Bridgewater - Blue Dot Sessions

Cindy (she/her)
Hello and welcome to Carry the One Radio and another installment of our Young Scientist Spotlight Series, where we highlight the personal and scientific journeys of early career scientists. My name is Cindy and I'm very excited to share with you an interview with Dr. Anna Lipkin! You know her as the former vice president of Carry the One Radio, producer of classic episodes like The Pseudoscience Episode and Shedding Light on Dark Matter. And, to bring things full circle, Anna was the person who convinced me to join the Carry the One in the first place!

We chatted for almost 2 hours back in February, about a week after she presented her exit talk, and again in June, after her transition out of graduate school. We start with podcasting here at UCSF, travel back in time to Anna's research beginnings, and jump back to the present as she transitions to her new role as a postdoctoral fellow at the National Institutes of Health.

We also talked about the University of California strikes that happened last October and shared general thoughts on academia and grad school…but we'll keep that for our Patreon subscribers. So, stay tuned to learn how you can join that exclusive group. But for now, please enjoy this conversation with Dr. Anna Lipkin, scientist and science communicator extraordinaire.

CTOR jingle

Anna (she/her) (01:30)

I'm Anna Lipkin. I am a recent PhD graduate from uh, UCSF. I was involved in Carry The One Radio for five years, four years? And then I also work on the podcast, The Fog at Bay. And I'm a neuroscience student.

Cindy (01:45)
The Fog at Bay is another student-led podcast here at UCSF that highlights the struggles and growth of people in academia and medicine. We'll talk a bit more about it later.

(01:55)

When did you start at Carry the One?

Anna (01:56)

So I actually talked to Ben Mansky -

Cindy (01:59)

That's the former President of Carry the One Radio.

Anna (02:02)

- during interviews. I was obsessed with um, RadioLab, of course, because I feel like it was like the podcast heyday in, like, 2015. And he was like, "Oh, we have a science podcast on campus." And I was like, they've got a podcast, they're in San Francisco, they have really cool science. Like, I'm gonna go to UCSF. Um so I, you know, showed up on the first day and was like, well this will be part of my schedule.

Cindy (02:26)

What was your first episode?

Anna (02:27)

The first episode I did was an interview with Saul Kato. Um, and it was about using calcium imaging to study whole brains at once. We called it…<gasp> what was it called? It had a Panic! at the Disco pun.

Cindy (02:39)

She's referring to "Free Will! at the Disco" featuring Dr. Saul Kato here at UCSF, which she narrated. We'll link it and any other media mentioned in the show notes for this episode on our website. Anna's last episode was "The Fault in Our Crust", which was about earthquakes, featuring Dr. Barbara Romanowicz at UC Berkeley and the Collège de France, which happened to be the first episode that I ever produced.

Anna (03:03)

Yes. I recorded it in my closet. It was a fun episode.

Cindy (03:06)
How did you get involved in Fog at Bay?

Anna (03:08)

I think we heard about it at the first CTOR meeting and I was like, "I care about mental health" and I feel like the conversation around mental health was still very limited. Like, "if we talk about it, it'll be okay" which is lovely, but it - very 2015. So I think for Carry the One, you get to really delve into the science while also talking to the person. And Fog at Bay is really like, I rarely talk about the science people are doing, it's mostly about the experiences *of* doing science, *of* being in this environment. Um, but yeah, it was nice to do both,

Cindy (03:38)

I don't know how you balanced stuff. That…that was a thing I was gonna ask you.

Anna (03:40)

I…<sigh> [C: Don't know? <laugh>] COVID, COVID was such a turning point for me in realizing that I was like, doing way too much stuff…

Cindy (03:52)

You do *so* much! You were on the executive team for both Carry the One and Fog at Bay. Um, you still do your weekly dance classes?

Anna (04:00)

It's like five times <laugh> times a week.

Cindy (04:03)

Five times a week, okay. I'm sorry, [A: It's okay.] *And* you have all the time to do all this? Like, it's not like you've stopped doing things.

Anna (04:07)

Yeah. I mean I definitely have cut back. COVID, right? First week of March 2020, I was like, I can't do all of this anymore. I was, like, starting to leave committees: the executive committee, the social committee, the recruitment committee, the diversity committee.

Cindy (04:22)

And so, what was the impetus to start cutting back? Um, like, I know you were super busy.

Anna (04:27)

That's part of it. I think a little bit was, CTOR…it was in good hands, right? It was like, I can step aside. And it was a little bit of like, I need to stop needing total control over everything all the time. And so I think there's an element of like, you know, you let something go and you're like, I hope that it works out well. And so it was sort of like I can, I can trust you to do it the way that I would've done it or like the way that I think is really good.

