

CAREERS

TURNING POINT Brown-fat work wins kudos for obesity researcher **p.133**

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INTERVIEWS

The all-important job talk

How people present their research and aspirations during interviews for academic positions can make or break their career.

BY AMANDA MASCARELLI

When Spencer Smith was being interviewed for a faculty post in neuroscience four years ago, he told his audience a story about the British race-car driver Stirling Moss.

In 1955, while Moss was training for the Mille Miglia, a famous thousand-mile endurance race in Italy, he realized that when he was intensely focused on driving, he could not hear the instructions given by his navigator, Denis Jenkinson. Jenkinson therefore

used hand signals to guide Moss, and the pair won the race, setting a record time that still stands today.

Smith had used the story about Moss to illustrate his research interests on how various parts of the brain work together to support behaviour. Thanks at least in part to that lively story, he landed the position, at the University of North Carolina in Chapel Hill — and his presentation is still well remembered. “You remember his science because you remember that story,” says Kathleen Caron, who chairs the department

of cell biology and physiology.

At many universities and institutes worldwide, candidates for jobs in academia go through a two-day interview process that includes a formal, public, 45-minute talk — informally known as the ‘job talk’ — followed by a question-and-answer session. It usually takes place in an auditorium or lecture theatre that seats 50 to several hundred people, and the audience typically includes not only members of the hiring committee, but also graduate students, postdocs and faculty members from the hiring department and ►

► often other departments too. The talk may be just one piece of a candidate's application, but it carries enormous weight. Those who have succeeded — and who have watched candidates give talks that shine or that fall flat — say that there are ways to avoid common mistakes and to leave a positive lasting impression (see 'Tips for success').

Talks at conferences, seminars and departmental meetings generally aim to convey research findings and foster questions, but a job talk must do more. It must give a sense of amicability, convey enthusiasm, illustrate the research vision and show why the candidate would be an excellent fit in the department.

A poorly rendered talk can mean no job, says Stefano Stifani, a neuroscientist at the Montreal Neurological Institute and Hospital in Quebec, Canada. "It puts the thoughts in people's minds: 'Will this person really be a good teacher? And does this person really get the big picture?' Whether that is the case for a candidate is a key factor in predicting whether the person will write good grants."

Caron agrees. "It's the most important 45 minutes of your career," she says. "You sink or swim on that job talk." Candidates will be judged on "the whole package" they bring, she explains. "You're showing how you're going to make a scientific argument. What are you going to do in the future? Do you have the skill set to convince people that you should be funded? And do you do that in a charismatic, engaging, intellectually stimulating and fun way that makes you a nice colleague?"

PEOPLE PERSUASION

A central mission of the talk is to demonstrate compatibility with potential colleagues. James White, a palaeoclimatologist at the University of Colorado, Boulder, says that he does not

understand why department members do not flock to these talks. "I always like to have some knowledge of the person who I'm going to be sitting with for the next 30 years," he says. "Is there any rapport? Is this somebody I can get along with? Is this somebody who's going to be a pain?"

Stories such as Smith's that resonate with the audience and reveal an engaging personality can be very effective in winning over a hiring committee.

"Too often in professional talks, we're afraid to let who we really are show through," says Alan Townsend, who in July became dean of the Nicholas School of the Environment at Duke University in North Carolina. "Some people are naturally very funny, so be funny. But if you're not, it doesn't mean that you can't still connect in really powerful and meaningful ways on a very human level."

During his job talk, Townsend shared with his audience that he had been a finalist for the position seven years before. This time around, he joked, he was going to "shake things up and try something new".

He told a humorous story about two classmates who had competed for class president when he was in school. The student who won the election had sung a few lines of a tune by the classic US rock band Cheap Trick, *I Want You to Want Me*. Townsend gave his own rendition, and in doing so, earned laughs and applause — along with the job.

