Transcript – The World is Your Petri Dish with Bruce Lipton - #336

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Dave: Everyone goes through a phase where they may feel a little stuck in their life. Maybe you're feeling blocked in your creativity too.

That's why you should check out the Unmistakable Creative Podcast which offers advice to uplift your life. They recently talked about how flow and focus can help you achieve what you want most.

If you want to change your life for the better, listen at podcastone.com or download the free mobile app now.

Speaker 2: Bulletproof Radio, a state of high performance.

Dave: You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day is that heart cells in a petri dish will beat in rhythm even if they're not touching. Hmm, they must have some way of communicating with each other. Wonder what it might be? It's not chemical.

Before we get into today's show, if you haven't heard about FreshBooks yet, listen up. These folks are on a serious mission to help small business owners save time and avoid a lot of the stress that comes with running a business.

As a business owner, it's really important to be able to see everything. Which clients still owe you, which invoice has been paid, and how your business is doing right now on the Dashboard, and you get that from FreshBooks.

Using FreshBooks, you can take about 30 seconds to create and send an invoice. You get paid online because FreshBooks gives your clients tons of ways they can just pay you with credit cards, or other ways which can seriously improve how quickly you get paid.

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If you haven't tried the new coffee roast profiles that we have for you, you are missing out. There's a variety pack now where you can get The Mentalist which is a medium dark.

You can get French Kick which is a darker, but not burned to a crisp, nasty kind of dark, and the Original Roast. All 3 of them, it's really amazing what you can do with Ultra Clean coffee that doesn't inhibit Mitochondrial performance with the presence of nasty toxins that come from mold.

If you've been making some sort of knockoff coffee, and you haven't felt what it's like to have coffee that doesn't slow you down while it also speeds you up, give it a try just one time and you'll feel the difference. I bet on it.

Today's guest is someone I met more than 10 years ago when he first spoke at the Silicon Valley Health Institute, the non-profit that I run in the anti-aging field in Palo Alto.

He's one of, I guess you could call him the fathers of epigenetics. Epigenetics, if you're new to the show, is this study of how our genes are changed by the environment around us. I cited his work quite a lot in my first book, The Better Baby Book, and also a little bit in The Bulletproof Diet.

By now, if you're a long-time fan, you might be guessing that our guest is Dr. Bruce Lipton, but if you haven't guessed, now you know. Dr. Lipton, welcome to the show.

Dr. Lipton: I am so happy to be here, and I happened to bring along my own mental coffee, your coffee. Thank you so much. I've been using it for a year and a half because I got on a Ketogenic diet and it's wonderful because I can have a cup of coffee in the morning and not even be hungry until mid-afternoon and for a guy trying to lose weight, that was magic so thank you very much.

Dave: You're so welcome. For people listening, that just blows me away. You'll hear in a minute here what Bruce Lipton has done with his career and with this knowledge, and to find out that someone at his level is drinking my coffee, actually just makes me feel good. It's really cool.

Dr. Lipton: That makes 2 of us feel good.

Dave: I did not know that. We didn't set that up or anything.

Dr. Lipton: No.

Dave: We just got on the phone and like, "Really?" Now, Bruce, you have a degree in Biology and a PhD in Developmental Biology. You studied Muscular Dystrophy, cloning stem cells, and in 1982 you started studying Quantum Physics, back when we were just figuring out Quantum Physics actually sort of mattered really.

You discovered that cell's outer layer had its own intelligence, kind of like an organic microchip, and you went from being an atheist so believing that the way cells behave and function are proof that God exists.

You found a pretty big path where you studied Cellular Biology, you studied Quantum Physics, and you realized there was something going on that you didn't expect. Tell me about your path of that. That's pretty profound.

Dr. Lipton: The most exciting part about it was that my research on cloning stem cells, which I was cloning stem cells back in 1967 and it's interesting because back in 1967 there was only maybe a handful of us in the entire world that even knew what a stem cell was.

Dave: That was way before it was cool.

Dr. Lipton: Oh yeah. It was like, "Oh look, secret research." It wasn't secret, it's just nobody knew about it, and now it's a global awareness about the nature of stem cells. Stem cells are embryonic cells. We call them stem cells because once you're born, I can't keep referring to them as embryonic cells because they're still in your body and you're born so we changed the name.

I said, "Look, consider this, a stem cell's a embryonic cell and why is it relevant? Because no matter how old we are, every day we lose hundreds of billions of cells on normal attrition. Just normally. They die and you have to replace them. The entire lining of the digestive tract, from your mouth to your anus, the entire lining of that is replaced every 3 days.

There's a point that says, "Well, if I'm losing hundreds of billions of cells every day, where am I getting the new ones?" I said, "Ah, these stem cells." This, for me, was real interesting because a stem cell is a multi-potential cell. My whole world turned upside down when I was cloning them, which meant I put one cell in a dish by itself, and then it would divide every 10 or 12 hours.

After a week, I'd have 50,000 cells in a dish, but the most important part was every cell was genetically identical to every other cell. They came from the same parent. I have 50,000 genetically identical cells. This one experiment changed my entire career.

That was I split these genetically identical into 3 different petri dishes and I changed the chemistry of the culture medium. Just a little bit in each of the dishes so genetically identical cells, but slightly different environment.

The relevance was in one dish, my cells formed muscle and in another dish the cells formed bone, and in a different culture medium, the genetically identical cells formed fat cells. Here I am teaching in medical school that genes control life and then I walk into my laboratory and it's like, "Nope, it's not true."

Dave: Wow.

Dr. Lipton: The genes did not control the fate of the cells, it was the environment that controlled the fate of the cells. It became important just to let people know. You say, "Well, that was really great. You were doing cells and tissue culture, big deal. What about me, I'm a human being." I go, "Okay, here's the joke. The joke is this when you look in the mirror as a single individual. The truth is that's a misperception.

You are made out of about 50 trillion cells. The cells are the living entity. When I say Bruce, that's a name for community of 50 trillion cells. The jokey part is a human is a skin-covered petri dish with 50 trillion cells inside and the culture medium is blood.

I say, "What's the relevance?" I say, "It doesn't make a difference if the cell's in a plastic dish or the skin-covered dish, the cell's fate is determined by the composition of the blood which represents the environment for the cells. As we change the composition of our blood, we change the fate of our cells.

I say, "Well, what controls the composition?" I say, "Well, the brain is the chemist." I say, "Yeah,

but what chemistry should the brain put into the blood?" Then I go, "Ah." Now jump up one picture and say, "Whatever the mind is perceiving, the brain will take that picture and break it down into complimentary chemistry."

If you are looking at the world and you see joy and happiness, then the brain will take joy and happiness into chemistry, such as Dopamine pleasure, and put this into your blood. I go, "Why is it relevant?" Because the chemistry of love and joy is a chemistry of health, and happiness, and growth.

Yet the same person could look at the world and be afraid and have fear. I go, "What's the consequences?" I say, "Well, that love chemistry and happiness chemistry is not going to be coming out of a brain that's interpreting fear. It will release stress hormones and inflammatory agents." I say, "Oh, the blood chemistry, which is the culture medium, changes in regard to what mind picture we have."

