“That’s Understandable” Podcast - Season 1 - Episode 4
Behind the Science
Final Transcript

Brendan 00:04
- Good morning, good evening, perhaps maybe good afternoon, and welcome to "That's Understandable", the podcast where we break down all the complex parts of the healthcare system into something that's, dare I say, more understandable. I'm your host, Brendan McEvoy, US head of External Communications at AstraZeneca, and I appreciate you stopping by. If this happens to be your first time with us, you couldn't have picked a better moment to dive in than right now, because today we're digging deep. We're going behind the scenes. Well, behind the science to answer one of the healthcare industry's biggest head scratchers, where does science come from? No, really, I mean it. When we're talking about the betterment of health for potentially billions of people, where do we even start and how do we transform it into something really incredible? I only ask because science drives every single thing we do at AstraZeneca. We are curious, creative, and collaborative by trade in our pursuit of solving problems around diseases and other detrimental health conditions that continue to disrupt so many lives. To achieve that we have to dig deeper. Science, much like the healthcare system itself can be broken down into a series of smaller pieces that when working together for the right purpose creates a massive life-changing impact. Imagine a stone as it hits the surface of a pond. It creates a ripple in the water. That ripple moves in every direction, blanketing the entire pond, sometimes even long after the stone sinks. That's how we think about the science of developing medicine. It starts out with one small thing, a molecule, and ultimately turns into improving or even saving a human being's life. If you ask me, that's huge. Our guest today knows a thing or two about medicine's ripple effects. Joining us now to give us our behind the science look is Dr. Tonya Villafana, AstraZeneca's Vice President, and Global Franchise Head for Infection, responsible for leading cross-functional global product development teams for vaccines and monoclonal antibodies. Tonya works within the Biopharmaceutical's Research & Development to explore potential new vaccines and medicines to prevent and treat infectious disease in the most vulnerable populations globally. Tonya holds a PhD from the Weill Cornell University Graduate School of Medical Sciences and Immunology, and a Master of Public Health from the Harvard School of Public Health. Tonya, thanks so much for joining me. It's so great to have you here on "That's Understandable".

Dr. Tonya Villafana 02:27
- Hi, Brendan. It's great to be here, thank you.

Brendan 02:29
- So, we're gonna jump right in, Tonya. I'm not gonna waste any time. To start us off, could you tell us a little bit about your personal story? Things like, you know, where did you grow up, when were you first interested in immunology and public health, and what has your career been like, and how did you end up here at AstraZeneca? So I know it's a lot to impact there, but. (laughs)

Dr. Tonya Villafana 02:50
- (chuckles) Well, a lot to unpack. I'm happy to unpack it. I grew up in Trinidad and Tobago, which is a Caribbean island very close to Venezuela, the last island in the archipelago, and off the coast of Venezuela. And I had a really wonderful childhood. I was exposed to science, my dad's a scientist. I just had a love of science throughout my childhood, and that continued throughout my years of schooling, until graduate school where I went on to study immunology, a

really basic science PhD. And this was in the late '80s, early '90s, I started graduate school. And if you'd remember at that time in the late '80s, actually before I went to graduate school, I had the opportunity to do a senior independent study in a lab that was studying DNA vaccines very early on for a number of different infectious diseases. And so I had the opportunity to be really early on working on that technology as a pioneer. Anyway, I went on to graduate school and really focused on immunology, and late in graduate school while finishing up my PhD, things were sort of exploding with the HIV epidemic globally, and really what I would've called an HIV pandemic at the time. And I was deeply moved by what was happening, and with HIV, having done my training in New York, and also very concerned about what was happening in Sub-Saharan Africa.

Brendon 04:14
- What a great opportunity for you to kind of expand your reach and impact people's lives on a more global scale.

Dr. Tonya Villafana 04:19
- Yeah, I went on, to study public health because I wanted to make what I was doing in the lab really much more applicable to populations around the world. And again, I was so moved by what was happening with HIV at the time that I really wanted to do more there. Once I finished graduate school in Boston, I moved to Sub-Saharan Africa sight unseen. I moved to Botswana and I for Harvard (indistinct) , which is why I completed my training. But I had the opportunity to move to Botswana at the time, which had the most significant HIV rates at that time in the world, the highest rates of HIV and work on setting up a lab and also on vaccines with the group at the time. And it was really a life-changing experience. I really learned to do things, everything from helping to build the clinics that we used to conduct the studies, to working with populations, special populations, including mining populations and other groups in Botswana. So that was a really incredible experience and had the opportunity to be part of a team that actually rolled out the first treatment in the public healthcare system in a sub-Saharan African country.

