

Australian Biochemist Students' Page

From postgrad to postdoc: planning for a positive postdoctoral experience

Diana Stojanovski, Department of Biochemistry, La Trobe University

My invitation to write this article got me thinking about my days as a PhD student and what advice I could offer to current students about their PhD and beyond. This trip down memory lane ended with a rather sudden jolt as it occurred to me that I completed my PhD almost four years ago. However, as I came to grips with the situation, I realised that it has been a rather eventful four years, dominated by an extremely fulfilling international postdoc. The whole PhD and postdoc journey surpassed my expectations, with some rewarding learning curves along the way. The course of this journey can be very different from person to person and there is no single 'right' path to take. But let me share a little piece of my story with you and maybe offer some pieces of advice, so your experience can also hopefully exceed your expectations.



Diana in her postdoc lab.

The undertaking and completion of my PhD was one of the most rewarding and challenging things I have done. Even at this early stage of your career, there can be an enormous amount of pressure (mostly from the student themselves) to be successful, develop technically and conceptually, and to publish (of course). So how do you ensure that these goals become a reality? There are multiple factors that contribute to a successful PhD, with hard work being the major one. However, an essential part of any career is mentoring and supervision. I was extremely fortunate to have a very good PhD supervisor (Associate Professor Mike Ryan), but did not realise the extent of his impact on me as a scientist until I actually finished my PhD. As I discovered, the relationship with your supervisor will be integral to your development as a scientist, therefore, be wise with your choice of supervisor. Be open to the possibility of relocating so you can work with a particular scientist and speak to current lab members to get some insight into the prospective supervisor. This person should be a mentor, someone who not only guides you during the duration of your PhD, but someone you may turn to for advice during the course of your career. A

positive PhD experience sets the path for a positive scientific career, so give the task of selecting a PhD supervisor and PhD project the attention it deserves.

At some stage during the second or third year of your PhD, you should sit down with your supervisor and openly discuss your options following your PhD. If a career in science, as an academic or researcher, is something you would like to pursue, you should start planning your first postdoc in advance. Here are a few guidelines you may find useful when thinking about your first postdoc. Now I know this sounds extremely clichéd, but undeniably the most important factor to consider is that the research topic excites and motivates you. The salary will most likely not motivate you, it will be the science, so be very wise in your choice of research topic. I would recommend a change in topic or organism from your PhD studies, not necessarily a radical change, but a postdoc position should be an extension of your training and you should therefore maximise your gain in knowledge and experience. Once you have decided on a research topic, review the literature and identify the leading researchers in the field. Get some direction by discussing the research topic and prospective labs with your supervisor and members of your department. Your best work will be done when you are happy and satisfied with the rest of your life, so assess the location of the lab and decide if it suits your lifestyle. Many PhD graduates go abroad to get international exposure with group leaders of international repute and, let's not deny it, for the fabulous life experience. The international flow of postdocs is as an extraordinary thing and it is an amazing thing to be a part of. However, moving overseas may not be an option or preferred choice and this is also completely fine; you can still be a successful scientist without an international postdoc under your belt. However, these students should make a conscious effort to change labs and/or institutes for their postdoc, because this will reflect your flexibility and willingness to embrace change, some important qualities you should start to show early in your career.

A future in research is sustained by publishing. Some of you may appreciate this fact, while others will hate it, but this is reality and one just has to accept it (it took me some time, but I got there). Your postdoc will give you an excellent opportunity to kick start your CV, so assess the track record of the lab you are interested in with regards to publishing high quality and high impact work. Is the number of publications representative of the lab size? Are the publications in low, medium or high impact journals? Are the data of high quality? Is the work something you would be happy for your name to be affiliated with? These are all very important questions you need to ask yourself when deciding on a lab. Once a lab or multiple labs have been selected, you should arrange a visit before making a decision. If the lab is located overseas, this can be difficult, but

Australian Biochemist Students' Page



Freiburg, Germany.

you can try and arrange it so the interview coincides with a trip to an international conference, or apply for a fellowship, such as an ASBMB travel fellowship. Alternatively, the lab head may offer to pay for your trip. Although scientific excellence will be a major factor in your decision, the human angle should not be forgotten and the insight you will gain by meeting lab members and your potential supervisor face to face is second to none. Speak to the lab members openly and honestly, asking them about the prospective supervisor, lab dynamics, current projects, facilities, etc. This will be your only chance to get an insight into the lab, so be open and direct (however, still polite), in particular in your discussions with the lab head. Discuss your salary, the potential length of your appointment, the possibility to apply for an independent fellowship, freedom to pursue independent ideas (this one is very important), whether you will have teaching responsibilities, etc. If the lab is in a non-English speaking country, ensure that lab meetings and general lab activities are conducted in English. You should walk away from the interview satisfied, confident and equipped with the information to make the right decision. If you are offered and agree to accept a position, you should consider seeking your own financing because this will give you a greater level of independence and will be an invaluable addition to your resume. Most sources of funding will require a joint application with the person who will mentor you during your postdoc, so you will need to be organised and plan this in advance.

After all the arranging and organising, the day will then come when you will find yourself in a new lab with new faces and a new project. You may have to pinch yourself every so often to wake up to the reality that you are actually doing your postdoc. This period may well be the last time you will be able to conduct experimental research without constant interruptions, like meetings, so embrace the solitude at your bench. You will be a vital part of the laboratory and you should involve yourself in the running of the lab and the co-supervision of students. However, you must also be very mindful about 'your' time at the bench and try to not get too distracted from your lab work.

I started thinking about my postdoc during the second year of my PhD. In 2004, I was very fortunate to meet my PhD supervisor's postdoc mentor, Professor Nikolaus Pfanner from the University of Freiburg, Germany, a

world leader in the field of mitochondrial protein import. Klaus was an invited speaker at the Lorne Conference on Protein Structure and Function. At the time, I was working on mitochondrial morphology and knew that I wanted to continue in the area of mitochondrial biogenesis for my postdoc, however, change the research topic. I was always interested in protein translocation and when I heard that Klaus was coming to Australia, I thought this would be the perfect opportunity to meet with him and discuss a potential visit to the lab. After meeting with him in person, I was so impressed by his humble and kind nature that I took up his invitation to visit the lab for an interview later on that same year. The interview was an amazing experience, although very nerve-racking, but I was extremely impressed with the lab members, the facilities and, most importantly, the lab head. Shortly after the interview, I agreed to join the lab as soon as I had finished my PhD the following year. My decision to join the Pfanner lab was primarily based on the research topic and the scientific excellence of the lab, and to a lesser degree its location, although Freiburg turned out to be a delightful place to live. Living in a non-English speaking country was indeed a challenge, but the people in the lab were overwhelmingly supportive and were always willing to help. I spent just under three and half years in Germany and I loved every minute of it. The decision to leave Freiburg and return to Melbourne was not an easy one, but for me, it felt like the right time to return home and start contributing to Australian science. My postdoc was a very focused period with many hours spent in front of my bench. It was hard work, but I will never forget those moments of stumbling across something new, or getting the last figure for a manuscript, or finally managing to get an experiment to work. Although these triumphant moments are rare, these are the moments that define a postdoc and I look back at them with nostalgia. For those of you undertaking a PhD or about to embark on your first postdoc, these are the moments you have to look forward to. So embrace the experience, work hard, enjoy the time in front of your bench, run with your ideas and watch them flourish.



The Pfanner laboratory.