In other words, how do you interpret the world? If you interpret it in a very positive way, you release chemistry that enhances growth, but if you are afraid, or nervous, or in fear about the world, then you secrete chemistry that puts you in a protection. I say, "Well, this is profound for this reason. Growth, by definition, is being open. Take things in, assimilate, that's how you grow."

Then I go, "Okay, that's really cool, but what about protection?" I go, "Ah, protection close things off. Wall yourself off." I say, "Why is it relevant?" I say, "Growth is open. Protection is closed. You can't be in growth and protection at the same time." You say, "Yeah, but do I need to be in growth, I'm old?" I go, "Yes, every day you have to replace hundreds of billions of cells."

If you look at the world in fear, then by definition, you're going to shut down the growth of the system as it walls itself off in protection. I say, "Well, this might be good while the Saber Tooth Tiger is chasing you, but if you are in continuous protection, then by definition you are in continuous inhibition of your growth and this is the biggest part."

The stress hormones from a protection perception shut down the immune system. So I say, "Oh my God, you have 2 strikes against you right now. One if you're in fear, you've shut down the growth. Yeah, but I have to grow every day, so how long can I shut down the growth without having a negative impact?" I say, "Not too long."

Then I also say, "And stress hormones shut off the immune system. It's not to punish you, it's just that the immune system uses a lot of energy." If you've ever been sick and laid in a bed, you've got no energy. I go, "Yeah, but the immune system, when you're being chased by a tiger, is not really relevant." At that moment it's like, "Oh that's fine. I'll deal with it later. I've got to get out of here."

The body allocates all the energy and fear for fight or flight. It shuts down all functions that are using energy that are not going to help you, like growth and the immune system, as long as you're in fear. In the old days, it wasn't a problem because you've run away from a Saber Tooth Tiger. Once you're free, then the system would cut back and then we'd back in growth.

Dave: I have a bit of a confession to make. The definition of bio hacking that I wrote is ... I just want to read this to you. I know it from memory because you're going to laugh. It just ties in with what you said. It's changing the environment around you, and inside of you so you have full control of your own biology so you can do whatever you want to do.

Dr. Lipton: The answer is yes.

Dave: That is a restatement of your work. I credited you with it, but the whole bio hacking movement, the stress response you just talked about is the environment inside yourself and there's a chemical environment too. Then the environment outside of you. The things you eat, and the things you do, and breathing and all that kind of stuff.

Those are core control levers and the mechanisms for that are things that you first teased out because of those 3 petri dishes which is a pretty profound thing.

Dr. Lipton: It was for me. It changed my entire life.

Dave: Anyone who disrupts a whole industry, a whole paradigm, always gets ... people complain about it a lot. You get a lot of arrows in your back from it. That happened when you first said, "Guys, it's what's in the petri dish that's not a cell that matters." What did the scientific community do?

Dr. Lipton: I love it because there were 2 different responses. The first time, I'd left the university because I realized that what I was medical students was completely wrong. That we are genetic automatons because if you believe that, then you also believe this that you are not in control. That your life is controlled by your genes.

I said, "What am I teaching medical students is that we are victims of our heredity." You've got a cancer gene, or an Alzheimer gene, and all of a sudden you're going to have that and there's nothing you can do about it because it's your genes.

We program people to be victims. I say, "Why is that relevant?" Because the moment you perceive you're a victim, you also say, "I'm powerless."

Dave: Yes.

Dr. Lipton: When people say they're powerless, they give up. "I have no responsibility about my life because it's not me, it's my genes anyway, so it's not me." The reality is oh my God, that was completely wrong because the genes are not self-actualizing. Let's clear up because how many millions of people out there say, "Oh, a gene turned on and the gene turned off, and the gene controlled my life" and I go, "First thing, that's completely false." The whole belief is false.

A gene is a blueprint. I say, "Why is it relevant?" It's like, "It is a blueprint in this regard." You go into an architects office and she's working on a blueprint and you lean over the architect's shoulder and you say, "Excuse me. Is your blueprint on or off?" She'd look at you like, "Are you crazy? It's a blueprint. There's no on and off." I go, "Precisely."

A gene is not self-actualizing. A gene has no ability to control itself or even know what it is or why it's there. We've given this life to a gene that it's controlling us. I go, "It doesn't control you any more than a blueprint."

Why is it relevant? Because your mind is a contractor. Your mind will pull up the blueprints and now we also know it can rewrite the program of a blueprint. It can change the readout of a blueprint. Every gene, by how you look at the world, every gene can create 3,000 or more different proteins from the same blueprint.

It's like, "Whoa. That wasn't in our history." I say, "Why is because you can come with healthy genes and based on your interpretation and the environment, read them as cancer genes." The idea is we always say genes cause Cancer. I say, "There is no gene that causes cancer."

It's really the environment that opens you up and that is where the expression of Cancer comes from. You shut down your immune system, you shut down your growth. You are interfering. You're throwing a monkey wrench in the system. It says, "No wait, we're the ones that are powerful, not the genes." Yet the whole world has been programmed, "I am a victim." That's why I had to leave the medical school.

Dave: Isn't it true that the color of your eyes, I do know a couple of people who've changed the color of their eyes with weird interventions. Usually very spiritual, meditating people that ... There are some characteristics, or some diseases, like if you've got both of the alleles, you're pretty much going to get that. I always felt like it was ... There's some percentages like you're kind of screwed if you've got that.

Dr. Lipton: Yeah. Let me give you a number because there is a number and it says, "Less than 1% of disease is directly connected to genetics."

Dave: I believe that.

Dr. Lipton: That's a real number. I say, "Well then it automatically says well then if only 1% is connected to genetics, the question you need to ask is what's the 90 some percent. That's where we start to find the environment and the information and the interpretation of that environment is what is totally controlling us. Even the American Psychological Association has recently come out and said, "90% of doctor visits are directly related to stress."

All of a sudden it says, "We've been blaming our bodies, frail, vulnerable. Oh we're such weaklings. Sugar's going to kill you. Bacteria's going to kill you." It's like you have a misinterpretation of who we really are. We are so powerful except, if it's based on belief and perception, all I have to do is tell you and have you believe that you're not powerful and since it's based on belief, then if you believe you're not powerful, you're not powerful.

If you believe you're going to get a cancer, you can get a cancer with no genetic foundation for it. As a matter of fact, less than 10% of cancer is even connected to genetics. There's an upheaval of our world that takes us from, "I'm a victim of my genes." No, no, the new science is

you are a master. You are the one who selects and modifies and controls the readout of your genes. When you understand that, then it says, "Oh my God, I am powerful." I go, "Yeah, you're really powerful, except your belief perhaps says you're not."

Dave: Then what do you think about the groups who are promoting like Breast Cancer Awareness, let's say?

Dr. Lipton: It's promoting awareness which is what? I said, "Awareness is really what's controlling our Biology." When you have an awareness of, "Oh my God, I could get this breast cancer," you get someone like Angelina Jolie and she has a double mastectomy because she says, "I am going to prevent my breast cancer gene from giving me cancer. My mother died, my grandmother died, so I don't want this, I'll remove my breasts." Then it turns out the breast cancer gene, BRCA-1 doesn't cause cancer.

