# TA-65 Explained: Telomerase Activation, Cellular Repair, and the Science of Anti-Aging Transcript

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## Podcast Introduction and Regenerative Medicine Overview

Hey there, welcome to the Recharge Biomedical Podcast. I'm Dr. Edward Park, and if you're curious about regenerative medicine, you've come to the right place.

We're diving into the latest breakthroughs in telomeres activation, stem cell exosomes, and all the cutting edge science that's shaping the future of healing and longevity.

Let's get started. If you believe in you, I know you believe me, oh yeah, oh yeah I will realize you got all that stuff for me, oh yeah, oh yeah I know that you would have wanted it this way Hi everybody, this is Dr.

Ed Park and we're doing a webinar today on TA65 and I want to welcome everybody and thank you for joining us.

## TA65 Basics and Telomerase Activation

On the upper right is the actual astragalus membranaceus plant and of course the root has the concentrated form. It's kind of funny, it looks like this old woodblock carving of the Tree of Life in the Garden of Eden.

And then this is the quote, and the Lord God planted it in the Garden of Eden. Of course this is a bush, it's not a tree, but close enough. TA65 is what we'll be discussing today, and almost everybody on the call is taking TA65, so this will be of particular interest to them.

So what is this stuff? It is a trade secret. The extraction, the molecule, there is speculation, but I am not privy to exactly what it is. The extract comes from astragalus root, which looks like that.

And then the Geron Corporation found that it went through a bunch of molecules, decocted them, removed the component molecules from a variety of herbs, and found that there was one particular molecule that was very active.

And this is an experiment that can be done anywhere. where you put a molecule in with some live cells and see if they write new telomeres. And this low resolution slide merely indicates that telomerase is in fact activated.

You do write new telomeres when you introduce TA65. So because the molecule is very rare, it occurs in only one part per 10,000. That's why it's so expensive.

So just as the anti-cancer drug taxol is a single molecule medication from the bark of the Pacific yew tree, similarly, T65 is that single molecule. That much they say.

The TRAP assay, again, is the telomerase reverse transcriptase activation protocol, or I think that's what it stands for. can measure the actual increasing in the length of the telomeres.

And at the physiologic concentrations that we consume it at, we do get activation. It's believed that the way that it works is by increasing the transcription of the telomerase reverse transcriptase enzyme or little nanomachine.

And to learn more about that, see the podcast on how does TA65 work. I think some people know my story is that when my dad was afflicted with brain cancer, I kind of got worried about getting old and dying and the best theory about aging at that time and still today has validated by the 2009 Nobel Prize in Medicine.

is that the telomeres shorten and the telomerase keeps our stem cells healthy. So as my father was succumbing in

2007, I saw across my Google, because I had actually known about telomerase for a while, and then I saw on Google that T. S.

Heintzis was saying they had a product to activate it, and of course the implications of that were large, so I decided to find out if it was legit. But foremost was the concern about safety, because I had I still have two boys to take care of, so I was allowed to see the white papers, the safety testing, and that was very well done, comprehensive, and it included, first of all, single and multiple over days dosing of animals.

Classically, it would inject into mice, the tail vein, the equivalent of a bottle, a $600 bottle of TA65 and see whether it was toxic and, in fact, it is not.

Secondly, the classic is carcinogenesis.

## Safety Testing and Early Clinical Evidence

The Ames assay is taking potential mutagens like, let's say, coal tar or UV radiation and These Salmonella bacteria can't survive in this agar without having some DNA mutation.

So if a substance or a process causes mutation and all of a sudden they live, you know you've got something that's potentially carcinogenic just because it can help to write changes in the DNA.

The other study that was done before people ingested this in 2005 was a nude mouse xenograft study. So a nude mouse is a mouse with an incompetent immune system.

The xenograft means an outside graft, human, I believe it was long, maybe prostate, cervical cancer. There were like four cancer types grafted onto mice, and it was shown that the introduction of TA65 did not change the growth rate of these cancers, which was reassuring.

And finally, after people had started taking TA65, a company called Affymetrix invented this gene chip, which the size of a postage stamp has a bunch of maybe 16,000 wells, little pits, where you can detect every single messenger RNA gene transcript.

And you can see whether the genes are up-regular or down-regulated. And what's interesting is that if you look at testosterone, about 900 genes are up-regular or down-regulated significantly.

Growth hormone, only four dozen, but TA65, only eight. These are the eight, and they're all involved with DNA synthesis and repair. So it's very safe.

I mean, I challenge any molecule you put into this gene chip, aspirin, acetaminophen, curcumin, I bet it would be much more than eight. And in fact, the downregulated is just about maybe 12 or so.

But this, say, was not done by TA Sciences, but rather, Sierra Sciences, a third party, a company owned by Bill Andrews, one of the original telomere biology experts.

And so that argues that the effect is very limited and safe. It actually looks at gene expression. Finally, we're now for five years almost, as of July 7th, the people have been taking this in a large number.

They started as early as 2005 and those subjects are still fine. There's no thalidomide problem or any kind of to any kind of bad complication that arose.

So it's estimated that over 10,000 people have actually tried TA65 without any reported side effects. Certainly we do not see large numbers of cancers, but rather there have been hundreds if not thousands of people with cancer going on it, doing fine.

And to my knowledge, there's only three people who have had a new cancer diagnosed while on TA65, although

I'm certainly open to learning more about that.

