Introduction and Guest Background

Welcome back to Reversing Mast Cell Activation Syndrome and Histamine Intolerance Summit. I'm your host, Dr. Meg Mill. And today I'm joined by my esteemed colleague, Dr. Carolyn Ledowsky.

She is a genetic specialist who is the founder of the MTHFR Support Australia. And I'm so excited to bring her here today to talk to you. We were chatting before we got on about all of these amazing things that she's finding in her research, and there's just so much information that's not shared with the public and that we're not really understanding when it comes to genetics, folate MTHFR and how that's affecting things like histamine intolerance and MCAS.

So thank you so much for being here, Dr. Ledowsky. Thank you Meg I absolutely love this topic. So I'm excited for this conversation. I and too I can't wait to get into it before we actually jump into all the juiciness of the conversation.

I just wanted to see if you could walk us through your journey of how you got involved in this work. Yes, I know people have probably heard this a million times, but I when I first started out in practice, I was really, interested in the bloods and what that could actually tell us.

And I saw this pattern with people when I checked folate levels that some had elevated levels above reference range and some people didn't. And I thought, well, that's really weird.

Why would someone have elevated folate? And when I contacted the lab, they said, oh, that's a great, great thing. They're eating a lot of leafy green vegetables.

And I thought, you know what? They're not. And then I so I contacted professors and doctors and they all kept saying the same thing. Oh, it's a good thing.

And I thought, no, no, that does not fit with the person who is sitting in front of me. So I researched research, couldn't find anything, and I was at a conference in Melbourne and, presented.

They just happened to mention that I was related to pho like levels. And I made a beeline for at the end of her talk and said, what is this MTHFR? And she said, oh, it's a gene that regulates folate.

I said, how can I find out more? She said, just googled. And so that began this journey of MTHFR. And then obviously it's not all about me, but then other genetics.

And so for the last 14 years, my practice has really focused on genetic susceptibility, environmental influences of genetics. And what I found is that the the outcomes for patients, particularly who have tried their whole lives to reverse a chronic health condition, have been phenomenal.

MTHFR, Folate, and Methylation Basics

And so that's where my practice now, we have eight practitioners within our clinic, all nutritionists and naturopaths. And we look at how does someone become more susceptible to a certain disease because of their genetics.

And then where did the environment interact with those genetics to cause the issue? And sometimes for people, it's a birth. So we we really do a deep dive into their past health history to find out, you know, what actually triggered these genes?

To turn on. Can we actually because I did the MTHFR actually affects so much of the population. And a lot of

people are really it's almost becoming like a buzzword but people don't really understand.

We're getting insight into it okay this exists but can we get into a little bit about the actual genetic defect and, and really what it means for someone to kind of start with the basics.

So MTHFR stands for Methylenetetrahydrofolate reductase. And it's just a really fancy word for a gene that controls the way we make active folate. So there are there are three main forms of folate.

One is folic acid. And that's synthetic. It's made in a lab. We don't make it ourselves. But we have to process it a very different way than we would normal active folate.

Now when you eat leafy green vegetables you can get methyl folate and you can get the link. And our body converts that in the gut and makes it into the active five metal tetrahedron folate, that is the biologically active folate that we need for our brain, for the placenta, for methylation, for all these.

And when we think of methylation, essentially it is an activation switch. It's the ability for this little methyl group that's created to bind with amino acids, bind with proteins and cause an action.

Either it turns genes on or it turns genes off. And in the case of methylation, a lot of the time it's turning things off, like cancer promoting genes.

But the methyl group that is created is a magnificent cofactor because some many by chemical reactions that need to happen in the body. And so part of the problem that we see with and as you quite rightly said, the percentage of people that have two alleles, which means they have a 60 to 70% downregulation of this enzyme, is up to 30% of the population, sometimes 35%.

So we're not talking about a really small amount of the population. And if you have one copy and what I'm finding in my research, one copy can also affect you, which is a 35 to 40% down right regulation.

