

CELL SCIENTISTS TO WATCH

Cell scientist to watch – Christian Behrends

Christian Behrends studied biology at the University of Konstanz in Germany, but did his Diploma thesis externally with Michael Ehrmann in the School of Bioscience at Cardiff University, UK. He then pursued his PhD degree in Franz-Ulrich Hartl's group at the Max Planck Institute of Biochemistry in Martinsried, Germany. For his postdoctoral work Christian received a Feodor Lynen Research Fellowship from the Alexander von Humboldt Stiftung, with which he moved to the US and joined the laboratory of J. Wade Harper at Harvard Medical School. In 2011, he received an Emmy Noether Research Grant from the German Research Foundation (DFG) and started his own independent group at the Medical School of Goethe University in Frankfurt am Main. He is also a recipient of an ERC starting grant. Research in Christian's lab is focused on the basic mechanisms of autophagy, particularly concentrating on the role of ubiquitin signalling in autophagy, and the crosstalk between autophagy and other vesicular trafficking pathways.

Why did you become a scientist?

I was fascinated by biology in school and then what brought me to molecular biology was more-or-less luck. I initially wanted to do marine biology and I had a starting place in Kiel, but I did a year of civil service, and I had to reapply the next year. I then actually wanted to come to Berlin like everyone else at the time but, since universities there quickly became overcrowded and thanks to the Central Institution for the Allocation of Places of Study (ZVS), I ended up in Konstanz. That set me on to molecular biology because that's what the focus is there.

What motivates you now?

My driving force is curiosity and striving for a deeper comprehension of things. I'm not really expecting to solve any puzzle as a whole but to contribute pieces. Thus, being able to deepen our understanding of life processes at the molecular level fascinates me.

What are the questions that your lab is currently trying to answer?

The focus of my lab is autophagy and its intersection with other cellular quality control and membrane trafficking processes. We are coming from a basic science point of view and eventually want to understand how autophagosomes form and mature, and which proteins are turned over by this process. The latter aspect is particularly intriguing since the identity of the autophagic degradome at the protein level currently remains elusive. Such an inventory list would allow deducing which cellular pathways and activities are actually regulated by autophagy.

What is your advice on collaborating?

Science is, indeed, a collaborative enterprise and I am convinced that we can only challenge the ever-increasing complexity of



problems we are studying by working as a team. Yet, one piece of advice would be not to overdo collaborations; there's a natural limit and at some point collaborations have to meet practical terms and expectations. Collaborations have to be executed by someone in the lab, and a person can only have so many projects.

What elements, inside or outside of the lab, have been the key to your success so far?

Persistence, stubbornness and eagerness, which go hand in hand with long working hours. I think there is a saying that success is composed of an overwhelming fraction of sweat and only a minor percentage of creativity. However, there is always a tiny portion of serendipity that brings back the fun. Apart from that it is also important to get away from the lab and the office once a while in order to recharge your batteries and reset your mind.

What challenges have you faced starting your own lab that you didn't expect?

As a postdoc you can be on your own for some time; just you and your experiments. Of course, this does not work well for a group leader. You have to interact with a lot of different people. Every co-

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Football pitch on a rocky beach in Madeira, 2011. Against all odds, people still live their passion.

worker is special, so having discussions with him or her is different in every case. They need different ways to get motivated, to be given feedback or to be criticised. This is a huge challenge.

“(...) running a lab is a dynamic high-level multitasking operation.”

What are the challenges associated with getting to the next stage?

The challenge is to successfully reconcile all the different PI tasks: organise the lab; read papers; conceive, drive and troubleshoot projects; analyse data; write grants and papers; prepare talks; attend conferences; discuss with colleagues, and network; review papers and grants; prepare student lectures and seminars; have a friendly ear for your co-workers and moderate social crises among them. The priorities of these tasks can change quite dramatically, which makes it difficult to have a static game plan. In brief, it turns out that running a lab is a dynamic high-level multitasking operation.

Is it something you enjoy?

Yes, of course. There are definitely good sides of being jack-of-all-trades. It is a huge motivation and lots of fun when all these things are running smoothly. Unfortunately, this does not happen very often.

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

One piece of advice that I got is that the selection of your co-workers is most critical. The work in the lab is going to be done by other hands so you need to select those other hands very carefully. So good-handed and motivated lab personnel are essential, but it's also essential that you have people who support you. You need to have a mentor, or even a couple of people, to whom you can go with

different questions. Having a network of more experienced or senior people is really important.

Do you have any tips for choosing the best hands?

Well, my method has two aspects. One is to go by gut feeling and the second is to get a second opinion from other people. I didn't do it once and I learned from this experience. Also, hiring one person is fine, but when you are hiring the second and the third, and you want to reconcile them with the first, because in the end they have to work together.

How important is it for you to attend meetings?

I think it's very important. You need to expose your ideas and get feedback on your work. When connecting to people you always get a different view of what you're doing, so this brings in fresh ideas or criticisms. Although one year, I was travelling quite a lot. I was really eager to accept invitations for seminars and to conferences but at some point I realised that I was actually away from the lab for too long.

How do you achieve a balance between going to meetings and getting results in the lab?

I try to have one foot in the field of autophagy and a second foot in the ubiquitin field, and the idea is to go to at least one conference in each field per year, but not more than that. I guess two per year is a good number of conferences.

“(...) a meeting is more work than everything else.”

How do you get the most out of meetings?

There is a preconception that meetings are a holiday, but actually, a meeting is more work than everything else. Talking to other people is really motivating and exciting, but also really exhausting. I didn't used to take notes, but I started taking electronic ones in talks, because at the end of five days everything is a big mess, and I need to organise it.

How do you achieve a work/life balance, especially when establishing yourself as an independent investigator?

I achieve it by having my work and life geographically separate. I work in Frankfurt and my wife and kids are in Munich. I commute between Frankfurt and Munich. When I'm at home with my family, I leave science at the door, and I get it back when I take the train. This time helps me to regenerate.

Does it leave you any time to pursue any hobbies?

I play soccer whenever I have time. I try to play once a week. With sports, once you get over the first exhaustion then all problems sort of resolve.

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