Dave Asprey (00:00:01):

You are listening to the Human Upgrade with Dave Asprey.

(00:00:07):

You are listening to the Human Upgrade with Dave Asprey. Today, I want to just talk about something that's a trigger word for a lot of people. It starts with the word C and it ends in A-N-C-E-R. That's not the C you thought I was going to be talking about. Well, it's cancer. And what I want to talk about today is a new theory about cancer. And to preface this, I've come to understand over the last 20 years of studying mitochondrial biology and longevity and biohacking, that the majority of cancers from my perspective are mitochondrial dysfunction in origin. Maybe three to 5% could be genetic, although the evidence for that is pretty slim. If you really look at some of the arguments there, I know that I've had guests on the show who think it's all genetic. I've had other guests who think it's all mitochondrial.

(00:01:08):

I also think some of it's fungal and origin and misdiagnosed. I could be wrong on all of those things. That's just from reading tens of thousands of papers and just thinking about it and what is what. So today though, we're going to talk about a new theory here called Cell suppression Theory. And our guest is Mark Lintern. He's a citizen scientist who had several close encounters with cancer and went deep on this. One of the reasons that I wanted to have Mark on the show is that he gave a presentation in front of 200 medical professionals at the cancer charity called Yes To Life. And usually when you're talking with cancer professionals and you're a citizen scientist, let's just say there's a little bit of bias against you. But after his talk, which included 10 international cancer experts in the audience, the presentation won over the audience with a confident score of 7.4 out of 10.

(00:02:08):

So we have a citizen scientist with curiosity and no inherent bias other than I don't want to die right now. And if you can get 7.4 out of 10 from one presentation to international experts, well that's why he's on the show because my job is to find people that you might not otherwise know about. It's easy to have an Andrew Huberman on the show or Peter Attia, both who are well known now who came on the show before they had podcasts. But it's the people like Mark here who are just doing unusual thinking. And I think you want to learn from this because whether this is a hundred percent the one cause it's probably not, but it's got validity in how we think about the problem. So what I'm going to do here is learn about a new theory without claiming that this is or isn't how it works, just a new way of thinking and we're going to go down that path. Alright, mark, tell me your cancer story.

Mark Lintern (00:03:15):

Hi Dave. Can I just say it's fantastic to be on the podcast? So thank you for having me on. So starting from the beginning, I developed cancer at 28, which I thought was rather young to get a cancer diagnosis. It was skin cancer at the time. And I asked the doctor and oncologist what particular DNA mutations had caused it and they couldn't tell me. And this confused me somewhat because I was under the impression that genetic mutations were the cause of cancer and this was a truth, actual facts because that's what's being advised and it constantly advised in the mainstream. So I thought, okay, well maybe it's just that these guys don't want to tell me. It's too complicated. So I've looked myself because I just wanted to learn a bit more about the potential mutations that cause my cancer so that I could prevent it from happening in the future and try and work out what I could probably do from a lifestyle point of view to improve it. I went down this bit of a rabbit hole to start with for the first four months, and I realized that it was extremely complex, but the mainstream scientists and the DNA theory couldn't really explain a lot about the disease, which confused me somewhat. And in this deep dive, I came

across the fact that there's several other theories now, this shocked me. I just thought it was DNA mutation, that was it.

(00:04:42):

So I did this deep dive, found out a lot more information, did a lot of research, was looking at health fasting and various other health things like I could do. But because I caught the cancer earlier, I had it surgically removed. So I was lucky in that respect and I didn't do any more research until my friend Sam, she developed cervical cancer. And of course I picked up the research battle from then on. But in that time, a period of a year, she actually passed away by following conventional treatment. But during that whole period of a year, I did an extra deep dive and I could see what particular things that were going wrong, particular treatments that were being advised that she's Avastin, which I knew was not going to do very well for her, and she had chemotherapy and everything else. And when it came into the seven months, I realized that she wasn't going to make it even though everyone else was thinking that she would pull through.

(00:05:42):

And there was this dichotomy between me and pretty much everyone else. And she was between a rock and a hard place because she was trying to listen to me. And I was suggesting there's all these other theories that you should look at because they offer, say the metabolic theory for instance, offers a metabolic treatment approach. We should considering them as well. But it was her life and she was getting pulled from pillar of the post from an oncologist and from a friend telling her to ignore me and concentrate on these doctors who know best. And unfortunately, she passed away. And this I became really angry at this point because I could see that there are huge issues. So I decided that I wouldn't let her die in vain. And what I would do was the research that I'd performed, I'd write a booklet just so I could provide my family and friends with same information I'd gathered so that they would start, if they ever were diagnosed, they'd be able to use this information to help them in a future diagnosis by looking at other things.

(00:06:45):

But then I didn't stop at that year. I carried on going because there was this desire in me myself because I wanted to protect myself as well. And the more I got involved in the research, the more it became clear that the dominant view was incorrect or couldn't explain cancer to the degree that it should be able to explain it. That is explaining the 10 hallmarks of cancer, which are common features shared between all cancers that technically all theories are attempting to explain. And the more of those hallmarks you can explain, the more accurate the theory is deemed to be. This is how we judge the accuracy of a theory. And theories are really important. People may not understand why it's important to understand cancer theory if you're a cancer patient, but treatments are developed from cancer theory. Essentially the cancer theories provide us with the latest research and latest data on the disease. I just didn't realize there were at least seven competing theories, which was quite incredible.

Dave Asprey (00:07:49):

It's kind of funny, we have the National Cancer Institute that spends probably more money than we send to Ukraine, not really on solving cancer, but most of these institutes, they pick a theory, they assume it's true, and then they try to prove it and they spend crazy amounts of money pursuing a theory that isn't proven. We've seen the same thing with Alzheimer's disease. Oh, it must be these tangles. Oh, turns out it's not. Or depression, it must be serotonin. No, it turns out it's not. So all of a sudden 30 years of research gets thrown out because they don't consider competing theories or in reality, it's usually more than one thing that's the cause and that's why biohacking has been so effective. It's like, well, let's do everything that's probably going to work using as many theories as we can that don't conflict and get

the result so we don't die of cancer or so we lose the weight or whatever. And then you start taking away things that might have been what worked because how you feel and your health is most important, not supporting a theory. So you looked at seven different cancer theories and none of them worked.

