Why Your Own Cells May Be the Ultimate Anti-Aging Tool Transcript

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Introduction to Longevity Leaders and Acorn

Most of the work that you see of thinking about, you know, the regeneration of cartilage often has the generation of fiber cartilage, right? So you end up having coverage of that area, but it's not that impact resistant, perfect, highland cartilage that forms during development of our long bones, right?

And so the opportunity to actually proactively try to drive the cells that are present, produce the right types of, of collagens in that knee, right? In that cartilage surface, which is type two collagen predominantly, I think has been a big challenge.

It's an area where I've spent a fair bit of my career evaluating. And I think the secretome is a, is a, is an opportunity where we can start to drive performance of the native chondrocytes to produce that.

What if aging isn't about slowing down, but leveling up? I'm Dr. Isaac Jones. This is the longevity leaders podcast. Welcome to longevity leaders podcast.

I'm your host, Dr. Isaac Jones, and I'm excited to have Dr. Taylor with me today. There's some unbelievable new breakthroughs in longevity science around these secret homes that come from your own body.

So. Dr. Drew Taylor is going to get into the exciting new world of what this actually means and what we can do to really take advantage of this amazing breakthrough technology for our own health and then also the health of the people that we love.

And if you're a doctor listening, obviously your patients as well. So Dr. Taylor, thanks for joining us today. I'm excited to be here. Dr. Jones, thank you so much for having me on and excited to dive into this exciting new world.

Absolutely. Absolutely. Well, why don't you share a little bit about how you got into being a geek in the stem cell secretomes? I was always a geek. I can say that, but I was trying to balance sports at the same time.

I actually was going to go down the path to become a physician and I was thinking about surgery.

Dr. Taylor's Path into Regenerative Medicine

So that was the idea when I was young, but I also was playing baseball. And so I ended up going to the University of Michigan, playing baseball for the Wolverines, doing pre-med and studied hard, got an undergrad and a master's done and applied and was going to continue on in medical school.

But then I got the opportunity to play baseball professionally. So I had to jump at that. Of course, the Dean, I did give it a shot. The Dean would not let me do both baseball and go play.

So I unfortunately was not able to continue down that path. But I think that I had a good idea to essentially continue on my education. So I actually transferred into a PhD program, which is a lot more flexible.

And that's where I really got thrust into the world of regimen medicine. So I specialized. in stem cell biology and regenerative medicine and specifically connective tissues.

That's amazing. That's amazing. So what did you study? What were some of the big ahas for you during that time? Yeah, I think the one thing for me was I was very lucky to be studying in this space around stem cells and regenerative medicine when really a number of key discoveries were made.

And that continued to open up the opportunities of what could be done with our own cells. And so one of the first

opportunities was really the ability to create culture systems around cells that were reproducible and repeatable.

So having systems for different types of cells. where we could actually see lineages of, for instance, mesenchymal stem cells and actually have culture conditions that we could control in the laboratory to push them down all three different layers, you know, cartilage, bone, fat.

All of those things were being developed around me at that time, but the big ones really was obviously the discovery of iPSCs. So, you know, a Japanese group collaborating with a US group ended up being able to take an adult cell and reprogram it to behave like an embryonic stem cell, opening up the possibilities of using our own cells for virtually anything in the future in regenerative medicine.

And then the other big one was CRISPR, so the ability to edit genes. And so all of these things continue to really like surmount. And it was evident in this time of my life that the next pillar in healthcare Right.

The next area where we are going to be delivering care for patients is going to be regenerative medicine. Yeah. It's a hundred percent, a hundred percent.

And talk a little bit about like where ISC's are, right? Or excuse me, IPSC's are, and kind of explain like, you know, where it was before, where it is now, and like how exciting that is.

Yeah, absolutely. So, I mean, regenerative medicine is going to be delivered as a spectrum of things. And I think we're leaning deeper into it. The world of IPSCs and even CRISPR is going to definitively be part of some of the long-term strategies in delivering care and are also going to be mostly leveraged in life-saving therapies, right?

Editing out a gene that is causing disease. or using our own cells to recreate a cell type without that inherent disease in it or performing better, you know, and being able to deliver that back to ourselves.

And so using iPSCs to tackle things like Parkinson's, macular degeneration, these are real targets that are being evaluated and worked on and tested today.

iPSCs, CRISPR, and the Future of Regenerative Care

And then using CRISPR also to edit out, you know, congenital issues, like so actual genetic problems. that we can course correct on now with those things.

Unfortunately, there are risks to some of these treatments, right? So they are advanced. They will take a lot of time to ensure that they're safe. But what's exciting is that we've now developed this near-term wave of applications that are actually being delivered to patients today.

And so if you, if you look at Acorn across all of these areas right now, we're developing strategies for delivering care today. And then we have a bucket that we believe is in the very near future will be delivered tomorrow.

And then things like IPSC and CRISPR and that longer term bucket that will be really the future of healthcare, but still moving the ball down the field right now.