Brendan 05:33
- Oh, wow.

Dr. Tonya Villafana 05:34
- So that was really moving.

Brendan 05:35
- It sounds like you were very much in the trenches during the HIV pandemic. Were there any other infectious diseases that you focused on at that time?

Dr. Tonya Villafana 05:40
- Malaria, which is also very significant infectious disease that impacts populations in Sub-Saharan Africa and other parts of the world. And so I started working on malaria vaccines and actually had the opportunity to work on the first malaria vaccine to be approved and licensed for use in pediatric populations in Sub-Saharan Africa. And so I started that work, moved back to the United States and continued working on malaria. So I was traveling a lot back and forth to different countries around the world, but mostly sub-Saharan Africa to Tanzania, Gabon, Kenya, Senegal, other places where we were doing these malaria vaccine studies at the time. And

while doing that role, I got the phone call from Medimmune at the time, a division of AstraZeneca to join the company and work on RSV. And so I did that in 2009. I joined Medimmune AstraZeneca and have been here since. And I've had the opportunity to lead the development of vaccines and monoclonal antibodies for RSV as well as for other viral infectious diseases since 2009. And my time with AstraZeneca, which has been just really a wonderful experience to have the opportunity to work on so many diseases in my career that have addressed unmet needs.

Brendan 07:00
- What was the transition like starting from public health and being on the ground in countries in sub-Saharan Africa and then moving into non-governmental organizations and the pharmaceutical industry?

Dr. Tonya Villafana 07:12
- It was definitely a transition, but the fundamental thread, you know, working, whether I was in academia or working at an NGO or working for the pharmaceutical company, is that what we do is try to develop drugs to address unmet needs. And if the fundamental thing that fundamental threat, all these stakeholders is that we want a better quality of life for people and we want a better quality of life for the most vulnerable populations in the world or for people who are hard hit by whatever disease. So, you know, if you're developing something for infectious diseases, you want to improve the quality of life for the populations who are exposed to those diseases. If you are working on a cancer drug, you want to improve the quality of life for populations around the world who are subject to certain cancers. It's the same thing, but the the underlying belief that we could do something to give everyone a better quality of life or an opportunity even to have a life is important and I think is the fundamental thread. So the transition isn't so hard. Yeah, we do things in a different way and we're a different part of the value chain, but underneath that is understanding the science, understanding the disease, and doing something that will make a difference.

Brendan 08:23
- So you sort of mentioned, I'll say some of the problems, right? We're trying to impact public health, you know, an impactful way and allow people to lead much healthier and much more fulfilling lives. What are some of the problems someone in your position seeks to solve? And then how important is research and development in the beginning of that process to solve those problems?

Dr. Tonya Villafana 08:44
- Absolutely. So I really like I mentioned, really what I try to solve is what is the unmet need and what is the problem, right? What is the disease and how can we address that disease? And then talk a little bit more, think about how we design an intervention, design a drug, design a vaccine to address that disease. But the the fundamental thing is identifying an unmet medical need and then designing a program to address that. Is there a standard of care? Is there not a standard of care? Are we responding in the context of the pandemic? I was very fortunate also to be able to lead AstraZeneca's team in the development of the COVID 19 vaccine, which was a surprise, right? That came out of nowhere. And you know, we were all of a sudden in a pandemic situation and we wanted to solve that problem. We wanted to participate, we wanted to do something to address the needs of one, finding a vaccination for people who are immunocompetent and can respond to a vaccine and two, meet the needs of those who would be immunocompromised and not respond to a vaccine well and design monoclonal antibody

therapy for those populations who couldn't mount an immunoresponse. So very early on we look at the problem and we say, okay, what can we do here? Do we have the capacity, the skills, the wherewithal to take this on and develop a vaccine or our job to do that?

