ALBA-IBRO Diversity Podcast - From Postdoc to PI

Episode 2 - Turning challenges into strengths: building a lab with limited resources
Transcript

Sahba Besharati | 00:00.060
You know, we're influenced by our social context, but also the questions we should be asking should also be influenced by our environment. And in context, low resource settings like South Africa, but also in other parts of the world, have, like a diversity, like a richness that's just unexplored.

Jonathan Weitzman | 00:20.496
You dream of being the next group leader, but feel overwhelmed by the challenges ahead. Then we've got just what you need.

Renaud Pourpre | 00:27.380
What if you could learn from scientists all over the world? What if you could listen to them as a guide to what comes next?

Jonathan Weitzman | 00:35.006
You've come to the right place. I'm Jonathan Weitzman.

Renaud Pourpre | 00:38.249
And I'm Renaud Pouf.

Jonathan Weitzman | 00:39.710
And you're listening to the Alba Ibro Diversity Podcast.

Renaud Pourpre | 00:44.073
Turn up the volume and let's dive into running your own lab.

Jonathan Weitzman | 00:54.584
Previously, on the Alba Ibro Diversity Podcast, we took the time to listen to and explore the fears and anxieties of scientists as they look ahead to the big step of transitioning from postdoc to group leader. We can hardly put off the moment. One day we'll have to take the plunge. And yet so many questions remain unanswered. But don't worry. What you need to do before you set out on any exploration journey is to make sure that you're well prepared. Prepared and have packed everything you will need. So why not do the same for your career?

Renaud Pourpre | 01:30.912
Here we are. You're a postdoc at the end of a project, and it's time. It's time for you to embark on this exciting but difficult journey as a group leader. During your first few years in the lab, going to conferences and meeting the leaders in your field, you've probably watched the departure of other scientific colleagues. As if they are sailing out on a huge sailboat. But today, when it's your turn, your boat looks more like a rowboat. You've got a hull? We'll give you that.

But where is the engine? Where is the crew? Where should you start sailing?

Jonathan Weitzman | 02:11.193
Paced with so many questions, it's easy to feel disarmed, like a captain without an oar. But just imagine if, instead of a boat, all you had was a makeshift raft. What would you do? Today, we're going to explore with our guests one of the most burning challenges of this transition, how to set up a laboratory in an environment with limited resources.

Renaud Pourpre | 02:36.919
What better way than to draw inspiration from those who have successfully met the challenge? Make sure you stay all the way to the end, because there is one question that we want to address. Could we do the same, more, or even better with less? When we think of resource-constrained environments, one question comes directly in mind. Why would the scientists leave a well-funded lab, well-equipped resources, maybe a clear career path, to work in a place where research seems harder? That challenges conventional logic. Is it duty? Passion? A sense of belonging?

Vatsala Thirumalai | 03:17.273
I always knew I wanted to come back. I did my undergraduate studies from Chennai in India, here, near Bangalore.

Jonathan Weitzman | 03:24.358
This is Vatsala Thirumalai, a professor and dean of research at the National Centre for Biological Science, which is part of the Tata Institute of Fundamental Research in Bangalore, India.

Vatsala Thirumalai | 03:36.160
And one of my summer internships, I actually did in Bangalore, at the Indian Institute of Science. And at that time, my employer right now, the NCBS, National Centre for Biological Sciences, was housed inside Indian Institute of Science. And I visited them. I saw, you know, that this group was doing Fly neurogenetics and so on. So I actually interviewed there for a P.h.D. position. I got it. But at the same time, I had also applied to the U.S. And I wanted to do neurophysiology. And at that time, there were no neurophysiologists here in India. After finishing postdoc, I formally interviewed at NCBS, but also at other places in India. But I was, you know, 100 percent certain that I wanted to come back. Only a very small percentage of the students get a chance to go abroad and study, whereas there are so many bright minds here within the country. And I am really, really thankful that I got the opportunity to be here and expose them to this kind of neuroscience, right, that was not existent before I came here. Now, of course, there are many people who are coming in, but when I came in, I was one of a kind.

Renaud Pourpre | 04:51.040
Her return wasn't about comfort or ease. It was about belonging, about building something meaningful in a place she believed in. And this is only one of the reasons.

Jonathan Weitzman | 05:01.936
We also discussed with a second guest, Sahba Besharati, an associate researcher in the Department of Psychology at the School of Human and Community Development in the University of Wits Waterland, Johannesburg in South Africa. During this chat, we felt another reason emerging. Let's hear it in her own words.