But I dunno, I find it energizing to work on a lot of things at once. Because the hard truth is if you are having a hard time with one thing, you can just switch to the other for a little bit, get inspired again, and then come back to the thing that you left behind.

Cindy (05:04)

But then don't you get…I find that for me, if I do that, I just get distracted or I just really focus on one thing and then everything else kind of falls by the wayside.

Anna (05:12)

I am a person who has like 500 tabs open on my computer. [C: <horrified gasp>] Like I, I do thrive on the - so, in undergrad I was a double major and a minor. So it was neuroscience, dance, and French. But why I did it was because you don't get stuck. And I'm probably just not the type of person who gets, like, stuck on the one, or fixated on the one thing super strongly. But I am the kind who's like, "oh, I learned this thing in dance class yesterday and that made me think of this thing in neuroscience class yesterday, which *made* me think of this thing in French class the other day." And so, for me, the, like, ability to have a bunch of things to synthesize from is really appealing, um, and I'm just gonna play *into* my normal distraction.

Our Only Lark - Blue Dot Sessions

Cindy (06:02)

I feel like I should probably step back. So you joined UCSF in 2016. You joined the Ben, uh, Kevin Bender's lab in 2017 doing electrophysiology. And I went your thesis talk and it was wonderful. [A: Oh, thank you.] But I'm going to pretend like I didn't so that I can make you describe it here again. Or, you know, I, I - guess, what's the cliff notes version or, like, the elevator pitch?

Anna (06:32)

Yeah. I'm not great at, like, expanding out to like things that normal people care about, but I study the part of the neuron where action potentials, which are the electrical impulses that your brain uses to send information and to do all the things that your brain does. Um, these action potentials are generated at one spot in every neuron, almost every neuron. And it's called the axon initial segment.

Cindy (06:54)

Okay. So, let's take a moment to talk about the axon initial segment, and neuronal structure in general, because these will come up a lot. The basic components of a neuron that you need to understand here are the dendrites, which receive signals from and about the surrounding environment; the soma, or cell body, which integrates and interprets these signals to determine how the neuron responds; and the axon, which sends a new signal from the soma and out to the dendrites of other neurons. This signal, being sent down the axon, is called an action potential. If you imagine a neuron as a tree where all of the branches converge onto a single point, the dendrites are the branches; the soma is where those branches all connect; and the axon is the trunk and roots.

Now, this is the overall, kind of classic shape of a neuron that would come up if you did a Google search for a basic diagram of a neuron. In her PhD, Anna studied a particular part of the neuron called the axon initial segment. As the name suggests, the axon initial segment is, well, the initial segment of the axon - right where the axon, or tree trunk, extends from the soma, the cell body.

Anna (08:06)

Um, and so I have spent the past six years looking at this little tiny region of a brain. It's like 15 micrometers long, but it has tons of different ion channels and different synaptic inputs that help shape all those impulses that make up your thoughts and your feelings and your day-to-day experience. Um, so I studied this type of channel called calcium channels, which let calcium flow into the cell. Um, and there's a bunch of different types that are interesting and could do different things at the initial segment.

Cindy (08:37)

Calcium ions are important for the health of *all* the cells in your body. At the axon initial segment, there are gates, known as ion channels, that allow calcium *into* the neuron so that action potentials can be generated.

Anna (08:51)

And then I also studied these inhibitory - or supposed to be inhibitory - inputs that release the neurotransmitter GABA, which generally slows down your brain function, makes it harder for cells to fire. But there's a kind of tricky organization of them at this initial segment that changes during adolescence. And so we thought maybe there would be some interesting things going on there 'cause your adolescent brain is doing things very differently than your adult brain. So, yes. Um, that was the main kind of overarching idea to get into this, but it's been really fun to just, like, do really detailed, um, kind of esoteric stuff.

Cindy (08:26)

Yeah. So that was one thing I wanted to ask you about, because we're at UCSF, which is primarily a medical school. Um, and a lot of people…or um, actually, the reason *I* came to UCSF was because, um, a lot of the research is translationally oriented. Um, but, I'm sure that people must ask you, like, oh, you're at this great medical school doing, uh, like, medical research, neuroscience lab and you're studying um, this like one really small - important, but really small - part of the brain. Um, and so, I'm sure people ask you what the significance is.

