

*Oklahoma Innovations* Radio Show

Air Date: December 19-20, 2009

Guests: **Bryan Fuller**, Therametics

[ Music ]

From the OCAST Radio Network, this is *Oklahoma Innovations*, a weekly science and technology radio magazine brought to you as a service of OCAST, the Oklahoma Center for the Advancement of Science and Technology. OCAST is the state's only agency whose sole focus is technology, its development, transfer, and commercialization. OCAST mission is to identify and fund promising research in technologies that allow Oklahoma to compete in a global market economy from our own backyard. This program features some of the state's most gifted and talented scientists, inventors, entrepreneurs, manufacturers, and business leaders who all have one common goal, developing technology-based economic growth for all Oklahomans. Now here are your hosts, Gary Owen and Steve Paris.

>> Welcome and happy holidays to you. We hope that your holiday season is looking bright, and that you will have some merry cheer. It was April 1st, 1996 that Steve and I began this radio program to what has now evolved into a number of affiliate statewide.

>> Yeah.

>> And hundreds of shows later, 14 years into this and here we are. And today, we have our very first guest that started this program.

>> We absolutely do, Gary. And I am so excited to have Dr. Bryn Fuller in the studio with us today to talk about – I believe it's his third effort, his third, you know –

>> Third appearance?

>> Well no, his third development, his –

>> Oh, third development.

>> Yeah, he's one of those serial entrepreneurs.

>> But wouldn't that make him his third appearance on the show?

>> Well, I think he's been on 3 times.

>> Yeah, as of today, will have been on 3 times. But what is most interesting is that he's worked on different things over those last 14 years, and been a very successful professor and a researcher, and we're gonna hear a lot about him in here in just a little bit.

>> Now, he's got his own company.

>> You got it.

>> Has his own company and – you know, when he first appeared, when Dr. Fuller first appeared or came to *Oklahoma Innovations*, we were at, I believe, WKY, were we not?

>> That's right, that's right.

>> That was – it was the only – the only station that was airing *Oklahoma Innovations*.

>> That was in Oklahoma City, that's right –

>> Well 14 years later, we are heard on KOCU in Altus, KLCU in Ardmore, KCCU Chickasha, KYCU in Clinton, KCCU in Duncan, KCCU FM – and in the Lawton Fort Sill, KTOK in Oklahoma City.

>> That's the flagship station, the Oklahoma City –

[ Simultaneous Talking ]

>> Their flagship station you bet. KRMG in Tulsa, KZCU in Woodward, and we don't wanna leave our friends from Texas out. We're on KMCU in Wichita Falls, Texas.

>> And by the way, those of you that listened to us in Tulsa now on Sunday mornings, we were on Saturday mornings.

>> For years.

[ Laughter ]

>> Up until just a couple of weeks ago for years at 5 a.m. now we're on an 8 o'clock in the morning on Sunday mornings, and the – so those of you that are catching the show for the first time and have been kind of tuning in and catching it, we welcome you, so our listeners up there.

>> And for those of you who enjoy listening to the – our mini stories here on *Oklahoma Innovations*, we want to just say that – that it was first started by Dr. Bryan Fuller, our first guest.

>> Yup.

>> If you don't like our stories, then you have him to blame.

>> There you go.

[ Laughter ]

>> No, just kidding of course.

[ Simultaneous Talking ]

>> And let's mention that those of you that are interested in therapeutic skin care, if you – you or someone in your family or in your cycle of friends and associates has some skin problems or concerns about skin aging, this is gonna be the program you're gonna wanna listen to 'cause Dr. Fuller's got some really cool stuff out there. So we'll talk about that later.

>> Okay.

>> So, what's going on at OCAST?

>> Well Gary, we just funded 6 R&D intern partnerships. Now let me explain that program, we – it's a little over 10 years old. We've had more than 600 college trained technologically trained students who have participated in the – this intern partnership. What it is, is OCAST pays half of their salary for up to 2 years. The private sector business where they work will pay one-half of their salary, and then we make sure, make certain that a professor, someone from the faculty, one of the universities, monitors the process to make certain that it's a learning experience and it's an experience that involves R&D. And what our goal is of course is to keep these students in Oklahoma like – you know, giving them a leg up on working with some of these private sector companies. It doesn't always work but, you know, we've had several cases where some of these students are now, some years later after graduating from the college and maybe going on follow on degrees, some of them are now CEOs of some of those companies, or CFOs or operating in a

