it doesn't mean that they don't have those genes and that that doesn't affect the auditory processing it.

For example, or it doesn't affect the norepinephrine. It means that they probably have found their own hack. So for example, I interviewed a successful, woman who runs a nonprofit who had two copies of the auditory processing gene.

And I've now talked to a lot of people with that she discovered early on. In fact, her her parents thought that she wasn't going to do very well because she was kind of ADHD when she was younger, didn't feel well on medicines.

So I was like, so what did you do? And her strategy was she took notes, turned it from auditory processing into a different pathway because, like, I had notebooks and notebooks full of things to get through college.

And so you, you know, you could have the person who's low at norepinephrine and you find that they're eating tons of oranges and lots of vitamin C. Well, vitamin C is the cofactor for making norepinephrine.

So they're pushing that pathway on their own or the person who has histamine intolerance. And then you find they hate leftovers. Leftovers are very high in and got histamine.

So it's not that the genes don't express. It's that people develop their own coping strategies innately. We're amazing human beings. And so you learn your genomics.

It helps you then go, do I want to address this with a supplement, or do I want to look at food and lifestyle and lots of different other things? You can have genes for diabetes and not have type two diabetes because it's not one gene.

There's many genes and if you have appropriate diet and lifestyle, you can overcome it. But it might be harder for the person who has that gene that has six times the risk.

They might have to work a little harder and eat a little bit, a lot less carbohydrates if they don't want to. And the bottom line is also trust your gut.

I can't tell you how many children and families have had moments when they've looked at their genomics and say, oh, that's why I don't like that. Or that's why innately I eat that and like that, you know?

So we need to trust our gut and and understand intuitively what our bodies are doing and responding to. And the the genomics helps us to understand that so much better.

So there's there's a gene that is huge for autism and pervasive developmental disorder called shake three and five times the risk with one copy 12 times with two.

And I've talked to some of the parents that have the because I can see that the parent had the gene and that's where the child got it from. But zinc is one of the biggest things you need a lot more zinc than typical.

And when I talk to these parents like one of them, he's a cardiologist. He loves oysters. Well, oysters are super high in zinc. So. And right flank, you know.

And supposedly shank three can have cognitive problems and intellectual disability. It doesn't if you get the right things. We've proven that. And then the other one, she grew up in a poor family eating a ton of organ meats, which is very high in zinc.

And so definitely people and she actually liked it. So I think that you're right, our bodies sometimes can figure it out, but sometimes we need help because if you're, you know, if you're a ten year old child now with autism, to have the solution be, I'm going to feed my child oysters and liver might not be as easy as a dissolvable zinc.

Yeah, exactly. Exactly. It. You know, and what we're saying again and again and again is don't just look at, at our, our friend Liz month for calls it the Brangelina of snips.

Don't just look at TNF alpha or mannose binding lectin. It's about the whole child and it's about the whole picture of their genomics. So if I were a parent who wants to get into DNA for their child, how does a parent go about doing that?

They can go to the Intelex DNA website and Intelex DNA is I n t ll two ls and two axis x DNA, and it's two XS because there's two women co-founders. It's an intelligent approach to DNA, and then they can put in, they can absolutely put in their state and zip code and find.

And then they'll want to select that. They're interested in the pediatric the neurodevelopmental or autism. Because not every intelex DNA provider is trained in in pediatrics obviously.

And then they'll get a list. I do need to kind of let people know that in some states, there may not be someone driving distance from you, and you might have to do telemedicine or get in the car.

If you are a pediatrician and not yet trained on Intelex DNA, please know we give free training, tremendous support, both online training, live opportunities for training.

There's a small cost when we have those and that we actually, Nancy and I will be having to have a plenary session on genomics at the Maps conference in September of 2025.

But if you are a pediatrician or family physician or natural path that wants to do that, if you do pediatrics, but you're like, I'm a little afraid of doing autism, this is a tool that's going to really help you.

Same thing with Pandas or Pans.

How families and clinicians can use Intel DNA

And Nancy has a great book for clinicians for pandas Demystifying Pandas and Pans that will help. So please don't be afraid as a clinician to get trained, because that way we won't have to send parents 3 or 4 hours away to find someone.

So we do have hundreds of clinicians trained at this point on the pediatrics, but we need thousands to help meet the need and overcome this epidemic. Absolutely.

And we hope that that having the plenary together with maps will help train more. But I cannot tell you as our listeners how helpful the mentors at Intel DNA are in walking you through not just the pot hotspot summary, but everything about the the genome of the child you're having.

So I highly recommend you doing it. And considering this for your child or your patient. Sharon, anything you want to, leave our listeners with. Anything else you want to say?

I want to just call attention to what I'm going to call the elephant in the room. The Intel DNA is going to be more expensive than 23 and me, and more expensive than any other genomic report out there.

Less expensive than whole genomic sequencing, not yet covered by insurance, but I think that you will find in the long run it's a very worthwhile investment.

The reason it does cost more is we have a pretty substantial research team, and it's taken millions and millions of dollars of research and development to be able to not just give a list of snips, but to give interventions as to what to do about them.

We even educate the doctors here in the literature is typical dosing. Here's why we think it's going to work. So. But

know that it's a one time investment and most of the doctors trained in autism, you're going to be able are going to be able to get so much farther, so much faster.

And so in the long run, the doctors who have been using it have talked to their patients and patients. One of my first patients that I ever used the pediatric autism report on, they had spent and, you know, they had spent $70,000 in their child's lifetime.

It was a 13 year old. The insurance had spent 240,000. And they said in three months after intelex, they made more progress than in ten years with everything else.

So it is not yet covered by insurance. We are working. That's why we're working with studies so we can move the needle and eventually get that. But know that we have so far never had a parent come back to us and say, this wasn't worth it.

I'm sorry I did it. So, you only had to do it once, and it will help. And I think that if you're going to do it, why not give it give the person that benefit?

I mean, I've learned so much about myself with my own genomics. That has helped my processing speed and the way my brain works. You know, we don't get a pass on having perfect health and perfect family histories just for being physicians.

So why not do it when your child is young and give them that benefit of being able to achieve their full potential their whole life? And we've done it on.

We've done it on two month olds. My youngest was two weeks old. So yeah. And as you said, it's the gift that keeps on giving in many of my patients that I've done it on.

We do the the initial we make some initial changes, some initial understanding, and then we can go back again and again and again. What did we miss? What else is in the literature now?

What else is this snip affecting. How are these all working together. So like you said it's a one time investment that that will not change but may help you at multiple points in your child's life or in your patient's life. Yes.

So anyway, Sharon, thank you so much for joining me. Thank you for your the work you do in your own practice, but especially it into our DNA and what you're giving to the community at large in the research and in the work that you do.

So thank you. Thank you for doing this to help educate parents. And it's always great to to speak with you. You too. And thank you so much. Okay. Thank you for tuning in to Doctor Talks.

We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your well-being.

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