Well, it is the patent protocol. In 2007, July 7th of 2007, I'm not sure if this was an allusion to a slot machine or what, but they launched their protocol and I believe it was five or 10 milligrams of this quote unquote single molecule.

So at that time, the consent was so over the top. It basically said, I'm signing away my life. I know that I will get cancer. I know that all my kids will be horribly mutated practically.

I mean, it was really over the top. And I spoke with the lead counsel of the company TA Sciences that had licensed it in Geron. And they said, no, there's no evidence of any of this.

We're just trying to cover ourselves. Interesting thing happened because it was so prohibitively expensive, $25,000 on a trip to New York to get this substance.

It was really the numbers, you know, I probably were around 100 in the first year of usage. Not many people had the money, the imagination, the courage to to do it, but it became apparent quickly that nobody was having bad effects.

In fact, they were having great effects, so they chose to double it to 20 milligrams. Again, the initial protocol was a six-month protocol, and then when six months rolled around, they said, oh, let's make it a 12-month protocol.

When 12 months rolled around, everyone was doing so great, they said, well, let's make an 18-month protocol. And that, in late 2008, it went to 50 milligrams of this single molecule.

And then in early 2009, it went to 100 milligrams. Again, because 24 months rolled around and everyone said, oh, we feel great, amazing, it's totally safe.

And in fact, the company elected to drop all the crazy consents about risks that were unfounded and open up to a wide variety of practitioners to prescribe.

So obviously, they're not concerned that it's dangerous. This is panning for gold over here. So similarly, people ask me, why can't I just take astragalus?

Well, astragalus has a bunch of molecules in it and The gold dust, or the tiny bit of gold that we want, the single molecule is very rare. Again, only one part per 10,000. That's the difference between getting some dust versus getting a Krugerrand.

In 2010, the MD formulation of 265 was born, and at that time, based on the pharmacokinetic studies they did, The old 25 milligram capsules were now including 8 milligrams of the single molecule.

So the single molecule, because of the molecular dispersion technology, was able to be absorbed, the company says, at the same rate. So the blood levels would be the same, if not higher.

And so what was 25 milligrams, they now call 250 units. and so the current 8 milligrams of the T65 molecule is equivalent in terms of blood concentration to 250 units or 25 milligrams.

Absorption of this, of the candidate molecules that have been discussed, it looks kind of like a cholesterol or vitamin D ring. An interesting thing is vitamin D, estrogen, testosterone, And this is what we call bile salts or the bile acids that are excreted by the gallbladder.

## Formulation, Absorption, and Dispersion

They all look like this. They have an A, B, C, D ring. Now the interesting thing about colic acid is it's the green soapy stuff that comes out of the gallbladder is squirted into the intestine.

And the purpose of this is because it's hard for fatty, I think if I take you back to high school chem you realize that. There's hydrophobic and hydrophilic.

Hydrophilic is polar, so it has like these OH groups, the COO. This side of the biosalt molecule is polar. It will dissolve easily in water. whereas the hydrophobic side is fatty.

So this would be the salad dressing floating on top of the vinegar. So the colic acid is a clever thing that the body has come up with. One side is hydrophilic, one side is hydrophobic, and they form these micelles or tiny soap bubbles.

So the outside faces the aqueous or water world of the foods turning around there. And the inside faces the fatty side, hydrophobic, So this is how we get our fatty acids and our cholesterol and everything absorbed.

Now when I started taking this, I looked at the candidate molecules and since the TA65 molecule may be, if I'm correct, an amphiphilic molecule similar to this, amphiphilic meaning polar on one side and fatty on the other, I figured that you needed something to help absorb it just as you need something, you need bile to absorb your vitamins A, D, E, and K because they're all fat soluble.

So that's what the system is. The system squirts bile in here and on first pass you get an absorption On second pass, when they're coated and absorbed better into the portal system, it's the liver, you often see a double peak of absorption.

So that's really the rationale that I use to help me absorb this rather precious molecule. The second thing after we absorb this molecule is dispersion.

So dispersion is how does the molecule get to where it's going. Now there's 300 billion new cells every day and you have to get the molecule into not only the cell But you have to get it into the nucleus of the cell.

So that's two membranes across. Here's the bloodstream, here's the cell membrane, here's the nuclear membrane. Because it's thought that the TA65 molecule binds somewhere around here and makes the expression of that toomerase engine higher for some short time.

So think of it as air conditioning. If you have a little fan, you can keep yourself cool with a tiny cubicle. But if you have an industrial factory, you're going to need more British thermal units.

So you need to crew the whole body. Because basically, you're introducing this molecule. If there's too little concentration, then you just can't get enough into every cell.

Keep in mind, the molecule doesn't know which are stem cells, where it's going to be used. So you have to saturate everything. short time before it is cleared.

Here's a chart showing people eating phytoestrogens. And again, estrogens have that steroid ABCD ring. So what we see is a first pass in the first, shall we say, 30 minutes where it just absorbed directly.

And so there's a little peak and then there's a second larger peak in all these phytoestrogens where the Bio is squirted in and then it's shuttled across the intestines at a higher rate.

So that's the purpose of the bio is to absorb fat soluble substances like these hormones. So this is really interesting and notable at about eight hours the level is dropping off to very low level.

