

The Optimist

A journal to help you
survive the valley of shit



September 2019 EDITION

EDITORIAL

Not long ago, we found ourselves at the pub the Optimist asking ourselves: why the hell did we ever decide to pursue a career in science? A few drinks in, we realized that we would not be doing relevant science if it was easy. Moreover, in any other job we would probably be bored. To be able to survive our PhD – in a healthy mental condition – we realized we had to change our mindset. We need to learn how to deal with failure, how to be patient and how to create a healthy work-life balance. In order to bring optimism back for ourselves and our fellow PhD students, we came up with the idea for this interactive journal by PhD students for PhD students. Our goal is to become healthy scientists that are hardworking but relaxed, ambitious but sharing, and confident but humble. We are convinced that the best way to achieve this is by sharing our struggles and by seeing the humor in it. But that is not enough. We believe the efficiency of science can be improved. The scientific method has proven very successful over the last decades. Nothing we write down here will change this. However, we would like to step away from the idea that the current way of doing science is the only way and encourage constructive discussions. Therefore, in every edition we will focus on a topic that merits some thought.

The optimist team,
Matthias, Donya and Joni

Supporting the next generation of science

Do you contemplate sometimes about what comes after your PhD and consider pursuing an academic career? As roughly 50% of PhDs worldwide consider this option (survey by Nature, 2017¹), it is important to discuss which obstacles could be on this path.

Let's focus on the basis of a successful academic career: your research topic. Did you know that it can happen that your Principal investigators (PIs) might not want you to take your project with you when you seek independence in a group leader position?

But what is the actual problem?

Regardless whether you decide to follow an academic path or wish for a career in industry, it is frequent to do one or several postdoc positions after your PhD.² During this time young researchers sharpen their skills as a scientist, learn to plan and supervise projects and gradually gain independence until they might find a group leader position to open their own labs.

However, there are also cases in which postdocs are refused to take their research with them and are forced to compete with a completely new project, reducing their chances of success.

While PIs who hold their postdocs back in such a way don't represent the majority it nevertheless happens frequently.^{3, 4}

Two sides of a coin

To understand the situation, we have to look at motives and motivations of both, PI and young researcher.

Lab leaders have invested their career in a topic⁴, meaning they established a lab, came up with their own projects and secured funds by competing with other labs. Further, they want to ensure the future funding for their staff and research projects, by applying to grants with a proposal and presenting the track record of the lab including publications. To pass on a research project also means to be possibly less involved in future publications. As the competition is high, this can in turn diminish the chances to get a grant.³ These circumstances that are very much related to systemic matters, complicate for a PI to pass on projects to their former postdocs. Furthermore, highly competitive PIs, aiming to become the best in their fields, might not wish to get a new potential competitor, who could take some of the glory.⁴



But as every coin has two sides, how is the perspective of a young researcher who is seeking independence?

At first it must be mentioned that young researchers are formally free to work on any project in their own labs. But to work on a project from their previous lab without communicating and consulting with their former supervisor can cause several conflicts. This can lead to a young investigator losing the support of their former supervisor, which might be crucial for grant applications or further promotions.⁴ It is therefore crucial that both parties come to a fair agreement.

Ben A. Barres, a former renowned neurobiologist, mentions postdocs are “engines of scientific progress” and are albeit their several years of doctoral training, poorly paid. He further states that postdocs should be able to take their research with them when they set up a lab.

Postdocs do not only deserve this due to their hard work, but this kind of “project porting” is also crucial for a young researcher’s success in the academic world, so Barres.⁴

But besides these arguments, there is another layer that underlines the importance of supporting young researchers in their career: Young scientists/groups can bring scientific progress by changing and breaking with conventional ideas.^{4, 5}

As scientific innovation eventually might have a societal impact^{6, 7}, supporting young researchers on their journey to scientific independence benefits our society as a whole.⁵ In our March issue we elucidated the outstanding importance of the responsibility science harbors.⁸ For lab leaders, to ensure young scientists to flourish and to let them set foot in the academic world means therefore also to fulfill a responsibility.³ But how does it come to these cases in which the interests between a PI and a departing young scientist are seemingly so different?

Young scientists/groups can bring scientific progress by changing and breaking with conventional ideas

Unawareness as part of the problem?

