

Announcer: Bulletproof Radio. A state of high performance.

Dave Asprey: You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day is that stars may keep spinning fast long into old age. Astronomers just spotted a star that's in its twilight years that spins way faster than anyone expected it to be able to. They say this process of slowing rotation that we assumed happened indefinitely over the lifetime of the star maybe interrupted the middle of the star's life. This is from the space institute in Boulder. The researchers studied a star called 94 Aquarii AA about 69 light years from us.

Its color and brightness say that it's part of a star's life cycle and that sub giant stage, which is at the end of a star's life as the star's running out of fuel. Everything we know says that young stars rotate quickly and they slow down as they age. They lose their angular momentum. That's how we'd tell how old a star is. What happened here is that they figured out that this star is about 6.2 billion years old, 1.2 times the mass of the sun and it should be rotating once every 78 days but magically, for reasons no one has yet been able to determine, it rotates once every 47 days. In other words, this star apparently successfully practiced anti-aging.

It is breaking the rules of what stars are supposed to do. What's that mean for you? Maybe, it just might be possible, at all different levels, for things to age differently than you expect. What's the avenue of today's guest? All right. Is this another one of those astronomer guys? Because I did have a really cool interview with an astronomer who runs the largest space telescope in Chile but no. You'd be wrong if that was your guess because we're going to talk about longevity. I know I'm going to call it anti-aging because being against aging doesn't really make a lot of sense because wisdom comes with age.

It's nice to be wise and I certainly didn't know a few things when I was 20 than I know now that I sure wish I knew back then. Today's guest is none other than Dr. David Sinclair. He's best known for his extensive research on lifespan extension, treatment of diseases for aging. A guy who's work I have enjoyed for many years, a PhD professor from the Department of Genetics at Harvard and Co-Director of Harvard's Paul F. Glenn Center for the Biology of Aging. The Co-Creator of the journal, Aging. He's co-founded several biotech companies, three dozen patents, Time Magazine's List of 100 Most Influential People in the World and for the last 20 years, he's just literally been hacking aging.

That is a really big thing to say when you say, "What happens when someone at his level just focuses on a problem with the right resources?" Some of you can read about it now because he's got a brand new book out, which I was really grateful to get an early copy of. It's called Lifespan: The Revolutionary Science of Why We Age -and Why We Don't Have To. I just got to tell you before you even have him come on to the show, you are going to read this book because I don't care how old you are. Whether you're in your teens or whether you're 80, we know things we didn't know 10 years or 20 years, even 50 years ago about aging that are actually useful.

There is no more credible person on earth than David Sinclair to talk about it. David, welcome to the show.

David Sinclair: Thanks, Dave. Yeah. You're very kind. It's great to be on your show. Thanks for having me on.

Dave Asprey: It's an honor to have you on. You've been on 60 Minutes and places like that so you're no stranger to people talking about your work. What's new? What drove you to finally write this big book and make some really bold claims at the beginning of it? Why now?

David Sinclair: Apparently, it was just good timing. I've been wanting to write a book for 10 years and I wrote parts of it. The science kept going faster than I could write the book.

Dave Asprey: Yeah.

David Sinclair: I have a wonderful co-author, Matt LaPlante who helped me keep up with the science. He was part of the discovery process when my student made a big discovery. I'll talk about it in a minute, we saw a breakthrough. Usually, it's just myself and my student who gets to experience what it's like to make a discovery like that. I immediately called up Matt and said, "Hey, can you document this? Let's put this in the book." This is one of the few scientific books where I'm not writing about things that were discovered 10 years and vetted by scientists. I'm actually putting things in the book.

People can read about this before most scientists in the whole world have even seen it and that's really unusual. It just happened that I was writing this right at the time where I've made some of the biggest discoveries of my career.

Dave Asprey: That is rare and unusual and it shows in the book because like you, I stay up on research. Maybe not quite to the degree you do because I'm running Bulletproof and whatnot but I'm pretty into it. I get to talk with some of the same smart people you do. When I work on books, there's usually a good number of studies right as we're almost sending it to print. We have to include this one because it just hits the presses and it matters and it's another little point. It's always an area of frustration for me but for you, you're basically two years ahead of that with the new book.

Because you're taking stuff right from the lab that would take a while to hit a journal, *Nature* or wherever that's going to be published.

David Sinclair: Exactly. This latest discovery that's in the book, we just put it out on pre-print so people can download that if they like. Just Google my name and a site called bioRxiv, B-I-O-R-X-I-V. It's under review at Nature. We'll see how it goes. Hopefully, it will come out towards the end of this year.

Dave Asprey: Wow. It will come out after your book.

David Sinclair: That's crazy. I hope that doesn't affect my ability to publish. The book actually went faster than I thought and the research was done in more detail than I thought. Again, I'm more about changing the world than I am about publishing. As a scientist, I'm not here to just put things on shelves and libraries.

Dave Asprey: Yeah. In fact, if it did affect your ability to publish, it'd be the best thing that ever happened to scientific publishing because you could say, "Maybe our process of getting knowledge to the market is broken." Because it takes a very long time for what happens to get published and go through a vetting process. We all have learned that the vetting process isn't very good anyway at least in some journals versus others. For people who don't know about that, talk through why it's even a concern about, "Hey. I shared this with the world. Why would you not get your scientific gold star for that?"

David Sinclair: I'm a monk in a monastery. Scientists are in this cloister. We don't like to share things with the world until they're fully vetted by other scientists. Certainly, you don't want to be pre-empting a discovery, which the journals have historically reserved the right to tell the world about. I can't go into too much detail about the research. Otherwise, journals can reject your work simply on the basis that it's not noble anymore. You have to be very careful especially in today's times where it's very easy to put out a tweet or a podcast where you could upset the journals.

We're in an extremely weird world right now where some journals are embracing this and actually encourage you to talk about it and put out these pre-prints before they publish. Because that actually helps the journals figure out what's interesting to the world and what isn't. That's also one of the ways they vet good science as well.

Dave Asprey: Yeah. I think the popularity contest of something. How many people are interested? Does it pass most or would be fantastic because sometimes, there's words and stuff out there. A lot of people wouldn't know how filtered what they see is and how a few people writing journals will change the direction of study for 10 or 20 years of academia just by a few key decisions. They don't know what those decisions are ahead of time.

David Sinclair: That's exactly true. They're very, very powerful people. If you get the bad editor, the whole field can be basically derailed. They publish something negative and everyone reads it and believes that for another decade. The other thing that's fascinating about scientists, like you said Dave, I see things that sometimes are 10 years ahead of what the public sees. That's another reason why I wanted to write this book is that my head is spinning at all of the things going on in my field. A lot of it isn't published. A lot of it isn't put out in the media. I wanted everyone to know how exciting this area is and how close we are to things being actionable.

