

The Optimist

A journal to help you survive the valley of shit



September 2020 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, Joni & Hava

Cover from Unsplash: credits to United Nations COVID-19 Response

Removing barriers in science

A culture that inoculates disability inclusion

Many of us encounter surprisingly heavy doors or narrow stairs on a daily basis. For us, these are a daily nuisance but for individuals with a physical disability those objects are often **extremely difficult to overcome**. While this is a problem on its own, people with disabilities face many more barriers than just those of an “architectural” nature.

When talking about people with disability, many think about someone using a wheelchair or walker (1). But there are numerous forms and types of disability including mental impairments. Taken together a considerable part of the society is affected by one or more disabilities. To look at some numbers: according to the UK's Office for National Statistics, 19% of working age adults in the UK have a disability (2, 3). Further, in a study conducted in the United States it was found that 30% of professional employees have a disability, following the U.S. federal definition of disabilities (4, 5). While the exact number of people with disabilities is difficult to grasp, it is clear that disability itself is an extremely relevant topic to address for society and especially within the scientific community.

To conclude with the statistical jargon for now, there are approximately 75% fewer individuals with disabilities represented in the science, technology, engineering, and mathematics (STEM) disciplines, when compared to the general population (6). This very clearly shows that there is a need for action within the scientific community. Individuals with disability not only **have the right** to be able to pursue a scientific career **like everyone** else, they even enrich science in ways only they can.

One impressive example is Mona Minkara, an assistant professor in bioengineering at Northeastern University in Boston. Minkara is blind and as graduate student she had to study the molecular dynamics of a protein. Not being able to see visually the protein's movement she found a way to plot her data to interpret the protein dynamics mathematically. This proved to be not just a help for her, but for her science field as a whole. She saw patterns in the data that were overlooked by her sighted colleagues (2).

30% of professional employee have a disability



Disability is more than meets the eye

Before we dive deeper into the structural problems that hamper people with disabilities to go for a scientific career, we should have a very clear idea of what a disability actually is. The World Health Organization (WHO) states that **disability is an umbrella term for many forms of impairments** (7). Quite literally, there is more to disability than meets the eye. As many forms of disability are invisible from the outside. Additionally, a survey in the U.S. has found that the majority of people with disabilities do not even use any visible devices (1). To conclude, disability affects a substantial part of society, is often invisible and comprises both mental and physical conditions.

A culture that preserves barriers?

But what are the reasons why seemingly so little people with disability pursue a career in science and are successful with it? Often criticized is a lack of accommodations in institutes and laboratories (2, 8, 9). A lack of accommodations, such as ramps, or electrical doors can present a barrier that might prevent someone with disability to start the PhD of their choice, for instance. This lack of accommodation represents one issue that is surely a problem at many workplaces.

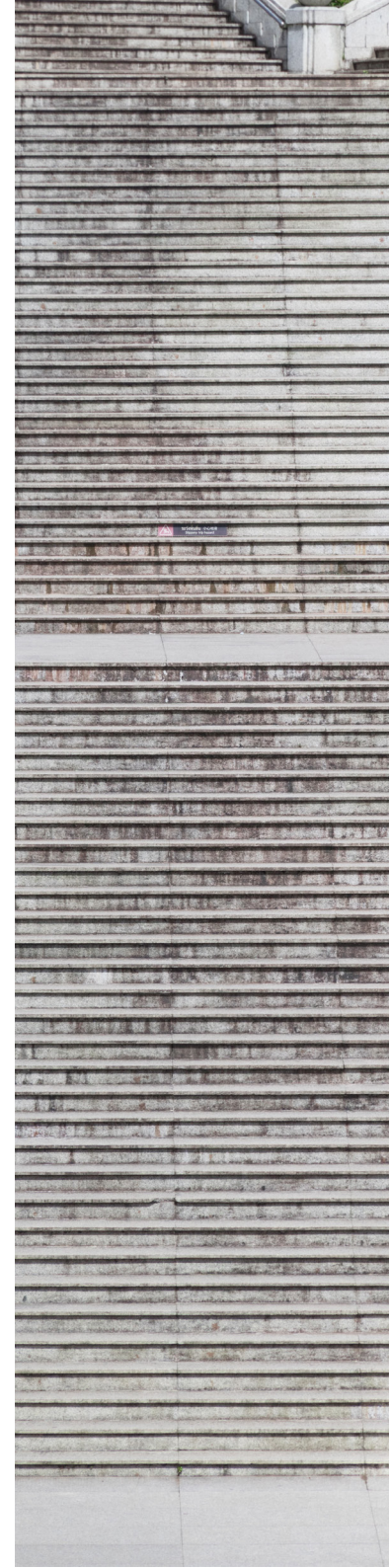
However, there is another problem, more specific to the scientific field, that is consistently mentioned by students/PhD candidates with disabilities – the scientific culture (2, 9, 10). Students with disability experienced hostility not only from their peers but also their professors.