So the effect is not going to be a 24-hour effect by a large lion's share will be front-loaded in the first eight hours. So what are the effects of TA65?

Well, I like to think of it in three timeframes. There's the immediate, there is the stochastic, and then there's the apoptotic. Now, those are fancy words, but we'll explain what they mean.

So the immediate effect would be like putting a coin in this parking meter at night. What that means is the molecule crossed into the nucleus expresses a higher level of telomerase, so because the rate-limiting step of copying cells is capping them, copying all the six gigabytes of information and then capping the ends, the immediate effects are only for that night or that eight hour period and that includes having the cells copied much faster.

So that's why athletes will describe their muscles and ligaments healing amazingly well by the next morning because those cells are operating at a much higher efficiency.

The stem cells are copying good copies faster. Secondly, the immediate effect is dreaming and REM sleep, which is improved. Now, if we look here at a chart of the sleep cycles, let's say a person goes to sleep at 11, the first cycle is 90 minutes, second is 90 minutes, and then the third is about 90 minutes, fourth is about 90 minutes, and the fifth and sixth which are really the golden cycles of repairing the mind, the ones that really make you calm and clear.

What's notable about this spike? Growth hormone happens in the first cycle or two. So that's really the first two cycles are assigned to healing the body.

First things first. Copying cells that were damaged, repairing them, discarding them. and so this is a very anabolic state. The purple bar here is REM sleep and of course REM sleep as you'll see in the addiction webinar would be like the Etch-a-Sketch of the mind.

You shake the Etch-a-Sketch, you clear it or if you prefer defragmenting the hard drive. This is the time when you spend not in the deepest sleep but in shallow sleep with the brain taking the thoughts, the memories, the fantasies, the fears and reorganizing.

So the dreaming always is better. If you're in a very anxious state, of course, it'll be a nightmare. But nevertheless, the vividness, the excitement, the range of topics that it draws from, pretty much nine out of 10 people will say that that's different, qualitatively different.

And that, in fact, is how I've, over the last five years, come to tell whether a person is even absorbing enough to be effective. We can infer that if it's making your dreams more vivid, then it's healing other tissues, And also we can infer that the reason that people are calm and clear the next day is because they've had a good night's sleep, meaning that their psyche has cleaned out the closet a bit.

The second type of effect is a stochastic effect. So what does that mean? Stochastic means that you got different kinds of, I don't think this is Boise State, I'm not sure, but the reason why the stadium is illustrative is like you see you got these orange people, right?

You got these blue people and these white people. So let's say, imagine that one stem cell is responsible for generating the orange, one for the blue, one for the white.

If the white is relatively damaged and the blue is, you know, not functional, but the orange is pristine, over the time, if everyone gets a competitive advantage, like everyone's given Mountain Dew and nachos, you know, we can just imagine that the orange would overcome the other two sections.

you know, the blue might die off and the white might be growing at a slower rate. So that's what stochastic is. Here's like an illustration of that with maybe marbles or cells.

So again, if you got a healthy population and you start making the process of reproduction easier, the green will overwhelm this dysfunctional white stem cell.

So who cares? The point of it is that people ask, well, what are the effects of T65? Well, if you take it for days to weeks, you get stochastic effects.

## Immediate, Stochastic, and Apoptotic Effects

And that's because some cell types are not fully immortal, like sperm and egg. They have so much telomerase activity that they get longer and longer. In fact, there was a study this week saying that older men have kids that live longer.

which has been in the literature before, so there are many reasons why that could be, but it introduces a lot of other questions. But suffice it to say that some cells have variable telomerase expression.

So let's say they're not immortal, but some of the skin stem cells are pretty much going to live a long time if you activate their telomerase, and hence we get these benefits of better skin quality.

So these kind of things will get better over days to weeks, and if you stop taking it, they'll get worse over days to weeks, just because it's not a fully 100% immortal, but the expression is variable.

And so again, like I said, if you have a totally immortal cell, you can't make it more immortal, it's immoral, but there might be some in between which have some variable expression, which when given to Lamer's activation will be overrepresented versus their dysfunctional or damaged neighbors.

So that means that the healthier cells will have a competitive advantage and that'll represent itself as greater organ function. And this would include in the liver, in endocrine organs, perhaps in the hair and the skin, definitely in the skin, and also in the GI, meaning both constipation, regularity, and absorption.

So we have the immediate effects just that night. We have the stochastic effects, which are as a result of competitive advantage of reproduction. And then we have the apoptotic effects, which apoptosis is what we call programmed cell death.

I think programmed is probably a misnomer, but it's basically cells have a prime function of determining whether they're damaged. If they are damaged, then these mechanisms are able to either stop the copying of the cell, again that would be reflected in maybe this white section of fans, or they can kill the host cell, which would be like the evil queen biting from her poisoned apple.

So this is a real fundamental goal or function or mission of all cells, not just themselves, that when they're damaged, they kill themselves. There is a separate pathway where they can repair, but we won't mention that now.

But again, the BRCA, which everyone knows is the breast cancer gene so-called, in actuality it's the opposite. It prevents cancer and it has an intimate, at least the BRCA2 gene has an intimate role in being a telomere loader.

So apoptosis is like removing this last screw. Let's say this is a motorcycle or lawnmower. You want to destroy it, but there's one screw left that's stripped.