Mark Lintern (00:08:58):

Yeah, more than seven really, but there's only seven that I would suggest are credible enough to consider. Well look for the whole process. I was in this mode of trying to understand the underlying mechanism of the disease because I realized that understanding the underlying mechanism would lead us to the cure or a treatment that would work. And having gone down the bacterial theory route, the viral theory route tissue organization failed theory route cancer, stem cell theory route, it became apparent to me that the metabolic theory was one of the leading theories. It was more accurate. So this is obviously the theory. I'm sure you and your listeners will know about Otto Wahlberg and his journey in identifying the abnormal metabolic traits of cancer cells. Can

Dave Asprey (00:09:40):

You just explain Warberg theory because I know what it is, but I think some of our listeners might not.

Mark Lintern (00:09:44):

Sure. So Otto Wahlberg in around 1924, I think it was, he was studying cancer cells and he noticed that there was an abnormal metabolic attribute to cancers specifically. And that is, if you want to take and talking on a very general level here, there's say there's two energy mechanisms within the cell. One where the cell breathes, you call it respiration, using oxygen, converting glucose with oxygen to create a TP energy. And the other is where we ferment glucose without oxygen. And that I would consider as the backup energy system. It's the energy system we kind of use in our fight fiber or flight mode. We use it to sprint. It produces a high yield of lactic acid, which is potentially detrimental, which is why your muscles slow down after a long period of use of sprinting.

(00:10:38):

But it's a fast way of increasing the energy output. However, it's inefficient in the sense that you produce less energy for every glucose molecule it utilizes. So generally most cells utilize mitochondrial oxphos, which is oxidative phosphorylation where oxygen is used and combined with glucose. Now what Warberg discovered was that cancer cells utilized the backup energy system and he was trying to work out why that was. And what we also find is that potentially cancer stems from this metabolic process. This switch in energy system is pivotal to the disease. So if we were to look at the 10 hallmarks of cancer, which were identified in 2001, upgraded in 2009 to 10, when you look at the seven hallmark, which is abnormal metabolism, the rest of the hallmarks, angiogenesis, various other aspects of cancer where the cell doesn't kill itself using program cell death or apoptosis, these ongoing hallmarks seem to derived from this energy system working in an abnormal manner. Now, the metabolic theory in Otto Warberg proposed that it's faulty mitochondria that actually causes this switch of mitochondria somehow have become damaged, and that causes the cell to rely on this back of energy system, which causes this corrosive environment because it's overproducing lactic acid.

(00:12:22):

Now Professor Thomas Siegfried will state that he believes it's the energy, the oxygen pathway called oxphos for short within the mitochondria that becomes faulty. So the mitochondria can't utilize oxygen, so therefore the energy system switches. So that's generally the outlook. I dunno if you've got something to add to that at all, Dave.

Dave Asprey (00:12:43):

Yeah. This idea that healthy cells make energy via ox redox is core because most of biohacking ultimately comes down to mitochondria or other low level systems in the body. So things like cold therapy or sunlight are simply ways of talking to your mitochondria and getting them to behave themselves. But what you're talking about is this switch from basically aerobic metabolism to anaerobic metabolism or fermentation based. So what's new about your theory versus a theory we've had that seems to be the most accurate since 1929?

Mark Lintern (00:13:23):

Well, just to go back on that, as I was progressing through my theory and my research, I contacted Professor Thomas Siegfried just to ask his opinion on my thoughts and where to go with it. And he was the professor who advises that I try and explain the 10 hallmarks of cancer if I wanted to produce a theory of any sort of validity. So as I've gone through that process, and I've conversed them quite a lot on this, I've assessed the somatic mutation theory and the metabolic theory against these hallmarks. Based on the research I've uncovered and going back to the somatic mutation theory, it appears only capable of explaining two. So this is why it's so incredible to me that this is the dominant theory that most of the treatments are being based upon for most people with cancer because that theory is not only unproven, but it appears to be the least capable explaining the disease.

(00:14:22):

So then when it comes to the metabolic theory, and now people may argue my analysis on this, but I explain why in my book the metabolic theory appears capable of explaining up to seven of the 10. So it doesn't explain all of them. There are three that are potentially in contention. One being that many scientists have uncovered that mitochondria appear to be operational and the ox fast pathway can be reenacted or reinstated. And when, for instance, professor Michael ti, he targets oxphos in cancer stem cells, he has found that by doing so, he actually is able to kill cancer. So it suggests that there's an element of oxphos required and operational within the cancer setting. So that to me suggested that, okay, there's something else possibly going on. Clearly the abnormal metabolism is involved, but the metabolic theory as it currently stands isn't proven and it can't fully explain the rest of the hallmarks. We might find those explanations later on down the line, but at this present time they can't. So I realized how important abnormal metabolism was and that just maybe the answer to identifying the underlying cause or causes of cancer is to identify the underlying cause of the Warburg effects because the other hallmarks themselves are derived from the Warburg effect itself. It seems to be the pivotal mechanism.

Dave Asprey (00:15:55):

Just to make sure I get this, you're saying that the Warburg effect is caused by something, is that it is a symptom, not a cause of cancer? Yeah, I like where you're going with this, the whole why would that happen? Okay, tell me more.

Mark Lintern (00:16:09):

Yeah. Well, the other thing is just to backtrack a little bit, going through the process that I did, I kind of delve really deep down and I tried to even put myself into the position of being inside the cell and understanding how microorganisms interact. And for me, there's a consciousness on the level of the cell. So what didn't sit well with me was mainstream was saying that cells were just going wrong. The reason why we have cancer, because damage, they go wrong and they're at fault, and the scientist is much higher than say God or mother. Nature and evolution. We are here to solve the problems inherent in the

body. But from my perspective, the body is incredibly intelligent and is evolved to heal itself given the right conditions, but also can become perturbed given the wrong conditions if it's exposed to them on a continual basis such as chronic inflammation. Wow.

