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Michael Holtz:

Wow.

Jingfan Chen:

Yeah. Almost half of the anti-cancer drug failed to reach the market because of the solubility issues. So that was the first time that I realized, oh, something that I did in the lab doesn't just stay in the lab. It can just walk out of the academic institutions and help other people to relieve their pains and stuff like that. So, yeah, that made me feel everything I did was valuable.

Speaker 2:

This is the ORISE Featurecast. Join host Michael Holtz for conversations with ORISE experts on STEM workforce development, scientific and technical reviews, and the evaluation of radiation exposure and environmental contamination. You'll also hear from ORISE research program participants and their mentors as they talk about their experiences and how they are helping shape the future of science. Welcome to the ORISE Featurecast.

Michael Holtz:

Welcome to the ORISE Featurecast. As ever, it is me, your host, Michael Holtz in the communications and marketing department at the Oak Ridge Institute for Science and Education. And as I love to do, and as we do very often on this show, I get to talk to one of our ORISE research program participants. Today's guest is an award-winning ORISE research participation program participant. I'm speaking with Jingfan Chen, who is a 2024 ORISE Postdoc Poster Session Showcase winner. Try saying that three times fast. Jingfan, welcome to the ORISE Featurecast. I am so glad you're here.

Jingfan Chen:

Thank you, Michael. Thank you for having me. I'm just so excited to be here.

Michael Holtz:

Well, I am, first of all, excited to have you and wanted to say congratulations on your poster session showcase win. I know that it's a bit of a prestigious award to win one of those poster session showcase awards. So if you would, just ... How does it feel to be a winner and tell me a little bit about your poster, if you don't mind?

Jingfan Chen:

Yeah, sure. So it was truly an honor. I just feel very lucky to be selected as the winner, because when I was working in the lab, it was just like me and the lab work. I don't know the impact of the research. So this poster session gave me the opportunity to present myself in front of the public, and actually made me realize that my research can be recognized. So that's a big motivation.

Michael Holtz:

Awesome.

Jingfan Chen:

Yeah. So when it comes to my research, my research was focused on semaglutide. I'm not sure if you have heard of it before.

Michael Holtz:

Oh, sure.

Jingfan Chen:

Yeah, it's the active ingredients for Ozempic and Wegovy.

Michael Holtz:

Yeah.

Jingfan Chen:

Yeah. I believe they're the most popular weight loss drug now. A lot of Hollywood stars use them to lose weight successfully.

Michael Holtz:

Right.

Jingfan Chen:

Yeah. I think that's how these two drugs are bring to the public eyes. And so, the problem is that semaglutide has been in high demand. So it just appeared on the drug shortage list on the FDA, and in such case, FDA just allowed small drug compounders to produce this medications other than the large pharmaceutical companies. But the problem is this raised a lot of concerns about the quality or the safety of these formulations. So we found that these formulations contain some FDA-unapproved ingredients, which lead to nausea and vomiting in the patients. So what I did was to develop a rapid method to screen the unapproved ingredients in these formulations.

Michael Holtz:

Okay. So really important, especially these days, given the prevalence of the use of semaglutides and how easy they are to get from compounding pharmacies.

Jingfan Chen:

Yeah. A lot of people are using it. So there are a lot of adverse reports reported to the FDA. So that caught the attention of the FDA, and we just want to address this problem as well.

Michael Holtz:

Absolutely. So, Jingfan, where were you doing your research? Which agency?

Jingfan Chen:

Yeah. So my research opportunity was based in St. Louis, the FDA Center for Drug Evaluation and Research.

Michael Holtz:

Okay. You've completed your research opportunity, I take it?

Jingfan Chen:

Yes, sort of. Currently, I'm taking a break, so ...

Michael Holtz:

I gotcha. Okay.

Jingfan Chen:

Yeah.

Michael Holtz:

So when did you become interested in science? Has that always been an interest of yours, or was it something that grew on you over time?

Jingfan Chen:

Yeah. So I became interested in science when I was a little girl, because my parents are in this field. So their work and their dedications naturally inspired me to do this. So that something that happened when I was little. As I grew older, I think I gained a lot of interest in chemistry and pharmacy and also health.

Michael Holtz:

Okay.

Jingfan Chen:

Yeah. They're not like math, which is completely theoretical. It's a combination of theory and experiments, which allow me to explore more about the world myself. I found that really interesting. I think that's what really got me to science.

Michael Holtz:

Awesome. Sounds like it can really make a difference in the lives of people, the public at large, but also individuals and their specific health issues.

Jingfan Chen:

Yes, yes. There are a lot of health issues there. I remember when I was doing my PhD program, we developed drug excipients that improved the drug solubility by 10,000ths of times.

Michael Holtz:

Wow.

Jingfan Chen:

Yeah. Almost like half of the anti-cancer drug failed to reach the market because of the solubility issues. So that was the first time that I realized, oh, something that I did in the lab doesn't just stay in the lab. It can just walk out of the academic institutions and help other people to relieve their pains and stuff like that. So, yeah, that made me feel everything I did was valuable.