I like the analogy, you're moving the ball down the field. No, it's, it's awesome. I mean, that's exactly what, what's happening. And you know, I, I've, I got, I stumbled upon your technology through a friend of mine and it's just a really unbelievable technology called Acorn.

it's essentially, I'll explain it and you explain it better, taking your own stem cells and then expanding them outside the body to create like a highly concentrated secretome that is the regenerative elements of your stem cells that are your own regenerative elements that then can be reinjected back into the body for you know, or reapplied topically or whatever to, to help with, with aesthetics, to help with healing, to help with optimization, you know, the function of pretty much every cell tissue and organ in the body.

Did I do a pretty good job there? Pretty well said. I don't know if I can beat that, but I'll, I'll try to add to it. You know, at Acor, we, we try to do two things and really they're the same objectives, just approach two different ways.

We are, we are trying to allow for you to have the best performing version of yourself. And so the first way we do that is by capturing your own cells.

So there's only one of you, right? You're the only genetic perfect version to match yourself. And so what we want to do is actually take a portion of your cells and cryogenically freeze them now.

So we avoid the accumulation of any other aging or onset of disease or damage that could occur. And they're now safe and tucked aside so that we can always go back to that source of cells to leverage in the future and in all of these.

cell treatments and regenerative medicine. The second side of the company is actually developing strategies to use those cells to actually deliver them back to you.

And really in this first wave of applications, essentially what we're doing is we're taking your own stem cells and we capture them in this amazing non-invasive way, simply from plucking follicles from the back of the skull.

So it's non-invasive, does not hurt. My wife and I have three young boys at home. All of them have gone through it and we didn't hear one complaint. So I can attest that there's literally nothing to complain about.

And now that you have those, those stored, we actually culture them in the lab and we grow those cells out and we actually collect all of the things that those stem cells release that is providing value back to your tissues.

This is really what our stem cells do in our bodies, right? They deliver content to ourselves to perform better. We capture that so that it can be delivered back to you directly in areas of need.

It's amazing. So, you know, I think an argument against doing this for some people would be like, oh, well, why wouldn't you just take baby cells? Right.

And, you know, you could just take baby cells and they're going to be way healthier than say, you know, I'm 41. So like a 41 year old cell.

How Acorn Captures and Banks Your Own Cells

And this is what I know that my, uh, my friend, Dr. Atala who runs Wake Forest Institute for a General Medicine and you know, I've been you know, under NDA talking to him about a bunch of really amazing breakthroughs that he's working on right now.

But, you know, his research shows that the, that Wharton's jelly stem cells and a lot of these other stem cells that people are injecting into their bodies You know, they go into the body and they flush out within 24 hours and they don't take, and people may have some, typically they have like a positive anti-inflammatory response because of the exosomes in the stem cells.

But that would be the, he said it's the equivalent of you spending like $4,000 on a cortisone shot, right? A steroid shot or something like that. And so, of course, when I first heard this in his laboratory, walking around, getting toured around Wake Forest Research Institute, I was like, interesting, like that's really interesting.

So it's like there's a anti-inflammatory effect that happens that makes people believe the stem cells are actually taking to tissue and they're growing my tissue when actually they're not.

And I've had And I won't say names because everyone knows these people because they're big celebrities in the space. But some of my friends and acquaintances would see an event and they would look really healthy.

And then I'd see them three to six months later and they would look like they aged like five years in the last three to three months. And I'm like, what did you do?

No, like full body stem cells injected into every joint, yada, yada. So what, what I learned as well from Dr. Atala and some other scientists I've connected with afterwards is that.

If you overdo it with these stem cells, like a lot of people have done, you can actually develop autoimmune disease to the stem cells and autoimmune reactions.

So what are your thoughts on that? And, you know, is that, do you agree? Would you disagree? I mean, literally what I just shared there is essentially destroying 99% of the stem cell industry, which is one of the reasons why I believe in what Yeah, this is the reason why we're taking this approach, right?

Because we've unfortunately seen that as well. Dr. Tull is a brilliant scientist and he has done some unbelievable work and he's a prime example of leveraging a patient's own biology of their own cells.

And it really was one of the first people to actually 3D print and engineer and grow out tissue structures and implant them into patients to deliver back functionality.

He's done that with the ladder, other areas that are life-saving organs yet, but he is the, you know, developing these stepping stones towards that. Absolutely brilliant.

And so I have so much respect for him and his work and you know, he's the best of the best. So one thing that I think is a common with his approach and our approach is leveraging the patient's own materials.

And I think that that is where to your end, you recognize that when we receive something foreign, we identify it as foreign, part of our immune system.

is attuned to find out what is ourselves and let that be. And then what is, unfortunately, invading and clear those out. And we have very specific markers on the surface of all of ourselves.

They're also on the surface of our exosomes. So… Really? Yes, exosomes, I mean the phospholipid bilayer around our cells and around our endoplasmic reticulum inside our cells is where exosomes bud off of and emanate from.

And so they carry all of the same surface proteins that would be present in those cells, in the exosomes themselves. In fact, when you, the tests to actually identify exosomes in the laboratory, the best tests look at integrins and these molecules that are specifically intertwined in the phospholipid bilayer of cells.