The right level of detail is also key. "One of the most common mistakes that people make is that they fail to engage the broad

audience," says Stifani. "Present your data in a way that is accessible, even to non-specialists." The audience for a typical job talk at Stifani's institute might include faculty members from sub-disciplines such as neurodevelopment, neuroimaging or neurodegeneration. But it might also include a cancer biologist or an immunologist from another institute. "Everybody has to be able to extract what the key significance was," he says. "If that doesn't come out, I think the candidate is toast."

But there is a tricky balancing act to be achieved — candidates also need to capture the sophistication needed to satisfy specialists. If a talk is accessible to non-specialists, experts in the field might complain that it was too shallow, and vice versa, says White. "I have seen some talks that were scientifically brilliant," he says, but some hiring-committee members wondered whether the candidate would be able to give an equally effective talk to non-experts. To address this common dilemma, White's department now often asks candidates to also give a 'teaching talk', in a smaller, more informal setting, to allow the hiring committee to assess the candidate's teaching and outreach skills.

Candidates should find out in advance what the hiring department is expecting by talking to the chair of the search committee, the department chair and sometimes to other faculty members.

Early in the job talk, candidates should state their key research questions and why those matter. "I like to see them choose important problems, and I like to see them articulate that up front," says White. The heart of the talk — the science — is "the thing that's hardest to fake", says Jonathan Payne, a palaeontologist at Stanford University in

"One of the most common mistakes that people make is that they fail to engage the broad audience."

TIPS FOR SUCCESS

How to avoid common pitfalls

DO:

- Practise, practise, practise. Find people, whether through your home department or through social media, who would be interested in hearing your practice talks and offering feedback.
- Attend plenty of job talks and departmental seminars and pay attention to what works well and what does not.
- Watch and study talks sponsored by the non-profit organization TED (short for technology, entertainment and design). They are up to 18 minutes long and have become widely recognized as powerful platforms for issues of universal appeal.
- Look at the website helpmeviz.com for in-depth feedback on data visualization.
- Use a smartphone, iPad or video camera

to record yourself practising and save the files. Once you find a version you are satisfied with, listen to it over and over again.

- Explain clearly what your research questions are, why you are doing the work and why it is important. Tell the audience what you are going to tell them, then tell them, then recap what you told them.
- Rehearse several ways to end your talk, in case time is running out and you have to wrap things up quickly.
- Familiarize yourself with the room and with audio-visual and other equipment in advance.
- Use multimedia and special effects judiciously.
- Play to your strengths and be yourself. Do not force humour. If you use it, keep it

light. Clear, concise, authoritative talks are compelling in their own right.

- Demonstrate that you know what other people in the department are doing, and how your research would fit in. That shows you have done your homework, and it gives hiring committees a clear idea of where collaborations might develop.

DO NOT:

- Do a 'data dump'. Resist the urge to show a lot of data — you lose audience members by overwhelming them with minutiae.
- Exceed your time allowance. By doing so, you signal that you are underprepared, did not take the presentation seriously or are arrogant. Try to end early so that there is sufficient time for questions. **A.M.**

California. “You need to be working on a good problem and you need to have some interesting results,” he says.

Candidates should also give a clear road map of where they are headed with their research, says Eileen Furlong, head of the Genome Biology Unit at the European Molecular Biology Laboratory in Heidelberg, Germany. She recommends that job candidates reserve the last 20–25% of their talk for discussing research plans and showing why she or he is the best person to address those questions.

A sign of success, says Furlong, is when audience members “leave the room thinking, “That’s really interesting and exciting, and I want to talk to that person.”

DEPARTMENT DISCUSSION

The talk should also convey how well the candidate would fit into the department, says Amanda Clark, a neuropsychologist at the University of Tennessee in Chattanooga who interviewed for her faculty position in 2012.

By looking at the university’s website and promotional materials as well as other faculty members’ programmes, Clark knew that the university valued people who would offer undergraduates some research experience. She therefore wove in details about how undergraduates and graduate students had participated in her research. She also knew that the department was looking for someone with expertise in biological psychology and neuroscience but did not have an animal lab or an imaging facility. So in discussing her research on brain trauma and neurodegeneration, she highlighted her use of human subjects in her studies.