70% of the population can have that. So one of the things that one of the issues that we found here in Australia when we started 14 years ago, we didn't have the means to just check that gene ourself.

So we send patients back to their doctors, and they got so many requests that they went back to the medical board and said, hey, a lot of people are asking us about this gene.

We don't really know what the results mean, and we're not quite sure when we get the results, what the implications are for the patient. Can you inform us?

So instead of doing an educational, you know, okay, this is what the gene is, this is what it does is what you might think about it. They said, tell them it doesn't matter.

And so now we have this generation of doctors who think that a biochemical pathway that makes activated folate doesn't matter or it's a fad. And as you said, it's a buzz word.

But how can a biochemical pathway be a fad? It's impossible. It either active causes you to create activated folate or it doesn't. And this is the problem that we are seeing worldwide is that a lot of, particularly in the fertility world, it's considered to be unimportant, whereas what my research is showing is in actual fact, it's very important because if we can't make these methyl groups, then we can't metabolize our fats, we can't get rid of toxic estrogen, we can't make creatine to support our muscles and our brain.

I mean, there are over 80 enzymes that we can't break down. Histamine. Very part important part of this conversation. So there's so many enzyme or pathways that we rely on these methyl groups.

And MTHFR really is the linchpin because it's what helps you make the mental folate that is donated to make semi. So a bit of biochemistry there. But it's just the important take out is that MTHFR does matter because many people

who have these polymorphisms haven't got the ability to make methylated folate.

And that's the important ingredient for us to be able to use a lot of these, enzymes and work make it work properly. Yeah. That really, you know, when you hear things like you just said, where they said, just say it doesn't matter because they don't understand it.

How MTHFR Affects Histamine Breakdown

I mean, it is just so disappointing to hear some. But there is reality in some of these situations where we're just not getting to the bottom of it because it's you don't know what to do with it.

So they don't do anything. So we need people like you who are spreading this word. And I think it is becoming more and more well known, you know, as time goes on.

Fortunately, can use you started to go into it a little bit. Can we talk a little bit about directly how this polymorphism affects histamine? Yes. So as I said you have methyl folate that needs to be then created into something called SAMe or S-adenosyl methionine.

And so S-adenosyl methionine or SAMe is the cofactor to allow an enzyme called histamine in methyltransferase breakdown systemic histamine. So when people have asthma and eczema and period pain and any where we have smooth muscle, we need that semi to help break down that histamine in that tissue.

So women that get period pain before their menstrual cycle, when they've got that severe pain, usually it's a histamine based problem. So we look at all the h1 m t.

And then following on from that there's another enzyme called Mao or mono I mean oxidase and Mao A and B also a downstream of this h m t again helping us break down histamine.

So we've got certain genes that are super important, but we can't break down histamine systemically unless we have semi and and that is unless methyl folate makes it.

So you might have let's say someone is walking down the street and they home is I guess is h nmt so anything in the lungs will affect them. So they walk past some wattle.

Here in Australia, wattle season very high pollen counts, flies through the air on a windy day. And they eat. They breathe it in and that causes an immediate response in the lungs.

And they start wheezing, getting, you know, coughing, sneezing, whatever their gene will be downregulated because and if they have fire on top of it, it means I haven't got the response mechanism to break it down.

And that's why we look at kids with allergy. Australia has one of the highest, allergy profiles of any country in the world. And I think there are a few very significant reasons why.

One, we use a lot of synthetic folic acid. We have it in our food. So it's actually mandated like in the US, that they put it in bread, flour and other ingredients.

So I think that's interrupting our good for light. I think we probably do have a high proportion of h m t being activated, because we have a lot of pollens and things in the air.

And we also because the eastern seaboard is very wet, there's mold exposure, which is making this worse. So I think there's a variety of different reasons why people react more than others, but it's really important that they understand that it's both genetic and environmental.

And I think fortification of folic acid is one of those really big environmental exposures. We've got to be worried about. Yeah. And that's something maybe people aren't even thinking like you're saying it's putting in the food and

they might not be really aware of you're looking now at maybe trans fats and some of the things that we really know about.