very high position. And that's what we were after. So, the line of six involves University of Tulsa, Dr. Surendra Singh, University of Tulsa who work with some interns, develop transceiver modems, and there's a whole lot more talk about that, maybe we'll have them on one these days. And Adam Norman, Ricardo Prada-Silvy with SouthWest NanoTechnologies, we call them SWeNT. They're big in the nanotechnology business. They're hiring interns who'll be working on some nanotechnology development. Ranji – we've had him on – Vaidyanathan with the Oklahoma State University New Product Development Center, will oversee interns that will – they're involved in working on some overwrapped storage containers. Storage is a real problem, and they have – they're looking to solve some of the issues. At Tulsa, the Oklahoma Life Science Fund directed by Dr. William Paiva, he's going to work with interns in the new venture professional development program to develop skills to serve Oklahoma's growing biotech and venture capital industry, Oklahoma City. We've got Dr. Fabiola Janiak-Spens will oversee interns in various biotechnology programs in the – with a goal of helping develop a skilled biotechnology workforce, a lot of companies involved. And maybe I should mention those. Oklahoma City Community College, the Analytical Research Laboratories, DNA Solutions, Cytovance Biologics LLC, the Federal Aviation Administration, Immuno-Mycologics Incorporated, Crescendo Bioscience, University of Oklahoma Health Sciences Center, Hyalose, and the Dean A. McGee Eye Institute. So, you know, sometimes when you talk about a student in a private sector company in OCAST giving them a little money, there's several major institutions and organizations and federal agencies involved in that process. Of Edmond, Oklahoma, David Makaanani of OMEDtech LLC will work with 400 graduate engineering interns of Oklahoma Christian University. They're gonna be working on novel medical devices. So, those are the most recent winners.

>> Outstanding.

>> Yeah. And so, here again like I said, more than 600 students have gone through this program and the history of the program.

>> So now the majority of what you just said to us goes over our head technologically but it sounds impressive and it is impressive for Oklahoma, good science going on there.

>> Absolutely, what we were talking about.

>> Absolutely, absolutely.

[ Laughter ]

>> Very good.

>> Right now, it's time for our science news and headlines from around the world. And first of all, four new found planets orbiting two nearby stars add weight to the promise of detecting habitable worlds within the next few years. According to scientists, two of the extra-solar planets are considered super earths, more massive than earth but less massive than Uranus and Neptune. Spotting true earth size planets is challenging with the current technology, but presence of super earths suggest finding a world like ours is just a matter of time, scientists say. Astronomers are not sure if the super earths are rocky like our own world or if they have some other compositions. The objects have not been photographed yet because the technology is not there to go that far out yet. But NASA's new infrared space telescope was launched this past week on a 10-month mission expected to reveal previously unseen objects ranging from near earth asteroids to some of the most distant galaxies in the cosmos. The 320-million dollar 196-million pound

instrument is designed to scan the entire heavens for the infrared radiation or glow of heat given off by objects that are too cold, too far away, or too shrouded in dust to be seen by conventional visible light telescopes. Scientists say the spacecraft detectors are about 500 times more sensitive than those of the last infrared sky survey in 1983, and are capable of producing photograph quality images of the objects they find. Isn't that cool? Well Steve, one of your big concerns here in Oklahoma is water.

>> Yes, it is.

>> In fact not too long ago, we did a story dealing with the aquifers here in Oklahoma. California's two main river basins and the aquifers beneath its agricultural heartland have lost nearly enough water since 2003 to fill Lake Mead, America's largest reservoir – the reservoir, new satellite data showing this, this past week. Depleted aquifers account for two-thirds of the loss measured, most of it attributed to increased groundwater pumping for irrigation of drought parts farmland in California's fertile but arid Central Valley. Now you say, yeah, so what has that have to do with us? The findings have major implications for the economy as the Central Valley is home to one-sixth of all irrigated US cropland. The Central Valley stretching 500 miles from Bakersfield to Redding has traditionally produced over half of the US harvest of fruits and vegetables. California as a whole ranks as the nation's number one farm state in terms of crop value, more than 36 billion dollars a year. Central Valley farms have increasingly tapped into aquifers during the past few years to help offset drastic cuts in their regular allocations of irrigation water pumped into the state and federal government from northern – from farther north. How much water remains in California's aquifers is unknown but satellite studies show that groundwater is being used up faster than nature can restore it.

>> Oh that's scary.

>> That is real scary.

>> You mentioned Lake Mead, may I interrupt?

>> Yes, you can.

>> Lake Mead, by the way, for some years now is more than 100 feet lower than what it used to be.

>> Really.

>> And scientists are saying that we may never recover it because of increased use.

>> Scary stuff.

>> And the lower replenishment rates that it might never recover.

>> Scary stuff.

>> Couple of other quick stories here, a new study from the University of California, San Diego finds that the average American in 2008 took in – listen carefully, 34 gigabytes of data and 100,000 words per day. The United States as a whole digested 3.6 zettabyte of information last year. You know what a zettabyte is?

>> I don't.

>> You have ever heard of that?

>> Probably.

>> Had to look it up. A zettabyte is equal to a million, million gigabytes.

>> Whew.

>> Yeah. Another way to think of it according to the study's authors, 3.6 zettabytes is equivalent to all of the information in thick paperback novels stacked 7 feet high over the entire US including Alaska. And America's data gluttonly has grown 350 percent since 1980, according to the study.

[ Laughter ]

>> I knew that.

[ Laughter ]

>> No I didn't.

>> And Steve now has our innovations in history.

>> I do Gary, thank you. It was on December 18, 1980, a medical worker, Jean Halliard's car got stuck on a Minnesota road. It was 22 below zero when she went walking for help. She was discovered the next morning apparently dead. Doctors could detect no heartbeat and her skin was frozen solid.