In a previously conducted postdoc survey series (conducted in 2008, 2010 and 2012) it became apparent that regardless of whether it is academics, industry or other possible posts, a mentor’s support appeared to be crucial for a successful career for the majority of the surveyed individuals.⁹

But there seems to be a discrepancy between postdocs about to venture into the next career step and us PhDs or younger postdocs.

Apparently, many PhD holders or younger postdocs fail or do not dare to ask about scientific independence right from the start. This might be due to several reasons, such as unawareness of the matter or even concern that questions in this regard might upset their potential PI and worsen the chance to get the job.^{3, 4}

As generic as it may sound, let us lead an open dialogue, because awareness empowers!

Awareness as part of the solution!

But how can this matter be tackled, or is it something that will keep on existing in our system in which science and economics are intertwined? However, there is something every one of us can do. The key here seems to be awareness and communication. An important first step is to inform ourselves about labs we apply to. We can check where former postdocs of the respective lab ended up, did they pursue an academic career afterwards?

We could even try to contact them to search direct conversations and advices. When invited to an interview, there is usually also the chance to talk with current staff and this is a great opportunity to learn more about potential future prospects.¹⁰



Finally, we can talk directly with the PI. Renée Schroeder a distinguished Austrian researcher advocates for this by saying that if these issues cannot be discussed openly from the start, it is anyways not a lab one should go to.³ Barres and others demand even structural changes to the system to fix this issue. As an example, Funders of fellowships like the European Molecular Biology Organization (EMBO) could

mandate that postdocs are free to take their projects with them.⁴ Furthermore, a mentor's training record, could be a criterion for funding committees. With good mentorship getting more appreciation in the scientific community¹¹, some structural changes don't seem so far away. But while possible changes are on their way or getting discussed, we can already actively do something to circumvent unpleasant situations, such as discussed here.