So HLA, the MHC complex, these things will be on the surface of both of our cells and our exosomes. And therefore, if we receive someone else's cells or someone else's exosomes, we will be able to tell that they are not ourselves.

Now that being said, it does take time sometimes to build up that immediate immune system response to these foreign elements.

Why Donor Stem Cells and Exosomes Lose Effectiveness

And so we'll identify them. And it takes about two weeks typically to develop that kind of B cell antibody response. And so what I've actually been hearing from a lot of physicians is the very first time they ever receive a stem cell treatment or an exosome treatment that's foreign and invasively delivered, they end up actually seeing a pretty decent response.

There's that drop in inflammation that you talked about, whether or not you liken it to the same thing as what could have been accomplished with a cortisone shot.

There's still a benefit perceived that patient feels good about it. Yeah. And then a number of these physicians have been sharing with me that the second time the patient receives it, they see a diminishment in the results and the third time they don't see anything and beyond.

And so I do think that we are building up a heightened immune response to these things as we see them repetitively. And this is one of the reasons why we are so acutely focused on making sure that we have a way to deliver value from our own cells, where we will not be developing that immune response, where we will always forever and into the future be able to accept these cells as our own.

So the autoimmune response with the B cells that end up, you know, understanding, hey, this is a foreign cell in my body can build up over time. And the integrins are literally on the phospholipid bilayer, not just on the cell membrane, but also on the endoplasmic reticulum.

Is that what you're saying? Yes. So that even an exosome that is a foreign exosome, people can overdo that and even potentially, and have you seen people developing autoimmune issues with exosomes?

Health care is changing and many clinicians are looking for ways to deliver more personalized forward thinking care while building practices that can adapt and grow with that change.

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We're going to sell out of the event very soon. So go ahead and click the link to learn more and reserve your seat. So I would say that I'm not necessarily seeing autoimmune issues being developed by exosomes, but what I have seen is stories shared with me where patients are having, are reporting a decent response initially using an exosome that's from a donor patient and then subsequent uses of that exosome not yielding the same benefits.

And I think that the conclusion that myself and others are jumping to is that we are developing an immune response against these as foreign material because we see decent response from them.

The exosomes are left alone. They're delivering their contents, their growth factors and things that are going to be able to deliver a benefit. or the anti-inflammatory, you know, like element of it.

And then unfortunately though, as we started to expose them multiple times over, that immune response happens that much faster. And instead of happening in weeks, right, this is happening in days or even hours.

And so because of that, now we have those exosomes mostly cleared that much faster. And we don't see them being able to deliver their benefit. This is why I started seeing it look like my friend's faces were melting.

Like it literally looked like they're, you know, their whole bodies were shape-shifting and some of them ended up getting plastic surgery and it was just, it's kind of like, yeah, this is an exciting field that we're in.

We are moving in a really powerful direction and we don't know what we don't know, but what we do know is that if things come from your own body, your body's not going to reject it, right?

Like I, I unfortunately tore my ACL playing with these D1 players. I went up, I dunked on this guy so hard who is one of the top D1 players ended up playing NBA and came down on my knee.

That's not actually what happened. I wish that was the story, but I was literally going up for a video of this. Exactly. I literally planted my knee and I torn it.

I partially torn it before I realized, but I planted my, my knee to go in for a layup. And I literally, my knee buckled. It was really nasty, but it was like complete rupture.

And it was just hanging by thread. And what I did was I just, I said, I'm not going to get surgery. I know my meniscus is messed up. My this is messed up.

But I just love this new kind of world of stem cells.

From Hair Follicles to a Scalable Secretome

I can rebuild my ACF. And you know what? I used tissue regenerative therapy and it worked until it didn't work. So I was able to hold off the surgery for two years, functional knee, you know, but it was still hypermobile.

And then my son threw this football pass to me that was just a little bit too high. I went, I hit a bush, buckled my knee back again. And that's when I knew my knee filled up with blood.

And then I was like, all right, I need to, I need to address this because I can't even play football with my son. And I mean, two years of me doing regenerative medicine stuff and just believing wholeheartedly that I could grow back my ACL, you know, and I believe in the future we'll be able to do that.

But. I had to go, you know, and get, get surgery. Well, I went to Saadi Kalameen. He's a PhD MD in regenerative medicine and he's did the surgery, but he took my own stem cells out of my iliac crest, got 10 CCs.

He was like, Isaac, you have ridiculously high number of stem cells, like NFL players. He does. He's like, I'm getting two to three CCs out of his iliac crest, their iliac crest.

And he's like, you got 10. And so he then kind of mixes it together with. Some. PRP and then, you know, some other stuff and then put injects it back in the knee after surgery.

Yeah. And it just like, it was amazing. The, the healing, how fast my, my knee healed and how people were, I didn't lose any muscle. Like normally use you lose muscle, but I was able to use what they call an ARP ARP wave, um, which stimulates your muscles on.

And, and anyways, long story short is because the use of my own stem cells. I was able to like heal my knee very quickly after surgery and now I'm skiing, I'm doing all the things that he doesn't want me to do.

You know, he's like, just don't ski or do any fun with your knee anymore. He's like, so no, I'm just joking, but it's a lot more stable. So let's talk about Acorn.

