The Benefits of SelenoExcell

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Interview with Paul Willis and Dr. Mark Whitacre

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Steve Lankford: Hello and welcome to Health Quest Podcast. I'm your host, Steve Lankford. Thanks for joining me. I'm glad you're here. As usual, I have another interesting interview for you today. I'm actually going to be talking once again to 2 people about a very interesting nutrient, selenium. I'm sure you've heard about selenium. It's been around a long time. People who take nutritional supplements know about selenium, but what they might not know is that there are different types of selenium.

Not all selenium is the same or equal or have the same benefits, so we wanted to explore the topic of selenium because it is a very important nutrient and you'll be very excited to know what some of the clinical studies have revealed. In that capacity, I have invited Paul Willis who is the CEO of Cypress Systems, the manufacturer of a very specific form of selenium called SelenoExcell.

We're also going to be talking to Mark Whitacre who is really the scientist and the guy who's going to tell us about these clinical studies and you know from listening to our podcasts that we're all about the science. It's in our interest to understand what science reveals about these nutrients. It's why we look to these very specific, trademark-branded raw materials to bring to you. We want you to know that there is good science. You can have confidence in these raw materials if you pick the product that was used in the science. It's in that capacity I'm pleased to introduce to you Paul Willis and Mark Whitacre.

Gentlemen, welcome to our podcast.

Paul Willis: Steve, it's a pleasure to be here.

Mark Whitacre: Absolutely, Steve, wonderful opportunity to be able to talk to your listeners.

Steve Lankford: Well, I so much appreciate you coming together for this opportunity. What we're going to do is we're going to talk a little bit about how the company was formed and how this particular nutrient became the focus of your company and then, we'll talk with Mark more about the science. We'll do kind of a split interview here, but Mark, please feel free to step in any time you have something to say before we get to your part. This is not to shut you out at all, by any means.

Paul, let me start with you. Before we begin talking about selenium, tell us a little bit about your history and how you became involved with selenium in this company.

Paul Willis: In actuality, the history of selenium and SelenoExcell in Cypress run parallel and it's laid out in a very cohesive story of the product, starting with the development of SelenoExcell. It goes back to the early 1980s, when our director of fermentation, Dr. Lon Baugh, developed the product that now is trademarked as SelenoExcell. During that time in our nutritional environment, a bunch of different folks were looking at alternative forms to the inorganic sodium selenite. They were looking at how to develop a natural food form of organically-bound selenium.

There was a lot of work being done with hydroponics and growing broccoli and different plants in enriched water systems or enriched soil and really looking at how to get an enrichment of the selenium content in plant; the downstream processing, the uptake by the plant, just a tremendous amount of variables in that kind of natural system.

It was discovered by Dr. Baugh back in the '80s that baker's yeast like we make bread out of, you would think of a company like Fleischmann's yeast and the same kind of yeast that you use to make your bread, when you ferment that yeast and during that fermentation process, it was discovered that if you introduce minerals into the fermentation such like selenium or chromium or zinc or molybdenum and manganese, these are all nutritional yeast products that we have, but it was discovered that if you introduce selenium into the fermentation that the yeast would replicate that process exactly like a plant.

It would take that selenium into its cell structure. It would organically bind it into its protein structure. Then, the yeast could be pasteurized and spray-dried and what we ended up with was a natural food form of organically-bound selenium that was very predictable. It was in pure culture fermentation. We knew exactly where it was going to end up as far as how much selenium it would organically bind. This became the very first form of organically-bound natural food form of selenium.

When that was developed in 1980/'83, about that same time, 2 researchers, then both at Cornell University, a Dr. Larry Clark and a Dr. Gerald Combs, were looking at the effects of selenium supplementation on skin cancer. They received funding from our National Cancer Institute and in 1983, this ingredient now trademarked as SelenoExcell, this high-selenium yeast product was put into a cancer prevention trial. This was a gold standard clinical trial, funded by the National Cancer Institute.