Disabilities often are not part of the diversity and inclusion conversations

Some position the work ethics of the scientific culture that prioritizes a “pathological” devotion to work over mental and physical wellbeing, as central for the problem (9). While many institutes highlight the importance of inclusivity for people with disability, those statements often do not transition well into practice (10). For the situation to improve, open dialogue has to happen to find respective solutions. However, Jason Grieves, a senior program manager at Microsoft and an advocate for individuals with disability pursuing a career in the STEM field remarks: *“Though awareness of issues of diversity and equity related to gender and ethnicity has become more widespread, disabilities often are not part of the diversity and inclusion conversations”* (11). This opinion resonates well with individuals affected by a disability, who say they do not have a voice (10).

An open culture of exchange – the most valuable accommodation

To give individuals with a disability equal chances to start a career in science, we need to open up our culture, even more than we need to provide accommodations. *“It is **the culture**, not the [unbuilt] ramp, that **will drive people away**”*, finds Jesse Shanahan, an astronomer, who also works as a freelance accessibility consultant (2). Individuals have to be empowered to make decisions that support their health and general work-life balance. That this is more than just a subjective opinion becomes clear, when looking at the numbers.



In fact, Only 39% of employees with disabilities have enclosed to their manager and only 21% to human resources (HR) as found in a U.S. study (5). Often the fear is too great that a disability will lead to disadvantages. Therefore, creating an open culture, in which accessibility and flexibility play a crucial role would greatly facilitate people with disability to dedicate to a STEM discipline. A culture would be desirable, in which, somebody does not even have to communicate their disability, a culture in which **individuals are empowered** to figure out what is best for them. It has to be highlighted that this is **not a request for anarchy**. It is important for us to understand that an open culture with flexibility does not compromise scientific success and output.

Disability does not mean inability

There are/were many fantastic scientists with a disability such as Stephen Hawking or Mona Minkara, who have clearly proven that **disability does not mean inability**. We have to create a culture that gives everyone the chance to participate and enjoy science. Let us finish with a statement of Minkara, which, as I find points to a central problem: "We get so caught up in the whole competition and ambition, and might think of someone who is different as slowing us down ... This is such a negative value that is hindering us in all areas of science. My advice is to **work with students of all abilities** because it will pay off on the end, even if it takes a little more time" (2).