Even in the daily lives right now, we could talk about the things that I've learned from reading tens and thousands of papers but how we can slow down aging right now.

Dave Asprey: You said words that are manna from heaven. We can slow down aging right now. This isn't a futuristic thing. You've actually said in your book, aging is a disease. That disease is now treatable, which is really bold for someone in your academic position to say. Aging is not in the DSM which doctors use to diagnose things. I believe for years that aging is maybe a collection of diseases. Do you think aging is really a disease?

David Sinclair: We can call it whatever we want but as human beings, we make the rules. What doctors have done and also the World Health Organization, they have a book of diseases. It started with I think 400 and it's grown to 14,000 different conditions but they've left aging out. The only reason they've left it out actually, if you go dig deep into what the definition of aging is versus disease, the difference is that if 49.9% of people get a debilitating condition, we call that a disease and we throw billions of dollars against it and have foundations. If it peaks over to 51%, then we call that aging and we accept it as normal and we don't do anything about it.

That's arbitrary. I think it's actually worse because the more people that get a terrible condition, the more we should study it. The more resource we should throw at it.

Dave Asprey: It's like story of lemmings, the little fish where they would come out of the water. When one goes out, let's all go out of the water and die. If everyone does it, it's normal. I look at relative ranges of hormones as an example of that. All old guys have really low testosterone, therefore, that's normal. What do you say when you hear something like that? What goes through your mind? What's your take on that for instance?

David Sinclair: I would challenge everybody who's listening and I'll sell it to you right in this interview. Look around the room that we're in, assuming you're indoors. Ask yourselves what about your current situation is natural? Find one thing. Maybe this desk is partly wood. Actually, it might even be plastic but there's nothing about our lives that we haven't changed. The clothes, the headphones, the supercomputers in our pockets. We change the world to make our life better. Don't tell me that just because something is normal, we should accept it.

If we wanted to be normal, we should be out in the world being eaten by tigers and dying from an infected splinter. I don't think anybody wants to go back to that kind of a world.

Dave Asprey: It makes me relax to hear you say that. Yes. We've hacked everything in our environment and somehow, this is a sacred cow. You studied this for 20 years.

When you started studying aging and longevity, did you actually get respect for that from your colleagues? Did they think you were a little bit off your rocker?

David Sinclair: I still get little respect for this career. I'm at Harvard Medical School and I've still got colleagues who look down on me for this.

Dave Asprey: They're older colleagues who have a harder time seeing-

David Sinclair: For sure.

Dave Asprey: Because they're aging, right? I'm kidding.

David Sinclair: Yeah. There's that and there's who are you to start thinking that we can tackle all major diseases with a single pill? We know that we have to hit these diseases one by one on the head like a whack-a-mole game. I'm coming along saying, "That's not going to extend our lifespans on average more than a couple of years." Cure cancer a couple of years. Cure heart disease, maybe three years. That's not the way to massive changes in our health spans. There's this pushback from colleagues but it was much worse when I started. I was a 24-year old kid saying, "We can solve this."

We can find genes that are responsible for longevity, which we did find, which is what's exciting about the field now. Actually, what's interesting is that the field has been publishing in the world's leading journals for at least 30 years now. Only finally we're getting the respect that I think the field is deserving.

Dave Asprey: Yeah. Something that blew me away in my 20s, I had massive health problems. A lot of this stuff, it happens when you're old. I got to enjoy even as a teenager, arthritis when I was 14. Higher risk of stroke and heart attack, so I have spent the last 20 something years hanging out with anti-aging researchers more on the Stanford side of things. They're non-profit. I was just blown away to see this stuff. I'm an engineer but not a biologist or a medical doctor or anything like that. Over the course of a decade of reading and seeing this, I just realized there was a whole world that was disruptive and looked down on.

I'd go to my doctor and say, "I'm taking Vitamin C." He'd say, "You have to stop. It'll kill you." The disconnect is so broad between the people who are the interface, the people that my parents go to. Most people go to and say, "Take care of my health." They not only showed a lack of interest in this stuff. They showed open disrespect.

David Sinclair: Right.

Dave Asprey: Okay.

David Sinclair: I teach medical students so I know how the system works. The training is, doctors treat diseases. If someone comes along like me and says, "Hey. If you

take this or that or you do this or that in your lifestyle and you won't get these diseases until five, 10 years later." That's not typically in the purview of the mindset of your average physician. A good example is the drug, Metformin, which is a diabetes drug that millions of people have taken. Relatively safe. It's prescription only in this country.

You couldn't get it over the counter but I have people who talk to me and ask me questions every week saying, "My doctor won't prescribe this to me because even though my blood sugar keeps going up and up and up, it hasn't hit the exact level where you would call me diabetic." Again, it's this arbitrary cut off line where doctors are hesitant if not vehemently opposed to giving a medicine that would prevent you from actually getting the disease that is undoubtedly going to come.

Dave Asprey: Do you take Metformin?

David Sinclair: I do. I do for that very reason that my blood sugar was headed straight up and I wanted to prevent it. My father is doing well on it. I don't have very good genes so I need to actively work against them.

Dave Asprey: Got it. You take it for blood sugar and not as a preemptive anti-aging drug.

David Sinclair: It's both.

Dave Asprey: Okay.

David Sinclair: It's really both. The data on Metformin is really strong, stronger than even in mice that I've looked at all the studies, as many as I can read. There's tens of thousands of patients that have been looked at. If you believe the results of those studies, diabetics who take Metformin, the chance of getting cancer, heart disease, frailty, Alzheimer's actually goes down relative to those people who take it.

Dave Asprey: Yeah. For diabetics, Metformin's a miracle drug, at least as much of a miracle drug as fasting.

David Sinclair: Right people say, "Aren't you taking a big risk taking this drug?" Just because something's called a drug, something magical happens. It's nothing special. It's a molecule like anything else. I would say it's safer than a lot of plant molecules we take as supplements because so much is known about Metformin. What's the risk? Okay. The risk for me is done under doctor's supervision. I'm monitoring my blood. It wasn't a huge risk. My liver enzymes are great. I'm suggesting that people shouldn't take this on a whim. It's not like popping something that you can buy at a candy store. I would actually not pop candy as much as I would pop Metformin.

That's more dangerous. What are the risks? For me, the risks were stomach upset, feeling a bit queasy, losing my appetite. Losing my appetite is a great side effect. I've liked that. Contrast that with the risk, what's the risk if I don't do anything? I know for sure that by the time I hit 70, my chance of getting cancer has gone up a thousandfold from when I was 20. Smoking will only increase my chances by fivefold. Aging is the biggest risk of cancer. Chance of getting heart disease, I am going to get these diseases no matter what. Versus having an upset stomach. The risk for reward is so great in terms of the reward that of course you would do it.

The cost is maybe a dollar a day or less. I do the science and do the calculations. It's just a complete no brainer.

