

GDB Practicum Pods Transcription

July 2023

Episode 18: Melanie Gallegos-Campos

[INTRO]

Emily Jajeh 0:06

Hello everyone, welcome to the global disease biology practicum pods. In this podcast series we will be talking about practicum projects with current and former gdb students. All students in the major are required to complete a practicum project before graduation. This project involves students finding a faculty mentor, conducting research under the mentors guidance, and turning their research experiences into a publishable scientific manuscript. Tune into the practicum pods to learn more about research, mentors, and the GDB practicum experience.

[TRANSITION]

Emily Jajeh 0:39

Welcome to the pod. I'm your host, Emily. I'm a GDB peer advisor, I use she/her pronouns, and today I'm joined on the show but the lovely, Melanie. Melanie, would you like to introduce yourself, your pronouns, and your practicum title?

Melanie Gallegos-Campos 0:52

Hi, my name is Melanie, I use she/her pronouns. I'm an alumni and my practicum title is "Study on the Establishment of Bifidobacterium breve SC95 in the Presence in 2'-fucosyllactose Using Stepwise Fecal Fermentations"

Emily Jajeh 1:09

Hi, Melanie, how are you? It's great to have you on the pod today.

Melanie Gallegos-Campos 1:13

Thank you. I'm doing well, how are you?

Emily Jajeh 1:16

Good. So do you want to start off by telling us a little bit more about what your topic of your practicum project is? And why this topic interests you?

Melanie Gallegos-Campos 1:24

Yeah, of course. So, my research focused on Bifidobacterium. It's a microbe found in the infant gut microbiome. And so that's really what got me interested in the topic in the first place was learning about the gut microbiome, how it influences, you know, the immune system, the gut brain axis, all of that I found was really interesting from my upper division classes. And so in this specific project, I looked at the Bifidobacterium, and they play an important role in metabolizing

human milk oligosaccharides. So the, you know, carbs and sugars and human breast milk. And so in this project, we looked at 2'-fucosyllactose, which is one of the one of the human milk oligosaccharides found in breast milk. And we have studied how, how Bifidobacterium species and specifically breve SC95 would establish over time in adult fecal samples, depending on if there was 2'-fucosyllactose present or not?

Emily Jajeh 2:38

Wow, that's really interesting. What kind of upper division classes kind of made you more interested in this topic?

Melanie Gallegos-Campos 2:45

I took one class on the microbiome, and it kind of gave me introduction into the type of research that I was going to be doing and the type of data I was going to be analyzing. But I didn't know it at the time. It was just a very like, introductory level class. And then I also took other microbiology classes and virology classes. So I, I kind of became really interested in viruses and bacteria, and the role they play in our body and in our health.

Emily Jajeh 3:15

Wow, that's really cool. What led you to choose this topic for your practicum project? Was your practicum mentor already working on something similar? Or what- did you come to them with this idea? How did you work together to create this project?

Melanie Gallegos-Campos 3:30

So I actually reached out to my practicum mentor first, it wasn't a an idea that I came up with on my own. I was just interested in the work that Mills lab was doing with the food science and tech department. And they were doing a lot of work with infant gut microbiome and Bifidobacteria specifically. And so I wanted to learn more and get involved. And that's how I kind of learned about this project. But I was working in the lab for about two quarters. Yeah, two quarters- a summer and then like two quarters before I actually started this research project. So I was there, working there learning more about the types of projects that they did, that with the postdoc that I was working with, Dr. Saumya. She was working on this project, and that's kind of how I got on board.

Emily Jajeh 4:25

Oh, cool. What was your favorite part of the research project?

Melanie Gallegos-Campos 4:32

Oh, that's a really good question. I think my favorite part of the research project was, I would say maybe writing the report.

Emily Jajeh 4:47

Oh, really?

Melanie Gallegos-Campos 4:48

Yeah, I feel like reading the report really helped me see the bigger picture because it's lab research, and so, you know, when you're carrying out an experiment you're doing kind of the same procedures everyday collecting all your data. And I feel like when you're so focused on, you know, those like smaller steps or what you're doing, it's really nice to at the end be able to connect it back to like the bigger picture, and the impact that this research can have on a larger scale. And if it's further studied, the impact it can have and like, how can it can expand what we know about the infant gut microbiome, and the bifidobacteria, because they're so beneficial to gut health. So I think my favorite part was kind of wrapping it all together nicely in my, my report.