That means it's a long-term trial. It's double-blinded. It's randomized. It's placebo-controlled. These kinds of trials are long-term trials. This trial began in 1983 and this high-selenium yeast product was put in as the intervention agent into that clinical trial. We can fast-forward to the late '80s. I joined a biotech group Phillips Petroleum had at the time, called Provesta Corporation. That's where I met Dr. Baugh for the first time. He was the director of fermentation at this facility in Oklahoma.

That's where I first learned about nutritional yeast products and particularly, this selenium product. In 1993, I joined Fleischmann's Yeast. That division of Phillips Petroleum had been acquired by Fleischmann's Yeast. That's where I joined to manage the specialty yeast group for Fleischmann's. That came about in 1995. I had

the opportunity to bring Dr. Baugh back into the company and we really began to focus on these nutritional yeast products.

That original trial that began in 1983 was called the Nutritional Prevention of Cancer Trial and we referred to it as the NPC Trial. That trial was then blinded in 1994 early because although it showed no effect on skin cancer, it showed anywhere from a 48% to 63% reduction in colon, lung and prostate cancer. That trial had unblinded in '94 and we knew about this work when I was with Fleischmann's in '95. That study was published in JAMA, in The Journal of American Medical Association, Christmas Eve of 1996.

We had the very fortunate opportunity to acquire that specialty yeast group from Fleischmann's in 1995. That's when Cypress Systems began. Fleischmann's had some different direction they were going with some of these areas. We put a group of folks together and we formed Cypress. We acquired that nutritional yeast group in 1995. It was very fortunate for us because here this study was going to be published Christmas Eve of 1996.

That became a real pivotal point, not only for us as a company, but really for the history of selenium research and pulling all the positive things that had developed about selenium and really launching going forward.

Steve Lankford: Well, that's a very interesting history and it's those kinds of stories I love to hear because this is how, actually, good companies emerge is through the interest, the awareness that somebody has taken and then brings it forward in a way that the rest of us can appropriate. Does that mean that prior to the early '80s, that there weren't really good nutritional forms of selenium? Were we not aware of it or was it just these inorganic forms that were being used or was it emerging as a nutrient right at that time?

Paul Willis: Go ahead, Mark. This is a good point for Mark to speak in.

Mark Whitacre: Actually, selenium was really shown to be a required nutrient starting in 1957. It was shown to be this is the nutrient that your body won't produce, that's a required nutrient that you have to have in your food supply. You either have to get it in the food you eat or take a supplement. We don't receive enough selenium in our food supply. That really was founded as a required nutrient in 1957 and the form that was probably known best at that time was the sodium selenite.

By the way, most of that work was done at Cornell University in New York and that's where I got my Ph.D. I finished in 1983, about 30 years ago when selenium research was really just starting to really become at its height, but in 1957 at Cornell, by Dr. Milton Scott, it was shown to be a required nutrient that we have to have, both human and animals have to consume it.

Sodium selenite was the most common form and really, starting more in the late '70s and the early '80s was when different forms of selenium started to be looked at beyond sodium selenite, like high selenium yeast, SelenoExcell which is our product,

selenomethionine, but that work was really starting more in the late '70s and the early '80s. Then, the paper that Paul just mentioned that came out in 1996 in the trial that was started at Cornell University by Jerry Combs and Larry Clark, that trial that was published in JAMA, The Journal of the American Medical Association, in 1996, that started in 1983 at Cornell.

That was really the first really gold standard clinical trial that showed that there are some different forms and there's going to be some differences in different forms. That was the trial that was used, the high selenium yeast that showed a 63% reduction in prostate cancer.

Steve Lankford: I think that mid '90s was a seminal time in the nutritional products industry. I'm sure you remember very well, also, because that was when we had the battle with the FDA over health claims and so on and we came out with a Dietary Supplement Health and Education Act, DSHEA. DSHEA was an interesting piece of legislation because it allowed companies to develop what were called qualified health claims. From what I understand, your SelenoExcell has been approved by the FDA for a qualified health claim. Explain to us what that means to us.