Anna (10:12)

The cells that make these connections onto the initial segment are called chandelier cells 'cause they look kind of like chandeliers with a bunch of candles sticking up. Um, and those cells are particularly vulnerable in schizophrenia. So that's kind of the clearest clinical link. I spent almost a full year looking at how they could be affected in alcohol use disorder. So I was, um, exposing, or allowing, adolescent mice to do a binge drinking paradigm for four weeks. And then looking if that changed this inhibitory signaling. Um, so that's sort of the, the clinical link as well; I'm trying to think if there's others…I think epilepsies have a lot of mutations that might be relevant at this structure.

So for me, I *like* thinking about the clinical relevance sort of as like the gateway into the project, but I'm not - except for this alcohol project - really looking at any sort of disease models. And so it's sort of just like, the more you understand the basic function of whatever you're looking at, you can sort of start to extrapolate into disease-oriented things. But, a lot of times, I'm surprised at how little we know about how things function in a typical context without any sort of disease things going on. Yeah.

Cindy (11:20)

Has that always been the way you approach life or your research, or is that something that you kind of, um, I guess, evolved into, maybe after the alcohol project didn't, like, pan out the way you wanted it to?

Anna (11:34)

Yeah, I think…I'm always intrigued by disease and especially neuropsychiatric disease. Like I think, getting into neuroscience was because I was really interested in the, and I don't think this is necessarily the right term anymore, but the, like, abnormal psychology section of my high school psych class. Um, and especially for schizophrenia, the concept of, like, hallucinations is super interesting and understanding how your brain can create things that aren't really there has always intrigued me. And so I think…yeah, I have always had this interest in the bigger picture, but aversion to, like, quick solutions, sort of, or quick equivalencies where it's sort of like, yeah, maybe this mutation is related, but like <clap> it's gotta be *so* complex to work from that mutation into this clinical manifestation.

So, I mean, that's one thing that was appealing about Kevin's lab was we had just learned about this mutation that's relevant in autism spectrum disorder, SCN2A. So it's a sodium channel, it's at the axon initial segment, but it actually looks like the function that is affected.. So we thought that that was gonna be the main, you know, site of effect. But it looks like it's actually different parts of the neurons.

But it's nice to watch one of my labmates really build this link from a genetic mutation to cellular function to behavior in a mouse model into human studies, which is very translational. And that's

sort of the dream, but I think I'm obviously a bit of a pessimist and I think that's a really hard connection to make all the way through. And so, you know, ideally I would love to be able to do that, but for now it's, you know, look at electrical activity and enjoy it.

Cindy (13:02)

Yeah, so that was actually also my dream. Like, oh, you've gotta find a gene and then you find the function, and blah blah blah. But you're right, we just know so little about the, like, basic functioning and you're looking really at the basic building block level. Like, it's a part of the neuron that is so important that no one talks about. It's just kind of, like, worked in with the rest of the axon, or I think actually the way I learned it in college was, like, the action potential is generated in the soma, the cell body. And then like, the signal's propagated down into the axon. So the axon initial segment is completely skipped over.

(13:43)

In fact, I had never heard of the axon initial segment until I started *my* PhD in Neuroscience at UCSF, probably during a first-year lecture given by Kevin Bender, Anna's supervisor. On one hand, it might sound weird to devote years of study to something so miniscule.

Anna (14:02)

It's just like you learn the tiniest little range of information, but you learn it really well.

Cindy (14:08)

On the other hand, maybe *because* small things like the axon initial segment get overlooked, we might not actually have a complete understanding of the neuron, of the action potential, of signal transduction throughout the nervous system. This is what Anna plans to tackle in her postdoctoral work: studying the axon itself - the tree trunk, which conducts action potentials from the axon initial segment, and out to other neurons.

Anna (14:35)

But it's hard to study, it's hard to patch onto it and record it directly. Um, but that's what I'm gonna try to do, is doing direct axonal recording, so it's kind of fun to just, like, move further down.

Cindy (14:44)

Was that intentional or did you, did you look specifically for a lab that does that?

Anna (14:48)

No, no. I knew I wanted to keep doing electrophysiology 'cause again, it's just, like, aesthetically and theoretically a good match for <laugh> for me, I really liked physics in college and I really hated chemistry. But I really like predicting what's gonna happen and electrophysiology has such a strong connection to the physics that underlies it, so you get this sense of like, "that's weird and I wanna figure it out".

Um, so I knew I wanted to do electrophysiology and I interviewed at a handful of labs that were doing different projects that were more about the basic physiology, the computations that axons can or can't do. Um, which I think is fun. And I think the field is sort of like moving into that area. We've had these dogmatic ideas of like, the axon's just a wire, it's just a cable. It just propagates signals without altering them, without loss of fidelity, without, you know, um, dropping signals

halfway through. And I just like…that might not be the case. And so I feel compelled to, like, look, you know?