I said, "What do you mean?" I say, "50% of the women that have that gene, never get a cancer." You have to stop for that moment and say, "You mean I can have the gene and not get the cancer?" I go, "50% of the women don't so what's the point?" The gene itself does not cause cancer.

Dave: It's your lifestyle, it always was.

Dr. Lipton: Yeah.

Dave: I'm torn about that. I'm all in favor of research on cancer, but when you promote worry about cancer, you're not doing it right.

Dr. Lipton: As a matter of fact, everyone out there's, "Oh yeah, the placebo effect. Placebo effect." I'm sick, the doctors says, "This magic pill is going to heal you" You take the magic pill and you get well and you go, "Thank God for the magic pill." Then you find out it was a sugar pill. I say, "Why is that relevant?" The answer was the sugar pill didn't do anything so where did the healing come from? The answer was your belief in the pill is what created your healing.

Everybody, "Oh yeah, placebo affect, positive thinking, blah, blah." I go, "Yes, that's true, but what people have left out, the average person on the street is unaware of what is called the 'nocebo effect.' I say, "What's that?" I said, "It's a negative belief." You say, "What's the consequence of a negative belief?" I say, "It's equally powerful to a positive belief in controlling your life, but it works in the opposite direction."

A placebo is a positive belief that can heal you. A nocebo is a negative belief that can actually cause any disease, just the belief, or it can even kill you. People can be scared to death of fear, can kill them. I say, "Why is it relevant?" It's like we always focus on do some positive thinking. It's like, "Yep, more important is stop the negative thinking because the negative thinking is manifesting as disease."

Dave: I quit watching the news a long time ago.

Dr. Lipton: Thank you.

Dave: It's actually almost required if you're going to live in a state of high performance because it messes with your biology. It is not okay to sit there and just worry and see the same crap, negative stuff, sprayed around over and over. On Facebook, I say like, "Show me less posts like this." Honestly, I don't need to see 500 posts about whatever latest bad thing happened to 14 people.

Dr. Lipton: Yeah, yeah.

Dave: I can do math right?

Dr. Lipton: It's very interesting because all you have to do is recognize this. If I want to simplify the biology, simplify ... the easiest way goes like this. Most people are familiar with a paint by numbers. We were kids and we get an outline of a picture and it's all broken up in little outlines and there's numbers in the little squares.

Then there's a paint kit with the number and if you take that paint and fill in the squares, and as soon as you fill them all in, you're Picasso, you create a masterpiece. I go, "The simplest understanding of life is paint by numbers in reverse."

I say, "What does that mean?" I say, "First you put a picture in your mind and the brain breaks down the picture into numbers, but the numbers are not paint, the numbers are neurochemistry which adjusts the body like paint and turns the body into the image that was held in the mind."

First you put a picture in your mind, healing, cancer. You put the picture in, the brain takes the picture, converts it into chemistry. When it releases that chemistry in the body, it creates a 3-dimensional image of the picture you just had in your mind.

If I have a fear, I go to a doctor and a doctor gives me a diagnosis of terminal cancer, it's like my whole mind has visions of cancer and my God I'm going to die in 3 months like he said. I go, "What does that mean?" I said, "You've taken a picture, a negative picture, with death. You have now put this picture in your mind."

I say, "What's the function of the brain?" Take that picture and turn it into chemistry to manifest the picture. All of a sudden it says," I can get the cancer just from having a diagnosis of having a cancer, even if the diagnosis was completely wrong."

Dave: That raises a couple of questions. You talk about turning it into chemistry. I'm thinking back to the cellular Biology thing and something that happens when we're making, say citric acid or any one of the other chemicals that we make in fermentation vats.

A lot of people don't know this but what they do is they genetically modify, usually Aspergillus, which is a type of fungus. They put it in a culture medium with some corn or sugar or whatever. Then to make it ... The change it so that it'll produce whatever chemical we want as it's toxin.

Then to raise the toxin producing level, they use microwave radiation, they heat and cool it, and they vibrate the vats. They stress out the cells.

Dr. Lipton: Absolutely.

Dave: They probably use some chemical manipulations as well, change the pH and what not. If you take those things, it's not just chemistry. It's physical vibration, it's sound, it's light, it's electromagnetic frequency, it's temperature, and all of those things.

How much of this communication, in your experience, is chemical versus all of these environmental that are invisible but really important?

Dr. Lipton: It's a trick question with a trick answer. The trick answer is simply this. In our Newtonian view of a world, we see 2 realms. A physical/mechanical realm and an energetic realm, energy invisible energy. In an Newtonian world, we say, "Oh they're 2 separate realms and your body is made out of the physical realm so if you want to change or adjust your body, you use physical things, chemistry.

I go, "Cool, but in 1925, physicists recognized something very clear and that was this. That thing that we can physical, our body. I said, "Yeah it's made out of atoms. Those are particles." I go, "Yeah, but in 1925 when they realized physicists, when you go inside that atom, what the hell's inside?" You go, "Oh, protons and neutrons, and electrons."

I said, "Yeah, yeah, but what are those particles made out of?" That's where the new field of quantum physics came in because when they looked inside the election, the proton and neutron, there was nothing physical at all. It's an energy vibration. It's a vortex. It's a nano-tornado of energy.

I go, "Why is it relevant?" Because the quantum physics world does not distinguish between an energy and a mechanical world. They're all energy. The whole thing is energy. Relevance? The physical expression of energy, a human body, is totally integrated with the invisible energy in which we're immersed.

All of us are sitting now in a field with telephone broadcast, television broadcast, radio broadcast, solar energy broadcast. I go, "These, in a Newtonian world, not relevant. These in the quantum physics world are primary. Let me give a quote. It's so simple, but it's like we've got to own this. Here's the quote. "The field," which is the physicist's term for the invisible energy. "The field" and this is a quote from Einstein, "The field is the sole governing agency of the particle."

Particle is matter. The field is energy. What is the new physics? The field, the energy is the sole governing agency of matter. All of a sudden said, "Oh my God, our whole Science of Biology and medicine has totally left out the energy field and physicists come in and say, "You can't leave out the energy field. It's fundamental in shaping everything else."

The answer to your trick question is “Can I be affected by invisible energy fields and matter?” I say, "They're both the same. You are indeed affected by the energy fields so why is that relevant? Because if you then go back and say, "My brain is a generator, a broadcast of feels electrical activity of the brain could be picked up with wires on your head. It's called EEG, Electroencephalogram.

I could read your brain function because the electrical activity in your brain connected to your skin. It's conducted and I'm reading brain. That's cool except for this. There's a new way of breeding brain function. It's not electroencephalogram. It called Magnetoencephalogram. It reads more the magnetic field.

I say, "Why is it relevant?" It's so cool. The probe to read your brain does not touch your head. The probe to read your brain is out here. I say, "Wow, what does that mean?" I says, "You thought your thoughts were contained inside your head? I can read them out here."

Dave: They're spread outside your head, yeah.

Dr. Lipton: The idea's this. You are creating a field with your thought and then I just put back the equation, the field is the sole governing agency of the particle. Then you realize, "Oh my God, my mind is a field generator and that energy is 100 times more efficient in controlling your cells than are chemical energies.

Basically, your thoughts are shaping your physical biology. That's where placebo/nocebo just differentiates. Positive thought, placebo. Negative thought, nocebo.