Dave Asprey (00:17:09):

So Mark, in the world of biohacking, we look at the mitochondria as environmental sensors and then compute nodes. They make a decision based on their local environment that they can detect. They vote with each other, and then they take action using a very short instruction set. And they can make heat, they can make electricity, they can make inflammation, they can fold proteins and make sex hormones and all that. And that even a lot of our upper higher level human behavior is actually driven by mitochondrial decision making. So the idea that each cell, or in my case even each mitochondria has its own dumb intelligence, that shouldn't be a new thought for listeners if they've been listening for a while. But I've not heard a lot of cancer researchers talk about intelligence inside a cell, which is really groundbreaking. So you change your frame of reference to say, if I was a mitochondria, what would I do? Am I getting that right? Yeah. Okay. I love this

Mark Lintern (00:18:11):

As well. It appears to me that mitochondria are pivotal and how this cell operates, it's seen as the DNA within the nucleus is the main factor that decides on what happens in the sub, what mitochondrial beam bacterial, having a bacterial ancestry and being as though they talk to each other and they are also able to, I think, laterally transfer or shuttle the DNA between each other as well as the nucleus. That suggests to me that they are playing a vital role. Plus they're also involved in controlling cell death mechanisms and growth mechanisms and immune mechanisms to protect the cell from particular infections, as it were. So they're the whole process, and this is when I was looking at the research done by Professor Sied and the metabolic theory, while they say that cell damage or damage to mitochondria is the cause of the energy switch, they can't pinpoint the exact underlying damage.

(00:19:17):

Same with somatic mutation. The is random DNA damage that is found, and you can't replicate that when you take random damage from a tumor and put it into a healthy cell to try and recreate abnormal growth. It doesn't occur. So there's so many things wrong with the semantic mutation theory. It's all real. And I always come from this perspective of, well, the random DNA damage that is witnessed in the cell and even within the same tumor, each different cancer cell has random damage to it. How can you get consistency? And when I'm talking about consistency, I'm talking about the hallmarks of cancer. How can you get consistency from randomness? You can't. So that must mean that there has to be some sort of consist factor. Wow. And

Dave Asprey (00:20:00):

Of course,

Mark Lintern (00:20:00):

Metabolic theory highlights this through mitochondrial dysfunction. So they're saying that the consistency of the disease comes from faulty mitochondria.

Dave Asprey (00:20:11):

Let's talk about the genetic thing for a minute because there are doubtless lots of listeners, even some physicians I know, a lot of functional medicine doctors listen to the show and thank you for your trust in being willing to consider these ideas. When you look at cancer and DNA, just like you're saying, there isn't a pattern. There are a few things even like BRCA and when you dig really deep on that, and that's the BRCA is the so-called angry breast cancer, aggressive breast cancer thing. But even that, the genetic arguments don't hold up very well when you dig deep on it. So you're saying something scrambles DNA, oh, and then some of that DNA becomes cancerous, but when I put that DNA in another cell, it doesn't reproduce cancer. So maybe it's not the DNA that's causing it, but when something scrambles DNA in a cell, it can scramble nuclear DNA, which is the things that we consider to be us, and then mitochondrial DNA, which is probably more US than the other stuff, but is it damage to mitochondrial DNA or damage to mitochondrial function that you're looking at or both?

Mark Lintern (00:21:22):

Both. And that's what confused me about the mainstream view is that DNA seems to be incredibly important, but proponents of the somatic mutation theory do not look at the mitochondrial DNA, which considering that there's a crosstalk between the two and mitochondria are extremely important. That just defied belief for me because coming from a non-scientist background, I always thought that scientists were required to be objectively looking at things from all different perspectives. And it just seemed to be a bit of a shortcoming for me for that.

Dave Asprey (00:21:55):

Sadly, scientists have an unconscious bias because we're human. But if you can measure something, you start looking at what is it useful for one thing, cholesterol, it's very easy to measure because it's a yellow layer when you spin blood. So we've been looking at cholesterol for,

Mark Lintern (00:22:14):

Geez,

Dave Asprey (00:22:14):

Like 70 years now, trying to pin all sorts of things on it because it's easy to measure. And now that we have the ability to measure DNA, which is a new tool, let's look at DNA. It's sort of like the drunk guy who's looking underneath the lamppost for his keys because he can see even though the keys are somewhere else where he dropped them, I feel like this isn't an intentional decision. And there's lots of great cancer researchers out there who are so curious, and sometimes though, if you have a hammer, everything's a nail, even though you might've needed some other piece of equipment. It sounds like you are coming from outside of this industry and just saying, I'm going to be curious without knowing what I am supposed to know. You came up with this idea that is intriguing cancer researchers. So what's breaking the mitochondria?

Mark Lintern (00:23:05):

Okay, so coming back to this point of trying to identify the underlying cause through this micro mitochondrial mechanism, the Warburg effect I stumbled across whilst I was doing objective research in immunological papers, that particular pathogens can trigger the Warburg effect in cells, epithelial cells, and immune cells. And 85% of cancers are caused in epithelial cells because they are the main barrier or the first barrier that pathogens come across. So there's something in that, but it was actually explained in this immunological paper that it was described as a Warburg like effect. And of course the light bulb

moment went off for me at that point I thought, wow, pathogens can cause this. Okay, could this be an explanation for the Warburg effects in cancer? And I thought, well, no, surely this has already been investigated. So then I put it aside for a moment, and I did research to try and find out what the link to infection in cancer was.

(00:24:06):

But everyone was talking about infection in terms of bacterial or viruses for one, and they would cause damage to the cell or manipulate DNA and that would then lead to cancer. So it wasn't the infection per se, it was the damage to the cell caused by the pathogen, the metabolites or toxins they cause always it's this idea that the cell has gone wrong, the cell's malfunction. But then I thought, well, okay, what happens if the pathogen triggers the Warburg effect? What happens if the pathogen is sustained within the tissue? It's persistent and the cell cannot get rid of it. Does that mean the warberg effect continues? Turns out that's true. And then thought, okay, it might be onto something here. And so then my research went down this path and I then really discovered that you can explain all 10 of the hallmarks using the particular pathogen I'm suggesting is the underlying cause of the disease through this process.

(00:25:12):

And then I also came across Dr. Navio Robert Navios work where he works quite extensively on the cell danger response, so how the cell responds to any particular type of danger, toxins, or infection. And as I read his paper, he described particularly infection. He says, what happens is when you have a fungal pathogen come into the cell, the cell, the mitochondria intentionally blocks the oxphos pathway in order that it can use the oxygen to attack the pathogen and prevent it, inhibit its access into the cell that causes an automatic switch, the baco energy system of fermentation or glycolysis.

