Stem Cell Banking and Regenerative Medicine Overview

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When it arrives in our central facility, our laboratory is that we essentially check those sells for viability, integrity, metabolism, make sure that this was a successful collection from a volume as well.

We look under the microscope, do staining. You get a report back saying that this was done correctly and we freeze those down. So we put them into liquid nitrogen, negative 310 degrees Fahrenheit.

There is no cell metabolism. They're literally frozen in time and at least that part of you won't age another day. At that point, you're officially timeless.

What if aging isn't about slowing down, but leveling up? I'm Dr. Isaac Jones. This is the Longevity Leaders Podcast. Welcome everybody to today's Lungevity leaders podcast.

My name is Dr Rudy Mueller and with me today is dr. Drew Taylor. He's the founder and CEO of Acorns. And so I am really excited to dive into Acorn and what you guys are doing.

Acorne. Yep. and What you're doing in the health space. I find it pretty interesting, But just basic, give me a little bit of introduction, maybe background on yourself and then how you ended up starting Acorm.

Yeah. Well, I was going to go down the MD path. That was the big plan from when I even quite young. The plan was to be a surgeon. My dad was an MD, so following in his footsteps.

Dad was also a baseball player. So I did a little bit of that as well and kind of emulated him. Ended up going down to the University of Michigan. I studied molecular cell developmental biology there.

thinking I was going to, you know, use that in my medical career. Got to the end of undergrad and masters and was applied and set to head off to medical school.

And I ended up getting an offer to go play baseball. So I had to change plans quickly. They unfortunately wouldn't let me do baseball and medicine at the same time.

But the Dean, I think really appreciated what was, going on. He suggested I explore PhD programs, a lot more flexibility. You're not dealing with patients, so that interaction is out and you really have an opportunity to think about, you know, a particular project that you can, work through on your own.

And so it was an amazing blessing for me because I transferred over to a PhD program. I ended up doing it at University of Toronto, did in biomedical engineering, but the focus was stem cells and regenerative medicine.

Dr. Drew Tayloru2019s Background and Path to Acorn

And so it ended up being this amazing push, right? So baseball didn't pan out. I ended having an arm injury and that slowed down, but I had a great run and played professionally in the minor leagues for a number of years.

But inevitably baseball was really the push that got me onto the side of medicine of creating the actual treatments and the applications. And so I specialized in essentially using our own bodies, our cells to regenerate connective tissues.

So our skin, hair, joints, tendons, ligaments, cartilage, and that was, that's really where, where my kind of career started in that regard. I ended up meeting a couple of other slightly younger scientists that were picking up some of my former work and working on it and approached me.

The three of us started to collaborate, ideas were flowing. We ended running some experiments that we then actually filed patents around. And that is how Acorn was formed.

Oh, that's pretty crazy. All right. So I mean, when I think of autologous stem cells, I'm thinking we've got to extract it from bone marrow or we're going to be doing it fat.

You're saying so with acorn, we are getting it form the hair follicles. That's right, so that was the big thing that we wanted to try to do is make sure this is accessible.

It's like a few different ways accessible, obviously anatomically. Getting access to stem cells is not the easiest thing in the world. We're either drilling to the iliac crest for bone marrow, we're taking an aspirin or doing liposuction for adipocytes and there's questions about the fractionation there.

I think the exciting part of what we are bringing to table is the ability to access high quality stem cell. It's of that same lineage, mesenchymal stem-cells.

Uh, from the hair follicle. So, you know, my wife and I have three amazing boys at home and, uh, they've all gone through this, right? It's simple, painless, easy.

And we have their younger selves now on ice waiting for the future and what it will bring. I mean, that's just not something that anybody would have subjected a child to or even want to go through themselves.

Right. Yeah. Especially like you're going to drill into my iliac crest. Now I think I'm good. There's also, you know, there's comorbidities there too, right?

I mean, typically you do see blood changes for the next three months, like there is a lot of pain that comes along with that and discomfort. And there was a recovery period, it's a surgical procedure that you have to kind of think about from a downtime perspective.

I've known a number of people that have gone through it and I haven't done it myself, but the way that they describe it has made me steer clear. Yeah.

Yeah, yeah. Well, and now we're saying we can do it from hair. So I'm really, I am interested in the fact that number one, you said you have three kids, right?

And every one of them has their stem cells banged. Right? So, we didn't have the option or our parents didn' have option when we were born to bank our stem cell.

I didn"t learn about it until my second child was born. We've got his stemcells from the umbilical cord, or the placenta. Actually, which one? Yes. There's decisions there that you don't always know about, right?

And there's some nuance we can go into it, but I, we have all three banked their umbilical cords, But we've also bank them with Acorn. Okay. So the big proponent of, of our cells are going to be a resource in healthcare.