The Phillips head is stripped. I believe that some of the effects can only be explained because you're getting rid of that last screw and you're allowing the machine to disassemble or die.

through P53, apoptosis, and the queen dies. This has been corroborated by Maria Blasco, the leading scientist in the world in two-layer marine biology, who experimented with mice and gave them TA65, and in fact, their gene or their DNA changed radically.

all the shortest tumors, the damaged tumor fractions, decrease dramatically. And so she's in the process with TA Sciences of recapitulating this experiment in human beings.

And in Spain, there are people taking placebo versus TA65, and I believe wholeheartedly that they will show the exact same thing in people, because that's what the clinical medicine that we're doing seems to imply.

Keep in mind that if you kill off these bad cells, That doesn't mean you're not going to form new bat cells. There will always be new queens to come up.

So, as Neil Young said, rust never sleeps. If I clean my car in California called detailing, we do everything to make it wonderfully clean, that won't keep it clean tomorrow.

So this is an ongoing process of acquiring errors, detecting errors, destroying errors. So if you want to learn more about apoptotic effects, I would recommend seeing the obesity webinar I did, number 14, where I showed how much weight I had lost, which was actually an immediate apoptotic effect.

I believe it occurred in the first week, even at that low 10-milligram dose, because when I lost weight at four months, it wasn't that It took four months to die.

It's just that all the little descendants, the daughters and the daughters and the daughters and the daughters, had to divide 50 times from the dead queens in order to peter out.

So the Hayflick limit takes maybe three months in some organs to express itself. So if I actually had gotten thin the first week or so, it just took three months for all the descendants to die out, I believe.

Okay, so when I started taking it, I had a different thought about how to take it. The company recommended in the morning on an empty stomach with water.

I tried to do it with food before sleep. My rationale was just as you don't repair the highways or freeways, during the day when people are driving on it, so the body seems to be repairing at night.

And this is borne out by the growth hormone peak that we saw earlier at 1 to 2 in the morning. This is really an incredibly anabolic time. This is when the body has set aside time to repair, to copy itself.

And so if you want to borrow from this Eastern tradition, this Taoist tradition of yin and yang, the yin, of course, being the passive, the cool, and the yang being the active and the hot, it just stands to reason that if you're go, go, go during the day, right, your cortisol is high, your cells are tearing down, you're working out, that they're functioning at a high level, they're acquiring damage, this is not the time to have building going on.

You don't fix the freeways during rush hour. So in terms of balance, it makes sense to me thinking back that what we're really looking for is more yin, more calm, more relaxation passive during our active catabolic day.

So people will learn to meditate, they'll learn to activate their parasympathetics. As Dr. Greg Gerber who's on from Hawaii said, the shaman from Hawaii would roll their eyes and do figure of eights in the back of their head, and that's all.

These are vagal moves, which we tell people with Afib to do because it engages the vagus nerve, which is the craniosacral parasympathetic relaxation. This is the yin to the sympathetic yang.

So the sympathetic is the adrenaline. That is the go, go, go, you know, that feeling, that rush when you almost fall asleep at the wheel. kill yourself that is the yang let's say that's that's the high tone the high pitch the anxious So that's not the time to be building, I don't think.

Whereas the yang can function like the high anabolic, reproductive, active, even hot. A lot of people report being hot when they take this. It can function when you're unconscious, when your body's going to that deep, deep sleep where you're actually physically paralyzed and totally, your brain waves are so slow.

If you're in a very yin state where your body's shut down like this road, then you can have the yang. It's okay to repair the stem cells at a rapid rate.

It's okay to make 10,000 new brain cells for memories. So that's kind of the rationale. So people ask me, well, what will I feel if I take TA65? Well, there's three words that would best characterize it.

I would say immediate, profound, and subtle. So what does immediate mean? They'll say, well, it'll take a while to

feel it, right? Because they're used to taking supplements from Life Extension or some kind of herbs.

I say, no, absolutely not. You'll feel it the first night. And indeed, I would say 9 out of 10 people do feel something the first night. They might not like it, but it will definitely change the way they sleep and dream.

So that's surprising to them. When I say it's immediate, the effect is immediate. But it shouldn't be surprising to you now, because we know that this is just a trend of dispersion of the molecule.

and that it's going to be gone from clearance pretty soon. So first night sex, yes, immediate feedback. Second, it's profound. It's profound in the sense that they will say, I've never slept like that before.

The dreams are more vivid. Some may find that there's unpleasantness of the dreams, especially if they're wound up anxious about this supplement or they start to whip themselves into a frenzy.

They can say, I had these horrible nightmares. Well, of course, if you set the agenda for your subconscious dreaming to be anxious, then you're going to have a Hitchcock dream.

If you set it to something more pleasant, you might have Rodgers and Hammerstein. It depends on what you set the agenda for. As we all know, you are what you think and you become those thoughts.

So be careful when you're dreaming on TA65. But people will say, I've never dreamt like that before. They have experienced lucid dreaming. They wake up.

A lot of people will say to me, I didn't want to go back to sleep. I didn't want to wake up because I wanted to see what happened in my dreams. I mean, it's just fun stuff.

So that's a profound change, which is immediate. Now why I say subtle is even people that are convinced that it's working or doing something after months and months, they start to say to me, I don't feel anything.

But remember, there's only eight genes activated. And they're not genes that are going to make you have any change in your mood intrinsically. It doesn't make you high even as much as a cup of Earl Grey.