Emily Jajeh 5:38

That makes a lot of sense. Was there a lot that you learned or had a different perspective on during the report writing process?

Melanie Gallegos-Campos 5:46

Yeah, I definitely did, because I had never written, you know, like a scientific report, like manuscript at this level before. I actually, in other classes have done literature reviews, or I guess what would- not necessarily a meta analysis, but you know, kind of looking at different research studies and, you know, compiling information. But this was very different because it was, especially based on the research that I had done in lab and the data that I had collected, and what I have discovered through analyzing it. And so it was a very different style of writing than what I was used to. So I learned a lot in the process about what that looks like, you know, doing all the work in lab and then getting it all on paper and explaining it in a way that's easy to understand and straightforward.

Emily Jajeh 6:34

Mhm. Did you learn a lot of new skills when you were researching in the lab with your-

Melanie Gallegos-Campos 6:40

Postdoc? Yes, I definitely did. Because I, I tra- I'm a transfer student. So when I started at Davis, my lab skills were a little bit limited, because previous to that my classes had been online, because of the pandemic. So when I had taken, you know, microbiology classes at Community College, all my labs were online simulations, which you kind of learn the procedure of things, but not the actual- you don't you don't get the hands on practice. So when I came on, well, when I reached out to join this lab, you know, I was really nervous and hesitant. And any students that might feel that way, because I know, I felt like oh, I don't want to apply to any labs. And still, I feel like I've gotten skills. But I would encourage anyone, even if you don't have all of the skills or all of the qualifications, you should still try. And sometimes even just being enthusiastic and really interested in the research, even if you're lacking on some skills, people are willing to train you. And so that was my experience when I joined Mills lab, you know, I, you know, they asked me, Do you know how to do, you know, dielectric research? Do you know how to do gram staining? Do you know how to do XY and Z?

Emily Jajeh 7:58

Oh my gosh

Melanie Gallegos-Campos 7:59

I hadn't done that, like in high school, but I don't really remember those skills. I haven't done them in years, or, you know, No, I never learned that I only read about it in class, but I never got to do it in a physical lab, because it was all online simulations. And they were very understanding. And it wasn't really a concern, because they said, that's fine, we'll train you. And that's exactly what happened. And I did a couple months of training, I got lots of practice. And you know, by the end of it, it was, it was like, it came very easily to me to carry everything out, I didn't really have to think about it. And so I definitely learned a lot and I grew a lot in my lab skills and, you know, enhancing what little skills I might have already had, but especially applying what I had learned in class and actually getting to do it myself.

Emily Jajeh 8:44

That's really awesome that they taught you everything and that it really was not as nerve racking of an experience as it could have been.

Melanie Gallegos-Campos 8:51

Yeah, they were very welcoming and very patient with me, which I'm very grateful for.

Emily Jajeh 8:56

That's really wonderful. So most of your research then was in person, yeah?

Melanie Gallegos-Campos 9:01

Yes.

Emily Jajeh 9:03

And then, what kind of a lab were you working in? What was the lab environment? Like? Was that where you conducted most of your research? Or was there- were there other components to your project?

Melanie Gallegos-Campos 9:14

All of the research was done in the lab, just we were doing fecal fermentations and, you know, different stool samples. So the samples from previous projects that they had worked on and that's what we use, and you know, we or- I grew the bifidobacteria there in lab and you know, we did then isolations and all of that. And so everything was in person the only thing that you know, I kind of worked on sometimes outside of lab was analyzing the data once it was all collected, and you know, making graphs and things like that, but the bulk of collecting data and the actual experiment work was all you know, lab...

Emily Jajeh 9:58

Was the project mostly- was there like an even split between the collection of data and the data analyzing portion? Or was it a little bit more of an uneven split? Like what did you spend most of your time doing?

