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CELL SCIENTISTS TO WATCH

Cell scientist to watch – Brian Stramer

Brian Stramer completed his undergraduate degree at the University of Rochester in Rochester, NY, and then moved to pursue his PhD at Tufts University in Boston, MA. He then crossed the Atlantic to work in the laboratory of Paul Martin as a US/UK Royal Society Fellow at the University of Bristol, UK. Before becoming a lecturer and a group leader at King's College London in 2008, Brian was also a lecturer of Veterinary Basic Sciences at the Royal Veterinary College in London. In 2015, Brian received a Wellcome Trust Investigator Award, which he will use to continue his research on the regulation of contact inhibition of locomotion and its roles in animal physiology.

What inspired you to become a scientist?

Just curiosity. My first science experience was when I was an undergraduate. I had a technician position over two summers and it was really cool. Part of the job was getting human foreskin samples, growing up cells from them and making skin equivalents for grafting experiments, which was totally wild to me at the time. What is really nice is that the postdoc who was looking after me during both summers is now a professor and we run into each other at meetings.

And what motivates you now?

It's still curiosity. Lately, I've also enjoyed trying to take more biophysical approaches to our research questions. These involve new techniques and new ways of thinking that are pretty foreign to me. It's both difficult and exciting to move outside your comfort zone.

"It's both difficult and exciting to move outside your comfort zone."

What questions are your group trying to answer right now?

One of our biggest research questions at the moment is to understand this process called contact inhibition of locomotion, which is a very old phenomenon whereby cells collide and repel each other. It was widely studied by cell biologists at one time, but not so much anymore (yet it is making a bit of a comeback). We're using it as a framework to address some fundamental questions in cell biology: how do cells interact with each other; how do they regulate their migration; how do they coordinate polarity? We're also interested in trying to understand what this phenomenon is doing during animal development, because up until recently we had no idea what its function in animal physiology was. That said, at one time people hypothesized that it was playing a role in cancer, so we may go in that direction one day as it could have widespread applications.

What elements were key to your success?

One thing that was really important (in hindsight) was that there was an atmosphere in the lab which allowed the folks in the group to freely come up with their own ideas of how to deal with the logistics of the project (e.g. what experiment to run and how to analyse complicated data), no matter how crazy. I really liked that the students weren't afraid to strenuously argue their points of view (it sounded like a horrible fight to everyone else in the office) even if they were different to my own (I would say it was a draw as to who was right most of the time). One person, no matter how smart they think they are, cannot come up with all the solutions, particularly with a project that is interdisciplinary in nature. On top of that, research questions really benefit from having a range of people with different skills and backgrounds thinking about ways to solve a problem. All of this requires a level of trust in your lab members, and it can be difficult to let go as a new investigator. This is particularly difficult to facilitate if one is micromanaging a project. I'm sure that my students hated me for constantly looking over their shoulders, although I would like to think that I was doing it out of curiosity for the result rather than questioning their approach, even if it didn't feel that way to them. By the way, my first two PhD students have both won loads of awards for their work and I owe a lot to them.

How did you manage to put such a successful team together?

I have to say I was partly lucky. It started from a collaboration that developed organically, just through chatting, and then we got a talented PhD student who was not a biologist at all, but had an

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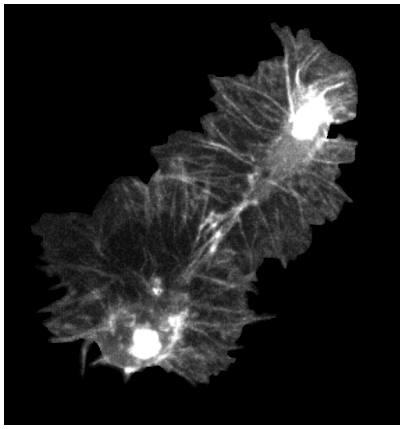

Embryonic macrophages colliding within a developing *Drosophila* embryo.

engineering background. He teamed up with another fantastic PhD student, who was the biologist in the lab, and the next thing you know, the project took off. I would like to say that it was me that brought that team together, but it wasn't [laughs]. It was smart students with complementary skills in the right place at the right time. Maybe the only thing that I could possibly be given credit for was realising that their skills would be synergistic, which led me to dovetail their projects.