(00:26:02):

And that for me, in his model, he shows three stages of his model and he says that the cancer gets stuck within the second phase, which is aerobic glycolysis, which is a proliferative state, but I think he suggests that what happens is the pathogen gets killed, but because of the damage the pathogen has caused, again, it's sustained within glycolysis and that then causes cancer. Again, we're back to this notion of it being malfunction causing the disease. But I said, I just asked the question, okay, well what if the infection persists? Then I found research to suggest that the Warburg effect will be sustained until the pathogen is eliminated. So then of course the question becomes, okay, my theory doesn't mean anything unless pathogens are present in cancer. And as far as proponents of the somatic mutation theory are concerned, tumors are sterile. Up until Ravi Straussman did his research in 2017 and he investigated, I think it was 37 different cancer types and found that pathogens exist in every single one, fungal and bacterial pathogens. Yes, intracellularly, which is the form of the pathogen or the type process I'm saying is the underlying trigger effect.

Dave Asprey (00:27:18):

They're inside the cell, the cell cytoplasm. What got me on this path years ago, I had a lot of toxic mold exposure, was a researcher from Germany. He was a WHO researcher back when the WHO was not co-opted, and he spent 17 years looking at fungal connections to chronic disease and wrote these very thick books called Fungal Bionics, and I think I spent $600 to have them sent to me from Germany. Jesus, this had to be 15 years ago or something, and his book on cancer was the thickest one and just went through study after study after study, and you realize that fungal toxins are lipo foric, which means they love fat and that they can dissolve into your cell membranes and become a part of the cell membrane and make them dysfunctional. In fact, they also look suspiciously like cholesterol. And when people have a fungal infection or they're exposed their LDL cholesterol goes up probably because the body's trying to deal with it. So we have this interesting connection with diabetes. This is all from that same researcher

with diabetes, which of course is a precursor to cancer. We have links to heart disease, very strong ones actually, and we have links to cancer that are all coming from fungal toxins. And what you're saying is that there are toxins on board, but that there's also a fungal infection, self-generating the toxins, if I understand you right.

Mark Lintern (00:28:52):

Yeah. So essentially how I would say, and I explained carcinogenesis in its complete entirety in the book,

(00:29:03):

How I would say would be the issue, how I say cancer would start would be that you have chronic inflammation of particular tissue. We now know that there's a microbiome in most of the tissue within the body. Now, if you've been unfortunate to have, and I'm saying particular fungal pathogens are the underlying cause of the disease, we can go into the reason why a bit later. But if you have chronic inflammation and you have weakening of the immune system and you are poorly nutritious because you're not eating organic food, you are creating an environment that helps or facilitates the infection process of fungal pathogens that are present in that tissue at that moment in time. So it's an opportunistic infection. This's not a normal infection. We're talking about most people think are infectious, they think of sepsis that occurs rapidly, but we're talking a stealthy fungal infection that is probably present because the biofilms it forms and is not really able to be eliminated through the immune system.

(00:30:04):

And because it may be dimorphic fungal pathogen, so it's going to be in its yeast form, which won't trigger the immune system at that particular stage. But when the conditions arise, so inflammation, chronic inflammation, you have potentially the release of iron. So you have iron overload, which is rocket fuel to fungal pathogens. You also have an overhire of lactic acid because during inflammation you will have a switch to glycolysis because it's a repair system approach. Going back to the cell danger response, Robert Navier was talking about. So during inflammation, you'll have a switch to glycolysis anyway to trigger inflammation and help with a repair process. But if it's sustained because you've got chronic inflammation because of the poor diet or lifestyle you have then opportunistic fungal pathogens can take advantage of the lactic acid which they feed off of as well. And the ion that's present, which enables them to invade the cell more easily along with inflammation.

(00:31:05):

Inflammation enables the cell to the fungal pathogens to invade cells more easily because you have the production of this histamine, which opens up the pause of the cell, which is supposed to enable better the repair process by allowing immune cells to enter the cell more easily and nutrients to enter cell more easily. So the opportunistic pathogen, if the conditions are right, they will use the inflammatory conditions to invade the cell. Now here's the interesting thing. Iron overload and lactic acid over production will suppress the immune cells in the vicinity of the chronic inflammation. So that process both feeds the fungal pathogens that are possibly present and causes a problem in inhibition of the immune system, which gives the fal pathogens the upper hand in gaining control or invading that tissue in order to gain the nutrients within the cell. And of course now you've got the warberg effect occurring and it's being sustained because the pathogen isn't eliminated and ravaged Straumann is showing this, that the pathogen is present and it's manipulating the tumor environment.

(00:32:14):

And in other studies that I've got, they show that when they kill the pathogen or they use an antifungal drug, they reduce the tumor. When they introduced the fungal pathogen, again, the tumor starts

growing. This is in pancreatic cancer? Yes. And there was another case study of a guy who had pancreatic cancer. He was given a terminal diagnosis. He had an overt fungal infection, so he was given itraconazole for nine months by his oncologist to clear the fungal infection, and they had a look at the tumor and it became resectable and the physician highlighted that it was down potentially to the antifungal truck.

Dave Asprey (00:32:50):

I have to pause for a second there because if I was diagnosed with cancer, the first thing that I would do would be put myself on sporanox, which is the trade name for intraconazole, which is a very broad spectrum antifungal, and it usually takes six to nine months of continuous dosing to remove infections inside of cells. In fact, I've gone through that because people who've lived in toxic mold environments usually pick up intracellular infections. And I can tell you when I did about seven or eight months of that, my metabolism really, really did improve. And I have a long history with toxic mold. Listeners have probably heard about moldy movie.com. It's my documentary on toxic mold, and it's free. It's just a gift for people so that you can share it with your loved ones or your doctor. When they say mold isn't the thing, you cannot see that documentary with a dozen experts and a dozen people who are affected going, oh, this is a low level toxin that affects every system in the body, which is why the symptoms are different. You're also reminding me of one of my favorite guests who was on the show who wrote a book called The End of Alzheimer's, and he identified five different types of Alzheimer's and two of them what are most notable here. One is toxic mold and fungal toxins. The other one was heavy metals. Is there a role for heavy metal poisoning affecting mitochondria in your theory, or is this just a fungal theory?