Dave Asprey:

I started taking Metformin prophylactically. I was pre-diabetic in my 20s but I talked to the people at BioMarker Pharmaceuticals, the first people to say, "This anti-aging drug, Metformin causes the same changes in gene expression as caloric restriction." There were these people in the '80s and early '90s, there's still a few of them around. I only eat 1000 calories a day and I have for 10 years and I'm cold at the time and I'm going to live forever. I'm really thin. I think there's newer technologies than that but I took it for three or four years and I quit taking it. Just in part I felt like I didn't need it and my blood sugar's below 87 now and I don't take Metformin.

The reason that I quit taking it is I saw a study that said that it reduced mitochondrial function and there are some things about Vitamin B12 absorption. It's one of those things I've wrestled with for 10 years when I'm looking at okay. People who come to Dave's blog, let's talk openly. It has both sides of this but what it's doing, you better handle MPK one way or another otherwise, you're not going to like what happens to you. Do you tell people, "Wait until your fasting blood sugar is 94 and then start thinking about it?" What's your mindset? Because this is one of the hugest questions.

I want to be right when I'm sharing knowledge about this because there are hundreds of thousands of people who listen to this who are going to say, "I should go ask my doctor about this or I'm going to order it from India or somewhere."

David Sinclair:

Yeah. Right. Right. Okay. Thank you for letting me expound on this a little bit. Now, there are awesome molecular downsides. What Metformin does amongst other things is it interferes with your mitochondria. It will block the activity, what's called Complex 1, which is important for generating energy. One of the ways we think Metformin works is it lowers that energy, chemical energy ATP and in response, your body will become more sensitive to insulin. That helps you with Type II diabetes. The potential downside and there was a recent study about a month ago that showed that if you take Metformin and you exercise, Metformin will blunt some of the benefits of exercise on mitochondria.

That gives us a conundrum. It's not perfect. There's no perfect answer here. Let's be clear. I'm doing this. It doesn't mean that it works for everybody. It doesn't mean that I'm recommending it. I'm a scientist and I'm trying to figure this stuff out before time runs out for all of us. What I'm doing with myself is I'm taking Metformin on days that I don't exercise and often, I'm not exercising because I'm on the road. I'm on planes and that's my substitute for exercise. If I do exercise hard, I will skip the Metformin because it may blunt the effects.

Dave Asprey: Thank you for saying that. Dr. Mercola and I were talking about it. Similarly, he's become much more aggressive on his personal anti-aging. There's definitely evidence that if you're going to go to the gym, you probably skip your Metformin. What about fasting? Do you practice intermittent fasting or 24-hour fasting or some other flavor of fasting personally?

David Sinclair: I do. I do. I went through my 20s and 30s just trying to stay slim. I didn't do anything formally, but the data has just been so clear in animals and increasingly in people that spending part of the day or part of the week hungry is just as important, if not important than what you eat. A good study came out from my friend, Rafael de Cabo, NIH. Again this is based on mice so it's not necessarily the same as us. He found that mice from different diets, different ratios of carbohydrate, fat, protein lived about the same length of time actually identically. What made a difference was when he gave them the food and how much they would gorge themselves.

The mice that had longer period of fasting were the ones that had the greatest benefit. Extrapolating from that, among many other studies, I've been able to skip at least one, perhaps two meals a day if I'm good. It's difficult. I know that. It's not pleasant for most people, myself included. I do find it pretty easy to skip breakfast. I'm right here with a cup of coffee with a tiny bit of milk and with a tiny bit of yogurt in the morning, a couple of spoonfuls. I'd go through lunch often. I skip lunch because I'm so busy but I eat like a regular person. At night, often perhaps a little too much because I'm out at restaurants probably a few times a week.

That's what works for me. I think if you could fast two or three days in a row, that would actually be better because it will kick in what's called chaperone-mediated autophagy, which is the widest cell digests protein. That would be even better but I just don't have the stamina or the energy to go for that long. Unlike Peter Attia, our friend who does do that. He says that Day 3 is really quite a different feeling than the first two days.

Dave Asprey: Yeah. I do that as well. Probably not as often as Peter but I definitely do three-day fasts probably every couple of months.

David Sinclair: Outstanding.

Dave Asprey: My wife and the kids are gone and I say, "You know what? I love to cook but I don't want to do any dishes so I'm just going to do this." The way I found I can get through it is and some people say, "But that's not fasting." I don't really care. I do coffee obviously but I put a little bit. I'm talking a half a teaspoon to a teaspoon of Brain Octane, the stuff that I make that raises ketones. Coffee by itself can raise ketones. I find as long as we're talking maybe 30 or 40 calories that pretty much all goes to ketones, that bumping ketones means the amount of suffering and lack of energy is about zero. I just go through and then by Day 3 don't care.

It's definitely been one of the most anti-inflammatory things I've ever done but your own practice there of just saying, "You know, hey. I'm going to skip breakfast. I'm going to eat almost nothing for breakfast." You're saying that it's what works for you. Now, you must be drawing crazy labs on your own blood and saying it works for you. What is the definition of working for you? What's that look like when you're measuring it?

David Sinclair: Yeah, a really good question. First and foremost, I'm now 50 years old. I know what my body feels like when it's not healthy and when it is healthy. That's my main indicator. I'm also increasingly biohacking, which is pretty common these days.

Dave Asprey: Yeah.

David Sinclair: I've got the risk devices. I've got the ring on my finger. Every morning, I wake up and I find out how I've done overnight. I can see my resting pulse rate, my heart rate variability, all of that tells me am I on the right track? Now, that doesn't tell me my blood sugar. It doesn't tell me my inflammation so I need to delve deeper. With that, I do blood tests, not super often. On average, it would probably be every four months or so just to make sure that everything's okay and I try to optimize what I'm doing. If I'm taking new supplements or I try new exercise regime, I want to make sure that that's all good.

I actually have blood tests for at least 30 markers going back to 2011. I really know my body well and if it's doing well. Going back to the Metformin story, what's important to know is you asked me, Dave. What's really important is why did I decide to take Metformin? Now if my blood sugar was low like yours and it was steady low, there's no point in taking a medicine if you're already achieving the goal. Mine was edging up month by month, year by year and it was a straight line up. I was headed for diabetes like my father had, my grandmother had at an early age. For me, it made a lot of sense to try the Metformin, to try and bring that back down, which worked for me. Okay.

It may not work for everybody. We're all very different. We're different genetically. Women have an additional X chromosome and that we're quite different animals. We have different microbiomes. We live in different parts of the world. What I encourage people to do is to work with their doctors, work

with their trainers or work with their own awareness of the body's health and try and optimize what works for them.