>> Wow.

>> However, after a few hours, she began to thaw out, treatments began and she recovered completely with no ill effects. Halliard says the period during which she was dead remains a complete blank. Fascinating. I guess she had no frostbite either. America's lunar landing program ended 37 years ago, December 19th, with a splash down of Apollo 7. And disposable razors first went on the market December 19th, 1970. 1951, the Experimental Breeder Reactor-1 ushered in a new era in nuclear history when it became the first reactor to generate usable amounts of electricity from nuclear energy. It accomplishes this feat by lighting 4 light bulbs with the National Reactor Testing Station at Argonne National Laboratory, Butte, County Idaho. EBR-1 was registered as a national historic landmark in 1966. And on December 26, about – that marked the 145th anniversary of the day that James N – excuse me, James H. Nason of Franklin Massachusetts received a patent for the first coffee percolator. Very important –

>> Got time for one more.

>> Okay. December 27, 1931, naturalist Charles Darwin set out on a voyage to the Pacific aboard the HMS Beagle. His discoveries during the expedition formed the basis of his theories on evolution.

>> December was a big technology month in history.

>> It is.

>> And those are our innovations in history for this week. Coming up, we're gonna be talking with Bryan Fuller, when we return on *Oklahoma Innovations*.

[ Music ]

>> Imagine not being able to see your daughter on her wedding day, or experiencing your grandchild's first smile. An estimated one in three quarter million Americans over age 50 have developed a loss of vision or blindness due to age-related macular degeneration. And of the more

than 200,000 Oklahomans living with diabetes, 90 percent will develop eye disease. With the support of the Oklahoma Center for the Advancement of Science and Technology, an Oklahoman company is developing innovative treatments for blinding eye disease. The research will improve the lives of people across the nation, create new treatments that are more comfortable for patients, and prevent vision loss. OCAST is looking for Oklahoma researchers serious about investigating new treatments and products that improve the quality of life and the economy for Oklahomans. For more information, call OCAST toll free at 866-265-2215, or visit their website at [ocast.ok.gov](http://ocast.ok.gov). Investing in science and technology, it's good for your health.

[ Music ]

>> There was an interesting story this past week that I'm sure you heard about. If you didn't, I wanna share it with you because it kind of, in a direction, leads to what our topic is this morning. Do you hear about what scientists have said about people with baby faces? Did you hear about this?

>> I heard something about it.

>> Well, you know, our producer Tom, he kinda has a youthful baby face. You have that youthful baby face look. A new Danish study says, and they relate this to people with baby faces, that looking young apparently means a longer life. Research published last week at the British Medical Journal, BMJ, suggests that people who look younger than their years also live longer. The experts found that people who looked younger than their actual age were far more likely to survive even after they adjusted for other factors like gender and environment. The bigger the difference in perceived aged within any twin pair for example, the more likely it was that the older looking twin died first. And it all has to do with DNA.

>> Fascinating. Has absolutely nothing to do with our guest, but that's okay.

>> Well no, because –

[ Simultaneous Talking ]

>> I understand, we're talking about skin care, we're talking about all the things that can happen and it's widespread. We've got Dr. Bryan Fuller in the studio with us today, and he is, I refer to him as a serial entrepreneur. I don't know if he accepts that moniker or not but –

>> Well.

>> Listen to anything.

>> He listens to anything.

>> That's right.

>> Bryan, we want – I mean I – let's bring everybody up to date. I mean you started out 14 years ago. I mean you were – you had started that before then, but on this show, your first topic was Melanex, a company that you were very much involved in. Tell us a little bit about that and where you've, how you've come to where you are today.

>> Hello there, Steve. Gary, it's nice to be here. Melanex was a company that I guess you would consider I was a scientific founder. The technology came out of my research lab at OU. The goal of the company was to develop actually a tanning product, a topical lotion that would actually give you a natural tan without ever having to go out in the sun and be exposed to UV radiation.

>> Which are dangerous.

>> Which are dangerous and, you know, everybody that has gone to the tanning bed should obviously be aware that that UV radiation that they're getting is about 30 times the dose that you'd ever get outside in the sun in Oklahoma, so. There's no such thing as a safe tanning bed, but that was the goal of the company. The company ended up selling a lot of that technology off to a pharmaceutical company, as often happens. And that's kind of the end of where Melanex was.

>> But there was some success there either with some, some financial benefit.

>> Yeah.

>> And I'm sure the company, wherever it is now, are the remnants of the research is still being used somewhere today.

>> Yeah, its found a home in Johnson & Johnson actually.

>> Johnson & Johnson. So people are still benefiting from that.

>> Absolutely.

>> Well, company number two.

>> Company number two was a company called Cutanix, which was a spin out of a pharmaceutical company in Silicon Valley. And the company had 1400 chemical entities that this pharmaceutical company had developed. And they thought some of them had some anti-aging properties, and they thought, well, what better place to put those than into a skin care product.

>> Of course.

>> Well, yeah.