Dave: Right now there's about 4% of the population, which is the number of hardcore skeptics that are out there. Right now jumping up and down, they're probably driving their cars into bridges if they're listening to this.

Dr. Lipton: Yeah.

Dave: They're getting all worked up over it.

Dr. Lipton: They have a belief system and since it's based on belief, if you believe ... Henry Ford I think said, "If you believe you can, or you believe you can't, you're right." I say, "Oh the skeptic says, 'It can't be.'"

I go, "For them, guess what? It won't work." It's like, "That's because that's their belief system so fine, stay in your skeptic world, but I'm opening up my world to ... I know my thoughts change my genetics and that's the science of epigenetics."

Dave: At this point the evidence is very clear on that front. The fact that people don't like the evidence is like, "Okay, you can yell and scream and use ad hominem attacks, which is basically you say, "I don't like what you discovered therefore you're a poopy head which is relatively dogmatic about it."

Dr. Lipton: Been there, experienced that. I left the university after I realized my research conflicted with my teaching and I was teaching incorrect information. I was teaching that we are victims, when the new Science of epigenetics says, "No." As I changed my mind, I changed my genetics.

I say, "Why is it relevant? You're free to change your mind any way you want. Since your mind is controlling your genetics and you are not a victim of your genetics, if anything, if you want to use the word victim, you're a victim of whatever thought that's in your mind, especially if it's a negative thought."

I say, "Why is it relevant?" I came back to the university after I understood the nature of how the environmental signals were being converted into genetic activity, which is the Science of Epigenetics. I came back to my skeptical colleagues which I left the university, I walked out with tenure, they were really pissed.

Dave: You had tenure too that's amazing.

Dr. Lipton: They were pissed. I said, "Well I want to come back because I needed a scientific audience just to hear my great idea, I thought it was. I've got an audience with my former colleagues and the students in the anatomy department. It's a medical school in Wisconsin. They gave me a lunchtime seminar which is like ... People just bring their lunch because it's a social thing.

If some guy up in the front, blah, blah, blah. They don't really care. They're just eating lunch and enjoying themselves. They gave me one of those. The interesting thing was that I was just about finished with my lecture when I looked and it dawned on me while I'm talking that nobody ate their lunch. They were all sitting there, they didn't even open the bags.

They're sitting there looking at me with these big saucer eyes like I came from outer space. I always thought this was a whole cool lecture because I was talking about the membrane and the physics and all that. They were so into genetics that whatever I was saying was way too far away for that.

What was the response? I get to the end of my lecture and they're still looking at me. I say, "Thank you very much." That was the response. It was the longest period of dead silence that I've ever experienced in my life and it was totally silent. Everybody was uneasy. I'm standing in the front. I said, "Thank you." They're just sitting in the seat.

One guy way in the back, he clapped twice. I looked at him and he clapped twice, but everybody else looked at him and he put his hands down and he stopped clapping. Then they all got up. All my former colleagues got up and walked out. Not one person said a word to me.

Dave: Wow.

Dr. Lipton: It was like, "Oh my God." I thought, "Am I crazy?" Crazy people believe in what they're doing and I thought, "Am I crazy?" I came in here with the most exciting view of this new Science and they looked at me like a coconut had hit me in the head and they walked out. I was like, "Oh my God maybe I am crazy because I so believe what I'm into that I'm carried away by it and I got nervous

about it."

I went back, actually, to University of Virginia where I got my degree and spoke with my former people who were on my PhD committee. One of them was a world class cell biologist, I mean world class. I sat across from him, Lenny Rabin, Lionel Rabin. I said ... Because now I'm concerned because I thought, "Is my idea really crazy and I don't see where the problem is and everybody else does?"

I said, "Lenny, I'm going to explain it. I just want you to tell me what's wrong with it." I give him my idea. He sits back on his table and he goes, "Bruce, it's not what we're thinking." I go, "I know it's not what you're thinking. I want to know where it's wrong."

"Ah, it's too simple." I did exactly what you did. I laughed in his face and he's like, "Okay, this guy's crazy." I had to catch myself and say, "Listen Lenny, first year of graduate school, first class in graduate school, you guys taught me something called Occam's Razor and Occam's Razor says, "The simplest hypothesis is the most likely hypothesis and should be considered before all others."

I laughed and I said, "You couldn't have give me a better answer if I asked for one. I said, 'What's wrong with it?' You said, 'It's too simple.'" I go, "Okay, then by definition, this is the hypothesis should be considered before anybody else's hypothesis." Then I ended up going to Stanford, and a job interview.

I got there and it was like I looked in the audience it was like, "Oh my God, Chairman of Pathology, Chairman of Dermatology, Chairman of the Biology Department, Chairman of the Biochemistry Department, Head of Gen and Tech Research Institute. These are all genetic engineers. My research and talk is, "Who cares about genes? It's really the environment."

I did my talk like I did at Wisconsin, in front of all these geneticists, and I come to the conclusion and I'm writing on the board and I hear a phrase come from God knows where. I thought, "That's funny." I turned around and I tell the audience after I'm writing my conclusion, I turn around and repeat just what I heard in my head.

I go, "And therefore, in the conclusion, if you believe the genes of the end-all of everything, you're no better than a fundamentalist." They didn't laugh. I never saw such an apoplectic audience in my life. They were red-faced like, "Oh, oh." They were all wanting to yell at me because each one wanted to vent because at that moment, what I did was I pulled the rug out of everything by saying, "Who cares about genetics?"

They were red-faced and they were yelling and I was burrowed up against the backboard. They didn't want me to respond, they just wanted to vent. The head that gave me that little wonderful phrase that I thought was so funny, the next voice out of that detached voice was looking at this whole audience yelling and red-faced, the little voice in my head goes, "This job interview isn't going well."

Then, at some point, I kept slipping down until my belt caught on the chalk tray and said, "That's

about as low as you're going to go." All of a sudden I started yelling back. I remember the first thing that I said, the rest of it was streamed of consciousness, but the first thing was simple. I said, "There was life on this planet before there was DNA. Therefore, you can't start with DNA. There was already life here."

Dave: Explain that for people listening.

Dr. Lipton: The chemistry of our planet is an evolution of chemistry. Before there was life on this planet there was only what is called 'inorganic chemistry.' Minerals, rocks, salts, things like that. Life comes from organic chemistry. I say, "Yeah, but where the heck does organic chemistry come from?" He says, "Over time the photons of light father sky, interfaces and hits the earth and etches the surface of that."

The chemistry at the surface, picks up photons. Now it's energized chemistry. That's called organic chemistry when it's got energy to it so it's mobile, it's movable compared to a rock. That's just solid stable. When you put photons of light, it's not so stable, now it moves around.

Where does organic chemistry come from? Sunlight hitting the earth. Father sky, mother earth come together and create a layer of organic chemistry at the surface and that organic chemistry is the foundation of life. I say, "Yeah, but it didn't occur all the chemistry at once." There were simple chemicals, organic chemistry, and then they became more complex chemistry.

