annual report 2010

VIB activities in 2009

VIB

Highlights of 2009

FINANCIAL BACKBONE
The Flemish Government invests M€ 39.5 in VIB's excellence program.

THE VIB COMMUNITY: DIVERSE AND INTERNATIONAL
VIB labs attract 223 new employees in 2009. New@vib sessions familiarize all newcomers with the VIB community.

VIB PUBLISHES TOP SCIENCE
VIB researchers achieve over 100 scientific breakthroughs in 2009. VIB sees exponential growth in publications in the topmost prestigious journals.

A NEW CENTER FOR NEURO-ELECTRONIC RESEARCH IN FLANDERS (NERF)
NERF combines the expertise of three Flemish top institutes: IMEC (nanoelectronics), K.U.Leuven (medicine) and VIB (biotechnology). This is the first multidisciplinary research initiative in neuro-electronics in the world.

nerf
Founded by
IMEC, K.U.Leuven and VIB

VIB RESEARCH TRAINING COURSE (VRTC)
VRTC welcomes all researchers wanting to expand their scientific and technological horizons. This initiative came about in close collaboration with the coordinators of the doctoral programs at VIB's partner universities.

VIB REALIZES THE FIRST BELGIAN GMO FIELD TEST SINCE 2002
On May 6, 2009, Minister Patricia Ceysens gives the starting shot for the field test with genetically modified poplars. With their modified wood composition, these trees are more suitable for the production of bioethanol.

VIB COLLABORATES WITH COMPANIES
VIB concludes 76 R&D and licensing agreements with companies. On an annual basis, this is the highest number since the founding of VIB.

VIB RESEARCH FINDS ITS WAY INTO APPLICATIONS
Nine candidate drugs derived from VIB research are making their way to the patient. Numerous field tests are based on VIB inventions.

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Message from the General Management

VIB's model works

The years of hard work and targeted investment in an excellence-driven policy are paying off. VIB is now ranked among the top European excellence centers. Its research results, as well as its ability to attract both junior and senior talent from around the world, speak for themselves.

In 2009, VIB scientists published 479 papers in international professional journals. Of these, 107 made it into the so-called top journals. Those are record numbers. The increase in papers published in the top most prestigious journals (IF>20), including *Nature*, *Science*, *Cell* and *The New England Journal of Medicine*, is nothing less than spectacular. Their number has more than doubled since 2007. Ambitious VIB scientists, correct strategic choices, intensive, targeted efforts and a vibrant work environment all played a role in this.

The stimulating working environment draws people from around the world and steadily growing numbers of foreign top scientists are finding their way to Flanders. The European Research Council referred to VIB as a role model for Europe.

At VIB, excellence in science goes hand in hand with excellence in technology transfer and product development. VIB proactively pursues the translation of new knowledge produced by VIB scientists into products and jobs. Therefore the intellectual property rights, arising from VIB inventions, are protected with patents. In 2009, 22 new patent applications were added to our patent portfolio. VIB patents are actively commercialized under licensing agreements with Flemish and foreign biotech firms. In 2009, 76 licensing and/or partnership agreements were concluded with biotech industry partners, about half of them in Flanders.

Ultimately, such partnership agreements will result in new products for patients and consumers. Currently, nine innovative candidate drugs, derived from VIB research, are undergoing clinical testing. Numerous new crops, developed from VIB research, are being field-tested. For the first time, two new plant growth regulators with VIB origins are being tested on crops.

Our VIB startups are thriving. They now employ (as of February 2010) 457 people in Flanders. In total, they have raised more capital than the amount invested in VIB research by the Flemish government – definitely a good 'return on investment'. These startups, as well as several other young biotech companies, are growing their business at the VIB bio-incubators in Ghent and Leuven, which were specifically designed to accommodate young R&D-intensive growth firms. Currently, the VIB bio-incubators house a total of 14 such companies.

These 2009 highlights illustrate the performance levels of VIB. In 2010-2011, the institute will go through its regular five-year review, organized by the Flemish government. And VIB's scientists are ready.

Jo Bury and Rudy Dekeyser
Executive Management, VIB

Message from the Chairman of the Board

Flanders, land of innovation?

Over the last decades, the West has faced a rapidly accelerating phenomenon – the outsourcing of production activities. This process has resulted in the delocalization of large parts of our heavy industry. A lack of natural resources combined with high wage costs in the region have led to an irreversible shift of the center of gravity of traditional Western heavy industry to locations in distant lands. All hope now lies in the development of a Western knowledge industry. Never has the need for innovation been so urgent.

But innovation is expensive. It demands highly educated personnel and sophisticated equipment. It must have long-term goals. And there are technological risks. Globally, we spend USD 700 billion a year on R&D, with the US accounting for the lion's share (approximately USD 380 billion, equal to 2.8% of its GDP). Europe is in second place. The steadily growing R&D costs are forcing companies to turn their gaze towards new horizons – regions where R&D carries a significantly lower price tag.

The practice of outsourcing R&D was until recently quite limited, but this is changing rapidly. Even in the biotech industry technological knowledge is increasingly supplied by low-income countries. This change is often spearheaded by people who have acquired their knowledge and skills in the West and returned to their native county. This means that R&D, including primary R&D, will gradually delocalize to countries such as India, where a highly trained researcher costs only one-fifth of his colleagues in Europe or the US.

The only way to safeguard our historic edge in many of the high-tech areas, including biotechnology, is to stake everything on a few carefully chosen research fields where we think we can make a difference. As an internationally highly respected scientific stronghold, VIB can play a role here. With our government claiming to be looking to innovation to get the economy going again, putting on the brakes cannot be an option. VIB, with its total focus on excellence, should receive maximum support so that it can continue to function as a role model and play its key role in the rapid expansion of the Flemish biotech industry.

In spite of the hit to its economy resulting from the recent financial crisis, the US is raising its R&D investments in priority sectors. So it is hard to understand how the

Flemish government, considering its call for innovation, can justify the decision to cut back financial support to VIB. The emerging competitive countries and regions will not wait for us. The US may still be the world leader in science and technology, but other countries, especially in East Asia, are catching up, having drastically increased their investments. If Flanders wants to continue considering itself a serious player, it will have to significantly boost its investment in leading scientific institutions such as VIB, and stimulate the creation of a flourishing knowledge economy through the rapid and efficient exploitation of their results.

Hugo Van Heuverswyn
Chairman, Board of Directors

Top Science in Flanders

VIB is a research institute engaged in pioneering research in the life sciences. VIB scientists study the molecular mechanisms that regulate the functions of the human body, plants and microorganisms. This research leads to new and innovative insights into normal and abnormal or pathological life processes.

VIB is founded on a unique concept based on a close collaboration with the four Flemish universities of Ghent, Leuven, Antwerp and Brussels. Together with these universities, VIB puts more than 1,200 scientists and technologists to work in 72 research groups. The latter are located on the campuses of the four partner universities and organized into eight departments. Thanks to this unique partnership, VIB is able to build on their collective scientific expertise and experience in the life sciences.

VIB has the aspiration and commitment to be a world-class research institute. Its mission is to conduct high-level biomolecular research aimed at unraveling life processes and systems, and translate the resulting knowledge into value-added economic and social benefits. VIB strives for excellence in research, technology transfer and communications/public education in the sciences.

Autonomous and transparent

VIB is an autonomous institution that sets its own course. As a non-profit organization, it is governed by a General Assembly and a Board of Directors, consisting of 35 and 13 members respectively. The Board of Directors makes decisions about the management and strategy of the institute and acts as its judicial and extrajudicial representative. The Board's Chairman is Hugo Van Heuverswyn (AIP) and its Vice-Chairman, Marc Vervenne (K.U.Leuven).

VIB's executive management is in the hands of Jo Bury and Rudy Dekeyser. They assure the institute's day-to-day administration with the assistance of Rik Audenaert, Chief Financial Officer, and Marijke Lein, Human Resources Director. Together with the Department Directors, they make up the Management Committee. The Department Directors, who head up the VIB research departments, provide scientific leadership to their departments and the institute.

2009 was another top year

With a certain pride, we can say that VIB is now a leading knowledge center in the life sciences in Europe. This achievement would have been unthinkable, however, without the generous annual core funding from the Flemish Government. In 2009, it invested M€ 39.5 in VIB's excellence program.

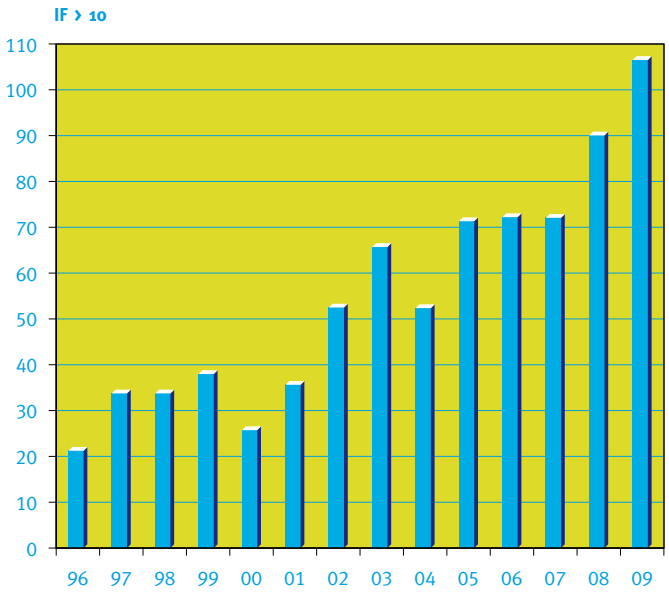
The Flemish Government funding is conditional on meeting strict criteria regarding scientific productivity and economic and social payoffs. It covers approximately 40% of the work of VIB's 72 research groups, as well as the institute's activities in the areas of science policy, technology transfer, communications and management. The other 60% is financed with moneys from various research funds made available by local, regional, national and international lending institutions and industrial partners. VIB research regularly undergoes critical evaluations by scientific advisory boards and international peer reviewers. Every five years, VIB is also subjected to a thorough review by the Flemish Government. The allocation for each five-year period is based on VIB's performance in its three core activities: research, technology transfer and communications/public education.

Along with promoting continuous innovation within and integration between the research groups, VIB strives to create a scientifically stimulating environment that nurtures high-quality research. In 2009, the institute's performance again scored very high marks. VIB research contributed to new insights into Alzheimer's disease, blood vessel

Management Committee and substitutes: *(from left to right):* Joël Vandekerckhove, Frans Van Roy, Rudi Beyaert, Wim Annaert, Bart De Strooper, Rudy Dekeyser, Marijke Lein, Rik Audenaert, Yves Van de Peer, Jo Bury, Johan Thevelein, Lode Wyns, Vincent Timmerman, Dirk Inzé, Peter Carmeliet. *Absent:* Christine Van Broeckhoven

development, cancer, evolution, development and transport in plants, to name just a few. Our scientists' achievements also included several important technological breakthroughs, such as improving gene therapy with mobile DNA.

In total, VIB published 470 papers in international professional journals, including 285 papers in highly ranked ones. Of these, 107 made it into the top-ranked journals. For the first time in its history, VIB scientists produced more than 100 scientific breakthroughs in 2009, which partially explains the exponential growth over the last few years in the number of papers published in the top most prestigious journals, including *Nature*, *Cell* and *Science*.



