The Science of Immortality: What We've Learned from Sinclair and Diamandis (as presented by Dr. Richard Handley) Transcript

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Opening on Reversing Aging

Now we're talking about the ability to truly reset the body, reset all of the cells in the body to be young again. And not just slightly, but by 50, 75, 80, 90%. We do this in my lab.

My graduate students are doing this all the time. We talk like this in my lab, whereas outside it's like, what are you talking about? How do you reverse aging?

Imagine spending your entire day talking about, well, how are we going to reverse the hands of time for all of humanity? That is your job. Every day you come to work and you're working with mice and you're working with non-human primates and soon with humans talking about reversing the hands of time, reversing disease processes back to non-disease state.

This is Dr. Talks. Hey there, I'm Rich Hanley, and today I'm going to be doing something a little different off the beaten path. I'm going to be discussing a video that I watched recently with doctors Peter Diamandis and David Sinclair.

Introducing the Podcast and Guests

A bit of a disclaimer, although I am still affiliated with Harvard Medical School, helping to vet, interview physicians and clinicians applying to their Master of Science in Healthcare Quality and Safety program, these are not the ideas of Harvard Medical School.

I am separate from, at least in the context of this podcast, I'm separate from Harvard Medical School. So a bit of background on them. I've been following these guys for, gosh, a couple of decades now.

I'm a massive fan of both of these gentlemen. Peter Diamandis is known as being a futurist, owns a number of companies. He runs The X Prize. He also is an MD, trained out of Harvard Medical School, and then also with physics and biology at MIT.

So a highly educated guy. Not a licensed physician, but has been in the longevity space for a long time. Has a brain full of knowledge, a very robust knowledge set of how to live longer and healthier.

Also runs a company called Fountain Life. David Sinclair is a scientist, PhD, trained out of Australia and MIT. Did his post-doc work at MIT. And has been a professor of medicine and genetics at Harvard Medical School.

And runs a lab at the Blavatnik Institute, which is just off campus at Harvard Medical School. teaches Harvard Medical students. Profoundly popular guy in the mainstream.

If you think of longevity, you probably think of David Sinclair. Recently has developed the information theory of aging, which is now touted as one of the most robust scientific constructs around the science of aging.

A lot of his theories have been replicated in other other labs around the world. He's also done profound work and published in papers like Nature. He had a paper come out in 2020, I believe it was, in Nature.

where he showed that he was able to reverse blindness in mice using the Amanaka factors. So that's a little background on Peter and David. Amazing guys.

And this theory that we're going to talk about, the information theory of aging, is quite a fascinating topic. So without further ado, let's go ahead and get into it.

So here's my opener for you. It's 10 years from now. It's 2035. Have we reached some state of age reversal technology that truly works?

David Sinclairu2019s Background and Research

How well does it work? How often are you taking this treatment and what does it cost? Give me a vision of the future here. Right. I'm not asking for promises.

I'm asking for your best guess. Yeah, sure. I'm not shy to talk about what I think is coming. And as I wrote in my book, Lifespan, I predicted a future where we would have wearables and we would have video conferences with our doctors and you could order medicines online.

And I thought that was going to take 15 years and it happened in three. And so sometimes I'm actually, I underestimate what we're actually looking at.

So here's what I see. I sit on the front row of the future for this longevity. The bleeding edge, I would say. Yeah. I want to share my thoughts with the listeners.

What I'm seeing in my lab and labs that are competing with us or collaborating with us is something quite remarkable. And the pace of change is making my head spin off.

And I'm an optimist, but I just can't comprehend right now how fast things are going. So let's just go back a few years and then we'll project into the future, going back a few years.

So 2017. It was just a theory that we could reverse aging. Even the word reverse and still to some extent is abhorrent to my colleagues. Abhorrent to his colleagues.

Yeah, for sure. A lot of mainstream physicians just balk at the idea of being able to reverse human aging. they completely dismiss it. Yeah, a lot of truth there.

We're not trained to think this way. We're trained to think in silos of diseases and specific, you know, disease protocols.

The 2035 Vision for Age Reversal

You learn a disease, you learn the pathophysiology of the disease, you learn how to treat it, the medications and or treatment protocols surrounding that particular disease process.

It's just, you know, whack-a-mole. You bomb the target and you try to figure out very quickly, what is the target that I'm going after? What is the disease?