So you don't feel anything. But people do say you look younger. So it would be the case of this young lady in the mirror. she's gotten thinner but she still sees herself in some other way or the change has happened so gradually like grass growing that she is unappreciative of it.

So what I've called the upward spiral will occur. People will pay money for this and then they'll realize it's doing something and gradually they'll get into an upward spiral.

Watch the podcast 11 on exercise for a great example of this because what will happen is the exact opposite of a downward spiral where it's harder to get to the gym, it's harder to get a good workout, you're dreading the aches and pains of recovery.

Again, you get to this thing where the workouts are better, you don't pay the hangover, you're healthier, you're losing weight, you're more flexible, better life force, better diet, looking better, making good choices.

You get into this upward spiral and then the attribution is the issue. So you get an upward spiral but a downward attribution to TA65. So people will say to me, I'm doing a lot of things, you know, classic example.

I started a new diet. I'm eating paleo. That's good. No one's going to fault that, and you do deserve credit. So I started doing yoga. A friend of mine said, I started doing yoga after nine years.

Well, that's great. And that is definitely helping. But then he said, well, I hadn't been able to do yoga because of back pain for nine years. So again, the proximate cause there might have been some help from TA65.

People will say, well, I'm taking a lot of other supplements. But they've taken a lot of other supplements for years, and it hasn't had these kind of dramatic effects.

But I think the bottom line is that this stuff is not cheap. They say to me, oh, this stuff is not cheap. When's the price coming down? Certainly it's not cheap.

## Dosing Strategies and Practical Use Cases

But again, there aren't a lot of people competing to make this stuff because there's no money in it. It's a commodity. It needs one in 10,000. You open a T65 store, you're going to not have that much margin to compete.

If you say to somebody, Hey, give me $8,000 for a year's worth of TA65 and I can measure you and you'll be at least 10 years younger in a year." And I'll say, done.

If you come to them every morning when they brush their teeth and say, hey, can I have my $22 that you owe me? They'll say, heck no. And that's what it works out to be because every day they feel just a little bit better.

It's completely imperceptible. And so what happens even when people are totally sold on it, so to speak, is they say to me, I can't afford to live that much longer.

So the old aphorism of Ben Franklin was, there's nothing certain in life except death and taxes. Certainly, taxes will be always with us, but death, and this is a religious ad, but death, in this case, they're saying, ah, there's a loophole.

Well, let's just say that TA65 is a loophole. I cannot tell you how many times people have told me, I can't afford to live longer. And if we just look at that statement, it's baffling.

I mean, people can't afford to live longer. What's the alternative? Dying because you have no money? I mean, people can live off welfare. move to Norway, they can downsize their lifestyle, or hopefully someday they'll be able to go on to my future website greatsouls.org and get someone to sponsor their TA65.

But I don't really understand the people who say, I'm going to run out of money before I run out of life, because people can reinvent themselves. Their bodies, their minds are still fresh.

They can go back to school. They can do things. So don't fall into the trap of saying, I don't have enough money to live that long. So let's talk about how we know this is working, the compare and contrast, the stop and the start.

It's really true that you don't appreciate something until it's gone, right? And you don't appreciate it as much as when you first get it back. So it's helpful to start and stop.

So if we do that in the immediate time frame, do an experiment where you don't take it for a night. and then really see how good the sleep is. How did you wake up?

How did you feel? Were you rested? And there's something called MyZio, which is actually a bedside. It goes around your head like a headband, and it captures the brainwaves.

It can tell you exactly when you're cycling, about $100, and it hooks up to your iPhone, and it will map out your sleep cycles. and it'll tell you a score.

The reason I became aware of it, one of my patients said he was always in the 70s despite, you know, good night, bad night, it was always in the 70s. But when he started taking TA, it went to the hundreds, which is ridiculous.

So he was able to objectively measure the improvement in his sleep. So I would say if you're taking TA-65, definitely try and measure it either with the MyZio or just, you know, a diary.

Tell yourself, you know, What's the difference? Because if you take it in the morning, you don't get that sleep improvement as much or at all. So I really think if you want to know if it's working, try not taking it and then compare and contrast.

Now, another thing that people can do is take a two-week break, and that's recommended in the bottle. So again, that's when you get the stochastic effects changing.

So it would be like taking a vacation. We'll hear these poor kids are on a vacation and something's wrong with the dock and the weather's not so great.

So what you'll notice, and this comes through in the MS webinar that we posted where Karen was talking about the fact that she went on vacation literally with her daughter and son and she felt crummy.

Symptoms were manifestations of multiple sclerosis. It was more evident. Really take a two-week break and seek. You just don't feel that peppy. But because it happens gradually and the cells, again, the bad cells start to be equally represented, it's subtle.

But you can detect a difference if you try. The third test is a long-term test. People, the Thanksgiving test, let's call it. So Aunt Joyce or whatever you see at Thanksgiving, she says to you, oh my god, you look so much younger.

And this would happen from people who don't see you every day. It's just as strange and as subjective as it seems. I always say this is one of the most pathognomonic or predictable things.

It's that six months out, people you've not seen for a while will say, wow, you look so much younger. And that's because there are thousands of conscious, subconscious cues maybe orc clues, and they just say, wow, you're just resonating at a younger frequency.