Cindy (15:46)

I, I think it's kind of amazing that the question of *how* the axon functions, like normally, is still somewhat undiscovered?

Anna (15:57)

Yeah. I think everyone's affected by, like, what historical point of neuroscience they come in at, or like even just what you hear about while you're in grad school. And so for me it's like I hear all about dendrites all the time, which are the, you know, big branching structures at the top of the neuron that receive information. Um, but the axon was the main topic of study in, like, the fifties, sixties. And so I feel like there was a *lot* that was done on it then. Um, but a lot of the axon biology things that I would see at like SFN, the big neuroscience conference, were like, um, neurodegeneration-related destruction of axons.

Cindy (16:31)

Neurodegeneration refers to the breakdown of the nervous system, which is how diseases like Alzheimer's disease, Parkinson's disease, multiple sclerosis, and frontotemporal dementia are classified. These are, understandably, *very* heavily studied topics…but as Anna has pointed out, we still don't quite know enough about the basic, normal functioning of the axon. For example, does neurodegeneration change the way that proteins interact with normal axon function?

Anna (17:03)

Tau is a protein that's involved in Alzheimer's and frontotemporal dementia as well. But like, we have a lot of understanding of, like, tau dysfunction. We don't necessarily have a good sense of tau function or how tau affects like axonal propagation, electrical signaling rather than just like, like moving proteins to and from the end of the axon.

Yeah, I dunno, there's like all sorts of corners of science that are like this, where you're just like, does that work that way? And I could be totally wrong, right? Like I could spend this next five years being like, "Nope, they work exactly the way that dogma suggests they would work". But, worth trying. I can always do something else, right? <laugh>

Cindy (17:36)

Yeah. That's…so are you interested in the question of tau or is that just an example you have…?

Anna (17:40):

Just an example - 'cause I was reading recently just about like tau and like initial segment position. Um, and you see disruptions in where the initial segment is when there's tau mutations, which would probably affect action potential generation. But like, I don't *know* if anyone's looked at that.

Um, I think I was so nervous when I started grad school about like finding questions cuz it felt like this thing where you have to, like, dig so deep into a specific literature to know if it's been answered yet. And so I'm sort of at that point right now with the postdoc project where I'm like, "I think this is a question", but I need to, like, confirm that this has not already been just like, studied in depth.

Um, but on the other hand, like, the last two years of grad school has just been like, “oh, you could look at that?” What about, you know, I also rotated in a lab that studied tau. And this is what I'm talking about, the synthesis thing is like I can pull what I learned from that, you know, two month rotation six years ago and be like, “oh, I wonder if that's related to this thing.” You know? Um, so I'm definitely a fan of, like, breadth of knowledge, being able to, like, tie things together in new ways.

Um, which is, I think also a thing I learned over the course of grad school is like, you’re unique, you know, you have a perspective that nobody else has. Which I don't think I thought when I came in, right? You feel like a cog kind of in this like neuroscience machinery and then you're like, wait, wow. Like yeah, maybe someone else will come up with the same idea, that's how science works. But like, you know,

Cindy (19:07)

“Not before me.”

Anna 19:09):

I mean, even if it's the same time as me, it's still like, you know, we all have our slightly different interests and slightly different perspectives and you can watch other people succeed and not feel jealous or not feel competitive. Just because you're all a little bit different.

Cindy (19:23)

I think this is a very healthy view of academia <laugh> and that might be the healthiest view of a trainee I’ve ever heard.

Anna (19:28)

Oh my God. Well it took a while to get there cuz I am quite competitive by nature and <laugh>. You know, you have to come into grad school and be like, how am I gonna survive?

Cindy (19:36)

You have to, I mean, they'll ask you, like, basically, what do you bring? What's your unique thing that you’re interested in?

Anna (19:41)

Right. And if you don't have a lot of confidence, that's really hard to answer. And so to leave at the end of the process instead of being, like, totally beat down and depressed, which I think is a more common experience, but with the sense of like, “hey, I have ideas!” Like, that's amazing. I want to, you know, celebrate it a little bit cuz it's, it feels special to me.

Our Only Lark

Anna (20:08)

It is a weird shift, I think. I'm a little nervous about it, for the postdoc, to like, become the junior person who also has to know some things, right? You have to like, prove that you were worthy of getting hired, but you also have to listen and be open to new feedback. You know, I've been the senior grad student in my lab for like two years. And so you do get used to being like, “I'm the person people ask for help and I rarely ask for help”, but I also try to make myself ask

people for what I need. But I think it is gonna be a shift to have to like become not the bottom of the totem pole, but you know,

Cindy (20:41)

The bottom of the top of the totem pole

Anna (20:42)

<laugh>. Yeah. You just have to be like, I have to learn again. Yeah. And I have to be open and I have to make sure that I ask questions when I need help rather than just like, 'I should know what I'm doing, but I don't' sort of thing.