Michael Holtz:

Well, talking about cancer drugs is a little bit, personally, important to me because I'm a cancer survivor. So understanding that solubility is an issue and scalability is an issue and all of those things, getting drugs to market is not a quick process.

Jingfan Chen:

Exactly. Exactly.

Michael Holtz:

Right?

Jingfan Chen:

Yeah. That was a very slow process. A lot of anti-cancer drug candidates just fail at the beginning because of the solubility issue. So a lot of patients just lose the opportunity to save their lives because [inaudible 00:07:27].

Michael Holtz:

Right. And they're expensive. It's expensive to do that research as well, right?

Jingfan Chen:

Yeah, exactly. It requires a lot of fundings. So, yeah, not to mention the time you have to invest in it and also the efforts. Yeah. It's a combination of a lot of factors to actually get it produced.

Michael Holtz:

Yeah. There is a lot going on to get drugs to market, for sure.

Jingfan Chen:

Yeah, exactly.

Michael Holtz:

What has the trajectory of your career looked like, Jingfan? Where did you go to school? You talked about your PhD program. Where did you do your undergrad, your grad program, and PhD program as well?

Jingfan Chen:

Yeah. So I did my bachelor degree and also a PhD degree from Purdue, Purdue University. I got a major in food science, food chemistry actually. Then I worked in industry for a couple years. Then I want to border my horizon, and so I joined FDA through this ORISE opportunity.

Michael Holtz:

Okay. Awesome. What was it about the FDA that you thought, "I want to take a look at working for the FDA or doing research for the FDA," and taking that opportunity?

Jingfan Chen:

So, first of all, I feel that I need to improve my career, or I just want to work in a larger platform so that I can see how the food or pharmaceutical industry work from higher perspective. So I think that FDA would be a great opportunity for me.

Michael Holtz:

Sure.

Jingfan Chen:

Secondly was that I knew my mentor from a church activity. So we just get to know each other and she told me, "Oh, there's opportunity here." So naturally I just joined them like that, [inaudible 00:09:27].

Michael Holtz:

Gotcha. You were ... Gravitated toward it.

Jingfan Chen:

Yeah.

Michael Holtz:

I love it. Well, tell me about your mentor, since you took the leap based on that relationship.

Jingfan Chen:

Yeah. My mentor is Dr. Qing Xu. She's a chemist in FDA. She's been incredibly supportive. She just brought her expertise into this journey, which helped me survive in this environment. She just helped me strengthen my research skillsets and also got me through many difficult technical challenges. So that was impressive.

So whenever there was a problem, and without straight answer, she just encouraged me to think on my own and find the root cause. She gave me all the resource and time that I need to fix the issue or come up with ideas and see if they worked out. Then she helped me analyze what went wrong, like my logic went wrong, or how I approach this problem the wrong way. I think this type of support really helped me grow in this field and make me feel confident in that environment.

Michael Holtz:

Sure.

Jingfan Chen:

Also, she was just very easy to communicate with, very efficient in moving the project forward. So we have an idea in the morning, and then we got preliminary data in the afternoon. So it's super, super productive. Yeah, her mentorship has been a key part of my growth during this training, so I really appreciate that.

Michael Holtz:

Awesome. Have you had the opportunity to mentor other folks yourself?

Jingfan Chen:

Not formally.

Michael Holtz:

Okay, okay.

Jingfan Chen:

But I had the opportunity to collaborate with other colleagues and share the protocols that I've developed with them. And so, that process helped me learn from each other because all of them are experts in their own fields. The collaboration helped me just getting to know each other better and grow myself a lot more.

Michael Holtz:

Awesome. Science is one of those things where you don't ... Collaboration is really part of the process. You don't make discoveries on your own. So collaboration makes a big difference.

Jingfan Chen:

Yeah, exactly. So everything you do right now is actually based on something that other people have already accomplished. So, yeah, definitely collaborations and the learning from others have been a key part of this research.

Michael Holtz:

Excellent. Very important part of ... People understanding that everybody works together in moving things forward in science and our understanding of how things work, as you were talking about your research or the problems that could exist and could be detrimental from a side effects perspective, et cetera. Jingfan, have you faced any barriers to getting to where you are today?

Jingfan Chen:

Too many to talk about, actually.

Michael Holtz:

That's fair. That's fair.

Jingfan Chen:

Yeah. I'll just say one that's related to the poster session the most, which is in the earlier stage, I had a huge stage fright.

Michael Holtz:

Oh.

Jingfan Chen:

I got extremely nervous when I speak in public. You have no idea how nervous I could get. The audience feel more awkward than me. So that was kind of like embarrassing experience. But the tricky part is that I had to pass defense to graduate.

Michael Holtz:

Sure.

Jingfan Chen:

Yeah. So I had to design a small program or a training program for me to get over that problem. I remember in one year, I pushed myself to join three to four different international meetings, and I present multiple presentations on each of these meetings just to get over the fearness. That helped me a lot. That helped me just gradually gain more confidence when I talk in public and helped me train myself to communicate in a public environment. I think I'm still benefiting from that training right now. I think that's how I got into this poster session and got the award.