Sahba Besharati | 05:22.372
I was more established in the UK than I was in South Africa at that time. You know, you have connections. I had opportunities for good postdocs. So, I mean, no one was inviting me to come back. It was a personal decision, right? I didn't have any prospects waiting for me back home, although I was excited to do new things back home. So it was difficult to leave because you'd set up so much time and efforts and, you know, kind of building your connections and resources. And back then, so that was in 2015, African neuroscience wasn't a topic. Right now it is. People are interested in it. But back then. And it's interesting. I always had this. The same argument, kind of develop capacity locally. I mean, that was always my mission. Even as a student, it was also developing capacity for myself, But also now bringing this back home and also more globally, like bringing this to under-resourced context globally. It's kind of just not fair that if you're in London, even for people in the UK, like, you can only be in London or Oxford. To do good science. Like, you have to move to these big city centres. It's just not right. It's not the way science should be.

Renaud Pourpre | 06:25.972
What drove Sabah's decision? Were the mission that you wanted to accomplish back in South Africa. Science is not just about cutting-edge tools or generous funding. For scientists, it can be something else. For example, where you believe you can make a difference. Not because it's easy, but because it matters. It's about vision.

Jonathan Weitzman | 06:47.417
But still, when you know that, how do you practically start something? We asked Daniela Di Bella, a postdoc at the Stem Cell. And Regenerative Biology Department at Harvard University in Massachusetts. She's now working in the US, but she's planning to start her own lab this November in the Leroy Institute in Buenos Aires, back in her native Argentina.

Daniela Di Bella | 07:11.358
First of all, it was a discussion with myself and with my partner. We would be living in the same place eventually. So I talked a lot with people who were starting their own labs in Buenos Aires. I guess for me, that was important, so that I could really understand what it implied. So what I was getting myself into if I decided to go back. Because I did my P.h.D. there, I already knew the system, but I didn't want to romanticize things. I wanted to be very realistic about what I was doing. And then I talked a lot with fellow postdocs here in the U.S. And that was also interesting, but in a different way. It was more like... Really understanding what I was leaving behind if I didn't apply either in the U.S. Or in Europe, what my options were and what I was prioritizing. So I was discussing recently what is going to be my first experiment. And I think it's going to be genotyping the mouse that we get. Like, we learn to do very basic experiments and all those

things take time. I think that hopefully we'll stay motivated and stay learning and keep building something together. But then at the same time, still, we need to start branching out, right? And establishing like small projects that we want to tackle.

Renaud Pourpre | 08:26.104
There may be reasons for choosing environments with less resources and strategies for rising to their challenges.

Vatsala Thirumalai | 08:33.448
We all live for challenges, don't we? There was nobody else working on zebrafish here, so I had to set up the Zebrafish facility from scratch. If I had imagined to set up what I have today on day one, I would have really been... Intimidated by that task. Instead, what I did was I just went out and got aquarium fish from the local aquarium, which had the Danio species, the zebrafish species, Because I had to first train the students. And at that time, it didn't matter what the genetic background of the fish is. You just need zebrafish and you need to teach them what the fish looks like, what the developmental stages are, and so on, and so forth. So I really started, you know, slow. Started at a very, very simple level, with what is the minimalistic thing with which I can start experiments, get the experiments going, right? Fortunately, I got the DBT India Alliance grant, which enabled me to order the equipment. And that was the other major hurdle that things take a longer time to arrive in India, especially the heavy equipment like the vibration isolation tables, microscopes and so on. I mean, the funding was not a problem in this case, but it was a time taken to set up things. I was simultaneously having the small system and starting the experiments with it. And that, I think, is important, because, you know, it's not just you anymore. You have students and you need to keep the students motivated and feeling like they're learning something. And so it's important to set up a minimalistic lab as soon as possible so that they can hit the ground running and start training. And start feeling like they are real scientists doing experiments. And then, slowly by slowly, you build up. And all of that was possible over the last 15 years. It didn't happen in the first year. It didn't happen in the second year. It took time, but you just have to keep at it so that you keep on adding, keep on adding. You just keep on writing for grants and getting the money to add more and more layers to your lab. That will allow you to then go after the more interesting questions.

Jonathan Weitzman | 10:41.208
Starting simple means having the first elements in place so you can move on to the next. But it also means remaining confident in your ability to do good science, even if you have to start from scratch. And on that point, what can you do if the money isn't there? Saba found herself in this situation and had to devise a completely different strategy.