107 - a record number of publications in the top-ranked journals

The research labs of VIB and its partner universities provide an excellent environment for turning young people into enthusiastic and competitively skilled scientists. In 2009, a record number (61) of young scientists obtained their doctorate in the sciences (Ph.D.). Most of them are continuing their scientific careers at Flemish academic institutions, but others have started postdocs at one of the Flemish biotech companies or transferred to foreign research institutions.

Biotechnological research extends beyond the virtual walls of VIB

Our researchers work closely with Flemish and foreign scientists and they do so in a competitive international environment. This has allowed the institute to develop a network of contacts that extends well beyond purely academic circles.

Together with FlandersBio, VIB successfully organized the fifth edition of the Flemish partnering event *Knowledge for Growth* in 2009. The event provides a forum for academic and industrial stakeholders from Flanders to share their knowledge and expertise. In addition, VIB regularly participates in partnering events to present new VIB findings and technologies with an eye to establishing industrial alliances. In 2009, VIB participated in BIO US and BIO Japan.

Institutional governance

How do we mold 72 research groups into one institute?

1. Science Clubs
Science within VIB covers a wide range of research fields. This research is conducted by VIB scientists working at the four different universities on the various campuses. To bring together the researchers from different locations, VIB organizes Science Clubs where VIB researchers working in the same field can discuss the latest findings and technologies. These Science Clubs lead to networks and new collaborations between VIB researchers, unattached to the departmental structures. International top scientists from the respective research fields are also invited to the Science Clubs, so that the networks extend beyond VIB's walls.

In 2009, the following Science Clubs were organized: Genetics III, Technologies III, Neurodegenerative Diseases II and Imaging@vib II. More than 300 scientists attended these clubs.

Science Clubs bring together researchers from different locations

2. International Ph.D. Program
In 2009, VIB issued its fifth call for international Ph.D. students: 141 candidates applied. Eventually four students were selected, who are already hard at work. One student hails from Italy, the other three from Asia.

In 2009, the first student admitted to the program (in 2005) obtained his Ph.D. Diego Forero, from Colombia, defended his doctoral thesis at the University of Antwerp and has been appointed Professor of Genetics at the University of Bogota.

The International Ph.D. Program creates an inflow of foreign researchers

3. Keeping close track of new trends in research technology
To maximize the advantages of the latest technological developments, VIB set up a Technology Watch Team in 2008. The team – made up of VIB scientists from different departments and VIB staff members – is continually on the lookout for new, emerging technologies, while facilitating privileged access to them by developing a network of technology suppliers, purchasing licenses and negotiating collaborations.

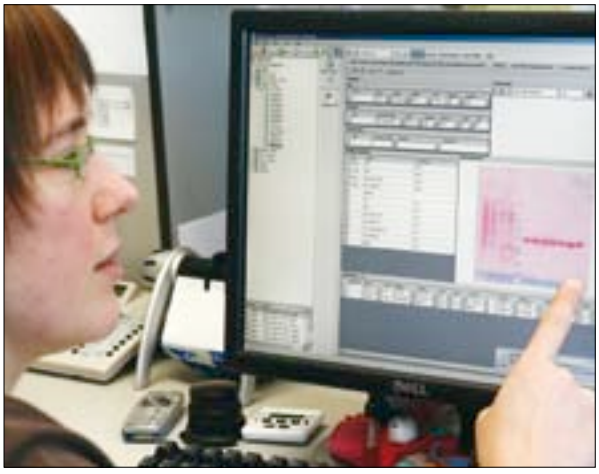
The Technology Watch Team has over the years gathered a great deal of information about new and disruptive technologies that might be of importance to VIB scientists. These are presented to all VIB scientists via the VIB intranet. VIB scientists holding a Ph.D. can make use of these disruptive technologies by submitting a project application to the Technology Watch Team. When a project is approved, the Technology Watch Team gets in touch with external developers to gain access to the requested technology.

In 2009, the Technology Watch Team provided funds to nearly 20 projects for a total of K€ 400. Thanks to these Technology Watch funds, several new boundary-moving technologies have been introduced at VIB, including 'individual human genome sequencing' (Complete

Genomics) and 'label-free in-solution moleculair interaction technology' (Molecular Sensing). Technology Watch funds also provided access to 'new generation DNA sequencing' technologies from Illumina and Applied Biosystems, and to the zinc finger genome engineering technology from Sigma/Sangamo Biosciences.

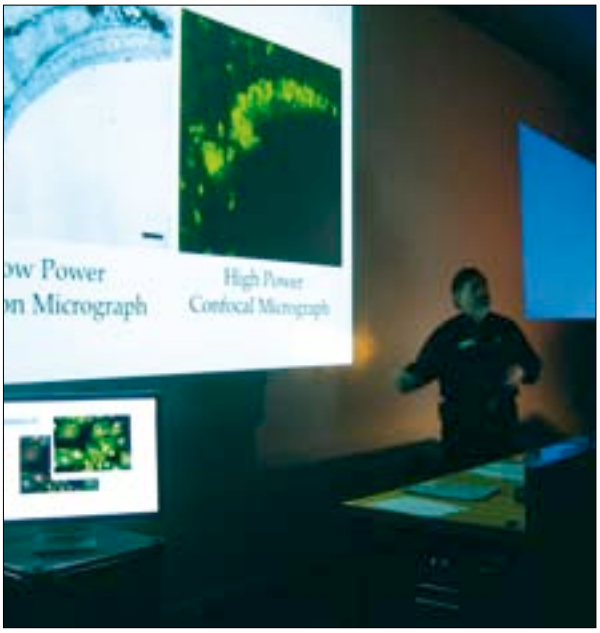
4. Introduction to the Electronic Laboratory Notebook
In May 2009, VIB began a pilot study on implementing a CambridgeSoft Electronic Laboratory Notebook (ELN) system. The goal of the study, in which five VIB research groups from five different VIB departments participated, was to determine whether replacing paper lab notebooks with an electronic system would provide an advantage. ELN systems store experimental data centrally so that they can be more easily searched (Google-like search).

At the start of the project, seven people received special training in adapting the ELN to the specific needs of the research groups. In September 2009, approximately 50 end users in the five participating research groups were introduced to the system via practice sessions. The three-month introduction phase, during which the main technical problems were solved, gave the pilot participants the option to expand their experience with the ELN system. Within a short period, almost 60% of the scientists were using the ELN regularly. The pilot study came to an end in December 2009, having received a positive evaluation from the users. It showed that the ELN system speeds up the entry of scientific data and that the data are better organized thanks to the system's data entry templates. This positive feedback clears the road to the gradual introduction of the ELN system at all VIB research groups.



Electronic Laboratory Notebook

5. VIB Research Training Course (VRTC)
VRTC provides a cross-disciplinary training program in the life sciences. It was offered for the first time in the fall 2009. The initiative – the product of collaboration between



Continuous broadening of scientific and technological horizons thanks to VRTC

the science-oriented coordinators of the Ph.D. programs of the partner universities – welcomes all doctoral and postdoctoral researchers who want to expand their scientific and technological horizons. To ensure that the VRTC curriculum offers added value to a large group of researchers, the content is well balanced and the program flexible and easily customized to individual needs.

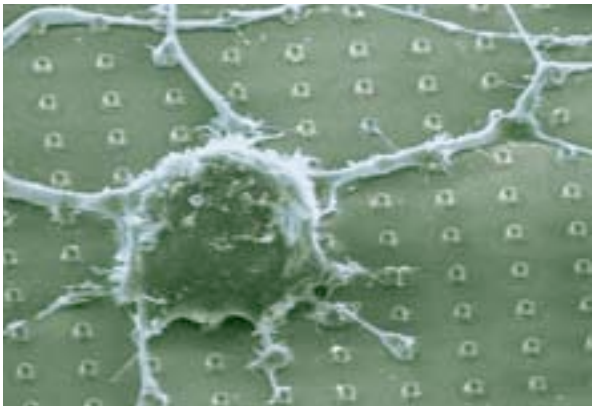
In practice, each researcher can select the courses that suit his/her ambitions best – for example, a position in management in academia, industry or government. The offer is varied and runs the gamut from courses in the latest technology platforms, lectures on brand-new technologies and theme-based summer courses to advanced technology transfer and scientific communication and writing courses. The training program is open to all Flemish researchers, including non-VIB groups. It is also integrated into the curricula of the respective doctoral programs of the partner universities. Based on a unique concept, the program is a definite asset for scientists in the Flemish region!

VIB recruits top scientists nationally and internationally

1. NERF
Together with IMEC and K.U.Leuven, VIB started a new research center in 2009: the Center for Neuro-Electronic Research Flanders, NERF for short. NERF brings together the expertise of three top Flemish institutions: IMEC (neuro-electronics), VIB (biotechnology) and K.U.Leuven (medicine).

Combining the strengths of the three founders at one location will put Flanders on the map worldwide. NERF will be the first multidisciplinary research initiative in the world to study the interaction between electronics and neurons in such great detail.

NERF intends to crack the code neurons use to communicate in order to gain a better understanding of how the human brain functions. In the long term, the research should lead to the development of new therapies for brain damage and diseases.



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NERF will map the interaction between electronics and neurons

nerf
Founded by
IMEC, K.U.Leuven and VIB

NERF was officially launched on October 29-30, 2009. During the launch symposium in Leuven, top scientists from the various disciplines in neuro-electronics came together to discuss the state of affairs in each of the disciplines and how they could be integrated. In the meantime, the researchers who applied for a position at NERF have been interviewed. At the end of 2009, the first NERF group leader was hired. The Center is ready to start its work.

NERF is funded by its three founders (IMEC, VIB and K.U.Leuven) and also receives support from the Flemish Government (M€ 3 for the first three years). NERF is housed at the IMEC campus in Leuven. The multidisciplinary research teams have been given a brand-new neuro-electronic lab with state-of-the-art clean rooms. Christof Koch, a neuroscientist and Professor of Cognitive and Behavioral Biology at the California Institute of Technology, has accepted to chair NERF's prestigious Scientific Advisory Board.

2. New group leaders

In addition to the four group leaders that were selected in 2008 under VIB's project-based research program (Han Remaut, Kevin Verstrepen, Adrian Liston and Anna Sablina), another nine research groups were started up in 2009.

- Massimiliano Mazzone, Italian, Ph.D. (University of Turin, Italy), postdoc at the VIB Vesalius Research Center, K.U.Leuven, where he leads his own research group since 2009. His research focuses on the shape (morphogenesis) of blood vessels in relation to their function.

- Nico Van Nuland, Dutch, Ph.D. (University of Groningen, Netherlands), consecutive postdocs at Oxford (UK), the University of Groningen (Netherlands) and the University of Granada (Spain), and Coordinator of the European NMR facility at the University of Utrecht (Netherlands). Now group leader at the VIB Department of Molecular and Cellular Interactions, Vrije Universiteit Brussel. Using specialized NMR technology, Nico studies the 3D structure of proteins. Based on this information, it is possible to zoom in on faulty 'folding' of proteins, which underlies several disease processes.

- Stefan Magez, Belgian, Ph.D. (Vrije Universiteit Brussel), postdocs at the University of Cape Town (South Africa) and the University of Massachusetts (Amherst, USA) and since 2009 group leader at the VIB Department of Molecular and Cellular Interactions, Vrije Universiteit Brussel. Stefan studies the infection mechanism of *Trypanosoma,* the pathogen that causes sleeping sickness in people and cattle.