Written by Matthias Koch

Edited by Donya Pakravan, Joni Vanneste & Hava Izci



DOING A PHD IN THE STONE AGE



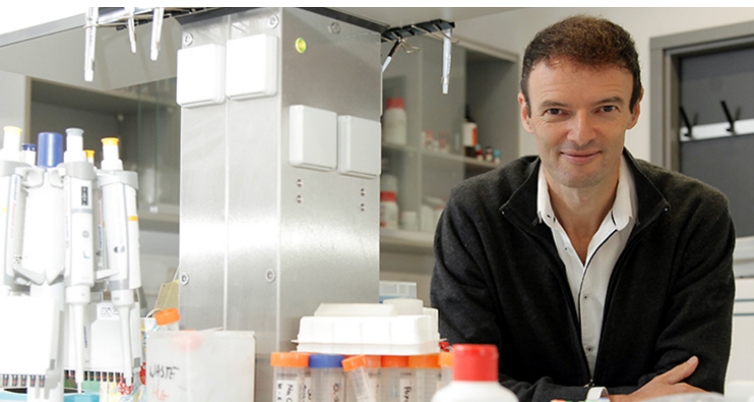
Prof. Johan Swinnen, as the head of the laboratory of lipid metabolism and cancer, is also full professor at KU Leuven and involved in cancer research in many other ways. He has many management positions such as the vice-chair Leuven Cancer Institute and chair of the Fund for Innovative Cancer Research. The research team of Johan Swinnen focuses on altered lipid metabolism in cancer and works with mass spectrometry-based lipidomics technology

How would you describe your PhD experience?

When I graduated as Master of Science in Biochemistry back in 1987 and was looking for a place to start a PhD, I got the opportunity to go to the USA and to join a team at the University of North Carolina at Chapel Hill. I had never been away from home for more than a week, and there I was all alone at the age of 22 far away from family and girlfriend at the other side of the world for an adventure that would take almost four years. At that time there was no email, skype or WhatsApp, only real paper letters that would take a week to cross the ocean and phone calls that costed a fortune.

There was one computer in the lab with green letters on a black screen and a list to make reservations. I had little research experience and was expected to clone the human homologue of a *Drosophila* gene. When I sequenced the gene, I realized I was the first human being ever to unravel the code of that particular gene. Quite an amazing feeling. What we originally considered sequencing mistakes turned out to be the evidence for the existence of a whole family of genes.

I realized I was the first human being ever to unravel the code of that particular gene



So instead of cloning one gene, I discovered 4 of them and published the results in PNAS. My PhD was secured and I was motivated more than ever to start a career in science. The next two years I worked hard to find a link with cancer. But without success. I returned home and after 18 months of civil service at Gasthuisberg, I made a new start to fulfil my dream to become a cancer researcher.

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

Despite the initial disappointment that I could not find a role for my cloned genes in cancer, I have pursued my dream to become a cancer researcher.

Soon after, I discovered that lipids are important in cancer and despite the lack of interest in the field at that time I stubbornly continued that line of research and I still hold on to it as I believe it has great potential for cancer treatment.

When later on my youngest son got affected by cancer, I did everything I could to promote cancer research and to accelerate discoveries. I ran from Leuven to Compostela in Spain and two years later I ran from Leuven to Rome. I took up management positions as chair the Department of Oncology, vice-chair of the Leuven Cancer Institute, and member of many other boards.

Hold on to your dream and don't let a disappointment set you back

In the end, these functions, together with my teaching duties which I absolutely love, fully occupied my days (and nights) and I barely found the time to follow up the research in my lab. Now eight years later, most of these coordinating and administrative functions came to an end, and I am looking forward to go back to the lab and continue to pursue my dream as researcher.

Which advice(s) or tips would you give us PhDs?

Hold on to your dream and don't let a disappointment set you back. Be open to the unexpected. Observations and findings that don't fit your concept are often the most important ones and lead to new discoveries. Connect with people.

Do science because you love it.

In collaboration you can do so much more. Be creative, keep up with the ever-changing face of technology, and be careful not to get stuck in the rat circus that science sometimes can be. Do science because you love it, and because people are counting on you to find solutions for real life problems.



Professor Swinnen drawn by son Pieter

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.



Tijs Vandoorne finished his PhD in the lab of Ludo Van Den Bosch in 2019 (Lab of Neurobiology). After successfully defending his PhD on the role and therapeutic potential of energy metabolism in ALS, he chose to go for a career path as patent attorney trainee at NLO.

What did you enjoy the most during your PhD?

