VIB TIMES

QUARTERLY
NEWSLETTER
OF VIB.
SEPTEMBER 2017

STRONGER THROUGH DIVERSITY

To have world-class creative scientific minds, VIB needs to fish for colleagues from a bigger pool than the relatively small region of Flanders. International recruiting is also key to bringing new expertise to the institute. Thus, over the past 20 years, VIB has been busy attracting talent from across the globe. I am one of those international recruits, having worked in the UK and US before arriving in Leuven. I have experienced both sides of the coin, forming an opinion of VIB before I arrived, and now being part of VIB.

Six years on, one thing I am absolutely sure of is the top quality of VIB. Our institute is superb, in many ways better than anything I saw in the US and UK. Does the outside scientific community realize this? My answer is “not really”. Prior to visiting VIB, I had not heard of the institute or considered VIB as somewhere to train or work. This lack of awareness continues, and most often I find myself explaining the “institute” even though colleagues know many of our world-renowned groups. I think everyone at VIB will agree that we deserve prestige and recognition for our hard work and achievements! It may evolve naturally as local and international VIB trainees go out into the world as alumni. I had not met anyone who had trained at VIB to tell me how great this research institute is, but now as VIB matures, this is changing as well. There are also questions for the institute to further consider, including the fact that internationalization is predominantly taking place at the level of trainees in individual centers, while fewer international voices work centrally or at managerial levels.

With this international issue of VIB news, I hope everyone will consider the hard work put in by VIB to be a place where international coworkers can easily perform at their top level and feel just as much a part of VIB as local recruits. I believe it does Flanders proud to have recruited us and brought us together, and it’s impressive to be working each day alongside people from so many different backgrounds, with so many different perspectives.

Rose Goodchild, VIB-KU Leuven Center for Brain & Disease Research

STRONGER THROUGH DIVERSITY

SCIENCE MEETS SCIENCE

SCIENCE MEETS TECHNOLOGY

SCIENCE MEETS BUSINESS

SCIENCE MEETS PEOPLE

EVENTS

THE DIFFERENT NATIONALITIES AT VIB TODAY

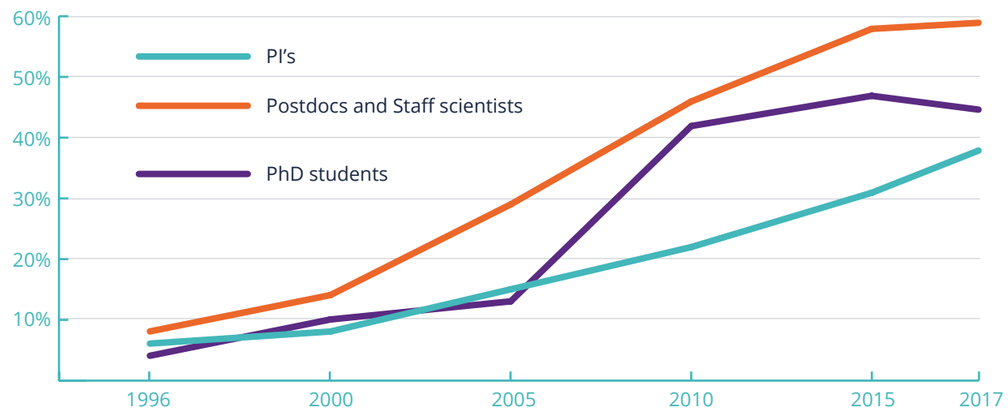
THE TOP 10

ITALIAN	51	SPANISH	41
CHINESE	50	INDIAN	30
DUTCH	46	PORTUGUESE	27
FRENCH	44	POLISH	23
GERMAN	43	AMERICAN	15

On June 30, 2017 VIB has 64 different nationalities, in addition to the majority of Belgian VIB collaborators (991 out of 1558).

EVOLUTION OF INTERNATIONALIZATION AT VIB

PERCENTAGE FOREIGN EMPLOYEES



WHEN YOU SPEAK THE LANGUAGE OF SCIENCE, MAKING FRIENDS IS A BREEZE

With around 1,500 scientists from over 60 countries, VIB honors its reputation as an international life sciences hotspot. It makes us wonder what it is exactly that attracts researchers to come here, and how they feel about our institute. And who better to ask than our foreign colleagues themselves?

THOMAS JACOBS
US, EXPERT SCIENTIST AT THE VIB-UGENT CENTER FOR PLANT SYSTEMS BIOLOGY:

I HAD TO SAY GOODBYE TO ALL MY PETS, BUT THE BELGIAN BEER PARTLY MAKES UP FOR THAT.

WILSON ARDILES-DIAZ
CHILE, TECHNICIAN AT THE VIB-UGENT CENTER FOR PLANT SYSTEMS BIOLOGY

WORKING WITH PEOPLE FROM DIFFERENT CULTURES IS VERY ENRICHING. AFTER 20 YEARS AT VIB, I'M PROUD TO HAVE FRIENDS FROM ALL OVER THE WORLD.

BARTOSZ WIERNICKI
POLAND, PHD STUDENT AT THE VIB-UGENT CENTER FOR INFLAMMATION RESEARCH

DISCOVERING THAT VIB IS FULL OF FOREIGNERS AND THAT MOST BELGIANS ARE FLUENT IN ENGLISH REALLY CONVINCED ME TO COME TO BELGIUM.

FARZANEH FAYAZPOUR
IRAN, STAFF MEMBER AT THE VIB-UGENT CENTER FOR INFLAMMATION RESEARCH

WORKING IN A MULTINATIONAL ENVIRONMENT CAN BE CHALLENGING, BUT IT ALSO INCREASES YOUR UNDERSTANDING OF THE DIVERSE WORLD WE LIVE IN.

PEOPLE FROM ALL OVER THE PLANET COME TOGETHER, DESPITE LINGUISTIC AND CULTURAL DIFFERENCES, BOUND BY A COMMON GOAL: ADVANCING SCIENCE.

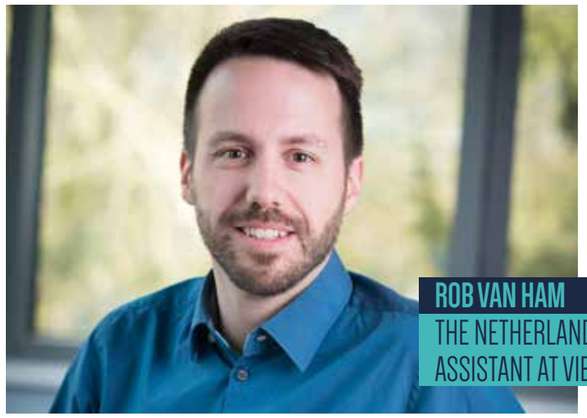
RANJAN KUMAR SINGH
INDIA, POST-DOCTORAL SCIENTIST AT THE VIB-VUB CENTER FOR STRUCTURAL BIOLOGY

BEFORE COMING TO VIB, I WAS A LITTLE WORRIED ABOUT THE LANGUAGE BARRIER, BUT I SOON REALIZED THAT WE ALL SPEAK THE LANGUAGE OF SCIENCE, SO I EASILY MADE FRIENDS.

ASHLEY LU
NEW ZEALAND, PHD STUDENT AT THE VIB-KU LEUVEN CENTER FOR BRAIN & DISEASE RESEARCH

ZEINAB HEFNY
EGYPT, PHD STUDENT AT THE VIB-KU LEUVEN CENTER FOR MICROBIOLOGY

THE VIB COMMUNITY IS BUILT ON PROFESSIONALISM, REGARDLESS OF SEX, RACE OR BELIEFS, MAKING IT AN IDEAL REPRESENTATION OF THE MULTIFACETED SOCIETY WE LIVE IN. THIS ALLOWS US TO CREATE EQUALLY DIVERSE SOLUTIONS.



ROB VAN HAM
THE NETHERLANDS, SCIENCE EVENTS ASSISTANT AT VIB HEADQUARTERS:

GETTING A FOREIGN VIEW OF YOUR WORK STIMULATES FRESH IDEAS AND PUSHES YOU TO BROADEN YOUR PERSPECTIVE.

VIB HAS MANAGED TO BECOME A CENTER OF EXCELLENCE IN EUROPE BY EMBRACING DIVERSITY AS AN ESSENTIAL ASSET FOR SCIENTIFIC PROGRESS.

ALEJANDRO ESTRADA
PERU, POST-DOCTORAL SCIENTIST AT THE VUB-UANTWERP CENTER FOR MOLECULAR NEUROLOGY

COLLEGES AND UNIVERSITIES OFFERING FOREIGN PROGRAMS OPEN THE GATE TO LOCAL AND INTERNATIONAL COMMUNITIES. SHARING ACADEMIC SPACE WITH ETHNIC GROUPS IS BOTH CHALLENGING AND A LEARNING EXPERIENCE.

SHAWEZ KHAN
INDIA, PHD STUDENT AT THE VIB-KU LEUVEN CENTER FOR CANCER BIOLOGY

LEAVING MY FAMILY AND FRIENDS BEHIND WAS HARD, BUT MY COLLEAGUES AT VIB IMMEDIATELY MADE ME FEEL WELCOME.

CARMEN BECERRA RODRIGUEZ
SPAIN, PHD STUDENT AT THE VIB-VUB CENTER FOR STRUCTURAL BIOLOGY

ONE CAN LEARN A LOT ABOUT SCIENCE AND LIFE ITSELF THROUGH WORKING IN A MELTING POT OF DIVERSE NATIONALITIES, BACKGROUNDS AND UNIQUE LIFE EXPERIENCES.

EMMA JOB
AUSTRALIA, POST-DOCTORAL SCIENTIST AT THE VIB-UGENT CENTER FOR MEDICAL BIOTECHNOLOGY

VIB-UANTWERP WAS MY FIRST CHOICE, AND IT HASN'T DISAPPOINTED ME. THE JOB AND ENVIRONMENT FIT ME LIKE A GLOVE.

LIGIA MONICA MATEIU
ROMANIA/CANADA, RESEARCH ASSOCIATE AT THE VUB-UANTWERP CENTER FOR MOLECULAR NEUROLOGY

DAVIDE CILIBERTI
ITALY, LIFE SCIENCES TECHNOLOGY SPECIALIST AT NERF - IMEC, KU LEUVEN AND VIB

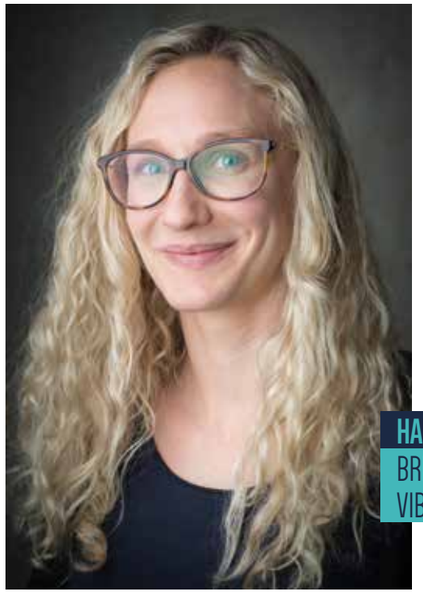
MORE THAN JUST PUTTING PEOPLE FROM DIFFERENT COUNTRIES UNDER ONE ROOF, VIB EXCELS IN ACTUALLY CREATING A POTPOURRI OF CULTURES.