It's actually going be, in my opinion, a currency. in how we deliver healthcare in the future, having your own cells and high quality ones. And we're not manufacturing drugs with chemical compounds in a lab.

Regenerative medicine is all about a cell as a starting material. So therefore the currency and the value is the quality of that starting materials. Very interesting, yeah.

Umbilical cord, to get back to that question, the older two boys are 19 to 16. They did not have this option, but

there's a difference between cord blood and cord tissue.

Cord blood is mostly hematopoietic cells, so a blood lineage. And core tissue is where you can actually do a dissection. So it requires some effort in the lab and you an dissect out areas of that, that have mesenchymal stem cells.

And the mesenchymo stem cell is the same ones that we've been talking about from bone marrow, from fat, and from hair follicles. That's really what is driving the majority of the value today, clinically.

because they can differentiate into any tissue.

Hair Follicle Stem Cells vs Traditional Collection Methods

Really effective and connective tissues, obviously that's most of our bodies, right? So when we think about things like the entire aesthetic industry, and then also orthopedics and sports medicine, these are the cells that are going to keep us moving and looking good, so it's a big part of how we're delivering regenerative medicine today.

I, for the youngest, was able to actually do the core blood plus tissue, but it wasn't available for older too. It's only been about the last 10 years, maybe that has been a possibility.

And so ultimately, you know, those older two boys have hematopoietics themselves banked. I haven't thrown them away, but I'm much more excited about their cells that they have bank at Acorn.

Yeah. Okay. So what's the process look like for a person to, is it just as, like, I can pull your hair out? Or is there like surgery that goes involved?

No, no, surgery. This is literally plucking hair follicles. Our youngest was sitting there watching Netflix while we did it, right? So it's about as easy as it gets.

On top of that, when you think about your hair follicle, it almost feels like it was designed for this, right? It's got multiple germ layers within it.

It ends up being like, you know, close to the surface. it's this bulb that actually will release from that outer root sheath where you get that shaft.

So if you've ever kind of plucked a follicles and you see that white bulb and tip at the end of it, that's what we're after. You have to capture that.

If the hair breaks and your only capture the actual hair, There's no live cells in it, right? It's just keratin and, you know, hair's great, but not valued clinically.

Sure. Okay. So then just walk me through the process. A person comes into the office as a doctor, they're interested in getting the, well, I guess, let me actually back up here.

So we're banking these stem cells, we are extracting the mesenchymal stem cell, are you putting it under like stress to produce more stem-cells? Are you capturing just the stemcell that are on that, like how does that work and then store it?

If you're a medical doctor, nurse practitioner, chiropractor, or other health expert that's stuck in a broken system, there's a better way. The Freedom Webinar shows you a proven five-step system to build a seven-figure virtual health practice or how to modernize your current brick and mortar practice without the burnout.

Learn to create high ticket programs, automated income, residual revenue, and attract clients ready to work with you. Book your million dollar strategy session today by clicking the link in the description.

So if somebody was interested in this, we'll go through the whole process, but we've got over 200 practitioners that offer this across North America. So there's a pretty good chance that there is somebody close by to you that you can do this.

And we're growing and adding clinics every month. That number continues to grow. You can go into dermatologist, plastic surgeon, people in wellness and aesthetics, as well as sports medicine and longevity clinics are typically the clinics that have this incorporated.

15 minutes, you sit down, we pluck follicles from the back of the scalp. There's no, no bald spot, right? This is going into… What if you already have a bald spots?

We'll work around that, but then we can help on the background. And get put into a proprietary media that we've engineered to allow those cells to survive the journey.

So we really brought this opportunity instead of asking the patient to go to a large clinic that has cryogenics and all of these things available. You can do this with your physician, like the one you know and trust.

And so it is great for physicians because it actually keeps the value in your practice. You don't have to refer the patient out for a stem cell collection.

Yeah, right. That's great. So your patient goes and does that. Physician ends up mailing it to us. We've got a proprietary kit that actually keep to the right temperature and this media that regulates those cells as they go through that transport.

When it arrives in our central facility, our laboratory, is that we essentially check those cells for viability, integrity, metabolism, make sure that this was a successful collection from a volume as well.

We look under the microscope, do staining, you get a report back saying that was done correctly and we freeze those down. So we put them into liquid nitrogen, negative 310 degrees Fahrenheit.

Okay. At that temperature, there is no cell metabolism.

How Acorn Collects, Processes, and Freezes Cells

They're literally frozen in time and at least that part of you won't age another day. So at that point you're officially timeless. Anytime you want now in the future, you can pull upon those cells and create an opportunity for using them in regenerative medicine.

What's live today in all those practices is the secretome. And there's no secret about it. what we do is we create this secretions from your cells. so it leaves the cells behind, but it takes all of the amazing things that they deliver in these niches in our bodies to support other cells.