Dave Asprey: I very much value that you're saying that because it's not the same for everyone. It's one of the reasons since I started Bulletproof, I've had so much pressure. Dave, give us the list of supplements you take." I take about 150 a day. They've been carefully evolved with lab testing for formerly obese, a 6'4", 200+-pound guy with 10% body fat now. We use to probably be 40% or whatever it was, with a history of autoimmunity. Trust me. You don't want to take mine if you're a 90-pound Asian woman. You're just going to fill your pants and have even more expensive pee. It's not okay.

I think that that scares a lot of people away from anti-aging because they're saying, "Well, this is one of the things my doctor can't tell me if I should take Metformin much less Vitamin C these days." They're seeking out functional medicine doctors or they're going to the internet, which actually has good information on it. Dr. Google's knowledgeable these days. It does breed to people things that just don't really work. Just like I don't take any drugs ever. I only eat plant-based proteins knowing that 99% of plant-based proteins will kill you. If you don't believe me, go head to the forest and eat some leaves and see how long you live.

David Sinclair: Yeah.

Dave Asprey: These rules are artificial. How would you advise someone listening to this going, "You know what?" Let's say I'm 25 years old. I'm not in infinite bucket of money at this point in my life. I'd like to not get old. What's your thought process? You're not going to say, "Take Supplement Number 1," or something other I don't think. What's the thought process? How would someone get started? Just saying, "You know what? I don't want to die."

David Sinclair: Yeah. Okay. I'm often asked, when should I start this or that? There are some things that aren't worth trying until later I think, like Metformin. It's a drug. In your 20s, just my personal view is that's not necessary. There are some things that we know work very well if you start early in animal studies. We're extrapolating here. Some things work better the earlier you start. For instance, the dietary changes. The longer you're on a healthy diet in your lifespan and the longer you exercise the right way, the better. You can't stop this at 80 and expect it to work as well as if you started when you're 20.

If I could go back to myself when I was 20, I would say, "David, don't eat as much. Have periods of hunger. Don't eat as much meat."

Dave Asprey: Yup.

David Sinclair: "You don't have to avoid it but don't have meat with every meal like I used to." I've been on Resveratrol since I was in my early 30s.

Dave Asprey: Yeah.

David Sinclair: It certainly hasn't done me any harm. We have some new data in the lab that says that it is working the way we said it was through the Sirt1 longevity pathway. I think that that's a pretty safe place to start. I'd probably say that that's going to do you no harm in the long run.

Dave Asprey: You'd put people on Resveratrol if it's a grapeseed or skin extract. By the way, that's one of the very earliest compounds I took. When I was 19, I used to have these horrible chronic nosebleeds. Every day, my nose would just start spraying blood. It's a sign of living in a place with toxic mold. It was actually embarrassing. "He's going on a date. Never mind." I'm sticking paper towels in my nose. I noticed very reliably that Resveratrol or at the time, they mostly just say it was grapeseed extract or grape skin extract. It would fix the problem. Two days of taking it and suddenly, I was fixed.

I just remember going back on that. That and Vitamin C are the two longest lived supplements I've taken since then for now almost three decades. Okay.

David Sinclair: Yeah. Right. We have some pretty long term, at least anecdotal evidence. The mouse studies have been pretty clear that there's no downside. That's one that I would say but in general, I think read your book, Dave. My book's coming out is custom. Some hints on how to exercise and eat well and fast. Figure out what works for your body as well. There are some companies that offer and in full disclosure, I've invested in one of them called the InsideTracker. You can see what's happening on the inside when you try something. You just want to make sure that you're not doing your body any harm when you try something

Dave Asprey: InsideTracker, this is blood testing?

David Sinclair: It is. It's often used by athletes to make sure that what they're doing physically with supplements is optimal.

Dave Asprey: All right. I love that idea. I actually have the URL, vitamintests.com that I registered in 1990 something because I've always thought we need more tests to see what levels you should take. I'm actually going to check that out. There's also the whole gut biome thing, which I know is an area of interest for you and for me. I've first advised and then eventually invested in Viome where we're saying, "What is the metabolic activity of a bacteria in the gut?" What does Resveratrol do to the gut? What do any of these polyphenols do? I feel like we are just scratching the surface. Last week, I read about a paper that you probably saw two years ago about these very small proteins.

Less than 50 amino acids stuck together that are made in huge numbers in the gut and in the body that no one measured before because they were too small. What do you think about stuff like that? Do you ever worry? Good God, we missed that. That's where all the good stuff is.

David Sinclair: Yeah. My lab has found about 2,000 small proteins that nobody knows exists yet.

Dave Asprey: Was that your paper? It might have been. I didn't say your name on it but I didn't look at the names that closely.

David Sinclair: No, I haven't published this work yet.

Dave Asprey: Okay.

David Sinclair: We have a big grant from the government to do this work. We had to use some bio informatics something that you're familiar with to find these genes. We compared our genomes to chimp and found which small regions of our genome were conserved. It just turns out that the algorithms written to find genes in the first draft of the human genome, anything that was smaller than 300 letters was discarded because it was in the noise of the genome. We scientists are going back saying, "Hey. Maybe there was something in that small 300 base pairs and there's thousands of them that we've missed. I think that it can be a whole new set of discoveries and drugs that are now found in that world.

Dave Asprey: One of my favorite small peptides is a tripeptide found in collagen protein. It's three amino acids. That's what tripeptide means. It's been overlooked but the cool thing about things that small is they can pass the gut lining if they don't get digested especially if you package them well. I'm thinking, "Wow. There's a whole another 10 years of exploration and expansion of what we can do with our bodies." You already of course discovered new ones but we're just on the edge of that. Do you think we're going to hit a place where we finally figure all this stuff out?

Where there aren't additional layers of the onion that we peel? We actually know what's going on all the way down to the sub cell.

David Sinclair: No. No. We're the most complicated entities in the universe. We can barely model the interaction of two atoms. We got a long way to go.

Dave Asprey: Yes.

David Sinclair: Certainly, not within the next few thousand years but we will be able to catalog everything in the body within the next 100 years.

Dave Asprey: Yeah.

David Sinclair: I believe but then figuring out how they work, how they interact is far too complicated even for advanced AI to figure out that easily. I think we would be quite arrogant to think that we can figure this out easily but what's exciting and going back to the 20-year old point, we now live in a world where we can find

information. 20 years ago when I was young, you could not find this information easily. It was holed in libraries. You couldn't get access to the journals.

Dave Asprey: Microfiche?

David Sinclair: You had to pay for them. It was a nightmare but fortunately, we live in a world where you can listen to educated podcasts or podcasts that speak directly with scientists like this one. They're a blessing. Now someone could educate themselves about the actual facts rather than formally having to read a headline and a distorted story in a newspaper where often, it was just a bunch of BS or hype. 20-year-olds can now read science. They can educate themselves. As we go forward, we're going to be able to just learn more and more about what works. Now, there's a large population or segment of the population that doesn't give a damn about the health.

Dave Asprey: Yeah.