Cindy (20:54)

So one thing I wanted to bring up was, you wrote, uh, an NSF grant in your second year, and you had this line where you were like, "I'm for sure never going into academia."

Anna (21:04)

<laugh>. Yeah.

Cindy (21:05)

And now you're gonna do a postdoc.

Anna (21:06)

Yeah. So I was friends with a bunch of pre-med students in college and I, like, just didn't really know how to play the academia game necessarily. So I like volunteered in labs - never in the summer, I always did dance stuff in the summer. So I was the weekend behavior girl. That was my job, which was fine. But I wasn't really aware of grad school as an option until my senior year of college. And then my advisor sat me down and was like, "You could apply now and you would probably get in somewhere, but I think if you spend two years where you just work in a lab, you're gonna be able to go wherever you want." And so I said, "Okay", applied for a postbac at the NIH, and started working there.

But *there*, they're very much like, "the probability of you becoming a PI is extremely low, so you might as well make, like, alternative career plans *now*." [C: Wow.] And so I was like, "Okay, sure. Yeah. I won't be a PI." Like, I don't really have a super great reason to go to grad school except that like, what else do you do with a neuroscience degree? I really like neuroscience. I really like learning. Like why don't I just keep trying this and see, you know, what happens and then I can kick my career, you know, decision can down the road. Um, but it came a lot from hearing like, you will not be a PI. And it wasn't directed at me, but I took it very personally and I was like, okay, so I need other plans.

I like to write, I like podcasts, I like editing. Like maybe I can work at a journal, maybe I'll do something else. And it took being at UCSF and having people be like, "oh, when you have a lab, you're gonna be really good at explaining this thing." The possibility wasn't even in my head until I got here and people were like, "you can do this". You know, I'm a white woman from a third generation of college graduates. Like, it shouldn't be a hard thing to imagine for myself, but it was this thing where I was just like, oh no, that's for someone else. Like that's not a thing.

And there's this dedication gap where people have wanted to be professors since they were *five* and I have never - I wanted to be an astronaut ballerina. Like, you know, doing ballet on the moon would be very fun. One-sixth of gravity. You could jump so high. But I hadn't had any, like, career prospects to be a professor. And so you sort of feel bad when you're like, oh, I suddenly wanna be a professor out of the blue when other people have worked for their whole life to do this. So I think…it's not imposter syndrome, but it's just the idea of like, oh, I guess this is a thing that I might be able to do and I might be good at. And it, kind of realizing that the things that I like to do *are* in the day-to-day of a PI, like talking about science, mentorship.

But also I think the type of science I do, which is electrophysiology - people who do electrophysiology tend to do it even as they become professors and even as they run their own labs. And so the idea of being able to do, like, a little bit of electrophysiology, a little bit of thinking and writing, a little bit of mentoring people…um, it's just hard to find, I think, that combination in other jobs. And so it was sort of this process of like, realizing that I could be good at it and that it would be possible and that like, I might as well keep trying on this route?

And I haven't been forced out yet. And I think that's like the main thing is that nobody has, like, made me feel like I *can't* do it, which was surprising. And so, I mean - except for like early in the postbac, but not personally. Yeah.

Cindy (24:10)

That's, I mean I think to hear it from the NIH that your probability of being a PI is extremely low…what's really nice about that is they're just setting up the expectations of reality.

Anna (24:20)

Oh, totally. For me, a person who already doesn't really see themselves pursuing this career, it just, like, totally shut off that path. Um…a visiting - a person who came to give a talk, I was asking her like, it seems really hard. You're so dependent on grant money and the prospect of being responsible for other people's livelihoods is kind of stressful. And so, she sort of pointed out to me, yeah, you have familiarity with the good parts of the job, but you *also* have the most familiarity with the *bad* parts of this job in a way that you don't really have with any other job.

Also, the other, <laugh> the other thing I'll say is, I am not built for a nine-to-five. Just, like, the ability, the freedom - not necessarily in like scientific ideas, but just in your own schedule and control of your own time and ability to, like, deep dive into another thing for a day or two and then come back and maybe not for, you know, a professor but <laugh>. Um, I think the, yeah, that sort of, um, schedule is very appealing to me. <laugh>

Cindy (25:13)

The lack of schedule…

Anna (25:15)

The lack of schedule…I've *come* to appreciate it but it was a hard transition from undergrad where you're so rewarded for just, like, doing well on a test and…Yeah, it's been a process and I do think the NIH is right to give you the pragmatic thing, but the other thing is I come from ballet where, like…that's what you're also told all the time, is like, "none of you are gonna be

professional ballerinas". Like, it's absolutely, and I think the probabilities are probably similar for like professional ballerinas and actually becoming a PI.