>> They didn't really, believe it or not, even in Silicon Valley, they didn't really have anybody that had a lot of expertise in topical formulation and developing skin care products, so they came to Oklahoma and said, would you take over being the chief scientist on this project. And we actually took those compounds, 1400 of them, narrowed down to one, put it in a product and it actually had some amazing benefits. It actually had some anti-inflammatory properties. And not only did it have some anti-aging benefits but it was helping people with rosacea and other –

>> Sure.

>> – inflammatory disease. That company was sold en masse to another company out in California, and that technology is still in a bottle being sold here, as well as Europe.

>> There you go.

>> So –

>> That brings us to company number three. That's the reason we call you a serial entrepreneur.

>> It's kind of like serial killer really, but I guess it's serial entrepreneur.

[ Laughter ]

>> Not same thing.

>> Not the same thing at all, hopefully. You know the first two companies, I was the scientific founder of one, the chief scientist of another, but I was never in the management structure. So, I never had any control over what happened to the technology. And after those two, I thought, you know, if I ever come up with something else that's worthwhile, I think I'm gonna hang on to it and see if I can actually take that technology myself and build a company around it.

>> And that actually is what happened to form Therametics. Therametics, a name really came from my – maybe not so clever approach of taking therapeutic and cosmetic and squishing them together and forming Therametics.

>> Well, that's a catchy name.

>> Yup. So that's where the company's name came from. The technology, believe it or not, the technology that we discovered had its origins really in the research that I did both at Melanex and at Cutanix. That research gave us an insight into how to look for chemical structures that could have beneficial effects on skin, and that screening strategy or technology strategy that we came up with actually led to the discovery of the compound that's in all our Therametics products and that it's trademarked as Therosol.

>> Therosol.

>> Therosol. And Therosol has some remarkable anti-aging properties, but it also has some remarkable anti-inflammatory properties. And so what I did was when I – we discovered this and I thought, you know, I'm gonna hang on to this technology and see if I can build my own company around it, which is of course why my face isn't baby smooth 'cause –

[ Laughter ]

>> The one thing they left out of that study was that stress – those people with baby faces, they may have had them at one time, but when they become an entrepreneur and start their own company, then all of a sudden their faces are no longer babyish anymore.

>> Don't let him get you folks, he doesn't look old at all.

[ Laughter ]

>> So we formed Therametics and I decided the best thing for me to do, I was a professor at OU for 20 years.

>> We will talk about that here in just a minute too.

>> And I decided, well, it is time to – to take on a new approach, so I retired from OU to run my own company, and that's where Therametics is today.

>> Awesome. Well you – you mentioned the fact that you were a professor at the University of Oklahoma, and was it all out at the Health Sciences Center or was it out at the main campus?

>> No, it's the Health Sciences Center.

>> Okay. Now, you spend how many years there?

>> 21 years.

>> 21 years, and you retired about 2006, the end of 2006. You know, that's not unusual for people like yourself to have a background in education as a professor in a major institution. Now, when we were coming up the elevator a little bit ago, you were talking about some great

information, some numbers about the University of Oklahoma, how it kind of ranks. That being your former place of employment, talk a little bit about it.

>> Yeah, well, you know it's funny. I got a call from a person at a company I do some consulting with and he said did you know that University of Oklahoma ranks fourth in the nation. This was article published by Scientist.

>> Hold that thought right there, we'll come back and talk about that once we come back and visit with Dr. Bryan Fuller on *Oklahoma Innovations*.

[ Music ]

>> This is Oklahoma science radio magazine, *Oklahoma Innovations*, with Gary Owen and Steve Paris on the OCAST Radio Network.

>> When people think about science and technology, they imagine the future. Although researchers are developing the technology and treatments of tomorrow, results can be seen today. An investment in OCAST yields immediate return to our state through increased salaries, higher productivity and a diversified economy. Oklahoma is an emerging global leader in science, technology, research and development, with a workforce that continues to improve within incomes and education levels. Oklahoma can achieve a dynamic economy with a culture of innovation and new opportunities that attract and retain bright creative people. Creating opportunities, improving the economy, and investing in our future, that's what OCAST is all about. For more information, call OCAST toll free at 866-265-2215 or visit our website at [ocast.ok.gov](http://ocast.ok.gov). An investment in OCAST is an investment in Oklahoma for today and tomorrow.

>> As you drive across Oklahoma, you can see thousands of gas wells sprinkled throughout the countryside. Many of these wells don't produce enough natural gas to justify pipelines. But without this access, thousands of well sites are abandoned. With the support of the Oklahoma Center for the Advancement of Science and Technology, one company is creating a portable device transported on a flat bed truck to process natural gas at well sites. This technology optimizes the amount of gas that can be captured and releases no byproducts into the atmosphere. This idea provides new opportunities to small oil and gas producers while bringing us one step closer to energy independence. Supporting innovation, that's what OCAST is all about. OCAST is looking for small business owners serious about investigating new products, services, and processes. For more information, call OCAST toll free at 866-265-2215 or visit their website at [ocast.ok.gov](http://ocast.ok.gov). Investing in researching and development, it pumps new life into Oklahoma's economy.