But are you looking at that content in some of your food that that's a really good point to make. And so just awareness there. So when you're starting with someone, so if someone is having a histamine issue and you find that they do have some of these polymorphisms, where do you start?

The very first thing we do is try and dampen down that whole histamine response. So we might use particularly gut. There is an enzyme called Dao diamine oxidase.

And we can give that which helps food base histamine B broken down much better because if you've got inflammation or you've got problems with your gut, irrespective of any genetics, you may not be breaking down food based histamine.

So we usually put them on a low food histamine diet. And people do not realize that all the things we love, like strawberries and chocolate and wine and all those things and nuts, they're all high in histamine.

So we put them on a low histamine diet. We may give them the Dao enzyme to help them do that, but then we look at more systemic based antihistamine. So quercetin is a really nice one.

And dampening down inflammation generally is a really important component of this. Because the more inflammatory markers you have, the more that triggers histamine and mast cell.

So we really work on dampening it down. We usually look at gut because people can have high histamine producing bacteria as well that need to be eradicated to also get that histamine under control.

And then we look at their environment. We we do organic acids testing. So we look at what might be triggering this excessive histamine response. And until you find what that is you never really going to get it under control.

Environmental Triggers, Gut Health, and Histamine Control

Because if someone's living in a mold affected house, then you could probably get 50 to 60% of the way, but you'll never get 100% under control. So that is a big confounding factor to have someone living in a mold affected environment or working in a mold affected environment.

Yeah I agree and I, I talk about that all the time. The starting in the gut is when you're talking about histamine intolerance. That is always the place to start.

And if you're not addressing that then you could have you know even the underlying bacteria producing more and more histamine and and keep going. We'll let you know I'm going to switch gears here.

We'll come back to histamine. But you and I were talking about actually MCUs and some of the genetic factors that affect Marcus and really seeing this elevation, this bubble in MCUs lately post Covid.

So I'd love to you had great insights. I'm excited to share this. if we could jump into some of that. Yes. I think one of the things that we learned through Covid is that many of the people that reacted to both vaccines and the Covid infection were those people that had high interleukin six levels.

Now, interleukin six is an inflammatory cytokine. And what we found with the genetics is that if you have this interleukin six gene, it's upregulated, right.

So if you have a polymorphism in this gene it causes an upregulation or more interleukin six being created. Interleukin six then will create more inflammation.

And that will trigger MCUs. If you also got Covid it will also influence interleukin six. So anything from an

inflammatory point of view will influence interleukin six.

And then again trigger mast cells. So it's this terrible sort of 360 going round and round in circles all the time because of these inflammatory cytokines particularly there's interleukin six TNF alpha and CRP.

So what we found post-Covid particularly is that if we really work on identifying the interleukin six up regulations in patients working on dampening down those, inflammatory responses, we're getting a much better effect with what we're doing from an Em CAS and a histamine perspective.

If you then look at Australia specifically, so many people had to have the vaccine. We were one of the worst countries in the world outside Canada, really.

They really forced everyone to have the vaccine. So people also had inflammatory responses as a result of the vaccine. And what we found from the research is you were better protected if you had Covid first and then received a vaccine, whereas we had it the other way around.

So we believe that the vaccine actually did create adverse effects. If they then got Covid on top of it. So there were a lot of things. Plus we were in this El Nino water effect where we just had dumping rain for four years and people were not allowed to leave their homes, so they couldn't get in the open air.

We had everything shut up for years, and I think that created a terrible environment for mold and people have reacted to that. So we are seeing an amazing amount of impacts here in Australia because of those factors since Covid.

And I think part of the problem is, we the rain hasn't stopped. It's just continuing now. We're in our fourth year of very heavy flooding rain, and through the last few years houses have gone under under water multiple times.

So I think that's a recipe for a horrible post-Covid weight mass cell inflammation. So really targeting inflammation is critically important particularly here in Australia.

And do you see more like we know more active DeMarcus and that you know really treating the mold getting out of the moldy environment. Those are all important.

