VIB

Annual Report 2015

From science to value for society

While strategic basic research in life sciences remains the cornerstone of VIB's activities, translating the results of this research into applications that benefit society is our most important objective.

We are proud to say that 2015 was an excellent year. We pushed the boundaries of science with 206 scientific breakthroughs, published in the top journals in the field (top Tier 5%). This is about 4 papers a week. In 2015 five VIB group leaders received an ERC grant, illustrating the international recognition of the quality and level of ambition of our research.

Our scientific progress has laid the foundations for a first-rate tech transfer performance. VIB's role as an innovation center was reinforced by the execution of 117 partnering agreements with life sciences and biotech companies. We experienced an exceptional start-up year: 4 new VIB start-up companies, all with different flavors, were established. This brings the total of VIB spin-offs to 18 which collectively raised a stunning €820 Mio of capital. Even more, a new VIB-associated life sciences investment fund, V-Bio Ventures, was launched with €63 Mio of committed capital pledged after the first closing.

We are keen to inform the general public about our research and accomplishments in tech transfer. In 2015 we issued 44 press releases and have increased our presence on social media. Our largest public event, Biotech Day, was hosted in Leuven and attracted 4,400 visitors, exploring the amazing possibilities of biotechnology.

2015 was also the year in which our 8 research departments were evaluated for the 4th time in view of a renewal of the management agreement with the government of Flanders. Most research groups passed with flying colors. In 2016, VIB will be evaluated as a whole and based on the excellent results of the past 5 years, we are confident that the government of Flanders will confirm its commitment to VIB.

Staf Van Reet, Chairman of the Board of Directors
Jo Bury and Johan Cardoen, General Directors

8 CORE FACILITIES

TECHNOLOGIES

32 TECH WATCH PROJECT APPLICATIONS APPROVED

737 PUBLICATIONS

SCIENCE

206 PUBLICATIONS IN TIER 5 JOURNALS

4 NEW START-UPS IN 2015

TECH TRANSFER

683 EMPLOYEES IN START-UPS

5 PARTNER UNIVERSITIES → 75 RESEARCH GROUPS

1 INSTITUTE

66 NATIONALITIES ← 1,470 EMPLOYEES

%51.55 FLEMISH GOVERNMENT

%48.45 OTHER INCOME

TOTAL INCOME

4,400 VISITORS TO BIOTECH DAY

9,060 YOUNGSTERS IN EDUCATIONAL PROJECTS

INFORMING THE PUBLIC

VIB in a nutshell

VIB is an entrepreneurial non-profit multi-site research institute, with a clear focus on groundbreaking research in life sciences. Our scientists study the molecular mechanisms that regulate the functions of the human body, plants and microorganisms. This research leads to innovative insights into normal and abnormal/pathological life processes, which has the potential to be used in the development of novel therapeutics, diagnostics, applications and technologies.

Over the years, life sciences have become part of our everyday lives, we cannot deny that science has become deeply interwoven with our daily routines. Scientific knowledge can improve the quality of life at many different levels, from the routine workings of our daily existence to global societal challenges such as healthy living and sustainable food production. In light of this fact, we go to great lengths to inform the public about our research results and tech transfer achievements.

Our mission and core values

It is our mission to conduct pioneering biomolecular research in life sciences. By doing so, we encourage sustainable scientific progress and contribute to a better world.

We strive for excellence in all areas of our research and encourage our scientists and employees to be creative, entrepreneurial and think "outside the box". Our focus on innovative technologies, ensures that our research is genuinely groundbreaking. Scientifically founded and transparent communication contributes to the credibility of our institute and generates social involvement.

Milestones in research

The research of our scientists covers a broad spectrum of disciplines within the field of life sciences. Just as in previous years, many results of VIB research were published in leading international, scientific journals such as Nature, Cell and so on. The summaries below provide a choice selection of the research that has been published in 2015.

PLANT BIOLOGY

The genome sequence of the orchid *Phalaenopsis equestris*

Orchids, renowned for their spectacular flowers and other reproductive and ecological adaptations, are one of the most diverse plant families. Unfortunately, they are also a highly endangered species due to illegal collection and loss of habitat. This study, conducted by an international team of scientists, reveals the nuclear genome of the moth orchid *Phalaenopsis equestris*, the first orchid to be sequenced. The complete genome sequence of *P. equestris* will provide a crucial resource in the exploration of orchid diversity and evolution at the genome level, which will be important for ecological and conservation purposes. The genome sequence will also be key in developing new methods to increase the efficiency of orchid breeding.

Cai J. et al., Nature Genetics 2015

Small glycosylated lignin oligomers in *Arabidopsis* leaf vacuoles

Lignin is a plant polymer found in woody tissues that gives plant cells their mechanical strength and waterproofness, allowing the transport of water and nutrients through the vascular system. Metabolite profiling of *Arabidopsis thaliana* leaf vacuoles shows the presence of small glycosylated lignin oligomers within these vacuoles. By feeding *A. thaliana* leaf protoplast cultures with the monolignol coniferyl alcohol and one of its dimers, a team of Belgian and American researchers have found that lignin oligomers are also synthesized intracellularly, rather than solely in the cell wall as previously believed. These findings support the existence of a metabolic pathway that involves intracellular combinatorial coupling as well as oligomer glycosylation and import into the leaf vacuoles. The presence of glycosylated lignin oligomers in the leaf vacuoles may assist *A. thaliana* in sealing damaged tissues, preventing water loss and isolating or destroying pathogens.