Point was, there were living forms of organisms before the complexity of DNA had been created. Therefore, there was no real DNA and life had already started which leads you only to a logical conclusion. Obviously DNA didn't do it, it wasn't even here. What was uniquely different about my Stanford experience, after they all got apoplectic, after I yelled back at them, and I said, "Thank you very much" figuring, "Oh here we go again. Thank you very much."

Then they all applauded which was like completely surprised and the guy who brought me there for the interview gave me a list of all these prominent people. He said, "After lunch are you going to meet with these people." I pushed the paper back and I said, "Listen, I think I irritated them enough. Maybe we don't want to waste any more of their time."

He pushed the paper back to me and he said, "No, you provoked the hell out of them and they really like that." That's how I got the job because it was a provocation that made them feel like, "Well, okay. He's saying something."

Dave: That says a lot about the integrity of that group of people. When someone pushes your boundaries like, "Okay, I want to know more" versus, "I want to run away." That is a fundamental aspect of courage. Galileo did the same thing many, many years ago and he kind of got killed for that same thing. At least that's illegal now so you're safe that way.

Dr. Lipton: Yeah, well I made my Wisconsin audience, they were ready to kill me and my Stanford audience was curious, that's what it was. It was interesting because I came into a lab that was conventional and after 4 years in that lab, when I left, they were already into the new area of research Epigenetics in 1992. That was the foremost stage of the new science Epigenetics that I

was talking about.

It wasn't even formulated as a science until after 1990 so I was there in 1967 so I had a good 20 years of working on something that science hadn't even owned yet. I had a jump.

Dave: You look like you have a suntan.

Dr. Lipton: Yeah.

Dave: Is that because of this interaction between photons and matter and organic chemistry?

Dr. Lipton: Absolutely it is. It's photonic energy that is really... The system runs on all this energy. Matter of fact, if you could see a cell really close, the surface of the cell would look like a laser show.

Dave: It does.

Dr. Lipton: It does because ...

Dave: Tell us more, this is awesome.

Dr. Lipton: Every time an electron is passed from one molecule to another molecule, as the electron is released, a photon of light is released. The whole biological system is on shuttling electrons. It's actually called electron train transport. Why is it relevant? All of the processes are involved with sending electrons, giving off photons, so the whole thing glows.

It glows in all these different colors based on what the energy level that electron was coming from, gives off a different photon light. At the level of a cell, if you could look at it, it would light up continuously like a laser show with lights going on.

That's just a secondary consequence of passing electron from A to B which is the nature of energy transfer in the system.

Dave: That would imply that you can then add energy to a system using light.

Dr. Lipton: Yes.

Dave: How familiar are you with that kind of work?

Dr. Lipton: Back in the 1960s, I remember that laser light in the red range and a certain vibrational frequency of red, way back then, was used to activate the healing response in wounds. Again that was, "Oh weird people are doing that." Photons of light were doing that, and bone healing was manifest through putting an electrical field around the bone.

Dave: Running all the current over it right?

Dr. Lipton: Right. Conventional biology is, and here's the unfortunate part, conventional biology is not a

free science in the sense of free thinking. It is a funded science. If I want to do research, I've got to get some money. I said, "Yeah, but where's the greatest source of money coming from?" The answer is the pharmaceutical industry. I say, "Why is it relevant?" Because when you get a grant from the pharmaceutical industry, you're almost essentially working for the pharmaceutical industry.

It biases results so the British Journal of Medicine published an article that said, "They look at the results on the same research but split it up based on whether the research was funded by public money or the research was funded by private corporate money."

The results were when private corporate money, like pharmaceutical money was funding the research, the results were 4 to 5 times more in the favor of the funder than when the money came from public resources. There's an internal bias of where'd you get the money from that also shapes how you get the results.

Dave: It's absolutely ... It's just been shown at this point, you've got to question the research out there which also throws the fundamentalist, skeptic crowd into apoplexy because they only believe in double-blinded studies. It locks them into this weird chemical industry paradigm that it's dysfunctional if you want to hack the human body.

Dr. Lipton: It's 100% just dysfunctional, it's in favor of the system. People go, "Okay look, bad drugs, illegal drugs are a problem in this world. Do you know how many people die from illegal drugs?" I go, " 20,000 people?" They go, "Yeah, maybe 20,000 people die." I go, "How many people die from taking prescription drugs, 300,000?" That's a true story.

We wage a war on an illegal drug, which takes off a minority of population and we legitimize a pharmaceutical industry with 300,000 people die from taking conventional prescription drugs and we don't count that. It's like, "Oh, that's the cost of doing medicine." I go, "Damn expensive to do medicine."

Dave: It sure is. You talked about the red laser thing. I started using low level light therapy, lasers mostly because they didn't have enough LEDs back then in the late 90s. I fixed whiplash in 6 minutes with a red laser. I bought the laser and ever since then, I've been using light as part of I do to heal. People are like, "What the hell are you doing? You have lasers and lights. You're a damn hippie." I'm like, "Whatever." It seems to work really profoundly.

Dr. Lipton: You're a happy hippie if you think about it right?

Dave: Exactly. I'm also a Silicon Valley tech guy. Cloud computing and all this pretty impactful stuff. I'm like, "Whatever, I'll do what works, but I'm 100 pounds lighter than I used to be so I'm okay with this." I don't really care that I'm wearing colored glasses that filter the light that comes into my system because it's an environmental variable that matters.

Dr. Lipton: I have to tell you, it was the exact same thing for me because people say, "Well, you're off on that weird stuff." I turn around and I tell you, "My life on this weird stuff is so much better than when I was doing your conventional stuff. I wouldn't turn around. I'm staying on it."

Dave: Yeah, even butter instead of milk in coffee. There's science behind it. There's good chemistry science behind that and Brain Octane and all that. It doesn't matter. The number of people who are like it's the end of the world. This is a tiny thing. Let's try lasers in your coffee and see what happens right?

I want to go back to what you said about the cells releasing light because that's something that I haven't talked enough about on Bulletproof Radio and just in general because I'm a little concerned that this is so powerful people will harm themselves.

I bought a device in the ... It was about '97, '98. It was a very high-powered infrared LED. It was used by its inventor to basically transform his brain. The guy had so much of an affect from it that after 9 months of using it, he went back to medical school and deleted all information about his invention from the internet because he thought he was going to get sued, which is fine. I'm not naming him right now.

If he's listening, and he probably is actually. He would know who I'm talking about. I would use this thing for 2 minutes at a time on the back of my head and it really changes your brain in a very strong way. I took it, 2 minutes. I put it over the language processing center in my brain here on the left side of the head because I've never been able to hear French or Swedish. It sounds like someone chewing gum to me.

I don't process sounds the way normal people do so it's just hard for me to just make out the words. After 2 minutes on that part of my brain, I spoke in garbled sentences for about 6 hours. Literally, like this is a bad thing. Eventually it went away and who knows it probably improved things, but that's how powerful light ... That wasn't even a laser. That was a LED.

That's how powerful light is as a biological signal to the body and the mechanisms now, you talk about cell membranes, I'm looking very much at mitochondrial activation with these things. Seems to be the primary epigenetic medicine.

Dr. Lipton: Which is also cell membranes because the mitochondria works because of the cell membrane.

Dave: Because of the mitochondrial membrane right?