Brendan 10:14
- What Tonya said there is super interesting. The first stage of the process sort of hinges on a relentless investigation asking question after question to get to the root of the solution. And then she mentions the idea of design. The medicine, the therapy, the vaccine, whatever it is. It's a product of care, of meticulous thought, of design. I have a feeling there's a lot more to this than what she's letting on. I'm finding it, you know, fascinating as you mentioned the COVID 19 pandemic and your leadership role there in helping AstraZeneca bring forth a vaccine. It just thinking about earlier in your career, and you sort of referred to it as sort of the HIV/AIDS pandemic back in the '80s and then some 30 years later now working on the COVID 19 pandemic. As you were working you know, to combat COVID 19, were you at all kind of thinking back to your career back in the '80s? Were there any parallels in sort of the approach or the thought process or any learnings that maybe from your work in the '80s you were pulling through now?

Dr. Tonya Villafana 11:31
- Absolutely. We decided at AstraZeneca to develop a COVID 19 vaccine in partnership with Oxford. The basic fundamental thing we wanted to do was develop a vaccine for the world. We wanted to develop a vaccine that populations around the world would be able to get, right. We did it at no profit during the pandemic. We wanted to ensure that we had a vaccine that could be distributed anywhere in the world with a technology that anyone could use. And so I thought a lot about that because I thought about a vaccine that certainly my family would be able to get into and my family in Africa, my husband's from Africa, would be able to get. And the need to do that with speed and to do it in a way to ensure access was really important.

Brendan 12:18
- We were talking a little bit about problems, you know, identifying a problem and then sort of figuring out a solution to it. We'll talk through sort of the process from sort of R and D to bringing about an approved medicine. As you think about sort of the R and D process with molecules, is there always sort of in the research and development, are you always sort of thinking that the end goal in mind is a medicine or are there learnings? Are you ever just sort of going through the research process to identify learnings that maybe don't result necessarily in the medicine? Or like what is that sort of the early thought process there?

Dr. Tonya Villafana 12:57
- In my kind of role, I ultimately am thinking about public health and a product, but I work with partners in all aspects of R and D to get to that point, right? And so learnings that we have in one area can certainly help inform that area, but it's important right, to invest in all those different pieces. I would use again, the example of COVID and not just with the COVID 19 vaccine that AstraZeneca has developed. It's certainly for other companies. A lot of investments in technology and platforms helped us to be able to move very quickly in the development of COVID 19 vaccines. You know, there was a lot of investments, for example, in the (indistinct) platform that had been done to, you know, small studies and other disease areas that really helped to optimize the platform, get a lot of non-preclinical work done, understanding the toxicology profile, all of those things were done. When we think about our monoclonal antibody therapies, certainly at AstraZeneca, much of the work that we had done with optimizing

antibodies, understanding the backbone of our antibodies, being able to extend the half life of antibodies, all of the technologies that we have been working on that would be able to be used across multiple disease areas helped us to go very quickly to bring medicines and vaccines to populations around the world. So, yes, you know, some of the work we do informs other things that we do and that's really important for development and getting to a product at the end.

Brendan 14:22
- Yeah, it's an interesting point to sort of double click on that as you are in the case of the COVID 19 vaccine and obviously other medicines as well, sort of that technology piece that you're developing sort of a competency or a new technology that then maybe is applied to a completely different. Yeah, it's an interesting, and then I'm also thinking about in that research phase, the learnings from potentially the process of, you know, hoping to bring a medicine for particular condition to market so that, you know, available for folks to use. Maybe the learning's there along that way that then may be applied elsewhere. It seems like it's just such an interconnected, you know, process.

Dr. Tonya Villafana 15:04
- Yeah, absolutely. You know, a scientist in whatever part of what you're doing in a company or elsewhere, right? You're constantly learning and you're constantly iterating what you do based on those learnings and based on the learning of of others, right? Which is why we published during, you know, our articles, we make the research we do transparent to others so that along, you know, whether you need preclinical, whether you're doing discovery, whether you, you know, you're manufacturing or you're taking it into the clinic, that you're able to improve upon and learn from what others have done before to make things, do things smarter, to do things in a more efficient way and to really generate information that in the end will benefit populations around the world with new interventions. So yeah.