Your skin, your attitude, everything. And I think that is real. I know it's very subjective, but it's so, so predictable if you take it for six months.

But the best way to compare and contrast what the effects of TA would be to do physio age testing, which is an objective measurement of how old you are.

What is physio age testing? Well, the gentleman who founded the patent protocol along with Noel Patton was Joe Raphael and he He has spent a great deal of time and energy and resources developing this physio age evaluation, which we have the machines.

There are maybe four or five other people around the country that have the machines that are doing the patent protocol, and it will give you a composite number.

You are like a 55 year old. Okay? So presumably this is a 42-year-old. What will happen is you'll come in, take 30 minutes, $45, and what we'll do is we'll measure your arterial compliance, give you an age.

So I'm 42, but I have the cardio age of a 30-year-old. Well, that's easy to relate to. And this is based on about 120-something real patients that they developed normograms or normal curves on.

You do blowing into our barometry, and we say, oh, but you have the lungs of a 51-year-old. Then you do your memory test online with the reaction time and complex memory tests.

And we say, but you have the mind of a 24 year old. And if you want, these are a la carte and quite pricey. But again, we just pass them over to you at cost, which is the David Geffen UCLA School of Medicine will do a immuno age.

special test, which is highly correlated with aging. As you get older, these naive or useful T cells diminish to the point of nothing, which is why someone like Jack Luane died because he had no more T cell system.

This will tend to recover, it seems, as we take T65. So we'll say you have the immune system of a nine-year-old. And we could measure your Telo age, which is either a $400 test to Canada or a $700 test to Spain.

And we'll say exactly how much damage telomeres you have. So you have the telomeres of a 58-year-old. And also, we measure your skin elasticity. We have this highly sensitive machine which will deform your skin and give us precise curves as to how elastic your skin is.

And again, that tends to show really good change. So you want to know whether it's working. Try sleeping without it. Stop for a couple of weeks. You know, you don't have to ask people.

People will tell you you look younger. And then please, please do the physio age testing because, you know, again, we'll definitely be able to show you that you're getting younger.

So in conclusion, there are four ways that you can think about taking TA-65. There's maintenance, situational, and then there is afflicted and rejuvenation.

I mean, these are just arbitrary ways to think about it. But if you're a 21-year-old happy-go-lucky, bright college student, you know it's all about prevention again aging and stem cell damage can happen to anyone but if you take a telomerase activator while you sleep i believe that in the long term you just won't get older if you're a 50 year old yoga instructor and you're just so healthy that you can't stand yourself maybe just one or two a night is also just enough you know an apple a day And that's something that people could probably fit in their budget at $200 a month.

This would be, you know, or less if you buy in bulk. This would be tantamount to, you know, extended cable package. Secondly, we can have situational use, which would be the road warrior or the athlete.

And that would be a higher dose, two to five nightly, and PRN is as needed. Let's say you have some time zone shifting, you know, in addition to melatonin or maybe even better than melatonin is to take TA because it really helps to entrain the new circadian rhythm.

And I believe that stress of travel really warrants, you know, using on those days, those nights that you're away from home and stressed out. Also, weekend warriors are people that are very physically active and they're tearing up stuff.

Maybe they have a half marathon on the weekend. Most definitely. Pop, you know, four pills, go to sleep and you wake up so good to go. And again, that's very affordable.

I mean, it's cheaper than a massage and some of the crazy supplement drinks and it will just fix you right up because it will naturally help your own stem cells copy more efficiently.

People who are loathe to spend a lot of money yet have afflictions. I call this the afflicted model. It's kind of like an antibiotic course. Take it for 10 days at a good, hefty dose, three to six, depending on body weight.

That will help. I mean, I'm not saying it's a cure, but certainly the lady with PMR, which is a stabilitating joint disease, certainly Karen with her MS experienced symptomatic improvement, although we can't say it was caused by the TA, in a short time.

And we do see people with bad rotator cuffs or carpal tunnels. They'll get like an inflammation of tingling almost, and then within a day, gone. Something that has been bothering them for 10 years, gone.

So rather than take one a day and prove that it doesn't work, my thinking is take four a day for 10 days and prove that it does and just be done because what we're engaging there again is the apoptotic benefits.

Get that last screw out and then say sayonara to the TA. You don't even have to take it again. And that may be even one of the better benefits is Things that are pre-cancerous or damaged, they can get killed.

And once the queen is dead, she's not coming back. There may be another queen pretender to the throne. But again, I do firmly believe that the apoptosis is the only way to explain some of these changes.

And if you're afflicted with something, my advice is take a bunch for a short time. And then maybe three months later, you'll say, whoa, totally different.

Or maybe even sooner in the case of some of these ligamentous injuries. The final mode would be the full Monty or let's say the rejuvenation pathway. That would be taking it at a full three to six nightly for six months.

Give it a chance. So this is a person who is wanting to get young. This wonderful lady and maybe her Docker boyfriend, they're working out. They are getting young.

So this is the really give it a chance type of deal. And it's not for everyone. It's not cheap. But I think certainly, like I said, if you said to me, If I said to you, I'll make you five years younger if you give me $4,000 in six months, most people would do that, but let me come knock on your door for $22. You'll say, you know, I don't feel anything anymore.

It's not working. Another good example would be the epigenetics webinar with the twins, the Harris Twins podcast 21. and they continue to take it and they continue to get younger.