Make the correct diagnosis. and align it with the proper treatments but the idea of going beyond you know the whack-a-mole like let's just go back to the root cause let's figure out what's the cause of this particular disease and most often times it is the aging process itself so the idea of going back to like well how do we stop this disease well let's just stop human aging or slow it to the degree where this disease doesn't even present itself in later years.

That whole line of thinking is new to a lot of physicians, a lot of clinicians that work in this space. And so when they hear these words from David's mouth, they're like, it's like blasphemy to many of them.

They're like, this is pie in the sky. This is not real. Let's get back down to reality and stop selling the lie. They think of it as like, no, this is not proven.

But we're about to find out that a lot of it is proven. And we're about to learn more about these processes in humans, the not too distant future. But we actually we proved that and published in 2020 that you can reverse most aspects of aging by reprogramming cells which we'll talk about and that changes everything.

So the 2020 paper he's talking about it came from Nature where he proved that They showed in his laboratory that they could cure blindness, certain forms of blindness in mice, glaucoma, and basically stroke of the eye.

And what they would do is they would crush the optic nerve and they would inject the nerve with what are called Yamanaka factors. Yamanaka factors are four genes that exist in embryos.

and they're turned on in embryos and not when we're mature. But now they can actually reset those Yamanaka factors. Let's go back even further.

From Aging Theory to Cellular Reprogramming

Shinya Yamanaka, as a scientist, 2012 won the Nobel Prize for discovering these Yamanaka factors, where you can reset them back to their earliest stage, taking the stem cell back to its pluripotent state, the non-differentiated state where that stem cell can differentiate into any particular cell line, then that cell can then go back to its earliest state.

The problem with going back with the OSK and M genes is that it becomes a teratoma or a cancerous tumor. But they found, David and other colleagues and other scientists around the world have found that if you just use OS and K and not the M component, you can bring the cell back to its earliest, what is called the induced pluripotent state.

My information theory of aging is correct, which is, we'll talk about the idea that you don't just lose information as you get older, like software corruption, you can actually reset that.

If that's true and it looks like it is, then it changes everything because we've gone from the idea that, oh, we just take a supplement or we do some exercise to slow down aging.

That's basic. That should be on everyone's protocol. Yeah, that's true. The primary drivers of aging up to this point that we know that we're well aware of are diet, exercise, and getting plenty of sleep.

Those three things move the needle 90% of the way there. What we're talking about here is the other 10%, the things that can begin to not only slow the aging process but begin to reverse it the other direction.

But now we're talking about the ability to truly reset the body, reset all of the cells in the body to be young again. And not just slightly, but by 50, 75, 80, 90 percent.

And this isn't science fiction. We do this in my lab. My graduate students are doing this all the time. We talk like this in my lab, whereas outside it's like, what are you talking about?

How do you reverse aging? Imagine spending your entire day talking about, well, how are we going to reverse the hands of time for all of humanity? That is your job.

Every day you come to work and you're working with mice and you're working with non-human primates and soon with humans talking about reversing the hands of time, reversing disease processes back to non-disease state.

It's wild science. But what we do is we use a set of genes that are normally only on in embryos. We turn them on in adult tissues. mice and monkeys, and we can cure diseases and injuries that have never been cured before, even blindness.

And so we published that in 2020. And since then, what do we know? We're at the middle of 2025 currently. What I see is that with the advances of AI, and we're doing a lot of AI in my lab, which I'm happy to share, things are going

so fast.

Yamanaka Factors and Resetting Cells

Now we're doing experiments in a matter of a month that would take hundreds of thousands of years to do. So he's doing experiments that take him a month that would have, before the advent of AI, taken him hundreds of thousands of years.

Why is that? Well, because you have to take these molecules one at a time in a laboratory, test them with various organisms, which takes time. So hundreds of thousands, now he's able to replicate those studies.

in an AI model, which can do trillions of calculations quickly and get to the answers, you know, literally in magnitudes, orders of magnitude faster than had he not had AI.

So AI is changing everything when it comes to this type of science. As you can probably imagine, trillions of molecules coming through screening virtually.

And so we're coming up with alternatives to this gene therapy that we publish in 2020. To ask me, first of all, how much might it cost? Well, right now, the technology which is going into humans next year in January, hopefully.

This is with Life Biosciences? Correct. So Life Biosciences has proven that it works. This reversal of aging in the optic nerve to cure a variety of ailments in the eye.