During my PhD I was lucky to work in a lab with an everything-is-possible-atmosphere (when my PI agreed ;)). This attitude is what I enjoyed the most during these 4 years. What I also really liked was the fact that you are involved in every tiny step from the project from A to Z, this is not highly efficient, but you learn so much from it and it makes the reward at the end very big.

Why did you decide to leave academia and go for your current job?

I have always been interested in the societal potential of scientific breakthroughs. Therefore, I wanted to explore a step of the R&D process closer to the patient. I ended up with intellectual property after talking to Bart De Taeye, business development manager at VIB, about patents. Shortly thereafter I got in touch with one of my current colleagues to ask what he's doing, the pros and cons of the job. Based on this conversations I decided to apply and dove into NLO's selection procedure.

 Have a plan B, C, D and E



What are your main tasks and which skills that you learned during your PhD proved to be useful?

My job mainly exist of advising clients regarding their intellectual property or patent portfolio and strategy. I talk to all sorts of people from professors , to spin-offs or even big pharma. Besides this, I got the opportunity to follow a training program at Nijmegen law school to become a qualified Dutch patent attorney. I think doing a PhD is very often a prerequisite to become a patent attorney in the field of lifesciences. This mainly because you need an in depth understanding of the science. During the procedure leading to the grant of a patent there is an in-depth scientific and legal discussion between the authorities which grant the patent and the patent attorney who represents his/her client.

In addition to the science you also really need scientific writing and argumentation skills. This is also something which most of us develop throughout our PhDs.

What would you give as advice to PhD students?

Try to explore which career path you would like to pursue along your PhD. Talk to as many people as possible. Most students are not aware of all the different opportunities out there for PhDs in life sciences. Prepare yourself as good as possible for interviews. Get an image of the type of questions and tests you will get. Understand the company where you apply. Do a background check of the people you will be working for/with. Have a plan B, C, D and E.

9 TIPS for NEW PhD students

Welcome to our September edition, we would like to highlight tips especially for the upcoming or new PhD students:

1. Your **PhD is a marathon** so don't burn out before the real race has even begun.
2. **ORGANIZE, ORGANIZE, ORGANIZE!** Don't save things to your desktop, do label everything, do keep a well-maintained lab book. For tips how to organise better we recommend a lot of useful online PhD tips for this topic (1, 2) .
3. The nature of research means that things will not always go according to plan. Unfortunately, you will soon learn that experiments will fail. Accept that **failure is part of the scientific discovery**.
4. Try to read reviews and not try to overdose in hard core scientific studies. Understand that it takes time when you are a junior scientist to understand papers written by senior scientists. Try to attend as many journal clubs to boost your reading ability.
5. Try to get in the habit of **not comparing** yourself from the beginning. Each PhD project is a recipe of hard work, good hypothesis, trend, luck, guidance and support. These ingredients will be variable to all students. The sooner you learn to focus on your own work and not compare yourself to others, the future you will be very grateful. In the end everyone will make it.
6. **Take it easy!** Do work hard but don't try and break unrealistic records.

7. Have fun! It is so important to **enjoy your PhD** as a whole. This is possibly the last time ever you will be ever considered a student. Try to put yourself out there not just scientifically but also socially. Try to embrace all the non-science related stuff because later you won't have so much time to be this carefree. Enjoy the relationships and join in on the ups and downs of PhD life with your peers. Never struggle on your own and try participate in the "fun" activities too.

8. Many of you will be busy applying for funding in the first couple months of your PhD. **Ask for help** when it comes to practicing. Practice makes perfect.

9. And lastly, look after yourself both **mentally and physically**. We know approximately 36% have sought help for anxiety or depression related to their PhD (3).

** if you are a new PhD student and would like to participate in The Optimist please let us know! We are always looking for bright enthusiastic students to join us.*

GOOD LUCK incoming class of 2020



News you may have missed

We all know how depressing reading the news can get, especially if you are already having a tough time at work. But do not despair! We've navigated through all that negativity to come up with a selection of articles that are guaranteed to lift your spirits!