IT IS PRECISELY THE MIXTURE OF SCIENTISTS FROM DISTANT COUNTRIES LIKE MEXICO, JAPAN AND LEBANON THAT MAKES VIB SO INTERESTING. THE BEAUTIFUL CITY OF LEUVEN ONLY ADDS TO THE ATTRACTION.

AYTAC KADIR MUTLU
TURKEY, PHD STUDENT AT NERF – IMEC, KU LEUVEN AND VIB

JUN WANG
CHINA, POST-DOCTORAL SCIENTIST AT THE VIB-KU LEUVEN CENTER FOR MICROBIOLOGY

THE POSTDOC AND PHD COMMUNITY AT VIB HOLDS PEOPLE FROM EUROPE, SOUTH AMERICA AND ASIA. I LOOK FORWARD TO THIS TREND CONTINUING UP TO THE GROUP LEADER LEVEL.



ALL NATIONALITIES HAVE THEIR OWN CULTURE, EACH WITH UNIQUE QUALITIES AND THEREFORE THE MORE INTERNATIONAL, THE BETTER! VIB LABS ARE VERY INTERNATIONAL, THIS IS CRUCIAL TO BRINGING TOP SCIENTISTS FROM ALL OVER THE GLOBE TO WORK IN FLANDERS AT VIB.

HALINA NOVAK
BRITAIN, LIFE SCIENCES TECHNOLOGY SPECIALIST AT VIB HEADQUARTERS

THE LEVEL OF INTERNATIONALIZATION AT VIB EXCEEDS MY EXPECTATIONS. BEING HERE IS TRULY EYE-OPENING: NEW WAYS OF LIVING AND CULTURES AMAZE ME EVERY DAY.

GENET ABAY SHIFERAW
ETHIOPIA, PHD STUDENT AT THE VIB-UGENT CENTER FOR MEDICAL BIOTECHNOLOGY

MELVIN FINCON
COLOMBIA, POST-DOCTORAL SCIENTIST AT VIB-KU LEUVEN CENTER FOR BRAIN & DISEASE RESEARCH

WORKING AT VIB IS KNOWN AROUND THE WORLD AS A CHALLENGE AND A HUGE OPPORTUNITY. TOUGH RESEARCH, BIG IMPACTS – AND ALSO AMAZING OPPORTUNITIES TO GROW AND DEVELOP PERSONALLY AND PROFESSIONALLY.

HIRING FOREIGN DIRECTORS AND PIs: ON TRACK, BUT CHALLENGING

Although numbers clearly indicate that the internationalization level of our postdoc population is stabilizing around 60%, and about 45% of our PhD students are from foreign descent, the share of directors, team leaders and experts from other countries is 'only' 38%. However, we've come a long way: when VIB first saw the light of day, barely 6% of this group were non-Belgians.

For all director and PI positions, we keep doing our very best to attract foreign talent. Through international job postings, for instance, but primarily through networking and active scouting of potential candidates. In the (recent) past, we've sent proposals to multiple foreign directors and team leaders. In many cases, however, these efforts unfortunately did not result into the candidate coming on board. This is especially the case with directors. Most often, our offer interferes with their family situation: their children don't want to move and/or their partner is not prepared to give up their career for the uncertainty that comes with having to find a new job in Belgium. Sometimes, but certainly not in every case, the salary package turns out to be the second reason.

Marijke Lein, HR Director VIB

PHD SEASON HAS ARRIVED:
A GLIMPSE OF THE TOP-SHELF SELECTION

Every two years, VIB gives students from all over the world the chance to win an international PhD scholarship. For the most recent batch of scholarships, 252 candidates applied. The process is straight-forward: they select their favorite projects, fill out a couple of forms and submit them online. On top of that, every applicant needs at least two recommendations from fellow scientists. The Program Committee of the International PhD Program then decides who makes the cut.

In October, eight carefully selected PhD students will kick-start their careers at VIB. They get to use our research facilities and work with our staff on the front lines of molecular, developmental, structural or plant systems biology, genetics, biochemistry and microbiology.

The lucky ones:

- Sweta Parik (India) - Boosting the metabolic fitness of cytotoxic T-cells to fight cancer - Sarah-Maria Fendt (VIB-KU Leuven Center for Cancer Biology) and Jo Van Ginderachter (VIB Center for Inflammation Research, at VUB)
- Dennis Pedri (Italy) - Search for biomarkers and therapeutic targets within the biomolecular composition of plasma membranes of metastatic melanoma cells - Wim Annaert (VIB-KU Leuven Center for Brain & Disease Research) and Jean-Christophe Marine (VIB-KU Leuven Center for Cancer Biology)
- Anna Zimmerman (Germany) - Using a highly-evolvable synthetic yeast chromosome to optimize second-generation biofuel production - Kevin Verstrepen (VIB-KU Leuven Center for Microbiology) and Yves Van de Peer (VIB-UGent Center for Plant Systems Biology)
- Donya Parkravan (Ireland) - Role of the vacuolar protein sorting gene VPS13C in the pathogenesis of frontotemporal dementia - Wim Annaert (VIB-KU Leuven Center for Brain & Disease Research and Christine Van Broeckhoven (VIB-UAntwerp Center for Molecular Neurology)
- Seowoo Kim (South-Korea) - Abscisic acid: health effects, biosynthesis and signaling in humans - Rudi Beyaert (VIB-UGent Center for Inflammation Research) and Alain Goossens (VIB-UGent Center for Plant Systems Biology)
- Qiaozhi Yu (China) - The molecular and structural basis of a signaling peptide-receptor pair involved in root development in *Arabidopsis thaliana* - Tom Beeckman (VIB-UGent Center for Plant Systems Biology) and Savvas Savvides (VIB-UGent Center for Inflammation Research)
- Ivica Odorcic (Croatia) - Structural biology of Alzheimer's disease - Rouslan Efremov (VIB-VUB Center for Structural Biology) and Joost Schymkowitz/Frederic Rousseau (VIB-KU Leuven Center for Brain & Disease Research)
- Stefania Morales (Chile) - Investigation of the molecular mechanisms underlying the role of trehalose or trehalose-6-P in lateral root and trichome development - Patrick Van Dijck (VIB-KU Leuven Center for Microbiology) and Tom Beeckman (VIB-UGent Center for Plant Systems Biology)

Diego Forero

ALUMNI IN THE PICTURE:
GENETIC RESEARCH IN NEUROPSYCHIATRIC DISORDERS IS VITALLY IMPORTANT TO THE MENTAL HEALTH OF PEOPLE AROUND THE WORLD

Diego Forero directs the Laboratory of Neuropsychiatric Genetics at the Universidad Antonio Nariño in Bogotá, Colombia. In addition to being an associate professor at this university, he is also director of the PhD program in health sciences at its medical school. In 2005, Diego was among the group of candidates applying for the very first VIB International PhD Program. After being selected, he joined the labs of VIB PIs Jurgen Del-Favero (University of Antwerp) and Patrick Callaerts (KU Leuven) and successfully defended his PhD in December 2009 – as the first of the group to do so. As a result, he became the first 'VIB International PhD' ever.

ALL VIB ALUMNI ARE INVITED TO JOIN THE VIB ALUMNI GROUP ON LINKEDIN.

One of your promoters told me that you were very determined when you applied for the VIB International PhD Program.
I wanted to do a PhD in psychiatric genetics and I focused on one topic among the 20 research projects that were proposed by the program: to investigate the multifactorial genetics of neuropsychiatric diseases by combining genetic epidemiology, molecular genetics and modeling work in *Drosophila*.

How do you look back at your period at VIB?
It has been a decisive period in my life and in my professional career. The PhD itself was an important requirement for my current position as an independent researcher and professor. In addition, the doctoral training program was very rewarding, and I learned a lot from my mentors Jurgen Del-Favero and Patrick Callaerts. The fact that I worked in two different labs gave me broader experience in how to organize a lab, manage people and create a fruitful scientific research environment. I also spent some time in Liège to experience the ambiance at both Flemish and French-speaking Belgian universities.

Why have you devoted your career to psychiatric genetics? It's not the easiest research topic…
Psychiatric genetics is indeed full of challenges, but there are also plenty of opportunities. Despite the high heritability of some neuropsychiatric diseases – bipolar disorder and schizophrenia, to name a few – the identification of genetic risk factors and biological pathways for these diseases has been difficult. In recent years, however, large genome-wide association and exome sequencing studies have pointed towards many genes likely to be involved in specific categories of these disorders.

One of the challenges now is to make sense out of this information by exploring the functional and genomic features of the genes and elucidate their networks. We have explored a number of novel genetic and epigenetic factors for neuropsychiatric disorders and related endophenotypes in our population, using approaches from both molecular genetics and bioinformatics.

You have repeatedly made a plea for neuropsychiatric genetics research in developing countries. How come?
As we have mentioned in our recent publications, these disorders constitute a large burden on global public health and their negative impact is even larger in low- and middle-income countries. Research into the biological basis of human neuropsychiatric disorders should not be an academic effort reserved for a few elite institutions in economically developed countries. This research is vitally important to the mental health of people around the world.

There is an urgent need to improve local infrastructure to carry out medical genomics research in developing countries. Capacity-building might be achieved through research partnerships with developed countries, but even more importantly, between low and middle-income countries themselves. Everyone will benefit from that: studying human diversity in neuropsychiatric disorders enriches the opportunities to find cures, for patients living in Western countries as well.

DAMYA LAOUI'S TRIUMPH TOUR: INNOVATING TO INSPIRE

Damya Laui

Damya Laoui, postdoctoral researcher at the VIB Center for Inflammation Research (Myeloid Cell Immunology lab at VUB), is on a winning streak. She was recently nominated for two awards: the Dunia prize of the African Awards and the Innovators Under 35 Europe title from the prestigious Massachusetts Institute of Technology.

Laoui's research focuses on the use of dendritic cells, which are responsible for activating the immune system, to develop new cancer immunotherapies. She is studying how specific types of these cells taken from tumors can be used to vaccinate patients to slow tumor growth – and more specifically, why certain tumors respond better to dendritic cell treatment than others. Although the clinical application of this research is still a long way off, Laoui's approach has great potential to help cancer patients all over the world who cannot benefit from currently available therapies.