Paul Willis: There's very few ingredients that have a qualified health claim and qualified means that in regards to selenium and the prevention of cancer, the qualified heath claim addresses the fact that there is some evidence the FDA recognized that selenium has been shown to prevent certain forms of cancer. The qualified part of that is that FDA feels like this is nonconclusive and that more research needs to be done. So, they're recognizing that the evidence is out there, that there is a link between the supplementation of selenium and the prevention of cancer.

They recognize, also, that it's not conclusive yet and we agree with that. That's why we've continued to do ongoing research and that they recognize that research needs to be done. It's a strong statement, this qualified health claim, to be put on a supplement bottle and many of our customers have that. We recognize that there is a link, we're not through yet, more research needs to be done and we're in the process of doing that research work.

Steve Lankford: Yes and here were are, almost 20 years later, so I know additional research has gone on and is still going on. That's what's so very exciting because as early as the mid '90s, we were seeing these benefits. Let's talk about selenium in general and its role in human nutrition. What does selenium do?

Paul Willis: Mark, that's your Ph.D. thesis right there.

Steve Lankford: Let me introduce Mark Whitacre and before you answer that Mark and since we're going to shift to you in the science exploration, tell our listeners just a little bit about your background.

Mark Whitacre: I have a Ph.D. in selenium biochemistry. There are probably fewer than 100 selenium biochemists in the world. I went to Ohio State University for my bachelor's and master's in the nutritional field and then I got my Ph.D. at Cornell University in New

York, where I mentioned earlier about that's where selenium was really discovered to be a required nutrient for both humans and animals. I got my Ph.D. in nutritional biochemistry in 1983 at Cornell University.

I studied under Dr. Jerry Combs, who was the one who was the co-investigator on the study that we talked about earlier that was published in 1996 by JAMA. That's who I studied under, who I got my Ph.D. under. I've been involved with Cypress for over 7 years, heading up on their research and technical side for Cypress Systems.

Steve Lankford: So, you have a long history of being aware of the science and the need in human nutrition for selenium. Let's turn our attention back to that question. Tell us, what is the role of selenium in human nutrition?

Mark Whitacre: Basically, it started off, as I mentioned, in 1957, where selenium was first discovered to be a required nutrient, but it wasn't until 1973 and that research was out of the University of Wisconsin, when the actual first biochemical role, because there have been more biochemical roles since then, but the first biological role of selenium was discovered in 1973 by a professor named Dr. Rotruck at University of Wisconsin who found that selenium was a component of an enzyme known as glutathione peroxidase.

The enzyme known as glutathione peroxidase is really the first line of defense of preventing free radicals from being produced in our body. As we know, free radicals which are atoms with unshared electrons are very dangerous to our body. They can cause cancer and heart diseases and a lot of the chronic diseases that we obtain in the human body are because of what's happened at the cellular level with these free radicals. The free radicals are a bad thing. They're something you want fewer of in every cell of your body.

This enzyme in glutathione peroxidase converts hydrogen peroxide in our body to water, so it basically detoxifies hydrogen peroxide, which is something you don't want and by detoxifying that that reduces the production of free radicals at the cellular level. Even though something like a vitamin E or a vitamin C would be an antioxidant to help gets rid of free radicals, the advantage of something like selenium and its antioxidant role is it prevents free radicals from being produced in the first place.

Biologists would refer to it as one of the first line of defenses to reduce free radical production, as in something like a vitamin C or vitamin E as antioxidant to help get rid of free radicals that are produced compared to selenium that would prevent them from being produced in the first place. This enzyme glutathione peroxidase is a protein that has been proven that without selenium, it will not function.

It's really referred to more commonly now in the last couple of decades as selenium-dependent glutathione peroxidase because to reduce free radical production by converting hydrogen peroxide to water, which is basically detoxifying the cell and reducing the amount of free radicals from being produced, for that glutathione peroxidase to be active, it requires selenium as a co-factor to make that work. So, selenium is a very critical compound for reduction of free radicals which cause lots of chronic diseases in the human body.

Paul Willis: Steve, an important thing to recognize for your listeners is that we speak in our industry a lot about condition-specific nutrient, that for a specific condition, will this nutrient have an application or a health benefit? What Mark just described and the role of selenium as a co-factor for glutathione peroxidase, all the areas that those free radicals damage cells, whether it's in cardio, whether it's immune function, whether it's cognitive, whether it's cancer prevention.