Mark Lintern (00:34:25):

Yeah, well, here's the beauty of the theory is that fungal pathogens absorb particular heavy

Dave Asprey (00:34:35):

Melts. They do indeed,

Mark Lintern (00:34:38):

If you have a heavy Mel toxicity involved in your body, it's normally a reflection of systemic fungal infection to a certain degree. And of course you have fungal DAF when you're also trying to treat fungal disease, which can be a problem because you get a release of mycotoxins as well as the heavy mals that those fungal pathogens were absorbing. But I would just like to say that saying that my theory is about fungal pathogens being the underlying cause of cancer, I don't want to give the wrong impression that antifungal drugs are the answer. They certainly have a place, but I shouldn't need to emphasize that they're quite toxic. So you'd still, anyone listening to this, any of your listeners listen to this, would need to still talk to her.

Dave Asprey (00:35:32):

Thank you for saying that. And I should have said that as well. The first I would do would be go on sporanox. I would also immediately do ozone therapy to restart oxphos in my cells, and I would see a cancer specialist, a functional cancer specialist, and I would look at the western approaches in combination with reducing toxin formation and toxin things. So I would just encourage you, if you're saying, oh, I know I have cancer, I'm going to rely on meditation, which I would also do, or I'm going to take some kind of herbs or whatever. If you want to do that, you need to get a cancer scan so you can

see if it's working every month or two. And most people I've seen who decide they're going to go with a natural only approach, don't monitor it because they just kind of don't want to know.

(00:36:27):

And that can be a fatal decision. So there's now actually an incredible ability to heal cancer. Cancer doesn't kill you as much now as it did five or 10 years ago. And if you understand underlying causes in mitochondrial biology and you use appropriate techniques, I think your odds of surviving are higher. I just wish more cancer specialists and hopefully some are listening to the show now, would consider maybe either fluconazole, which is more anti-yeast or itraconazole or sporanox, that's the same thing, which is more anti fungus. They probably have a role, especially if your patient has a history of water damage in their school, in their home, or in another place where they spend a lot of time. This is a major smoking gun because according to the documentary I did, there's a hundred million structures with toxic mold in the air and in the dust. And this is almost certainly and under appreciated contributor to cancer. I dunno if it's the only cause. Are you to the point where you think it is the cause or it's just the biggest cause?

Mark Lintern (00:37:37):

I'm aware that I can't. Yeah, I would say it's the biggest cause. I mean, there's the argument that cancer is a multifactorial disease, and I certainly believe that's the case from the reason the many different factors that can cause the disease. But I argue that all these many different factors create the conditions, the terrain, they damage the terrain to the extent that they then facilitate the fungal, the fungal invasion of the cell. The interesting thing is when you look at all the other drugs, the off-label drugs that are used against cancer, that a lot of them are metabolic in nature, you actually look at those drugs such as metformin and lovastatin don't even doxycycline. They are also antifungal in their own right.

Dave Asprey (00:38:21):

Wow. We all

Mark Lintern (00:38:22):

Have an antifungal element to that. So what I'm finding is that pretty much most of the drugs that are suggested and offered, we have a private clinic called the Care Oncology Clinic in uk and they're using four drugs, statin, Metformin, miconazole, femazole I think is one of them. So antiparasitic and doxycycline and all four of them are antifungal. Tamoxifen is antifungal.

Dave Asprey (00:38:51):

Interesting. I love it that this is very esoteric knowledge, but the first statin drug was Nystatin, which is used to treat yeast infections. All the statin drugs are antifungal. And listeners who've been with me for a while heard and Louise Gittleman, who is one of the, let's say OG biohackers from two generations ago. She talked about femazole on the show. You can buy it on Amazon because it's only approved in the US for pet use, but Femazole dramatically reduces the likelihood of getting cancer. So what do I take Femazole every couple months A little bit. Yeah, I do. It's in my supplement stack. There's also another sheep deworming drug that shall not be named that got very in short supply recently. You all know the one I'm talking about that also has profound anti-cancer effects, even though it's an anti parasitic, it's an anti worm medication. I know because I am a sheep farmer. So we give that to our sheep. What's the role of parasites as opposed to fungus in cancer?

Mark Lintern (00:40:05):

This is not an area I've particularly studied in any great depth. I'm assuming the reason for that was because parasites are probably more easily identifiable in the tissue, I would suspect, but I'm not an expert on this, so I wouldn't know the histopathology of the disease. We're looking at the disease itself in the microscope. I would assume that they would be caused, but there definitely is a link, and I would say the link would be similar to that viruses in that parasites of viruses. They create the environment, they create the inflammation that then enables the fungal pathogen to take advantage of that information. They weaken the immune system. There's something called voc cytosis, which is a process by which the body, the immune system focuses its attention on viruses and it expels fungal pathogens out of the immune cells on purpose to prioritize the virus.

(00:41:08):

So what you've got is this relationship between viruses and fungi and that some of them work synergistically as do bacteria and fungi, but also this process of when you are infected with a virus, you are increasing the spread of the fungal pathogen throughout your body because the immune systems expel fungal pathogens and ignore them until the virus is eliminated. It allows the fungal pathogens to essentially go about their daily business without being attacked. And the other point on you asking me about whether or not I believe fungal pathogens, intracellular fungal pathogens are the underlying cause of cancer, I would say that I'm open to the idea that they're not, not saying that my theory is correct, obviously it needs to be tested. But what I will say is that with the research that I've done, I've been able to explain all 10. So my theory is the first theory to explain all 10 of the Hanna Hann and Weinberg hallmarks. Further on from that, as I was going from my research, there were many other things that I needed to explain such as arginine ORs trophy with the reverse warberg effect.

Dave Asprey (00:42:09):

Let's pause for a second there and make sure for listeners, Weinberg has a list of 10 hallmarks of cancer like blood vessel growth, cell death failure. Those are things probably you might've heard of if you've been on the show. We talk about those sometimes like cell death. Failure is also cause of aging cells, zombie cells should die, but they don't mitochondrial dysfunction or faulty energy system inflammation, et cetera. But you found in your research 20 other hallmarks that are always present in cancer.