Dima et al., The Plant Cell 2015

IMMUNOLOGY

Farm dust and endotoxin protect against allergy

Under the leadership of Bart Lambrecht and Hamida Hammad (VIB/UGent), a European team of researchers has demonstrated that growing up on a dairy farm protects children from allergy, hay fever and asthma. This is likely due to the presence of bacterial components in the inhaled air that reduce the overall reactivity of the immune system. This work shows that chronic exposure to bacterial endotoxin or farm dust protects mice from developing asthma. The protective effect was mediated by the ubiquitin-modifying enzyme A20 in the lung epithelium. In humans, a variant of A20 correlates with increased susceptibility to asthma and allergy in children raised on farms. The findings represent a major step forward towards the development of an asthma vaccine.

Schuijs et al., Science 2015

A wake-up call for biomedical research on mouse models

A research group led by Peter Vandenabeele and post-doctoral scientist Tom Vanden Berghe (VIB/UGent) has demonstrated how the side effects of the genetic modification of mice can complicate the interpretation of biomedical research. Investigators often rely on the technique of deactivating specific genes in mouse strains to study their effects on disease development. This technique may yield inaccurate results due to the fact that in the first generation of a genetically modified mouse strain, called recombinant congenic mice, numerous other defective genes (called passenger mutations) are almost always found close to the inactivated gene, thus influencing the observed effect. This finding has serious current and retroactive repercussions on the results of studies relying upon the use of recombinant congenic mice, and clinical human studies remain essential to research validation. The results will also impact the interpretation of a huge quantity of research, help explain scientific controversies and lead to a more accurate translation of lab findings to humans. The research team has also developed a web tool to help fellow researchers more

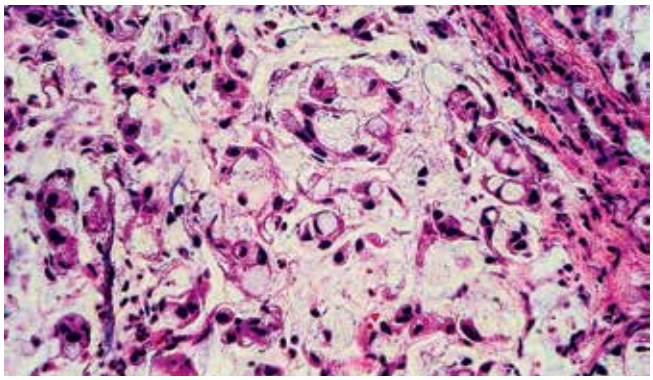
accurately estimate the impact of the passenger mutation phenomenon on their studies.

Vanden Berghe et al., Immunity 2015

Interleukin 21-producing CD4(+) T cells promote type-2 immunity to house dust mites

Globally, 3 billion people suffer from infectious, toxic and inflammatory disorders caused by diverse triggers including allergens, toxins, insects, worms and many more. These triggers initiate a type-2 cell-mediated immune response that results in itching, redness, swelling, altered functions of organs, and occasionally in death caused by anaphylaxis. CD4(+) T cells, also known as Th2 cells, respond to allergens and parasites to produce compounds that drive many kinds of immune responses originating in the body's smooth muscle, mast cells, mucosal membranes and other tissues. The research group, led by Bart Lambrecht and Hamida Hammad (VIB/UGent), examined the mechanisms governing how CD4(+) T cells trigger type-2-cell-mediated immunity to house dust mites at mucosal barriers. The study performed by Coquet *et al.* demonstrated that the allergen house dust mite induces pronounced IL-21 production in lung-draining lymph nodes, in lung tissue and in airways, and that IL-21 and its receptor promote adaptive type-2 cell responses. These results suggest a prominent role for IL-21- producing CD4+ T cells in house dust mite-induced asthma and pinpoint an important amplificatory role for IL-21 in type-2-cell-mediated immunity.

Coquet et al., Immunity 2015



CANCER RESEARCH

Fatty acid carbon is essential for dNTP synthesis in endothelial cells

The metabolism of endothelial cells during vessel sprouting remains poorly studied. Research by an international team headed by Peter Carmeliet and Sarah-Maria Fendt has shown that pathological blood vessel formation (angiogenesis) plays a key role in the development of various diseases, including cancer. This paper identifies a crucial role for fatty acid oxidation in endothelial cells during angiogenesis. The data demonstrate that fatty acids provide the carbons for the *de novo* synthesis of nucleotides, and for this reason, fatty acid oxidation stimulates vessel sprouting by increasing endothelial cell proliferation. Pharmacological blockade of fatty acid oxidation can reduce pathological angiogenesis in a mouse model of retinopathy of prematurity, underscoring the therapeutic potential of these new findings.