David Sinclair: There's increasingly a number of people that do care. Those are the people that now have access to the world's knowledge and can do the stuff. Think about this. We know more about our cars, how they operate than we do about our bodies. You got a dashboard on your car every day. We don't know what's going on. We maybe do a blood test every year and that's very superficial. We need to move to a world where we know just as much more about our bodies, what's going on so we can get ahead of the problems before they actually cause us to get diseases.

Dave Asprey: I really like that perspective. We do need a dashboard. You mentioned that you draw 30 different variables on your lab test. I'm not going to ask you to list all 30 because that would become a boring podcast although a fascinating blog post. Give me the top five markers that you think matter most for your health that you could draw from lab tests.

David Sinclair: Yeah. We just published a paper last year, which people can find online. The top five that trend or associated with longevity are blood glucose levels. That's the strongest link to longevity on high levels. The next is inflammation so you can measure CRP, hCRP. That's a big one. Keep that down. TNF alpha is another inflammatory marker, which is bad that goes up with aging and seems to predict longevity. In males, testosterone. Now, I don't want to get sidetracked about supplementing with testosterone but your levels of testosterone do seem to associate with health and longevity as they go down. I look at that.

Vitamin D levels interestingly as they go down, they predict a decline in health. I measured that as well. Those are all good things. The final one that's important is liver function. Any sign of liver dysfunction is a bad sign because I'm not saying that liver dysfunction itself will cause aging but these are canaries in the coal mine. They tell you that something's going wrong.

Dave Asprey: That's a fascinating list. I would have expected there to be homocysteine. I know it's an inflammation marker.

David Sinclair: For sure, for heart function. I do measure that as well. I haven't seen data that associates that with longevity but I agree. That one I do monitor for sure.

Dave Asprey: Okay. The ones that have been on my list for 25 years are CRP, for sure. It's C-reactive protein. If you've been injured or you've got something bad happening that you don't know about and then testosterone for sure. D3 and then homocysteine and then Lp-PLA2, which is for people listening going, "Dave, my eyes just rolled." That's an enzyme that's released when something is damaging the lining of your arteries. If you're worried about high cholesterol and your cholesterol is high but you have no evidence of damage to your arteries, you should ask yourself. Okay. What are my other concerns about my cholesterol? Do you monitor Lp-PLA2 at all? Is that one of your things?

David Sinclair: I don't think it's on the list actually.

Dave Asprey: Interesting, cool.

David Sinclair: I should recommend that. Yeah. Actually, I would argue that there's no doctor in the world that can have the world's knowledge at its fingertips. Whereas these organizations, they punch your numbers in and it comes back with recommendations to say, "Here's what is optimal for your age or demographic, your sex."

Dave Asprey: Yeah.

David Sinclair: Also, based on the scientific literature, here's a suggestion on what you can do to try to optimize that you're out of the boundaries of what's optimal to get you back. What fascinates me and the reason that I helped get this company off the ground initially was you'd go to a doctor. Let me get something clear for all the people listening. I've nothing against doctors. In fact, I help train them at Harvard Medical School but I'm trying to improve the medical system. Doctors, it's a terribly tough job. Nothing against that profession at all. It's really hard. What's difficult in their profession is they don't know everything. They cannot.

How to augment that is a knowledge-base like these companies have built that says based on a million publications and hundred thousand other people who've put their data in, what works for them. Here's what might work for this patient or this individual. I think that's the way science and medicine has to go. Because we just can't guess anymore. Because what works for Person A may not work for Person B or C.

Dave Asprey: Very well put. I had a friend who was 88 years old when I was in my 20s who was one of the board members of the anti-aging non-profit group that I worked with. He was just so full of energy. He'd get really angry when he looked at lab

levels and go, "Those jerks. They want me to do the testosterone levels of a 90-year old. I don't want that." He was dating a 36-year old and he liked his testosterone to be that of a 35-year old guy. I can imagine why but his ability to show up in the world was at least as good as mine. I still remember that. His name is Mike.

I really feel like we are getting to that point where doctors can look at ranges and have the freedom of medical practice to say, "You know what? You're within range. Were you having symptoms? Here, have some thyroid already." At the same time, insurance companies get in the way of that. This maybe is something you have no comment on, I'm not sure. I thought for years, if I ran a life insurance company, I would take Professor Sinclair's list of 30 lab tests or I'd take my own list. I'd run it against everyone who wanted to get my insurance. If your number's really good, I'd charge you less. If it's bad, I'd charge you a little bit more.

I just got a bunch of life insurance. They're 1960s lab data that they're basing everything on because they're actual rare tables from then. Are we going to see a change in our understanding of the risk of dying because of the work and others in your field are doing? Such to the point that we have a better predictive ability for someone?

David Sinclair:

Yeah, 100%. That's the way the industry will go. It has to go that way. It has to be data-driven. Even going back to 1825 with Benjamin Gumpert in London who figured out mortality codes with an equation that was much better than just looking at tables of life history. He made a lot of money for his relatives, the Montefiore's and the Rosguards. That was a big revolution. The next revolution now is to individualize insurance with actual predictions, not just based on blood pressure and this kind of thing. The kind of blood data that I'm doing and you're doing, that'll be Step 1.

There's other measures of longevity now. We can measure the DNA methylation clock, what's called the epigenetic clock.

Dave Asprey:

Yes.

David Sinclair:

I could take your blood, Dave and I could say, "Within 5% error when you're going to die." It's a scary thought but we could do that now quite accurately. There are clocks of blood, clocks of muscle, all sorts of clocks in animals ranging from monkeys to bats, to humans, to dogs and sheep. It's remarkably consistent. Insurance companies should go that way. I think eventually, we'll have to go that way to be able to price things that are individual because we're not all aging at the same rate.

Dave Asprey:

Now, one of the ideas of insurance is to share risk that's unknown. I'm hoping we get to a world where you can say, "You know what? Your price for your insurance is X unless you take the steps we recommend or other steps of your

choice to change these variables so that they get better." If the variables can't get better, maybe there's a maximum price for insurance that no one has to pay more than because that's the point of insurance. I would hate to think of six people born who are just simply uninsurable at any price because of something that's entirely outside their control. It seems like you just show them out the point of insurance goes down.

I'm imagining a world in our lifetime, David where we're able to do that. Am I being too aggressive? Is this in our lifetime thing?

David Sinclair: I think it's sooner than that. One of the things that struck me was, my father is an extremely fit 80-year old who if you didn't see him, you just saw what he was doing, I would put a bag over his. Let's say you only could see with his body moving around and him talk, you would say, "Okay. This guy is 20 or 30 years old." That's what he's like if I can give you an example.

Dave Asprey: Wow.