INNOVATION WITH AFRICAN ROOTS

The African Awards honor people in Belgium of African origin who distinguish themselves in their fields. Its Dunia prize awards extraordinary initiatives, fueling a culture of entrepreneurship and innovation. Laoui: "It's a great honor for me to be nominated for the Dunia award. Not only does it reward our work on tumor immunology, it also acknowledges my Algerian origins, of which I'm very proud."

MIT PRAISES YOUNG SCIENTISTS

But the Dunia award is not the only prize on Laoui's horizon: she has also been selected as an Innovator Under 35 Europe by the prestigious MIT Technology Review. Each year, MIT recognizes the most remarkable rising stars among technological entrepreneurs and researchers. On top she was invited to defend her case in Paris.

Laoui: "I was very surprised to be selected. The timing is ideal: we're currently looking for partners to translate our findings to the clinic. The nomination gives us a lot of visibility, and we've already been contacted by scientists, companies and funding agencies who want to collaborate on our project. In this way, our research project could lead to important innovations in the field of immunotherapy."

Even more, Innovators Under 35 are role models for other up-and-coming talents. Our young scientist plays this role con brio: "I want to transcend our own research and use my recognition to inspire women all over the world to pursue scientific careers."

VIB ALUMNI RETURN TO THEIR ROOTS WITH AN INTERNATIONAL COLLABORATION

A new paper on Fragile X syndrome published by scientists from the US and Europe, including VIB alumni Emre Yaksi and Bassem Hassan, inspired us to take a trip down memory lane. Why did these two researchers originally come to VIB, and why did they move on to explore new opportunities?

ALL VIB ALUMNI ARE INVITED TO JOIN THE VIB ALUMNI GROUP ON LINKEDIN.

Fragile X syndrome is a genetic disorder causing patients to have trouble understanding sensory information and interacting with the world. In their paper, Emre, Bassem and their colleagues shed light on the mechanism that causes disruptions in the information flow between neurons that leads to the anxiety, seizures and learning difficulties experienced by Fragile X sufferers. Their research could lead to new and earlier tests for the syndrome, as well as the clinical trial of drugs that reduce the "noise" in the brains of Fragile X patients. The research began while both scientists were still researchers at VIB.

What motivated each of you to join VIB all those years ago?
Bassem: "Before I joined VIB, I had experience in the US as a student and a postdoc, but I wanted to start my own lab in Europe – both for a new environment and to be closer to my parents in Lebanon. At that time, VIB wasn't well-known in the scientific community, but the amazing position, the enthusiasm of my colleagues, and Jo Bury's enthusiasm about the future of VIB – and my role in it – was an attractive combination. The rest, as they say, is history."

Emre: "I absolutely echo Bassem here about Jo Bury. He has this unbelievable energy that radiates out to the entire VIB family – from the directors to the PIs, postdocs, students and technicians. It's almost impossible to not be impressed by this kind of ambiance at a scientific institution. VIB's key strength is its community of happy, motivated people united in their quest for excellent, high-quality science. It was a major factor in my decision to join."

This research paper is the result of a collaboration between labs of Neuro-Electronics Research Flanders (NERF – imec, KU Leuven and VIB) and the VIB-KU Leuven Center for Brain & Disease Research (CBD). Do you think the close proximity of these two centers was a benefit to the project?
Bassem: "CBD PIs, myself included, were part of NERF's inception as well as the recruitment of Emre Yaksi, NERF's first PI! This generated a very close and interactive atmosphere and shared sense of purpose that persists today. For this project, it was critical that NERF and CBD be physically and conceptually close to each other. The geographic proximity made it easy for the team to interact, and for the first author – the exceptionally talented VIB PhD fellow Luis Franco – to travel between the two labs."

For this project, it was critical that NERF and CBD be physically and conceptually close to each other

Emre: "I agree that proximity makes collaboration easier, but I don't think it was a major factor that defined the success of the project. As Bassem said, having Luis on board, supervised by Bassem and myself, was crucial. That and a great personal and professional relationship between the two PIs – and our overlapping interests and complementary skills – were the main factors."

Bassem, why did you decide to leave VIB? Do you still collaborate with your old VIB colleagues?
Bassem: "All good things come to an end, I suppose! After many great experiences and successes, VIB was becoming very familiar, and I found myself getting lost in the daily details rather than being excited by the big picture. Personally, I very much need change and become anxious with too much routine. I simply needed a new challenge, a new environment and a fresh start.

VIB will always be special to me. It's the place where I built my career, and the things I realized there opened the doors to the many great opportunities I have at ICM (Institute for Brain and Spinal Cord) in Paris. Leaving was a very difficult and emotional decision and process. After all, I helped build CBD into the center it is today and few places in the world compare to VIB in terms of the quality of the science and the intellectual vigor of the group leaders. I still collaborate with my friend and colleague Dietmar Schmucker, and I maintain contact with Joris de Wit, Matthew Holt, Bart De Strooper, Jean-Christophe Marine and Georg Halder."

Emre, what influenced your choice to move on, and do you still maintain connections with VIB?
Emre: "For me, VIB itself had very little to do with my choice to leave. I was very interested in moving onto the next stage in my career as a tenured professor, and KU Leuven was unable to provide me with such a position in the short term. As a result, I decided to look for an alternate institute that could offer me an excellent scientific environment and long-term prospects with respect to my academic appointment and funding. I feel very lucky that my current institute, the

VIB will always be special to me. It's the place where I built my career, and the things I realized there opened the doors to the many great opportunities I have at ICM in Paris.

Kavli Institute for System Neuroscience at NTNU, provides me with everything I need.

Even still, VIB is very close to my heart, and I truly hope to continue contributing to the VIB family through future collaborations and other kinds of interactions, such as hosting VIB scientists or joining committees and boards."

Franco *et al.*, Current Biology 2017

VIB and its spin-off biotech companies are attracting talent from all over the world. To fuel this internationalization in the long run, creating an attractive environment for young foreign families is essential. That's why we decided to become a founding father for offering affordable international education close to the VIB centers in Ghent and Leuven, adding to the existing schools in Brussels and Antwerp.

Stronger through diversity

INTERNATIONAL SCHOOL GHENT

Since 2012
Founding fathers: VIB, UGent, Barco, Volvo
90 pupils in primary and pre-primary education
16 nationalities

INTERNATIONAL SCHOOL LEUVEN

Since 2013
Founding fathers: VUB, KU Leuven, city of Leuven, imec
60 pupils in primary and pre-primary education
15 nationalities

INTERNATIONAL SCHOOLS: WELCOMING FOREIGN FAMILIES SINCE 2012

DISCOVERING THE INTERNATIONAL SCHOOL GHENT WAS THE LAST PUSH WE NEEDED TO MOVE TO BELGIUM.

Three years ago, Oren Tzfadia, data integration staff scientist at the VIB Bioinformatics Core, took the plunge: he and his family moved to Belgium.

Oren: "I am originally from Tel Aviv, but I got my PhD in New York. When Yves Van de Peer (VIB-UGent Center for Plant Systems Biology) offered me a postdoc position, I was eager to take it. However, leaving the US for Belgium is easier said than done: we had two children in school at the time, and my wife would also have to find a job.

Luckily, we stumbled upon the International School Ghent. My wife now teaches primary grades there, and she absolutely loves it. Because the school is small, everything is really intimate. At the same time, there's a global atmosphere: parents and children from all over the world mingle, and through activities like 'international day', they learn about various cultures. The teachers – mostly internationals, too – really put their heart and soul into educating the children.

Our eight-year-old son already knew English from growing up in New York, which made enrolling a smooth process. By the time he started to speak Dutch, we suggested transferring to a regular school. But that was not an option: he likes his teachers and has made many friends in his class. Our other son, who is five, doesn't speak English – only Hebrew – so he goes to a local school.

The International School was crucial in our decision to move to Ghent. Having an international school so close by is a big plus for VIB. You could say it was the final push we needed to go for it, and we're glad that we did. Our youngest son was born just 6 weeks ago here in Belgium, so I guess we're staying."

FIRST BATTLE OF THE SCIENTISTS IN ENGLISH TOGETHER WITH THE INTERNATIONAL SCHOOL

Children's perspectives bring a fresh new take on our research
In the Battle of the Scientists – created by The Floor is Yours – several scientists from diverse fields are invited to elementary schools to present their work. What's unique is that the children are in charge: they organize the event, decide who gets to come and vote for the best presentation. The events consist of five pitches of 15 minutes each, followed by feedback and questions from a jury of kids. On March 9 2018, the first Battle of the Scientists in English will take place, featuring international researchers in both international schools.

Bart Ghesquiere, group leader at the VIB Metabolomics Core, participated in the 2017 edition (in Dutch): "To my surprise, these kids were thrilled to learn what life sciences are all about. The children I met wanted to know why finding and developing a cure for specific diseases is so difficult, and even helped by brainstorming solutions. Taking back a step every once in a while, and looking at your research at a very basic level helps you communicate in a clear, convincing way – one that even children can understand. And believe me: their enthusiasm is highly energizing. The feedback you get from them is beyond anything you could imagine."

A VISIT FROM OUR AMERICAN COUNTERPARTS TO DEEPEN OUR PLANT SCIENCE COLLABORATION

NC State University in numbers

- 34,000+ students from all NC counties, all 50 states and more than 117 foreign countries
- 23 members of the National Academies
- Last year, seven faculty members received National Science Foundation Career Awards
- 11th among public universities (2012-13 data, NSF)
- 1,800+ license agreements with industry partners
- 896 U.S. Patents
- 500+ products to market
- 100+ startups creating 8,100+ jobs

When it comes to developing new approaches to feed the world's growing population, one thing is for sure: we can't do it alone. That is why our VIB-UGent Center for Plant Systems Biology is increasingly embedded in an international network of plant biotech institutes. One recent feat in that respect is our ongoing strategic partnership with North Carolina State University established in 2016, which culminated in a visit from our American colleagues on May 11-12, 2017. The goal: share insights, explore complementary resources and deepen the collaboration.

A tangible example of such a collaboration model lies in the field of plant phenotyping. While the VIB-UGent Center for Plant Systems Biology excels in performing phenotyping under controlled greenhouse conditions at high volumes and high precision, our field research opportunities are limited. NC State, on the other hand, has access to a vast network of agricultural research stations that allows high-tech field research and the collection of phenotypic data under field conditions.

"NC State's expertise and large field testing infrastructure complement VIB's knowledge and research perfectly. There are already some collaborations between PIs ongoing and I am sure the return visit will inspire us even more. The opportunities are there for the taking!" (Marieke Louwers, VIB-UGent Center for Plant Systems Biology)

ASSEMBLING AGRO AFICIONADOS

Next to NC State's Director of Research Partnerships Deborah Thompson and Associate Dean Steve Lommel, five other faculty members joined the American delegation: Colleen Doherty, Ross Sozzani, Lina Quesada, Jose Alonso and Amy Grunden. They had a look inside our state-of-the-art microscopy lab, were introduced to our phenotyping equipment and met one-on-one with our researchers.