- Dietmar Schmucker, German, Ph.D. (Max Planck Institute, Gottingen, Germany), postdocs at Rockefeller University (New York, USA) and UCLA (Los Angeles, USA). Assistant and Associate Professor respectively at Harvard Medical School and Dana-Farber Cancer Institute (Boston, USA). Since 2009, Dietmar has been group leader at the VIB Vesalius Research Center, K.U. Leuven. Dietmar studies the development of neuronal interactions and the neuronal network in model organisms (fruit fly, frog).

- Jeroen Raes, Belgian, Ph.D. (UGent), postdocs at the VIB Department of Plant System Biology, UGent, and EMBL (Heidelberg, Germany). Metagenomics, meta-

transcriptomics and meta-metabolomics are key words at Jeroen's lab (VIB Department of Molecular and Cellular Interactions, Vrije Universiteit Brussel), which is dedicated to analyzing the function and variability of human microflora. Jeroen also uses a large-scale approach to mapping ecosystems and ecosystem changes.

- Torik Ayoubi, Dutch, Ph.D. (University of Nijmegen, Netherlands), postdoc and group leader at K.U.Leuven, scientific advisor at VIB and Assistant Professor at the University of Maastricht (Netherlands). Torik has been Manager of MAF since 2009.

- Steven Maere, Belgian, Ph.D. (UGent), postdoc at the University of California (Berkeley, USA). Steven Maere developed several computer algorithms in the US for understanding the impact of small and large gene duplications on evolution. At the VIB Department of Plant System Biology, UGent, he wants to link this knowledge to the evolution of plants.

- Moritz Nowack, German, Ph.D. (University of Cologne, Germany), postdoc at Max Planck Institute (Cologne, Germany) and now group leader at the VIB Department of Plant System Biology, UGent. Moritz studies seed formation in plants, focusing on endosperm (reserve nutrients), which supports germination and first growth but then disappears.

- Lennart Martens, Belgian, Ph.D. (UGent), postdoc at EMBL-EBI (Cambridge, UK). Lennart Martens, as group leader of the new bioinformatics group, will introduce system biology at the VIB Department of Medical Protein Research, UGent.

VIB researchers stand in the frontlines of biomedical research. They strive to unravel the molecular mechanisms of life and identify the causes of disease. Expanding their knowledge and understanding is only one of their main objectives, though. The other one is to see that knowledge translated as soon as possible into clinical practice. In 2009, nine candidate drugs derived from VIB research were evaluated in clinical tests – a major step in the direction of the patient. At VIB, biomedical research does truly extend from the lab to the patient, from bench to bedside.

The next logical step after the human genome is the interactome: mapping the estimated 130,000 binary protein interactions

Over the last decade the DNA codes of a large number of organisms have been cracked. The next logical step in understanding living beings is studying the interactions between the thousands of proteins found in each of their cells. They are the key to almost all biological processes. The two-hybrid system yeast (Y2H) is a standard technology for identifying protein interactions. The quality of these protein interactions is being questioned, however. And there is uncertainty as to the uniformity of the datasets produced with different technologies.

The group of Jan Tavernier at the VIB Department of Medical Protein Research, UGent, was able to validate existing interactomes with MAPPIT technology. An interactome is a list of proteins that react with each other. To investigate the quality of interactomes, one needs to have an idea of the rate of occurrence of false positives and negatives. To determine this rate, the researchers established the following four parameters: the number of proteins already examined, the sensitivity and accuracy of the analysis, and the sensitivity of the screening process.

The human genome has an estimated 22,500 genes, which means that a complete analysis would require 250 million protein pairs to be tested. To measure the sensitivity of the analysis, a positive reference set (PRS) of human binary protein interactions – which are very reliable – have to be compared to a random reference set (RRS). Both Y2H systems and MAPPIT result in a sensitivity of 17% to 21% with an accuracy of 98% to 99.5%. The sensitivity of Y2H screening is estimated at 45%, which means that 45% of all possible protein interactions can be identified in a single screening.

These findings – which are the result of a large-scale collaboration – show that the quality of the current

Health

Fundamental and translational... from lab bench to medicine

technologies for studying protein interactions is sufficient for mapping complex interactomes. This clears the road to mapping the entire human interactome with its estimated 130,000 binary protein interactions. To date only 8% of them have already been identified.

Venkatesan *et al., Nat Methods* 6, 83-90
Braun *et al., Nat Methods* 6, 91-97
Simonis *et al., Nat Methods* 6, 47-54

Working together, VIB scientists identified a new genetic cause for atypical hemolytic-uremic syndrome

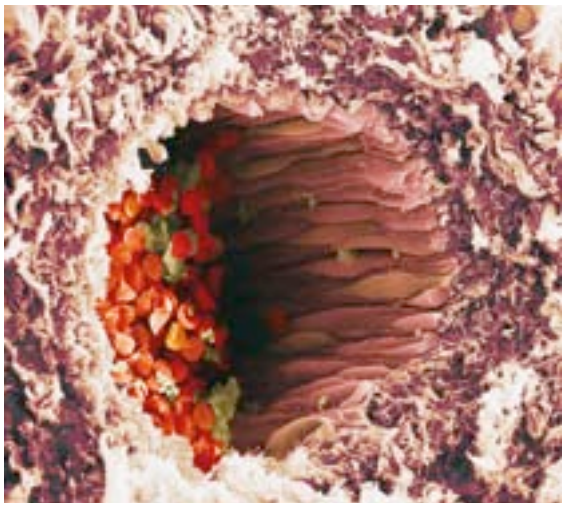
Hemolytic-uremic syndrome (HUS) is a disease characterized by anemia, low platelet count and kidney insufficiency. All these symptoms are caused by damaged endothelial cells – the cells that line the inside of blood vessels. The most common form of HUS results from an intestinal infection caused by toxin-producing bacteria. The rarer atypical form of HUS (aHUS) has a bad prognosis and its cause, a mutation in one of the complement proteins, can be determined in only 50% of cases.

The complement system consists of a whole range of plasma proteins that play an important role in fighting off microorganisms. Due to the increased activity of the complement system or to defects in the regulation of this system, endothelial cells can become damaged and lead to the development of aHUS.

In collaboration with Jurgen Del-Favero (VIB Department of Molecular Genetics, University of Antwerp) and experts from Italy and Canada, VIB researchers in the group of Ed Conway (VIB Vesalius Research Center, K.U.Leuven) studied over 150 aHUS patients. In seven of them they identified six mutations in the protein thrombomodulin. Their research showed that thrombomodulin, in addition to its known role in the blood-clotting system, also controls the activity of the complement system. However, mutant forms of thrombomodulin are less effective at controlling the activity of the complement system. These findings explain why these patients ran an increased risk of developing aHUS.

Although thrombomodulin mutations only occur in 5-6% of aHUS patients, these results are scientifically significant. Identifying factors that play a role in the development of aHUS can be a basis for new therapies. The findings also lead to new insights in the search for factors that control the complement system. Further research will determine whether mutations in the thrombomodulin gene are the cause of illnesses such as arthritis and atherosclerosis, which are also characterized by increased activity of the complement system.

Delvaeye *et al., NEJM* 361, 345-57



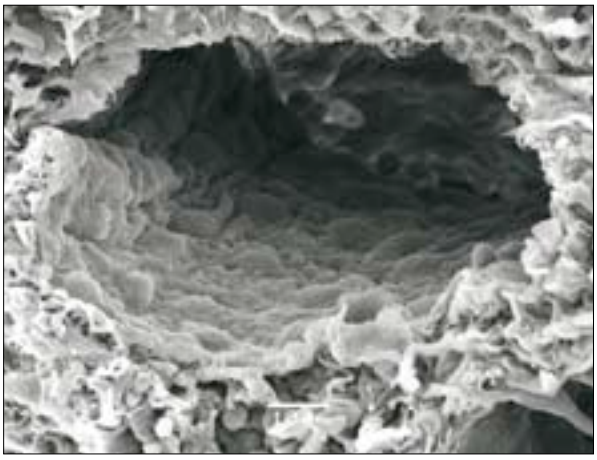
Endothelial cells in a blood vessel

Leuven researchers discover 'phalanx cell'. This discovery opens up new possibilities for fighting cancer: streamlining blood vessels.

Our blood vessels supply all our tissues with oxygen and nutrients. The development of blood vessels is essential for the proper functioning of our organs and the repair of damaged tissues. Since tumors grow much faster than normal tissue, they need more nutrients. This explains why tumor cells at a given moment start to produce massive amounts of growth factors to stimulate the development of blood vessels. However, the resulting blood vessels have an abnormal shape, making the flow of blood difficult and hindering the supply of oxygen to cancer cells. The resulting lack of oxygen promotes the metastasis of cancer cells. In search of a more oxygen-rich environment, they penetrate surrounding tissues, in time causing malignant cancer. The abnormal shape of the blood vessels also impedes the delivery and efficiency of anticancer drugs.

Massimiliano Mazzone and his group at the VIB Vesalius Research Center, K.U.Leuven, examined the role of PHD2 protein, which acts as an oxygen sensor, in endothelial cells. The researchers were able to demonstrate that decreased activity of the oxygen sensor PHD2 in the presence of oxygen deficiency resulted in the formation of tightly arranged, smooth, paving-stone-like endothelial cells. These closely arranged cells resembled a phalanx, analogous to the tight formations of soldiers who, with their barrier-forming shields, helped the ancient Greeks win their historic battles. Hence, their name 'phalanx' cells. These phalanx cells create streamlined blood vessels that improve the delivery of oxygen, as well as drugs, to the surrounding tissue.

PHD2 blockers may offer new therapeutic possibilities in the fight against cancer. The change from an abnormal blood vessel lining to one consisting of closed ranks of impenetrable phalanx cells facilitates the delivery of anticancer drugs to the target site, making chemotherapy more effective. Improved oxygen supply also results in cancer cells being less prone to travel to another site in the body and starting a new tumor there. Another advantage of the endothelial cell phalanx is that it forms a physical barrier that the cancer cells are barely or not at all able to penetrate. This research will likely also open up new treatment methods for medical conditions characterized by oxygen deficiency, such as heart attacks or strokes. The researchers further hope to investigate its use in treating the proliferation of blood vessels in the retina (macular degeneration).



Decreased PHD2 activity results in the formation of phalanx cells

Mazzone *et al., Cell* 136, 839-51

Genome of biotech workhorse *Pichia pastoris* laid bare with 454/Roche technology

Even though *Pichia pastoris* is one of the most commonly used yeasts in the production of recombinant proteins, its DNA sequence had not been unraveled. This changed, however, when Nico Callewaert, VIB Department for Molecular Biomedical Research, UGent, and Yves van de Peer, VIB Department of Plant Systems Biology, UGent, turned their attention to the subject. Using 454/Roche deep-sequencing technology and powerful bioinformatics tools, they succeeded in determining the sequence and annotation of the genome of *P. pastoris*. In total they counted 5,313 genes that are involved in the production of proteins. This earned them the distinction of first VIB scientists to describe a complete eukaryote genome making exclusive use of nextgen shotgun sequencing. The latter method produced an error margin of less than 1 in 30,000, a remarkably accurate result. So remarkable, in fact, that the accomplishment of these VIB scientists was the cover story of the June 2009 issue of Nature Biotechnology.

P. pastoris is used around the world in a variety of scientific and industrial applications, and this for several good reasons. The yeast cells easily lend themselves to genetic adaptation. *P. pastoris* produces biologically active molecules, whereas *E. coli* only produces inactive inclusions. Recently a *P. pastoris* variant was developed that produces proteins with a human type of N-glycosylation (the process of attaching sugars to proteins). This could provide an alternative to the expensive and laborious cultivation of mammal cells for the production of therapeutic glycoproteins. Another advantage is that yeast cells can be grown at much greater densities than mammal cells, while problems with viral contamination are avoided since yeast cells don't carry mammal viruses. Finally, the expression of new genes in *P. pastoris* is easily monitored thanks to

Genome Pichia Pastoris *unraveled*

promoters that can be switched on with the simple addition of methanol. The work of these VIB scientists will allow for an even wider use of *P. pastoris* in scientific and industrial applications.

