



PhD Horizons Conference 2017

Panel 5A: Academic Careers in the Sciences

The focus of this session was on academic careers, which are highly competitive and paths not always straightforward. This provides a great opportunity to learn from the successes of two current postdoctoral researchers about ways you can pursue your own ambitions and enhance your prospects.

Dr Douglas Gibson, Postdoctoral Researcher, MRC Centre for Inflammation Research, University of Edinburgh

Douglas completed a Bachelor of Science degree in Biological Sciences with Honours in Pharmacology at the University of Edinburgh before working in a research support role for the Medical Research Council (MRC) for one year. He embarked on doctoral study in reproductive endocrinology at the University of Edinburgh shortly thereafter, and graduated in 2012. Since his PhD, Douglas has held two postdoctoral researcher roles and has received various conference awards. He researched the importance of oestrogen signalling in fertility at the Centre for Reproductive Health from 2012-15, and is currently examining the impact of local steroid signalling in the regulation of endometrial function at the MRC Centre for Inflammation research. In his research career to date he has published 15 papers, raised >£1.8million in grant funding and has recently been interviewed for the Times and the Sun. He is a member of the Society for Reproduction and Fertility council and is Chair of the Queen's Medical Research Institute Postdoctoral Society.

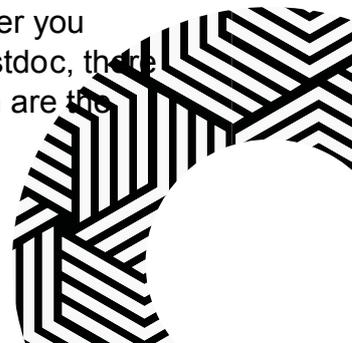
Day to day routines of my current role involve lab work, reading, and a lot of thinking and writing. Some teaching (about 5%), a lot of lab training, e.g. helping students to plan experiments and guiding research. There's a lot of similarity to what you do as a PhD, so if you enjoy your PhD you'll enjoy a postdoc, but the biggest difference is the motivation and drive behind what you do.

The 'standard' academic career path: undertake two postdoctoral positions as an 'early career researcher', become fully independent and run your own lab, obtain a permanent research post, secure a professorship.

Career progression

I worked as a technician during my PhD. This helped me succeed in the lab, and helped me develop a structured approach and to think ahead about where I wanted my career to go. What my next steps needed to be, and what contribution I'd be making to my field. The research I did during my PhD got me my first postdoc. You need to think about what you want to take forward to the next stage, what inspires you.

When I was close to finishing my PhD I got a lot of contradictory advice. Go for a postdoc. Leave academia! But if you do want to pursue an academic career you must develop your own ideas. It's more than possible to transition to a postdoc, there are great opportunities in labs all over the world. Start by finding out which are the





best labs in your field - what equipment do they have, can you do your research there - and seek out the opportunities.

The pros of an academic life are that you get autonomy and freedom. I go all over the world for conferences, and I've won awards for my research. The main con is that you can end up working all the time, including evenings and weekends. Luck can play a part, but there are many things you can do.

Top tip – you must build your own career. Think about what's out there, think about what you want, who can help you achieve your goals. Develop your ideas, collaborate with colleagues. Be highly involved in your field: help organise seminars, participate in public engagement events and conferences, join relevant societies, take advantage of all the great networking opportunities. You must get your research ideas out there, present and publish papers, explain how people can engage with it or use it. Look for grants and use the money to find opportunities to travel, attend conferences, to fund research projects. You must also start preparing for 5-10 years down the line.

Dr Jennifer A Garden, Christina Miller Research Fellow, School of Chemistry, University of Edinburgh

Prior to her doctoral studies, Jennifer received an MSci in Pure and Applied Chemistry from the University of Strathclyde, and she worked as an Analytical Scientist for GlaxoSmithKline. She completed her PhD on sophisticated bimetallic bases, also at the University of Strathclyde, in 2014, and thereafter held a postdoctoral research position at Imperial College London, during which she researched the synthesis and development of catalysts for carbon dioxide-epoxide copolymerisation. She is the first recipient of the Christina Miller Research Fellowship, and is currently researching the design and synthesis of homo- and heterometallic polymerisation catalysts at the University of Edinburgh. Jennifer has published in a range of scientific journals and is a member of the Royal Society of Chemistry.

Christina Miller was the first woman elected to the Royal Society of Edinburgh. As the first recipient of the Research Fellowship named in her honour, I work between a postdoc and a lectureship position. My **current role** involves:

Teaching – lecturing and tutorials.

Lab work – I recruit Masters students, train them in lab skills and guide their research.

Research – building independent researcher profile, demonstrating, writing and communicating research.

Communication – building profile and networking.

Finance - this is a big part of my role, e.g. making funding applications for grants.

Career progression





After my Msci I did an industrial placement, then returned to Strathclyde for my PhD. Mobility is very important for a researcher so it isn't always best to do your undergraduate and postgraduate work in the same place. I developed great problem solving skills during my PhD, and this gave me confidence to develop independent research ideas and oversee my own lab, including dealing with administration and finance.