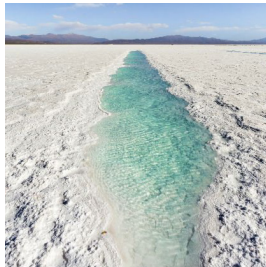
Vaccine for Lyme's disease is deemed safe in a phase-2 trial

The multinational biotech company Valneva just announced the successful completion of a Phase 2 clinical trial concerning a vaccine for Lyme's disease (1). Lyme's disease is a well-known condition that affects hundreds of thousands every year (2) and is infamously transmitted to humans by Ixodes ticks infected with Borrelia bacteria (3). It is conventionally treated with one or more rounds of antibiotics, but more serious complications can arise when not detected. Valneva promised to update on the results within the next few months, which means that these nasty parasites may become a lot less worrisome for all the outdoor enthusiasts amongst us, from the most adventurous hikers to the avid picnickers.



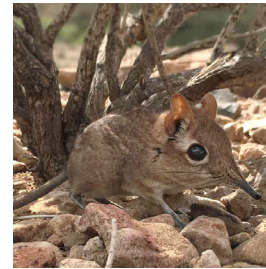
New high-yield, low-energy filtering system for seawater

A team of chemical engineers from Monash University in Melbourne, Australia, just published a very promising new approach for the desalination and purification of saltwater and brackish water (4). In the Nature Sustainability article, they explain the design for a filtering system based on a functionalised metal-oxide framework (MOF), which guarantees a freshwater yield of 139.5l per kilogram of MOF per day. Given that the process can be triggered by sunlight, this approach is environmentally-friendly, energy-saving and has the potential to affect a lot of areas around the world where access to freshwater is limited.



The Somali Sengi is back after a 50-year hiatus

One more species has been crossed off the list of the 25 Most Wanted Lost Species compiled by Global Wildlife Conservation (GWC) (5). This evasive elephant-shrew commonly known as Somali Sengi (Elephantulus Revouilii) was recently spotted by a team of biologists from Duke University on an expedition in Djibouti (6). With the help of the locals and meticulously planned traps (using peanut butter as bait), they managed to record the first sightings of these mammals since 1968. Every species crossed off this list is a victory for the preservation of biodiversity and it makes us hope that the environmental impact of human activities can be reversed through carefully studied policies.



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Risotto with pesto,
cherry tomatoes and burrata

Chef's corner

Preparation time: 35 mins | Serves: 4

- Ingredients**
- For the rice:
- 300g risotto rice
 - 2 shallots
 - 3 garlic cloves
 - 1 liter of vegetable stock (you can simply boil 1 cube of stock in 1l water)
 - 120 ml dry white wine
 - Zest of 1 lemon
 - Butter

- For the pesto:
- 250g baby spinach
 - 30g basil leaves
 - 20g flat leaf parsley
 - 60g parmesan cheese
 - 60 ml olive oil

- Topping:
- 350g cherry tomatoes
 - 2 garlic cloves
 - Bit of olive oil
 - 2 burrata balls
 - Arugula (rocket lettuce)



- Preparation**
- 🇮🇹 Make the pesto (you can do this a day before if you like): put the baby spinach, basil, parsley, parmesan and olive oil in a blender and blend until you get a pesto paste. Season with a little pepper and salt.
 - 🇮🇹 For the risotto, melt a bit of butter in a pan. Finely chop the shallots and garlic and let it cook for a bit. Add the risotto rice and cook until the rice is slightly translucent. Deglaze the rice with the white wine.
 - 🇮🇹 Add a small amount of the vegetable stock to the rice. Every time the rice has absorbed the stock, you can add a bit more. Repeat this until all the stock is absorbed.
 - 🇮🇹 In the meantime, cook the finely chopped garlic and halved cherry tomatoes in a bit of olive oil for the toppings. Cook until the tomatoes are soft.
 - 🇮🇹 Now that the rice is cooked, you can mix the rice with the pesto and bit of lemon zest. Season with salt and pepper to your liking.
 - 🇮🇹 Plate the rice with pesto and add the toppings: cherry tomatoes, burrata and arugula.