Sahba Besharati | 11:04.046
We started off on this big kind of mission, I guess. I think that's my mission is to develop. Neuroscience capacity within another region in South Africa. So during my postdoc, it's a little bit weird to start your own lab as a postdoc, But that's what you do when you don't have a home, right? Together with one of my Postdoc mentors, Kate Cockroft, we started the Wits Neuroscience Research Laboratory. That's like a physical space, But also like this larger group

where we really bring together interdisciplinary researchers, not just from WITS, but from across South Africa and also globally. So Kate Cockcroft, Professor Kate Cockcroft was one of my postdoc mentors. And she was, she really changed my life and invited me, took me for coffee, was so happy I came back. and, you know, and she also felt the need for people. So, so, through her mentorship, we kind of set up the lab. So in kind of doing like research that you do as a postdoc, a lot of people don't get these big, competitive grants. Like, and you respond to like a call for a postdoc. It's becoming more the norm, but back in 2015, 2016. It was very few of those, very few of those. So there was general calls, but you have to make your own program. You need to have like a core group of people. Beyond, the lab is also just with a common vision. Like, we're saying, having a mission. You have to build this kind of critical number of people. Then eventually, me and Kate sat down, and I was like, okay, within our department, there's quite a few people that do similar research. Why don't we do a lab? Like, a lot of people don't have labs, and this lab can be an overarching. And so, yeah, I was lucky. Gabriella Nutter, she was a research student from the U.S. That came. She's South African background. And so we pieced together the website. We put together like a good team of people from the psychology department of it. And as the funding came in, we started then developing the physical infrastructure. Like I mentioned, the EEG lab, the virtual reality lab and attracting good students. I mean, we started the lab with no money. I think that's important to know. Like, we didn't have any money. Like, we're like, we have this idea. Let's do it. And I mean, little by little, you get smaller and then larger and larger amounts of money. You have to start off kind of somewhere, and you start off with a group of people with a good idea. The money comes, you know, the applications come, but you still have to do that initial work.

Renaud Pourpre | 13:24.230
I think I'm beginning to see a pattern here. Do you think we can distill some common features?

Jonathan Weitzman | 13:29.834
Let's try. First, reach out. One email to a potential mentor can open the door. Second, start with building community, not the lab. Organize seminars, connect people, share ideas. Third, find your allies. Look for people who believe in the same mission as you. Fourth, start small and stay consistent. The lab came years later, but the network, that grew from day one. And finally, maybe don't focus on getting the money to start creating. Create with what is around and the rest will follow.

Renaud Pourpre | 14:08.059
When the system doesn't offer you a space, create your own. It might not look like a lab at first, but it can become one.

Jonathan Weitzman | 14:16.966
So here you are. The boat is ready, but you still need to push off to plan ahead. And there are two big questions remaining. Where to go and how to fuel the engine. To keep going?

Daniela Di Bella | 14:29.110
I think I can say two things. One is, when I was developing my research program for the

applications, I tried to make it work at different levels. So at a lower level, where resources were going to be limited, so I would have to focus on more affordable experiments and perhaps smaller projects. And then the more ambitious and bigger projects that I would do if I got the funding for that. So I think having that versatility and having the possibility of answering the same questions that I'm interested about. At a more focused and perhaps a smaller and more affordable level, or at a more ambitious and expensive level, I think it gave me the confidence that I would be able to do the work. And the other thing is, I kept looking for funding. So even after I got the position, like, we don't have startup packages, or I'm very fortunate that the institute gave us a... A small startup package, I kept looking for funding and I got fortunate to get a good grant that would allow me to work and give me security. But I think, having that in mind, that it's not only about getting the position, it's also about securing funding when we go to these countries. It's very important.

Renaud Pourpre | 15:40.213
Important, indeed. And if there is one thing that unites the constraints of financing and simplicity, it's the choice of a model. An important thing for Vatsala.

