Speaker 1 (00:00):

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Justin Prochnow (00:26):

Hello and welcome to Legal Food Talk. I'm your host, Justin Prochnow, a shareholder in the Denver office of the international law firm Greenberg Traurig, and this is a podcast brought to you by our food, beverage, and agribusiness practice to give you some insights and knowledge about the world of food, beverage, and agribusiness. Thank you, everyone, for joining in today for another episode of Legal Food Talk.

(00:58):

We've had a variety of different episodes, unfortunately, a little bit of a layoff for summer vacation, but we're back better than ever. We've had some episodes with clients of the firm, with industry giants and colleagues. And today, I've got another colleague here from Greenberg Traurig, a master in the IP intellectual property space and with a particular interest in food. And today, we're going to be talking about some really interesting innovations in the food industry. So please let me introduce you to my colleague, Barry Schindler. Hello Barry.

Barry Schindler (01:36):

Hi Justin. Thanks for inviting me today.

Justin Prochnow (01:39):

We're so glad we could have you. As you know, we have our monthly food and beverage talk, and you always provide some interesting content and the most recent one prompted me immediately to say, "We need to do a podcast about that," because I couldn't believe what you were talking about. But before we get into that content, I want to talk a little bit about you and your background because I know that you have a background in food, including what you studied in college. So maybe you could tell us a little bit about your background in the food space.

Barry Schindler (02:16):

So, Justin, I think you come across a lot of people who get involved with a certain area because of their hobbies, their sports. So I got involved in high school. I was a runner, got very heavily involved with nutrition. I hate to age myself, but so that really led me to going to Cornell University. And at that time, there was no such thing as you could be a chemical engineer, and you had to go into the chemical industry. I decided to make my own major at the time and became what called food engineering. So I combined chemical engineering with food science. As you probably know, Cornell has one of the best food science departments in the country.

(02:57):

And so, I was able to take a number of food science courses, also nutrition courses, and also combine that with my chemical engineering. And it just did amazing for me because I ended up getting an internship with General Foods and then ended up working for three years at General Foods. I want to, again, date myself. General Foods was a company at the time that we called... it was called the Bell Labs of Food. And why was it called Bell Labs of Food? Because they're the ones that can... they're the ones

that invented what's called IQF, Individual Quick Frozen. They came out with decaffeination process. They basically developed almost everything spray drying.

(03:38):

But my... So I ended up working at a plant, and I just want to give people an idea of what General Foods at the time owned before they were broken up. Everything from Dream Whip to Cool Whip to Jell-O to Log Cabin to Minute Rice to Baker's Chocolate to Stove Top stuffing. I mean, it was everything that was essentially chemical. And the reason we're going to say that is we're going to talk a lot about the opposite of what's happened in the food industry now, but at that time, everything was, "How can I make... mix and match chemical stuff?" And then, from there, I went to Mars, and I also worked in Unilever, so I spent a lot of time in the food industry. Now once I went to law school at night, I've been working with a lot of food companies for the last many years.

Justin Prochnow (04:26):

That sounds amazing. I went to Tufts University, and Tufts has a really big nutrition program now. The provost when I was there was really world-renowned in nutrition, Jean Mayer, and they have a very strong nutrition program. I've written some articles for their nutrition magazine, and I can see how that correlation between the engineering background and the nutrition leads to some very interesting products, which leads us into what we're here to talk about today. And that's some of the real innovations in the food space.

(05:05):

And we've talked about some of these over the last couple of years. And before we get into what is really one of the more amazing things of late, maybe we could touch briefly on just some of those, and I'll kind of lob them out to you. But I know, at one point, we talked about 3D printing of dietary supplements. And I think for people who aren't really familiar with 3D printing, that seems hard to comprehend that you could print something that then is ingested into the body. How does 3D printing of dietary supplements work?

Barry Schindler (05:38):

Yes, and Justin, it is actually another great area because one of a huge areas that's happening now is what's called personalized nutrition. And 3D printing fits into that category because if you think about from probiotics to prebiotics to being able to figure out that each person needs different things depending on both their microbiotics and so forth. So what 3D printing allows to be done is basically right now, if you want CoQ10, you go buy CoQ10.