Dr. Lipton: Yeah, and it's just a symbiotic organism that is living within our cells and there's an exchange. It's an intact organism, but about 90% of it's genetics has been transferred to the nucleus of the parent cell. It's still a free-living entity in there with a membrane and the membrane for any entity is really the control place.

Dave: As I'm working on my new book about mitochondria, some of the little tiny details that I didn't understand, mitochondria, they communicate with each other. Essentially we talk about we're a collection of cells. Inside all of our cells, in fact, inside your brain, there's 10,000 mitochondria in a cell.

They're all talking to each other and talking to the mitochondria in other cells. Are we a

collection of bacteria that each has their own petri dish that are all inside a big petri dish? Is that a better model for what we are?

Dr. Lipton: It's exactly what it is. The intelligence of a system is based on the surface area of the membrane. The more membrane, the more intelligent. Bacteria get limited because they are like invertebrates, they have a shell on the outside. It says, "A bacterium can only acquire X amount of membrane. It can't get any more because it's controlled by the outside shell.

I say, "Oh well then in evolution, the first part was to make this really intelligent bacterium?" I go, "Yeah, but then what?" The smartest bacterium could not get smarter because of a limitation on the ability to make more membrane because of the shell around the outside.

I said, "Well, then evolution stopped because evolution was making a more intelligent organism by adding more membrane." Reaches the end point and says, "I can't make the bacterium any smarter. I can't add any more membrane." So I said, "Oh, well then evolution stopped?" I said, "Yes it did, but then it changed modality." The next modality was since I couldn't make a smarter individual bacterium, then what happened was evolution said, "What if we bring a bunch of bacteria together?"

Then they all share their information. I go, "Ah. Then you could get more intelligence." If you're a member of the community then you have access to all of the information in the community. The next level of life ... The first level make the smartest bacterium. The second level was after you've got the smartest bacterium, bring them together in a community.

This is what's called a biofilm. What I represented was a membrane-bound community of all different kinds of bacteria. Not the same one, different ones, but they integrated their activities. Some were breathing oxygen, and others were working without oxygen anaerobically. Some were doing this function, some were doing that function. What'd they do? Inside that membrane those bacteria created an integrated community and it evolved to become what we call the amoeba.

The amoeba is what? A membrane-bound sack that used to be all the individual bacteria. The only one that still retains the bacterial configuration are the mitochondria. I say, "Yeah, but so what is an amoeba by definition?" An integrated community of bacteria for enhancing the intelligence of the system. I say, "Oh."

Now that we have an amoeba with a big membrane on the outside, we can make a smarter and smarter amoeba by more and more membrane, no capsule." I say, "Yeah, but it still reaches a certain size because if the cell gets too big, it's like a balloon filled with a lot of water." If there's a little water in the balloon, we could throw it around, nobody has a problem. You put a lot of water in a balloon and try and throw it, the balloon ruptures, the water comes out.

I say, "Oh a cell membrane will rupture if it gets too big." I go, "Oh, so the first phase, bacteria, become the smartest they can be. Second phase, bacteria form a community which then integrates and becomes an amoeba which then the amoeba went through evolution to make the smartest amoeba, reached the maximum size, and go, "Oh, stopped again?"

I go, "Yeah, but then guess what? The amoebas came together and formed a community." I say, "What did that do?" I said, "Well, 50 trillion amoebas are making this a community." I say, "What happens then?" I said, "Well, you fill out the brain until you can't put any more brain in there. Oh we're back to I can't make a smarter human." I said, "Then what?" I said, "It's a repetitive pattern."

Dave: Yeah.

Dr. Lipton: Once the individual organism reaches it's highest ability, intelligence wise, and can't get any more, the next level is to join up and make a community. The evolution on this planet right now is the evolution that first we look at ourselves as individual elements. I go, "Yeah, but the evolution is we are cells in a bigger thing called humanity. What we're seeing is the world going through crisis. What, because we have separated ourselves. The reality is no, the evolution is coming together.

Borders are breaking down. Politics is strange in every place right now, especially here. I say, "Why?" It's a breakdown of separation. The internet is the evolution of a global nervous system that can integrate 7 billion human cells into humanity. Where are we? We're in an evolutionary upheaval.

The old system is not sustainable, crashing. The new one is just beginning to grow and your work, for me, is critical. That's why I'm so honored to be here with you because knowledge is power. We have been disenfranchised for a lot of knowledge, disempowered. The only way to empower people is send the messages out to the community.

Why I'm so excited to be here is you are an evolutionary leader because you're bringing a public a new vision and not just the, "Oh this is a nice idea." No, this is a scientific revision of our world. Thank you for this opportunity because as every person realizes they're an individual power, then if the people take back the power, the vast majority of people on this planet want the same thing.

Peace and harmony, a job, food, place to live. They all want the same thing. It's only a small percent that say, "Screw everybody else. I want all of it." When people get empowered and you offer this, thank you Dave for doing that. When you offer it, they get knowledge, knowledge is power and that is, our evolution is not a physical. Humans is not going to change. Human consciousness is the evolution.

Dave: You've said in some of your writing that humans spend 5% of their time in the conscious mind and 95% in the subconscious mind. It seems to me that there's a way to put more energy in each of us human cells, in each person by going down to the cellular level and hacking that. You change the environment around, we've grown new mitochondria. A lot of my supplements are designed to support mitochondria.

Even the ketones, just in general, right now. It's putting more electrons into yourselves. You can do more as a member of a global community and frankly it makes us less assholic, if that's a

word.

Dr. Lipton: I'm seeing that in the pathology book, yes. It's so important because we have had so much power but our belief programming has been disempowering. This happens for kids. For 7 years they're, "Who are you?" You hear from your parents you're not this and you can't do that and you're limited.

It's a continuous disempowerment. Our subconscious programming, which as you mentioned, is running 95% of the time, is programs. It doesn't encourage our health and vitality, in fact the majority of programs take away our power, our vitality and our health.

When we look at the illness on this planet that we've mentioned, one percent is through the genetics. I say, "Yeah well then what's the vast majority of illness due to?" It's not a frailty, it's not a vulnerability on the part of my biology.

It is a problem in the information that I'm sending from my interpretation of a world, to 50 trillion cells, preparing them to deal, not with the real world, but deal with the world that I'm telling them exists.

A liver cell doesn't know what's going on. The only way a liver cell can adjust its biology is the nervous system reads the environment and then sends message to the liver cell saying, "This is going on in environment. We need you to do this." I go, "Well this is cool except for the fact that if we look at the environment with glasses, filters, two people looking at the same environment don't see the same thing."

Dave: Exactly.

Dr. Lipton: The point is is what you see is translated into chemistry that controls the cells. If you have a negative outlook, even in the most beautiful, supporting world, your liver cell doesn't know it's beautiful and supporting. Your liver cell only gets the information your mind sent. Therefore it turns out the health problems are not physical, biological in origin. The health problems are consciousness and limitation and disempowerment that makes us powerless and in being powerless we are frail and vulnerable.

Dave: The mechanism for the nervous system sensing the environment around you, there's a psychological component where you tell yourself a story and the glass is half full or the glass is half empty. There's also an environmental sensing thing. Are you familiar with Douglas Wallace's work?

Dr. Lipton: Right now I can't say I do.