And we chose the eye because for business reasons mainly. So they're using this in the eye only for now, right? So they had to for the sake of finances, the sake of singular focus, proving the theory, burying the theory out in one organ system, as opposed to trying to control for as many confounding variables as humanly possible.

You start in one place with one question and you answer that question. That's how scientific inquiry occurs. And so to focus on one organ system is the goal right now.

It'll go beyond just the eye, but for now they're starting on the eye and have cured blindness, at least in mice and non-human primates. And in January of this coming year, 2026, they'll be starting clinical trials in humans for blindness, for glaucoma and for stroke in the eye.

AI, Drug Discovery, and Lowering Costs

So we're going to treat glaucoma and stroke in the eye called nion and this is a gene therapy. So gene therapies typically cost three, four hundred thousand dollars.

Three or four hundred thousand dollars because you're using the adeno associated virus. It's an injectable. There's a lot of technique involved. It's expensive to create that mechanism of action.

And so what he's talking about is going beyond an injectable AAV vector and using a pill, ultimately, that you can take orally that has various nutraceuticals embedded in it and or pharmaceuticals that will help reset the entire organism back to its earliest state.

So that's in the future. Or it could be as much as $2 million for gene therapy, right? Yeah. For a rare disease. It's a lot. The reason is there's a lot of hurdles to get through to get to the market and just producing this stuff is expensive, costing us more than $10 million just to make the first batch to go into humans.

$10 million to make the first batch to go into humans. So this is very costly, almost cost prohibitive, but it's worth it because if it can cure blindness in humans, it's worth the money.

You know, my lab is in existence to make this for everybody. We're not here to charge as much as we can. We're here to make it, hopefully, eventually pennies on the dollar every time someone takes a pill.

So what we're talking about here is going from an AAV, adeno-associated virus, which cost, what, $10 million to create this science in humans coming up here in early 2026. In January, they're going to start the study.

to pennies on the dollar, creating a pill that you can take that might include nutraceuticals, some pharmaceuticals that any human could take, thereby making it accessible to everyone, hopefully, to help slow the aging process, perhaps even reversing the aging process.

So from something very expensive to something extremely cheap and scalable. And we've seen this in every other technology ever developed by humanity. From the telephone to electricity, it's gone from something that's only available to the very financially well-endowed elite to ubiquitous.

Human Trials and the Future of Longevity Therapy

It's everywhere and available to everyone. That's what David's talking about here. The question is, what's the timeline in which it'll take to get from the scientific bench to the masses?

So what we've been doing since the last five years is to try to bring that cost down. And using AI, we're now at a point where we've got molecules that really would only cost $100 to make or less for a month's course.

For a month's course, like three bucks a day. Yeah. Yeah, and we're seeing that those work really well in mouse studies to reset an old animal's physiology.

So it's great to be a mouse, right? Or a non-human primate. Again, these are all theoretical constructs. They're only proven in other species. They're not proven out to be true in humans.

We hope We really hope that they'll extrapolate out to human studies. There's a great degree of certainty within the scientific community, at least this portion of the scientific community, that these things will bear out in humans.

We just have yet to see that. So keep that in mind that while we're thinking about these ideas as wild as they are, they still haven't been proven out in humans to the degree that we just don't know.

We don't know the answers yet. And so a lot of this is all speculative. You know, make sure that you consider this information with a you know, with excitement but also an equally cautious optimism.

It's super important to keep reality in check here. We don't know the answers in humans. Thank you for watching and or listening to the Every Young Podcast.

This podcast is for educational purposes only and is not intended to diagnose, treat, or cure any disease. I'm Richard Hanley, a licensed and board certified physician associate, PAC, trained at Harvard Medical School and the USC Keck School of Medicine.

And while I do hold two doctoral degrees, including the doctor of medicine and doctor of health science, I'm not a licensed physician. I also hold a master's degree in healthcare quality and safety from the Harvard Medical School and bring over 30 years of clinical and executive leadership experience.

I continue to serve as an interviewer and admissions assessor for Harvard Medical School's Master of Science in Health Care Quality and Safety program.

That said, the views expressed herein are entirely my own and do not represent the official views of Harvard Medical School. Always consult your own health care provider before making any medical decisions.

If you're enjoying Ever Young, please follow the show, leave a review, and share it with somebody who's ready to take charge of their health and longevity.

Thanks for listening. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and

inspired you on your path to optimal health.

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