(06:13):

If you want D3, you buy D3. If you want this type of herbal medicine, you buy that, and then you take each one. What 3D printing of personalized nutrition would allow you to do is essentially you would have a formulation based on your genetic microorganisms, your probiotics, your prebiotics. You would actually then have a printer at home that would then print a pill, or be it a powder, whatever type of form you want to orally administer it.

(06:49):

And it would print that out, and you would just basically take that. And so you've actually combined all of this, and for those who aren't familiar with 3D printing, it's gone to the point where you can have, for fairly inexpensive price, a 3D printer at home that will print anything from any type of form that you want. And that's really where we develop because that really is in the category of personalized nutrition,

which I know Justin, you've done a lot in the labeling area in that because that's a huge, huge area that we're going to see exploding in the next 10 years.

Justin Prochnow (07:25):

Well, actually, today, I was on the phone with a company who this would be a perfect combination with them. But they have a diagnostic kit, a DNA genetic kit, that is given to people, and then based on that kit, they're given recommendations on specific types of products. But sounds like they could easily take that same kit and based on the findings and the results from that, create a personalized dietary supplement specific to that person's genetic markers and what they determined to be the needs associated with that.

Barry Schindler (08:08):

And going the next step. And we all know when we talk about people who are not as young as you and I, it's always an issue of their pill box and being able to open the pill box and did they take it and so forth. And if you think about what you just explained, the ability to now [inaudible 00:08:29] the fact that we've now figured out what your nutritional profile should be and being able to now if you can do a 3D printing, you would then be able to know that your mother or father or aunt took this thing because it's all combined.

(08:45):

So it has tremendous applications in what happens. It's also applications, and there are many supplements and other things. Take, for example, probiotics where you are very concerned about will it be delivered to the right place in your body. 3D printing allows you to do that and being able to essentially do... We all familiar with enteric coating, the idea of being able to swallow something and then in the stomach be released, 3D printing would take that to the really steroid level.

Justin Prochnow (09:24):

Sure. I guess one of the questions for the 3D printing I would have would be how does that... how is that get controlled. Say someone wants to 3D print a drug. Well, I guess I don't even know enough about 3D printing. How do the actual nutrients get printed with a 3D printing machine? Is it something where you're loading the ingredients into there, or...

Barry Schindler (09:52):

Yeah, like you do with your HP or whatever Inkjet printer-

Justin Prochnow (09:57):

I see.

Barry Schindler (09:57):

... where you have seven different color cartridges, you would actually have... each cartridge would be... it may not just be vitamin D3, it may be D3 with two other things, and then it's combining with others. I think the first level that people think of 3D printing is your pharmacists would probably have that because then you could have all these different cartridges they could swap out so that would be the first place that you would get it. Then you would get home. That's how this would work because for those... [inaudible 00:10:27] 3D printing organs, hearts, and so forth.

Justin Prochnow (10:30):

Right.

Barry Schindler (10:31):

So it's all doable, and it's all doable, in the sense of these things that live when you 3D a heart, you can actually do so that your cells are still alive.

Justin Prochnow (10:44):

Amazing, amazing. One of the other ones that we've talked about was using drones to deal with crops, whether it's pesticides. Talk a little bit about using drones in the food industry.

Barry Schindler (10:59):

Yeah, so that is... This is again going back to my hobby. So I was one of these, I would say, 10 or 15 years ago, who said, "Drones are going to change everything." And so I have many drones with doing a lot of different things. And so you probably have the same thing, Justin. This is so fun when you can take your hobby and combine that with your profession. So what drones have allowed, specifically in the agriculture area, is to do what they call precision farming.

(11:32):

So in one area, what it's able to do is map the complete field and be able to determine how to irrigate it, how to use less insecticides, how to be precise in your agriculture. So drones are doing that. But the other part of the drones, and I know Justin, you love this one, is what's called a drone swamps.

(11:54):

So being able to take an apple tree and being able to now using AI as part of that, being able to use 50 drones around an apple tree and pick apples. So now, you're not harming anything, and you've programmed the... And it's happening now. It's not like this is future stuff where drones can be used as picking various types of fruits and vegetables.