De Schutter *et al., Nat Biotechnol* 27, 561-6

VIB researchers unravel the mechanism that tells the brain when to stop growing

The development of a fertilized egg into a complete organism, as well as the latter's continued development after birth, are processes that are very meticulously regulated. It is crucial that the different cell types in the organs, such as those in the brain, are properly formed. Danny Huylebroeck and his colleagues at the VIB Department of Molecular and Developmental Genetics, K.U.Leuven, are studying new genes that may play a role in the development of the brain in mice.

It is essential that, no matter where in our bodies, the right cells develop at the right time and in the right quantities. The neocortex – a part of the brain involved in higher functions such as perceptual awareness, deliberate movement, reasoning, abstract thinking and language – is constituted of several cell layers. Each layer consists of specialized neurons and has its own specific function, different from that of the others. Our brain will only function properly if it has just enough cells of each type.

The production of cells of a specific type must stop whenever the appropriate quantity has been reached. As soon as there are a sufficient number of cells of a specific type, the production of other types must start. Previously it was thought that neural stem cells – the cells that develop into different types of neurons – contain the necessary information to direct this process themselves. This assumption was largely based on research into the specialization capacities of these stem cells in a cell culture. However, the VIB scientists demonstrated in mice that communication between cells also plays a role here, in particular communication between the newly formed neurons that form the top layers of the neocortex and from there send further instructions to the progenitor cells.

Their research revealed that Sip1 protein plays a key role in this communication. By switching off Sip1 in the central nervous system, they discovered that the protein controls the level of Neurotrophin-3 and Fibroblast growth factor-9, growth factors that affect the stem cells. The latter act as a kind of gauge for the quantity of new neurons that have been produced. This throws new light on the development of the brain as well as on that of other organs.

Seuntjens E *et al., Nature Neuroscience* 12, 1373-80

Many pathogens have an 'internal time bomb', a deadly mechanism that can be used against them. VIB researchers unravel the structure and action mechanism of the proteins involved.

When genetic information becomes damaged, there is a good chance that you become ill or even die. In the course of time, bacteria developed a clever way of protecting their important genes: the toxin-antitoxin (T-A) system. They place a T-A gene nearby a gene requiring protection. This gene describes both a toxin *and* its antitoxin. As long as the cell is producing both, all is well. However, should the piece of DNA containing the T-A gene be damaged or lost for one reason or another, the production of toxin and antitoxin will come to a halt and a time bomb start to tick. Because the toxin is more stable than the antitoxin, it is broken down more slowly by the cell's waste disposal service. Sooner or later all the antitoxin will be gone, while there will still be enough toxin left to kill the bacteria. Final result: bacteria that have lost their T-A gene – and probably sustained damage to the important genes right next to it – are unable to reproduce.

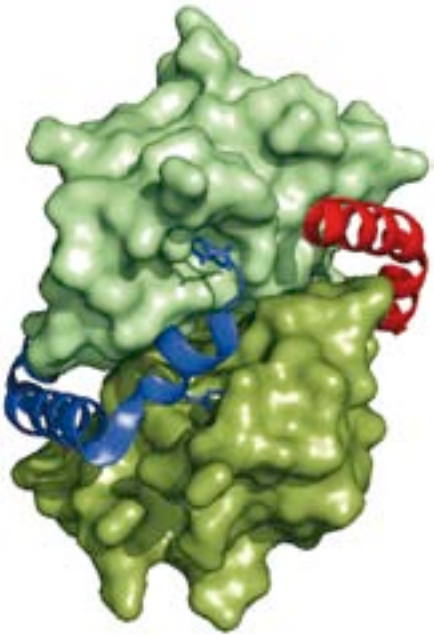
Our best known intestinal resident, *Escherichia coli*, has five sites on its DNA equipped with a T-A system. *Mycobacterium tuberculosis* has more than 60 such sites.

Remy Loris and his group at the VIB Department of Molecular and Cellular Interactions, Vrije Universiteit Brussel, have been poring for years over the precise structure and function of this little-studied T-A system. Last year, they succeeded in clarifying in detail what the toxin and antitoxin look like, how exactly they react

with each other, and which form(s) they take to do so. A difficult feat that required the simultaneous use of a whole range of different technologies.

Now that we finally know how this time bomb (or more precisely, one of the time bombs, since there are several families of unrelated T-A systems) functions in bacterial pathogens, biomedical researchers can start looking for ways to start it ticking – for example, by using substances that imitate the toxin protein, block the antitoxin protein or disrupt the reaction between toxin and antitoxin. This may well lead to a new class of antibiotics.

De Jonge *et al., Mol Cell* 35, 154-163



Toxin-antitoxin system

Fruit fly helps fight Charcot-Marie-Tooth, a genetic neurological illness

Charcot-Marie-Tooth (CMT) neuropathy is one of the most common hereditary illnesses of the peripheral nervous system. It causes, among other things, the muscles of the lower legs, feet and hands to weaken and waste away. This is due to the progressive degeneration of the nerves connecting the spinal cord to the muscles. The symptoms are quite varied, but many patients end up in a wheelchair. Currently, CMT can neither be cured nor prevented.

Studying ill people is difficult and scientists lacked a good model system to perform experiments in quick succession in order to gain greater insight into the disease's progression. VIB scientists have come to the rescue by creating, for the first time, fruit flies endowed with the human genes responsible for CMT. The research of Albena Jordanova, Vincent Timmerman (VIB Department of Molecular Genetics, University of Antwerp) and Patrick Callaerts (VIB Laboratory of Developmental Genetics, K.U.Leuven) demonstrated that these modified fruit flies displayed the characteristic symptoms of the disease. The availability of an animal model opens up new perspectives for research into the mechanism of CMT, which is as yet unknown.

During an earlier study of families with CMT patients in Belgium, Bulgaria and the United States, Vincent Timmerman and his colleagues discovered three specific mutations in the YARS gene. The latter is responsible for the production of tyrosyl-tRNA synthetase, one of the oldest enzymes in the history of life and indispensable in the production of proteins. Until then nobody had suspected that there was a relation between YARS and certain CMT variants.

The VIB researchers introduced four variants of the YARS gene into fruit flies. The normal variant caused no changes that set them apart from ordinary fruit flies. Those with mutated YARS genes displayed the characteristic symptoms of CMT, however, including reduced mobility and decreased nerve function. The cause of CMT and what substances can cure it will have to be the object of further research.

Erik Storkebaum *et al., PNAS* 106, 11782-7

Fruit fly important for Charcot-Marie-Tooth disease

New target for Alzheimer's drug elicits hope for a first therapy that can halt the disease

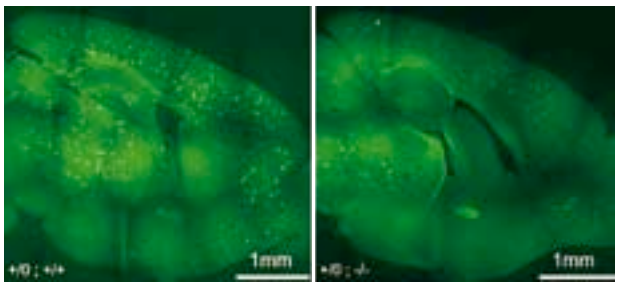
Alzheimer's disease is the most common form of dementia in the Western world and is as yet incurable. The disease is characterized by the presence of amyloid plaques in the brain; these are abnormal protein (β-amyloid) deposits between the neurons. Sticky β-amyloid develops due to abnormal cleaving of the amyloid precursor protein (APP).

The γ-secretase complex – an enzyme that cleaves other proteins, including APP – plays an important role in the development of the plaques. This complex (a group of collaborating proteins), though, is also involved in the regulation of a range of proteins that are indispensable for our survival, including Notch, which plays a crucial role in the development of undifferentiated precursor cells in various parts of the body. That is why many candidate drugs that act on the complete γ-secretase complex produce toxic side effects.

Bart De Strooper and his colleagues at the VIB Department of Molecular and Developmental Genetics, K.U.Leuven, investigated the γ-secretase complex in different tissues in collaboration with researchers abroad. They demonstrated that the form and effect of the complex differ depending on the tissue where the secretase is active. They used Alzheimer's disease mouse models for their research. Inactivating variant Aph1B γ-secretase reduced the development of plaques in Alzheimer mice without any noxious side effects.

This finding opens the door to de development of drugs that inactivate γ-secretase selectively. Targeting a specific variant of the complex – the one that specifically cleaves APP in the brain – would make it possible to prevent the formation of plaques without impeding the functions of γ-secretase elsewhere in the body. This elicits hope for a drug able to stop Alzheimer's. Since it would not have side effects, it could also be administered preventively to people at risk of developing the disease.

Serneels *et al., Science* 324, 639-42



Decreased formation of plaques in APP/PS +/o Aph1BC -/- mice

VIB researchers demonstrate in yeast cells that junk DNA is important for survival in a rapidly changing world

It may be hard to believe, but our genes are responsible for only 3% of our total DNA. The remainder, the so-called non-coding DNA, is in fact a great mystery. Why do we have it, and what does it do? These questions intrigue Kevin Verstrepen and his colleagues at the VIB Laboratory of System Biology, K.U.Leuven.

At one time it was thought that most non-coding DNA was nothing more than junk, without any use whatsoever. This 'junk DNA' had accidentally landed in our genome and was now being replicated with every cell division like some kind of prehistoric parasite. The best example of this are the so-called tandem repetitions, pieces of DNA that are repeated head-to-tail. At first sight, it seems indeed unlikely that such stutter DNA would have a function, but why would nature preserve useless junk?

In fact, the VIB researchers discovered that the tandem repetitions significantly affected the activity of the genes in their vicinity. They influence how the DNA is packaged, and this packaging in turn determines the strength of the gene activation. The research also revealed that the repetitions are highly unstable. The precise number of times a piece of DNA is repeated changes rapidly compared to the changes in other pieces of DNA. This is an interesting observation, because these rapid changes modify the packaging and hence the level of activity of nearby genes. It is as if the tandem repetitions act as a kind of acceleration engine for evolution. And this is good news, since scientists still do not fully understand how living beings could have evolved and developed new characteristics so quickly. Fast changes remain a challenge to Darwin's evolution theory. This study demonstrates how 'junk DNA' might be of immense value for survival in a fast changing world.

To strengthen their theory, the researchers conducted a large-scale experiment in which they imitated evolution in the lab with the help of yeast. They demonstrated that yeast cells with their 'junk DNA' removed were unable to adapt to new conditions and died. Yeast cells with DNA repetitions, on the other hand, were able to adapt and survived. To put it briefly, that so-called junk DNA can save lives!

Vinces *et al., Science* 324, 1213-6

What would life on earth be like without plants? Well, it wouldn't be the life we know. Plants produce oxygen and are invaluable as sources of food, medications, and renewable materials and energy. This makes it hard to overestimate their importance, as VIB researchers know all too well. That is why so many have chosen molecular and cellular plant research as their main focus. And successfully so, since VIB plant research ranks among the best in the field.