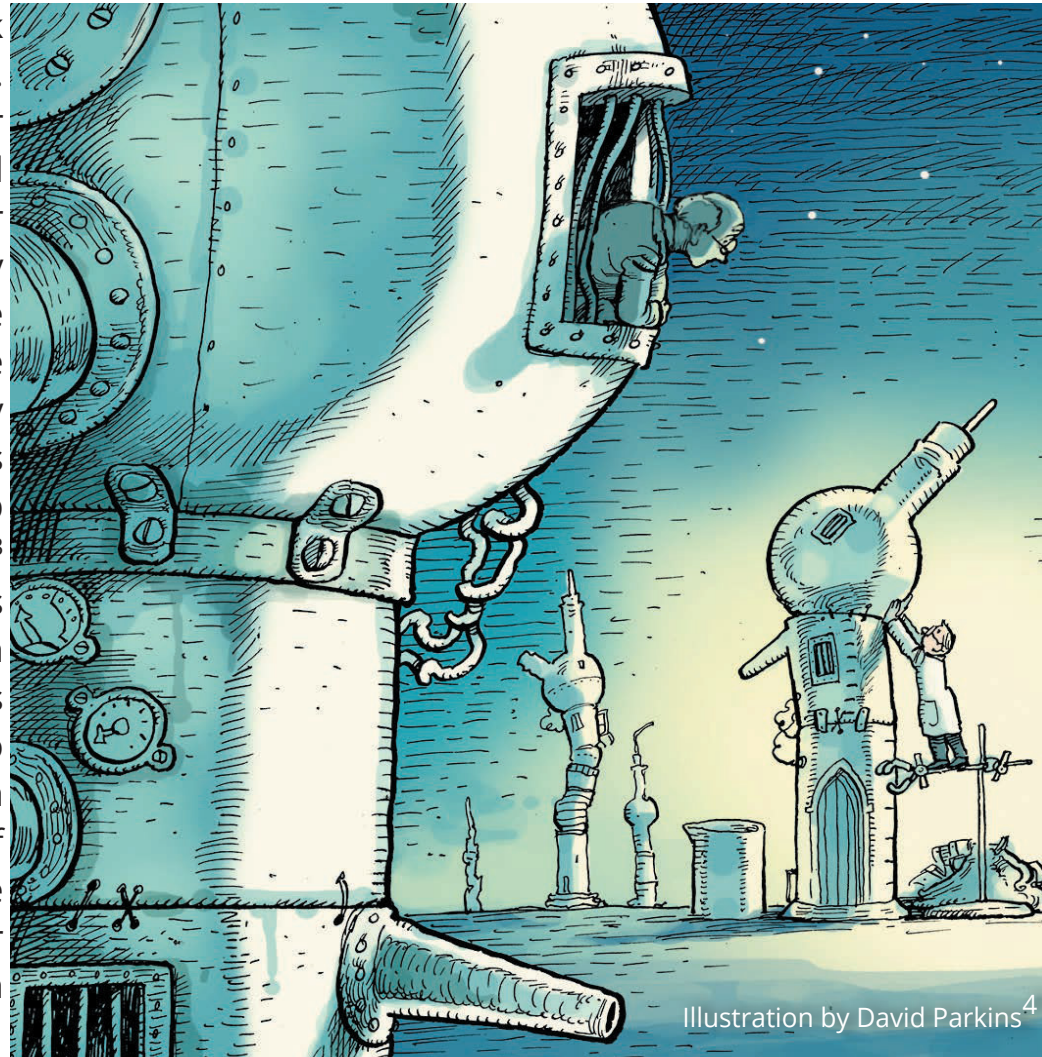


Illustration by David Parkins⁴

Let's be aware of the problem, discuss it with other colleagues. As generic as it may sound, let us lead an open dialogue because awareness empowers.

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Edited by Joni Vanneste, Donya Pakravan

DOING A PHD IN THE STONE AGE

Interview with a PI



Ludo van den Bosch
©VIB - Ine Dehandschutter

Ludo van den Bosch is head of the Laboratory of neurobiology at VIB. In 1990 he obtained his PhD at the KU Leuven and became afterwards an associate professor in 2002. Since 2013 van den Bosch holds a full professorship and is VIB group leader. His research focuses on the mechanisms of acute and chronic axonal/neuronal degeneration. It aims to contribute to the development of novel therapeutic strategies for neurodegenerative disorders, such as Amyotrophic lateral sclerosis (ALS), Charcot Marie Tooth disease (CMT) or frontotemporal dementia (FTD).

Q1: How would you describe the experiences that you made during your PhD time?

I still consider my PhD time as the best period of my career. Focusing 200% on scientific research without any other concerns was for me a dream that came through. I was also lucky to perform this research in one of the largest labs at that time (Physiology) and I could perform my experiments next to many other talented scientists. We worked very hard, but we also had a lot of fun. Not that everything was perfect. A few months after I started my PhD, my promotor became seriously ill and after more than a year it became clear that he was not able to take up his responsibilities again.

The research line that he was working on was stopped in the lab. However, I was too far advanced in my PhD and had no other option than to continue my project. The advantage was that I got a lot of freedom to finish my PhD in the best way possible. When students complain about their situation and the fact that supervision is not perfect (something that doesn't happen frequently...), I always give them this as an example that it does not automatically harms your career. On the contrary! Having said this, I am convinced that the mentors that you have during your PhD period are crucial and have an important influence on the rest of your career. The fact that my promotor was not there was compensated by other professors, staff members, post-docs and PhD students supporting me a lot.

This solidarity was extremely important to bring my PhD to a good end!

Q2: Are there things you are specifically proud of, or things that you would approach differently in hindsight?

I regret the fact that I never had the opportunity to go abroad for a post-doc. There were mainly familial reasons for this, in combination with the fact that I never had the ambition to stay in academia. However, at every stage in my career I got opportunities that were much more attractive than anything outside academia. I am proud of the fact that I was always able to take successfully the next step in my career. I don't believe that I am extremely brilliant but I compensated this by working very hard and by always collaborating with brilliant colleagues. In addition, I was lucky to meet the right people at the right moment. After my PhD, it was Prof. Rik Casteels who gave me the opportunity to start a post-doc in his lab and afterwards Prof. Wim Robberecht needed someone to help him to start a lab when he came back from the USA. The rest is history....

The main advice that I would like to give to PhD students is that they should take the full responsibility for their PhD

Q3: Which advice(s) or tips would you give us PhDs on our way?

The main advice that I would like to give to PhD students is that they should take the full responsibility for their PhD project. If things don't work the way you expected, look for advice. Search for expertise within your lab, within the VIB department or even outside Leuven. Do this in collaboration with your promotor and try to make your project better than the original one. Take initiatives! The best PhD students are the ones that I have to tell that they should NOT perform a certain experiment. Most of the times this is because it is too expensive....



Is there life after a PhD?

In this section, we interview former PhD students about the value of their PhD and which career moves they made later on



Where and in what did you do your PhD and what did you enjoy the most?