David Sinclair: He's fitter than me. I recently went to the gym with him and he kicked my butt. It's now on record. Here's the thing. He tried to get insurance to travel. He comes to America every year. He travels around the world. He's very fit. He couldn't get insurance. It's very difficult if you're that age but it's a blanket policy. Anyone over that age, we will not insure you but that's crazy because my father is as seemingly as fit and healthy based on his lifestyle, his blood work as a 30, 40-year old. There were some 80-year olds of course who are in wheelchairs. That's of course the difference. Insurance companies should be able to distinguish between those two types of people.

Dave Asprey: They just about had a connection. I just went through the arduous process of getting life insurance. "Why do you go to all these doctors? Why do you get all these lab tests? What's wrong with you?" I'm like, "Nothing's wrong with me and now, we have evidence that nothing's wrong with me. In fact, I'm doing better than anyone else." It took an extra six or nine months to get insurance because they're like, "We have to look at all this data." Like, "Oh, my God. What if there's something scary in here?" If so, then we would all know. I did finally get the insurance but man, it was a fight.

David Sinclair: Yeah.

Dave Asprey: We'll see though. I think in the future, they'll be like, "You're our best client because we have the data." I'm hoping that what you're doing in the Sinclair lab is going to drive some of that knowledge. One of the things that you're doing that you have talked about in other interviews, it's in your book as well but something I think listeners would love to hear that. Talk to me about NAD+ and Sirtuins.

David Sinclair:

Sure. They're near and dear to my heart. My history is that I was born in Australia. You can probably tell from my accent. When I moved to MIT in Boston in 1995, our goal with my mentor, Lenny Guarante was to figure out why do yeast cells get old? At that time, nobody knew why any organism age. We figured out first of all why they age. It's got to do with a reorganization of what's called the epigenome and genes get expressed when they shouldn't.

The point there is that the genes that control that and allowed the yeast cells to live longer when they were calorie restricted or fasted as we would now call it, there was a gene set that we discovered that or at least we linked to aging called the Sirtuins as you just mentioned. Now the Sirtuins, most people haven't heard of Sirtuins but the Sir part of that name stands for silent inflammation regulators. That's just a long name for a gene that controls other genes, the epigenome. That was the first evidence that A, we could understand why aging occurred. Second, why does calorie restriction provide health benefits?

Not because it's changing metabolism slowing the cells down. In fact, it speeds them up metabolically. The reason is that's turning on longevity genes like the Sirtuin genes. The other point is that we could now potentially chemically control these Sirtuins so that they keep the right genes on and off during aging and keep the yeast cells younger. The first chemical that we discovered that could turn on the Sirtuin halfway and mimic calorie restriction was Resveratrol. That was 2003 in yeast and then we went on to show that it could mimic calorie restriction in mice in 2006. You mentioned NAD. Now, why is NAD just as interesting, if not more interesting than Resveratrol? Okay.

There are seven Sirtuin enzymes in our bodies. In yeast, there's five. There's a whole family of these things. Resveratrol only as far as we know activates one of them, number one. What about these other six in our bodies? It turns out, to activate all seven of them, there is a way to do that. The way we do that is to give them more of the fuel that they need. There's a little chemical in our bodies. There's a lot of it. There's a few grams of it in our body. They're called NAD. Sirtuins don't work without NAD. In fact, if we didn't have NAD, we'd be dead in probably 10 seconds. It'd be like taking cyanide.

You need NAD for chemical reactions in the body but also, you need NAD to tell the Sirtuins that you're fasted. You're calorie restricted or you've been exercising. You can fool the body into thinking you've been doing those things or augment a healthy lifestyle we think by keeping the levels of NAD higher than they would otherwise be. Actually think that in many of our tissues and our muscles, perhaps in other tissues that NAD availability goes down with aging. The older you are, the more important it is to augment the levels of NAD so your Sirtuin defenses remain active. You heal better and you don't tend towards getting diseases.

Dave Asprey:

I've had a couple interviews on about directly taking NAD. It's something that we do at the Upgrade Labs, at the clinic at Upgrade Labs at the Beverly Hilton and something I've done at least 20 IV infusions of NAD. I do sticks and topical

and needle sprays and we've had some NAD supplements on. I'm thinking once you've been involved with your NAD precursors like nicotinamide riboside. What's your favorite way of getting NAD if cost is not a problem?

David Sinclair: There's a lot of things that are out there. I'll just run through them and I tell you what I do. Some people take high levels of Vitamin B3. There are two types. There's one called nicotinamide, one called niacin. Nicotinamide, I'm not a fan of in high doses.

Dave Asprey: Yeah.

David Sinclair: Because we showed in my lab in 2002 that it's actually an inhibitor of the Sirtuin defense.

Dave Asprey: That's why they call them no flush niacin. It doesn't really work, right?

David Sinclair: Correct. I can't say anything definitive but I'm going to tell you my best answers based on having been in this field for the last 25 years. That caveat has to be said. There is no answer but we're making progress. Nicotinamide I avoided high doses. A little bit is going to be fine of course like but a vitamin. Nicotinic acid is interesting. It's been taken and prescribed actually for cholesterol levels. It seems to be quite effective lowering cholesterol but its downside is that you get flushing so I don't take that regularly. Now, the next one is nicotinamide riboside. Dave, you mentioned that. That's called NR for short.

Dave Asprey: You're pretty well-known. You're the guy behind that I would say in terms of research, right?

David Sinclair: Kind of. I'm not affiliated with nicotinamide riboside companies. I don't sell anything on the internet despite what you might read. If you see a website with my name on it, it's even a company that uses my name, that's all BS.

Dave Asprey: Wow.

David Sinclair: That's all just illegally using my name.

Dave Asprey: The Dr. Oz effect you've got going on there. Wow. Okay.

David Sinclair: Yeah. I just don't have enough money and time to be shutting them all down-

Dave Asprey: That's really good to know.

David Sinclair: I've tried cease and desist letters but it's expensive with lawyers.

Dave Asprey: There's 14 books called The Bulletproof Diet that I didn't write on Amazon right now that are complete knockoffs of my work. You could spend millions of dollars swatting mosquitoes but yeah.

David Sinclair: Yeah. That's one of the reasons I wrote the book. I also have a newsletter on my website.

Dave Asprey: Okay.

David Sinclair: I'm trying to put out what's real and what isn't.

Dave Asprey: This is on your Lifespan book website?

David Sinclair: Yes.

Dave Asprey: All right. Everyone listening right now figured out this guy is worth listening to. Lifespanbook.com. Go there. I didn't even know you had an email list on there as well. I would just say sign up for that. I definitely follow your research to be a variety of things. That's for your book launch as well as lifespan book.

David Sinclair: Right. Okay. The next molecule besides NR is called NMN, the long name is nicotinamide mononucleotide. The body uses NMN to make NAD. It's one step chemically back from NAD. NR is used by the body to make NMN. Does that make sense?

Dave Asprey: Yeah.