Vatsala Thirumalai | 15:51.349
First and foremost was the model organism. For my PhD, I was working on the nervous system of crustaceans, lobsters. When I finished my PhD, I still liked the model organism very much, but there were certainly limitations with it. One was that I wanted to study development, and these lobsters, they take forever to grow, seven years or eight years to get into their adult sizes. Second major concern was that if I wanted to go back to India, this model organism was not going to be available. So I needed to find a model animal which could be universally available and with which I could do the kinds of experiments I wanted to do. And actually, that is what brought me to zebrafish, because zebrafish is actually endemic to India. And not only that, it's a great developmental model organism. It's cheap, it's available everywhere. It seemed like the perfect solution to all of what I was looking for. And so that's what made me do my postdoc in zebrafish. So that was one thing. But after coming back, yes, I was acutely aware of the differences in terms of funding levels, resources and so on. Fortunately, you know, neurophysiology, if you invest in the initial equipment, after that, the consumables themselves are not so expensive. And so luckily for me at that time, there was a great... Program running called the Welcome Trust DBT India Alliance. It's a non-profit and it still runs, and it has given me about 10 years of funding, 10 to 12 years of funding. First, there was an intermediate fellowship and then there was a senior fellowship, both of which were very generous. And enabled me to buy the kind of really expensive equipment that you need for neurophysiology, and that enabled me to set up. And once I set up, then, you know, I'm good to go. I don't need to worry about resources every year in terms of very expensive consumables. So that has really worked out very well for me. Resource constraints are there. But if you know how you can match your research program to where you're going, while also not compromising the questions that you want to ask, I think a suitable solution could be worked out.

Jonathan Weitzman | 18:13.239
Choosing the right... Tools seems to be important to explore the subject you want to address.

But there's also another strategy. What if our environment and limitations are not seen as constraints, but instead guide us to ask better, braver and deeper questions?

Sahba Besharati | 18:30.270
I mean, as scientists, you always want to go with this like good resources, but it's also interesting to look at it in another way. You also go where there's interesting questions and contexts like South Africa and populations like South Africa. There's such interesting research questions. The African genome, there's so much that we don't know, or even, I mean, I do a lot of social neurosciences. Socially, South Africa is a really interesting place. Like I said, we have a lot of challenges and difficulties, like continued prejudice, racial prejudice, specifically, patriarchy, interpersonal violences. We have lots of different social difficulties, but we don't understand the mechanisms for these things, right? And we need neuroscience to kind of understand the mechanisms. We also have the higher rates of neuropsychiatric and neurological disorders in the world, right? And these kind of populations, they need research because we need better interventions. And working as a clinical neuropsychologist, you know, we're influenced by our social context, but also the questions we should be asking should also be influenced by our environment. And in context, low resource settings like South Africa, but also in other parts of the world, have... Like a diversity, like a richness that's just unexplored. If it's within clinical populations or even just the social questions that I was mentioning. We can look beyond, I guess, the research infrastructure. And that nowadays is becoming more accessible, like global access is becoming important. It's on an international mandate. And really rather change our research perspective and look at the context that we're in and the kind of questions that we can ask. That will really help advance science. I think this is where science can lead in the future.

Renaud Pourpre | 20:08.649
Once again, let's take a short moment to sum up the various tips here. In a limited resource environment, keep these tips in mind. First, plan projects that work at both small and big scales. Stay flexible. Two, choose tools adapted to your context. Practical? Not just ideal. Three, keep fueling the engine because funding doesn't stop with getting the position, right? And four, why not let your environment shape or inspire your questions? It should be a source, not a constraint. In conclusion, plan smart, adapt, and let your context guide you for bolder science.

Jonathan Weitzman | 20:50.160
In the course of our discussions, our guests really opened our eyes to what's possible in a difficult context. But what inspired us most was their ability to see how we could do more with less. Behind the constraints lies a real payoff.

Renaud Pourpre | 21:06.195
For Daniela, the choice to work in such a setting wasn't easy, but it was deeply meaningful. In this environment, she found a rare intensity of purpose from the people, and this is richness. Everyone, from scientists to technicians, is there by conviction. And that passion translates... Into real change, not only for science, but for supporting young researchers and communities.

Daniela Di Bella | 21:32.657
What I was thinking, what I was putting in the scale when I was deciding, am I sure that I want to go back? There are two sides of that. One is, everybody who is doing this is really passionate. This includes the scientists, but also every administrative person and staff and technician. They all really care about this and feel strongly and are doing this because they believe. That this is important and that can have an impact on science, but also on our own countries and our own communities. The support systems here are great and people are amazing, and they also care about the science that we do at a different level. I don't know how to explain it. It requires a lot of sacrifice sometimes to do these things. People are really willing to do it. We are not exposed to a million different opportunities. So I know that whatever we will do will have an impact and I will be able to... Train somebody who will always cherish that. I think that's very unique.