All of these areas, selenium has such a broad application to condition-specific applications because of this co-factor role that it plays with glutathione peroxidase and the quenching of free radicals. We hear a lot about taking antioxidants and there are a lot of great antioxidants, but glutathione peroxidase and selenium play a role in quenching those before they ever happen. As Mark refers to it as the first line of defense that our body has in quenching these free radicals.

Mark Whitacre: The unique thing to what Paul just said, now to put it in a practical application of what came next, the biochemical role of selenium discovered in 1973 as part of this enzyme glutathione peroxidase. Now fast-forward 10 years, 1983, Dr. Larry Clark, who was at Cornell at that time before he moved to University of Arizona and then Dr. Combs, who was at Cornell for 30 years in his career, who is now director of the USDA in North Dakota, take both of those professors at Cornell and it's 1983. That was my last year to finish my Ph.D. at that time.

It's interesting this trial that became so historical in the world of selenium was actually starting during my last year of finishing my Ph.D. at Cornell in 1983. They're sitting there and they're thinking, okay, selenium, glutathione peroxidase, reduction of free radicals. Which is one of the most common things that free radicals can cause at the cellular level that can cause chronic diseases in the body is cancer. They set out to do a long-term 10-year trial funded by the National Cancer Institute to look at the effects of selenium on reduction of prostate, colon and lung cancer.

That's what they found. They found a 47% to 63% reduction in colon, lung and prostate cancer over a 10-year trial, the one that was published in JAMA in 1996, with high-selenium yeast at 200 mcg per day during that trial, which was very practical because if you think about free radical reduction could reduce cancer levels, that would be a next logical step to look at the effect of selenium on reduction of cancer. That's exactly what they did.

There have been numerous trials since that point to support that even further, that selenium does reduce free radical production and in turn, does reduce cancer level.

Steve Lankford: That would make it really as much a preventive as anything else. Would that be a fair assessment?

Mark Whitacre: Yes, it is. These trials are prevention trials. There are some trials that very, very supportive, shown selenium is a part of cancer treatment and show some very encouraging results, but the bulk of the selenium body of research over the past 30 years is in the area of cancer prevention. Selenium is one of only a couple nutrients,

as Paul had mentioned, that have a qualified FDA claim, 1 of 3 nutrients that have that claim, where selenium has been shown to reduce cancer incidence in humans.

Steve Lankford: Is it because of the mechanism that you describe, is that what gets all the credit for the benefits of selenium or are there other aspects, as well, which contribute to its role?

Mark Whitacre: That's a good question, Steve. At one time, if you would have asked that question 10 years ago, I think most selenium researchers around the world would say cancer reduction is because of the selenium component in the glutathione peroxidase activity to reduce free radicals.

Over the last decade and first trial came out in 2008 called the Select Trial, it has shown that the other selenium forms, like sodium selenite, for example, and then selenomethionine, a second form, it has been shown that those 2 forms fed to both humans and animals will increase the glutathione peroxidase activity to get it to the optimum level, but not reduce cancer risk.

Matter of fact on 35,000 men, selenomethionine was shown in a prostate cancer trial called the Select Trial that was published in 2008, in 35,000 men it increased the glutathione peroxidase level activity to optimal level, but there was no reduction in cancer rate and cancer incidence.

At this point, in the last decade the evidence is really supporting that form does make a difference and that there is another biological role other than glutathione peroxidase for cancer reduction because the trials are showing that high-selenium yeast in SelenoExcell, the SelenoExcell form, Cypress form, does reduce cancer incidence and also, increases glutathione peroxidase activity.

Trials are also showing that sodium selenite and selenomethionine do not have the same effect, even though they reduce free radicals by increasing glutathione peroxidase, those 2 do not reduce cancer incidence, as the Select Trial clearly showed. It does appear that there is another role other than glutathione peroxidase in the cancer reduction and the thought among selenium researchers around the world, the thought at this point is and what's been researched is and what was interesting was some of that data will come out in 2 trials.