According to Deborah Thompson, this partnership will open up new opportunities for discoveries that will lead to a future food supply that is safe, widely accessible and affordable.

"Together with NC State, we're planning to collaborate on projects, explore funding, exchange staff and students, and launch new companies. And maybe, we'll even invest in their projects. That would significantly increase our international image. However, we already have a surprisingly strong reputation in the US. They really look up to us, eager to learn from our experience. This is another fine example of our excellent prestige worldwide."
(Johan Cardoen, VIB Managing Director)

To be continued: this fall, our plant researchers will visit NC State and discover their assets live.

FACTS & FIGURES

HOW A PANOPLY OF INTERNATIONAL PROGRAMS SAFEGUARDS OUR RESEARCH BUDGET

As a world-class research institute, it goes without saying that a lot of our research income depends on European and wider international funding programs. The impressive numbers below don't just prove the importance of our worldwide collaborations, they also underline our unwavering international visibility.

VIB teams up with Horizon 2020, the EU program for Research and Innovation, from 2013-2020:

- H2020 accounts for 75% of our international funding
- Signed 44 H2020 grants involving 226 collaborating organizations in 30 different countries
- Individual bottom-up ERC (32) grants and Marie Curie (MSCA) postdoc grants (8) are the most prestigious grants for VIB and are important to attract international researchers to VIB.
- Partner in 17 collaborative H2020 projects on health and climate change
- Partner in 6 MSCA International Training Networks (ITN or RISE) for PhD students

Our other international funding bodies:

- The US's National Institutes of Health (NIH)
- The Human Frontier Science Program (HFSP)
- The Bill & Melinda Gates Foundation (BMGF)
- And many more

150 International grants signed at VIB since 2013

MASSIMILIANO MAZZONE (VIB – KU Leuven Center for Cancer Biology) recently obtained an **MSCA-ITN** grant. "To be part of this MSCA-ITN network is a great honor and recognition for me. It embeds the lab in an international context but most importantly META-CAN (the name of this network) highlights a common mission from different top labs that are joining forces to address important questions on the metabolic cross-talk within different cancer compartments. We aim to understand mechanisms of resistance for standard care and also propose new therapeutic options. ***This is a big opportunity; it will bridge expertise and will launch coaching programs.*** META-CAN is a training network: PhD students enrolled in this program will come along and become specialists in tumor-stroma interactions: they will have chances to spend time abroad, to meet the top experts from other labs belonging to the network, to attend lectures and workshops, and to have their own contacts with industrial partners, bridging pharma with academia. I am really excited to be part of this entire research project."

TURNING THE LINGUISTIC TABLES FOR LUNCH LEARNING

Two years ago, PhD students at the VIB-UGent Center for Plant Systems Biology joined forces to launch the PhD committee to create a platform where topics and issues related to their PhDs could be discussed. The committee, representing more than 100 PhD students, is currently chaired by vice-chairwoman Dorien Van de Wouwer and chairman Nick Vangheluwe. Their mission? To strengthen the PhD experience, enhance academic and social values and promote beneficial daily coexistence.

One of the initiatives that the committee has considered organizing is an international language exchange during lunch hours. VIB's diverse mix of non-Dutch speakers and locals presents a unique opportunity to get together, dust off our skills in non-native languages and practice talking. Talking to native speakers is the best way to improve language skills, and a fantastic way to get to know your colleagues better.

At the moment, the strategy is to begin encouraging native speakers to team up to facilitate the language exchange after the summer break.

Philip Van Damme and Sander Beel

PHILIP VAN DAMME AND SANDER BEEL INTRODUCE THEIR PROLIFIC RESEARCH ON BRAIN DISORDERS

Philip Van Damme (VIB-KU Leuven Center for Brain & Disease Research) is clearly on a roll. Joined by PhD student and assistant Sander Beel, he has recently published no fewer than three pioneering research papers in the renowned academic journals Neurology, Human Molecular Genetics and Muscle and Nerve.

In your most recent paper, published in Muscle and Nerve, you describe a novel motor neuron syndrome. Can you tell us more about your findings?
Philip: "I often see patients seeking second opinions after being diagnosed with ALS. In most cases, I can confirm the diagnosis, but on some occasions, they have a different disease. In one of those incidents, the patient suffered from a disease that had never been seen before. The paper outlines the case of this patient, who had an exceptional constellation of symptoms and signs, including muscle weakness and atrophy and disturbed eye movements. An international collaboration allowed us to identify other patients with exactly the same symptoms, enabling us to describe an entirely new motor neuron syndrome. Because it could be a genetic disorder, we're currently using next-generation sequencing techniques to look for the genes that might cause it."

Sander, what were the biggest challenges involved in this project?
Sander: "When we first started, it took a long time to work out the model and to get used to performing microscopic surgery on mice, our model species. Even more, optimizing the conditions for the sequencing experiment was a big challenge – but luckily, we had the VIB Nucleomics core right around the corner to assist us at every step."

And did you have any particularly memorable experiences during the research?
Sander: "Once we got the sequencing results back and identified our target, it was really motivating to see everything progress much more rapidly. We watched the pieces of the puzzle begin to fit together, which inspired us in our work."

Philip, were there any surprises involved in the project?
Philip: "I was particularly surprised that the functions of progranulin in the lysosomes of neurons seem to be related to the neuronal growth-stimulating functions."

You divide your time between research and patients. How do you combine both aspects of your work? Do you consider it an added value to work in both spheres?
Philip: "In practice, it's difficult to strike a good balance between research and clinical work, especially in our current medical system. However, the combination of the two is very interesting and rewarding, since the research done in both domains is often mutually enriching. One can contribute to advancements in clinical as well as in more basic research, and it enables translational research that requires the use of patient samples."

Poesen *et al.*, Neurology 2017
Beel *et al.*, Human Molecular Genetics 2017
Delva *et al.*, Muscle and Nerve 2017

GROUNDWORK FOR ALS DIAGNOSTIC TEST

Amyotrophic Lateral Sclerosis, or ALS, is a scary diagnosis. With a survival rate of only 2-5 years after identification, the disease is characterized by the death of motor neurons, leading to severe muscle weakness throughout the body. Philip's research, published in Neurology, has demonstrated that high lumbar fluid concentrations of neurofilaments, a type of motor neuron protein, is a definitive indicator of ALS. His insights could be used to develop a rapid, reliable test that accurately indicates the extent of neuron loss.

PROGRANULIN'S NEW ROLE IN FTD

Sander and Philip's paper published in Human Molecular Genetics describes a new role for progranulin, a protein that stimulates neurons to grow and heal. Patients with a genetic subtype of frontotemporal dementia show mutations in the gene that encodes progranulin, causing a loss of up to 50% of functional progranulin. The research clarifies the mechanism by which progranulin stimulates neurons, demonstrating that recovery from nerve trauma is delayed in the absence of progranulin.

Dirk Elewaut

BEGINNING WITH THE PATIENT: **DIRK ELEWAUT SHARES HIS RESEARCH INSPIRATION**

A mixed group of VIB, VUB and UGent scientists led by Dirk Elewaut recently published a paper in the scientific journal Leukemia on their study of multiple myeloma, a type of cancer that affects bone marrow. Their groundbreaking results motivated us to ask Dirk to tell us more about the collaboration and the inspiration for his research.

As we age, our bone marrow is replaced by fat – increasing our risk of developing multiple myeloma. To find out why, Dirk Elewaut and his team at the VIB-UGent Inflammation Research Center investigated the role of leptin, a hormone produced by fat, in reducing the anticancer immunity of natural killer T cells, known as NKT cells. Compounds exist today that selectively activate these cells, but stimulation causes NKT cells to go into a dormant state called 'anergy' and no longer protect against cancer cells or pathogens for a period of time.

Using the myeloma model developed by Karen Vanderkerken and Eline Menu of VUB, the researchers boosted cancer protection by blocking the leptin receptor. Doing so restored NKT cells' functioning when they would normally be in a state of anergy.

Their results could lead to new methods of treating other cancers that are influenced by the same mechanism.

As a medical doctor as well as a researcher, what inspires your research? Do your ideas stem from lab findings or from situations you encounter in your interactions with patients?
Dirk: "Our team tries to study human diseases as closely to the patient as possible. This approach implies that we begin by studying observations in patients, and then translate our observations to model systems to study the immunobiology of the disease. This reverse approach makes it likely that our research questions are relevant to human disease. For this paper, we were struck by the discovery that bone marrow is gradually replaced by fat as we age. However, very little was known about how this impacts tumor immunity. Since this fat accumulation is associated with a greater risk for developing multiple myeloma, our goal was to clarify our understanding of the underlying mechanisms."

This research was performed in close collaboration with the VUB group of Karen Vanderkerken and Eline Menu. When and how did this collaboration start?
Dirk: "We've been collaborating with Eline and Karin's team for some time now. Initially, we tested the effects of activating NKT cells in an experimental myeloma development setting. During this collaboration, we came up with the idea for a joint project – which our 'shared' PhD student Mérédis Favreau started on five years ago. As part of this project, we've been interacting with both the VIB teams as well as clinical hematology teams in Belgium and France, which led to this paper's translational research story."

The VIB-UGent group of Jan Tavernier was also involved. What was their role in this research?
Dirk: "Leptin and immunity have been the focal points of our long-term collaboration with Jan Tavernier (VIB-UGent Center for Medical Biotechnology). We discovered several years ago that leptin affects the functioning of NKT cells, and we tested several of the leptin receptor-neutralizing antibodies developed by his group. We have now extended our observations to include the modulation of anergy, or NKT cells' dormant periods, which is a major drawback of stimulating them to be more active. By blocking the leptin receptor, we significantly reduced the effects of anergy on these cells, which led to superior antitumor effects."

From a logistic point of view, collaborating across all these teams seems like a daunting task.
Dirk: "It sure was challenging: we had to align Belgian and French clinical hematologists who provided us with clinical samples, our own NKT cell work in Ghent and the mouse model studies in Brussels. This required a very flexible researcher who had to be on the road a lot.

And that's where our PhD student Mérédis Favreau jumped in. Perfectly bilingual and connecting very well with all the teams, she was a vital link in this project.

On behalf of all VIB teams involved, I want to thank her again and wish her the best of luck in her new job in the pharma sector. I'm sure she will remember her VIB days vividly!"