Auxins continue to surprise

Auxins are a group of plant hormones that perform a large number of important functions in the growth and development of plants. For example, they stimulate general growth, make stems grow upward and roots downward, and promote root development. Not surprising then that it is one of the most studied plant hormones. But, in spite of this, auxins have still not given up all their secrets. In the summer 2009, VIB researcher Jiří Friml, VIB Department of Plant Systems Biology, UGent, published two breakthroughs in auxin research.

In the first article, he and his colleagues describe a new mechanism used by plant cells to regulate internal auxin concentration. It seems that the PIN5 gene codes for a protein that transports auxins from the cytosol to the lumen of the endoplasmic reticulum (ER). PIN5 is imbedded in the ER itself. This is new information. All PIN proteins described to date are imbedded in the plasma membrane of the plant cell. A well conserved molecular mechanism seems to be at work here. Even in mosses – which are much older than seed plants from an evolutionary viewpoint – the researchers found a similar transport system.

The second article about the function of auxin turned yet another botanical paradigm on its head. Even minimal concentrations of hormones can play an important role in the development of plants. Until now only examples of the effects of maximum concentrations of hormone gradients were known. Research by Jiří Friml and colleagues from the UK, US, Sweden, Spain and the Netherlands, showed that the formation of the edge of the seed pod of *Arabidopsis thaliana* is controlled by the presence of local minimal auxin concentrations. The researchers suggest that the production of local minima is extremely suitable for determining the destination of a small number of cells, such as the stripes on the seed pod.

'This research provides insight into the incredible flexibility of plants.' says Friml. 'In contrast to animals, plants can't run away when conditions change or danger threatens. But they can completely turn their metabolism around to react to environmental conditions. Auxins apparently have a lot to do with this.'

Jozef Mravec *et al.*, *Nature* 459, 1136-40
Karim Sorefan *et al.*, *Nature* 459, 583-86

VIB scientists crack the genome of unicellular green algae, minuscule creatures with a huge impact on the ecology of our seas and oceans

Unicellular green algae (sometimes called picoplankton), which account for the major share of marine biomass production, are of fundamental importance for 'greening'

Plants

From biological foundations to applications in the field

our planet. *Micromona pusilla*, the longest known picoplankton and found around the globe, is taxonomically very diverse. Micromonas adapt quickly to new conditions and can therefore act as indicator organisms for changes in the ocean due, for example, to climate change. Yves Van de Peer and his colleagues at the VIB Department of Plant Systems Biology, UGent, worked with an entire international team on studying the genomes of two isolated *Micromona pusilla* species, one from the English Channel and one from the Pacific Ocean. This study, in which the VIB group played a key role, produced remarkable results.

They discovered a characteristic of this green algae whose existence the VIB team had already demonstrated in *Ostreococcus*, the smallest known eukaryote organism (approx. 1µm large), namely a unique chromosomal heterogeneity, involving two chromosomes that are entirely different from each other. The characteristics that make them different from the others – lower GC proportion, many transposable elements, and unique codon use – result in their changing much more quickly. It is suspected that one of the chromosomes enables the organisms to adapt to their specific environment while the other plays a role in the development of the species. The fact that the two species feature differences in approximately 1,000 of the 10,000 identified genes strengthens this hypothesis.

Contrary to what had been assumed until now, *Micromonas*, unlike plants and fungi, seem unable to make their own, indispensable, vitamin B1, making them dependent on other oceanic life forms. This is new information with important implications for marine ecological balance.

The researchers also discovered that one of the *Micromonas* species featured intron-related repeated sequences. These are pieces of DNA that change places – a phenomenon that has been known for a while. But how this happened was until now a mystery. The impact of this discovery may extend well beyond the study of marine organisms.

Worden *et al., Science* 324, 268-72

Organization of transport inside plant cells different than in fungi and animals

Unimpeded traffic is not only important in our daily life. It is also important inside our cells, if our organs are to function properly. A great deal of cellular transport is provided by vesicles – small bubbles surrounded by a membrane. They are responsible, among other things, for the regulation of cell activity and the delivery and recycling of components in the plasma membrane. However, our knowledge of the genetic background of vesicle transport in plants is still limited.

Thanks to Jiří Friml and his colleagues at the VIB Department of Plant Systems Biology, UGent, a tip of the veil has now been lifted. In *Arabidopsis thaliana*, the BEN1 gene seems to have taken on the role of an ARF GEF. ARF GEFs play a crucial role in vesicle transport in all eukaryotes. Earlier research had identified the GNOM gene as a major ARF GEF in plants. Now it turns out that BEN1 is responsible for the early phases of vesicle transport and that GNOM only appears later in the chain. A comparison of the genes involved shows that cellular transport in plants has a different genetic base than in animals and molds.

Jiří Friml identified BEN1 by looking for plants in which the transport of PIN proteins had been disrupted. These proteins are easily brought to and from the plasma membrane via vesicles. In this mechanism, PIN proteins function as a direction indicator for the plant cell. They are distributed in a polarized pattern across the plasma membrane and help the plant to distinguish for example between up and down. Thanks to the movement of PIN proteins on the plasma membrane, the plant is able to respond quickly to changes in the environment or its own development.

Tanaka Hirokazu, *Current Biology* 19,391-7

Acquiring 'molecular knowledge' and translating it into socially relevant applications and therapeutics calls more than ever for a multidisciplinary approach. Consequently, in 2009, VIB invested in the development of multidisciplinary teams and the expansion of the available arsenal of leading-edge technology and model organisms – both at the institutional and the departmental level.

The 'omics' (r)evolution

The molecular analysis of complex biological systems, such as humans, plants and microorganisms, starts ever more frequently with the study of changes – whether disease or stimulus-induced – in the genome, transcriptome and/or proteome of a cell or tissue. VIB stays ahead of this trend by giving its researchers early access to specialized technology at institutional 'omics' units such as the **VIB Genetic Service Facility (GSF)**, the **VIB MicroArray Facility (MAF)**, and the **VIB Proteomics Expertise Center (PEC)**, which make both their expertise and equipment available to VIB researchers.

Centralized tools for functional studies

Once 'omics' data have been analyzed and interpreted, researchers often discover that the identified mutations or differences in expression distinguish healthy from disrupted cell systems. Often the question remains, though, whether these differences or mutations translate into functional differences – crucial information in the search for therapeutic interventions or improved plants. A number of institutional core facilities and departmental technology platforms assist VIB researchers in determining this.

Activities of the institutional core facilities in 2009

VIB Genetic Service Facility, University of Antwerp
www.vib.be/GSF
In 2009, GSF performed approximately 84,000 Sanger sequence reactions for the VIB community. It also provided this service to many Flemish research groups outside VIB.

VIB MicroArray Facility
www.vib.be/MAF
MAF ran over 1,000 microarray analyses in 2009. Besides gene expression and tiling arrays, it also performed its first microRNA arrays – more than half of them for scientists not associated with VIB – as well as its first high-throughput assays with NanoString nCounter™ technology. Its new bioinformatics support was also in high demand.

VIB Proteomics Expertise Center, UGent
www.vib.be/PEC
In 2009, PEC performed COFRADIC analyses for numerous institutional joint projects, using its new Thermo-LTQ Orbitrap mass spectrometer to identify substrates of mitochondrial PARL protease, characterize MALT-1 substrates, typify potential MMP7 and MMP8 substrates in lung tissue, and more. The technology was also applied in a number of small-scale projects aimed at characterizing protein complexes and protein modifications. Thanks to the new platform, the capacity of the expertise center has quadrupled since 2008.

VIB and Technology

Advanced technology platforms and model organisms for our research community

VIB Protein Service Facility, UGent
www.vib.be/PSF
In 2009, PSF completed a total of 94 protein production and/or purification projects, including some 14 for local agro and biotech companies.

VIB Nanobody Service Facility, Vrije Universiteit Brussel
www.vib.be/NSF
In 2009, NSF produced 118 camel antibodies (Nanobodies™) against 12 antigens to be used in functional studies by various VIB groups. It also produced 46 antibodies for non-VIB scientists.

VIB Compound Screening Facility, UGent
www.vib.be/CSF
This facility screens libraries of small organic molecules in functional biological tests. In 2009, several valuable 'hits' were identified in a number of plant screens and a progranulin screen for the VIB Vesalius Research Center, K.U.Leuven. CSF is now also working on the development of biological tests for NF-kB and transialidase screenings.

VIB BioInformatics Training and Service Facility
www.vib.be/BITS
In 2009, BITS provided datamining support to four VIB departments. It also steered the quality control of the datasets produced by the institutional '100 Genome Project' in the right direction. Complete Genomics selected VIB for this high-profile project as one of the privileged institutes to be among the first to sequence the genome of a number of patients (and healthy controls). BITS also provided training sessions to as many as 371 VIB scientists.

Additional support technology platforms and model organisms

The new **biomolecular NMR technology platform** has been operational since the spring 2009. It includes a 600 MHz and an 800 MHz NMR machine to produce 3D structures of proteins. In contrast to X-ray diffraction, NMR equipment makes it possible to obtain dynamic structure data. Even vibrations and rotations of atomic-scale molecules can be displayed. A number of (inter)departmental projects are already underway.

In 2009, a start was made on the interdepartmental linking of **microscopy technology platforms** for confocal, life cell and electron microscopy at various VIB departments to create an institutional platform for the VIB research community.

To look deeper into the mechanisms that interest them, VIB researchers are given access to numerous model systems via (inter)departmental collaborations. These systems include *Saccharomyces cerevisiae* (yeast), *Arabidopsis thaliana* (thale cress), *Populus trichocarpa* (poplar), *Nicotiana tabacum* (tobacco plant), *Danio rerio* (zebrafish), *Xenopus laevis* (clawed frog) and *Xenopus tropicalis*, *Drosophila melanogaster* (fruit fly) and *Mus musculus* (mouse). Although each of these model systems has its pros and cons, their diversity allows VIB scientists to study molecular, cell biological, chemical-biological, biochemical, genetic and/or epigenetic factors in detail.

Inventions by VIB researchers can in time lead to new applications with social or economic benefits. Think diagnostic tests, therapeutic drugs and improved crops. However, as a research institution, VIB is not interested in commercializing these applications itself. Therefore, to ensure that patients and consumers can benefit from the results that have been achieved, VIB signs agreements with companies interested in developing and commercializing our inventions.