Let's talk about what you guys have discovered. Let's talk about, now that we've kind of set the stage for why this is important, you know, what are some of the breakthroughs that you feel like has been created?

I think you're alluding to one of the big ones with that story, frankly. You were able to receive a fantastic benefit from having access to your own stem cells and the ones in your iliac crest that are being used for that regeneration are mesenchymal stem cells, right?

So these are the cells that affect connective tissues, so they're specific, have shown amazing things across sports medicine and cartilage, bone, tendons, ligaments, and then also those MSCs into aesthetics.

They're also in our fat dispersed sporadically, but we also have these high concentrations of them in our hair follicle. And that's where we've really generated a tremendous amount of work on really optimizing and specializing in being able to extract these cells from our hair follicles.

as you're going to test, you know, you were going in for surgery already. I'm sure that there was a little bit of an extra area of recovery by drilling into the iliac crest and taking out, you know, some, you know, it didn't tickle as my guess.

I've heard a few people that have gone through it and, you know, some of them aren't as tough as you, but they talk about it pretty dramatically. But it is really an amazing way to access your stem cells.

What if we could do that just from plucking your follicles? And so it's an opportunity for us to, if you're not going through a very invasive procedure or you don't want to go through two at the same time, you have the opportunity to access these cells simply just by plucking follicles from the back of the skull.

And so that has really opened up the opportunity to access stem cells from ourselves non-invasively, the first opportunity. And so that is that platform that we've created to really like lock in a patient's volume and freeze that down and they can do it non-invasively without that huge hurdle of having to drill into their bone.

That is absolutely huge right there. How many secretomes or stem cells can you get or how much can you expand the cells? I'm assuming some people are thinking like, how many stem cells can you get from a hair follicle?

You know what I'm saying? Yeah. No, so it's great. So the other area of innovation that we have is actually we've created a culture system that I think is unbelievably efficient at leveraging the cells that we can capture from the hair follicle in being used to create the secretome.

And so Essentially, we're using these cells in the laboratory, almost like a mini factory. We're putting them in the right environment where they're primed and ready and looking for cells around them to stimulate.

And so they're releasing high concentrations of exosomes, growth factors, cytokines and cytokines that modulate the levels of inflammation, as well as PDRN or polynucleotides, all of these building blocks of our cells.

We collect those and we actually collect that routinely throughout that cell culture. So we can actually amass very high volumes of this. The big difference I would say is when we think about PRP, we're taking a snapshot of our blood, almost like a photograph.

So we do the blood draw, however much growth factor is in that vial is how many you have. You can concentrate it, but the total amount of growth factor is finite.

When you're putting these cells in a system and you're capturing that and skimming the media of those molecules routinely, it's a much more dynamic system.

It's essentially the difference between picture and video. And so we can actually really get like very significant volumes of these growth factors, capture that, and then deliver that back to physicians to use with their patients.

And that's a system that's repeatable. So we're constantly pushing the, the batteries on that. But when we, when we capture your, your cells and we freeze them down, the first thing we do is actually put them into four different vials.

So you have that frozen down and you've got redundancy built in. We even freeze vials in different tanks for you.

Aesthetics, Hair, and Topical Secretome Applications

And then as you draw upon those cells, we can actually dip into each vial more than once to create a batch of secret tome. Most people that are leveraging the secrets home are doing so longitudinally, right?

So they're actually interested in a regenerative medicine strategy. They're leveraging that to treat either skin or hair. And we also have a number of studies and clinical trials that are going on using these as injectables.

And so those are thinking about leveraging those across a period of time and you're coming in and having routine treatments. Like you would with PRP, for instance, and other regenerative strategies to make sure that you're maintaining the performance of tissues and inhibiting the progression of age and obviously damage to those tissues.

And so we can create in that one creation event 12 vials of secretome that's delivered back to the physician to deliver to their patient. And we can do that repetitively.

And we're still pushing the envelope, but out of those four vials, we've used vials more than once for all of them, up to three times. And so it really is, is creating a opportunity to have this as a lifelong resource.

So those three vials will then create 12 vials of secretome? Each of those four vials, when you pull that one vial, you then create those, we'll call them cryovials.

And when you pull one of them, you grow out that secretome and you'll have 12 vials of secretome delivered back to the physician from that one creation event.

from that one, wow, from that one vial. So you're talking about like 48 vials out of the three. Yeah. And each vial can be used more than once. So even more.

Each vial can be used more than once. Wow. Wow. So you're probably talking about maybe 100 vials. Over 100 vials is what we've been able to create for patients.

Wow. That's amazing. So talk about what kind of results that you're seeing. Yeah. So the first wave of results was actually using this as a topical alongside energy-based devices.

And so physicians were pairing this with laser, a blade of laser for rejuvenation of skin, as well as laser for hair. So the Ted laser, Carolase, things to open up channels.

They're applying this topically. It's reducing the downtime. So you're getting a faster recovery from the damage of that laser, obviously, and the regeneration then of that skin.