Mark Lintern (00:42:41):

I wouldn't say that they're hallmarks, but they're features of the majority of cancer. So got it. We're talking about the CYP one, B one G for enzyme for example, that's highly upregulated in all cancers. We're talking about T-cell suppression, we're talking about myeloid derived suppressive cell involvement. We're talking about arginine atrophy, which is involved in advanced cancer. We're talking about iron overload. Why is iron in the one hand required for cells, but why is it also being seen as a carcinogen now in excess? So all these things, I thought, well, if I'm going to write a theory that people are going to believe in, then I need to explain all these other things that aren't currently explained. And I've identified 20, but in the book there's at least 25, but I specifically identified 20, and I'm able to also explain all of those.

Dave Asprey (00:43:32):

I want to pick on a couple of those. I think they're most interesting. For our listeners, what is the role of estrogen in cancer? Can you talk about that a little bit?

Mark Lintern (00:43:43):

So estrogen, as we say over in the uk, maybe it's a signal signaling molecule, which specifically for fungal pathogens encourages their growth and virulence, which may explain why breast cancer is the biggest, most prominent cancer in women of all time. And then you've got prostate cancer as well, and with diabetes and what have you have this change in our hormones from testosterone in males to estrogen because fat cells produce estrogen as well. So you have got this biotic process going on with estrogen that facilitates fungal growth and virulence

Dave Asprey (00:44:31):

Some really interesting stuff going on with estrogen. When I was heavily exposed to toxic mold as a child and in my twenties when I was about 26, I had my estrogen levels tested and they were higher than my mom's and my testosterone was lower than hers. And then you realize that many of the most toxic forms of cancer make xenoestrogens that are up to 10,000 times more potent than human estrogen. So even men, we need some amount of estrogen. But if you're obese like I used to be, and for reference, I used to weigh a hundred pounds more than I do now. So that's 50% greater than my current 6% body fat. And I don't know what that is in stone because you guys are weird over in the uk, but it was a lot of stones, we'll put it that way. So when I fixed my estrogen levels and increased my testosterone exogenously by injecting testosterone or using a cream under a doctor's care just to have physiological levels, not to be super physiological, I did see a lot of improvements in my health. So today we're soaked in environmental estrogens from plastic and chemicals, and even just from eating a lot of soy and foods like that. Do you think that excess estrogen in the environment is a contributor to cancer or is it less important than what's going on with fungal estrogen?

Mark Lintern (00:45:57):

I think so. And when you talk about synthetic estrogens as well, you're talking about them, them causing inflammation within your cells. So there's a whole process of this cell danger response going on where you've got this inflammation, you've got also the triggering of the virulence of particular fungal pathogens if they're present within that tissue. So yeah, definitely estrogen hormone imbalance is playing a big role. And this is an area of research that I want to continue in more depth because obviously I've gone through many different areas of research and delve deeply into each of them, but each of them do need to be researched further.

Dave Asprey (00:46:35):

Okay, that's a fair thing. You also talk about arginine as fuel for cancer and at a really interesting interview with the chief scientist and founder of N 1 0 1 nitric oxide supplement, and he talked about how arginine for almost everyone, especially as we age, doesn't work to raise nitric oxide very well. But you're saying that arginine is potentially cancer fuel. Are you arguing that we should restrict arginine in our diets even?

Mark Lintern (00:47:10):

Well, this would be a podcast for another day because this is quite, the involvement of arginine is extremely complicated because arginine or atrophy where cancer cells require, they seem incapable of producing it endogenously, so they rely upon dietary forms of it. Then scientists have gone, oncologist have said, well, we can do arginine starvation therapy and that works for some, however, then it can make in others the cancer more aggressive. So you can supplement with arginine and it can improve the situation in early developmental cancers, but if you supplement it in later developmental cancers, it can feed the cancer as well. But so in both instances, it can feed the cancer and kill the cancer. So that was a

major one for me to explain. So there's four aspects to this, and I explain it in depth in my book, and it's all to do with the way that the fungal pathogen sequesters arginine in order to block nitric oxide production because the nitric oxide production is used to kill the pathogen,

Dave Asprey (00:48:15):

Which is why you might want to take something that actually raises your nitric oxide. It's probably not beets, guys, in addition to the oxalic acid, which is tied to cancer, that's a different conversation. But most beat products don't raise nitric oxide at all. At least if you're measuring them on a $60,000 machine that detects nitric oxide. That's why I'm a fan of that in 1 0 1 stuff. It's what I use when I want to raise my nitric oxide along with, there's another form I've talked about that's longer acting called vaskin from a different company, but it seems like having adequate nitric oxide might be anti-cancer because if it's used this way and by the body to help fight off cancer, just having enough levels, we know it has blood circulation effects that are really good, but maybe there's a cancer component to adequate nitric oxide, like a positive cancer component. Should we be taking more nitric oxide if we're at risk of cancer?

Mark Lintern (00:49:17):

Okay, this is where I've got to be cautious because I'm not a medical professional of any kind. So I've got to say I can't really offer advice.

Dave Asprey (00:49:24):

So many of the doctors that I've talked with who haven't stepped on the functional medicine path don't seem to know much about say, supplements, but they will offer advice on them even though they're not experts. So I'm just wondering what makes you not qualified to say, given what I've seen, this is what I would do.

Mark Lintern (00:49:44):

I think in an official capacity, I'm not qualified. I know I understand what you're saying, but because I hadn't have a traditional medical background or qualification, therefore,

Dave Asprey (00:49:55):

But if you did have a traditional medical qualification, you couldn't say this because they would take away your qualification.

Mark Lintern (00:50:01):

Yes, that is

Dave Asprey (00:50:02):

Great. So guys, to be clear, we've already said it, but you really should see a functional cancer specialist. If you have any kind of cancer, I highly recommend that you do screening now because this high incidence in the population, and I've talked about the grail test on here, which can tell you if you have early onset cancer, more than 25 listeners lives were saved when I talked about whole body MRI at prevo because they actually told me that. So I do that every year or two to see if anything has started growing, even though I think it's unlikely given my biology. And then Viome now has a very affordable test for cancer. Just from testing the microbiome in your mouth, they can tell you with very strong

likelihood whether or not you have cancer forming in your throat. So you should be testing and you don't necessarily need a doctor to do these tests, but you should be testing if you have it. You see a specialist, but you ask the specialist about the things we talked about here, and if your specialist says, I don't know if you should take nitric oxide or not, then it's up to you to decide whether you want to do it or not.