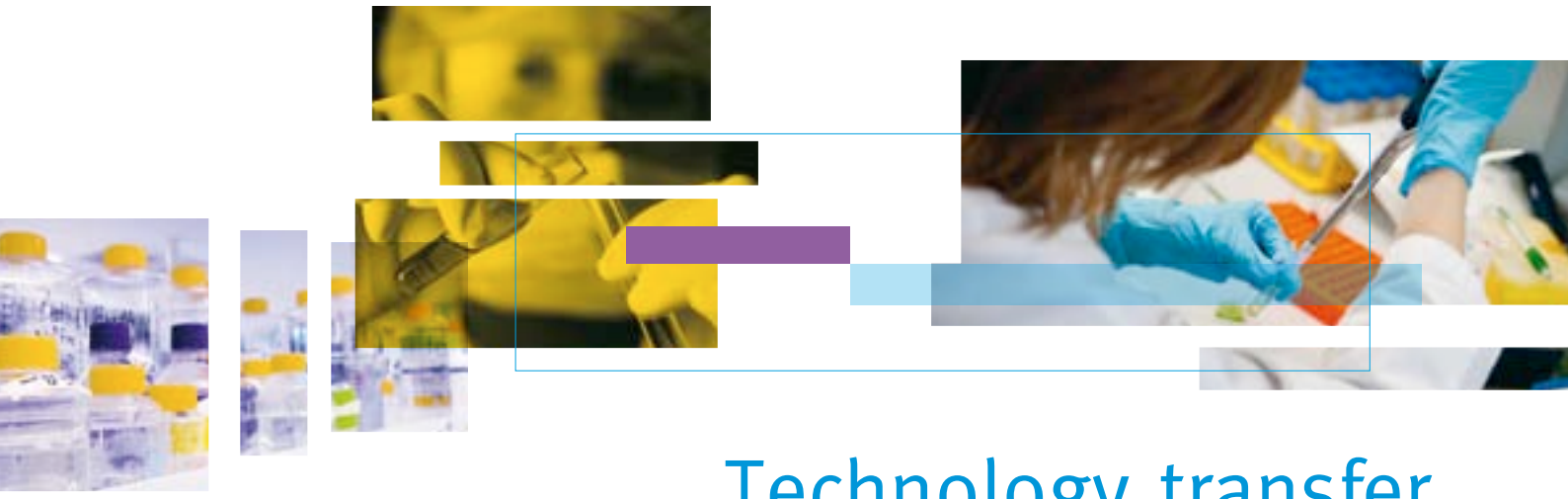
Technology transfer provides the link between academic research and the business world. It is a process that consists basically of the following three steps:

1. Identifying inventions that are scientific breakthroughs and could provide the foundation for new commercial applications;
2. Obtaining property rights on these inventions by, for instance, submitting patent applications;
3. Converting the inventions into market-ready products by signing agreements with existing companies or setting up startup companies.

It is the knowledge and expertise of our researchers, and in particular their inventions, that are the raw materials of VIB's technology transfer activities. These inventions run the gamut from a new medical application of a particular protein to a method for stimulating plant growth or a technology for comparing protein profiles of healthy and diseased tissue. In 2009, VIB scientists generated 49 inventions. This brings the total of reported inventions since the beginning of VIB to 632. Approximately 50% of these inventions are protected by a patent application.

VIB's patent portfolio matures

In 2009, 22 priority applications were submitted. By the end of the year, the patent portfolio contained 166 active patent families. Approximately 73% of the patent applications are in the national phase, 13% in the PCT phase and another 13% in their priority year. The number of patents granted rose from 140 to 152 in the course of 2009. They belong to 55 different patent families. VIB granted licenses to companies for 59% of the patent applications in the national phase and 36% of the patents in the PCT phase or in their priority year. In total, one or more licenses have been granted for 50% of VIB's patent families.



Technology transfer

All the way to patients and consumers

The number of commercial agreements hits record levels for the third year in a row

In 2009, VIB signed 76 R&D and licensing agreements with companies. On an annual basis, this is the largest number since the establishment of VIB. It brings the total number of agreements to 560. Exactly half of them involve companies located in Flanders, some 30% involve European companies and another 20% or so American companies. VIB's partners run the gamut from (bio)pharmaceutical to agrobiotech companies, and from SMEs to multinationals. Technology transfer activities resulted in revenues of M€ 12 in 2009. Except for 2008, this is the best result ever since the beginning of VIB.

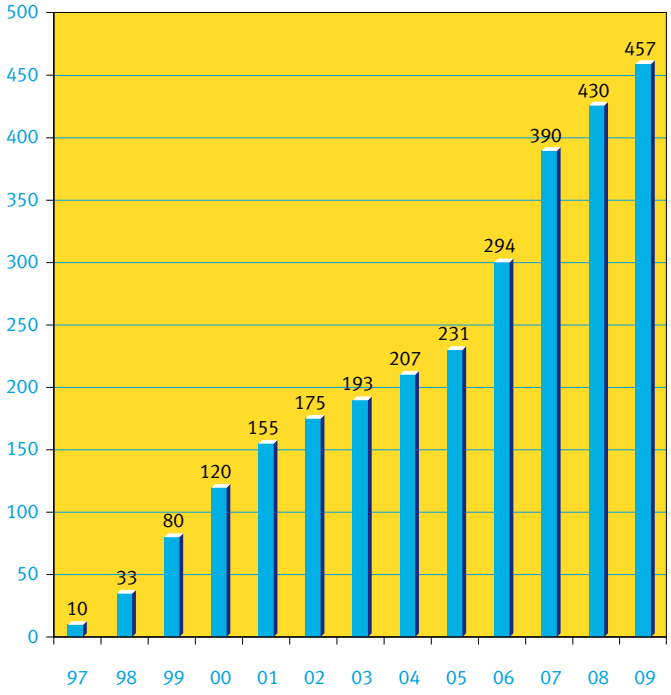
Startups continued to grow in 2009

One of VIB's objectives is founding new biotech companies. In close collaboration with researchers, VIB develops technology platforms that can serve as the basis for a new company. After the concept stage, VIB develops a business plan. This is followed by a search for experienced managers to head the startup and for domestic and foreign investors willing to finance it.

VIB's startup portfolio consists of Devgen, CropDesign, Ablynx, Pronota, Actogenix, Solucel and BioLign.

In spite of the difficult economic times, VIB startups still raised M€ 21.1 of new capital in 2009. This brings the total investments to M€ 373.9. This means that each euro invested by the Flemish Government via VIB's allocation was matched by almost one euro of private investment in VIB startups. Of the total of M€ 373.9, M€ 209.3 was invested by internationally renowned venture capital firms and banks such as GIMV (BE), Abingworth (UK), Alta Partners (US), Atlas (UK), Gilde (NL), Life Sciences Partners (NL), Aescap (NL), Sofinnova (FR), Ventech (FR), Biovest (BE), KBC (BE), ING (BE), Capricorn (BE), Burrill (US), SRone (US) and Polytecnos (DE). 2009 was also the year that saw the first Japanese venture capital firm, i.e. MP Healthcare, get on board. Around half of the invested venture capital is of foreign origin – direct proof that VIB startups bring foreign investment to Flanders.

An important objective of tech transfer at VIB is job creation. In 2009, the number of positions at VIB startups for highly qualified personnel increased by 30 units, to 457.



VIB startups currently employ 457 people

Translational research

An important component of VIB's mission is the translation of research results into products for patients and consumers. Today this process is often referred to as translational research. To be sure, the development of new drugs is a long and time-consuming process. Before it can be introduced on the market, every candidate drug has to undergo a thorough clinical evaluation consisting of three stages. The drug's safety is tested during a Phase I study on a small number of volunteers. If if proves to be safe, a Phase II study is then conducted to test its effectiveness (for example, whether it does eliminate the tumor) on a small group of patients. Finally, if the results are positive, a Phase III study is undertaken to test the drug for safety and effectiveness on a large group of patients. Only if all the results are positive, do the authorities allow the drug to be put on the market.

The cost of the clinical development of a new drug is on average M€ 800 and it takes from 6-12 years. Since these costs can not be borne by VIB, we look for business partners willing to take over our results at an early stage and conduct clinical studies with them. These partners can be either existing companies or new startups.

On the way to patients

In 2009, nine innovative candidate drugs derived from VIB research were the subject of clinical studies. They offer hope for new therapies for illnesses such as cancer, rheumathoid arthritis and infectious and cardiovascular diseases.

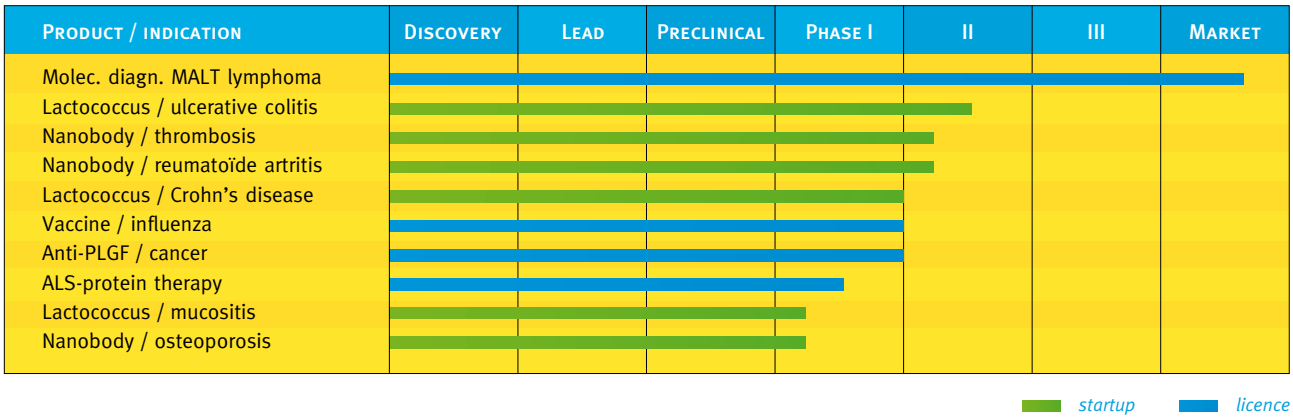
Ablynx, one of the VIB startups, has already four products under clinical evaluation. A Phase I study is underway with ALX-0081, a Nanobody® that targets the Willebrand factor, on patients undergoing a coronary intervention. A second Nanobody®, this one against the tumor necrosis factor, is under development at Pfizer, Ablynx's partner, and has gone through a successful Phase I study. In 2009, Pfizer started a Phase II study with patients suffering from rheumatoid arthritis. Ablynx also started a Phase I study with ALX0141 in 2009. This Nanobody® targets a protein (RANKL) that is involved in the production of osteoclasts, a type of cell that plays an important role in the degradation of bone. ALX0141 is a candidate drug for the treatment of certain bone diseases. ALX0681 is Ablynx's fourth product undergoing clinical evaluation. This product is being developed to treat TTP, a rare and hard to treat disease in which the patient develops great quantities of tiny clots in the small blood vessels.

Actogenix, another VIB startup, began a Phase I study of AG013 with cancer patients suffering from oral mucositis. Oral mucositis is a fairly common side effect of anticancer therapy. A painful inflammation of the oral cavity, it makes eating and drinking very difficult and often results in having to end the antitumor treatment. AG013 is an innovative product using lactic acid bacteria as live drug carriers.

In collaboration with Thrombogenics, VIB scientists demonstrated in animal models that an antibody against the placental growth factor (PlGF) was able to inhibit the growth of over ten types of tumors. Thrombogenics took a license on the relevant VIB patents and reported in 2008 that the antibody, called TB-403, was found safe in a Phase I study. These results convinced pharmaceutical giant Roche to establish a strategic alliance with Thrombogenics and its partner BioInvent. This deal was honored with the prestigious Scrip Award. A follow-up study confirmed that TB-403 could be safely administered to patients with advanced fixed tumors.

In Belgium alone the flu kills between 1,500 and 4,500 people every year. Because the flu virus changes all the time, we need a new vaccine every year to protect us from infection. The panic around the Mexican flu in 2009 demonstrated once again the great added value of a universal vaccine that would protect recipients against several flu variants over their entire lifetime. VIB researchers established the foundation for a new type of universal vaccine designed to protect against a great variety of flu viruses. VIB is now collaborating with Acambis, a vaccine maker that has already demonstrated the safety of the 'VIB vaccine' in a Phase I study with 79 volunteers. In 2009, Acambis was taken over by pharma giant Sanofi-Aventis, which is continuing the development of the vaccine.