And it's also enhancing results. And we've actually looked at that across a few different levels. Obviously at the cellular level for that regeneration and speed, but on top of that, we've been able to demonstrate that we can reduce the damage, damage from ultraviolet light, pore size, we reduce redness and discoloration.

There's been a lot of really exciting opportunities of, of watching the skin come back, obviously stronger after the combination of these energy-based devices and, and a really regenerative complex that you're carrying it with.

The other thing is micro-needling. So it's, it's minimally invasive, right? You're talking about micro-needling across, across the skin or hairline. and then applying this product topically to allow for extra absorption.

And that's been very, very popular. And people have been using this and pairing it with surgery along scar lines, really for the reduction of the downtime and enhanced recovery, but also for the reduction of scar tissue.

One of the molecules that we have at 34 times higher levels than is president PRP is fibronectin. And fibronectin acts really as that alignment structure, the railroad tracks, so to speak, for collagen fibers to properly align.

And so the opportunity to really inhibit malaligned fibers is an opportunity to eliminate or reduce the amount of scar

tissue that's formed. And so we're very excited about that.

You said in the secretome, there's 45 times the fibronectin. 34 times the fibronectin. Wow. Then what? Just a regular PRP? Then regular PRP from the same patient.

Wow. So if you've taken PRP from that same patient, you'll have 34 times higher levels of fibronectin as an example of one of the molecules. Which is why, so would you actually inject it right into the scar or right after surgery?

Yeah, so right now we actually have a number of of trials that are running, which are testing it out as an injectable. And so we just announced the first one recently where that's going on in hair.

And so it is being injected into the scalp to enhance hair. We have great results from patients that have experienced leveraging this topically alongside microneedling and laser for hair.

And so now injecting that around those follicles is another opportunity to deliver this product. And so we're excited about that study off and running.

So yeah, let's talk about hair real quick because before I do that, let's just double click into what you just said because it's really amazing. Essentially, there's MCs that are mesenchymal stem cells that are found at the base of the hair follicle that then you can put into four different vials, you said four vials, right?

That, that then expand to then each vial can expand multiple times into 12 different secretome vials. And you're looking at most likely over a hundred vials, which, you know, depending on how often you'd apply it to you, like for your face, you'd probably apply it like once a month.

Yeah, once a month or once every two months is a typical, you know, program. It depends really on what type of procedures the patient is engaging with on top of the secretome.

Obviously using a regenerative opportunity alone is exciting, but some patients also have routine use of microneedling or they're coming in for a laser treatment.

And so you might have a more concentrated use around that procedure while the skin is open and absorbing more of these molecules to get that maximum effect.

Amazing. And you can do this at home too, if you know what you're doing. Like I have a lot of the technology that opens up your skin. Like I got salmon sperm the other day.

And so, you know, so I'm doing the experiment. Just I've, I've, I've had a dermatologist look at my, my skin and my face. I'm doing a pre and post. So I'm going to have the dermatologist then look at my skin after going through four vials of salmon sperm.

Clinical Trials for Injectables and Sports Medicine

So, but you have to open up the pores. You have to do all of that. So I have a couple of mechanisms to be able to do that, but. No, that's really good.

I would love to A-B split test this against the salmon sperm. See what happens there. Yeah. I'll go head to head with the salmon. That's awesome. Well, then you've got this culture system and then you're essentially leveraging this amazing kind of environment for it to expand to secrete more exosomes, cytokines, polynucleotides, and then you get this kind of like If PRP is a photograph, you're literally creating a video.

It's three-dimensional. Very dynamic, yeah. Very dynamic secretome. What is the breakdown of the secretome? If you were like, here are the main things that make up a secretome, what would that be?

The main components are exosomes, the extracellular vesicles themselves. Those are essentially a delivery system of other pieces of content. So they're the packaging, but they're a very efficient packaging to deliver these things to other cells locally.

You have growth factors. So PDGF, IGF-1, VGF. EGF, you know, the list goes on. There's many, many growth factors that are essentially essential for ourselves, for their growth development purpose, to execute what they do best.

You need these molecular cues to let them know, you know, whether that's to divide, proliferate, and, and, and, or, or accumulate extracellular matrix.

Inside the secret zone, there's also extracellular matrix components themselves. We talked about fibronectin, collagen, elastin, agrican, an important one around hair.

All of these large molecules really are the support structure tying that space in between cells together. There's agrican, fibrocan, and fibronector. And what was the other one?

Agrican, fibronectin, collagens. Collagens. And then elastin is another one. It's so interesting. Secretome also has collagens in it. What kind of collagens?

So mostly type one and three or the two are the most prominent, but there's a number of others that are present, you know, a number of the like higher number of collagens that are pre-collagens and early stage collagens during the extracellular matrix formation.

And then you also see some volumes of type two collagen, interestingly, which is more common in cartilage. Interesting. And I assume the earlier you can get the samples, the better.

Like if you would almost want to get your kids to do it, like to take samples and then bank their vials year after year. Yeah. So this is a really interesting area that you've touched upon.

And it really goes back to that thing that you said where, you know, People would initially jump to ultimately that they would rather have like a child's own cells or something younger.