L: During my PhD I studied the role of SMAD5 in heart and Blood Vessel development in the lab of An Zwijsen and Danny Huylebroeck in KULeuven. I enjoyed working with genetically modified mouse models.

I: I did my PhD in the University of Navarra in Spain. I studied different chromosomic regions that were involved in Acute Myeloid Leukemia. My work was very close to patients and knowing that the results could be translated in maybe a better diagnosis or even on a treatment option was amazing.

What is the most important thing you learned?

We both agree that we learned to be persistent and patience. Not every day is a great day but the satisfaction when the results come after months of work is wonderful. We also learned that there are not real failures but lessons learned and those experiences will help you on later moments in your life and help to build your personality.

After completing a Phd and several years of post-doc, Luc and Idoia decided to start their own company, called Somersault18:24. This unique company helps publishers and research scientist to create professional scientific illustrations.

Be water, my friend

One quote we can also apply here is the one by Bruce Lee "Be water, my friend". The PhD journey will demand a lot of mental flexibility and constant changes.

How did the idea of Somersault emerge?

I: When I finished my PhD I decided to join as a Post Doc the lab of Jan Cools that is focused in study the molecular mechanisms on Acute Lymphoblastic Leukemia.

On my second year at this lab, Luk joined as a Post Doc to take care of the mouse models in the lab. This is how we met. In the next years, the idea of moving into science communication started you emerge and mature. We were specially inspired by visual communication. Luk was then learning Blender, a 3D modelling software, on his free time. We started to use these newly acquired skills for our own work for presentations and figures and later for colleagues and other scientists. Our first real client was the peer-review journal Haematologica. At that time, Jan Cools was the editor in chief and we got the opportunity to prepare figures and covers mostly for them. Our clientele increased over the next months and years and somersault18:24 was born.

Currently we serve several journals like Haematologica, Blood, Hemasphere, Cardiovascular Research and European Heart Journal and we also work for individual author. Recently we had the honour to work for Susan Hockfield (16th President of MIT - 2004-2012) illustrating her latest book.

Which skills that you obtained during your PhD proved to be useful later?

As we mentioned before we think flexibly, persistence and patience are probably the top 3. The scientific knowledge and critical interpretation of data is also useful for our work especially nowadays with all the fake news.

What is Somersault 18:24?

The main passion from Somersault is to create artistic and comprehensible scientific illustrations. Beside this, Somersault also offers much more, from communication and illustrations workshops to even making scientific inspired jewelry.

Definitely check out their websites:
<https://www.somersault1824.com/>
<https://www.sciencejewelry1824.com/>

PhD confessions

Because we've all been there...

€10,000 down the trash...literally!

Through my second year of my PhD, we decided to establish a new protocol in the lab to enrich for microbial genomes directly from clinical specimens using custom designed RNA probes. After months of designing the experiments, it was time to get our hands dirty.

This is a 3 day protocol with multiple incubation steps - as you can imagine, it tends to become pretty boring! The last incubation period runs for 24hrs in which RNA probes hybridize to the target DNA. When the latter is complete, the DNA-RNA complex is fished out of the sample using streptavidin beads. These beads require multiple washing steps where the supernatant is thrown out after every wash. Finally, the DNA is eluted from the streptavidin beads-but being accustomed to throwing out the supernatant after so many washes, I pipetted the precious eluate right into the trash bin...then it hit me...I just trashed thousands of euro worth of material! During my next 1-1 with my PI, I mentioned that we had undetectable DNA concentration in our eluate for an 'unknown' reason and that we would have to run our experiment again. Luckily, this was only a proof of concept experiment and no actual clinical material was used/lost!

Anonymous



Melting ice

As we all know sometimes your so busy working that at the end of the day you forget to toss out the ice from my ice box. This also happened to me on a Friday as I was very much in a rush. Suddenly on Sunday morning I got an angry message from my boss saying that the entire icebox had leaked onto the benches not only making my bench, but also that of our new colleague into a swimming pool. With this she said that it should better be cleaned up by Monday morning and that I need to pay more attention to cleaning up after myself as I might have destroyed valuable papers. As I was very new still I panicked and went in and cleaned all the benches, even drying out a manual of 50 pages, page by page. The next morning she walked in and I apologies for the flood and especially the notebook of my colleague she had told me was completely wet. I will never forget her reply "Oh that booklet. Ah that was not important, I think it was a crappy training I had followed" and tossed the booklet I spend the whole night drying in the trash..." I swore a bit inside...