Dave: I thought you might have been. I wouldn't just randomly name-drop there. He's been doing a lot of work recently on mitochondrial environmental sensing. The very latest, this is just in the last, just since 2013 really.

Looking at quantum biology and looking at how potentially they may be the mediator for how

we sense the world around us and then there's another mechanism, and one where I think you've spent a lot of your time, where there's this internal environmental sensor.

Where you tell yourself a story about reality and that changes your cells. Then the cells sense what kind of food is there? What kind of light is there? What kind of temperature is there? The that effects mitochondria energy production via these light pathways you're talking about.

I can't say that one of the systems is bigger or more important than the other, but it seems like there's external environmental sensors that happen on the skin, in the cells, without nervous system involvement. Then there's a nervous system involvement as well. Do you buy that picture of the world?

Dr. Lipton: I really keep the nervous system always involved whether you're conscious or not conscious. It has to be what is interfacing the outside world with what's going on in the inside world. The inside world is there are drives to survive and in biology we call it the biological imperative. The imperative represents the point. There's no organism that if you threaten to kill it, it'll go, "Okay, kill me."

Even a bacterium, when threatened, will try every maneuver possible to stay alive. I say, "Oh my God, the most primitive organism has a drive to stay alive." I say, "Yeah, we don't know how it works. It's called the biological imperative." The biological imperative is the drive to ... you need water, you've got to have water. You need food, you're going to have to have food. Everything to keep the system alive is what you're looking for.

That drive requires a constant scanning of the environment to see if I should adjust something or do something unconscious, not conscious, unconsciously to survive. If a ball is coming toward your face, you will wink your eye without ... It was a nervous system response, but it wasn't conscious, it had nothing to do with it.

A lot of the drives and that controlled behavior, below consciousness. As a result, we say, "Well I didn't think about it, it just happened." I go, "Yeah, but it's still a nervous system because it must integrate 50 trillion cells." That's the only way a community works is everybody's informed as what's going on.

The function of the nervous system is to provide that communication. Even know you don't see it as a mental processing, I walk outside and it's cold out, my nervous system picks up on the skin, the temperature and that's sent to the brain, subconscious that says, "Oh we better warm the body up because it's cold out."

I changed my physiology to warm up. I walk outside and it's hot out. I say it's picked up by the skin, but the nervous system's interpreting that it's hot and says, "Oh, I must engage these things to cool you down." I go, "The conscious mind had nothing to do with that." They're completely below consciousness, yet there's a nervous system. Something had to read the environment, and then relay information about what was going on in the environment.

If you disconnect the nervous system from the system, then in cells, the nervous system is the

membrane, the skin, and it's just so people, "Oh the skin is the nervous system." I go, "If you understand human embryology, our nervous system is coming from the skin." We and the cells have a parallel understanding so on the cell's skin there are receptors just like we have eyes, ears, nose.

They're molecular receptors, but equivalent. Relevant, if you cut the receptors off so there's no reading of the environment, the cell has zero behavior. It just sits there. It has no response. Once the receptors are replaced on the surface, then the cell engages in behavior. What was the point? Behavior was elicited by the environmental stimuli. If I couldn't read the environmental stimuli then there is no behavior.

Basically it says, "Yeah, but the vast majority of our biology is controlled by direct environment nervous system cell without consciousness being involved at all."

Dave: Without consciousness being involved at all. Some of the cell behaviors, say in your arm, the cells in your arm, are happening at the cell membrane level in the cells in the arm, and then the signal goes to the mind, and then the mind changes the biology the way it's going to change the biology, but some of the biology may have just changed because if you shine a laser on your ...

Like if you get a suntan, the fact that you're getting melanin in your cells probably isn't because a signal went to the brain and then the brain caused you to release MSH to grow melanin, it's a local response right?

Dr. Lipton: It can be both.

Dave: I can be, okay. Both.

Dr. Lipton: I can be both.

Dave: Okay.

Dr. Lipton: Yeah, because if you say one or the other then ... I'll give you an example, then you'll give me an example and I go, "How about both?"

Dave: I'm looking for validation of the both hypothesis [crosstalk 01:01:10].

Dr. Lipton: Of course it's both because I take the cells out of the system, disconnect it from the nervous system, put them in a petri dish, they'll respond to the environment directly.

Dave: Got it.

Dr. Lipton: Then the question is, as I said, the liver cell is inside my body. It's supposed to adjust its biology to match my needs, the drive to stay alive, and so the liver cell must have a reading of the environment for it to know what behavior it should produce.

If you send the wrong information to the cells, then, by definition, the behavior they engage will

not be in sync with the world in which you life. That is the foundation of disease, meaning you're organizing a cellular community to something that doesn't exist if it's just a made-up belief in your mind.

That's where the biggest problem comes from because our world today is driven by leadership that knows that they can manipulate your intelligence by putting you in fear. Fear causes, not only a physiological shutdown of my health and my biology and my immune system, but people don't recognize this and they should because election time is happening and like one party out there is scaring the hell out of everybody saying, "Hey be afraid of every damn thing."

I go, "Whoa, what's relevant in that?" I say, "When you're afraid, remember the stress hormones redirect the flow of the blood of the body to the arms and legs because that's where you're going to have to use fight or flight."

They don't know this, most people, is that when the stress hormones are released in the body, the blood vessels in the fore brain, which is thinking, conscious intelligence, the stress hormones cause those blood vessels to squeeze shut and push the blood to the hind brain where fight or flight reaction is going to be rapidly controlled.

I said, "What's the consequence of a stress hormone shot?" I go, "It makes you less intelligent because now your behavior is not controlled by conscious processing and reasoning, your behavior's now controlled by stimulus response, reactive reflex behavior." It's unfortunate because when people get into that mindset, shut down the consciousness, and they're in fear, all they want is somebody with a big stick to be in front and knock off all the bad guys.

Then we have one Presidential candidate that says, "I am the big stick. I will protect you." Scaring people first, and I say, "What happens?" Whether it's a real fear or not, if you scare somebody, their cells will not distinguish whether it's real or not. To the cells, it is real because whatever chemistry the brain sends, that's all the cells can respond to so if I scare you, then it becomes real important to know that that fear is ultimately going to cause a problem.

Dave: Very well said. I have one more question for you. This is about cell membranes. People listening are either jumping up and down excited or going, "Why is he talking about membranes?" I'll try and provide some context for our listeners.

A guy named Gilbert Ling who is one of the big fathers of looking at gels, a collagen gel, which is a big part of cellular biology. He'd done some experiments where he removes cell membranes entirely and has cells that still seem to function. I always believe that the little cell membrane made of tiny droplets of fat was fundamental to the cell.

Here's a guy that's removed the outer cell membrane and left the mitochondrial membranes intact and discovered things still work. What implications does that have to you as a cellular biologist?

Dr. Lipton: The implication for me very much is that a eucharyotic cell, a nucleus containing cell, the kind that the human body is made of, is filled with membranes. It's not just a membrane on the

outside, there's all the organelles, every organelle. Go back and understand this. Every function of a internal membrane in one of these like amoeba-like cells, whether it's mitochondria, endoplasmic reticulum, golgi, nuclear envelope, whatever.