Schoors et al., Nature 2015

Tumor-educated monocytes can serve in diagnosis of colorectal cancer

Researchers from VIB/KU Leuven, working alongside various European oncology centers, have identified bio-markers that can be incorporated into a new diagnostic assay, making it possible to detect early-stage colorectal cancer through a simple blood test. Colorectal cancer is very curable if discovered at an early stage, with a treatment success rate of 95%. However, fewer than 10% of patients with late stage colorectal cancer survive for 5 years after diagnosis. The current test, which is based on the detection of fecal occult blood (iFOB), has a low sensitivity, requires a follow-up colonoscopy and cannot detect all of the subtypes of colon cancer. Through this research, the study has identified how substances secreted by cancer cells at the earliest stages of tumor formation can induce the expression of 23 genes in

the monocytes that respond to cancer growth. This insight will allow the development of a sensitive new blood test that can detect tumor-related changes directly, very early in the tumor development process. Additionally, because the test identifies the body's reaction to cancer cells rather than the simple presence of blood in the stool, it has the ability to detect distant tumor activity, reducing the potential for relapses or unidentified tumors.

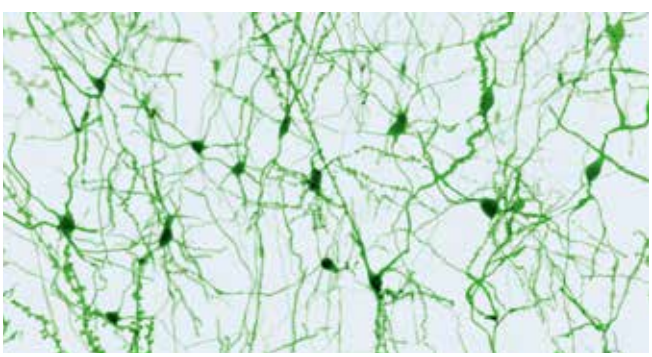
Hamm et al., Gut 2015

NEUROSCIENCES

The FTD - ALS connection reinforced

The Van Broeckhoven lab has identified mutations in the gene coding for TBK1 in patients with frontotemporal dementia (FTD), amyotrophic lateral sclerosis (ALS) or both. This is the third gene linking both clinical entities into one disease continuum. The identification of TBK1 again demonstrates the power of the Flanders-Belgian patient population data that is collected by the Belgian Neurology (BELNEU) consortium. The BELNEU consortium is a national network of participating neurology expertise centers and is associated with universities and general hospitals across Flanders.

The mutations reduce TBK1 expression and were identified in familial patients with autosomal dominant inheritance of FTD and/or ALS, as well as in sporadic patients. Most carriers presented at the relatively late age of around 60 years, with ALS patients having shorter lifespans. An interesting finding of this research is that the FTD carriers presented with early memory loss. Brain pathology demonstrated TDP-43-positive lesions. TBK1 mutations are relatively frequent in the Belgian population, and are the second most frequent genetic cause of FTD and ALS after the C9orf72 repeat expansions mutations, which the Van Broeckhoven lab identified previously.



Gijselinck et al., Neurology 2015
Van Mossevelde et al., Brain 2016 (online 2015)

Hsc70-4 deforms membranes to promote synaptic protein turnover by endosomal microautophagy

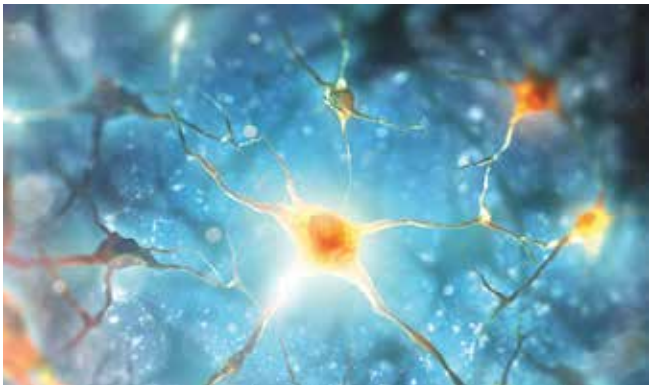
A team of researchers led by Patrik Verstreken (VIB/KU Leuven) has exposed the details of a mechanism called synaptic microautophagy that explains how synapses remain active throughout the long life of a neuron. Their research has clarified how damaged synapses are repaired to maintain an optimal level of communication between the cells in the brain. Disturbances in these mechanisms may contribute to the development of neurodegenerative diseases such as dementia and Parkinson's disease. Microautophagy is a key process by which the brain removes protein-based debris from the synapse by engulfing it in a membrane. The team found that synaptic communication slows down when microautophagy is reduced, and accelerates when microautophagic activity increases. The finding represents a critical advance in our understanding of neurodegenerative diseases such as Parkinson's that often start at the synapse and are caused by accumulated cellular debris.

Uytterhoeven et al., Neuron 2015

The sorting receptor SorCSI regulates trafficking of neurexin and AMPA receptors

An international team of scientists published a study in Neuron that examines the role of the sorting receptor SorCS1 in regulating synaptic receptor trafficking. The research identifies SorCS1 as responsible for the sorting of the synaptic adhesion molecule neurexin and AMPA glutamate receptors. These proteins strongly influence the formation, function and plasticity of the synapses through which the nervous system transmits information. The study found that neurons deficient in SorCS1 contain decreased levels of neurexin and AMPARs, impairing synaptic transmission. This suggests that disturbed receptor trafficking contributes to synaptic defects that may lead to neurological disease. Their findings provide important insights into the link between SorCS1 mutations and synaptopathies such as autism and Alzheimer's disease.