We'll get at that a little bit later in the interview, but in 2014, we've got 2 exciting trials to be unblended and be published in 2014. What's exciting is the thought is that the fact that high-selenium yeast has a selenomethionine form, so it has a methylselenocysteine form. It has a selenocysteine form.

Because it has multiple forms and because it's organically bound in protein and the other 2 do not have multiple forms and these other 2 forms, sodium selenite and selenomethionine are not organic and protein-bound, the thought is for those 2 reasons, that's why it has an effect on reduction of cancer and the other 2 do not, that these multiple forms are making a difference. These multiple forms of selenium and high-selenium yeast SelenoExcell.

Steve Lankford: I think that's a very important point that you just made and it reiterates the point that I've made many times here on our podcast that if you want the results or you want to have confidence, use the potency that was used in the study. Here's a good example. If somebody read that selenium helps prevent cancer, without any other qualifying information, they may buy another form of selenium and not get the benefit and they may never know that they're not getting that benefit because these are such subtle things that go on in our body and take years, sometimes, to develop.

To look at these studies and understand not only that there is this benefit from this form, but now also, we are not seeing the exact same benefit in these other forms. Be aware of that. That's an important distinction and it's very clear because we're talking about different forms of selenium. I appreciate that you made that point and that there is this scientific distinction. You've mentioned that we have studies that are emerging in 2014 and we've talked about looking forward to those studies and sharing them here on our podcast.

Take us through the interim between the results that came out from this first study to the emergence of these studies that are still undone. What have you seen in terms of some other compelling scientific inquiry?

Paul Willis: Can I interject one thing before we jump to where we're at right now?

Steve Lankford: By all means.

Paul Willis: Because there's one area, what has brought us to this point today and looking at selenium forms that's really critical for your listeners to understand. When this work using the high-selenium yeast was published in JAMA in 1996, many of the oncology groups that were looking at colon, lung and prostate cancer and looking at nutritional agents, many of these oncology groups wanted to put in confirming grant application, confirming study, application to do confirming work.

The National Cancer Institute was looking at this high-selenium yeast that was used in the original Nutritional Prevention of Cancer Trial and they said before we are willing to fund ongoing research, this product needs to be standardized. Even within the high-selenium yeast product category, there are many different forms of that, many adulterated forms. We have companies that even today will sell a high-selenium yeast product and it's nothing more than baker's yeast or even brewer's yeast that is blended with sodium selenite.

The National Cancer Institute was concerned about that because here we're going at that time for a public health recommendation. The NPC Trial was considered a landmark trial. It was one of the first times that a nutritional agent like high-selenium yeast had been shown to prevent cancer, so everybody wants to validate that work. Before we could validate it, the product had to be standardized.

In 1997, working with this, Dr. Baugh and I began the process with NCI to standardize the product because they just weren't going to substantiate a product where we had a lot of adulterations. We took a year and a half and we showed that there was a

standard of this, what the standard should be, what the matrix of the product should look like. At the end of that time period in 1998, we completed it to their satisfaction and we signed a clinical trial agreement.

One of the first clinical trial agreements with National Cancer Institute on a nutritional agent, SelenoExcell is named in that clinical trial agreement so that when research is published like what Mark's going to talk about here in regards to new research, it will state that the form of selenium used was SelenoExcell high-selenium yeast because even within that category, they want the consuming public to know that this product has been standardized, validated, researched and this is the form that you should look for.

Steve Lankford: And that indicates the quality, the standard of the study, and it would make sense that if it's not standardized, how do we have confidence in it? Again, it goes back to the work of creative and innovative companies to do this work so that we have a foundation, then, to go forward with these studies. I think that's so important and I appreciate you making that point for us. Then, once we got to that point where were had a standardized ingredient, meaning that every batch could be consistent and be counted on so that we could compare results optimistically and with confidence.

Paul Willis: Yes. That is correct.

Steve Lankford: Let's look at some of those studies since then. Were there, then, these studies granted so that we actually then got some more research?