So if you're really committed to not just standing still but getting younger, then you need to take more of this so-called air conditioning over a longer period of time.

Because this needs to get to every cell, and just as you don't get old overnight, you don't get younger overnight, stands to reason. It's definitely magic, but it's not a miracle.

All right, well, that's the webinar today. Certainly love to take any questions if anybody has questions. I see Greg and Jim. This is kind of like Mr.

Roger's neighborhood. I see Greg. I see Jim, all our friends. All right, let's get some questions.

## Audience Q&A and Clinical Considerations

I'm going to get to Dwayne's question later because it's kind of long. So let me see Dr. Greg Gerber from Hawaii. Hey, Dr. Gerber. Greg, can you hear us?

Aloha. Delighted to hear you, Ed. I appreciate the information provided. One of the things that comes to mind is if one does do the last thing that you just stated, which is the intensive program for people who have the afflicted aspect of things.

Once they've, they're looking with their pocketbook and they say, I've got X number of dollars to achieve this end. Once they achieve that end and they have depleted funds at that point in time, are you suggesting that people do a maintenance dose thereafter?

Or where do you, what has? Yeah, absolutely. I think that's a great point. You just, if you get to where you want to go, You're still, again, washing your car is not going to keep it clean next week.

So maybe just a one capsule or even a one capsule as needed is very affordable to most people. But it's just, think of it as walking up a long escalator.

You know, you're getting younger, but the escalator is still moving down as you walk up it. So the benefit is not lost. And that's one of the things people worry about that if they stop taking it, they'll start aging faster like a raisin.

And I certainly don't think that's the case. Have you experienced that you feel bad if you don't take it or just that you just don't feel incredibly better?

I've been taking it and I just don't feel incredibly better and as you know I've moved into the ultra level athletics for age-adjusted, age 60 type performance level in swimming and I found that I was able to maintain my previous level of function.

However, it was more challenging to do it. And when I did slide off and then resumed that my level of improvement has resumed. And I do seasonal racing type of thing right now when I'm moving into season.

So I've been increasing dose and my performances for the first couple races have been phenomenal. You know, I was very happy last year. with the results that were immediate in effect.

And I'm swimming another 10% faster than last year and at my level of swimming a 10% increase is just unheard of. So I'll let you know when I win the North Shore series this year.

I use 16 grams of soluble fiber to interfere with enteropathic circulation and decrease serum LDL. Do you think this is interfering with TA65 absorption?

Yes, I do. Anything like a cholestyramine bile sequestrant would do that. The point of this is we're trying to get a lot of that soapy bile, the colic acid in there, to help it get coated and cross, and that would probably be not a good idea if you're trying to absorb this amphiphilic molecule.

Dwayne has a question about my telomere length. Your telomere length went down from 9100 to 8400 base pairs after starting TA65 before it increased to 9200 and then 9800. Quite right.

Over what period of time did the decrease and then the increase occur? Is it normal to experience such a decline? Do you have a theory as to what caused the decline and later the increase?

Was it scary to see the decline and what kept you in the program? Okay, so he's alluding to the fact that I started out with a really high telomeres measurement, which I attribute to my CPAP use of 14, 15 years.

I just got good sleep. Even though my body was unhealthy and I was in a stressed environment, I kept my telomeres by sleeping well. Now, the decrease to 8,400 might have been attributed to large losses in the stock market or might have been the fact that my dad died in a very unpleasant way of brain cancer.

So certainly that helped to wear down my telomeres. On the other hand, as a scientist, we have to entertain the possibility that maybe the TA65 has something to do with it.

So perhaps the DNA repair mechanism, like we saw in the BRCA, was able to rescue some of the more dysfunctional stem cells and they were represented as older but refurbed white blood cells.

But whatever the case may be, I was not concerned because the end organ and the end user myself felt great, looked great, functioning great. All my fatty liver, my liver enzymes, my cholesterol, my testosterone, Everything normalized.

So what are you going to believe? A lab test? Are you going to believe the end organ and the function? So no, it didn't concern me. It was nice. I did my talk.

I actually wrote the talk before I got my result of 9,800 back for Orlando, I mean for Hollywood, Florida. And it just validates, but it doesn't change clinical management.

And I think that's what we're really talking about. Any good doctor won't treat you based on blood tests, and I wasn't going to base my life decisions on blood tests either.

I mean, it's fun to say I have a two-year-old, or a three-year-old now, or the critically short damaged ones of an 18-year-old. It all happens, you know, in our experience.

I feel good. I'm going to take it. If I don't take it, don't feel is great. So great quote from the webinar. And I think the key thought is if you don't take it, you don't feel bad.

You just don't feel better. So again, the experience of taking it is you just wake up a little better, a little younger, a little healthier. So it is worth it.

Next question. Chris Tan, who just came on board. He said, are there any known side effects? When you say side effects, I think you mean something bad.

And I would say no. But if you take it in the manner that I recommend, you will have sleep changes. And again, if you're not prepared for the sleep changes, they can be experiences very unpleasant.

I had a lady call me earlier this week and say, I want my money back. I had these nightmares, these terrible visions, these horrible things came out of my dreams, and I scared the heck out of me.