Savas et al., Neuron 2015



Research offers new insights into how our brains are wired

In a recent study published in Cell, the lab of Dietmar Schmucker (VIB/KU Leuven) presents new insights into how neurons control the formation of stereotyped axon collaterals. Neurons are connected by axons and dendrites, which serve as information and signal transducers. This research explored the complex ways that neurons use thousands of different isoforms of the protein Dscam1 to serve as "identity tags" for nerve processes and their many side-branches (collaterals). Disruptions in the interaction of Dscam1 isoforms, the co-receptor RPTP69D and the extracellular ligand Slit can lead to defects in axon branching and disrupts connections between axons and their specific targets. The findings also indicate that Slit, which is known to have an important function in axon guidance, vascular development and tumor formation, can signal through Dscam1 independently of Robo receptors. Understanding the molecular mechanisms that govern the growth and branching of neurons is crucial to the development of new strategies for neurological injury and disease treatment.

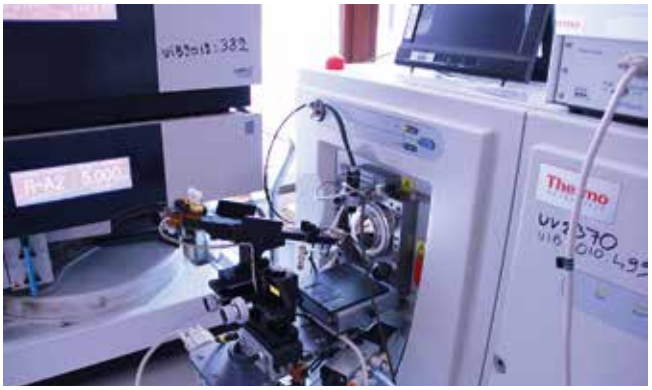
Dascenco & Erfurth et al., Cell 2015

MEDICAL BIOTECHNOLOGY

Using GlycoDelete to produce proteins lacking plant-specific N-glycan modification in seeds

In this research, Ann Depicker and Nico Callewaert (VIB/UGent) successfully applied VIB's GlycoDelete technology to plant seeds, demonstrating that plant seeds can also serve as a medium for the inexpensive, large-scale production of biotech medicines. Callewaert originally developed GlycoDelete to simplify the process of producing biopharmaceuticals in mammalian cells. The new application of this technology effectively shortens the sugar structures found in plant seeds that cause heterogeneity and have the potential to cause undesirable immune reactions. By stocking therapeutic proteins in seeds rather than relying on cells, they can be stored until required, making this new method attractive for the timely combat of rapidly-spreading infections such as Ebola or influenza.

Piron et al., Nature Biotechnology 2015



PeptideShaker enables reanalysis of MS-derived proteomics data sets

The recent "omics" revolution in life sciences has generated large amounts of quantitative data. Integration and interpretation of these data have led to major advances in diverse domains of life sciences, from molecular and cell biology to terrestrial and oceanic ecology. Today, efforts are directed towards public data sharing and the analysis and reanalysis of these data. To maximize the value of public proteomics data, reuse and repurposing must become straightforward tasks, allowing the completion of the proteomics data cycle. This paper describes a proteomics informatics software package, PeptideShaker, a user-friendly, open-source tool that enables the performance of state-of-the-art proteomics data analysis at any stage in the data life cycle.

Vaudel et al., Nature Biotechnology 2015

MOLECULAR MICROBIOLOGY

Ocean plankton, important determinants and effective predictors of oceanic ecosystem dynamics

The structure of oceanic ecosystems results from a complex interplay between resident organisms and their environments. Both papers explored the use of sequencing technologies to profile ocean communities, and applied network inference methods and machine-learning techniques to integrate environmental input. As such, the studies developed a quantitative understanding of the diversity and the importance of biotic and abiotic interactions within oceanic ecosystems.

This global ocean interactome can be used to predict the dynamics of ocean ecosystems, and to elucidate the structure of the global food webs that drive nutrient and energy flow in the ocean.

Lima-Mendez et al., Science 2015
Sunagawa et al., Science 2015

Glutamine-rich repeats important for TF activity

Through this research, published in Molecular Cell, scientists at VIB and KU Leuven have discovered that variable polyglutamine repeats tune the function of proteins involved in transcriptional regulation. Expansion of such variable repeats were previously only known to cause severe neurodegenerative diseases such as Huntington's, but the exact mechanism remained unknown. The results of this study revealed that the length of polyglutamine repeats located within transcriptional regulators affects the transcriptional response of the genes that are regulated by the repeat-containing protein. Using the polyglutamine-containing regulatory protein Ssn6, the researchers showed that when repeats are abnormally expanded, the function of the Ssn6 protein deteriorates, potentially leading to disease. By contrast, when polyglutamine repeats are moderate, they perform the normal function of modulating the solubility of their transcription factors (proteins) and gradually change cell physiology. This finding lays the foundation for subsequent research into the role of repeats in the evolution of new cell functions and lifeforms.