Mark Whitacre: Yes, there was and one of the first studies that came out after the 1996 publication was a study that was funded by the National Cancer Institute, looking more at prostate cancer because prostate cancer had the most significant effect with the 63% reduction, the highest number compared to colon, lung and prostate. They were all 3 very high and they were all 3 close to 50% and above, but the highest reduction was with the prostate cancer in that 1996 JAMA publication, so Penn State jumped on that to pursue that further and they had a 2002 publication, also with high-selenium yeast.

They used the same form like you were talking about earlier, used the same form at the same level, the previous clinical trials had proven these 200 mcg per day of SelenoExcell high-selenium yeast, they matched the form and same concentration and they found the same effect, a very positive effect in reduction in prostate cancer. They were mainly looking at PSA levels and biomarkers and things of that sort. That was published in 2002 by Penn State University to verify and further support the JAMA Trial.

There have also been some animal trials that have also supported that, both the University of Chicago and Purdue University during that interim from 1996 up to the point where some of these new trials are coming out in 2014. So, there have been both human and animal trials to further support that. One of the largest trials, the Select Trial that came out in 2008, that was a 35,000-man prostate cancer trial and that was using selenomethionine, not the same form that clinical trial previously had proven. They used selenomethionine and it had no effect.

A lot of people thought, wow, that could be a negative for the selenium world. Cypress quickly thought, well, that's clarification. That's not a negative. That's further clarifying that form does make a difference. I think because of what you saw in the Select Trial that was published in 2008, I think you see that most researchers are back to using the form that was clinically proven in the past and the same level.

I think that's why we're seeing the new trials using SelenoExcell high-selenium yeast at 200 mcg and that's exactly what we're going to see in the results coming from 2 trials in 2014, same form, same level because form does make a difference.

Steve Lankford: That certainly is the point that we want to make, that form does make the difference and people need to know that it makes that difference. Just to make sure that I'm clear on the results of these studies, that was to suggest that people taking 200 mcg of selenium in the form of SelenoExcell were given to 1 group and the other group received placebo and over a period of time, the group that received the SelenoExcell had less incidences of prostate cancer. Is that what we saw and that's what we're measuring is the lowered frequency of prostate cancer emerging in the men who took the selenium versus the placebo?

Did I get that right?

Mark Whitacre: Exactly. Now, 2014, there's more interest to get more in the mechanism of that. Why does high-selenium yeast SelenoExcell work and selenomethionine did not work. For 2014, we're going to see 2 things. One, a long-term colon cancer trial published because colon cancer also had a significant reduction in the original 1996 JAMA publication. We're going to see a long-term, 11-year gold standard clinical trial that's being unblinded now as we speak. It's going to be unblinded completely by spring of 2014, publication likely sometime in the fall of 2014, likely.

There's a lot of factors in terms of when publication dates and so on, but likely fall of 2014 of the long-term colon cancer trial of a yeast placebo compared to SelenoExcell at 200 mcg per day and then a 2nd trial that's more or less looking at the mechanism. This will be the 1st side-by-side human trial comparing selenomethionine and high-selenium yeast in the exact same trial, side-by-side. To this date, we have trials that show selenomethionine didn't work and trials that showed SelenoExcell did work, but never in the same trial.

The unique thing about this 2nd trial that's going to be published in 2014 is a side-by-side SelenoExcell compared to selenomethionine and looking more at the mechanism. It's a prostate cancer trial, but they're looking more at the oxidative stress of biomarkers, some really key oxidative stress biomarkers that are indicators of prostate cancer, indicators that one would be likely to get prostate cancer if this oxidative stress of biomarkers is certain levels.

They're looking at that more from a mechanism standpoint to see why is selenomethionine not working and the SelenoExcell is, to get a little bit more into the biochemical and biological reasons why. One will be more a colon cancer incidence trial, long-term gold standard, and the 2nd trial will be more getting into the

mechanism of why form makes a difference. We know the form does make a difference, but we don't know yet the biochemical reason why, so it's a trial getting more into that area, more mechanism; very exciting in 2014.