What challenges did you face when you started your lab that you didn't expect?

I think that my experience is maybe a bit different from career development fellows, which is how many start their careers in the UK. I started as a lecturer, and with this came significant teaching responsibilities. I really struggled to strike a balance between teaching, research and grant writing. Multitasking is important: I could find myself delivering a lecture on the anatomy of the abdominal wall one moment and teaching the histology of blood vessels the next, and then have to come back and deal with research that is going on in the lab and with writing a paper. That can be difficult – it's a lot of different things to think about and at the end of the day my brain often feels like it has been through a blender.

How did you handle teaching general concepts after being a postdoc, where you were focused on very specific questions?

That was difficult. I've been asked to deliver lectures in some topics that I have not that much experience with, particularly human anatomy. But at the same time I enjoy getting into the dissecting room with the students and sometimes it feels like a bit of a break from the stresses of research. It's very interesting to go and do something totally different; it can be refreshing at times and might have given me a broader picture of things.

How do you strike a work–life balance, especially when you're establishing yourself?

Prioritise your projects and your teaching tasks. This may sound like I'm advocating being a bad colleague, but learn to say 'no'. I think when I started out I was really excited and enthusiastic and I said 'yes' to everything, every teaching responsibility, every possible collaboration. I struggled and then I ended up doing nothing well. If you're overwhelmed with things and you need to spend more time with grant writing, for example, some things may need to be dropped. I think I very nearly had a breakdown trying to do everything initially. But don't say 'no' to everything! Find a mentor who can help you focus on what's important and whom you can speak openly with; someone who is established and has been asked to do similar tasks during their time in academia, but is not involved with what you are doing, and who you're comfortable telling that you're overwhelmed with things.

"Find a mentor who can help you focus on what's important…"

What advice would you give to someone about to start their own lab?

I discovered early on that it's important to have a couple of different projects going for a few reasons: some projects don't go anywhere and also research councils don't like resubmissions, which is particularly difficult to deal with as a new PI (although make sure you don't spread yourself too thin such that you can't make significant progress in any one area). I think I put all my eggs in one basket and maybe I didn't do a good job of convincing people of the novelty, and then I struggled for grants for a number of years. I hope it made me stronger such that the next time I go through a difficult period, and I'm sure I will, I may have an easier time dealing with it.

Is there any advice you would give to people if they don't happen to get a grant?

Science is fickle and grant funding rates are low, so don't take it personally; this is a subjective game. I have to say that I must have submitted twelve grants in order to get one. It may be that the grants weren't well written, but it's also possible that there's a lot out of your control. When the rates are around 10%, some good ideas won't get funded, so don't take it personally and just keep trying – this is easier said than done.

Could you share with us an interesting fact about yourself that you wouldn't put on your CV?

I 'run commute'. So I run to work (about half an hour) in the morning and then I run home (or to the nursery) in the evening. I feel like that's been really useful just giving me some time to think without distractions. I think about how to structure a lecture or a grant, or think about some strange data that's come out of the lab recently, or just run off some steam because I just had a rejection, or think about nothing! And it takes quite a bit of stress off – I have a one-and-a-half-year old now and we have to pick her up at the nursery by a certain time, so in terms of work–life balance I know that I can work up until 5.15 pm and get to nursery in 30 plus-or-minus two minutes, well before I'm going to get fined for being late! It's really good not to have to rely on unreliable public transport, and it's faster. I can beat the bus and the train hands down.

Brian Stramer was interviewed by Anna Bobrowska, Editorial Intern at Journal of Cell Science. This piece has been edited and condensed with approval from the interviewee.