Favreau *et al.*, Leukemia 2017

Lucía Chávez-Gutiérrez and Prof. Bart De Strooper

Lucía Chávez-Gutiérrez recently started her own research group within the VIB-KU Leuven Center for Brain & Disease Research

NOVEL PERSPECTIVES ON ANTI-AMYLOID TREATMENT FOR **THE PREVENTION OF ALZHEIMER'S DISEASE**

For decades researchers have been investigating the underlying foundations of Alzheimer's disease to provide clues for the design of a successful therapy. Lucía Chávez-Gutiérrez and Prof. Bart De Strooper (both VIB-KU Leuven Center for Brain&Disease Research) revealed the molecular basis of the hereditary form of Alzheimer's disease that strikes early in life. These new findings provide powerful insights for the design of novel therapeutic strategies to tackle the disease.

The hereditary form of Alzheimer's disease is caused by mutations in the Gamma Secretase enzyme and the APP protein. Gamma Secretase cuts APP several times in a progressive manner, with each cleavage generating a shorter fragment, called amyloid beta, which gets released into the brain.

The researchers discovered that disease-causing mutations in Gamma secretase and APP disrupt the cleavage process leading to the generation of longer amyloid beta fragments that are only partially digested. These longer amyloid fragments are thought to cause widespread neuronal death, resulting in memory problems and other symptoms of Alzheimer's disease, before aggregating into amyloid plaques (a hallmark of the disease). The researchers uncovered that the disease-causing mutations disrupt this process by weakening the interactions of Gamma Secretase and APP during the progressive cleavages. In that way they promote the premature release of longer amyloid beta fragments. The more the Gamma Secretase-APP interaction is undermined, the sooner Alzheimer's disease develops. The report also suggests that changes in the cellular environment could modulate the interaction between Gamma secretase and APP, and could therefore also affect someone's risk to develop the non-hereditary form of Alzheimer's disease.

These findings have important implications for the prevention or treatment of the disease. Previous attempts to tackle the toxic effects of amyloid beta have mostly focused on blocking its production or removing the amyloid plaques from the brain. However, the new insights suggest that stabilizing the interaction between Gamma secretase and APP might be sufficient to avoid the release of longer and toxic amyloid beta fragments and in that way prevent or delay the disease.

Lucía: "The mutations causing familial Alzheimer's disease show the clinical relevance of drugs that strengthen the interaction between Gamma secretase and APP. The more stable the complexes are, the further APP can be processed, resulting in shorter, non-toxic forms of amyloid beta."

The team will collaborate with academic drug discovery units to translate this new findings to new therapeutic drug candidates.

In collaboration with researchers from Mannheim University, Janssen Pharmaceutica, RIKEN Brian Science Institute and University College London and the VIB Core Facilities

Szaruga *et al.*, Cell 2017

RESEARCHERS GAIN NEW INSIGHTS INTO THE FORMATION OF NON-PATHOLOGICAL AMYLOIDS

Mike Sleutel and colleagues from the lab of Han Remaut (VIB-VUB Center for Structural Biology) collaborated with the lab of Yves Dufrêne at UCL Louvain-La-Neuve on a study of functional amyloids –protein aggregates with the typical amyloid structure that do not lead to disease but rather serve a dedicated biological functionThe team used a novel microscopy method to examine the formation of functional amyloids by bacteria in real time, observing key growth and regulatory characteristics that could lead to new biomaterials as well as insights into the development and progression of human diseases caused by pathological amyloid plaques.

In humans, amyloids are associated with neurodegenerative illnesses such as Alzheimer's, Parkinson's and Huntington's disease, and prion diseases like bovine spongiform encephalopathy (BSE) and Creutzfeldt-Jakob disease. In these pathological amyloids, proteins are trapped in a toxic form that causes cell death, and leading to brain and organ damage and eventually death.

PROTEINS WITH PURPOSE

Amyloid plaques are composed of proteins or protein fragments that organize into spiraling fibers that continuously grow by attracting new molecules. Previous research has indicated that the resulting tissue damage in human disease is mainly caused by small protein aggregates generated during the early stages of amyloid formation. These molecular predecessors to amyloids are composed of the same subunits, but differ in structure. Bacteria, however, have the remarkable ability to make 'functional amyloids' through a deliberate pathway that does not involve the formation of toxic intermediates.

Han: "The goal of this research was to learn more about the process by which bacteria are able to circumvent the development of these harmful toxic intermediates. To do so, we relied on high-speed atomic force microscopy, which allowed us to observe the growth individual amyloid fibers 100 times faster than conventional atomic force microscopes can."

NEW PATHWAYS CREATE NON-TOXIC AMYLOIDS

The scientists found that curli, a type of functional amyloids created by E. coli to form biofilms, follow a different developmental process than pathological amyloids. They watched curli fibers spawn and grow under the atomic force microscope. During the nucleus-forming process of amyloid development, curli subunits collect into minimally sized fibers that immediately have the same properties as mature curli.

Mike Sleutel: "Curli fibers are formed in such a way that the subunits readily organize into a minimal amyloid fragment without forming any of the toxic intermediate states that are involved in amyloid diseases. Also, we found that bacteria have the capability to regulate the growth of these curli fibers by producing proteins that can block the sites where incoming subunits would bind."

FASCINATING FUTURE AVENUES

Curli are an ideal model system to use in uncovering the differences between functional and pathological amyloids, and to understand how bacteria are able to deal with potentially toxic types of amyloids without being damaged. Even more, functional amyloids could serve as the future building blocks of new biomaterials.

PhD student and co-author Imke Van Den Broeck: "An interesting research avenue that we are pursuing is the production of genetically modified amyloid fibers to display functional groups of interest, such as antibodies, enzymes, etc. Using this approach, we envisage the formation of self-assembling nanowires with programmable functions to create a novel class of biomaterials."

Sleutel *et al.*,
Nature Chemical Biology 2017

Han Remaut

RESEARCHERS DISCOVER MECHANISM BEHIND RAPID SMELL SOURCE LOCALIZATION

The Sebastian Haesler lab at NERF (VIB-KU Leuven-imec) has provided fundamental insights into the mechanism of smell localization. This marks an important step in unraveling the entire neural odor localization mechanism, which is highly valuable to the study of memory diseases such as Alzheimer's. The team used mice for the experiment, which are smell identification champions. Using a novel non-invasive technique based on infrared technology, they revealed that localizing odors is achieved by comparing information gathered from the left and right nostril.

Most mammals can easily and rapidly pinpoint where a smell is coming from. However, the neural mechanism behind this seemingly straightforward task is still a big question in biology. To address this open question Sebastian and his team set up an experiment using mice. They developed a novel method to measure respiration dynamics. Contrary to current standard methods, the new technique, which involves the use of an infrared camera, is non- invasive. In this way, the NERF team discovered that mice presented with novel smells spontaneously turned their nose towards the source of the smell. And this orienting behavior was fast – they could do it in under 100 milliseconds.

Building on this behavioral response, the team then performed experiments to explore the mechanistic principles behind odor source localization.

Sebastian: "Our data show that mice compare the strength of the smell obtained through the two nostrils for locating the direction of the odor source. This comparison involves information transfer between the two brain hemispheres. Essentially, the process is very similar to how we determine where sounds come from. We also identified the part of the brain, called the anterior olfactory

cortex, that plays a key role in this process."

VALUABLE TO ALZHEIMER'S RESEARCH

To move this research domain ahead, the Haesler lab is currently recording neural activity between the anterior olfactory cortices in the two hemispheres, in order to reveal the exact comparison mechanism for rapid odor localization. In addition, the team has started to build on these insights in the context of Alzheimer's disease.

Sebastian: "Our mice only responded to new smells, not familiar ones. However, in the case of Alzheimer's, we expect mice to respond to familiar smells as well, because they might have forgotten them. Moreover, Alzheimer's is associated with a declining sense of smell. These aspects give us hope that our findings will contribute to a better understanding of memory-affecting diseases."

Rabell *et al.*, Current Biology 2017

Sebastian Haesler

Vincent Bonin

NAVIGATION AND SPATIAL MEMORY: **NEW BRAIN REGION IDENTIFIED TO BE INVOLVED**

Navigation in mammals including humans and rodents depends on specialized neural networks that encode the animal's location and trajectory in the environment, serving essentially as a GPS, findings that led to the 2014 Nobel Prize in Medicine. Failure of these networks to function properly, as seen in Alzheimer's disease and other neurological conditions, results in severe disorientation and memory deficits. Researchers of the Vincent Bonin lab at NERF (VIB-imec-KU Leuven) and the Bruce McNaughton lab at the University of Lethbridge (Canada) have now uncovered striking neural activity patterns in a brain area called the retrosplenial cortex that may assist with spatial memory and navigation.

The prime example of spatial information coding is the firing of so called place cells in the hippocampus, a brain area known for its role in navigation and memory formation. Place cells fire when an animal enters a specific place in its environment. At any given location, only a small fraction of place cells is active, leaving the remaining neurons largely silent. This sparse firing pattern maximizes information storage in memory networks, but at the same time minimizes energy demands.

The hippocampus, however, is not the only brain area involved in spatial orientation and learning. The retrosplenial cortex is also highly active during navigation and memory retrieval and connects the hippocampus to the visual cortex and other areas of the brain. Damage to the retrosplenial cortex results in memory deficits and disorientation, and patients with Alzheimer's disease have reduced activity in their retrosplenial cortex.

To better understand the role of the retrosplenial cortex, Dun Mao and Steffen Kandler, postdocs in the laboratories of Vincent Bonin and Bruce McNaughton, measured its activity in mice that moved on a treadmill fitted with tactile stimuli. In this setting they could precisely track the animal's behavior and location. By combining genetic labeling of cortical neurons and highly sensitive live microscopic techniques, the researchers were able to compare the activity of the neurons in the retrosplenial cortex with those in the hippocampus.

"Previous studies could only record from a few retrosplenial neurons simultaneously. With our cellular imaging technique, we could monitor the activity of hundreds to thousands of neurons simultaneously, which gave us a rich view into the neurons' activity patterns," explains Vincent Bonin.

The researchers discovered a new group of cells that fire in smooth sequences as the animals run in the environment. Their activity resembled that of hippocampal place cells in terms of their sparse firing properties; however, the retrosplenial neurons responded differently to sensory inputs.

These results indicate that the retrosplenial cortex carries rich spatial activity, the mechanisms of which may be partially different from that of the hippocampus. They pave the way for a better understanding of how our brain processes spatial information.

Vincent: "The next step is to investigate directly the relationship between retrosplenial activity and hippocampus as well as its link to visual inputs. It will also be interesting to know how activity in the retrosplenial cortex relates to the development of different neuronal diseases in mouse models."