Justin Prochnow (12:19):

You talked about combining your hobbies and what you're working with. That's why I like representing bourbon companies because it's a good combination of my love for bourbon and working. So as my wife says, "Less of certain types of products and more milk bar ice cream and bourbon clients because they always give good samples." Let's move to the subject that we were going to focus on today because, as we talked about before, we could probably talk for hours. People could do their whole marathon training just on a podcast about all of the innovations in the space. But let's talk about AI.

(13:06):

Obviously, AI has moved into all sorts of facets, including writing essays for high school, doing briefs for legal cases. There was a case recently discovered where two attorneys were called into court because they submitted a brief on a case and apparently they had used chatbots or some other form of AI to prepare the brief. And allegedly unbeknownst to them, the AI created cases. So they had all of this brief along with citations to cases. No one bothered to actually check on those cases. And it turned out that the AI created cases that would be really good in support of it, but they weren't actually real cases. So AI has obviously turned into everything.

(13:59):

I played some tennis with a friend of mine last week, and he beat me in a tiebreaker. And he had AI put together a 12 line poem that he plugged in, "Make it a nice poem, but at the end, include how I won in a tiebreaker," and a couple other things. And it was this great poem, and I'm like, "Oh, that's nice, but it'd be better in a song." And then he immediately returned it again in the form of a song. So obviously you can do everything here. We talked about on our most recent call, you brought up the first AI-created energy drink. And so, let's talk a little bit about AI in the food industry, and specifically this most recent creation of an energy drink.

Barry Schindler (14:50):

Yeah, I mean, Justin, thanks for this. And this is, again, one of these, I always say, have the greatest job in the world because I love all these tech geek things and AI I've been following for years and years. And for those who don't know, AI has been misused. So what has really happened and hit was ChatGPT, and what was ChatGPT? It's called NLP, which is Natural Language Processing. And so, AI has been around for many years, artificial intelligence. What has really hit the scene now, and Justin, you said it perfectly with the song, is Natural Language Processing. So the ability to be able to... You can query it with various things, and then it will write long essays or whatever you want. And us, in the patent world, are really struggling with that because, and I'm going to answer your question in a second, but it's really a bigger picture.

(15:43):

Because inventorship can only be a human being, and so I've been working with the USPTO on this issue of how do we still have inventors who are humans. And going to your beverage one. So one of the areas that AI is being used in the general area is being able to develop compounds, compositions. Pharmaceutical industry uses them to find a lead compound. You used to have to go to a bench chemist and spend months and months developing synthesizing compounds, and then you'd come out with the lead compound. AI can come out with the five lead compounds, and you try it. Well, this is what happened, as you say is happening in the food industry. This beverage, they basically prompted the AI with a person's what they wanted in a beverage, what kind of sweetness level, what kind of degree of acidity, what kind of nutritions, and they gave it basically all the inputs of, "This is what I would want in a drink."

(16:43):

And AI being trained on all of the ingredients, AI came out with a formulated beverage drink, which actually goes full circle back to what we were talking about precision nutrition and 3D printing. The next area, which is a huge area, is in beverage that you're going to have a beverage formulated for your taste through an AI because the AI... So the big issue about AI in training models, especially in the food area, is you have to train it on basically every ingredient known and what that ingredient does in a certain drink. What acidity level and so forth. So that is what's really very much we see in the food industries happening immediately is formulate. You're going to see products, launch products, are going to change so quickly. It used to take years. And Justin, I think you'll love this because you're going to have to do a lot of labeling.

(17:37):

They're going to be launching products on a monthly basis based on what AI now says this is what the industry... And it's going to be formulated for kids that are five to eight. What type of beverage do they like, eight to 13, what kind, and it may be based on whether it's a female or male and so forth. So you're going to have this tremendous upswing in the amount of products that are going to be offered, which again, you and I think will like that. I have the patent side, and you have essentially the labeling side of this.

Justin Prochnow (18:11):

So, of course, one of the first things that I said when you brought this up was, "Well, that all sounds great, but of course, it can't simulate whether someone likes the taste or not." And your response was, of course...

Barry Schindler (18:23):

Of course, they already... We've patented what's called a mechanical tongue, so it's actually a device. So again, for those who are not completely immersed in the food industry, companies have people who actually have specialized tasting, and they have a tongue ability so they can determine mouthfeel, acidity, and so forth, and they base it on their tongue.