And so I said, no problem, but why don't we do this? Try tonight to take it, but think of something really nice. So what happened is, as it does happen a lot, with another lady I think I met at Sun Valley, when you get to sleep, you're worried, you're taking something new, you feel like Alice in Wonderland, and you get a little anxious, and then you start to worry and wonder, and am I going to hurt myself?

Is this going to cause problems? And that's not the right mindset to be having dreams in. And so of course your psyche is going to pump out some pretty jagged and unpleasant images.

So long story short, she decided to program a nice thought before sleep and now she loves it. So again, be careful what you think because that's what you become.

Sleep is at least as important as daytime because that's when the real experience and the meaning of the day is hard-coded. So be careful what you go to sleep with.

They say you shouldn't go to sleep mad at your spouse and I think that is true. Sandra asks, Would you say that I could get off my bioidentical hormone replacement with being on TA65?

Hi, Sandra. No, I wouldn't say that. I would say that we do see occasional transient recovery as I think maybe you or several other people have reported, you know, menstrual cycles can resume.

but that would be a tantamount to finding an extra, you know, leader of gas in your trunk. It's not like your ovaries are going to overnight turn back into a 19-year-old, no.

I have had people, one of my friends I met in Sun Valley, she hadn't had a period for seven years and now she's cycling with PMS. We've had 63-year-olds, 58-year-olds, it happens, but it's probably not representative of a total, you know, Forever 21 phenomenon.

The point I'm trying to make is that, yeah, we have seen thyroid, we have seen other endocrine organs recover transiently. Having said that, I've seen people burn out.

Let's say you're in the stage of Hashimoto's, which is an autoimmune type of disease. You got to watch your thyroid because those cells that are trying to die might get killed and you'll have very little thyroid function.

So we do see that it's important to have a medical doctor following you and be vigilant for these changes because these could be considered side effects, but they also could be considered good things.

Witness blood pressure changes to the low side. If a person saints and cracks their head because their current blood pressure medication is way too high now that their arteries are softer, is that a side effect?

I mean, it might result in a lawsuit just the same, but again, another reason why you shouldn't be taking this out of a

vending machine or just on an internet site, fly-by-night site.

So no, I wouldn't certainly say you may need to readjust, recalibrate your bioidentical hormones, but as far as replacing, no. What you can replace might be helping to save costs would be supplements, a lot of the things which I'm rather agnostic about, you know, all these supplements that people spend a lot of money on.

Do your own due diligence, take what works for you, but I'm not a big subscriber to that. I think that if you make the cells healthy and they are resilient and they get what they need from the nutrition and you don't really need any vitamins or anything like that.

There was a study from the U. S. Preventative Task Force just yesterday saying that vitamin D and calcium don't help with osteoporosis. And so why take them if you have a good diet?

And so kudos to them. Cliff, what can I use instead of ice cream to help TA65 absorption? Yogurt, cheese, omega-3, oil. Some people don't like the lactose, so that's fine.

You can use nuts, macadamia, pine nuts, cashews. Meat and cheese is good. Cheese actually, because it's the curd and not the whey, doesn't have lactose.

I don't like nutritional oils like Omega and flaxseed because those alone just seem to slide by the gallbladder, the pancreas, the ampulla, and I don't think the body gets really excited about a little slime going down.

It needs to be food particles. Cliff, in the apoptosis process, do adverse effects occur such as those that occur when one is doing excessive detox? Yeah, I've just been introduced the idea of cleanses and detox, which I have to say I'm somewhat of a disbeliever in.

But having said that, we do get a pretty prominent Herxheimer reaction, as Jeff, the gentleman with the lime, described, and a friend of mine who I met in Sun Valley had a HERX also.

So yeah, as the immune system bucks up and tries to eradicate these things, you can get these transient things. A physician called me yesterday and presented her case of herpetic reactivation of adult chickenpox.

And it was very interesting. So yeah, this is strong stuff. You got to watch it. Let's see. Jeff asks, is it best to take T65 immediately before going to sleep?

Yeah, immediately would be great if you're doing an IV or, I guess, in your case, intranasal, which I don't recommend. But the point of waiting 90 minutes is a lot of times if you're having some ice cream or, you know, like a hot dog or kielbasa and you lie down to go to sleep, it's going to cause heartburn, right?

Regurgitation, so that's not pleasant. So that's why I say 90 minutes to let all the medicine go down. Does TA65 rebuild gene cells that are damaged by over-expression or under-expression of genes?

Example, over-production of GABA damages cells. Can TA65 rebuild damaged cells? Good question. I don't know. Really, the TA65 doesn't do anything. I can't impress upon everyone just how important it is to understand that.

It doesn't do anything. As an upshot, maybe those eight genes are increasing in their expression. But really, all it does is it's a panacea.

## Closing Remarks and Book Promotion

All the cells that are trying to heal themselves when you go to sleep, they just get better gasoline to do their job at a high, high efficiency. So whatever your body is trying to naturally and holistically repair, it just allows it to do it.

Thanks, everybody, for showing up and for listening. This is Dr. Ed Park from Recharged Biomedical, and we are signing off. Have a great day, everybody.

Aloha. Thanks for tuning into the Recharged Biomedical Podcast. If today's episode got you thinking, you'll love my book, Exosomes, Songs of Healing. It's packed with cool analogies, full color illustrations, and all the science you'll need to understand how exosomes are changing the game in aging and regenerative medicine.

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See you next time.