>> Research and development, technology transfer and commercialization, creating high paying jobs in Oklahoma is what OCAST is all about. This is Oklahoma Innovations on the OCAST Radio Network.

[ Music ]

>> Our topic this week is a company called Therametics, skin therapeutics company that specializes in the development of technology to treat inflammatory skin problems and aging skin. And heading up that company is Dr. Bryan Fuller. Up until 2006, he was at the Oklahoma Health Sciences – the University of Oklahoma Health Sciences Center for 21 years. Remarkable.

>> Yes, he was. And when we went into the – to the break just a minute ago, he was talking about the University of Oklahoma, and they're fourth position, very unique position.

[ Simultaneous Talking ]

>> I'm gonna let him go ahead and finish that story.

>>> Alright. Well, there's an article that came out in the Scientist, which is a medical journal, and that every year they ranked the top 40 schools in the country based on, you know, quality of environment, pay, that kind of thing. Well, the Scientist ranked University of Oklahoma and the Health Sciences Center as number 4 –

>> Wow.

>> – in the country.

>> The only – only universities that were ahead of them were Princeton, which I think most people have heard of, Albert Einstein, University of California, Berkeley. So to be number 4, you know why is it that the University of Oklahoma has ranked so high? And part of the reason is the infrastructure that the University of Oklahoma finds itself in. You know with the state, the legislator pumping money into OCAST with Presbyterian Health Foundation providing grants, it makes it a wonderful environment for young scientists coming on to the faculty to get a head start in developing their research projects.

>> I think that was no small measure of the reason that we're number 4.

>> So that was a role that was played to help position the University of Oklahoma as number 4, which is a tremendous place to be. And let me point it out. That was kind of the plan back 22 years ago when the legislature back then decided to fund R&D in several ways, but one of those ways was through OCAST. And it's starting to pay off, isn't it?

>> It is and –

>> We're saying company – well, like your company. We're seeing companies – you did some of early research under some OCAST awards and I – I don't wanna overplay that because that's just one element. You have to be a quality researcher, a person like yourself who has the expertise. But when you – you also have to have money.

>> Yeah, and those research opportunities that that money provides actually led to the, to the strategy we use to identify the bioactive compounds in our product. So, yeah, I don't think you can overplay it. I think it's extremely important what the state has done, and there are very few states in the country that offer the kind of program that OCAST do.

>> Way to go Oklahoma, right?

>> Exactly.

>> And the University of Oklahoma.

>> I love Oklahoma.

[ Simultaneous Talking ]

>> Let's talk about the products 'cause I know that's, that's what's intriguing to our listeners who's finding anti-aging, gosh what does that mean, you know when – when you talk about the therapeutics, you have a great success story in your website that I know is very impressive about – What is it, the –

>> It's patients who have suffered from radiation.

>> Radiation therapy.

>> And we all know that cancer patients, many times, have to undergo radiation therapy.

>> Right.

>> And you kinda have a – have something that helps with that.

>> Yeah. When we discovered the anti-inflammatory bioactives that are in our products, we were looking for applications for that, and one of the things that struck me was that out of the one and a half million new cancer patients in the US every year, half of them will have to undergo radiation therapy for that. And there is one certain side effect of radiation therapy, and that's severe burns.

>> Yes.

>> And some of these burns can be second degree burns. Some of the burns are so bad that during the treatments, the radiation oncologist actually has to stop treating. Typically, a woman that goes in for breast cancer radiation therapy will get 35 treatments of radiation.

>> Wow.

>> By the time they're at their 11th or 12th treatment, they are turning red.

>> Yes.

>> By the time they're at their 20th treatment, their skin is extremely burned. Sometimes the pain and the severity of the burn is so bad that the radiation oncologist has to stop treatment and let the skin recover. I was told by a radiation oncologist recently that for every week that they have to delay finishing the radiation therapy, the life expectancy of that patient drops 10 percent.

>> Wow.

>> That's huge. If they had this wait two weeks to continue the therapy, your chances of survival have dropped 20 percent.

>> Yeah.

>> Our product, we developed a product called DermaRad Relief, that if the patient uses that product at the time that they start radiation and they use it exactly as our instruction say to use it, they can go through 35 treatments of radiation and their skin will look the same the day after the 35th treatment as it did before they even started the treatment.

>> That's a miracle.

>> Okay, now in that let's – because listeners are going, what did he say, DermaRad is the product, right?

>> Product is DermaRad Relief.

>> D-E-R-M-A-R-A-D, now how do they acquire the product?

>> The easiest way to get that product is just call the office and –

>> You got a website, and we'll talk about all of that later in the show.

>> Yeah, the website is [therametcs.com](http://therametcs.com), the phone number is 319-8130. They call, they get our customers service people. We actually have – we have to ask them some questions. We need to

know what kind of cancer they're being treated for, the area of their skin, because the skin in various parts of your body is different.

>> Yeah.

>> So some skin like for people that are undergoing radiation therapy for neck cancers, that skin is extremely sensitive and extremely tender. We have two different strengths of the product, and we need to know what kind of radiation therapy they're undergoing so we can give them the best product.