Gemayel et al., Molecular Cell 2015

STRUCTURAL BIOLOGY

Architecture and conformational switch mechanism of the ryanodine receptor

Muscle contraction is regulated by ryanodine receptors (RyR) that control the concentration of calcium ions in the cytoplasm of muscle cells. More than 500 mutations in RyRs have been associated with human diseases, including sudden cardiac death and certain neurological disorders. This paper reports high-resolution electron cryogenic microscopy structures of the 2.2 MDa ryanodine receptor RyR1 at 6.1 A resolution and reveals how calcium binding regulates channel opening. The authors also note that disease-causing mutations are clustered in regions of the channel that appear to be critical for normal channel function.

Efremov et al., Nature 2015

New insights in the attachment of the bacterial carcinogen *Helicobacter pylori*

The bacterium *Helicobacter pylori* is highly adapted to survival in the human stomach and is responsible for the majority of gastric ulcer and cancer cases worldwide. Scientists at the lab of Han Remaut (VIB/Vrije Universiteit Brussel) present new insights into BabA – a protein that plays an important role in *H. pylori's* survival strategy. By binding to the stomach mucosa, *H. pylori* stays out of the reach of gastric juices, but also increases the delivery of the CagA oncotoxin, leading to tissue damage and overt disease. The bacterium achieves adherence by binding to blood group sugars found on gastric mucus and underlying cells. This interaction is made possible by the protein BabA. The research provides new and detailed insights into the structural and functional diversity of the protein. The study also uncovered BabA's Achilles heel: treatment with the redoxactive pharmaceutic N-acetylcysteine annihilates BabA function and, furthermore, N-acetylcysteine lowers stomach inflammation in *H. pylori*-infected mice. This study creates the basis for the rational design of novel, anti-adhesive drugs with the potential to reduce bacterial attachment and stomach inflammation, hence lowering the risk of overt disease development.

Moonens et al., Cell Host Microbe 2015

Added value for society

VIB researchers don't just contribute to the progress of scientific knowledge. Our research leads to new and innovative insights into life processes, benefiting society as a whole. Our technology transfer team focuses on translating research results into diverse new products (candidate drugs or therapies) that can be used to help patients. VIB combines excellence in research with distinction in technology transfer. This economic added value generates extra revenue for VIB.

Cross-fertilization with the industry

2015 was a peak year for our industrial cooperations. We generated a turnover of 26.5 million euro through industrial activities. This excellent figure was the result of our proactive approach to business development, which featured the creation of new start-ups, the realization of 3 exits and the successful utilization of the VIB bio-incubator.

We signed 117 partnership agreements with industry partners, 45% of which are located in Flanders. 84 VIB knowledge workers (full-time equivalents) were employed, thanks to industrial investment.

Start-up driver

To date, VIB has been involved in the start-up of 18 companies since its inception. These include 11 venture capital supported companies, 3 non venture capital supported enterprises, 2 real estate initiatives, the FlandersBio trade association and the V-BIO Ventures investment fund. In total, these initiatives employ 683 people and have generated 820 million euro in capital investments. In 2015, VIB has founded 4 start-up companies, which have raised a total of 17.9 million euro in capital.

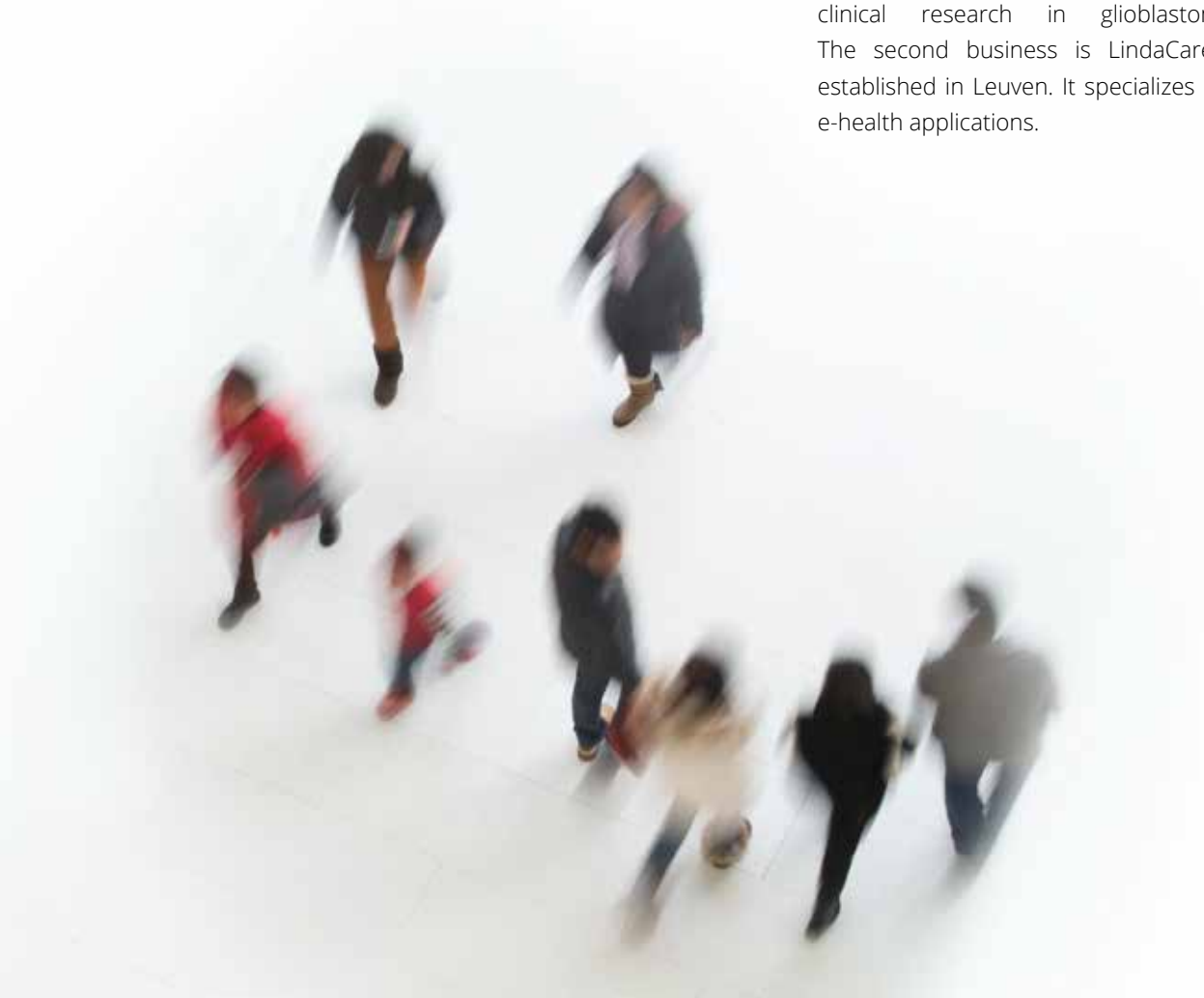
- *Confo Therapeutics* relies on camelid antibody technology. This technology makes use of Nanobodies® to stabilize conformational, complex therapeutic targets such as G-Protein-coupled receptors and to improve the screening for candidate drugs. The company was funded by a strong consortium of local (including V-Bio Ventures) and international investors.