David Sinclair: NR is turned into NMN, which is turned into NAD. We know that if you take NR or NMN, you'll raise your NAD levels. There's no question. That's been done many times. The question is, which one works the best? We don't know the answer to that yet. I can tell you in my lab, we focus on NMN for a couple of reasons. One is NMN is chemically more stable on the shelf. The other reason is that in a couple of experiments such as endurance, treadmill endurance with a mouse, NMN worked better. I'm not endorsing one or the other. I'm just saying that this is where our state of offense-

Dave Asprey: When your first NMN research came out, I could only find some from China. I bought a kilo of it and gave it to my dog to see if anything bad happened and good things happened so I took it. I probably should have sent it to a lab to find out how much God knows what I was getting in there but I couldn't find any labs.

David Sinclair: Yeah.

Dave Asprey: I believe that there is merit to it. Let me put it that way.

David Sinclair: Right. NMN is currently more expensive than NR so people tend towards NR. Yeah. What I'm trying to do with my research is to go fast as I can to figure out what the safety is, what works, what doesn't. In my lab, we're doing a lot of mass experiments, long term mass experiments as well as short term looking at endurance and reversal and delaying of aging. One of the studies we put out

recently, last year was showing that mice that were given NMN for just a month ran much further on treadmills. They had better blood flow. They had new capillaries in their muscle. I think that that looks really good and promising for people who have bad circulation.

It's not without risk. If you have a tumor growing in your body, you don't want your blood flow to it. We're also testing NMN in the context of cancer. So far, there's nothing that I've seen that concerns me. I once actually had a reporter from The New York Times ask me don't you think it's a conflict of interest that you're studying the molecule that you're also taking? I said, "Absolutely not. I want to be the first person to know if there's a downside."

Dave Asprey: Thank you for doing that and saying that. One of the biggest disappointments of any interview I've done out of 600 was Andrew Newhouse from Vanderbilt who's been studying nicotine. Very similar to nicotinamide in terms of receptors but he's like, "In 1980, I wrote the first paper showing that it was curing Alzheimer's disease." Do you have a nicotine patch on? Do you use an oral form? What do you do? He's like, "I've never tried it." I'm like, "How can you do that?"

I have a great respect for his research and I like him and all but the mice that there seems so foreign to me as a researcher who doesn't touch the compounding research, how do you know what it does? Anyway, do people criticize you?

David Sinclair: Exactly.

Dave Asprey: What planet are they from?

David Sinclair: Right. I don't take crazy risks.

Dave Asprey: Yeah.

David Sinclair: I study it. I find out what the risks are and then I try to be ahead of the curve.

Dave Asprey: Yeah.

David Sinclair: Also, I see things years ahead of the rest of the world and my colleagues. My colleagues don't know what I know. What I know is that we've been giving NAD boosters, this class of molecules that's called NAD boosters. There's one called MIB-626 that we've put into humans for at least a year now and clinical trials. We've got the data back on that. There's nothing yet to concern me. I want your listeners to know that I'm doing very hardcore science in animals and in humans, in clinical trials because I'm a scientist. I'm also concerned about human health and that's my way of getting us to a future that I think we need to get to the best that I know.

The way I can do that as an individual and also try to bring the world up to speed in the knowledge that I think will progress the field for.

Dave Asprey: I applaud you for your willingness to go out there and see. What is this going to do to meet with rigor and curiosity? It is something that I think is missing sometimes. Another one of my biggest letdowns, I had a chance to ask Craig Venter. This is the guy who sequences first genome and you know who he is but for people listening who may not. I said, "Craig, you've got 20 years of data on genetics here. Given the sum of your knowledge, is there anything that you think we should do more or less of? What actionable information comes out of this? Should we all eat pizza and beer and wait until more research is completed?"

He looked at me and he said, "Let's sit down over pizza and beer and talk about it." I'm like, "No." There has to be a directional thing we can do in the meantime while we wait for the holy grail.

David Sinclair: Exactly because we were born one or two generations too early for a lot of this. I still have colleagues who say, "I wouldn't touch anything unless it's 100% proven to work." Now, that person is going to be 100 years old at that point.

Dave Asprey: Yes.

David Sinclair: That's their choice.

Dave Asprey: There's also the single variable thing. I'm going to find out the one thing that works. I'm pretty sure that there's going to be this weird thing. Food and light in combination do different things, if you eat it midnight versus eat during the day. How do you test one versus the other when it's the system of things that work? The assumption everything is single variable is also flawed biologically. As I get older, the more I see, the more I doubt that just one thing is going to be the holy grail. Even though like you, Resveratrol is a good thing but it's not the only thing.

David Sinclair: For sure. There's so many variables. There are millions of variables. We're not going to be able to try all these in mice, let alone humans within our lifetimes. That's why I think we need to push the boundaries of science the way you and I are doing that. Let me give an example. In mice, what we typically do is we try one male molecule or one genetic manipulation at a time and that experiment takes about four or five years to complete once you've tested and done all histology. That's one strain of mice or maybe at best few strains of mice in one or three labs. You do it sequentially. As a planet, we're not going to get to understanding what the combination of these molecules is.

We can barely know what one molecule does. We're just starting to combine two molecules, let alone three. I think that that combination is what's going to be required to have the biggest impact because there's no one magic bullet.

Dave Asprey: It feels like we could probably talk for another hour or two. In fact, I'm going to see if I can get you on this show for another interview sometime, when you've got more time. I know you're in the middle of talking about your book and all. I have a big question for you as we come up on the end of the show. The question is one that I've been asking every guest since I started writing my book on longevity as well and this interview. I'm telling you guys, read Lifespan. In fact, read Lifespan before you read Super Human. Just so you're clear, Lifespan is David's book. It is awesome.

David has way more credibility in the field than I do. It's worth your time and it'll inspire you as well. Here's the big money question for you. How long do you think you're going to live?

David Sinclair: All right. I'm definitely going to get this wrong.

Dave Asprey: Yeah. Me, too.

David Sinclair: I'd prefer to underestimate and overestimate otherwise. I can imagine I walk out and I die tomorrow and people are going to go, "We knew it wasn't going to work." All right. Simple answer is every year or so, certainly every decade that goes by, I'm more optimistic about my future. It's for two reasons. One is that I see how my health is doing relative to my peers. It's a long term experiment. In my 30s, I couldn't tell what was going on because I was young and everyone else was. As I'm getting older, I am seeing possibly a difference here. I'm not totally wrinkly. I'm not losing my hair much. I don't have a gray hair.

These are the early signs that maybe, maybe something is working and my cardiovascular system is young based on extensive tests and imaging. By all accounts, I'm doing okay. It doesn't mean that I'm going to not get cancer tomorrow. Everything is on track to live potentially to be healthy in my 90s, into my 100s. What gives me even more optimism is my father is very similar to me physically, biochemically. He's 30 years ahead of me exactly and he's doing great. I'm feeling pretty much the same regimen that he is. If he's anything to go by, I think he's got another 10, 20 years of life at least. Now I'd love to be able to be healthy over 100 and outlive a lot of my enemies and the naysayers.