Steffie Junius

You have a confession to make?

Mail us at Optimist.PHD@outlook.com

PhD survival tips

HOW TO COPE WITH FAILURE?

Most of us will fail so often during our PhD that we start questioning our own competence as future scientists. However, it is essential to realize that it is completely normal to fail and what is more, failure is essential to become the best version of ourselves. Yet, many of us were not prepared for this and mainly because of two reasons.

Failure as a building block of science

First, as graduate students, and later on, **we mainly encountered fancy articles and polished presentations**. That failure is a part of success and more importantly, a building block of science, was hard to tell. This can lead us to falsely believe that all we need - on our way to great discoveries - is an idea and hard work. Yet, this is not reality. Sheer enthusiasm, enough self-confidence and most of all, indestructible persistence are indispensable, because failure is inevitable. These characteristics will keep you going when you keep on failing. The Nobel Prize winning physicist Niels Bohr described this in his famous quote: "An expert is a person who has found out by his own painful experience all the mistakes that one can make in a very narrow field".

Second, most of us grew up with **instant gratification**. We want it now. We got so used to seeing instant results and immediate successes that we sometimes forget that somethings just take time, and doing science is definitely one of them. Being this unrealistic impatient brings us in danger of creating too much stress. Moreover, it can make us vulnerable for the outside pressure to publish fast, which results in low-quality science.



Most of us are afraid of failure and we do not realize how much it actually can offer us. It is important to know how to turn failure into success. Even when you eventually decide to stop a project or experiment, after months or even years of hard work, the experiences and networks you have built could enable you to nail your next project. Remember that it only takes 1% of success to reach your goal. In order to do so, you need to realize that just because an experiment failed, it doesn't mean that you failed. Moreover, doing science is not worthwhile unless you take risks. If we approach experiments with a grim determination to avoid risk, we will never do great science. Also, we should not call something a failure too quickly. When an experiment is not working out, it does not mean it has failed. Every failed experiment is one step closer to success.

We could for example all learn a lot more if we not only discuss our results, but also the *progress* – and the corresponding struggles - to obtain these results at progress seminars.

As you only can do great science through failure, knowing how to handle failure is a skill of great importance. We all have the talent and education to succeed, but do we have the guts to fail? Know that failure is an inside secret between scientists. Remember this, if you are not failing, you are not trying hard enough. Do not take it personal. Learn, move on and apply what you learned. This is the only path to real progress and success. Moreover, without our failures we would never really appreciate our successes. Never be discouraged, never hold back and when you fail, fail big.

Fun things to do besides your PhD

Every month

Brussels Museums Nocturnes (Brussels)
Every Thursday evening from 19 September to 5 December, different museums in Brussels open their doors from 17:00 to 22:00.
www.brusselsmuseumsnocturnes.be

Afterwork Party – Club Royale Afterwork @ De Hoorn (Leuven)
Get your dancing shoes on every second Thursday of the month for an afterwork party in the machine room of an old brewery.
www.clubroyaleafterwork.be

22 - 24 Sept

Wine fair (Leuven)
Wine and food fair in Hal 5.
www.winefair.be

3 Oct

Exhibition: Women in Art
Cobra bar – Brussel
See their facebook event

3 - 6 Oct

Nuits Sonores and European Lab Brussels
Tickets: www.bozar.be



Kanji Sudoku

Do you like sudoku? try some next-level character sudoku with kanji characters
一: 1, 二: 2, 三: 3, 四: 4, 五: 5, 六: 6, 七: 7, 八: 8, 九: 9

六	七			四	九			
	二		六		五	七		四
九	四	五			七	六	二	三
				二	八		五	一
三		七	四					
	一					九		
一			三		四			
	三		九	七	二	一	六	八
七	八		一			四	三	九

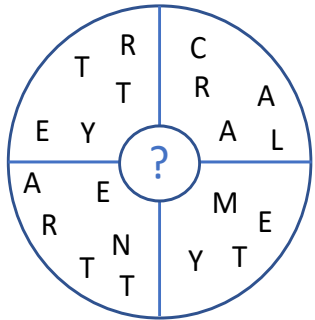
Riddles

Solve the 3 puzzle pictures below. Solution can be found on the bottom right edge of this page