VIB not only focuses on major illnesses but also on less frequently occurring conditions, such as amyotrophic lateral sclerosis (ALS). This as yet incurable disease gained 'notoriety' due to several famous patients, including Stephen Hawking, Mao Tse Tung and Christopher Reeves. VIB researchers demonstrated in animal models that the vascular endothelial growth factor (VEGF) has a mitigating effect on the progression of the disease. In the course of



In 2009 nine innovative candidate drugs were tested in clinical studies

2009, Swedish biotech company Neuronova conducted a clinical Phase I/II test on ALS patients. The results are expected soon.

The green pipeline

Just like new drugs, new crops have to undergo multi-year field tests before they are put on the market. In partnership with companies such as Bayer and CropDesign (BASF), new crops with improved yield and increased stress resistance are currently being tested. For the first time, a number of candidate plant growth regulators are also being tested on crops.

From bio-incubator to Bio-Accelerator

At the Technology Park of UGent, VIB provides 8,000 m² of bio-incubator space to companies working in the life sciences. In 2009, its 24 units were occupied by seven residents, i.e. Ablynx, Actogenix, Algonomics, Biomaric, BIP, Pronota and Yakult.

Because the demand for space exceeded the supply, VIB acted as a catalyst in bringing together parties prepared to build and operate the Bio-Accelerator. This resulted in a building that will offer 12,000 m² of floor space to larger biotech companies. The investors and driving force behind the project are DG Infra+, Foremost Immo and BSI. Construction of the shell finished in 2009, and completion of the interior is already well under way. Everything is going according to plan so the facilities should be ready for use in June 2010.

In Leuven, VIB operates a 4,000-m² bio-incubator in collaboration with K.U.Leuven and AVEVE. All units were occupied in 2009. The tenants include Formac, Fugeia, OncoMethylome, Regenesys, Remynd and Thrombogenics. Since here, too, demand exceeds supply, it was decided in 2009 to expand this facility by 4,000 m².

At the end of 2009, 400 people were working at the bio-incubators.

© sum projects – designer of the building

Bio-Accelerator: VIB is a driving force

Biotechnology is a part of our lives but we are not aware of it. The VIB Communications Team provides Flemish citizens science-based information about biotech research and its applications.

Because the information VIB provides is supported by facts and data, nuanced, and based on dialogue and open communication with the broad public, VIB has developed into a knowledge center that provides real answers to the biotechnology-related questions of Flemish residents.

VIB as science educator and forum for the community

VIB develops and distributes a broad range of educational materials for a variety of target groups, including politicians, the media, teachers, youth and the broader Flemish public. Using books, pamphlets, school projects, class materials, lectures and tradeshows, VIB directly provided information to 50,000 persons in 2009. A complete overview of VIB's biotech information materials can be found at **www.vib.be**. The VIB website recorded more than 100,000 visitors in 2009.

The media offer an important forum for VIB as they regularly inform a million Flemish people about VIB research. VIB research news is publicized via national and international press releases. In consultation with the PR departments of its partner universities, VIB issued 27 press releases about scientific research breakthroughs in 2009. In total, VIB was almost 600 times in the media spotlight last year.

For specific questions about biotechnology, Flemish citizens can go to the website, or contact VIB by e-mail, mail or telephone. VIB processes questions on an almost daily basis. By sending an e-mail to *patienteninfo@vib.be*, patients, family and friends can ask questions about any news item related to VIB research. Each question will be individually answered based on scientifically supported facts and data.

VIB contributes to the growth of the Flemish knowledge society

The 2008-2009 school year saw the sixth edition of the school project **scientists@work**. Over 1,500 enthusiastic students carried out experiments with the help of 159 scientists at various academic and industrial labs. At the closing event at the Universiteitshallen of K.U.Leuven, a professional jury selected three winners from the ten finalists. The St. Joseph's Lyceum from Knokke-Heist bagged the first prize. In the meantime, we are no longer an only child in Europe. We have a little sister in the United Kingdom, where last year the first British edition of scientists@work was held at the Science Learning Centre North East in Durham.

Interest in science often takes root well before high school. That is why VIB organizes the **science4kids** project for third-grade students. In 2008-2009, thirteen classes from the Ghent region spent half a day at the VIB-LAB. A project about the topic of 'blood' seems ideal to awaken the enthusiasm of students. Since 2009, VIB is also 'godmother' to a **science4kids mobile**. VIB delivers the concept and the material for the 'blood' project to Natuur en Wetenschap, which takes it into the classroom.

Communications

Information backed by science for a large public

VIB launches cell and tissue therapy pamphlet

Promulgation in Belgium of the law governing human bodily materials at the end of 2008 put (stem)cell therapy back in the spotlight. Cell therapy is a complex issue and deserves to be explained in a language that is understood by everyone. So what is cell therapy? What are stem cells? In what diseases could cell therapy play a role? These are questions many people are asking. That is why VIB published a new "Cell and Tissue Therapy" pamphlet as part of its series *'Een kijk op biotechnologie'*.

Biotechnology legislation poses challenge

People are willing to donate bodily materials to research

Cell and tissue therapy is only possible if individuals are willing to donate tissues or cells for scientific research and/or medical applications. To support the continued development of the legal framework for the removal and use of human bodily materials, VIB asked K.U.Leuven to conduct a survey on the willingness of people to donate bodily materials to research. There seems to be no lack of willingness. When people want to find out how their donated material will be used, it is primarily out of curiosity and not for lack of trust. VIB also provided active input in 2009 into the development of a number of implementation decrees related, for one, to the Belgian legislation in question.

VIB realizes the first Belgium GMO field test since 2002

It cost blood, sweat and tears – and unfortunately also quite a bit of extra money – but in 2009, we finally succeeded in conducting the first Belgian GMO field test since 2002. It involves transgenic poplars with a modified wood composition that makes the trees more suitable for the production of bioethanol. The permit for the field test had at first been refused, but VIB refused to take no for an answer. With support from the responsible minister at that time, Patricia Ceysens, and the entire Flemish Government, VIB submitted an appeal to the Council of State. At the end of 2008, the Council of State annulled the decision to refuse the permit. The actual permit was finally issued in February 2009 after several discussions.

On May 6, 2009, Minister Patricia Ceysens gave the starting shot for the field test by planting the first GM poplar. Because of the difficulties around the permit, the test is a year behind the original schedule. The 448 planted trees are doing surprisingly well. In five months, they grew on average 2.5 meters. Now we just have to wait for the first results. That the trees produce wood that yields 50% more bioethanol in the greenhouse does not guarantee that they will do so under normal outside conditions. The field test is the ultimate test for verifying whether these poplars will also produce wood that can be converted just as easily into bioethanol in a normal growing environment.

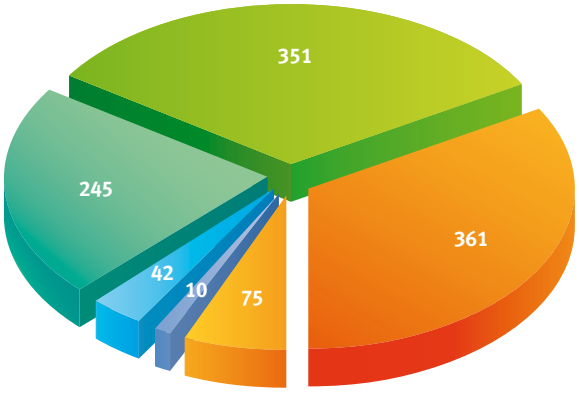
VIB's great strength lies in the enthusiasm, creativity, commitment, involvement, passion and excellence of its people. Pursuing, attaining and, especially, maintaining excellence requires a stimulating and challenging work environment, where attention is paid to the wellbeing of the workers. The VIB work environment is characterized by open scientific discussion, internal and external scientific collaboration, access to extraordinary resources, early access to disruptive technologies, central facilities, stable financing, internationalization and a diverse range of career options for scientists and support staff alike.

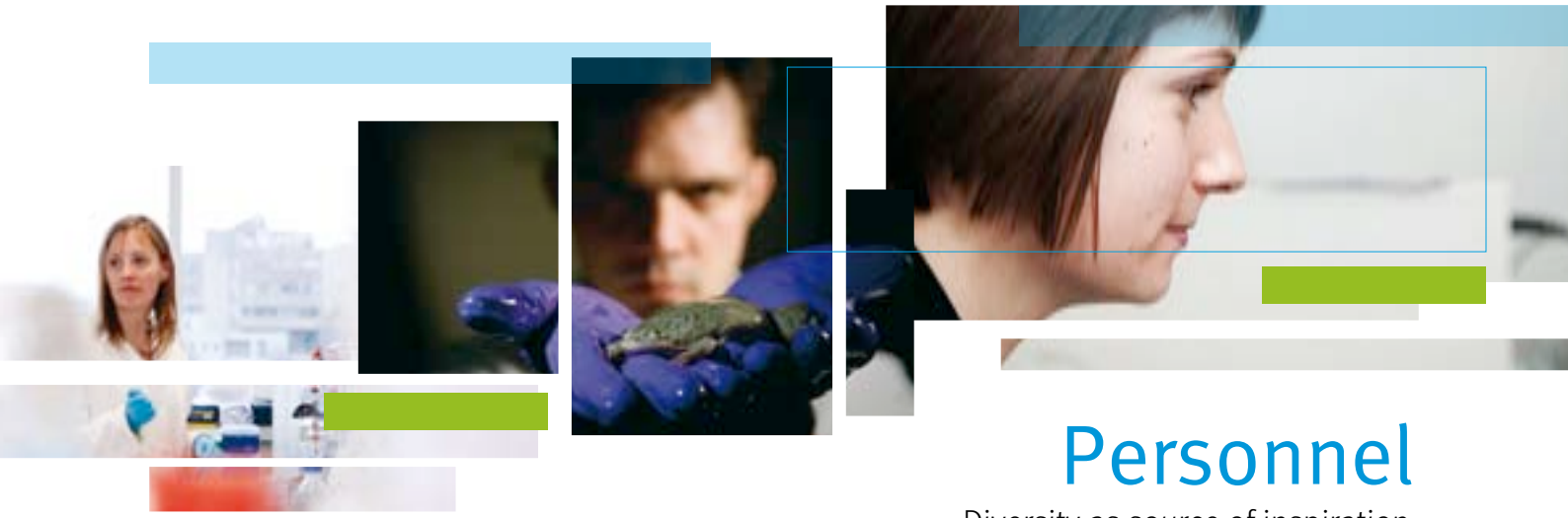
Expanding career prospects

Due to the rapid evolution in the job descriptions of the senior scientific positions and the latter's steadily growing diversity, it became ever more obvious that the original career ladders were inadequate, for they lacked room both at the top and the bottom. Concretely, the grade of 'junior group leader' was added, as well as the grades of 'expert scientist' and 'expert technologist'. Besides group leaders and experts, senior postdocs with advanced specialized knowledge and expertise can now also attain the grade of 'staff scientist'. Finally, a few grades were also added to the technical/support staff career ladders for highly specialized personnel with long and extensive experience.

The distribution of employees (1,294 FTE at the end of 2009) is as follows:

- Group Leaders: 75
- Experts: 10
- Staff scientists: 42
- Postdoctoral scientists: 245
- Ph.D. students: 351
- Support staff: 361





Personnel

Diversity as source of inspiration

Diversity and internationalization

VIB is an organization with high staff turnover (around 17% p.a.), which means that there is a constant inflow of new 'blood'. The high turnover is largely due to the outflow of Ph.D. graduates who take the next step in their career by leaving VIB for positions in the nearby biotech companies or by transferring to other academic institutions. Noteworthy is the interest of young postdocs in going abroad for their postdoc research to experience a new environment and gain associated additional expertise. This improves their career potential.