Melanie Gallegos-Campos 10:12

I definitely spent most of my time collecting data, because you had, ah, five different adult fecal samples that we had to test. And we did test with, you know, for total Bifidobacterium species, and then just be breva SC95. And then we did it in the presence of 2'-fucosyllactose and ones that didn't have 2'-fucosyllactose. And then we also had fermentation media, since it was, you know, a stepwise fecal fermentation. So, we have a lot of tests tubes, and a lot of, you know, it was a lot of data collection, I think that was the bulk of it, which took, you know, it was over the course of several days, especially with a fermentation, you know, you collect data, several hours, 24 hours, you know, until 96 hours. So that was the bulk of it, the data analysis after that came pretty easily, especially when you're using software like Excel, that kind of makes it a little bit more streamlined.

Emily Jajeh 11:16

Was there anything about the data analysis part that you learned during this project, or any skills that you think were really useful that you had already or that you acquired while you were doing the project?

Melanie Gallegos-Campos 11:28

I think it was useful that I was really familiar with Excel. But I had never had to analyze data like this. And so I created these graphs, that was very different for me. And it did take, it was a little bit of a learning curve, but it well, you know once you catch on, I feel like it's pretty easy after that. So you know, after the first one, I you know, I tried it a couple times made sure that everything was going out correctly. And the postdoc that I was working with Dr. Saumya, she, she would also analyze, like a set of data, and then I would analyze it and see that we got the same thing to see that I was doing it right. And, you know, I think it also really helps when you have a mentor that's there for you every step of the way and answers any questions. So overall, it wasn't too challenging. But that was something new that I had to learn how

Emily Jajeh 12:26

Was your mentor really hands on with you? How was your relationship like with them?

Melanie Gallegos-Campos 12:32

So my, I guess, official practicum mentor is Dr. Dave Mills. And he's the PI for the lab. But I was working directly with Dr. Saumya, who's a postdoc, postdoc in the lab. And that's who I, you know, kind of carried out this project with, but under his guidance, as well. I met more frequently, well, I met every time that I was in the lab with Dr. Saumya, the postdoc. So that's who I was with most directly. But Dr. Dave would still check in with us very frequently to see how everything was going, to give any suggestions, provide guidance. And so he was also very involved.

Emily Jajeh 13:16

Oh cool. So, what was your favorite part of the GDB practicum experience?

Melanie Gallegos-Campos 13:26

Oh, my favorite part. I think my favorite part of the entire experience was getting the opportunity to do, one, to pursue my interests, and to learn more about them. And just to gain new skills, because especially as a transfer student, you know, I had less time to find research opportunities or internship opportunities. And so I was really grateful that within my major, you know, the practicum is a requirement. And so that kind of facilitated me getting research opportunities, especially when, you know, you have to take classes like GDB 90, or um, GDB 180- is that 187 before you start?

Emily Jajeh 14:18

Yeah.

Melanie Gallegos-Campos 14:19

So that was really, really helpful. And then even the the first year session class that the GDB advisors do for you, You N' Research, all of that was really helpful to me and kind of helped me understand what it's like to reach out to mentors, you know, when you're emailing, what you should say, and how to find research that you're interested in. All of that made it very easy. And, you know, I found my- I was very lucky that I found my practical mentor. I shipped within a few days of when I started first, you know, reaching out to professors that I wanted to work with.

Emily Jajeh 14:56

Oh, wow.

Melanie Gallegos-Campos 14:57

Yeah. So I got very lucky in that sense, and I I love the lab that I was in. And, you know, I met so many great people and great mentors who mentored me, not just in regards to my research project, but also you know, my goals, my career goals, they were very encouraging, supportive. And I feel like overall, it was just a great experience to connect with other people, learn something new, you know, pursue my interest and gain these new skills and insight into what it's like to do research.

Emily Jajeh 15:25

Yeah. What are your career goals?

Melanie Gallegos-Campos 15:29

So, my plan is to apply to medical school to become a doctor. So right now, my next steps are studying for the MCAT and preparing for applications. And hopefully all goes well.

Emily Jajeh 15:44

Well, good luck. That's awesome.

Melanie Gallegos-Campos 15:46

Thank you

Emily Jajeh 15:46

Do you know, what- do you know what like department you might want to go into? Have you thought about that yet?