Do you see genetically people having predispositions. You know there are certain genetics that make you less likely to be able to detoxify and things like that.

Do you see that being a big impact when these when people are exposed to the mold? Yes. And I think part of the part of the, the very name of our organization, MT support, suggests that many of the people, most of the people that come to see us do have AMD.

So we've probably got a a bit of a skewed, cohort there of patients. But we find that there's a definite correlation between MT, I would say MT and interleukin six.

I think they're the three for me. and, and perhaps some, genetics around, glutathione alone. But I think what we really see is with particularly the triggering from the interleukin six, almost every person that has CAS has more of, an interleukin six polymorphisms because it's just these uncontrolled inflammation.

And we know MT five with particularly from an immune perspective, they are not as able to regulate that immune system as others.

MCAS, Interleukin-6, and Post-COVID Inflammation

So of our does have a big influence on the immune system being able to deal with some of these things. So they they're more likely to have autoimmune disease, for example, they're more likely to have, conditions where they're chronically inflamed, they're more likely to have got issues.

So I think and detox issues. So I think yes, the interleukin six combined with FA for me is one of the biggest and obviously the histamine related genes, you know, H&M, T Dow, etc..

But I think H&M, t Mao, I we see and I when we first started looking at the genetics around Mao a although we know it has a huge influence on serotonin, we didn't know back in the day just how much influence it has on histamine.

And we found that those people that have the downregulation of Mao, I if we can outbreak you light it, they can clear their histamine so much better. And so almost overnight you can get this clearing of histamine by really targeting Mao A and putting in the natural anti-inflammatories like quercetin.

So it's been quite a revelation really to look just do deep dives into some of these genetics downstream of the obvious ones to say, okay, it's not all about this, but let's look at the whole histamine pathway and what is the process for people to clear it?

And then how at the top end do we stop at being triggered. And that's the environmental story more often than not, other than those that are homozygous for the interleukin six, which is means they're always having these trigger of inflammation.

Yeah. So that's been really exciting for us. That is exciting. Yes and I will I'm next I want to talk about what you're doing to upregulate Mao. I love how it gives you leaving a cliffhanger, because I was so excited to hear you were saying, if you upregulate the Mao a, then you're seeing this.

They clear it so fast. So what would where would you start? There. So the cofactor for riboflavin for, Mao is actually riboflavin. And so these people with the Mao, A63232 polymorphism means that that enzyme is downregulated.

And so the way the process works is histamine is made. We then rely systemically on H NMT which is that semi cofactor. But then once semi processes it, many people that have that true histamine.

One problem that just doesn't go away. They also are homozygous for Mao I downstream of h m empty. So we use high dose right the flavin to clear it so that once the processing t the of the histamine through h m t better they clearing it out of the system.

And that's been absolutely fantastic. And we can go anything from 100mg of riboflavin to 400 in 1 dose to see what sort of response we might get. And what we found is a high correlation because, as I said earlier, Mao A is into clearly linked to serotonin.

And so these people also have a problem breaking down serotonin in the synaptic cleft, which means they're not getting it into the brain where they need it.

So they can be more inclined to have what I call these mental OCD. These circling thoughts. They can't get rid of it. They it's someone that goes over something again and again and again and again, and they can't make a decision because this mental anguish is just drive them crazy.

So we find by also up regulating the Mao a and using combinations of things a to get it into the brain, but just breaking down, making that Mao a work better, a lot of that mental anguish disappears.

So there's a high correlation, you know, with the high histamine people and that mental anguish. And I also see it with migraines, too, because when you're saying the high dose riboflavin and the histamine and the all the connections there too.

Exactly, exactly. And I think headaches and migraines, 90% of them are a histamine problem. So you just need to look at these pathways and understand where is it falling down and what environmental influences are triggering.

And let's not forget that women are the most affected by migraines because premenstrual lead, as estrogen rises,

that causes a rise in histamine. It's a natural progression.

His estrogen causes histamine to increase. Some women, may not get migraines, but before their period, they may not even sleep all night. You know, they have.