Ultimately, there's only one version of you and you're going to react to your own materials and accept them. Whereas anybody else's, including a family members, you'll reject, right?

If we do an organ transplant, even if it is a family member that you're closely related to, we still put you on immunosuppressants to limit your ability to attack that new organ or donation.

So it's no different. Having your own materials is by far the best. So how can we make sure that you have your best? It is to bank them as young as possible.

So we want to get you as young as possible, but still, even if you are, you know, have a few years under your belt, I've banked my parents as an example and made sure that they have their, their samples cryopreserved.

I've done obviously my wife and I, and then we've done our kids as well. So all generations have something to gain from this. We've treated patients with their secretome as old as 87. And so you can leverage this well into life.

With good results? Great results. So this was a patient that actually had a diabetic foot ulcer. And we actually treated that topically with the secret toe and was able to close that wound and have a really great benefit for the patient.

So I was excited. I bet you the pharmaceutical industry is so excited about this product. Well, we'll see. I mean, we've launched it in a few different areas right now.

I mean, hopefully they'll be partners of ours, right? I hope so. They'll participate in this. Yeah, they'll be like, hey, this multiplies the impact of Exactly.

I think any of these areas of medicine, the combination of something that is pharmaceutical as well as regenerative, even if it's on that own patient, right?

Is the combination of these things together is going to deliver the best results. We see that especially with hair, right? The patients that do best are the ones that actually take a multimodal approach.

They don't just lean on only PRP. For instance, they also are okay to compliment that with something that is either a topical, right? You know, even if it's the right shampoo and conditioner.

Their best, their practices, their actions are also benefiting the, you know, trying to limit the amount of, you know, oil buildup around the follicles, things like that to try to help enhance the follicle life.

And some of them are complimenting that with pharmaceuticals that are also helping that agenda. So all of these things work in concert together. And so I think that in areas where we're approaching disease and especially in wound healing and other things, I think Acorn has a huge possibility of delivering value to patients with a number of different conditions.

And we've seen that already. And for patients that are truly challenging, having the combination of that and pharmacology is going to be, deliver the best results for that patient.

Wow. Yeah. Well, I'm, I'm on a, on a first, uh, you know, name basis with RFK. So we text back and forth about a bunch of stuff. And, uh, this, this, this sounds like something that will really, because I, I didn't realize how big the wound healing space was.

Well, let him know that we, we need to get him his cells banked right away. Yeah. Yeah, for sure. That's, that's young and handsome. Yeah, yeah. To stay that way, right?

Well, let's talk a little bit about hair then.

Cartilage Repair and Joint Regeneration

There's a lot of people, like everything you just said about the secret home obviously is like, it's what everybody wants for aesthetics, right? Women are, this is like exactly what they're looking for.

Especially after PRP, you know, they, at least at the aesthetic place I've gone to and done some podcasts with the people there or just some posts, excuse me, on Instagram.

They're using like various exosomes and things of that nature on the face. But, you know, let's talk hair because I think there is a lot of interesting things out there that men are doing to like maintain healthy and women, healthy amount of hair.

What would you say are some of the best? Like, let's go down the list and I can chime in because, you know, I've been studying some of this recently as well.

go down the list on things that people are doing right now. Yeah. And then we'll, we'll, we'll, we'll talk about how to layer in, you know, the, like, I know like red light therapy helmets, you know, or something that a lot of people are exploding.

The, the, the use of, of, of. What a castor oil and castor oil, tea tree oil. There's a number of different things that are peppermint oil. Obviously these, these often like tea tree and peppermint will have a tingling effect.

And so there's, there's, there's obviously a reaction. I think that with some of these topicals that are of, um, you

know, natural products like that.

I think you're going to see that people react differently to them. And so there's a group of people that swear by tea tree oil and a group of people that swear by castor oil.

And I think you have to kind of figure out a little bit of what works with you from some of these types of things, right? For sure. I also think that different people are going to have different patterns of sweating and, and, and oil accumulation on their scalp.

And so not everybody's frequency of washing their hair should be identical either, right? By the same effect. And so I think that some of those practices, best practices are a little patient specific.

Now, of course, there are absolutely elements right now that are pretty standardized for patients, right? Like there are, for androgenic alopecia, there are drugs, finasteride, duasteride, minoxidil, that are being leveraged right now, both topically and orally, that are delivering benefit for patients.

Unfortunately, with those, there are side effects. For men, sometimes the side effects are pretty significant. right? Including a reduced sex drive or ED, right?

Which is something that people definitely don't want to face. So sometimes it's a bit of a trade-off, right? And you have to kind of decide what you're willing to expose to.

And there's patients that will go on those drugs and not have any of those side effects, right? And so it is, again, you have to see how your body reacts to these things, no matter what it is, whether it's just a topical tree oil all the way to a pharmaceutical.

Everybody's going to react differently. That's part of the unique nature of ourselves. The one thing that we will for sure react well to is our own biology.

And so the idea of being able to capture our own PRP as an example, being leveraged today. And I think the next iteration of that regenerative approach, being able to access our own secretomes and deliver those back to ourselves, I think is definitely an era of haircare that is as we see.

a very big and growing area that more and more patients are leaning into. And you would again, for hair similar to face, do it once a month, right? Once a month.