>> Okay. And we'll give you more information again at the end of the show, so make sure that you get – get something and write it down

>> Yeah, do – are physicians aware of this product?

>> Physicians are becoming aware of the product.

>> It's a marketing effort on your part, I'm sure.

>> Well, yeah. And we're – you know, we're not a high pressure company.

>> Right.

>> We are – our first goal is to help the patient. We now have that product has been used in over 40 cancer clinics, including MD Anderson. And it's funny, there are so many products out there that radiation oncologists are used to giving their patients. They don't have any anti-inflammatory benefit. They don't reduce the burn, they're moisturizers. And radiation oncologists are so used to seeing these products that don't work that they're very skeptical when you come along.

>> Understandably so.

>> Understandably so. And what really has to happen is a patient that's heard about our product goes down, and this happened at MD Anderson, goes down to MD Anderson and says, I wanna use this product. We don't allow the patient to put that product on their skin within 4 hours of the radiation treatment. So the skin is absolutely clean, there is no product anywhere near it but we ask them to put it on immediately after radiation.

>> Oh, okay.

>> So they don't even walk out of that office without putting that on, and then there's a very rigorous schedule to apply it later but – So those patients who goes down with our product and says, I wanna use it. Oh no, I want you to use Aquaphor, which is something you can buy at Wal-Mart. Aquaphor is a moisturizer. And the first patient that went down listened to the doctor and was burned very badly.

>> Oh boy.

>> The second patient that went down from Oklahoma to MD Anderson, took that product and said, I don't care what you say, I'm gonna use this product. They used the product, 35 treatments later their skin looked exactly the same as it did when they started.

>> Oh, my.

>> And we get a call from the physician.

>> Isn't that nice?

>> Said, you know, “What is this stuff? Because everything we’ve ever tried doesn’t work.” And now, those patients are told to use the product, so.

>> A light bulb goes on.

>> We have to go light bulb goes on and –

>> Or as they say, proof in the pudding.

>> Yeah.

>> Yeah.

>> So you know, and it’s not just breast cancer. We’ve had patients with colon cancer, stomach cancer, rectal cancer, prostate cancer, throat cancer. In every patient that’s used our product, 100 percent of the patients have either been completely protected or at least the – the redness has been substantial.

>> Now, you indicated a number and you just touched on the 100 percent. Typically, for therapeutics, 26 percent is success rates.

>> Yeah, for a good prescription drug.

>> Yeah.

>> It is effective in 26 to 30 percent of the patients. So, to have something that will help everybody is pretty unusual.

>> So your company, up and running, and you have to get the product. There is no other – You don’t have any other outlets, is that right?

>> Well, Therametics –

>> Is there other distributions?

>> Therametics now has 17 products on the market. We have a variety of anti-aging products. You know, it’s funny – inflammation is so related to aging, and you can convince yourself with that by looking at somebody who’s been on the golf course for 30 years in the sun.

>> Oh, yeah, look like leather.

[ Laughter ]

>> Yeah, their skin looks like leather –

>> Right.

>> – ’cause the inflammation causes aging. So, when we discovered the anti-inflammatory properties of our bioactive compounds with that, well let’s see what their anti-aging effects are.

>> Yeah.

>> And what we found is that these things can – these compounds can actually accelerate collagen production in your skin, accelerate elastin production of your skin, all the things that are anti-aging. So, we built a line of anti-aging products. The way to get our products, we sell through a direct sales approach. So we have individuals, we call them professional sales representatives. They’re independent business men and women who sell our products. And anybody that wants to enroll as a professional sales representative, they can do so.

- >> Very good, very good. We got about a minute left. And you mentioned 17 products total.
- >> 17 products, we have products that can help babies with eczema, product you put on their little butt, and the next morning they wake up and their skin isn't red and they're not scratching anymore.
- >> Yeah, and screaming and hollering.
- >> We have products for – yeah, exactly, and mom and dad sleep.
- >> That's right.
- >> Yeah.
- >> So, we have products for rosacea. We have products – we even just launched a product for acne that uses this anti-inflammatory technology. We're developing a product for psoriasis, which is probably the worse –
- >> Oh, yes.
- >> Yeah, yeah.
- >> – skin condition to treat. And it's been, we've already done the clinicals on it, and in two weeks, it will reduce the symptoms of psoriasis by 50 percent.
- >> Wow.
- >> That's important.
- >> That's very impressive.
- >> So –
- >> Anybody who's had psoriasis can understand.
- >> And they always have psoriasis.
- >> We're gonna take a break, come back and learn more about Therametics, a skin therapeutics company with Dr. Bryan Fuller, our guest, when we return on your science radio magazine, *Oklahoma Innovations*.
- [ Music ]
- >> There's more to learn on *Oklahoma Innovations* with Gary Owen and Steve Paris on the OCAST Radio Network.
- >> The stress of finding a job after college is compounded for recent graduates entering a tough job market. But thanks to the Oklahoma Center for the Advancement of Science and Technology, more students connect with the state's most advanced technology companies while earning income and valuable on-the-job training. Through the OCAST R&D Intern Partnerships program, students gain experience in the industry, work with mentors, and operate specialized instruments. Intern training leads to starting salaries 12 percent higher than Oklahoma's average per capita income. OCAST is investing in Oklahoma's best and brightest. Creating jobs, investing in our future, that's what OCAST is all about. OCAST is seeking intern partnership opportunities that will allow Oklahoma students to gain hands on experience in science and technology careers. For more information, call OCAST toll free at 866-265-2215 or visit their website at [ocast.ok.gov](http://ocast.ok.gov). The future of Oklahoma looks bright.