Um, but I think I treated science as, like, a much more certain thing because I knew I wasn't gonna be a ballerina, even though I'd worked really hard for a really long time to try to do that. But yeah, I think having confidence, and having people who would instill confidence in me was so important and being like, "yeah, maybe I'll try it." So yeah.

And I haven't been harassed out and I just always need to say that 'cause it's like, it's not just like, oh, I'm confident and it's like nobody has made me feel terrible or made me feel unsafe in science yet. *Yet*. [Yeah.] You know? [Yeah.] And I think that's a huge deciding factor for a lot of people. And the monetary side of it is also huge and I'm insulated from that in a big way. So. I have to position myself <laugh> [Yeah.] As this privileged as I am, so. Yeah.

Cindy (26:21)

At this point, we started talking about the graduate student and academic workers strike that took place across all 10 University of California campuses in late 2022. It didn't quite fit into this episode, but we thought it was worth sharing anyway, so you can listen to that over on Patreon.com/CarryThe One.

Cindy (26:41)

Um, are you gonna continue doing science communication?

Anna (26:45):
Part of the academic job is doing…but that's like, *to* academic audiences. [Right.] So like for me, like grant writing, that sort of thing. But, the job that I would like to do if being a PI is not on the table would be to help with grant writing, which feels like science communication to me. I'm not the best like, writing-from-scratch writer, but I *really* love looking at other people's ideas and trying to make them…

Cindy (27:09)

Better.

Anna (27:09)

Cohesive.

Cindy (27:12)

This is why you're the writer, not me <laugh>

Anna (27:15)

But I feel like, uh, that's a thing that, like, scientists are not necessarily trained super well in…And I think doing Carry the One Radio made me way better at it and it's always rehearsed. Like obviously, off the cuff I am *not* the most organized thinker. Um, but doing a bunch of classes that required a lot of writing in college, was like *very* helpful for just like trying to organize your thoughts, doing Carry the One, doing Fog at Bay. Um, and I liked the idea of

getting to talk about science but not having this life or death, like “I have to get this grant or my lab falls apart.”

And I would love to do it on a campus that's not just medical. [C: Yes.] So you can like work with history, or with dance grants or just like that undergrad, liberal arts kind of collection of ideas is very fun. So that would be another career that I would greatly enjoy.

Bridgewalker

Cindy (28:09)

4 months later, Anna was back on campus and we decided to do a quick follow-up interview over coffee at a food truck park near the UCSF campus. At this point, she had been a postdoc for 3 months and was actually getting started on the experiments - which was recording electrical activity from axons - that she talked about earlier.

Cindy (28:29)

Well, thanks for doing this again.

Anna (28:30)

Yeah, thanks for having me. We get some nice background music too, so.

Cindy (28:35)

How do you introduce yourself now?

Anna (28:36)

Now I'm Anna Lipkin, PhD? <laugh>. [C: Yeah.] Um, but I'm Anna Lipkin. and I am a new postdoc in Zayd Khaliq's lab at the NIH, at the National Institutes on Neurological Diseases and Strokes, where we study, uh, dopamine neurons that are involved in Parkinson's disease.

Cindy (28:51)

So the main thing that I wanted to follow up on was, um when you graduated, one of your concerns about transitioning to postdoc was that you'd be like, the, bottom of the totem pole again, whereas you had been for the last couple of years, the senior person in the lab. Now you're the most junior, but you're also a postdoc, so you're expected to know things. Has that transition been as difficult as you thought?

Anna (29:11)

It's been humbling, I think is the word that I would use. The first day I got on a rig - which is, like, where I do my experiment - I was like, I'm gonna do this and I'm gonna get four cells and I'm gonna wash on this drug and do this very important experiment. And then I spent the entire day just like trying not to smash pipettes into my microscope objective because it was just, like, relearning down to motor skills of, like how you're supposed to do the experiments. So it definitely has been humbling, but everyone has been very friendly and very, you know, nice about teaching me things and it's like, there's so much expertise and it's really fun to just, um, think about different things and be in a different style of group.