- *GlobalYeast* relies on its expertise in the development of superior industrial yeast strains for the 1st and 2nd generation bioethanol industry and the green chemicals industry. The company was financed by a syndicate

of investors, headed by a Brazilian investment fund (Performa Investimentos).

- *Oncurious* is a joint venture established by Thrombogenics and VIB. The company focuses on the clinical development of the therapeutic biological antibody TB-403, for which the target was originally discovered at VIB. TB-403 shows promising therapeutic results for medulloblastoma, a rare but very aggressive brain tumor primarily seen in children. The company started-up during phases 1 and 2 of the clinical test.

- *Orionis Biosciences* is a start-up company involved in therapeutic immuno-oncology technologies. The start-up will pursue a dual business strategy. On one hand, it contributes to the development of a new type of therapeutic proteins (biological) that enable the safe use of cytokines in cancer therapy. On the other hand, the company examines the development of protein-drug screening platforms. Orionis Biosciences was funded by a syndicate of investors (including V-Bio Ventures) with American Excel Ventures as the leading investor.



In November 2015, V-Bio Ventures started operations, and a new life sciences investment fund was born. In the future, VIB and V-Bio Ventures will closely collaborate to support the growth of new biotechnology companies. The fund focuses on the financing of companies specialized in therapeutics, diagnostics and agricultural improvements. At its inception, V-Bio Ventures invested in two new VIB start-ups; Confo Therapeutics and Orionis Biosciences.

A more attractive market for foreign investors

With the aim of strengthening the local biotech ecosystem, VIB supports international biotech companies, especially those interested in settling in Flanders. Companies that have moved to Flanders during the past few years due to VIB currently employ as many as 429 people in Flanders.

In 2015, two concrete inward investments were realized through the mediation of the Flanders Welcome Team Life Sciences (with representatives from VIB, FIT, IWT and FlandersBio). The first is Kalgene Pharmaceuticals, a Canadian company established with the goal of performing clinical research in glioblastoma immunotherapy. The second business is LindaCare, a Dutch company established in Leuven. It specializes in the development of e-health applications.

Disruptive technologies for a competitive edge

Our visionary approach to science and technology is founded on our ability to identify and foster innovative new developments in life sciences. The Tech Watch initiative and the Core Facilities are instrumental in guaranteeing (VIB) scientists access to the latest and greatest tools, materials and field-specific technologies. The result? Groundbreaking research, unprecedented collaboration and real-life applications that change the world.

Tech Watch initiative

The Tech Watch team carefully evaluates strategic technology investment opportunities, offering VIB scientists a competitive edge and early access to the latest in disruptive technologies. The team also sets up agreements with innovative life sciences companies, granting our researchers pre-commercial access to tools and materials and volume reductions that result in considerable cost savings and tech advantages.

Each year, Tech Watch evaluates thousands of fresh new companies and technologies, informing the VIB community on novel technology opportunities and choosing a select few for evaluation and the potential for acquisition.

32 Tech Watch project applications from VIB groups were approved in 2015, leading VIB to invest in technologies developed by 23 companies. Most popular were technologies for next-generation sequencing, genome-editing and metabolomics.

Core facilities

Because technology is an important driver of first-class science, the Core Facilities are an essential cornerstone of the research performed at VIB. As "Technology Suites for Better Science", they offer state-of-the-art servicing in transcript-, gen-, and proteomics, protein and antibody engineering, advanced light & electron microscopy, and in assay design & proof-of-concept compound screening.