Michael Holtz:

That's-

Jingfan Chen:

So that was a huge barrier for me.

Michael Holtz:

Well, I can understand that. I mean presenting is not easy, especially if it's an audience that you're not familiar with, that sort of thing. But I love that you put a plan together. You took one bite at a time and just kept presenting and presenting to help yourself get more comfortable.

Jingfan Chen:

Yeah, yeah. Just doing the thing that you hate over and over again, and you start to like it. I mean that's my experience.

Michael Holtz:

Face your fear head on, right?

Jingfan Chen:

Yeah. Yeah, exactly.

Michael Holtz:

How about on the other side of that coin? What about a particular success that you've had? I mean obviously the poster session win is one, but is there another major success that you are proud of?

Jingfan Chen:

I don't consider myself had any successful story, actually. But, yeah, a lot of barriers and difficulties for me to overcome. I can take one example, which was during my early PhD program. I was working on a ... For me, that was a challenging research project at the time, which is called Delivery of Neutral Pseudocores. The problem itself was not complicated, but since I was a freshman, I had no idea of how to research at all, and the methodology was not established at all. So I start everything from zero.

I spent many, many hours just replicating the same experiments over and over again to troubleshoot the errors. My information about this research is limited. So I had to read tons of papers to just learn from other people's methodologies and how they discuss the results and et cetera. I remember I even attended many different seminars and I asked the experts of how they'll solve this problem if they're in my shoes. But the good part was that the project just came out and the results were ... I present the results at another international meeting, and I won the Best Student Research Award.

So, yeah, that experience was still inspiring me to continue, because I went from someone that felt anxious, hopeless I would say, and uncertain at the beginning to someone that can actually lead the project and talk about what I did in front of everybody. I felt really proud.

Michael Holtz:

And you were winning awards for that, [inaudible 00:16:33].

Jingfan Chen:

Yeah, exactly. Yeah. I felt really proud for what I did. So it taught me how to be persistent in this field and learn from my own failure. Yeah.

Michael Holtz:

For sure. I guess on that note, what would you tell someone who is following in your footsteps? I mean it sounds obvious to say face your fears head on and do the thing that scares you the most, but it sounds like that's definitely in your wheelhouse.

Jingfan Chen:

Yeah. I would say that the most important thing is determination. You've got to put your head back on the streets and know what you're doing, and just make sure ... I wouldn't say make sure. Just determine and tell yourself that what you're doing is the correct thing to do.

Second thing is being resilient. You face challenges every single day. Well, you can give yourself a little bit of time to digest the emotions, but the most important thing is to take action. You can come up with a plan and take a little step at a time, even it's just tiny little step, as long as you're moving things forward, instead of sitting at where you are right now and looking back. I think as long as you're moving forward, that would be really helpful for you to continue doing what you are doing right now.

Michael Holtz:

Awesome. I love it. So determination and resilience. Two very important life skills and-

Jingfan Chen:

Exactly.

Michael Holtz:

... things to keep in your back pocket at all times. Jingfan, last question for you. What brings you joy?

Jingfan Chen:

What brings me joy? That's a good question. I think as long as I do something that can solve the real world problem, that's what actually brought me joy, or you can say the sense of achievements overall.

Michael Holtz:

Okay.

Jingfan Chen:

Yeah, because it could be anything. It could be developing a new product, solving a technical issue.

Michael Holtz:

Right.

Jingfan Chen:

Yeah. Just the moment that everything clicks gives me the pride and the joy. When you see the results turn into something you can touch and tangible, I think that's what motivate me to continue my research or my job.

Michael Holtz:

Awesome.

Jingfan Chen:

Additionally, knowing that my work can actually make a positive impact on public health or just help people live and eat makes me feel that everything I did just worth it and rewarding, even though the positive impact is like minimum or very small. That's enough for me to feel that I'm valuable, everything I did was worth it.

Michael Holtz:

Someone is being helped.

Jingfan Chen:

Yes, yes.

Michael Holtz:

I love it.

Jingfan Chen:

Even just one. Yeah.

Michael Holtz:

Yeah, right. I love it. Well, Jingfan Chen, thank you so much for spending this little bit of time with me and letting me get to know more about your research and your background and a little bit about who you are. I hope that at some point in the future, we can get together again and talk about what you've achieved at some date in the future.

Jingfan Chen:

Thank you, Michael. Thank you for having me and spending time with me. Thank you, Noah. I know the mic was not turned on all the time, but I appreciate for your work in helping us recording this session.

Michael Holtz:

Noah is good, people. So I'm glad to have him on my team.

Jingfan Chen:

Yeah, I'm sure.

Michael Holtz:

All right. Thank you so much. Have a great rest of your day.

Jingfan Chen:

Yeah, you too. Thank you so much.

Michael Holtz:

Great.

Speaker 2:

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