Mao *et al.*, Nature Communications 2017

QUICKSCAN

1

#Spastic paraplegia #ATPI3A2

Scientists of the Albena Jordanova Lab (VIB- UAntwerp Center for Molecular Neurology) have identified homozygous mutations in ATP13A2 in families with complicated hereditary spastic paraplegia (HSP). Biochemical and immunocytochemical assays demonstrated protein instability and abnormal intracellular localization of the mutant proteins. Loss of ATP13A2 function causes a combination of lysosomal and mitochondrial dysfunction that affects multiple neuronal populations. This study expands the clinical spectrum of ATP13A2-associated neurological disorders from HSP to juvenile-onset Parkinsonism.

Estrada-Cuzcano *et al.*, Brain 2017

2

#Mitochondrial DNA #Genome Architecture #Plant Growth

In addition to the nucleus, mitochondria and chloroplasts in plant cells also contain genomes. Recently, Jonas Blomme of the Dirk Inzé Lab (VIB-UGent Center for Plant Systems Biology) discovered a new protein associated with mitochondrial DNA (mtDNA) in Arabidopsis, namely SWIB5. This protein influences mtDNA architecture and homologous recombination both under normal and genotoxic conditions. Gene expression and mutant phenotypic analysis suggests a link between organellar genome maintenance and cell proliferation.

Blomme *et al.*, Plant Cell 2017

3

#Phosphorylation #Aurora #Microtubule bundling

The multiple functions of the highly conserved Aurora kinases are determined by the wide variety of their substrates. Joanna Boruc of the Daniel Van Damme Lab (VIB-UGent Center for Plant Systems Biology) identified the microtubule bundling protein MAP65-1/PRC1/Ase1 as one of the first genuine plant Aurora substrates. Phosphorylation of MAP65-1 by Aurora affects cell division timing in plants via the regulation of its microtubule bundling capacity in concert with other mitotic kinases.

Boruc *et al.*, Plant Physiology 2016

Lucía Chávez Gutiérrez, brand new VIB group leader

4

#Y-secretase #Amyloid #Alzheimer

A team led by Lucía Chávez Gutiérrez and Bart De Strooper (VIB-KU Leuven Center for Brain & Disease Research) showed that familial Alzheimer's disease (AD) mutations in PSEN or APP destabilize the interaction between γ-secretase and APP, thereby promoting the generation of longer Aβ peptides. Similarly, destabilization of complexes by temperature or detergent promotes the release of longer, more amyloidogenic Aβ. This work suggests that environmental factors may increase AD risk, and provides the theoretical basis for the development of γ-secretase/substrate-stabilizing compounds for the prevention of AD. This research also attracted the attention of our national television.

Szaruga *et al.*, Cell 2017

5

#Alzheimer's disease #ABCA7 #Nanopore sequencing

The ABCA7 gene is a recently discovered and important risk factor of late-onset Alzheimer's disease (AD). Particularly protein truncating mutations are directly involved in the pathogenesis. With the use of long-read Oxford Nanopore sequencing, the lab of Kristel Sleegers, part of the Christine Van Broeckhoven research group (VIB-UAntwerp Center for Molecular Neurology) identified novel alternative splicing in ABCA7 mutation carriers. These splicing events have the ability to mitigate the deleterious effects of ABCA7 mutations, which can be potentially harnessed towards a cure of AD.

De Roeck *et al.*, Acta Neuropathol 2017

6

#N-terminal proteomics #Proteogenomics #Ribosome profiling

Proteogenomics is an emerging interdisciplinary research field where proteomics is used to discover unannotated protein-coding genome regions. Making use of N-terminal proteomic data, together with Petra Van Damme of the Kris Gevaert Lab (VIB-UGent Center for Medical Biotechnology), Patrick Willems of the Frank Van Breusegem Lab (VIB-UGent Center for Plant Systems Biology) reported the discovery of novel proteoforms in *Arabidopsis thaliana*. By performing ribosome footprinting on the same samples, additional support of translation was obtained. The proposed N-terminal proteogenomic pipeline can facilitate the discovery of translational initiation sites in any genome, thereby aiding genome annotation.

Willems *et al.*, Molecular & Cellular Proteomics 2017

8

#Bacterial persistence #Structural biology #Toxin-antitoxin modules.

Toxin-antitoxin (TA) modules play an important role in the generation of bacterial persister cells, which are tolerant to several classes of antibiotics. While the ccdAB operon on the F plasmid of *E. coli* is a well-characterized TA module, its autoregulation processes remained poorly understood. Alexandra Vandervelde of the Remy Loris Lab and the Rouslan Efremov Lab (VIB-VUB Center for Structural Biology), together with the Jurij Lah Lab (University of Ljubljana), combined structural biology with biophysics and computational modeling to uncover the molecular mechanism underlying the ratio-dependent transcription regulation of this operon. This involves a unique repressing complex which spirals around the operator.

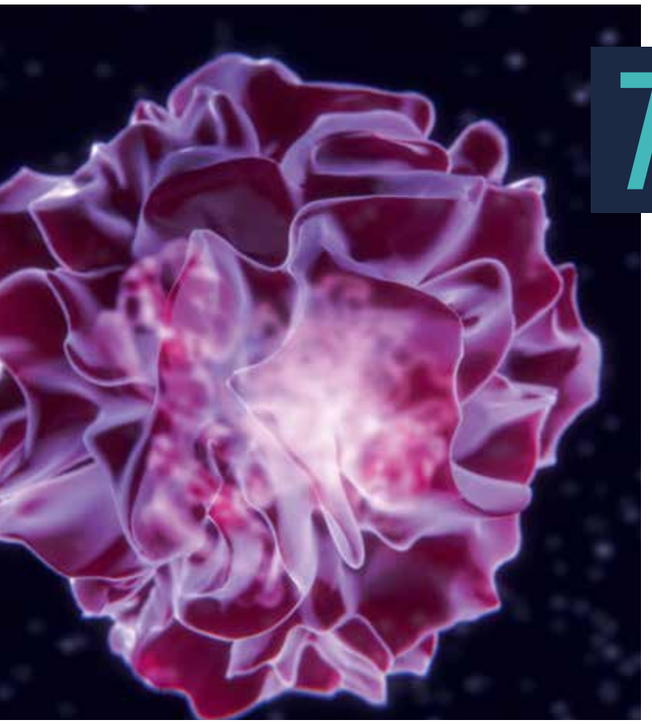
Vandervelde *et al.*, Nucleic Acids Research, 2017

9

#Retrosplenial cortex #Hippocampus #Place cell activity

Researchers of the Vincent Bonin Lab (NERF - imec, KU Leuven and VIB) and the McNaughton Lab (Colorado State University) discovered place-cell-like activity in the retrosplenial cortex. Hippocampal place cells (important for spatial memory and navigation) have a sparse firing pattern, which maximizes information storage in memory networks. The retrosplenial cortex is closely connected with the hippocampus and has also been linked to spatial behavior. Combining genetic labeling of cortical neurons and highly sensitive live microscopy, the two areas were found to use similar neural codes, but their activity is driven by distinct environmental/behavioral factors.

Mao *et al.*, Nature Communications 2017



7

#Inflammation #Myocardial Infarction #Dendritic Cells

Peripheral tolerance is crucial for avoiding activation of self-reactive T cells to self-antigens. Sterile tissue injury can break peripheral tolerance, but it is unclear how autoreactive T cells get activated.

Katrien Van der Borght of the Bart Lambrecht and Hamida Hammad Lab (VIB-UGent Center for Inflammation Research) demonstrate that myocardial infarction induces the priming of Th1/Th17 autoreactive CD4+ T cells specific for cardiac self-antigen α-myosin in the heart-draining lymph node through the maturation and migration of conventional dendritic cells type 2 (cDC2). Autoreactive T cell activation may initiate cardiac autoimmunity and promote adverse cardiac remodeling.

Van der Borght *et al.*, Cell Reports 2017

10

#Protein-protein interaction #MAPPI-DAT #Data analysis

MAPPI-DAT is an automated data management and analysis software, developed as a collaboration between Surya Gupta of the Lennart Martens Lab and the Jan Tavernier Lab (both of the VIB-UGent Center for Medical Biotechnology). MAPPI-DAT provides an end user-oriented, user-friendly means to handle high-throughput protein-protein interaction data from highly parallel MAPPIT cell microarray experiments. MAPPI-DAT stores the acquired data alongside the experimental meta data, and automates the processing of this data to obtain a final list of true positive interactors.

Gupta *et al.*, Bioinformatics 2017

11

#Odor localization

José Esquivelzeta Rabell of the Sebastian Haesler Lab (NERF - imec, KU Leuven and VIB) developed a new method to measure the high-frequency respiration that characterizes the sniffing behavior of mice. Using infrared thermography, the team registered inhalation and exhalation patterns in a non-invasive manner and compared what happened when mice were presented with either novel or familiar smells. Mice actively orient their nostrils toward previously unexperienced smells at a remarkable speed: within the very first sniff. The anterior olfactory cortex, the first site of convergence between left and right olfactory inputs, plays a key role in the orientation process.

Esquivelzeta Rabell *et al.*, Current Biology 2017

Geert Van Minnebruggen

EXPANDING VIB CORES **SET THE WHEELS OF SCIENCE IN MOTION**

This year, we saw the birth of our 10th core facility: the VIB Metabolomics Core, headed by Bart Ghesquière in Leuven and Geert Goeminne in Ghent*. Of course, this tech platform didn't come out of nowhere. Often emerging in one of our groups, centers or affiliate universities, cores traditionally move bottom-up, gradually offering more tools and serving more stakeholders. This expansion is facilitated by our Core Facilities Program, where experts keep a close eye on technological game changers – within VIB and beyond.*

Chances are we'll have 11, maybe 12, VIB Core Facilities by 2018. A couple of promising technology platforms clearly have the potential to rise as institutional cores. One of the key drivers behind this evolution is the growing number of alliances that VIB cores set up with (partner) universities, other life sciences institutes, and even companies. "These are what I like to call smart partnerships," says Geert Van Minnebruggen (Head Core Facilities at VIB). "Whether you call them 'cores' or 'common platforms': the benefits, in terms of cost-effective investments and easier access to technologies that drive science forward, remain the same."

RECENT EXAMPLES OF TECHNOLOGY PLATFORMS POPPING UP

New Center for Bioassay Development and Screening (C-BIOS)

- **Who?** Dominique Audenaert (Head of the VIB Screening Core)
- **Status?** Launched last June, C-BIOS is an expertise center fully embedded within the VIB Screening Core. The unit collaborates with VIB Discovery Sciences and bundles the expertise and infrastructure of VIB, Ghent University and the Cancer Research Institute Ghent (CRIG) and offers centralized and cost-effective support to high-content screening, liquid handling and automation.