Brendan 15:47
- So the process begins with a molecule, right? Either created or discovered, and then sort of where do we go from there? So AstraZeneca or any other company, they have a molecule that they've created, discovered, obviously they're looking at, we've identified a problem, we've identified sort of an unmet need. We have the molecule. What does a company like AstraZeneca do to progress it? What goes into sort of the prioritization and selection process to determine whether we move forward with a molecule?

Dr. Tonya Villafana 16:18
- Yeah, so first, as you said, you know, we thought about, is there an unmet medical need? Can we develop something for it, and then we have a lead candidate or set of candidates that we wanna move forward. And typically they have some role in either preventing that disease. In my area, I work a lot on vaccines and maps or prophylaxis. So they're somehow impacting that pathway, preventing the disease. And then we have to think about how are we gonna develop it, right? So what is the sort of clinical and regulatory path to development, right? Because we're developing things for use in populations. So we need to be able to design a program to evaluate whether this works for this disease, you know, this product works for this disease in the population. So you have to do quite a bit. You need to understand the epidemiology of your disease, you need to understand which populations you need to go into to develop it, to design

clinical trials, to show that it has some impact on outcomes related to this disease. And you design that and you interact with many different stakeholders. You know, you talk to key external experts in the field or to clinicians who understand the disease. What do they need? What would convince them to use something in their patients or you know, in the people that they need to take care of. You talk to the regulatory agencies, right? Because you have to have a pathway and develop things. You know, the pharmaceutical industry is very heavily regulated. We work very closely with regulators to ensure that whatever are the end points, which is, you know, the outcomes we look to in a clinical program will be things that the regulators will accept. Can we convince them that this truly does have an impact on the disease? So you design a program really to be able to do that, right? And you start your clinical trial program, then you interact with regulators and other key stakeholders around going to just get feedback to ensure that things are going the way you would expect. In parallel you're optimizing your manufacturing at that product, right? So what we do, a lot of our expertise is really in that manufacturing of either your molecule, your vaccine, whichever intervention you're optimizing that manufacturing process so that also meets regulatory stringency and guidelines that you have quality in your product and that you're checking that at all different stages as well and improving upon that through the development phase. And at the same time, you're looking to optimize what your product looks like so that people will want it or want to use it, right? You wanna ensure that you're delivering a volume. If you have to immunize people a volume that they can tolerate in a presentation that can be used. Is your drug gonna be in a liquid, a liquid in a prefilled syringe, or is it going to be lyophilized, you know, sort of solid product where you have to reconstitute and deliver it? These are all the decisions you're making along the development process to ensure that you know, that you, your drug is moving forward or vaccine's moving forward, and that you'll have something at the end that will make an impact, can be used in your healthcare system and that regulators are going to approve.

Brendan 19:20
- Okay, this is a really great example of the ripples of science taking shape here. It starts with the stone, this unmet medical need. And in order to test the viability of a solution, we simply skip it across the pond. And each skip on the surface is another step in the scientific process with new people to involve. Patients, clinicians, other scientists, even regulatory agencies, to make sure you're meeting specific guidelines and certain standards. They all may have a similar outcome in mind, but they all impact each other in different ways. Hence the ripples of science. After all that, it's understandable why it can take so long to create new effective treatments. No, that's helpful to walk through the process. And I know you spent, you know, let's say 30 seconds walking through the process. I know it takes years to go from that, you know, the early stages through the clinical trial phase, you know, to show that the drug candidate is essentially doing what we intended it to do. And then of course, submitting all of that data to the regulatory agencies like the FDA who would then make the decision on whether or not, you know, it's both a safe and effective medicine for people to use. Like on average, how long does that process take to go from the very early stages in a lab to an approved medicine that people are able to utilize?

Dr. Tonya Villafana 20:54
- I would say in general, that process is about five to eight years, and that's really rapid. But you know, there are, you know, I've worked on vaccines, for example, but took 40 years to develop or, you know, we went really fast in COVID. We were able to do this again under a different accelerated pathway emergencies, authorization within the period of a year. So I think it's all dependent on how much you know about your disease and you're able to do it. And you know,

certainly innovations happen along the pathway that could help things go faster, but it is a long process to develop a safe and effective drug that gives people confidence that you can roll it out. And particularly for vaccines, which you have to give to healthy populations, it takes time, right? You have to ensure that you dot your i's and cross your T's.