That's really common, particularly pyramid perimenopause easily, where women say, oh, the night before my period, I just don't sleep. And that's because the estrogen has triggered a histamine, histamine response and they just can't get to sleep if you histamines.

Ha! You can't sleep. So even one. I've got some patients. One square of dark chocolate at night will stop them sleeping all night. Yeah, I know, I know.

And if I have someone who didn't realize that before and they're like, I'm not, you know, they couldn't figure out. I'm like, oh, the dark chocolate. Yeah. I bring it to lunchtime.

Yeah, it's a nice little dessert, but maybe not have it right. That's right. Yeah. I know, but do you you probably don't see this as much because people are coming to you with the, with the genetic, you know, polymorphisms.

But do you, do you see people that are not affected, you know, maybe have the because I think we're always looking at nurture and nature just because you have it.

If like if you're someone who's been tested and you know, you have these genetics, but you're not having as many symptoms, if you're listening to the summit, you probably are having symptoms.

MAO, Riboflavin, and Histamine Clearance

But just in case there's someone who's not, then you know what? Can we talk a little bit about that? I think what we find is if someone comes to us and they're having a histamine problem or an MCs problem, it may be environmental.

So it could be Lyme, it could be mold, it could be gut infections. It could be, you know, estrogen metabolism issues. It could be anything environmentally.

But what I find is if it's not genetic, they improve significantly fairly quickly. And within a few months you've sort of as long as you address the key issues, you've got it under control.

But it's for genetics where those people who have tried all the histamine related things, they might have taken quercetin that might have done it, gut protocol, but they're just not getting that resolution they need, and they still feel tired and exhausted and inflamed.

And they're the ones that you usually find have the significant genetics, because I just never quite them. I get 60% of the way, sometimes 50% of the way, but they really don't get that really good resolution you would see with people that don't have the genetic polymorphisms.

Yeah that's a great point. Do you. The other thing we see with the the population sometimes is that a particular it mixes toxins that you know maybe if you're having heavy metals or different do you see any polymorphism particular that people should avoid.

If I mean I'm sorry I'm going to cut that. they let me just I'm sorry. I'm just going to do this because I know that's where I'm going to cut. So I was just going to ask, so we also see toxic burdens being a problem for people with genetic polymorphism morphism.

So do you see any toxins that people should specifically like or actually polymorphisms that really are more involved with specific toxins? People should avoid?

Oh gosh, where do we start? there are so many. I think one of the biggest issues that we see is the estrogen in the environment, you know, all the plastics and the credit card receipts and everything else.

I think that has a huge influence, particularly on women and their menstrual cycles and how the histamine then is causing issues with them, because if they're not getting rid of toxic estrogen, they're going to be triggering more histamine.

And that happens in men as well. Men aren't immune from that. So I think definitely the estrogens are really important. We know that heavy metals impedes the uptake of methyl folate to make.

Sami. So I think that is a really big influence as well. I think we know yeast and mold also inhibited inhibits these key enzyme methane synthase. and it's methane synthase that allows that methyl to move into the cycle to make semi.

So if you've got yeast and mold unfortunately that enzyme is going to be downregulated. If you've got inflammation it'll be downregulated. If you have heavy metals it's going to be downregulated.

If you got problems with your glutathione. Only nucleotides low because there's toxic exposure. I think things like glyphosate, I think interestingly, we've got a lot of Covid right now here in Australia.

We know that it did upset gut. We know that mold mycotoxins significantly upset the gut. And make what I've started delving into that is for these people that just react to everything is more of the peptides.

And, you know, particularly with improving gut function, I think we've found that hydrogen water can be really important and really good for these people as well, because these hydroxyl radicals are actually influencing the way that we do detox.

And a lot of the people that have, ehm, cast, we find that we can't detox, we need to pre tox. And so we really do a very intensive, sometimes 3 to 6 months pre toxin them just to allow them to open up these detox pathways and particularly get bile moving because mold mycotoxins will really influence the bile receptors.