Melanie Gallegos-Campos 15:52

Yeah, I've thought about it, and I, I'm very interested in, you know, obstetrics and gynecology, but also general medicine, but also family medicine. And so I am still trying to, I think in medical school is when I'll figure it out if I prefer, you know, clinic work or hospital work, and I'll kind of get to see what's what specialty I'm most interested in and really passionate about.

Emily Jajeh 16:20

Yeah. So you are in Mexico right now. Correct?

Melanie Gallegos-Campos 16:25

Yes, I'm in Mexico for a study abroad program.

Emily Jajeh 16:28

Oh, that's awesome. Do you want to talk a little bit about how your experience has been so far? And how I don't know if you're taking classes that relate to GDB, but do you want to share like your process, and yeah, what you're doing?

Melanie Gallegos-Campos 16:42

Yeah, so I applied through the UC Davis study abroad programs. So I'm doing a quarter abroad. So I got here in September, and I'm leaving in December. And I am taking classes. It's focused on, Chicana/Chicano studies. So all the classes I'm taking are within that department, but related to health. So it's also a health internship. So, so far, I've been learning about, you know, traditional healing and alternative medicine practices here. As well as just the culture specifically, I'm in Oaxaca. And it has one of the largest populations of indigenous groups and has a lot of diversity. So it's been really cool to learn about, you know, those practices for health, and how here, you know, the health system kind of incorporates those practices with Western medicine. And I think that's really cool. And I've also been doing rotations in different, you know, health centers, clinics and hospitals, and kind of seeing and comparing the health system here with the one in the US, you know, the diseases that are coming here compared to the ones we see in the US. And it's been really cool. It's been a really good experience, and I'm having a lot of fun.

Emily Jajeh 17:57

Oh, that's awesome. Has your experience influenced how you want to shape your career as a doctor?

Melanie Gallegos-Campos 18:04

Yeah, definitely. I, so I'm, my dad is from Mexico, and my mom's from El Salvador, so I'm latina and also, you know, first generation American and first generation student. And I'm really passionate for in the future, my work as a doctor, in providing care that's both in English and in Spanish, and especially providing care for communities that are disadvantaged, you know, like

the undocumented communities that I grew up in, and, you know, the immigrant communities that I grew up in. And so being here, and learning about the health system here, and how it also affects, you know, trends when people move from Mexico to the US or to other countries, that's been really interesting to learn about, and also the health beliefs, you know, that, you know, my parents would tell me at home, you know, our home remedies and things like that, you know, traditional healing practices, that I didn't realize had roots in, you know, like, in Mexican culture and indigenous culture. And so it's really, neat to learn about that. And I think in the future, as a doctor, you know, it's something, especially in the US, that it's such a diverse country, you meet people from so many different backgrounds and cultures and beliefs. And as a doctor, you're treating those patients. You know, it's something that I want to make sure that even though I have my knowledge through like Western medicine, that I'm being respectful of other, you know, health perspectives and other health beliefs and kind of incorporating all of that so that my patients feel secure and they feel comfortable, and they feel empowered. So it definitely has been a really beautiful experience and very motivating and has shaped kind of, you know what I see myself doing in the future

Emily Jajeh 20:00

Wow, how cool. Why did you- what drove you to choose to study abroad? Was it- how would you describe your experience studying abroad as a transfer student? And would you recommend other transfer students do the same?

Melanie Gallegos-Campos 20:13

I highly recommend others transfer students do the same. I, honestly, transferring into UC Davis, it was not in my plans to study abroad. But I was working on campus, my first quarter at Davis at the Global Learning Hub, which is essentially the study abroad office. And that's where I learned about all these opportunities and saw that it was possible to study abroad. And for anyone that's interested, I really recommend going to the Global Learning Hub, it's in the International Center on campus, the advisors there and the peer advisors are very helpful. And, you know, they'll listen to like what your goals are, what classes you need to take and recommend programs for you. And for me, it just worked out that even though I technically graduated in June, well, I participated in the Commencement Ceremony in June, I could still do this program in the fall quarter, you know, after. And so I'm really lucky. And, you know, for anyone that also has concerns in terms of affording a study abroad program, because, you know, there are costs to it, there are a lot of options, there are a lot of scholarships, you could find out about a lot of them through the Global Learning Hub, as I did. And so you know, luckily for me, because of financial aid, the UC Davis study abroad award, the Fund for education abroad Award, and the Gilman Scholarship, I was able to cover all the fees for my program. And so I think that if I hadn't been able to, I definitely would have been more hesitant to take this opportunity. But because I was able to kind of have these resources and have that help, I'm really lucky to be here and I'm really grateful. So to anyone that's interested, I would say, you know, plan ahead, find out about scholarships, find out what program you want to do, and, you know, apply to everything, all the scholarships that you can, that you could do. And you know, check out all of the programs, I think it's, it's really wonderful to be able to study abroad and be in a new place and learn from other people.