Brendan 21:41
- Yeah, no, I mean, it's, I mean, five to eight years, I'm sure some people that are listening are thinking like, you know, wow. Right. Like, many of us probably have a hard time even envisioning what five to eight years looks like in terms of our life, right? Where we'll be, what we'll be doing. So I mean, to think about starting today on a medicine that maybe you're gonna work on for the next five to eight years is pretty wild to think about. But obviously the length of the process is what is necessary. I'll say simply to do it right, right. To make sure we have all the.

Dr. Tonya Villafana
- Yeah, absolutely.

Brendan 22:03
- All the necessary steps. I was reading, you know, so, you know, that's the timeframe to get an approved medicine. But I was reading a stat that only one in 10 drug candidates successfully passes the clinical trials phase into regulatory approval. And so, you know, why, in your opinion, why is that number so low and sort of what are some of the common reasons why a medicine or a drug candidate may not make it through the various phases or stages to get to an approval?

Dr. Tonya Villafana 22:45
- Well, there are a number of reasons why that may occur. And it may have to do with did you choose the right target you know, for the pathway that you're studying, right? I mean, you have to interrogate that. You know, you can take things into the clinic and it may be that the safety profile is not exactly what you think it should be for use in a given population, or it could be that the efficacy profile isn't what you would expect in this population. It could be that it's not an improvement on standard of care. Those are the things that can cause a drug not to make it to the finish line. And so there's quite a bit of an investment right before you get there. It's quite a long and, you know, arduous process and you know, things can happen along the way, but that's part of the scientific process is that you learn from each of those iterations so that you can improve upon it and get to success ultimately.

Brendan 23:42
- Yeah. I think as I'm just sitting here sort of reflecting on the, you know, the length of the process. I could see as you're going through the various stages, at any point in time you might have a finding, right? To your point, like you're in the clinical trial phase and maybe the drug candidate isn't as effective as you hoped it would be, or the data doesn't support sort of continuing to move ahead. How does it feel working on a drug candidate for years and then having that moment where the decision is made, either you know, one that doesn't make sense to continue to progress because you know the data's not there or it's not gonna eventually end up being able to meet that patient need. What does that feel like as a researcher, as a scientist to, you know, invest all that time and then get to that point?

Dr. Tonya Villafana 24:32
- I mean, to be honest, it could be really difficult and you get there and you, but you learn, right? So I would say when that's happened to me and you know, we unblind the study or something and the result isn't what we expected, it's the first reaction is very moving because you've worked on it for so long, but then, you know, when you look at it, there's a learning, right? And that's part of the scientific process and you can take that learning and improve upon it and really help the field move forward. And I think I've experienced that quite a bit in RSV. I was talking about RSV , which is a huge unmet medical need, right? Acute lower respiratory tract infection in infants that it causes the most acute RSV, low respiratory tract in infants globally, infants and children, but also has significant impact in older adults. And years ago I was working on an older adult vaccine that didn't meet its endpoints in the phase two B study, but we learned a lot from that in terms of, you know, the antigen that we had selected to develop the vaccine and that helped others to improve upon what they did in the future. For that I also, you know, using RSV as an example, I mentioned I joined AstraZeneca in 2009 really to work on RSV vaccines in the pediatric space and adult space. And today having started a program where we began the first clinical trials in 2014, we had approval for a novel monoclonal antibody for all infants that will be really important to addressing this unmet medical need and infants and children globally. But that process, you know, took as I mentioned, almost 10 years to get through, but the fulfillment of having that and learning along the way from the other failures is incredible, but there's a success at the end of it. So.

Brendan 26:23
- I like that you sort of turn my negative question right into sort of a positive. While it can be really discouraging in the moment, the learning process, right? It's as we're talking here, there has to be a love of sort of learning yeah,, that continuous knowledge flow, bringing about new research that will, whether it makes it with a particular drug conjugate or candidate or not, or it still is an important piece of knowledge that you've now gained that may in fact help you in the next study that you do or maybe help somewhere else right, in sort of somewhere else in on our company or maybe in the broader research field to help advance.

Dr. Tonya Villafana 27:01
- Absolutely.