Candidates also need to prepare for the unexpected, such as technical glitches, a pushy audience member during the question-and-answer session and even a power outage.

Caron was halfway through her talk for tenure — another key time where talks can make or break a candidate — and was about to tell the audience about her most exciting and crucial piece of data. Suddenly, the electricity went out. Worse yet, the talk was in a room with no windows, so the crowd of 75–100 people was left in darkness. “It was absolutely pitch black,” says Caron. She had no choice but to wrap up her talk quickly.

“Then the most incredible thing happened,” she says. “People asked questions. I was so touched by that. We all sat in the dark room and talked about science, which was really wonderful.”

Even better, Caron got tenure. ■

Amanda Mascarelli is a freelance journalist in Denver, Colorado.

TURNING POINT

Shingo Kajimura

Diabetes researcher Shingo Kajimura studies how fat cells can be manipulated to control obesity. In March, he was fêted for winning one of the US Presidential Early Career Awards for Scientists and Engineers (PECASE). He explains how favourable timing has helped him to advance his career.

Did you always plan to become a researcher?

No. Growing up in the suburbs of Tokyo, I went fishing every day and loved to see living things. I was planning to try to work with animals — as a national park ranger at a zoo or an aquarium, for instance. No one in my family had ever attended university or earned a degree, so I had not even known that the job of scientist existed until I started there. But I had good mentors at the University of Tokyo, who guided me towards science. I was surprised by how much I loved it.

What led you from Japan to the United States?

I won fellowships that allowed me to spend my entire graduate time in the United States, and spent two years in Hawaii and three years in Michigan studying fish physiology and developmental biology. I thought about going back to Japan after that, but I felt like I could be more intellectually independent in the United States, and that was important to me. Then a Pathway to Independence award from the US National Institutes of Health (NIH) gave me the confidence to become a principal investigator here.

What led you to study brown fat?

I received a fellowship at Harvard Medical School in Boston, Massachusetts, to examine how mitochondria help living things to adapt to different environments and whether that process could be manipulated. When brown fat was discovered in adults, it opened up new opportunities for research into obesity and related diseases such as insulin-resistant diabetes. I decided to focus on brown fat in mammals because it is one of the most mitochondria-rich cell types in the body, which means it has a big role in regulating the body’s adaptation to different environments.

How did the discovery of brown fat in adults affect your own career?

When I started the postdoc in 2006, the brown-fat research field was pretty inactive because nobody knew adults had brown fat. When that was discovered in 2009, it led to additional funding for brown-fat research. I was trying to see whether we could convert white fat cells into brown fat genetically or chemically. In 2009, I had a paper published in *Nature* about



the body’s ability to convert some cell types to brown-fat cells (S. Kajimura *et al.* *Nature* **460**, 1154–1158; 2009), a process now known as direct reprogramming, as well as papers published in other journals. The following year, I received the NIH grant and landed a post as an assistant professor at the University of California, San Francisco.

What does the PECASE award mean for you?

The money helps, and the award has also connected me with many talented young scientists in different fields for potential collaborations.

What are your biggest challenges right now?

Even if I earn tenure, I still have to get grants, and that is tough. And I have gone from being a player in the lab to a coach. Nobody gets training in how to manage lab staff, and everyone does it in their own way. For graduate students with less experience in bench work, I start them with relatively easy experiments; for postdocs, I encourage them to help on projects close to the finish line so that they can co-author a paper. It helps them get used to the new environment and to work as a team member.

What is the best advice you have ever received?

One of my mentors always said that if the science goes well, everything else will follow. So I try to spend as much energy as I can on the science and not worry about other things. It is not always easy, but I remind myself that it is really about the science.

What is the secret to your scientific success?

Internal passion. I am not a genius but I genuinely love science, so I don’t feel like this is my job really. ■

INTERVIEW BY SCOTT KRAFT