(18:44):

Well, we now have and we've patented and [inaudible 00:18:47] what's called a mechanical tongue that can actually determine all of these mouthfeel and parameters based on essentially a robot. So you don't need a human being saying, "Ah, I think I like it. It has a scale of one to five." This gives you a quantitative measurement. So as we talked about, we can actually be more efficient in developing food drinks because of the mechanical tongue.

Justin Prochnow (19:12):

[inaudible 00:19:12] right now, Will Smith's character in I, Robot is saying, "I told you so. I told you this is what's going to happen." An interesting part of this whole energy drink, which I believe was developed in Hungary, and I don't know if this was an AI-generated name or not, but the name of the product is HELL.

(19:32):

And I will leave that up to people as to whether that was the appropriate name for this AI product, whether that was the name the AI-generated for it, I don't know, but it's an interesting thing. How do you think industry is going to receive this? Do you think industry views that as good, or do you think industry views that as, "Uh-oh, a lot of our jobs are disappearing?"

Barry Schindler (20:00):

I think taking it one step further, Justin, is Coca-Cola makes money because they get to sell Coca-Cola, and the more they can have one brand with one flavor out there, the more money they make. Every time they have to switch over to Coke with cherry or so forth, that's a switchover.

(20:22):

So for the manufacturer, that's real problematic. The more you go to the assortment of what personal preferences are. We've always sold growing up on one flavor, and that's all we had. And it's no different than the fact that we now can choose Netflix, Amazon. We have 7,000 stations. I tell all my kids, "I only had CBS, NBC, and ABC, and that was it." That was life.

Justin Prochnow (20:52):

While walking up hill both ways on the way to school, right.

Barry Schindler (20:58):

So that's on the one side. On the other side, so I always look at AI, and I'm one of these that very positive [inaudible 00:21:05] AI, that AI is going to increase our level of what we believe is a standard

level of what is acceptable. And Justin, you and I talked about it because another area that AI is being used is in food safety.

(21:20):

And what used to be an acceptable practice in food industry, whatever that would be because you're now going to have AI and the ability to measure things is going to be a different level of food safety, which is just going to help us because you're going to have more safer products assuming you're using AI. So I like to believe AI is going to make things better, not necessarily replace things.

Justin Prochnow (21:46):

And we're already... As you said, I mean, there's already a clear indication that people like that choice because you look at some of the pizza places and movie theaters where they have this machine, and I think most [inaudible 00:22:01] it's Coca Cola where they've got the different brands and then you've got 10 different flavors that you can add to it.

(22:07):

You can add raspberry or vanilla or cherry. I mean, that's indicative of what you're talking about, that you don't just get the one choice there anymore. You can have a hundred different choices just by the way they have it set up in that machine.

Barry Schindler (22:22):

Absolutely. Great analogy. I mean, I think we go back to the Netflix or the 7,000 channels. We go back to streaming. The fact that I would buy one album and listen to it over and over again, now you have a choice of 10 million songs or whatever the number is. I think the consumer expects choices. And so, the more food industry can do this, like all other industries, I think, the better the product will be and the more... At the end of the day, the more, let's say, volume of something being sold.

Justin Prochnow (23:00):

Mm-hmm. It is very interesting. I work with a lot of the flavor houses and beverage formulators. I'm going out to Louisville in a couple of weeks to meet with one of them, and they sit there and obviously go through all of the different choices with the company, and they go through the tasting and the testing of all of it.

(23:20):

And this obviously, once it gets going, seems like a big shortcut to a lot of that in terms of not having to do all of that background but getting right to, "Here are some of the options based on the things that you want" and it's gone through and developed these. And now we've got the finished product that you can try without having to go through some of those initial steps. It seems like it will... As you said, one of the big things will be it will really quicken the process on getting a product to market.

Barry Schindler (23:51):

Yeah. And going back to Justin, you were talking about alcohol, one of your favorite topics, you think of how the microbreweries took off. I mean, people, before, we only had a choice of three beers. Now microbreweries do so well because they offer 14, 20, 30 different flavors, and the consumer wants that. So I think going back to how AI is going to help in formulation. And this idea of personalized nutrition, all of that is really feeding into what we've seen the consumer wants.