So you know they they get constipated, they restart reacting to everything. They can't take any supplements. Even small amounts of supplements can make them react.

So we really work hard on just opening up these pathways before we even try to do one element of detox. So to answer your question, for some people it's everything they come into contact with that that is causing issues, but I think it's because their detox pathways are jam shut and we've got to make sure that we open them before we detox, because how many people have you seen that have done a detox program and then had a health crisis for the next four years?

Methyl Folate, Folic Acid, and Supplement Cautions

You know, I think we've got to be really mindful that a lot of these people, they just can't be detoxing at all. I agree, and I have you have people that come to you wanting to detox and you have to step back and say, no, no, no, not yet.

I agree, we have to make sure that's often the last step really when you're. Yes and all the other things. Yes it. Is. Yeah. I think that people hear about that.

A lot of people are talking about detox and while it can be helpful in the right place I agree with you. It can really stimulate a lot of things especially in this sensitive population.

the one last thing I just wanted to ask you was about methyl folate. So if we because I know, you know, taking the methyl folate as a B and a b-complex or something like that versus a folic acid, could we just talk about that if someone is, you know, really has heard about that with the MT for.

So I think the really important thing to everybody to note is that they shouldn't start taking methyl folate, because the problem is if you have ehm, test and you have a histamine problem, chances are you've got an inhibition of the ability to use the metal folate.

So when they take methyl folate they'll get signs and symptoms of perhaps anxiety depression even suicidal ideation. They can get eczema. They can get headaches, they can get migraines.

They can get gut issues. There's so many effects. So we created a product that only has the one, two, three, five and six in it. So it starts to get the process going.

And then the practitioner or the patient can decide what sort of B12 do they use. You know, is it hydroxy. Usually it would be hydroxy not methyl. so you put that in and then you do all your other stuff.

You fix the gut, you decrease the inflammation, you get the histamine under control. And then we we we created a one drop methyl folate liquid so that when you think you're ready you take one drop which is 100 micrograms.

Now some of our patients can only take 100 micrograms once a week. So the methyl folate needs to be bought in very, very slowly. And as you improve using increase the dose.

So if you react to the one drop, you know you're not ready to introduce methyl folate. But if you do really well then the next week you might introduce one drop three times a week and you slowly, slowly introduce it.

That's the one thing that we've found is probably the worst thing people can do is put methyl folate in straight away. And if you do have issues with histamine, definitely don't take folic acid.

And the reason is this. Folic acid, as I said in the very beginning, is synthetic. And it is processed in a completely different way than food based like leafy greens are processed.

It has to go through this enzyme called dihydrate folate reductase, to even be made into methyl folate. Now that enzyme DHEA is really slow, and the research tells us that no more than 200 micrograms can really be processed in a day.

Now, what that means is most of the supplements in the US and here in Australia that have folic acid have 800 micrograms. So what's happening to the 600 micrograms that does not get processed.

So there's a variety of different thoughts on that. And I'm actually doing a big literature review on that at the moment. But it is. And they believe it causes and metabolize folic acid.

Now as yet we don't know the full implications of that. But the initial research study says it might contribute to cancer, it might contribute to add ADHD, it might, preclude people or that might, cause diabetes and metabolic diseases, anxiety, depression, we do not know and therefore my thought always is why do you use something that has potential implications?

And as we know, the research usually takes us 20 years to get it to clinical practice. Do we really want to be waiting 20 years to decide that? Oh, by the way, all the food that we're getting and I did a literature review that was published late last year that looked at women in preconception and pregnancy and how much folate were they getting just from their food?

The average was 187 micrograms just from eating bread and cereal. And a lot of people get a lot more than that, so that you shouldn't be taking any supplement with folic acid, because if you do, you then are in that zone of not metabolizing it.

And I believe that the more that DHFR is inhibited by folic acid, the more to fix MTHFR. And it causes like an MTHFR downregulation which stops methyl folate.

So are we potentially creating a really big nightmare problem by putting more and more folic acid in the food and taking folic acid based supplements, and certainly from my fertility research, I believe that no one, particularly in preconception of pregnancy, should be taking folic acid and I would go so far as to say it's in our food.