In addition to their classical service track, the Core Facilities began developing cross-platform workflows and novel applications that will give internal and external users remarkable competitive advantages.

Strategic Alliances

The VIB Core Facilities continued to capitalize on their alliance-based partnerships, including Core for Life (C4L) and EU-LIFE, to respond to the accelerating speed of tech innovation while handling overflow capacity. As a founding member, VIB dedicated huge efforts in 2015 to the transformation of EU-LIFE (www.eu-life.eu) and Core for Life (www.coreforlife.eu) from frameworks into acting organizations with clear roadmaps and tangible outcomes.

Communicating with our stakeh

We foster information-sharing between the VIB community and a wide range of stakeholders. In doing so, we create awareness and public engagement with what we do. Based on the diversity of our stakeholder group, which includes academics, students, policy-makers and members of the general public, we tailor information to their needs through the use of various channels and media. We provide information on our website (vib.be), we publish brochures and Fact Series on biotech themes, and we also communicate through social media platforms such as LinkedIn, Facebook and Twitter. Anyone with questions about biotechnology and its applications is invited to share their concerns with us.

holders

Academics and the business world

Sharing knowledge with peer scientists and biotech companies around the world is becoming increasingly important. For this reason, we have developed a conference series to showcase cutting-edge research and exciting technological solutions presented by leading scientists in life sciences fields. In 2015, we organized 4 international conferences, 2 of which were Tools & Technologies-oriented. The conferences were attended by approximately 1,000 participants in total.

Motivating youth to become scientists

To ensure the continued influx of young scientists in the future, it is important to engage youth at an early age. Students and their teachers are an important target group for VIB, and we have created a number of tools to address their specific needs. The idea is to make science, especially research in life sciences, attractive to young people in hopes that this will influence their future educational choices.

With "Science on the Move" (Wetenschap op Stap), we target students in the final two years of primary school. One of our scientists visits the class, not only to teach them, but also to tell them all about his or her intriguing world of work. The "Science4kids" project runs in collaboration with the Nature & Science (Natuur & Wetenschappen) association and is aimed at youngsters in their sixth year of primary education (aged 11-12). Secondary school teachers can also come to us to borrow electrophoresis and ELISA-kits.

Informing the general public

Keeping the public informed about the relevance of our research is also part of our mission. In addition to the information we provide through media channels, we organize several events at which visitors can discover the many aspects of biotechnology. VIB's annual Biotech Day is a prime example of such an event. In 2015, we welcomed 4,400 participants at Gasthuisberg in Leuven. Visitors were treated to workshops, lab tours, talks and other activities focusing on cancer research and neuroscience.

We also seek to lend an ear to anyone who has questions about biotechnology or who has to deal with a specific condition. People can reach us on our website, by email or by phone. Every question receives the personal attention it deserves in consultation with our scientists.

VIB's pool of talent

Over the years, VIB has become "the" place to be for young scientists in life sciences. PhD students, postdocs, experts and group leaders come from all over the world to embark on scientific careers in our research groups. People are attracted to VIB because they know they will find a highly inspirational and creative working environment, state-of-the-art facilities and ample training and coaching opportunities.

Lifelong learning

The "Training at VIB" program offers training courses in the fields of science & technology, bioinformatics, various skills and leadership & coaching. We strongly believe that continuous learning will stimulate people to think beyond borders and to engage in interdisciplinary collaborations. In 2015, we recorded a total of 1,704 participants in our training courses. The leadership & coaching program was changed into a series of individual coaching sessions which are tailored to the specific needs of the group leaders and experts.

Our people are the foundation of our success

Highly-motivated, dedicated scientists and technicians are essential to achieving excellence in research and tech transfer. Our success is also highly-dependent on the commitment and enthusiasm of all our colleagues, no matter which department they work in. Their passion and dedication to VIB are remarkable and contribute greatly to our organization's vibrant culture. Let their stories speak for themselves.

Evelien Mylle

Expert Technician – Plant Systems Biology, VIB/UGent

What I like the most at VIB is the flexibility and variety of the job; you never get bored and it is never routine. There are always new tasks to do and techniques to develop. This kind of constant evolution in your job is very exciting. An example that illustrates this is the number of confocal microscopes available in the department: when I started in 2004, we only had one confocal, and now we have 6. Even after 11 years at VIB, I still have the feeling that I've only worked here for 2 or 3 years.

Jens Staal

Senior Postdoc – Inflammation Research Center, VIB/UGent

Technology support at VIB is very important. I've had three Tech Watch projects approved so far: UB Scan, the generation of specific monoclonal antibodies and the use of the CRISPR-Cas9 system to make specific knock-in mouse mutants. A couple of these projects are very promising, and we would not have been able to do them without this grant. The Tech Watch grant is very generous and fairly easy to get compared to external grants. This, coupled with the expertise offered by the Core Facilities, means you can actually produce a lot of high quality data as a single scientist, which would be very difficult anywhere else.