Justin Prochnow (24:25):

Well, I also found it interesting that this one was, this particular product was developed in Hungary, which indicates it's not just for those of us here in the US who think, "Oh, everything is being done here in the US." I mean, these to types of innovations are happening all around the world. I know that you have worked with a lot of companies in Israel, and we have an office in Tel Aviv, and there's been a substantial amount of studying and new food innovations coming out of Israel, especially in the area of cultivated meat and culture meat.

(25:05):

I did a podcast two weeks ago talking about alternative protein sources, and one of those areas that's really been looked at a lot is the cell-cultivated meat area. In fact, I think either you or some of our other team were out there for the big expo that happens in November every year, a FoodTech conference in Israel. What's been your experience with some of the innovations in Israel?

Barry Schindler (25:33):

Yeah, I mean that's a... Justin, I'm very tied into the Israel food tech ecosystem. I spend a lot of time there, like you said. I was there in November. They have two days, one's called FoodTech, and the next day is called AgriVest, and they do that every year. And they are one of the... Like other industries, Israel and FoodTech has really taken off. And you said the alternative protein area is a huge area that Israel's developing state-of-the-art alternative proteins.

(26:06):

So I mean that's one area that I represent a number of companies. It's a very heavily patenting area because, like you said, you can patent the cell lines. You can patent the manufacturing of it. So it's very heavily protected through patents. The other area that Israel, in addition to vertical farming, and we all know drip irrigation came from Israel. But the other area that we haven't talked about but is a huge area is edible insects.

(26:38):

Israel is on the forefront of edible insects. And for those who don't know, it's basically insects are one of the greatest alternative protein sources. And look, most people don't want to eat a cricket, and you can freeze dry a cricket and eat a cricket, but you can then grind up a cricket, make it into flour, and then use it the same way as an alternative protein source. And it's going to become more and more of an alternative protein source, both because it's easy to grow. The insects, as you know, have a very short life cycle. And Israel has really been pioneering in what's called the edible insect area.

Justin Prochnow (27:20):

So insect's not just a event on a Joe Rogan game show, but actually now something that people will be [inaudible 00:27:31]. Of course, you hear about the chocolate-covered grasshoppers or chocolate-covered crickets, as you said. But yeah. Sometimes, we have clients who unintentionally include some insect parts in there. For those who don't know, a lot of crops and things, there is actually a small amount of allowable insect parts in many crops, peppers, things like that when they're imported into the US.

(27:59):

But this is more of a intentional insect add. And I think, again, as people continue to look for alternative sources of protein, whether it's we've worked on some really interesting projects, whether it's shrimp made out of algae to look and taste just like shrimp. There's a lot of fish products that are made from different sources, of course, the meat products, and just continues to be a really interesting field.

Barry Schindler (28:34):

And you mentioned microalgae is the other area that Israel is very much pioneering, and that is another rich source of nutrients. You can use them both for produce food to produce feed and for biofuel fuels. But feed is the other part that people, even if we are going to continue the route of chickens and beef and so forth, feed is an important thing to be able to do. And microalgae is one of the things they're looking at as a great alternative as a feed source for cattle and for chickens.

Justin Prochnow (29:06):

All very interesting. Barry, we could talk about this for hours and hours. I really appreciate you jumping on today. I find this as fascinating some of these changes and the way the industry is going. So it's great to have an expert on, like you, to give us some guidance and insights into these. So thank you very much for joining us today.

Barry Schindler (29:29):

Yeah, and thank you, Justin. And again, just to reach out everyone, we do a lot of work in startups. And as you say, we have some amazing expertise in the food area, from labeling to, like I said, for me, IP protection, that we really are, I believe, one of the premier firms with regard to the ability to provide food clients with the right expertise.

Justin Prochnow (29:55):

Well, thanks again, Barry. Hopefully, everyone enjoyed this. If you did, please like it or otherwise note it on your platform. Thanks very much. Please check in on the other Greenberg Traurig's Legal Food Talks. So again, we have some interesting discussions about immunity claims, about sports drinks, and from other industry people. So thanks for listening in, and we'll talk to you next time on Legal Food Talk.