(00:51:14):

It sounds like a good idea to me because we need nitric oxide for all kinds of things, but if your doctor says no, that would be bad for you, then it's probably bad for you. But if you don't have care because you can't afford it, you've got to make your own decisions like we always have. And so that's just the overall way it is. Sometimes you bring in a pro and sometimes especially if you're being preventative, you do what seems like it's going to be the best, and this is something that if you do it wrong, might not be good for you. But given the incidences of cancer, if you do nothing, that's also not good for you. So we're all stuck in this. We don't know if what we're doing works. So we just picked the most likely path given what we know today. And then we corrected over time, which I wanted to have you on the show because you've really unpacked some amazing stuff actually around cancer, and I'm excited. Some of the other things, methyl deficiency is another thing you came up with. Another of the things that are almost always present, talk to me about methyl deficiency in cancer.

Mark Lintern (00:52:14):

So it seems to be related to the fact that I think you probably obviously know that methyl deficiency can be related to fungal infection in the sense that a loss of vitamin B12 is a huge thing associated with fungal infection. So if you are methyl deficient, you are going to have issues with DNA methylation, which is going to cause a lot of damage to your DNA, which is probably going to be explained why we have a lot of random DNA damage that occurs in cancer.

Dave Asprey (00:52:49):

Listeners have probably heard me talk about M-T-H-F-R genetic mutations, which I do have. Lots of people have them. If you have those, you're much more susceptible to having issues with fungal exposure that doesn't clear up. And the cheapest way to do this is if you've had your DNA sequenced, you can run it through all sorts of online sites to see if you have M-T-H-F-R or the three lab tests that I recommend for biohackers in general, and I'm taking steps to make these very affordable for you. But one of them is c-reactive protein. That's inflammation. It's also tied to cancer and mitochondrial dysfunction and homocysteine. And homocysteine is a marker that you have a problem with methylation, it's a compound, an inflammatory compound in your blood that's found when you're short of methyl B12 or methyl folates or trimethylglycine or something like that. So if you're just looking for self-care, not at all cancer treatment, you should know your M-T-H-F-R status and if you have a problem with it, you need to manage your intake of methyl groups so that you have enough of them, which if what we're talking about on the show today is accurate and it seems like it's directionally accurate, well maybe that would reduce your chances of having cancer or cancer.

(00:54:06):

At least that's aggressive. We don't know that to be true. It just seems likely to be true. Am I on the right path there?

Mark Lintern (00:54:13):

Absolutely. Yeah. I mean, even though we're not saying that potentially DNA mutations on the underlying mechanism behind cancer, but they are going to influence how you treat the disease. Absolutely.

Dave Asprey (00:54:24):

You also say fat as fuel is common in cancer. I've had several experts on the show who use a combination of hyperbaric oxygen and ketosis in cancer treatment. But you're saying cancer likes to use fat as fuel. Talk to me about this.

Mark Lintern (00:54:42):

It's not necessarily that all cancers use fat as fuel. Oh, what I'm explaining in this part of the book is the variability in the way that the cancer cell is able to adapt. So it may adapt if you are applying certain metabolic treatments. And those metabolic treatments are metabolic treatments are treatments that I advocate for because you can improve the ability of your mitochondria to defend the cell, but in cases of pancreatic cancer, but prostate cancer for instance, utilizes its metabolism in a different way and primarily starts to use fatty acids. And this has been one of the sticking points, I think for the metabolic theory because metabolic theory says that the warberg effect occurs in every single cancer, but it doesn't do that in prostate cancer. So why would that occur? So for that particular disease, it's linked to the zinc that is produced and the citrate that's produced within the prostate, which is primarily a different state of metabolism, you could say is being used.

(00:55:55):

And when we have anemia of inflammation of iron, that is when you have inflammation, iron can be released. It's dangerous because pathogens can use it. The body restricts the iron, so there's less available because it knows that pathogens can use that iron. The same advocating I'm suggesting the same occurs in prostate cancer because zinc is abundant in the prostate. In these prostate cells, fungal pathogens require the zinc also to become virulent. There's this same anemia of zinc occurring in the prostate. And when you switch zinc, zinc controls the metabolism, metabolism of the cell, which causes the cell to be forced to use, utilize fatty acid instead of the warberg effect. So say there's a link there, but in terms of how the cancer is able to adapt, what you have is you've got the fungal pathogen is blocking apoptosis, so it's blocking, suppressing the ability of mitochondria to trigger cell death.

(00:56:59):

Now this is the interesting thing. So the cell looks like it's acting like a parasite because when there's no glucose available, it seems to adapt, but that's only because the cell can't die. And naturally as the fungal pathogen is depleting nutrients from within the cell, which it does, the cell will work on autopilot to try and balance that because we're always trying to hit homeostasis. So the cell is always trying to do that no matter what. It's auto autopilot, it now realizes it can't get its a TP energy from G glucose, so then it switches to glutamine and then later fat if glutamine becomes restricted as well. But the beauty of this from a fungal pathogen perspective is that the fungal pathogen can utilize all of those three fuels, utilize glucogenesis, the oxalate cycle in particular, to generate glucose from fat and protein if glucose is in short supply. So it appears as though the cancer cell is actually utilizing all these different fuels. It's actually the pathogen that is able to utilize all these different fuels as the cell is trying to bring homeostasis back to the depleted nutrients within the cell that's caused by the pathogen.

Dave Asprey (00:58:11):

This is really interesting, at least for people who are interested in cancer, given that I think half of people get cancer sometime in their lifetime,

Mark Lintern (00:58:21):

It's going up as well. 70% increase.

Dave Asprey (00:58:24):

Oh, 70% increase. So this is something that's important. And I know some of the upgrade collective, my mentorship group who dial in for this, some of them have had cancer and they're doing active screening and they're taking care of themselves and finding that you can reduce your risk. I wanted to go back though to one of the drugs you talked about, and just to be really clear, there's doxycycline, there's atorvastatin and metformin, and in longevity circles, metformin. Some doctors still recommend using it for longevity. I used it for three years when the first studies came out, and because it reduces mitochondrial function over time and it makes exercise not work, I don't think it's a take metformin all the time to stay young situation. But in cancer treatment, what is Metformin doing that's affecting your theory?