Every one of those functions, where was that in the bacterium? The answer was the outer membrane because they only had one membrane. All of the functions originally were on the outside, but through evolution, membrane was then taken to the inside to free up the outside.

Then the thing is this, you might remove the membrane from a cell, but the cell has the ability to take the membrane that already is in there and recover itself again, and heal itself.

There's an opportunity, a period of time, when the internal membranes are still going to control the biology but it must rebuild the outer membrane to stay alive.

Dave: There's something very cool happening in the collagen stuff inside the cell. Then you have these mitochondrian membranes and these are so important. A lot of my own biohacks are cellular membrane biohacks. The infrared sauna is changing the water in the body. It changes cell membrane permeability. All the light stuff that I do. It changes membranes for sure, but also you say too much fish oil. What happens to the cell membrane?

Dr. Lipton: The idea is this. If you take too much of something, the system can get rid of anything it doesn't want. That's why a lot of people take supplements and then they look in the urine and it's like, "Wow, look at all I'm peeing out. All of this stuff." You can only put in so much that it needs. Anything beyond what it needs is like, "I'll store what I can, and whatever is beyond that, I'm going to get rid of it again."

The issue is you could over supply and yet the system is regulatory and says, "If you put too much in, we'll get rid of some of it."

Dave: Not as much in the cell membrane as I would like. What I've seen is you take pharmaceutical level doses of fish oil, way more than you're getting in the environment. It gets incorporated in the cell membranes to the point where they become too fluid and dysfunctional. You end up with less functional cell physiology, but if you don't have enough DHA and EPA in your cells, then your mitochondrial membrane doesn't work very well, and you're walking around without enough energy.

There seems to be a sweet spot. What irritates me, my goal is, by the way, to have the most expensive pee on the planet. I want my body to have every supplement, every molecule it could possibly use, knowing it will get rid of the ones it doesn't want, but some of these things, like the oils, you take margarine, it gets incorporated in your cell membranes.

You take fish oil, it gets incorporated in your cell membranes, but sometimes those changes are not beneficial even though fish oil itself is kind of good. I'm concerned about that.

Dr. Lipton: Yeah, that's a toxic interference. The idea is there is a physical chemistry which is at the bottom line energy, but it's express is physical chemistry, and if you distort the physical chemistry,

you're going to distort signaling that goes through that physical chemistry. Basically, that's why we look at the diet as so important.

To me how important is a diet? I go, "Very simply, understanding this, and that is that I grow cells in tissue culture. I grow cells in tissue culture and the significance is I make culture medium.

I make the culture medium and the significance about the culture medium is that it's representing blood." The you say, "Well, Bruce, when you make your culture medium to feed your cells, where do you get the ingredients?" I go, "Not at Kmart." I only go for the best ingredients as possible because the life of the cell is based on these ingredients.

When we have a diet, we don't realize, your diet is used to make building blocks for your blood. Why would you put toxic crap in there if you know that this is the most important element of communication and therefore eating less than healthy food, industrial farm food and that toxic crap like that is like you are making culture medium.

I would never put anything if it wasn't the finest grade into my tissue culture. Why? Because I can see my cells respond instantly. I put something that is non-adequate in that tissue culture and I could watch the cells automatically change their shape and start to get sick.

If I'm doing that in a tissue culture, in my skin-covered petri dish, you can bet your life I'm going to make sure that I put the best ingredients in to make the best culture medium possible. Then that gives us the story.

Dave: Very well said. In fact, if you just summed up kind of the entire first book about it. What do you do before and during pregnancy to have the best, healthiest, smartest possible baby? It's that. Clean up the culture medium where you're going to grow a new cell, or a new body.

Dr. Lipton: Exactly.

Dave: What a powerful way of saying that. Thank you.

Dr. Lipton: I appreciate it. Thank you again for letting me have opportunity to talk to your audience. Empower them, because we are so powerful and yet we have been programmed to believe that we are not powerful. As I said, if that's what you believe, then you have lost your power. This was an opportunity to bring power back. Thank you.

Dave: You're very welcome. I've been a little bit derelict in my responsibility here because I wanted to talk to you about both the Biology Belief, your first big book, which is incredibly ground-breaking. Also you have the Honeymoon Effect, your new book on relationships which we haven't even talked about. I'm going to have to have you back on the show if you're ...

Dr. Lipton: I would love to come back and that's a great one because after the show of what happens, the story is very simple, Biology Belief reveals that we have been programmed especially during that developmental phase, first 7 years. The relevance about that is what would happen if you get out of the program? The answer is when people fall in love and they create, for them, heaven on

earth, that is the actual expression for the first time in their life they're not playing the program.

It's taking the red pill according to the Matrix and getting out of the program. You're regular, every-day struggled life is the program, but the moment you fall in love, all of a sudden you're not playing the program. I say, "Yeah and what happened to the struggle? It disappeared."

All of a sudden everything was beautiful. It says, "Ah, well then the program becomes important to understand." I would love to come back and have an opportunity to talk about that with you.

Dave: I will make that happen. It might be a little while and if ... I go to the Bay area on occasion. I used to live there for 20 years so if I can interview you live, I will. I always love getting a chance to interview people live. Either way, we'll do it.

Dr. Lipton: I would love to do it. Come down and visit me here in Santa Cruz, it'll be great.

Dave: I used to teach at UC Santa Cruz so that'll ...

Dr. Lipton: Okay, I'm in the neighborhood so come and visit.

Dave: Awesome. One more thing before I let you go for today. If someone came to you tomorrow, Bruce, and said, "I want to be better at everything I do in my life. I want to kick ass at everything. What are the 3 most important pieces of advice you have for me?" What would you tell them?

Dr. Lipton: I'd tell them number one is that the greatest limitation we have of the programming which is disempowering and child psychologists and environmental biologist will reveal that this programming is indeed about 70% negative, self-sabotaging, and limiting and that the first thing is this. Recognize the program and change the program because that's how you get your power back.

Number 2, learn to live in harmony in your environment because that's what evolution's all about. Evolution is not competition. Evolution is cooperation. Therefore we, as a civilization, have been antagonistic in our behavior to evolution because it's all based on competition.

Lastly, recognize that love is probably the greatest healing agent on this planet. The vibration of love is wholeness and harmony and health. Being in love is really great.

Dave: Very, very well said. Wow. What an amazing, amazing conversation we've had. I'm not surprised, given the disruptive nature of your work and how you've been really ... You've been vindicated over the last, I'd say 20 or so years.

You were right, you stuck to your guns, you pissed off a lot of people, but look epigenetics is as real as anything else and you have way more power knowing about it and using it than you do just sitting around going, "Well, I guess I have these genes. I'm screwed."

Our next interview too, we'll touch on the fact that I just had my own stem cells injected into my brain prophelactically. We can touch about that. We'll be talking about that at the Bulletproof

conference this year. I'm really hoping I can get you as a speaker for the conference the year after that.

Thanks again. Have a wonderful day and I look forward to having you back on the show.

Dr. Lipton: Thank you so very much. Thank you everybody in the audience for listening. All of you are the cultural creatives that are making a big difference in our world. Evolution will come from you so thank you.

Dave: Did you know that Bulletproof is on Instagram? You can find us at bulletproofcoffee or my personal feed is dave.asprey. Hope to see you there.