Do not take a supplement with folic acid because we don't know the full implications. But people are exceeding the upper tolerable limit set by the Institute of Medicine in the United States almost every day.

If they take a folic acid based prenatal, multivitamin. So it's danger zone. And I think we we have to be at least thinking about it and say, well, okay, if it's even if it's a potential danger zone, what are we taking it for when we know the body uses methyl folate?

I it doesn't make any sense to me. Why would we even consider it. Yeah. And it's being given a lot like you're saying it. It is a regular sub. You know supplement is particularly in pregnancy that is, you know, being prescribed.

Yeah. So well thank you Sam. That was really insightful. And I think a really important point for everyone to understand because you know, there's misconception and and I thank you for clarifying that because between the folate, the methyl folate and then even the methyl folate, you should be taking because that's often like, oh, we're just going to switch to methyl and we'll pound that into.

And so really looking at the whole picture is so important in your healing. And it was a really when methyl folate was first launched here in Australia about 2014 2015, we had daily people ringing saying I'm suicidal.

What do I do? And we would get them in the clinic and undo the reaction by using niacin and make them sit there, sometimes for 4 or 5 hours and giving them niacin every hour until they felt better.

And so we knew it was the metal foe like causing these reactions. And a lot of practitioners around the world, if there's any listening, a lot of them say, oh, well, my patient reacts to methyl folate, therefore I'll give them for clinic.

And that is not the answer.

Where to Find Dr. Ledowsky and Genetic Testing Resources

If someone's reacting to metal folate, it means it's a block and you have to find the block. You have to undo it before you can give the patient methyl folate again, because everybody should be able to take it.

The fact that they can't means there's a block, and you've got to find out why. That's a great point. Yes. Well, thank you for giving us such helpful information.

Thank you so much for being here. Can you tell everyone where they can find you and learn more? Yes. our website is mthfrsupport.com.au And if they want to there's so much information on that website.

So much it's ridiculous. People can get lost in things. But yes, that's how you can find us. and we also have, warehouses for our product in the US. So, we now do genetic.

Well, we've got a link with a genetic, partner, smartDNA. They can find the details on our website as well. that we think I've been working with them for the last year to really see if we can get a genetic test.

I don't know if you heard make, but, 23 and me just sold 30 million database database information on people's private genetics. So we use smartDNA, which is an Australian based company that will never sell the information.

Their methodologies really good. And I've been working with them over the last year to make sure that we have a really good it's there's no disease snips.

And I think that's what's really important. What what turns a lot of people off genetic testing is that they think that they're going to find out, for example, they have the Brackett gene, or they have a serious genetic, effect that is

going to influence their health.

So it's really important that smartDNA, we they won't do any disease based snips. So it's only metabolic snips. And so when we say metabolic snips what we mean, what are the what are the snips that are going to influence your biochemistry to, for example, break down histamine or make methyl folate or make and use B12 or B6 or detox all these things that we need to be able to do to have a healthy non chronic health affected life.

And so we've partnered with them and they now have it in the warehouse in the US. Which means that it's it's instant. It can be a really quick but have to wait months and months.

That's the other thing with ancestry and 23 me you had to wait like six, six, sometimes 12 weeks to get any results back. So I think also understanding what a good genetic test to do, it's taken us 14 years to get to this point, doing bits and pieces of different genetic tests over the years.

But it's been really good to sort of get the teeth into something that is really valuable. And we can we're hoping to add more and more snips to that that we then find relevant because the research is evolve, evolving on a daily basis, and we're starting to see really good studies looking at combinations of genes, not just one gene on its own.

And I think from an MCAS perspective, from a histamine perspective, more and more research every day, that's really quite exciting. That is exciting. I know it's what a what a great new emerging a place to be.

And I love that how you say that every day there's new information. So yeah, well, thank you so much for being here and providing all the great information that you shared with us today.

You're welcome. It was a pleasure, Meg. Have a great day. Have a great day, everyone.