Brendan 27:02
- So, you know, you've had a incredible career so far, and so I'm sure you have many stories from your professional experience throughout the world, but do you have one particular example of a time when you really understood the ripple effect of a scientific decision on another person or in a community?

Dr. Tonya Villafana 27:20
- Yeah, I thought about this, I have quite a few examples, but the example that I'll start with is really in HIV. You know, I think when HIV happened in the late '80s and early '90s, I think the advocacy of the community in the US to ensure that the government invested and that there was more science being done really revolutionized the fields of immunology, right? And I think those investments, again coming from the communities in the US who were dealing with the problem had such a profound impact on what was done and science just in general, right? Because we were really trying to understand this problem and I think advances were made in immunology and vaccinology that went on to impact communities, not just with experiencing HIV around the globe, right? Because it became so significant for other communities and in Africa,

and that's where you saw a groundswell of movement really be able to impact other things elsewhere in the world and have tremendous impact globally, but then also revolutionized other fields, right? Like it revolutionized immunology, revolutionized vaccinology. And so I would think, you know, just like the devastation that one community had to face to turn that around and impact positively so much else, I think is really something I'm privileged to have seen in my career. And even though I couldn't develop a vaccine for HIV at the time I worked on vaccines and did many studies, all of those learnings and all of those things helped to develop vaccines for other diseases and enable us to go faster for other things. So I think that's really a profound example I feel I've seen in my career.

Brendan 29:01
- That's it right there. That's the ripple I was hoping she would identify for us. It's crazy to even comprehend how far immunology and vaccinology have come in the last 40 years. I mean, science in general will never stop evolving. The more we break ground on new information and technologies right now, the quicker we'll be able to act on tough medical issues in the future. Nah, it's powerful. I can imagine when you were talking about in the 1980s being in sub-Saharan Africa, being in New York and sort of experiencing that firsthand, the impact. I'm sure, I mean you, you know, obviously you already knew that your work was important, but to see sort of the need then, you know, the great need and you know, obviously there's continued needs for lots of conditions and illnesses today. Where do you get the motivation? Where do you get the motivation to, I'll say, I'm gonna say continue the fight to find a solution to a unmet need. You personally.

Dr. Tonya Villafana 30:06
- To me, it's just seeing people and having experienced it and having had the opportunities to live in different parts of the world and see the impact of disease on different populations in the world, that makes me excited every day. I shouldn't say excited, but it makes me want to fight every day to make sure that we're developing solutions to help populations, you know, everywhere in the world. And so when you see people, I mean, I saw, you know, people die of HIV, people close to me have to live through that. I saw babies die of malaria. I've known people who had people close to them to have COVID or seen it. And so then that makes you, RSV, I've seen the impact of that in babies around the world that makes me every day come in and work harder. And it's amazing because I have colleagues, you know, at the company who feel the same thing and we see the same thing. And so we, you know, it's very easy to say, yeah, we're gonna figure it out. We're gonna have one more discussion, we're gonna do one more study. We're gonna find out, we'll figure out ways to make sure that we develop something that will hopefully have broad access. So maybe it's just living that and seeing the impact of disease on populations around the world. And it's not just infectious diseases, right? It's just things like chronic diseases, diabetes impacting certain populations, cancer that we're able to find new therapies for. When you see how those impact people and how your medicine or your drug or your vaccine can improve people's life, then you wanna keep doing it. It's pretty exciting. I feel I have the best job in the world.

Brendan 31:43
- Yeah, no, I mean, yeah, I mean, you know, I'm not a scientist, you know, I'm obviously a com, you know, communications guy, but you're getting me excited about this and you know, I've privileged to have worked with you and really proud to call you a colleague. And I think it was clear in talking with you about this topic. You know, obviously your career shows how passionate you are about it, about sort of bringing about solutions and the research and development and

dedicating the time and effort and energy that it takes to, you know, to again, to go through that process to bring about a solution. So I really want to thank you so much for joining me today. It was so great to get to know you a little bit more and your personal story and background again, like, you know, thank you for the impact that you're having within AstraZeneca, but really on the broader world. Before I let you go though, Tonya, I would love to have you participate in a little game we play at the end of our episode. We ask guests five rapid fire questions. And it's really just to sort of end on a fun note again, sort of get to know a bit of the lighter side of you. So would you be up for playing? Okay?