[ Music ]

>> Thank you for joining us on this week's edition of *Oklahoma Innovations*. And boy, we're learning some good stuff here about skin care and particularly when it comes to severe problems. We're talking with Dr. Bryan Fuller. He heads up a company called Therametics. And I tell you, the products coming out are amazing. What we didn't get to tell you, we're gonna talk about in this segment is Bryan, these products are made of natural – the bioactive ingredients are natural, is that right?

>> It's right. All the bioactive ingredients in our products actually come out of plants. Therosol, which I think we mentioned earlier, is found in clove, it's found in nutmeg, it's found in basil, it's found even in oregano, very, very tiny concentrations. I mean you could never use enough nutmeg topically to do you any good. But when we identify these bioactive in some of these plants, then we have an FDA approved chemical facility actually make the single chemical entity in pure form for us, and that goes in our products. It turns out that Therosol is not only found in plants, you've been eating it in foods for about 40 years. It's been a flavoring agent. It gives foods a clove kind of smell. So it's been in a lot of desserts and cakes and ice creams. And anything that is found in foods in the U.S. undergoes extremely rigorous safety testing, and if that's carried out by a program National Toxicology Program in health and human services. And when we we're looking for bioactives, we wanted to find compounds that always already had a perfect safety record.

>> Yeah.

>> And that's how we discovered this.

>> Interesting. You had a – during the break, you were talking to Steve and I about, for example the treatment for babies and how fast the product works. Talk about that, it's interesting.

>> Right. Yeah. For little toddlers with eczema or diaper rash or anything, we have a product that is called soothing skin serum, which is just its name implies. It's a very gentle serum that contains Therosol. You put it on their little skin. They never even feel that it goes on, but Therosol not only has anti-inflammatory properties, it has analgesic properties.

>> Oh.

>> So, it actually calms the skin, dulls the nerves. So, you know, the worst thing about eczema for any of us who've ever had it is you can't stop scratching and you end up with an itch/scratch.

>> That just makes the whole problem worse. You put our product on, within 2 minutes, that itching goes away and the little guy won't scratch. He'll go to sleep. Mom and dad will go to sleep. And the next morning he wakes up, the skin has healed itself and the redness is gone and the rash is gone. So, it's turned out to be a wonderful product for pediatricians.

>> One last question. The consumers may be asking out there related to sunburn. Do you have products for those? 'Cause that – you know as we hit the warmer weather later next year, I mean we're gonna be looking for better products. Do you have anything on the market for that.

>> It's interesting that you mentioned that as, you know, Therosol – anything that's gonna prevent radiation burns in cancer patients pretty much – yes.

>> Yeah.

[ Simultaneous Talking ]

>> It's kind of relief where it's gonna help with sunburn. Now, we can't make claims with the cosmetic product. We can't make drug claims that it will reverse or help the sunburn, but in fact it will in fact reduce the redness associated with sunburn. However, that does not mean that you could use our product and not use a sunscreen and that's – It's funny, we've had a major skincare, a sun care company after us for this technology. And the real worry is that kids wanna tan. Everybody thinks brown fat is better looking than white fat, so [laughter] they're gonna go out and tan and anytime you use a sunscreen, you gotta minimize the tanning you get. So kids don't wanna use a suntan product with an SPF in it but they don't wanna burn either. Imagine if they knew there was a product out there that could prevent them from getting the sunburn but they go ahead and get a tan. They'd never use a sunscreen, and we don't want that.

>> No.

>> So we're pretty careful about, you know, the things we may do or whatever.

>> Yeah, there are two different things that you're accomplishing here, and so –

>> Absolutely. And you know our product doesn't prevent the DNA damage by the sun.

>> Right.

>> It prevents the secondary inflammation caused by the sun.

>> Exactly. Exactly.

>> Right.

>> That's the key right there.

>> You know, we're talking to a gentleman here that we have known, Gary, for more than 14 years.

>> Right.

>> I'm also – just to read a couple of things about Dr. Fuller, he has conducted research, served as a consultant to many skincare companies including Johnson & Johnson, Procter & Gamble, Unilever, Upjohn, and Wella. His research has received support from the National Institute of Health, National Science Foundation, Procter and Gamble and Wella AG. He's authored numerous peer-reviewed scientific articles. He sits on the editorial board of the Journal of Cosmetic Dermatology. He's an active member of five professional societies including the American Academy of Dermatology, the American Society for Biochemistry and Molecular Biology, the Society of Investigative Dermatology, the American Society for Cell Biology, the PanAmerican Society for Pigment Cell Research, and the Endocrine Society, so –

>> Big list.