And so that's really what our stem cells are doing, right? They're like a prime delivery truck driving through the neighborhood of your cells and like tossing packages to all of these homes or cells so they know what to do and they can perform at their best.

What we've done is we have taken all those packages from the back of the truck and we're delivering that to you at a site of need. So it is a system where we essentially promote those cells in the hair follicle to release all of these growth factors, exosomes, matrix molecules like collagen, elastin, the building blocks of our cells, molecular cues like mRNA, but it's your own, right?

This is your molecular cue from your stem cells. So you're going to accept them a hundred percent. There's nothing foreign, no donor material. It's all you.

And so we collect these at high volumes because those cells really are put in an environment where they are in like

healing mode. They want to repair all the tissues around them.

It's been great because we now can capture that secretome, deliver it back to your physician, and it's being paired across right now a number of modalities in ascetic medicine.

For people that want to improve their skin, regrow hair. And it's exciting because we've actually seen like amazing clinical results. We've run a number of clinical trials, double-blinded and randomized studies where we'd been actually able to see, you know, the results for patients.

So is it just turning it into a topical spray or cream or? Yeah. It's lyophilized when it arrives at the office. Okay, so powdered? So it is a powder.

Anything else, we resuspend that. There's options around what you resuspend it with. And so right now it's registered as a topical cosmetic when paired with a low molecular weight hyaluronic acid to use as topicle alongside hair procedures or alongside skin procedures, microneedling, laser, things like that.

We also have gotten permissions through IRB to do clinical studies as an injectable. Oh, very cool. So we have a different soluble, like there's a saline that we're solubilizing it in.

There's also the option to solulize it PRP if there are some interesting options there that have had permissions around. It's either salines or PRPs and in those studies it's being injected into an area of need and it is focused on either intradermal, so for improving skin quality and skin, obviously the performance, the youthful performance of our skin.

But then also using a cannula to put under eyes so you actually get that volume, right? The tear trough area is a big area for concern for people. And then we actually have studies where it's being injected into the scalp for regrowth of hair.

Very cool. Yeah. There's a couple others that we haven't announced yet that are outside of aesthetics, but we're excited to announce those soon too. Okay.

All right. So is it something that you foresee potentially getting into like IV treatments or just local injections into particular joint tissue and air?

It depends on the concern. There's been some great preclinical and animal studies that have shown that the molecules that we're harvesting have been effective when administered as an IV in these animal's studies for a number of different things, cardiology, neurology, and others.

And I am really excited about those. Those are longer term studies to track those results. We did do an animal study ourselves in collaboration with the University of Calgary.

So it was out of our hands. It was actually done by the university. And they demonstrated that through injections and particularly in an animals model, we would be able to actually regrow focal defects, lesions, and cartilage.

That's exciting. Very exciting, so that's an area that we have a lot of focus on right now because osteoarthritis, sports injuries, this is an are where we saw the drop in inflammation.

Like that is apparent, but the actual performance of the cartilages itself is really special. Yeah. I mean, we can do all we want to decrease inflammation, but we're still, if we like as a knee injury, as an example, and we've got good drugs for that, right?

Like, you know, cortisone works great, like what we are trying to do, regenerative medicine, the promise is essentially to deliver our own biology back to us, to return us to a previous state of performance, either that's been lost to age.

disease or trauma. Right? So that's what we're trying to do. Yeah. That's awesome. Cool. I mean, do you want to show like the inside of the kit? It is pretty simple, right?

Like this is the kid that we actually use and sits in physicians offices. It's a very fancy set of very simple instruments, but essentially, you know, You have a scissor set a tweezers where you just grab the follicles and pluck swiftly.

This is given to the patient to take home afterwards.

Secretome Products and Clinical Applications

Very, very good use of this at home. We actually get emails asking for these tweezers because apparently they're awesome, but it's super simple and physicians are incorporating this into their practice because it is not replacing anything like, you know, offering cell banking.

The physician doesn't have to do this, right? You could have an assistant in the office. Rarely does the physician do it, only if they are really passionate about it.

I mean, typically the physician or even an injector that's under them and in static practice would be doing this. You can leverage the rest of the team.

Because this is non-invasive, medical students, people that are in training, your nursing team, and then even people at the front desk that our technicians and things like that, they can jump in and do this, it's really convenient for leveraging other people in your team Yeah, absolutely.

And then it's a nice, another little profit generator. Absolutely. Yeah. It is great. Then this is what kind of comes back to you. Now, this was the clinical trial packaging, right?

So it is not as sleek as this one, but the new one will be coming out. But essentially you get a suite of 12 of your own vials. This is your secret home, you and a vial that is returned to.

So you have this treatment course that you had. Its like a regenerative reserve that arrives in the practice for the patient. You keep this in your practice.