MutaMouse

- **Who?** Adrian Liston (VIB-KU Leuven Center for Brain & Disease Research)
- **Status?** Recently reorganized, renamed (previously: InfraMouse) and reinforced with new equipment, this is a classic center core, set up by Adrian but used by other research groups as well. It provides research tools in both mouse embryo services and genome engineering (such as CRISPR, knock-out and knock-in mice).

Crop Genome Engineering Facility (CGEF)

- **Who?** Laurens Pauwels (VIB-UGent Center for Plant Systems Biology)
- **Status?** Set up in 2016 under the leadership of Dirk Inzé (VIB-UGent Center for Plant Systems Biology), the CGEF aims to unite its expertise in genome engineering with companies looking for advice in this rapidly moving field. For example, plant breeders can use gene editing to increase the genetic diversity in their germplasm or to introduce novel traits in their species.

CORES AS BRIDGE BUILDERS, WITHIN AND OUTSIDE VIB

The above examples are just a few of the cores and facilities that are continuously evolving, growing and interacting with other institutions. In this way, cutting-edge technology has never been so easily accessible to our researchers. Without any doubt, this evolution will continue and expand further to multiple stakeholders, such as foreign science institutions, spin-offs and external companies.

Geert: "The old-school approach "let's purchase this tool for our team only" is outdated. The benefits of shared resources are clear-cut! The VIB institutional core facilities are set up to serve the VIB scientific community; but in the meantime they reach out to the whole life sciences community in Flanders, as well to academic groups not belonging to VIB as to the biotech industry. That way, they don't just benefit from disruptive technologies, but also plug in on expertise they often don't have in-house. In return, we can redirect these additional revenues towards new infrastructure.

Last but not least, let's not forget how our cores are working as catalysts between our centers. Because they invest in shared equipment, they have no choice but to work closely together – even if their fields of research seem miles apart. As a result, everybody has become well aware of our cores' cardinal role. The fact that they're now being represented in VIB's management committee as well, is living proof!"

From left to right: Steven Vandenabeele, Isabel Vercauteren and Sofie Goormachtig

FROM RESEARCH PROJECT TO SPIN-OFF: APHEA.BIO'S QUEST FOR NEXT-GENERATION BIOLOGICALS

WE COMBINE WORLD-CLASS SCIENTISTS WITH THE AGILITY OF A START-UP

In the fast-emerging market of sustainable alternatives for chemical agricultural products, VIB spin-off Aphea.Bio is the new kid in town – or rather: in the wheat, barley and maize fields. Launched in June, the start-up's offices in the Ghent-based Bio-Accelerator are still looking spic and span. However, Scientific Advisor Sofie Goormachtig (VIB-UGent Center for Plant Systems Biology), CEO Isabel Vercauteren and CSO Steven Vandenabeele have already spent three exciting years on the project. They're happy to look back on the highlights, and give us a glimpse of what the future might bring.

While initial insights into growth-stimulating microorganisms were already gained in the 1980s, this field of research has made considerable discoveries only in the past few years. Thanks to recent technological breakthroughs, such as Next-Generation Sequencing and new endophyte isolation techniques, the time is ripe for the next generation of biopesticides and biostimulants. Backed by 9 million euros in working capital, Aphea.Bio now has a clear shot at a leading European position in plant-protecting and plant-stimulating microorganisms.

Most of us have heard about Aphea.Bio's launch, but when and why did it all start?
Sofie: "Around three years ago, we saw the market potential for next-generation biological agricultural products. With the support of my lab and Dirk Inzé, and Johan Cardoen, Els Beirnaert and VIB's Tech Tranfers team, we laid the foundations of what is now our technology platform. During the first year, we mainly refined our research, developed our proof of concept, started setting up our pipeline and conducted the first tests on plants. Realizing we were on the right track, we called in Steven to explore the business side of our embryonic start-up."

> One of the key tricks was to attune every pitch to the type of investor before us."

Steven: "In 2015, VIB asked me to join the pack, which at the time only consisted of Sofie and her VIB colleagues Tom Viaene and Tibby Deckers. It was my job to build a business case: examine potential crops, explore the market, map out farmers' demands, etc. Aside from that, I had to guide the proof of concept in order to support this case. In my experience, that was one of this journey's most challenging endeavors. The second one was fundraising, but that's where Isabel came in (laughs)."

Isabel: "Only partially true, Steven, because I seem to remember that we did our investment pitches together!"

Isabel, you were brought in at a pivotal moment, when Aphea.Bio was looking for investors.
Isabel: "When Sofie and Steven asked me to join them one year ago, I was working at Bayer CropScience as their R&D Licensing and New Ventures Manager. My first big project, raising the necessary funds, was both challenging and exciting. Our very first pitch was not that successful, but we gradually grew into our roles, finetuned our presentation and learned how to tick all the boxes from an investor's point of view. One of the key tricks was to attune every pitch to the type of investor before us."

What were the keys to success in this journey?
Steven: "The driving force that brought all the pieces of the puzzle together was definitely VIB's tech transfer team. Thanks to their experience and vast network, they knew exactly when and where to acquire additional resources or expertise. Always thinking two steps ahead, they ensured that we never really experienced considerable setbacks in those three years."

Sofie: "Another element was the excellent team spirit while building everything from scratch. First with us three (Tom, Tibby and myself), and recently with the entire team, including Steven and Isabel. Week after week, we saw the project grow and move in the right direction. To me, as a researcher, witnessing the evolution from insights to tangible results was extremely stimulating – to the point that it's almost a pity that the project has taken off for real now. In those exciting times, we also managed to loot the entire stock of Mignonette chocolates from the cupboard at the VIB Headquarters in Ghent!"

Glad we've got that on the record. Team-wise, where are we now?
Isabel: "Our 11-member team is a bright international bunch, with people from France, Iran, Chile and the UK. Some of them are jacks-of-all-trades, because in a start-up you need more specialized skill sets than you can afford people. The same applied to me: at the start, I had to

speak the languages of financials, HR, R&D, IP or compliance. I managed quite well, but when we just moved in here and IT specialists were setting up the infrastructure, their lingo was a bit too exotic for me (laughs)."

Steven: "For the real technical stuff, we rely on partners such as IP agencies or regulatory experts. And of course, there are a lot of VIB alliances: the Dirk Inzé Lab takes care of automated phenotyping of crop plants and the Jeroen Raes Lab (see text box, ed.) performs data analyses on microbes we select. Finally, there are a couple of third-party collaborations with French and Spanish institutes as well."

Sofie: "My own network is also useful to help move science forward. In addition to my lab and my students, ILVO (the Flanders Research Institute for Agriculture, Fisheries and Food) proved a valuable research partner."

Now Aphea.Bio is in full swing, what's next?
Isabel: "We have raised sufficient funds for the next three years, which is our estimated timeframe for developing biostimulants and biopesticides that are validated in the field. After that, new capital will be required to further develop and market these products, which will take another couple of years. All options are open: we might sell products ourselves, or through a partnership with a large seed company. "

And the big question: how confident are you in Aphea.Bio's chances of success?
Steven: "Of course, we never know what will happen and no doubt other institutes and companies are active in the same field. But the European market for high-quality products is still wide open. Sure, you can already find a couple of garden-variety products, but we're aiming for biologicals that prove their robustness in any circumstance – year after year, no matter the climate or soil."

Sofie: "I second Steven. Thanks to the rapid pace of technological evolution, we're doing away with the traditional method of picking something out of the black box of microorganisms and, if we're lucky, finding some useful microbes. Today, we can finally shed some light in this black box and pinpoint the exact bacterial species or consortium we need."

Isabel: "Besides, we have the best of both worlds: world-class scientists who master these techniques, and the agility of a start-up. This gives Aphea.Bio a huge competitive edge."

More info on www.aphea.bio

BUILDING ON JEROEN RAES' GROUNDWORK

Aphea.Bio's technology platform is also based on the microbiome experience of Jeroen Raes (VIB-KU Leuven Center for Microbiology). Over time, his data analysis pipeline will be taken over completely by Aphea.Bio itself.

Jeroen: "I'm really excited to translate the principles of microbial ecology we learned from our ocean and human projects into plant research. Our expertise in high-throughput microbiome analysis will allow Aphea.Bio to discover novel leads and study the impact of new products on an ecosystem-wide scale."

Jo Bury

EVALUATING OUR RESEARCHERS: IT'S ALL ABOUT IMPACT

The evaluation procedure for our research centers and PIs has shifted from quantitative KPIs (Key Performance Indicators) to an exclusively qualitative approach. The new agreement with the government of Flanders outlines these realistic, future-oriented and – above all – relevant assessments. Managing Director Jo Bury explains the whys and hows.

Jo: "The why is simple. Although the KPI-based system has allowed us to objectively prove our relevance and, as a result, helped VIB become a world-leading institute, it is now outdated. Now that we have established our footprint, it merely causes side effects such as a misplaced sense of competition between groups and sentiments of 'publish or perish'."

Our PIs will now be evaluated by their peers in Thematic Evaluation Boards for each research center. Can you elaborate?
Jo: "These boards, pooling together the world's undisputed experts in a science domain, will mainly take impact into account. Not only achieved impact – think of performance, a paper's groundbreaking nature or its originality – but also future plans. The way our people will continue to lead the field, will be a vital factor as well. This is, of course, a huge difference."

Another big shift: our research centers will be compared against their international counterparts, as opposed to each other.
Jo: "The main question will be: is this a leading center of excellence? The fact that we'll now be able to benchmark ourselves against, for instance, the world's most renowned cancer research institutes, is quite thrilling. But I think I already know the outcome, seeing how our papers make international waves and considering our excellent scores in several international rankings."

VIB as an institute will continue to be evaluated based on quantitative KPIs. Doesn't that interfere with the new approach?
Jo: "No. People who are not active in a science field, in particular government officials, need something like KPIs to get the gist of how we are performing. It's like tennis: the world rankings are based on points as well. We simply have to continue to play Grand Slam finals – and prove we can win too!"

AWARDS & GRANTS

VIB scientists are no strangers to recognition – with each passing month, many of our colleagues are the proud recipients of awards, grants and other forms of acknowledgement for their discoveries, projects and scientific contributions to a range of life sciences domains. Below are our most recent winners.

Bart Lambrecht (VIB-UGent Center for Inflammation Research) was chosen to receive the 2017 ERS Gold Medal in Asthma by the Milan Congress Programme Committee. At a ceremony on 9 September, he was presented with an award certificate and a EUR 50,000 research grant.

Bart Lambrecht

Peter Carmeliet © Marco Mertens

Peter Carmeliet, (VIB-KU Leuven Center for Cander Biology) was recently elected an international member of the Royal Netherlands Academy of Sciences (KNAW). Being elected to this network is a rare honor: only two new international members were elected this year, including Peter. Peter also received a 'Distinguished Career Award' from the International Society on Thrombosis and Haemostasis.