Steve Lankford: It is very exciting. I get excited just listening to you describe it because this is the kind of research that I like to explore and we will explore that with you, hopefully, on a future date when those are all available and published and we now understand what they reveal. It's exactly these kinds of long-term studies, this investment into the nutritional science that benefits us all. This has been a great introduction into selenium and to SelenoExcell.

We don't have a lot of time left, so I have a few other questions for you. Are there any warnings or contraindications that a consumer should think about prior to using SelenoExcell?

Paul Willis: I'm so glad you asked that question. Before we got off here, I wanted to speak to your listeners regarding what we see a lot in products labeled as yeast-free. SelenoExcell high-selenium yeast is a nutritional yeast product. It is baker's yeast that has organically-bound selenium. It is pasteurized. It is killed. It's inactive yeast and it's spray-dried. Back in the mid-to-late '80s, there was a book written called, "The Yeast Connection."

Steve Lankford: Yes.

Paul Willis: Today, you can go to your bookstore and there's 2nd version, there's Yeast Connection cookbooks, there's whole vast amount of information based on this original book called The Yeast Connection. This book was really addressing the issue of a pathogenic yeast organism like Candida and this yeast sensitivity and yeast infections. We've done multiple interviews with researchers and the medical community in allergies and this type of thing.

This book did a tremendous disservice to creating a massive confusion about a pathogenic yeast organism like Candida versus a nutritional inactive yeast product like SelenoExcell. Consequently, many of our supplement companies will use ineffective forms of selenium so that they can show yeast-free on their label and that's a tremendous disservice because this natural food form of selenium is the one that's been shown to work. To meet a yeast-free labeling, they're having to put ineffective forms in there.

We've been involved in this clinical cancer prevention position with this product clear from the 1980s. As you know, in clinical research, they have to document every adverse event and we're copied on these adverse events. If someone comes into the clinic to get their dose and I mean literally, if they stub their toe, that's an adverse event for the clinical trial. We have never in the history of all of this trial, have we had an adverse event associated with a yeast-based product, where someone had a negative reaction because they were taking a yeast-based product.

That speaks volumes and it's so unfortunate that many of our products don't have the correct form of selenium in their product because they chose to label it as yeast-free. I'm so glad you asked that question because we try to educate the consumer that this yeast-based ingredient is not associated with that same pathogenic organism that was poorly reported to in that book, "The Yeast Connection."

Steve Lankford: That's a tremendously important point because you're right. There is a great deal of confusion over that term, that word "yeast." People who don't know will assume that all yeasts are equal and all yeasts do the same thing and that they're the same types and that's not the case. I'm glad that you made that point because we really need the consumer to look a little deeper in order to understand this science and to understand that there are these distinctions. Otherwise, they miss the benefits because they misunderstand.

It's for a lack of knowledge that they suffer. You talk about it being a disservice and it has been because of this confusion, when in fact, yeast is a very good source of many important nutrients and is used in a lot of supplements. That's really a whole topic for another show, but I'm glad that you brought that up here. Are there any other issues that people should need to be aware of?

Paul Willis: The RDA, the recommended daily allowance for selenium is in the 55-75 range. We're talking about supplementation. We're supplementing at 200 mcg. The upper limit has been set by RDA at 400 mcg. Not that I'm recommending that individuals do this, but we've been in clinical trials that has individuals taking 800 mcg. There was even one arm of a prostate cancer trial where men for 14 months were taking 3200 mcg of SelenoExcell as an intervention for individuals that already had prostate cancer.

I'm not recommending to your listeners that they take 3200 mcg, but it's a very safe form and we're not aware of any adverse effect of taking a supplemented level of 200 mcg of SelenoExcell. In 2009, we also had completed a grass approval with the FDA and that's generally regarded as safe, so that SelenoExcell can now be put into foodstuffs. We actually submitted that application to FDA for what's called a letter of no objection for grass status. We were the first form of any kind of selenium to be awarded that letter of no objection that it's safe to be placed in the foods.