And also just,I had at one point a reminder of like, okay, I'm learning how to do this slightly different recording setup on a slightly different rig, but like, I still know all of the basics of the process and like, I need to remember that even if I am smashing pipettes into the objective, I still know the order of things. And like, yeah, what's a good recording? What's a bad recording? And so I was reminding myself that I wasn't starting, like, totally from zero.

Cindy (30:15)

I mean, every lab's got different equipment. [A: Yeah!] Or just like the environment of how things are placed and arranged, just - even for the same equipment, makes a massive difference.

Anna (30:26)

Yeah. But it is nice to come in and like, think of new projects because as I maybe talked about, in grad school, it was so hard for me to, like, come up with ideas. And so the postdoc has been great cuz it's just like, I can fail a million times in a row and just be like, what about this thing? Does anyone know that? So, finding a thing that I wanna spend time on has been actually remarkably straightforward. It's nice; you talk to the new PI and then you have this collection of ideas that come together and form this shape and you're like, “wow, I'm like two months in and I feel like I know what I'm gonna do for the next three years.” Which is not how I felt in grad school. It was more like, here's a project to work on. Try to figure out why it's interesting. So, yeah. Yeah. It's fun to feel that way.

Cindy (30:15)

Do you think it's also…maybe a bit more pressure because you're expected to be more independent? And uh, I think people tend to take their postdoc work into their labs. [A: Yeah.] So not only are you trying to figure out what to keep you occupied for the next three years, you're sort of *also* laying the foundation for the rest of your life and career.

Anna (31:23)

Totally. And then there's also just the pressure of like, you know, getting a postdoc is not super difficult, but getting a faculty job *is*, and so it's sort of like, do I wanna be pushing myself *really, really, really* hard at this point? Right now I'm just sort of like one foot in front of the other, enjoying it, trying to just be like, do I like this? Is this interesting? Um, but yeah, definitely thinking more about like, how do I make a name for myself? How do I become recognized? Like, which, which field do I like? So I don't have an idea for, like, a lab yet except for like, can I position myself as like the Axon guru? Can I be the Axon gal?

Cindy (31:58)

I think the last question I had was, maybe this is too early to tell, um, what do you think people should look for in a postdoc mentor versus a graduate school mentor?

Anna (32:08)

You asked about independence. I think - in grad school I was stressed about things not working, but I wasn't super afraid to, like, ask for help. And the postdoc one is definitely more like, “oh, I *should* know how to do that, this is embarrassing to have to ask”. But then you just kind of are like, whatever. That's part of learning. It's fine. And so I think, um, yes, my biggest concern right now is like, am I being independent enough or like, are they sure they picked the right person? Because maybe I'm not as independent as I should be sort of thing. Yeah. But again, if I enjoy it, I'll keep doing it, et cetera. Um, things to look for in a postdoc versus grad school mentor. I feel

like I chose someone very similar in some ways. Um, just because I really enjoyed my PhD and mostly because of the mentor. Um…hello!

Cindy (32:53)

Okay, well speak of the devil.

Anna (32:54)

Speak of the devil <laugh>.

Cindy (32:56):

Can you introduce yourself?

Anna (32:56)

<laugh> You've never been on CTOR!

Kevin (32:59)

I've never been on it. My name is Kevin Bender. I'm an associate professor at the University of California San Francisco.

Cindy (33:05)

And what's your relationship to Dr. Anna Lipkin?

Kevin (33:08)

My relationship to Dr. Anna Lipkin is very complicated. [C: Okay.] Uh, I am a, uh, a mentor, a mentee, um, and admirer. [Anna: Aww.] And an advocate, I would say.

Cindy (33:23)

You were Anna's PhD advisor.

Kevin (33:25)

Oh, is that what I was supposed to say? <laugh>.

Cindy:

<laugh> That's fine.

Anna (33:31)

What's uh, what should you look for that's different between a PhD mentor and a postdoc mentor?

Kevin (33:35)

Height.

Cindy (33:35)

Is Zayd taller? [K: Yes.] Oh.

Anna (33:37)
Is he that much taller?

Kevin (33:38)
Not much taller.

Anna (33:39)
Good insight.

Cindy (33:39)
Well, that was delightful.

Anna (33:40)
So great. Um, a postdoc mentor. I feel like the sponsorship part. So, making sure that you are going to enough conferences, that you're getting in front of enough people to be recognized, that sort of thing. Where like in, you know, in your PhD you're sort of just learning how it all works and then I think in the postdoc you really want someone who's gonna be your cheerleader.

Cindy (33:58)
Do you think you care so much about how involved the PI is? Or do you think that just comes down to personal preference?

Anna (34:04):
My philosophy has been that grad students need more guidance than they think they do. I think the trend has been that we want more and more trained grad students with more and more, like, papers, or techniques under their belt with the idea that they might just be independent scientists when they start grad school.