1.
2. BLAME
3. BLAME
NEARFRIENDED
TRAVEL
CCCCCCCC

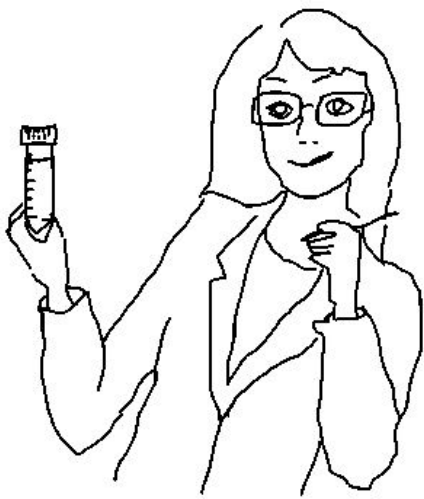
Letter Puzzle

Reorder the letters in each “pie” segment below, then find the missing letter that completes each word. (Hint: The missing letter, indicated by the question mark, is the same for each word.)



HEY, IT'S OKAY TO...

Science is serious business,
but we may share similar frustrations



.... to walk to the other side of the hallway, and forget why you went there, hide in the stock room, convince yourself it's not early-onset dementia from the recombinant proteins you are working with, elegantly exit out

.... Conduct a western blot on overly confluent cells (or is it?)

... not remember how you did a method when you start writing (HELP!)

... sometimes hate your collaborators (group school projects didn't prepare you for this level of collaboration)

... not see eye to eye with your PI, just back up your claims with strong evidence

... constantly doubt your own work (it's a good thing, just don't overdo it)

..... print your poster accidentally with maximum dimensions suggested by Gordon Conference, show up to conference and realise there is no space on the board (at least they won't need glasses)

..... To prepare cells for -80 with labels, and place them in the 4-degree fridge instead

.... Forget to codon optimise your sequence

... bribe your colleagues for confocal slots (cookies?)

... confused your lab book for someone else's, write in it, wonder if you should tear the page, return it to persons desk

... take a train to Louvain la Neuve, change at Wavre to accidentally take a train back to Leuven

...declare a silent war on other labs for claiming your kitchen space

...if your student corrects you

... if you are scared of the dark, no lights in the lab remind us of scary movies

... email your input to Optimist.PhD@outlook.com

Thank you

PI interview

Ludo Van Den Bosch

PhD interview

Idoya Lahortia & Luk Cox

PhD confessions

Anonymous, Steffie Junius,

Fun things to do

Hava Izci

Hey it's okay

You, for inspiring us

credits to [Unsplash.com](https://unsplash.com) for the pictures



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The Optimist Team

Matthias Koch, Donya Pakravan & Joni Vanneste

References

1. C. Woolston, Graduate survey: A love-hurt relationship. *Nature*. 550, 549–552 (2017).
2. Life as a Postdoc: Dealing with Challenges and Finding Success - Enago Academy, (available at <https://www.enago.com/academy/life-as-a-postdoc-dealing-with-challenges-and-finding-success/>).
3. E. Pain, Pls need to help postdocs develop their careers. *Science* (80-.). (2018), doi:10.1126/science.caredit.aau9097.
4. B. A. Barres, Stop blocking postdocs' paths to success. *Nature*. 548, 517–519 (2017).
5. Young people are the future of science, (available at <https://www.cifar.ca/cifarnews/2018/05/29/young-people-are-the-future-of-science>).
6. Reward research that changes society. *Nature*. 553, 5–5 (2018).
7. S. Friesike, B. Fecher, G. G. Wagner, Teach young scientists the importance of societal impact for research. *Nature*. 554, 300–300 (2018).
8. The Optimist – VIB & KU Leuven Center for Brain & Disease Research, (available at <https://cbd.vib.be/community/the-optimist/>).
9. The postdoc experience: High expectations, grounded in reality | Science | AAAS, (available at <https://www.sciencemag.org/features/2012/08/postdoc-experience-high-expectations-grounded-reality>).
10. Know What To Look for When Choosing a Mentor | NIH: National Institute of Allergy and Infectious Diseases, (available at <https://www.niaid.nih.gov/grants-contracts/choose-mentor>).
11. Mentoring matters. *Nat. Cell Biol.* 12, 101–101 (2010).

Correction for the June Optimist edition: We mentioned that 50% of the professors employed at the KU Leuven are female. However, this was incorrect. Female professors currently only account for 25% of the KU Leuven professors.