Emily Jajeh 22:26

It really is, and myself and the other peer advisors, and our major advisor, we all want to help every GDB student that wants to go abroad be able to do that. And if anyone listening is interested and wants to meet with us, we can totally help you shape your academic plan to allow you to take these awesome trips. And, and like Melanie just said the global learning hub is an awesome resource and the the financial aid office too can help. And these- there are, there are ways to make this happen for you that still fit with your goals. And I agree, I think it's a it's an awesome opportunity. I haven't gone abroad yet, but I will in the spring to Uganda. And I'm super excited.

Melanie Gallegos-Campos 23:12

Yeah, I hope you have the best time.

Emily Jajeh 23:15

Thank you, I hope so too. And my- the only reason I can go is because the awesome GDB advisors are really, really helpful. And everyone in the GDB office really wants you to be able to achieve your goals and have really cool experiences like the one that Melanie's having and the one like I will have. So highly recommend.

Melanie Gallegos-Campos 23:36

Yes, yeah, the advisors were very helpful in seeing where I could fit in these classes and this program and still kind of graduate on time or, you know, not have to delay my goals and still be- take advantage of this opportunity.

Emily Jajeh 23:51

And would you still recommend to other students have like a specific time they want to graduate to, to even stay one more quarter like you did to be able to accommodate this experience?

Melanie Gallegos-Campos 24:02

Yes, definitely. I have no regrets. You know, it's just one more quarter. And, you know, it's not, I think, at the beginning, instead of approaching it as like delaying your goals or putting you behind, it's really just enhancing what you're getting out of, you know, your education and being at UC Davis, being a UC Davis student, it's making the most of all the opportunities that are offered teach.

Emily Jajeh 24:28

Yeah, totally agree. Is there anything else you want to share about your study abroad experience or about your practicum mentor experience, your time as a GDB student, anything like that?

Melanie Gallegos-Campos 24:42

Just that I really loved being a GDB student. I really loved my major. I chose it specifically. You know, as a transfer student, you, you choose your major and you're like, that's the one that I'm

going to do, that's the one I'm graduating in. And so, I really love GDB especially because of, you know, the One Health approach and principle that they teach throughout all our classes. And the opportunity to do research. And I think because GDB is maybe a smaller major or a newer one, everyone's very tight knit, supportive, welcoming. Even if you're coming in as a third year, everyone's very helpful. And, you know, even through, you know, volunteering at clinics on campus or other clubs, I was always running into other GDB majors, and it was nice that we kind of shared that in common.

Emily Jajeh 25:37

And we do have a lot of transfer students into our major, whether from other universities or even just from other majors, and it's totally doable to, to meet the requirements of this major and still have super enriching experiences, with only two or so years. Yeah. The GDB advisors are here to help you make those goals a reality. And so I would definitely recommend this major. It's very diverse, and you can do so many things within this one major, and so I would highly recommend.

Melanie Gallegos-Campos 26:13

Yeah, so, me too. Me too.

[TRANSITION]

Emily Jajeh 26:21

Thank you so much, Melanie, for talking to us today about your gdb practicum experience. Our students are so excited to hear about these projects, and your study abroad experience and learn how to approach research in a large university setting. You can visit gdb.ucdavis.edu To access the rest of the podcasts in this series or you can find us on Spotify. If you like listening to practicum pods and have suggestions for future topics, please let the GDB advising staff now at gdb-advisors@ucdavis.edu Thanks, everyone. Thank you, Melanie and have a great week.

[OUTRO]