But I think that, like, grad school really is for learning and a postdoc really is, you know, in some ways an apprenticeship and for more learning. And so I think I always err more to the side of more involved PIs just because it's, you know, such a, like, fountain of wisdom in a lot of ways and that is better for my learning. Um, and I would encourage grad students especially and maybe even postdocs to find people who are more involved. Just cause I think you get a much better experience and you get slightly better training or you get training, rather than just, like, money and space. Yeah. Which is different.

Cindy (34:51)
Which Is more what you want as a PI.

Anna (34:52)
Right. Yeah. And I think, you know, as a postdoc, obviously I'm trying to be more independent so I'm not asking for quite so much guidance. I'm more asking like, here's my ideas. Is there anything massively wrong? Or like, super technically difficult versus I think, uh, in the PhD it was

a lot more like, I don't really know where to go next sort of thing. But I'm also only two months in, so what, what can I really say <laugh>.

Cindy (35:14)

Do you think institute location matters? I was going to say I think that matters more for grad school just because there's more options if the programs have more funding and like, we have a lot of student groups, which means we're allowed to explore lots of different career options. But then I think for postdoc, like, you're in established labs. Well, unless you're in, like, a new lab, right? But by that point that person's already made their name. So maybe that matters less…?

Anna (35:36)

Yeah, so I think like…As an aside, location will matter for your ability to live well, right? There are real reasons to not move anywhere <laugh> for, depending on who you are. Um, but I think one thing that was kind of appealing to me about going to the NIH is that it's, like, 3000 postdocs for a thousand PIs and then, like, 400 grad students. So it's very much, like, a postdoc-focused place. And so there is a lot of infrastructure for, like how to interview or like, you know, uh, how to teach and those sorts of things. In the same way that, like UCSF being mostly a graduate or entirely graduate education really helped with resources for grad students specifically. So, I think in that way, like institutional resources…also just like money at the NIH is like, you know,

Cindy (36:20)

It's, like, the premier place to do research in the US.

Anna (36:23)

Yeah. Um, of course, government's slow <laugh>, which is one frustration that I've learned. Um, but I think - having enough people who are close to what you do in your area…like, I've sort of been like, all right, I wanna get to know these three PIs while I'm here, so that when I go up for faculty jobs I'll have three people who can be like," oh, she's great 'cause she's a great physiologist and she's also inventive" and you know, all of these things. Um, so I don't know, I think it, like, depends on if you want that infrastructure, if you want to be close to the people who you want to hire you. And I think like, you know, if you wanna work at UCSF as a PI, you kind of gotta go to, like, a UCSF or a Harvard right? Um, I am not totally sure what kind of institution I wanna end up for a PI position. I'm, like, not so keen on the hyper-competitive…that's the thing. I've been in, like, hyper-competitive environments my whole career, from, like, Duke to NIH to UCSF and NIH again. And so it's sort of like, you know, playing the game <laugh> a little bit. Yeah. Yeah.

Cindy (37:22)

Well I also imagine like anything you feel now might be different.

Anna (37:26)

Totally different, yeah. And at this point I'm sort of like, I'm just gonna work until it doesn't work, but with the faith that, like, I found a niche and I can just dig in. I hope. We'll see, I'm excited about it at least, so [Cindy: that's good]. Yeah. Yeah.

Bridgewalker

This episode was produced by me, Cindy Liu. A big, big thank you to Dr Anna Lipkin, not only for her time (her very generous time), but also for teaching me about all things podcasting, and you know, just being a good friend in this crazy adventure we call graduate school. Which, speaking of, like I've mentioned - we talked about our experiences as grad students, including the University of California strike last fall, which will be in a separate episode over on our Patreon!

Thank you also to the team at Carry the One Radio for their comments and to our wonderful supporters on Patreon: Columbo Ahmed, Anne Colton, Levi Cai, Stephanie Redmond, Mark Kunitomi, and Meryl Horn. If you'd like to support the show, you can check out our Patreon page at Patreon.com/CarryTheOne, and uh, you should rate and review us. Tell your friends and family about us. You can find our recent episodes anywhere you get your podcasts, and the full catalog over at our website, CarryTheoneradio.com.

Anna (38:50)

And do podcasting so you can learn to tell stories. Join Carry the One Radio. Stay curious.

Cindy (38:58)

Oh, God. Can you say that again without me laughing?

Anna (39:04)

Join Carry the One Radio; join The Fog at Bay; and stay curious.

Cindy (39:08)

Amazing.

Anna (39:09)

Amazing.