Yeah, there's a few different protocols out there, depending on the physician. I would say that the most common, like we said, when you do that first creation of secret tone, you have a suite of 12 vials.

And so what we see is that patients are receiving a few treatments back to back monthly, top loaded, and then you can back off to either bimonthly or quarterly in order to space that out.

And so you're looking at leveraging those 12 vials over the course of a year to 18 months. Yeah, that's great. And do you use a full vial each time you apply?

Yeah, typically it's dependent on the surface area you're trying to treat. You typically use one or two vials to cover an entire surface area. So two vials for probably a full surface area of the entire scalp.

And then if you've got more spot treatments, like you're dealing with power alleys or the crown, a single vial will cover that area. Very cool. Very cool.

So, gosh, we talked aesthetics, we talked hair. It's a big deal. Now we need to get into clinical, right? Like what are some of the things that you're excited about with the research that you're doing from a clinical perspective?

Yeah, so I think that we've talked a lot of it like the cosmetic pursuits of applying these things topically. I'm really

excited to continue to test the boundaries of adding in a static medicine and delivering the secretomas and injectable.

We have approvals to run those clinical studies. They've actually started already. So patients are live and and being treated right now, and we press released that recently.

So that was, I think, a huge step forward for us. We have been actually looking at a number of different ways of how these cells can be leveraged beyond aesthetics.

And I think the next natural area is in sports medicine. So, you know, talking about your knee situation, your MCL, right? This is an area where knee pain, cartilage damage, and inflammation are all targets for being able to reduce that discomfort, pain, and increase the performance by leveraging the secret tum.

In the same way that PRP has become a mainstay in treatment of sports injuries, complementing that with this next generation of regenerative product, I think is going to be a really exciting area.

So we have seen a lot of analysis on the proteins that are present in our lab when we're creating the secretome that are absolutely beneficial for other connective tissues outside of skin and hair.

and into the joint space. So, you know, the mechanism of action is very clear. That being said, we have also some joint collaborations at the University of Calgary going on right now where we're evaluating this as an injectable in some animal models for the reduction of inflammation and the regrowth of cartilage.

And that has been a very exciting study. We are planning on publishing that shortly and we got some great results out of that. And so we're looking to use those to obviously carry that work into to human patients very shortly.

Safety, Oncogenic Risk, and Pluripotent Cells

Amazing. Oh my gosh. How exciting is that? What do you do for say that the animal has a or the human has like a joint issue, let's say meniscal issue.

Do you inject it right into the meniscus? Do you inject it just around the knee and the exosome knows where to go? Do you need to use tissue regenerative therapy to then, you know, kind of stimulate the meniscus or the area, you know, the joint to excrete exosomes for the body to know, okay, this is where, you know, you're almost like artificially re-injuring the area.

Yeah. I mean, the meniscus is exceptionally difficult. You know, technically we'd be, I mean, the approach is very similar to the approach of using other elements like HA and PRP and things, but actually injecting that into the interstitial fluid or the, sorry, the interarticular fluid.

You know, so that area that's within the synovium, that synovial fluid is an ultrafiltrate of our blood. And so it is full of a number of compounds, but no red blood cells.

And so adding to that, you are going to have direct contact within that fluid to the meniscus and to the cartilage surface areas. I think that cartilage is one of the most interesting tissues, honestly, in the human body.

If you think about it, it has no blood supply. It's got no nervous innervation, right? There's no impact on the lymphatic system. The only place that it is getting nutrients from is through that synovial fluid.

which ultimately is an ultra filtrate of our blood. Yeah. And so we can add things and proactively deliver some of these regenerative molecules because they don't routinely have that replenishment of them.

I think this is an area where we can have a tremendous amount of impact. Bring this, the secretome to that area. Most of the work that you see of thinking about the regeneration of cartilage often has the generation of fiber cartilage, right?

So you end up having coverage of that area, but it's not that impact resistant, perfect, highland cartilage that forms during development of our long bones, right?

And so the opportunity to actually proactively try to drive the cells that are present to produce the right types of, of collagens in that knee, right?

In that cartilage surface, which is type two collagen predominantly, I think has been a big challenge. And it's an area where I've spent a fair bit of my career evaluating.

And I think the secretome is a, is a, is an opportunity where we can start to drive performance of the native chondrocytes to produce that. And this is something that has been talked about, right?

The idea that these cells go in, they do a job and then they get cleared very quickly, right? A stem cell's job, people think it's going to go in and it's going to become the cartilage, right?

Technically, what these stem cells do is they act more as communicators. actually tell ourselves what to do. And that is the absolute ability to contribute and to differentiate into other cell types.

But their number one responsibility is actually to communicate to the existing cells in that niche, how to perform at their best and give them not only the cues to do that, but even resources to accomplish those goals.

And so that's where I see the opportunity for the secretome to really drive home the ability for the cartilage to develop from the chondrocytes, the native cartilage cells that are present in that joint surface already.