Steve Lankford: It's a wonderful endorsement. There are very few nutrients that have passed the bar relative to the FDA that your company has with this product. That's a very high standard and a high accomplishment and should give consumers a lot more confidence. There's as much good science here as there is for a lot of other nutritional products and a lot to be grateful for the research that you've done. We're very near the end of our time. I'd like to give you the last word. Is there anything that you want to make sure our listeners hear today that we haven't covered?

Paul Willis: Mark, do you have anything you'd like to add?

Mark Whitacre: The only thing I'd like to emphasize is that I urge your listeners and I challenge your listeners to learn about SelenoExcell. Go to the web site. There's a white paper that's one of the links under the added research section and it's one of the first links and to

review that white paper and review the references that are in that white paper, which one of those is the JAMA article and another one is the 2002 Penn State prostate cancer research. Go to the references themselves and review that and review those research articles.

Really urge them to look at that because there are a lot of things in our health we can do to prevent. We have been a very treatment-oriented society in America the past several decades. You can see a shift in the last 5-10 years that we are becoming more of a prevention-oriented society.

I really challenge your listeners and really urge your listeners to research it themselves, review the research data, explore the actual trials that have been published in peer reviewed medical journals and to really evaluate the opportunity of what a 200 mcg per day, that costs very little to do that, 200 mcg per day of SelenoExcell high-selenium yeast and what that could mean for an insurance to help prevent chronic disease such as cancer because the data really supports that.

We just urge your listeners, research it themselves and really explore it.

Steve Lankford: I can confirm that the FDA is not very willing to give out anything on cancer claims to anybody, so the fact that you've passed that standard is very highly important in my mind.

Mark Whitacre: It's a qualified claim and it should be. A qualified claim means that it's no guarantee it would do. There is a 63% reduction in prostate cancer, for example, in the JAMA trial. That means it didn't work for everybody, but a 63% reduction is still very significant.

Steve Lankford: Huge. It's a huge thing.

Mark Whitacre: More research is still needed and that's exactly what's being done. More research is happening and 2014 is going to be a huge year for more of that research.

Steve Lankford: I look forward to talking about it with you.

Paul Willis: In making a final comment here today, I'd like to reiterate consumer educating themselves is vitally important. I totally agree with what Mark has said. Look for ingredients that are research proven. The other critical thing is companies that are committed to formulate their products with research-based ingredients at the dosage level and they're committed to educate the customer by doing exactly what's happening here today, interviewing and getting information out there and disseminating information for the consumer.

It's not only critical to educate yourself and then to understand the ingredient, but also, to look for those companies that are committed to having these research-based, quality ingredients available to their customers.

Steve Lankford: That's who I'm committed to is these companies that have a pedigree like yours which brings those ingredients to the consumers. Hopefully, we're going to help them understand the distinctions and why they can have confidence in SelenoExcell. We've

done, I think a great job today and you've set the stage for the future. Our listeners should be excited about what they heard today and they should be interested and excited about what's yet to come because this is how we all grow in confidence in the nutrients that we take.

Paul Willis and Mark Whitacre from Cypress Systems, I'd like to thank you so much for being my guests today on our podcast. It's been most interesting.

Paul Willis: Thank you very much for the opportunity.

Mark Whitacre: That you, Steve, sure enjoyed it.

Steve Lankford: I did, too, and I look forward to our next one. Until then, I wish you the best. Bye-bye.

If you would like to learn more about SelenoExcell and Cypress Systems, I have a couple of resources for you. First, to learn more about the selenium SelenoExcell go to SelenoExcell.com. You can learn more about this very unique form of yeast-based selenium. You can also go to the manufacturer's web site, CypressIngredients.com. There, you can learn more about the company, the people involved, the science, the mission.

I think it's a valuable thing to know who makes your products, both the supplement manufacturer that makes it and the raw material supplier that supplies the ingredients that go into these supplements. How do you have confidence in the raw materials? You look at the science like we did today.

How do you have confidence in a supplement brand? You look to see if they use these credible, clinically studied, trademark branded raw materials. If they do, then you know that they're interested in providing you products that have been shown to be safe, effective and have good clinical science behind it. That's why it's important for you to know about these very innovative ingredients from the very best companies. Then you know what to look for and you know what to expect.