Dr. Tonya Villafana
- Yeah, totally.

Brendan 32:45
- All right, cool. Whatever answer pops in your mind, just blurt it out. So here we go. What was the last book you read that you really enjoyed?

Dr. Tonya Villafana 23:52
- Yeah, it was a book by Yaa Giasi called "Transcendent Kingdom". .

Brendan
- Is it a fiction, non-fiction?

Dr. Tonya Villafana 33:00
- It's sort of both. It's a fiction, you know, she's a scientist and she's in a family and dealing with a brother who overdosed and it's a very compelling and deep and then, you know, good ending story. So. Yeah.

Brendan 33:19
- Cool. I'll have to check that one out. So you've been a lot of different places, you've traveled the world, but is there something that's still on your bucket list that you haven't yet done?

Dr. Tonya Villafana 33:28
- This is really funny. I just wanna take a month off and relax. And it'll be anywhere in the world, but just, you know, I haven't done that and my bucket list is to truly take a long vacation.

Brendan 33:40
- Do you think you'd truly be able to do it though? With someone like you, I know with someone like you, you're probably gonna be like, wait a second, I gotta get back to work, I gotta be doing something.

Dr. Tonya Villafana 33:57
- Exactly. I'll be on some sort of phone call. Yeah, it's a challenge.

Brendan 34:00
- Yeah. I hope. it's a challenge to myself. There you go. I think I'm confident you'll be able to do it at some point. Who had the greatest impact on your life by the time that you went to college?

Dr. Tonya Villafana 34:09

- I would say my dad. My father really convinced me all my life that I could do anything I wanted to do and I could travel the world and make a difference. He was really instilled to today is someone I have conversations with about almost anything.

Brendan 34:24
- Yeah, I'm sure he is proud of you regardless, but probably extra proud that you sort of followed in his footsteps and yeah, pursued science. So in your travels around the world, what's the best cuisine you've ever eaten?

Dr. Tonya Villafana 34:36
- I love food so much that I can't choose the best, but it's just, I mean, first of all, I eat anything of it doesn't eat me first, (laughs) if I'm not allergic to it. I love food. And so it's a big part of everything I do is having a great meal and finding the best places to eat. I can't pick one because I just like to try different things but my favorite would be whatever I just last had and I was in Copenhagen last week and had some great meals. So, but you know, so about two weeks before that I was in South Korea and everything I had there was fabulous.

Brendan
- My gosh. Yeah.

Dr. Tonya Villafana
- So can't can't pick one. Can't pick one.

Brendan 35:15
- Hey, I'm with you. All food is good food. All right. Final question. What do you consider your pump up or motivation song?

Dr. Tonya Villafana 35:24
- So, this is really funny and a lot of people at AZ know this, but I listened to "Burning Down the House" by Talking Heads before every like, major meeting or interaction. It's my theme song.

Brendan 35:37
- It's always ready to go on your phone ready.

Dr. Tonya Villafana 35:40
- It's always ready to go on my phone, "Burning Down the House", Talking Heads.

Brendan 35:44
- I love that. I love that you have one and it and you're utilizing it, right? I think it's.

Dr. Tonya Villafana
- And I use it.

Brendan
- Yeah.

Dr. Tonya Villafana
- I think we all need a song, right?

Brendan 35:54
- Yeah, yeah, exactly. Well I think that's a perfect note to end on. Thank you so much for playing that game with me. And again, just thanks for so much for taking the time to help break down this process of sort of from science or from medicine, from start to solution. 'Cause there's so much mystery behind it that this will be helpful. It was helpful for me working in the industry, so I know it'll be helpful for others to sort of understand what it takes to bring about a solution to an unmet need. So thank you again for your time.

Dr. Tonya Villafana 36:23
- Thank you so much. It was a pleasure to be here today.

Brendan 36:27
- So we've learned a lot today about science, where it comes from, how we get it to work, and the journey behind the medicine you take to keep you healthy. It's inspiring and it's even miraculous to hear about all that goes into giving patients everything you need to improve and even prolong their lives. Thanks again for joining me today. Until next time, be well, be healthy, be understanding.