Mark Lintern (00:59:26):

Well, effectively it's doing what it's doing for diabetics. It's reducing the blood glucose levels effectively. Essentially do the same that you would be in fasting, although obviously I would advocate taking berberine probably rather than metformin. If you can do the same thing under a particular dose, it's more natural. But both berberine and metformin are also capable of affecting fungal pathogens directly. So there's a number of studies I've got in the book that highlight that it's antifungal. So it's acting in two ways. From a metabolic standpoint, the fungal pathogen is not accessing the primary fuel, which is glucose because 90% of the fungal cell wall is made from glucose carbohydrate. It's not able to access that. So you're restricting that weakening the pathogen itself. And you're also targeting the pathogen with the metformin as well. Cause it's directly affecting the pathogen if it's absorbed into the cell.

Dave Asprey (01:00:28):

That makes sense. Why do you not recommend po glitazone or actose, which is another way of lowering blood sugar that has other metabolic benefits?

Mark Lintern (01:00:39):

I've just not become aware of them. That's the first time I've heard of those.

Dave Asprey (01:00:42):

I think there's a case, and this comes from Dr. Sandy Kaufman, who has become a good friend. There's a case for lower doses of that anti diabetes medication, particularly because it reduces glycation in cells. So a general good practice for longevity is keeping your blood sugar levels low but not too low. And so that's one way you could do it. I don't think metformin every day is advisable, but maybe doing it on days you don't exercise, if you don't mind the GI effects. These are longevity strategies, not anti-cancer strategies, but strangely, people who live longer don't get cancer then they wouldn't live longer. That's why cancer is one of the big steps in my longevity book. It's step one, don't die. That means heart disease, cancer, diabetes, and Alzheimer's. So we avoid those metabolically and the connection as well as I do, mark, all of those are influenced by fungal toxins because they can affect mitochondrial respiration.

(01:01:41):

So can metals and soak in some other things like chemicals, but let's keep mitochondrial working to live a long time and therefore not cancer. And so reducing the toxin load is cool. I did not know that Metformin had a direct effect on fungal toxins, which is an important thing to know for people who are exposed to toxic molds. Maybe you want to use metformin when you're living in a moldy house and maybe you want to take one of these things like, like the antifungal, we talked about itraconazole or sporanox and metformin at the same time. But these are prescription drugs and you talk to your doctor and if you don't have a doctor because you can't afford it, you can order all of these online. But then you're not talking to a functional doctor. So I recommend working with a doctor unless you don't have the money to do it, at which point you're in charge of yourself. And if I was in times in my life, I used to put auto parts in boxes and I have had times where I was not financially successful, you still have to take care of yourself. So do your best and work with a professional whenever you can.

Mark Lintern (01:02:42):

Dave, can I just say as well, the beauty of my book is that I've written it for the lay person. The whole idea of this was going back to Sam, who unfortunately passed away. I wasn't able to convince her of some of the research I was doing. And so I wanted to write the book and bring the science into the public domain so that if my parents, family and friends got cancer, they could read the book themselves without needing my input at all. So the theory, and I cover se cementation theory, the metabolic theory as well, and those particular treatments, how they can work synergistically and things that you should be looking at in the book. But I do it in a way that's easily understandable by the general public, which I think is a benefit to. It allows cancer patients to actually make decisions themselves, go back to their oncologists and say, well, what about this? What about this? Take a look at this book. What do you think about adding these two in as an option? So it's a resource. It's not a theory that's just for scientists to try and work out the solution. This is mainly aimed at the public so that they can come forward and make their own decisions moving forward.

Dave Asprey (01:03:51):

Thank you for writing the book. It's very difficult to go up against the cancer establishment where there's hundreds of thousands of dollars to be made at a minimum when someone gets cancer with therapies that don't really extend life usually very much, but can lower quality of life. I think anyone who's dealing with cancer in their family or themselves, you look at what your traditional cancer doc, the Western guys, what they recommend, and you look at all of the other things and you figure out the best path for you. This book is called The Cancer Resolution Cancer Reinterpreted through Another Lens. And the role of this show, and really a lot of my role in the biohacking movement is to bring global attention to experts in theories maybe they haven't heard of. It's one thing to interview a celebrity about what they do, and frankly, and maybe that's relevant, but why is what a celebrity does for their cancer that useful?

(01:04:52):

Well, sometimes it's, but when you talk with someone who's dealt with it personally and has clearly done tens of thousands of hours of research and come up with a new way of thinking about it, you don't have to go all in on it, but you want to consider it in the context of what you're deciding to do, whether it's for prevention or for treatment. And bring the book in to your cancer doctor and say, there's something here. Can we take a look at this? And if you've been exposed to toxic mold and you know it, making sure that you've got the toxins out of your body and that you don't have a fungal infection, intracellularly is really important. And for that note, this is a shout out to a guy who's done enormous work on getting fungus out of the body. It's a company called My Myco Lab, Dr. Andrew Campbell, who's

been treating people for 40 years with fungal infections, is the one who made me aware of how important it could be to take spor for more than a week or two if you've had long-term toxic mold exposure.

(01:05:55):

So I look at my biology, the health of my cells, and just where I am from a longevity perspective. And I don't think I would be here had I not eliminated fungal infections that were a result of being in a mold infected home. So there's a lot of stuff to consider on cancer. I just think you should really consider Mark's work. The book is the Cancer Resolution, and I'll keep finding experts who think differently. Having someone on the show doesn't mean that they're right. It doesn't mean even that I believe they're right, but it means that their work is worthy of consideration through whatever lens you're using to look at your own biology. Because we are all unique and we all have different care providers. We have different budgets, different areas of focus, different genes, different environments. So Mark, thank you for what I believe is a seminal work in understanding cancer through a different lens.

(01:06:52):

And I really hope that people not only read your book, but they also check out the charity that's been set up to help support this, which is called Yes to Life. So if you'd like to maybe put a few dollars towards supporting this new kind of work in cancer, go to yes to life.org.uk. And there you'll see that there's a lot of cancer professionals who are coming together to talk about these new theories. This is how we create change in the world. It first comes from knowing something's possible and then being curious about it and then figuring out what actually works versus what's supposed to work. And Mark, I think you've done that. Thank you for being a guest on the show. Thank you. It's been an absolute pleasure talking to you. Thank you very much. Guys. You could have been live on this show if you were a member of the Upgrade collective. Go to our upgrade collective.com and I was actually taking some of my questions from listeners of the show. Thank you. You are listening to The Human Upgrade with Dave Asprey.