Diether Lambrechts and visiting scientist **Cedric Blanpain** (VIB-KU Leuven Center for Cancer Biology) were announced the two top winners of the Cancer Research Awards presented by Stichting tegen Kanker on 11 May. They are both laureates of the 2016 awards. Diether won in the Translational and Clinical Research category, and Cedric in the Basic Research category. The financial support of Stichting tegen Kanker enables the scientists to elaborate on their research for the next 4 years.

Cedric Blanpain (second on the left) and Diether Lambrechts (on the right)

Rodrigo Gallardo of the Switch Laboratory (VIB-KU Leuven Center for Brain & Disease Research) was the winner of the Biomedical Research Prize from the KU Leuven Research Council. The ceremony took place on 18 May.

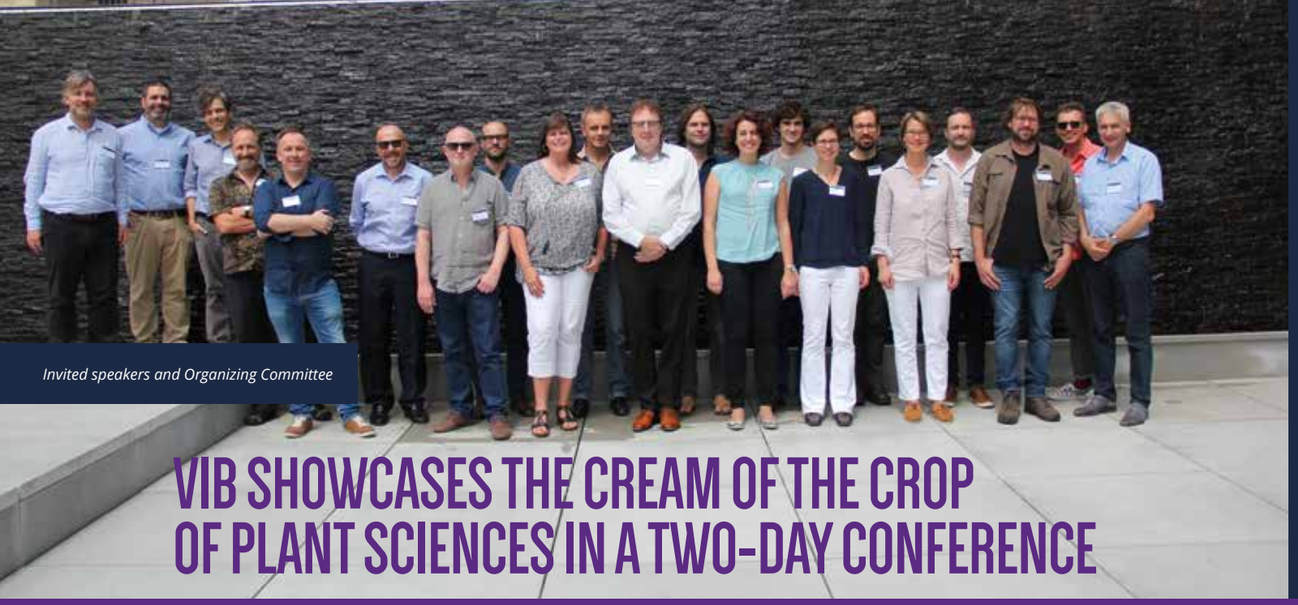
Frederic Rousseau and Rodrigo Gallardo

- **Eleonora Leucci** of the Jean-Christophe Marine lab (VIB-KU Leuven Center for Cancer Biology) has won the Emile Carpentier Fund award of the King Baudouin Foundation, consisting of EUR 70,000.
- **Ana Cascahlo** of the Rose Goodchild lab (VIB-KU Leuven Center for Brain & Disease Research) won the first prize for her poster presentation at EMBO/EMBL Molecular and Cell Biology of Membranes meeting in Heidelberg, Germany.
- **Karlijn Debusschere** of the Dirk Elewaut Lab (VIB-UGent Center for Inflammation Research) won one of the six abstracts awards at the EULAR Annual Meeting.
- **Elisabeth Gilis** of the Dirk Elewaut Lab (VIB-UGent Center for Inflammation Research) has won the 2017 C. Garrison Fathman Fellows Fund Trainee Travel Award. The award enables trainees and fellows to attend FOCIS meetings and courses and participate in exchange programs.
- **Giel Vandemoortele** of the Eyckerman/Gevaert group (VIB-UGent Center for Medical Biotechnology) is the winner of a poster award at Knowledge for Growth, one of Europe's key life sciences conferences.
- **Wenting Guo**, a PhD student at the Van Den Bosch lab (VIB-KU Leuven Center for Brain & Disease Research), has won an award for a presentation given in China.

Picture by Marie-Noëlle Doceel-Cruysmans

Quite some VIB researchers were invited to the royal palace for the issuing of neuroscience research prizes by the Queen Elisabeth Medical Foundation (GSKE). **Bart De Strooper** and **Wei-Ting Chen** from the VIB-KU Leuven Center for Brain & Disease Research received a research credit for their project titled 'The cellular phase of Alzheimer's Disease'. **Geert van Loo** (VIB-UGent Center for Inflammation Research) received the CBC Banque prize for his project 'Endoplasmic reticulum stress in autoimmune central nervous system inflammation and demyelination'.

- **Sandrine Degryse**, VIB PhD student, has received a scholarship from the Belgian American Education Foundation to perform postdoctoral research in the USA. She already left to her new role at the Harvey Cantor lab at the Dana Farber Harvard Cancer Center in Boston, Massachusetts.
- **Tran Phan Le Cong Huyen Bau** has been approved to receive a doctoral scholarship by the KU Leuven Interfaculty Council on Development Cooperation (IRO) to do a PhD in the lab of Patrick Van Dijck (VIB-KU Leuven Center for Microbiology).



Invited speakers and Organizing Committee

VIB SHOWCASES THE CREAM OF THE CROP OF PLANT SCIENCES IN A TWO-DAY CONFERENCE

On June 15 - 16, 2017, 240 scientists attended the 'At the Forefront of Plant Research' conference at the Zebracomplex in Ghent. The event covered a wide variety of plant-related topics and featured top international scientists. Dirk Inzé, science director of the VIB-UGent Center for Plant Systems Biology and member of the organizing committee, proudly talks about the event.

Why do you think the conference was so successful?
Dirk: "From the very beginning, we only wanted the top speakers in the field. Our ambition payed off: nearly all of them immediately agreed to join. This confirms the international fame of the VIB-UGent Center for Plant Systems Biology. And of course, the impeccable organizational skills of the VIB conferences team were essential. On behalf of the organizing committee, thanks again!"

Apparently, our reputation and great program reaches further than we had imagined."

Did you have any trouble filling the seats?
Dirk: "Not at all: we sold all 240 spots very quickly, and we were delighted to see that 62% of the participants were international. Most were Europeans, but scientists from Asia and the US also flew over. Apparently, our reputation and great program reached further than we had imagined.

The conference featured a wide array of plant tech issues. Why did you keep such a broad focus?
Dirk: "Scientists go to symposia concerning very specific topics year-round. It's typical for our jobs that we know a lot about very little and little about a lot. On the other hand, by keeping our focus wide, we wanted to offer a taste of what's going on in the diverse fields of plant biology and inspire a broad audience to reflect on their own work."

If you had to pick a highlight, who would it be?
Dirk: "My personal favorite was Zachary Lippman, Cold Spring Harbor Laboratory Associate Professor in the US, biologist and notorious tomato aficionado. He illustrated how new technologies like genome editing can be used to create stronger crops. Although VIB's focus is on basic research, successfully turning these insights into real-life results is, ultimately, the holy grail of science.

This is exactly what I loved about Lippman's talk: the translation of basic into applied research."

How do you feel the conference helps VIB as an institute?
Dirk: "It definitely gives us more visibility. We've always been on the map, but events like these help us stay there. This way, we attract young people to come study here, and reach out to international colleagues."

How did the participants respond?
Dirk: "Everyone I talked to was enthusiastic about the program and the exceptional networking opportunities: our participants chatted with chart-topping international speakers – who are usually hard to get in touch with – on a boat ride through Ghent, and during the conference dinner and reception at the NT Gent."

Any plans in terms of new events?
Dirk: "We want to organize a similar conference in two years, with even more international speakers. But if everything goes as planned, we may already have some organizing to do next year. Cell Press was impressed by our event and contacted us. Apparently, they're thinking of hosting their next annual top-level meeting in Ghent, together with VIB. That would be the icing on the cake."

Patrick Van Dijck, group leader at the VIB-KU Leuven Center for Microbiology, and member of the Organizing Committee of the conference: "What made the conference unique is that young scientists from all over the world got to discover the top studies in the plant world. Renowned researchers discussed many different aspects of plants and how they work, as well as the most novel techniques in the field. The great networking opportunities added to the value of the conference."

FACTS AND FIGURES

240 ATTENDEES

28 NATIONALITIES

22 TALKS IN **4** SESSIONS

OVER **100** POSTERS

BETTER TOGETHER: GETTING THE MOST OUT OF YOUR COLLABORATIONS

On June 6, 2017 the VIB postdoc committee held a workshop titled 'Getting the most out of your collaborations'. The seminar, funded by the Flanders Interuniversity Initiative, hosted several renowned scientists. They inspired the audience with their personal take on partnerships and sparked a lively discussion about publishing collaborative research.

Annalisa Pastore (King's College, London) showcased how good interpersonal relationships and even friendship can lead to long-lasting productive collaborations, while Andre Matagne (University of Liège) illustrated how academic networks develop quite similarly to the waves on the surface of a body of water.

Thinking back on his own collaborative efforts, Savvas Savvides (VIB-UGent) concluded: "Communication, communication, communication is, without a doubt, the key to successful cooperation."

After the coffee break, the focus shifted to do's and don'ts for joint projects with industrial partners, when Sarah-Maria Fendt (VIB-KU Leuven) provided an honest story about her recent experiences. Sabien Vanlangendonck (LRD, KU Leuven) highlighted several important factors to keep in mind from a technology transfer point of view. Ruzica Kolakovic (Janssens Pharmaceutica) revealed how pharmaceutical companies handle collaborations and provided useful tips and tricks.

The bottom line: a proper understanding, open communication and mutual commitment between all parties is – above all – what makes for a great collaboration.

MARK YOUR CALENDAR

VIBes in Biosciences
September 27-29, 2017 - Ghent

Next-Generation Antibodies and Protein Analysis
October 16-17 - Ghent

Biotech Day
October 22, 2017 - Ghent

Macrophage Biology in the Single-Cell Era
October 26-27, 2017 - Ghent

Genome Engineering and Synthetic Biology
January 25-26, 2018 - Bruges

Applied Bioinformatics in Life Sciences (2nd edition)
March 8-9, 2018 - Leuven

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