That's one of the reasons that I'm really hoping that this is going to lead somewhere. I'm not afraid of dying, by the way. Often people wonder maybe David is scared of death. That's not the case.

Dave Asprey: It's not about that.

David Sinclair: It's not at all. I'm just curious and I just want to see where humanity goes. I love seeing technology in the future. I want to be there to see a lot of it. We'll see. Let's put a number on it, okay. 90 in good health and optimistically making it to a century.

Dave Asprey: Just to a century. You've got to go a little deeper on that. We have the lady who's 122. Although you probably saw the very recent as in the last three or four days a shocking discovery about blue zones. Did you see this research?

David Sinclair: I've seen a lot. Which one?

Dave Asprey: Okay. What they found is that blue zones are usually poor and that there's a very large percentage of poorly kept records in areas where there's blue zones. As record keeping comes online, the number of super centenarians drops dramatically. In other words, there's insurance fraud and people taking over things for their parents and claiming that they're ...

David Sinclair: Jeanne Calment was potentially replaced by her daughter, yeah.

Dave Asprey: Yeah. Not just that one case but there was a body of statistical evidence that shows that the number of crazy old people is very much a function of how bad record keeping is globally. Every blue zone that they've identified also shared that problem. That said, I think there are people who've made it to 120 out there. Maybe I'm wrong but just-

David Sinclair: 117 well documented.

Dave Asprey: Yeah.

David Sinclair: Even if they haven't made it until 122, that's not the point.

Dave Asprey: Here's another question for you though. Okay. I've read your book. You talk about aging as a disease. You said you're 51 if I remember?

David Sinclair: Just turned 50.

Dave Asprey: Just turned 50, okay. We're about the same age. I'm 46. Okay, so you're 50. Now, you have another 50 years of what you've been doing before you're 100. We know more now than we did last year and it's going up exponentially and you still think that the best you can do is 100?

David Sinclair: Okay. There is some caveat to that or some qualifiers. If the recent breakthrough in my lab comes to fruition, then the game changes quite considerably.

Dave Asprey: Let's assume that it doesn't happen in your lab but it happens in one of the hundreds of labs around the world that are working at all these different things. Half of which you and me I've never even heard of. Don't you think someone's going to hit it if it's not you? That you think you're pretty close if you haven't? Just putting the odds.

David Sinclair: Right. If your listeners read my book, they'll see that in my lab and in about three others around the world, there's been a big breakthrough. That's the one I'm referring to, which is reprogramming cells to be young again.

Dave Asprey: Yes.

David Sinclair: That is the true aging reset. This isn't just delaying aging or making some cells healthier. This is actually going to the root core of what ticks inside our cells and getting them to permanently be reset. If that works and we so far we've been able to reprogram the retina and get eyesight back in old mice, if we can reprogram the whole body to be young again, then that's a game changer. Somebody will figure this out I think in our lifetimes. If that works, then I think another 10 or 20 years is quite feasible.

Dave Asprey: Okay. You're now getting up to about 120 sort of thing with the caveat that if that works. My bet is that if that doesn't work, something else is going to work in the next 50 years. By the time that happens, we'll get that extra 10 years. Something else happens, we might be right near that-

David Sinclair: Yeah.

Dave Asprey: I could be more optimistic. I have that other four years of living to do before I get to be 50 and lose my optimism.

David Sinclair: Yeah. I'm still optimistic.

Dave Asprey: Not at all.

David Sinclair: What I'm cognizant of is I don't want to come across as being a futurist. That's crazy. I want to be grounded in science and so everything I say has to be fact-based.

Dave Asprey: Okay.

David Sinclair: I'm told by my colleagues that if I say that someone born today could live to 150, I get this hate mail from my colleagues saying, "Hey, David. That's not a good look." I want people to know that there's this thing called academic freedom but we're actually not that free. We're being monitored by our colleagues and judged.

Dave Asprey: Yeah.

David Sinclair: That said, the reason that I still stand by that prediction is that I'm not saying we're all going to live to 150 necessarily. I'm not even saying I'm going to live to 150. I'm saying that someone born today is going to celebrate New Year's for sure in the year 2130 probably. Like you say Dave, the technology in those days is going to look like antibiotics weren't even discovered in our times. They'll

have the ability to go. It'll be like asking people in the 1700s what's the chance of going to the moon. Of course, they'd say that's farcical.

If you ask the Wright Brothers, which is the equivalent of what we are right now, they would say, "Yeah. Why not? We can fly. We'll figure this out one day." I don't know how we're going to do it but we're going to do it within the century to come.

Dave Asprey: What a beautiful way of positioning it. You're right. It's possible. I won't live to 180, which is my number. Will someone relatively soon? It seems like the answer is we're going in that direction and I volunteer to be that person and so do you. I figure you and me and many of the others in our community have a higher likelihood of doing that because we know more and we have access to the tools. We share that access so they can become tools for everyone. David, I just want to thank you for your work.

Your new book, Lifespan, it's one of those books that really, really excites me, inspires me when you talk about the information through of aging, which we didn't even get into in this interview because I want people to read about it in the book. You talk about the ability to reset the clock and the body. I've never been more excited about living a longer, better life than I have now. Your book just added a gasoline to the fire. Thank you for writing it instead of keeping it in a medical journal somewhere. You made the right call.

David Sinclair: Thanks, Dave. It's been fun and a real pleasure to be on. Thank you.

Dave Asprey: If you enjoyed today's episode, you know what to do. Seriously, go out there and buy Lifespan. It's anywhere books are sold as you'd expect. While you're at it, pick up a copy of Superhuman. You are not going to read the same thing in both books. You'll see some common discussions around Sirtuins and whatnot. You'll learn something from each of them. We're going to agree on many things but not everything particularly around fasting. I think we're going to agree but whatever the deal is, if you tune in, check out some of the other interviews that Dr. Sinclair has done. You're going to learn a lot.

Just understand your ability to control the quality of your aging is clearly already out there. Your ability to control how long you're going to live is coming online right now. This is one of the preeminent researchers in the field. Become familiar with his work. It will make your life richer. Have a beautiful day. I forgot to tell you. If you read Lifespan and you like it, you have a moral obligation to leave a review on Amazon. It's that big of a deal. When a professor from Harvard takes the time to write a book for us, not for colleagues, he wants to know, "Hey. Did I do a good job? Did you like it? Was it worth your time?"

The same thing for my book, so if you like a book, one of the cheapest and easiest ways you can show gratitude is just leave a review. By the way, showing gratitude makes you ageless, so everybody wins. Now, have an awesome day.