Jan Steyaert

Acting Director Structural Biology Research Center, VIB/Vrije Universiteit Brussel

Working at VIB gives 4 major advantages to group leaders. First of all, there is the multidisciplinary nature of the whole institute, which helps us to perform at the highest level internationally. Then, there is the reputation of VIB; it opens doors when you use the VIB label. A third very important aspect, especially for our department, is that VIB has an excellent Tech Transfer department. And last but not least is the fact that VIB guarantees long-term funding, which makes our lives as scientists easier.

Carmen Adriaens

PhD student – Molecular Cancer Biology, VIB/KU Leuven

The courses that VIB organizes are generally well-conceived and very relevant to many different fields of research. They are hands-on: you can actually try to solve your own specific research question. They range from introductory to advanced and represent almost every stage of a research project. Moreover, the training program creates opportunities to meet other people and learn from each other. Regardless of the project and even of the field, the courses provide a platform with the ability to intersect your data and research questions with those of other investigators and help you solve your difficulties in an informal setting. It is very rewarding.

Heather Rice

Postdoc – Center for the Biology of Disease, VIB/KU Leuven

I came to VIB because this is one of the top places in the world to research neurodegenerative diseases.
It is a wonderful opportunity to be able to come and to build on good science. I had several opportunities to go to other top places, but the research here is very solid and has a great reputation. I receive excellent mentoring and training, and just being surrounded by your peers, who are some of the best, brightest and most motivated, is enormously motivating and encouraging.

What surprised me most is that it was actually an easier transition for me than I had expected thanks to the support of VIB Human Resources and my colleagues.

Surya Gupta

PhD student – Medical Biotechnology Center, VIB/UGent

When I was looking for a PhD position in bioinformatics, my colleague at Max Planck recommended VIB because of the very good bioinformatics group here. I am happy to be a part of a unit in which we have a lot of international people and good gender equality.

I will go back to India to utilize the knowledge and experience that I will gain during my scientific career in Europe in order to be a strong pillar in developing the proteomics community in India.

Jan Staelens

Business Development Manager – VIB headquarters

Getting our research translated into applications is what drives us. The main objective of technology transfer is creating something of value to society and the local economy. In these efforts, we need to make sure we maintain a healthy balance between doing sufficient basic research and translating this into products. Both are essential. We see over the years that projects that are very successful on the translational side are also being published in high-impact journals.

Mojca Strazisar

Staff Scientist – Genetic Service Facility,
VIB/University of Antwerp

It took quite a while for me to figure out how VIB is organized; it is a complex institution with a complex organization. I'm convinced that the thematic focus which will be introduced next year, will help make the nature of VIB more apparent to other scientists, investors, and job seekers. I'm looking forward to it.

I think the new structure will make it easier for laypeople and professionals who are searching for jobs to understand just what it means to work for VIB.

Good governance

In the context of good governance, VIB has set up a "Good Governance Charter". The full text of the charter is public and can be consulted on our website (vib.be).

Our principles of good governance are regularly tested and adjusted. This means we are able to capitalize on local and international developments in this context and meet the needs of all our stakeholders.

BALANCE SHEET

(in '000 EUR)

ASSETS	31.12.2015	31.12.2014
Intangible fixed assets	1,129	1,160
Tangible fixed assets	31,271	31,550
Financial fixed assets	16,066	8,346
Contracts in progress	8,685	7,885
Amounts receivable within one year	16,127	12,456
Investments	55,572	68,918
Cash at bank and in hand	14,584	11,605
Deferred charges	14,709	12,381
TOTAL ASSETS	158,143	154,300

LIABILITIES		
Allocated funds	70,144	60,587
Investment grants	28,030	27,757
Amounts payable after 1 year	6,785	7,334
Amounts payable within 1 year	41,704	46,782
Accrued charges and deferred income	11,480	11,840
TOTAL LIABILITIES	158,143	154,300

PROFIT AND LOSS STATEMENT

(in '000 EUR)

Operating income	**87,195**	**83,969**
Turnover (from contract research)	24,865	24,358
Contracts in progress (+/-)	800	-3,065
Grants and subsidies	59,721	60,910
Other income	1,809	1,766
Operating expenses	**-83,573**	**-80,341**
Raw materials and consumables	-8,263	-7,639
Services and other goods	-21,113	-20,137
Remuneration, social security costs and pensions	-45,704	-44,270
Depreciation	-7,853	-7,575
Other operating expenditures	-640	-720
Financial income	**1,435**	**1,561**
Financial charges	**-786**	**-859**
Extraordinary income	**14,531**	**5**
Extraordinary expenditure	**-9,245**	**-3,330**
PROFIT/LOSS FOR THE FINANCIAL YEAR	**9,557**	**1,005**

VIB

Basic research in life sciences is VIB's raison d'être. On the one hand, we are pushing the boundaries of what we know about molecular mechanisms and how they rule living organisms such as human beings, animals, plants and microorganisms. On the other, we are creating tangible results for the benefit of society.

Based on a close partnership with five Flemish universities – Ghent University, KU Leuven, University of Antwerp, Vrije Universiteit Brussel and Hasselt University – and supported by a solid funding program, VIB unites the expertise of 75 research groups in a single institute.

VIB's technology transfer activities translate research results into new economic ventures which, in time, lead to new products that can be used in medicine, agriculture and other applications.

VIB also engages actively in the public debate on biotechnology by developing and disseminating a wide range of science-based information about all aspects of biotechnology.
More information: www.vib.be

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