Oh my gosh, that's amazing. Amazing. So you've got all these people that are like, okay, what's new? What's exciting? There's a company out of Asia that is taking ectopic pregnancy stem cells that are claiming to be the best stem cells because they're the embryonic stem cells in a way that are still not, they're claiming they're non-oncogenic.

But, you know, like, what would you say? Like, you take the secretome which has growth factors. And I'd love for you to just make a comment about whether this is oncogenic or non-oncogenic versus ectopic pregnancy, stem cells, and getting all of the best from, you know, the body being created, if you would.

You know what I'm saying? I think there's two ways to think about this. One is just in terms of, of whether something is oncogenic. So it is, is it going to lead to that very tissue culturing like, or culturing itself, feeding itself essentially to, to, to grow and divide uncontrollably and create a tumor.

The second element I would say is if that cell has the ability to even create what it believes is the right tissues, but in the wrong place. Hmm. And so one of, I think the principles that we work with in regenerative medicine is if we are going to take a cell and we're going to give it back to a human, we have to be absolutely certain of the cell that it is going to become or that it is already, right?

When we put it into that tissue and you can imagine like you don't want to put a stem cell in the middle of your muscle and it develop into teeth. Right.

And whether you call that a tumor or just the wrong tissue in the wrong place, I don't care about the semantics, right? That is causing damage and that is detrimental and potentially, yes, cancerous to that patient, right?

But it is not serving any benefit or purpose. And in fact, it's quite dangerous. So I think that For me, I think that the opportunity that we have to deliver benefit to patients is going to increase as our knowledge and safety and testing continue to progress.

Right now, I think that we are able to deliver benefit to patients across a number of different areas, at least when I think about it from the context of our work.

in the world of topical aesthetics and now injectable aesthetics. We're also now I think in the future looking very quickly to look at other area like orthopedics, fertility and beyond.

And I think that, you know, we will continue to push that envelope.

Gray Hair, Final Thoughts, and Where to Learn More

We're going to do it in a safe and efficacious way where we know that if we're, whether we're delivering a secretome or whether we're delivering live cells to that patient, We can expect the result to be something that is positive for that patient, as opposed to be causing damage or the like.

Now, when you take any cell that has pluripotent potential, right? So it can become all cell types, whether that is derived from an embryonic cell type, or whether that is accomplished by reprogramming it into an iPSC, an induced pluripotent stem cell, that cell now has the potential to become anything.

And so that's now where you open up this, this black box essentially of if you put that cell back into a human and it develops into the wrong tissue in the wrong place, that's a tumor.

Yeah. Yeah. So I don't think that you can call a cell that has that level of potential, right? Pluripotent. I don't think that you can say that there's no risk.

You can't. I mean, talking to these people, you know, that was, that was one of the questions I had. The good news is that I more often see people calling cells that aren't pluripotent, calling them pluripotent.

So rather than calling pluripotent cells safe, I see even more often people calling cells that are definitely not pluripotent, pluripotent. So I think that there's, at least that there, you know, there's that mistake being made more often, but I do think that there's, there's a lot of excitement around stem cells.

We know that this is going to be the next era in healthcare and it's going to attract all kinds of people. It's going to attract people that are trying to do their best for their patients, do their best to support doctors, delivering their best to their patients.

And then there's going to be people that are trying to take advantage of a buzzword. Yeah, no, exactly. It's hard. I wanted to bring it up just to throw a little bit of a curve ball at the end of this interview.

Do you know if it impacts graying of the hair at all? So this is a great question. This came up recently. So we've now seen it in a couple of patient reports when they talk about their response and they list the things that they've experienced in using the product.

We've now had two patients that have actually reported they've seen a reduction in gray. It's an area that I can't say that we have a tremendous amount of data.

Obviously, anecdotally, a couple of patients have reported it, but we're diving into that and we're looking at it more closely because I think that's truly exciting.

I need a little bit of that in my beard now. No, I'm starting to get gray here. And yeah, no, I would love to just experiment with it as well. So yeah, I'm going to have to, you know, connect with you guys after and get plugged into this.

But this, to me, the reason why I have Acorn on, it's, you know, it's a very filtered podcast. In order to be interviewed, you have to know your stuff and you have to be doing things that I believe are going to change and transform the industry.

And I feel like I have a, a moral and ethical obligation for all the doctors that are listening and the people that are listening to make sure that the best information gets broadcasted.

And so I really appreciate Dr. Taylor, all your work that you and David and the team are doing. And I just really appreciate all of the things that we got to talk about today.

So thank you and keep up the great work. No, thank you so much. And I'm excited to get your secretome into your hands. Let's, let's make that happen next.

Yeah, let's do it. And where can they get, if they, if they want to get this done themselves? You can go to acorn.me and you can see all of the amazing physicians and clinics that we're really excited to be working with across the U S and Canada.

There's a list of them online. You can see some of the locations that we talk about routinely on, on our channel at Acorn Biolabs. And you can follow me at Dr.

Drew Taylor. Sounds great. Awesome. Dr. Drew Taylor on Instagram, right? Yes, that's right. Hey, thank you guys so much. Check out acorn.me and let's get your secretomes dialed in.

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Until next time, stay strong and live long.