>> You could tell from talking with Dr. Fuller that he knows his business.

>> And here's another thing, Steve, that our listeners will be curious to know. The Therametics – the Therametics does not perform animal testing on any of its products.

>> Very good, and that's important for this day and age, you bet.

>> Very important, that's right.

>> Well, we're down to our last segment. What we need to know – I'm sure we just barely touched on what your products do and I guess this might be a good time to invite people once again look at your website, and that is –

>> Absolutely.

>> Tell them about the –

>> The website's [www.therametics.com](http://www.therametics.com)

>> Therametics.com. And you're – you're – you're telephone number's area code 405-319 –

>> 8130.

>> 319-8130, and you're located in the Presbyterian Health Foundation, right?

>> We are. We're over at the Research Park, so up on the fifth floor of building 655.

>> Which is right next door to where we are.

>> Exactly, [laughter]. Exactly.

>> We're neighbors.

[ Laughter ]

>> That's exactly right.

>> Now we – we had talked early on about aging products, because there's a lot of advertising as you well know for cosmetic products related to for women, targeted to women about anti-wrinkle and so forth. As a scientist, what can you say about products? 'Cause I know there's some really good products out there that over – it now – of course they're not like overnight kind of product kind of things, [laughter] but what is – what in your products, what is different about your stuff?

>> Well. That's – it's a really good question you ask. And for anybody out there that's buying skin care products, you really need to ask several questions, what's in the product, what is the active ingredient in the product, what is it scientifically proven to do. Is there enough of that ingredient in the product to do you any good, and does the active ingredient actually get into the skin where it needs to go to do you any good? And if you look at any of the skin care products out there, and believe me, I – you know I do so much consulting for some of these companies. I know what's out there. The answer is those three criteria, having the scientifically proven active, putting enough in the product to do you any good and getting into the skin. If you ask how many companies follow all of three of those criteria in building the products, the answer is almost none of them, none of them. So if you don't – you know, some of the best active ingredients, for example, vitamin C is actually an excellent ingredient, the problem with it is it's not stable. So you put it in a product, within 5 minutes of building the product, it's not active anymore. There are ways to stabilize the product. One of the better companies that's doing that is SkinCeuticals. There are peptides, a lot of these anti-aging peptides that get – find their way into products. Peptides don't go into the skin very easily. So when you buy one of these products, you're spending 300 dollars and you take a shower at night, look down at the drain because the money you did spend on that product, the active ingredient sitting on the surface of your skin and when you use water and soap, it's going down the drain. So, a lot of companies will put a good

ingredient in the product, but they don't put enough of it in to actually activate the anti-aging process. That actually has a name in the cosmetic industry. It's called angel dusting.

>> Angel dusting.

>> You put – Angel dusting. You put in a very good compound in a product, but you don't put enough of it in to do you any good. Why do they do that? It's too expensive. So, you know –

>> Those guys –

>> Our products are different. We test – we know exactly what the science is behind their actives. For example, our anti-aging, we know it stimulates collagen. We know it stimulates elastin. We know it inhibits some of the inflammatory hormones that cause aging. We know exactly how much to put in the product so that it will work when it's applied to the skin, and we test every product we make on human skin. We have a device in the laboratory. We actually have human skin flown to us. It sounds kinda morbid, but we actually have skin flown to us from a facility in Philadelphia. They get the skin from tummy tucks, breast reductions, or whatever. That human skin is –

>> That's a good way to use them.

>> Yeah.

>> Yeah.

>> We – that's flown to us. We mount it on these special devices that really – it's not rocket sized. It's pretty simple. There's an upper chamber, a lower chamber, sandwiched in between the two chambers is a piece of human skin. We put the formulation on the surface. If we've done our homework, the active will penetrate the skin, go into the saline below, and we can determine exactly how much it penetrated the skin.

>> Wow. We only have a little bit of time left. I wanna give credit, once again. The phone number, if you have questions, 405-319-8130, correct? And once again, the website is?

>> Therametics.com.

>> Therametics.com.

>> Well, I have a question.

>> Okay.

>> Would your products be good Christmas presents for your –

>> Absolutely.

>> – your significant other?

>> Thanks for asking that, Steve.

[ Laughter ]

>> We have – You can actually go to our website and order Christmas bundles. We have several on sale.

>> Oh cool.

>> Just for Christmas holidays.

>> Outstanding.

>> Don't tell me why. She didn't listen to the show so –

[ Laughter ]

>> Boy, have you getting – you know, what your top – or top of your hair.

>> Are you talking about my lack of hair?

>> I am sorry, yes. If you don't know what he looks like, yeah, I tell you why. Well, we'll have to –

>> But we do know he has baby face.

>> Yeah, right.

>> That's right. Now you see.

>> I don't which is worse.

>> So we don't need our products, I guess.

>> Well, listen. You've been a great guest. We've had some really good information. I hope those of you that have family members or yourself that may be taking some cancer treatments, hope this is helpful to you. Meantime, Merry Christmas, Happy Holidays to everyone and we'll see you next time on *Oklahoma Innovations*. Steve, take care.

>> See you, Gary.

[ Music ]

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