It comes with the topical HA along with it. So if you're using it for, this will be paired with, if we're, using for microneedling or laser or scar lines, things like that.

But now the patient actually has this, like commitment, right? Of seeing this course through for you to deliver this throughout time. Like this kit will last in the fridge for 18 months.

You've got this regenerative reserve now in you practice that you are housing for your patient. That they're coming into your office. And then you were doing the treatment in Yeah.

Okay. Yeah, so you, like this is, you've ordered this for your patient. Got it. So you have a protocol that you're going to be delivering and tapping into this regenerative reserve as you do that.

Oh, very interesting. What we find is that it actually is really motivating for patients to stick to protocols and plans. Like we've all had patients that are either doing, hair concerns or skin concerns.

And, in that initial consult, they're really excited about doing a course of three or four treatments to start to track results. Then all of a sudden there's a delay in the second one and things like that, When you have the patient's own biology in your office waiting for them, they're really motivated to schedule and come in.

Right. It's so personalized. They're excited to see it. If you'll take pictures holding up the vial of the patients, because it's literally like, it kind of like momentous for that because they are watching themselves.

Yeah. That's awesome. So it was cool. Well, I think the final thing like. Two questions. One would be like five years, 10 years. What's the goal of Acorn or where do you see this going to, you know, this industry being?

And then, whether it be STEM cells, we're going be extracting it from a new place or we going able to use these for this, that, and the other thing. Like, what's goal there?

What do see? Yeah. And finally, just a little information about where people can get and talk. For sure. Okay. So I'm really excited because I think that in my career, this is the first thing that I've seen in regenerative medicine.

And of course, I got a huge passion about regenerate medicine in general. This is first that thing I have seen that actually has I would say an advantage in North America.

It is complicated and costly to go through a lot of regulatory. The fact that we are making this from your own biology gives us a massive advantage. And regulatory bodies like FDA and Health Canada have been very clear on this with their release statements about their preference for having autologous products.

So I'm really glad we've been able to lean into that. I think that's one of the reasons why we have been getting these permissions to do injectable studies while that hasn't been done by other groups.

And so that is exciting for me to see that people don't have to fly across the country or fly into a different country to get access to next generation regenerative medicine.

That's really important.

Future Directions, Partnerships, and How to Get Started

So I think in the next five years, I'm really excited to continue to expand that opportunity for Americans and Canadians right now. We already are in conversation with other groups internationally that are interested in bringing this to other countries.

I'll think that in next 5 years you'll see this go international and we'll continue opportunities to leverage the secretome not only as a topical but as an injectable.

That is where I see a lot happening. we will not stop the momentum that we are delivering on all the studies that have going on for actually delivering cell therapies.

We've done that very strategically. It's very costly to do these things. We'd actually been quite successful at raising grant funding in collaboration with universities.

Awesome. So we've got actually five university or hospital partnerships where we're co-developing opportunities to leverage your own cells in therapeutic conditions that use live cells.

And so that I think is pretty exciting. And a lot of that work's published. Like you can find it online. We've turned the hair follicle already into cartilage, bone, fat, pancreas cells, neurons, even dopaminergic neurons.

But we recently did a great study with the national research council where we turned to hair, follicles into NK cells to treat cancer. So the future, it's going to take a while to get there, but the piece is very bright.

If you want to use this for aesthetics immediately, that's awesome. but really this is a biologic health insurance policy you're taking. Right. And so like, if you want to get your, you know, preserve your stem cells at the youngest age that you can, right?

So… It's today. Yeah. It is today, baby. All right. So yeah. I'll be by the booth later for a player pool. You gotta come by and do it. Then you go to acorn.me and we've got a map, so it's.me.

and it is a, a math basically of all the practices that are offering this. so you kind of see which ones are closest to you and type in your address and they'll give you some options or just go into the physician that your work with and you trust and ask them about it We're continuing to expand and work with new groups.

And obviously if that is of interest, it's amazing. For any physicians that are obviously listening, because I know that physicians tune into this for what's coming around the corner.

Reach out, you can reach out to us online. There's an acorn.me for physicians. You can actually fill out a form of where you are and we'd love to come and demo it for you.

Awesome, awesome. Well, thank you so much. I really appreciate it. This has been enlightening. And I think I'm really excited to see the next year and next five years, next 10 years.

Especially with the differentiation capabilities potentially seen in the labs already, this could really be a game changer for a lot of things. As you're sitting back and watching what's evolving over the years after you leave our booth, part of you will officially not age another day.

That's right. You'll be ready. All right, I love it, love. Thank you, Drew. Thanks for listening to the Longevity Leaders podcast. A Lungevity Leader's community is on a mission to transform 100 million lives by 2040. If you enjoyed this show, please share this with somebody that you know, especially another doctor or physician, but also click that follow button.

Until next time, stay strong and live long.