Jonathan Weitzman | 22:26.535
For Vatsala, returning to India opened new doors, not fewer. Visibility grew, regional partnerships flourished, government-backed international programs supported collaboration, all proving that working in the global South doesn't mean working alone.

Vatsala Thirumalai | 22:44.449
Collaborations have actually leapt into my lap, precisely because of this reason that the visibility is more. And so, you know, for example, people who are not in India, but in this part of the world, Singapore, Japan and so on, we get lots more visibility on the eastern hemisphere. In terms of international collaborations, there is a lot of different grant opportunities which are precisely designed for such efforts. So the Indian government, for example, has indo-French and Indo-German and Indo-Swiss kind of partnership programs, which... Fund specifically these kinds of cross-country collaborations. And that helps people like me who have come back to India to think about ways in which we can reach out to, so that the idea of these cross-country collaborative schemes is to make sure that researchers don't feel isolated. Because they are one of a kind sitting in this country, that they can reach out to their colleagues elsewhere, and they have mechanisms with which they can design projects together and work together. I would say that I have had no problem finding collaborators to work with in terms of, you know, interesting scientific questions to go after.

Renaud Pourpre | 24:00.179
Thaba reminds us that scarcity can be an actual gift. With fewer resources, there's often more time. Time to think, to ask better questions, to avoid the pressure of fast publishing. It's a version of science that values integrity over speed, what more and more scientists value as... Slow science, and that invites deeper reflection.

Sahba Besharati | 24:24.107
Yes, things have been definitely slower. Like, things have been slower, but maybe it's fine that they're slower. I mean, there's a big movement towards slow science that publish. well, take time to think about your research questions. So, I mean, this was mentioned to me by Peter Vail during the Brain Matters seminar series. And it is kind of a privileged position to take. Because

when you're trying to find an academic job, you're like, I remember Linda telling me this, like, you need to publish. Don't, don't be naive. Slow science is great, but Peter's a professor. Yeah, you have to be real. You have to still play the academic game. But at the same time, you're like, you know what, is it really worth my mental health? And also doing bad science, like doing salami slicing, publishing or sacrificing your integrity in some ways. That I think all of us, like the questions we need to ask are so big and so advanced, we do need to slow down a little bit. So sometimes having less resources makes us naturally do that and makes us ask better questions and do better science, even with less techniques like methodological advancement. But the second thing I'll say is, together with Alina Ferreira Correa, Michel Thibault-Dichoté, Benjamin Rossman, and a big group of us, we had the South African brain hack from all over South Africa and Africa. And, you know, we really developed neuroimaging analysis. But the one project that we started together with Guillaume Dumas specifically is a hyperscanning initiative. So we actually built a hyperscanning lab in two days, using portable, easy to use EEG. It was awesome. Like in two days. And we're working on a proposal to kind of bring research out the lab. So to allow us to do research anywhere to kind of set up a default lab for Africa. If we manage to do things like this with this proposal, yes, we have to be more resourceful. Yes, we have to be more creative, but it'll make neurotechnology globally accessible. And when we can make neurotechnologies globally accessible, we can get science and representation from science all around the world. And this will change the questions we can ask, the data that we get. And this is so important, the age of AI, to have representative samples and populations, or else, objective science is just going to be more biased. So, yeah, I think it's pushed us to be creative, like you said, and to really change the way we do science. So no matter where we are in the world, you can still do good neuroscience research.

Jonathan Weitzman | 26:47.324
So this episode is now coming to an end. What an adventure it's been, discovering that behind the constraints, like real elements of strategy and knowledge for setting up one's own lap.

Renaud Pourpre | 26:59.706
And now back on your boat. It's afloat and it's sailing on towards new challenges. Challenges that have nothing to do with money or equipment. No, this new challenge is the one of the crew. The woman and the man who believe in you and with whom you're going to have to sail.

Jonathan Weitzman | 27:21.363
So stay tuned because in the next episode, we'll explore how to build a cohesive and inclusive team, one that nurtures diversity in the service of your science.

Renaud Pourpre | 27:32.465
Thank you for listening to this episode. And we thank our guests, Daniela, Vatsala and Saba for sharing their stories and tips with us.

Jonathan Weitzman | 27:47.096
This podcast was brought to you with the support of the International Brain Research Organization. A founding partner of the Alba Network. The ALBA Network is a division of

FENDS and aims to promote equity, diversity, and inclusion to counteract bias and fight discrimination in brain research. For more information on this podcast, visit www.alba.network.