Credits to @forhungryhomies on Instagram for the recipe and picture!

Fun things to do besides your PhD

- 2-4 October

PUP – plant POP-UP store @ Hal 5
PUP is a traveling pop-up concept of trendy houseplants. They are in Leuven for the second time. Tropical exotics, green - pink - gray house plants, oxygen factories, air regulators, plants for in dark corners or sunbathers. We have a plant for every pot.
See Facebook-event or www.pupplants.store
- 12 November

BCF career event (online)
BCF Career Event is the largest Belgian career event for the Life Sciences. It is the meeting place for everyone who is or wants to be active in Bio/Life Sciences, Chemistry, Food or Pharma. BCF Career Event offers you the opportunity to get into direct contact with a broad range of employers in the sector, but also with other organisations that can help you further in your career.
www.bcfcareer.nl
- 5-12 December

Leuven Short film Festival
www.kortfilmfestival.be
- 31 Jan. - 7 Febr.

Gent Light festival
www.lichtfestivalgent.be



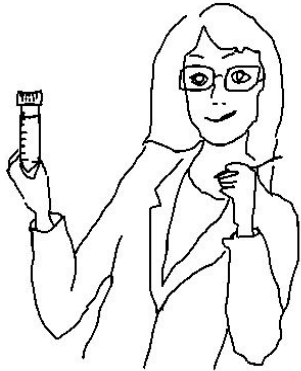
BINARY PUZZLE

You must complete this binairo, binary puzzle or takuzu in such a way that there are as many ones as zeros in each row and column. If the grid consists of eight squares, you must enter a 1 four times and a 0 four times. You may not put more than two equal numbers next to each other. Identical rows or columns are not allowed.

				1			1
		1		1			
1		1			1		
			1	0		1	0
1	0						1
	0					0	
		0	0				0
				0		0	

HEY, IT'S OKAY TO...

Science is serious business,
but we may share similar frustrations



... talk while being on "mute" then forget what your point was...

... take some ampicilline plates from your friend's lab :)

... accidentally post the wrong message in the lab whatsapp group

... enter the rabbit hole of reddit

... be in your final year and still be unsure what to do next

... worry if academic job security will exist post covid

... wonder what to watch on Netflix in 2021???

... relate more and more to Rick (from Rick and Morty) every year that passes you by

... read the news one moment think humanity is doomed but continue running your failed western blot a 4th time because if we are all going to die, we may as well die knowing if our protein was there or not?

... explain to family members that you are not doing covid research and that you can't predict the exact date of the vaccine for grandpa Will

... show a little love to ATP staff who are the pillars of our labs <3

... explain to family members to not believe all hoax theories on covid

... think sometimes that this is all a dream and that you are still going on that planned vacation in October

... watch TV and see people interact and be confused because it seems un-normal now

... Last but not least, it's okay to not know how to interpret good/bad data



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

You have a confession to make?

Mail us at Optimist.PhD@outlook.com

Thank you

Comment

Matthias Koch

PI interview

Johan Swinnen

Is there life after a PhD

Tijs Vandoorne

Fun things to do

Hava Izci

News you may have missed

Simone Marcigaglia

Chef's corner

Credits to @forhungryhomies on Instagram

Hey it's okay

You, for inspiring us

Pictures

Unsplash.com

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The Optimist team & Liesbeth Aerts



@optimist.phd



@OptimistPhD

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Comment

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PhD Survival tips

1. PhD Tips: How I Get Organized. One great thing about working in... | by Genevieve Shanahan | Medium. Available at: <https://medium.com/@GenShanahan/phd-tips-how-i-get-organized-219edbe159b3>. (Accessed: 17th August 2020)
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