I then did a postdoc at Imperial. Some colleagues advised me to change field at this point so I did, and learned a whole new skillset. This has been great for my career, especially as interdisciplinary research is now key.

My PhD and postdoc supervisors were very different too. My PhD was supervised by a very senior, very well known and respected man, and my postdoc by a young woman fast making a name for herself. I learned a lot from them.

To apply for my current fellowship I had to write a CV. The interview was very intensive and included a dinner with the other interviewees and the interviewing panel (4 academics), and a presentation concerning the best choices I'd made during my career.

Top tip – don't delay thinking about what you want to do. Start early and apply early for opportunities. I was encouraged to do this by my supervisor. Write research proposals for funding, and don't be afraid to fail – accept failure and learn from the process, you'll get better each time. I've got about a 25% success rate for grant applications. If you don't get a job you apply for that isn't necessarily a failure. A professor once used the analogy: think of the university as a living room and one new painting is required. The choice is between a Rembrandt, a Picasso, and a van Gogh. All masterpieces, but one will best fit the décor, dimensions and ambience of the room!

Q&A – Douglas and Jenni then took questions from the floor.

Q – *did you ever think you would never do a postdoc?*

Douglas – Yes, every week!

Jennifer – I never thought I'd be good enough, but I was determined to finish my PhD and to proceed.

Douglas – Perseverance and resilience are key. There are always highs and lows [during your PhD and beyond], but you must enjoy your work. Academia isn't for everyone.

Jennifer – it's a brilliant career. You get to go to great places, to meet great people, you get to be first with ideas. But yes, you do need resilience. You won't get every grant you apply for, you won't get every position you apply for.

Q – *where do you look for funding? Is it more difficult for international students?*

Douglas – not being from the UK can actually be an advantage as there is money for overseas students. It's important to ask colleagues for advice (where did they





secure funding?), and to plan and apply early. Every institution has research money, contact research offices to find out. Application processes vary by size of grant, it's less difficult for smaller amounts. **Don't miss deadlines – find out early.**

Jennifer - You need to think about 'person, project, place' – what unique skillset do you have, why is your project worthwhile, why do you want to do it here, e.g. it's the best-equipped lab for your research. What are you bringing to the table? e.g. Can your research add to ongoing research?

[There is also information about sources of funding on the Careers Service website, including the link to Research Professional, a vast database of research-based funding opportunities, including doctoral and postdoctoral awards, travel and conference grants, prizes, and hardship grants. Staff and students of the University may register free of charge (email address must end @ed.ac.uk):

<http://www.ed.ac.uk/careers/your-future/options/further-study/postgraduate/funding>]

Q - How many Saturdays do you work? Will a postdoc consume my life?

Douglas – there are peaks and troughs. For example, if you're working on a paper you may have to spend nights and weekends on it, as you'll be doing your core work during the day. But you can plan to do extra work like this when you've more free time during the day, e.g. during the long vacation.

Jenni – for some academics work is also their hobby. It's what they enjoy. During my quiet weeks I work around 50 hours, busy periods around 60 hours, but much depends on deadlines. Also, some of those hours are spent thinking, planning, reading, and listening to music while doing this stuff.

Douglas – the activities are diverse. It's not like sitting in a 9-5 office, more like being self-employed. **You're the master of your own success.** I often don't think of the things I'm doing as work, e.g. writing grant proposals.

Jenni – an academic career is a marathon, not a sprint. You have to know your own limits and take proper holidays to avoid burnout. You have to make time for friends and family and things outside work.

Douglas – During your PhD a lot of work is prescribed by someone else, but once you've moved on it's your choice, you plan your workload.

Q - There are a lot of bad papers from early career researchers, who seem to put out a lot quickly because of competition rather than take more time and produce quality work. This puts me off a bit. Do you have any advice?

Douglas – the overproduction of literature can be a problem, but it does seem to even out and things are changing.

Jenni – **once you produce your first independent paper the opportunities for grants increases.** Everyone is different, but it can be risky to produce your first paper too quickly. When you're starting out, ask for help from more experienced academics to make applications for grants and fellowships. At least 2 academics should read over your grant proposals. Consider what type of academic you want to be. Research focused? Teaching focused? You do need to bring money in to the university and you do have to have PhD students, but you will have to let some things go in relation to the type of career that you want. You can't do everything.





Douglas – how you motivate yourself, and how you plan your work is very important. Think about deadlines, long-term and short-term obligations, and what you're working towards at different times.

Jenni - you should be great at managing your time by the end of your PhD, and know when you do certain things best. Have a clear overview of your work and commitments, seeing the bigger picture really helps.

Q – *What is most satisfying about your current role?*

Jenni – there are so many positives. When things work, we should celebrate success. Make the most of every opportunity and remember everyone who helps you get to where you are. There's a great community feeling, and we celebrate wins as a group. I meet great people, including students. It's great to see them learn and succeed.

Douglas – there are always people more experienced and less experienced than yourself. It's great to help nurture new students, but when your own ideas work to help move the paradigm forward, that's great too. By the time success comes you can be very far away from the starting point.

Notes/report: June Maguire
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June 2017