VIB attaches great importance to attracting new talent, at all levels, but pays particular attention to group leaders. VIB strives to give young scientists with extraordinary potential but only a few years of postdoc experience a chance to start and develop their own groups as independent junior group leaders. In 2009, 13 new group leaders were appointed, including several under 35.

Attracting postdoctoral and Ph.D. students from outside is becoming an increasingly international endeavor. As a result, the degree of internationalization at VIB continuous to rise and the proportion of international personnel is now quite high. For example, the rate of internationalization of all scientific functions is presently 40%, divided over 56 nationalities. Of the group leaders and experts, 20% are foreigners, of the postdocs, 45%, and of the Ph.D. students, 42%. This approach is also having a positive effect on the reverse brain drain: quite a few Flemish scientists that had been living abroad for years are returning to Flanders with additional expertise and experience.

New@vib

To ensure the quick integration of newcomers in the VIB community, we organized for the first time new@vib sessions in 2009. Their main purpose was to familiarize newcomers with the VIB community, describe the mission and objectives of VIB, introduce all the tools and facilities available to them and clarify where they can get answers to their questions.

Financial review

Profit and loss statement 2009 ('000 Euro)	2009	2008	2007
I. OPERATING INCOME	**62,534**	**61,628**	**52,945**
- Turnover (from contract research)	12,200	20,660	11,240
- Contracts in progress (+/-)	4,116	-330	723
- Grants and subsidies	45,786	40,622	40,712
- Other income	432	676	270
II. OPERATING EXPENSES	**61,683**	**56,918**	**50,047**
- Raw materials and consumables	7,058	6,086	6,095
- Services and other goods	15,716	15,828	12,605
- Remuneration, social security costs and pensions	33,187	29,584	27,363
- Depreciation	5,234	4,357	3,575
- Other operating expenditures	488	1,063	409
III. OPERATING LOSS/PROFIT	**851**	**4,710**	**2,898**
IV. FINANCIAL INCOME	**2,113**	**1,481**	**748**
- Income from current assets	2,059	1,409	714
- Other financial income	54	72	34
V. FINANCIAL CHARGES	**595**	**667**	**785**
- Interest and other debt charges	453	576	651
- Other financial charges	142	91	134
VI. PROFIT/LOSS FROM NORMAL OPERATING ACTIVITIES	**2,368**	**5,524**	**2,861**
VII. EXTRAORDINARY INCOME	**256**	**240**	**2,067**
VIII. EXTRAORDINARY EXPENDITURE	**0**	**1**	**108**
IX. PROFIT/LOSS FOR THE FINANCIAL YEAR (BEFORE TAXES)	**2,625**	**5,763**	**4,820**

Consolidated balance sheet 31.12.09 ('000 Euro)	31.12.'09	31.12.'08	31.12.'07
ASSETS			
Fixed assets	**40,732**	**36,420**	**32,901**
II. Intangible fixed assets	1,533	745	669
III. Tangible fixed assets	31,436	28,821	25,681
- Land and buildings	18,146	18,630	18,765
- Plant, machinery and equipment	12,915	9,652	6,485
- Furniture and vehicles	375	469	431
- Assets under construction and advance payments	0	70	0
IV. Financial fixed assets	7,763	6,854	6,551
- Affiliated companies	0	1,500	1,500
- Participating share in other companies	4,991	4,098	3,795
- Other financial assets	2,772	1,256	1,256
Current assets	**92,727**	**90,573**	**77,007**
VI. Inventories and contracts in progress			
- Contracts in progress	8,659	4,543	4,874
VII. Amounts receivable within one year	9,325	9,873	9,389
- Trade debtors	3,058	3,279	3,459
- Other amounts receivable	6,267	6,594	5,930
VIII. Investments	67,646	68,380	56,802
- Other investments	67,646	68,380	56,802
IX. Cash at bank and in hand	141	547	136
X. Deferred charges	6,956	7,230	5,806
Total assets	**133,459**	**126,993**	**109,908**
LIABILITIES			
Capital	**70,361**	**63,913**	**54,778**
IV. Allocated funds	46,603	43,977	38,214
VI. Investment grants	23,758	19,936	16,564
Creditors	**63,098**	**63,080**	**55,130**
VIII. Amounts payable after one year	10,045	10,495	10,926
- Credit institutions	8,617	9,078	9,519
- Other amounts payable	1,428	1,417	1,407
IX. Amounts payable within one year	31,039	28,505	21,937
- Current portion of amounts payable after one year	461	442	424
- Trade debts - Suppliers	3,440	5,306	3,058
- Taxes, remuneration and social security			
• Taxes	910	915	832
• Remuneration and social security	4,636	4,569	4,141
- Advances received on contract research	18,457	14,213	11,289
- Other amounts payable	3,135	3,060	2,193
X. Accrued charges and deferred income	22,014	24,080	22,267
Total liabilities	**133,459**	**126,993**	**109,908**

Notes to the Financial Statements

Excellent science translated into sound financial results

Changes in accounting principles

No new accounting principles were adopted in the course of the 2009 financial year.

Profit and Loss Statement 2009

OPERATING INCOME

The 2009 operating income amounted to K€ 62,534 compared to K€ 61,628 in 2008 (+1%). This slight increase is due on the one hand to a drop in the revenues from contract research, including contracts in progress (-20%) and, on the other, an increase in grant revenues (+12%).

Turnover

In 2009, VIB realized a turnover of K€ 12,200 (-41%) from contract research. Contracts in progress amounted to K€ 4,116 (compared to -K€ 330 in 2008). The turnover is the product of research for industrial partners and the European Commission, in addition to the operation of the bio-incubator. Turnover and contracts in progress related to research contracts with industrial partners amounted to K€ 9,066 (down 31% from 2008). This drop is due to a substantial decrease in royalty revenues in 2009 compared to 2008, which was an exceptional year. The drop was offset partially by an increase in the number of contracts signed. Research contracts with the European Commission generated a turnover of K€ 5,513 in 2009 (down 1% from 2008). Operating the bio-incubator generated a turnover of K€ 1,737 in 2009 (up 1% from 2008). As a result, the total 2009 turnover (including contracts in progress) is 20% lower than for the previous financial year.

Grant income

The 2009 Profit and Loss Statement shows a net grant income of K€ 45,786. These grants comprise the gross receipts from the various granting institutions, adjusted for the transfer of grant income to the balance sheet, in particular the transfer of income to:

- the account 'investment grants' for investments financed by these grants; and
- the accrued charges and deferred income account, under which allocated but not yet spent income is carried forward to the next operating year.

Gross grant income totaled K€ 48,909, comprising:

- K€ 39,456 in 2009 core funding from the Government of Flanders;
- K€ 3,224 in other grants, in particular international grants and awards;
- K€ 4,437 due to the exemption from employer social security contributions for the 2009 financial year in application of the Act of 29 April 1996, which provides for an exemption from social security contributions for additionally hired research personnel;
- K€ 1,792 due to partial forwarding of the withholding tax on the 2009 salaries of researchers, in application of the Royal Decree of 4 May 2004 and the Budget Act of 24 December 2002.

Gross grant income derived from the core funding of the Government of Flanders increased by 1.3%. The latter represents the indexation rate applied by the Government of Flanders in the review of its budget.

Income from international grants and awards rose by 20%. Income from federal support programs (exemptions on employee social security contributions and withholding tax) increased by 18%, mainly due to increased salary costs.

In accordance with the accounting rules, the gross grant amount was subsequently adjusted for transfers to:

- the 'investment grants' account, in the amount of K€ 3,833. The 2009 investments financed by grant income were significantly higher than the depreciation on investment grants related to previously acquired assets (see below);
- the 'accrued charges and deferred income' on the liabilities side of the balance sheet, in particular those related to grants; the latter fell by K€ 710 (see additional explanation below under the information about the balance sheet items).

Other operating income

Other operating income amounted to K€ 432 (-36%). This income mainly represents costs recovered from third parties.

OPERATING EXPENSES

The operating expenses totaled K€ 61,683, compared to K€ 56,918 for the previous financial year. This represents an increase of 8% or K€ 4,765 over 2008.

Raw materials and consumables
The expenses totaled K€ 7,058, an increase of K€ 972 (+16%), which is in line with the increase in research activity.

Services and other goods
Miscellaneous goods and services totaled K€ 15,716 in 2009, in line with 2008 costs. This is on the one hand due to the significant decrease in royalty-related expenses and, on the other, to the general increase in operating costs resulting from the increase in research activity.

Personnel costs
Personnel costs totaled K€ 33,187 in 2009, which represents an increase of 12% over 2008. This is mainly attributable to an increase in the number of Full Time Equivalents (from 464 in 2008 to 500 in 2009). In total, K€ 23,218 was paid in remuneration, K€ 7,145 in direct employee benefits, K€ 1,389 in employer contributions for pension plans and, finally, K€ 1,435 in other personnel costs.

Depreciation
Depreciation rose by K€ 877 or 20% to K€ 5,234. This is an indication of the increased investment in research equipment.

Other operating expenditures
Other operating expenditures totaled K€ 488 in 2009. This amount mainly represents various taxes.

FINANCIAL CHARGES AND INCOME

Financial income totaled K€ 2,113 (up 42% from 2008), consisting of interest income in the amount of K€ 2,059 and exchange gains of K€ 54. The interest income is significantly higher than for the previous financial year. Lower short-term interest rates in 2009 are responsible for a drop in interest income on short-term investments. However, this is more than offset by income from longer-term investments that matured this year.

Financial charges amounted to K€ 595 (down 11% from 2008). Interest charges totaled K€ 453 and consisted of:

- interest of K€ 286 (down K€ 13 from 2008) on the loan contracted to finance VIB's share in the research building at the Ardoyen Technology Park in Ghent;
- interest of K€ 110 (down K€ 4 from 2008) on the loan contracted to finance the bio-incubator infrastructure in Ghent;
- K€ 57 (down K€ 105 from 2008) for other debt-related costs.

The balance consists of bank charges in the amount of K€ 89 (down K 51 from. 2008) and exchange losses totaling K€ 53 (in line with 2008).

EXTRAORDINARY INCOME AND EXPENDITURE

Extraordinary income totaled K€ 256 in 2009. This amount represents:

- An additional payment from the sale to BASF of VIB's equity stake in Cropdesign NV in the amount of K€ 242. This is the balance of the initial escrow amount. The takeover file is now considered closed.
- The sale of fixed assets, which generated K€ 14.

The extraordinary income recorded in 2009 is in line with that of 2008 (+K€ 16).

There were no extraordinary expenditures in 2009.

Balance Sheet 2009

ASSETS

Heading (in K€)	Intangible fixed assets (€ 1000s)	Land and buildings	Plant, machinery and equipment	Furniture and vehicles	Fixed assets under construction	Total tangible fixed assets (€ 1000s)
Balance sheet as at 31-12-08	**745**	18,630	9,652	469	70	**28,821**
Additions and transfers	**1,029**	661	6,963	23	-70	**7,577**
Depreciation	**-241**	-1,146	-3,700	-116	0	**-4,962**
Balance sheet as at 31-12-09	**1,533**	18,145	12,915	376	0	**31,436**

Intangible fixed assets
Purchases of intangible fixed assets totaled K€ 1,029. This amount represents investments in software for both administrative and laboratory applications.

Tangible fixed assets
Investments in tangible fixed assets totaled K€ 7,577, comprising:

- K€ 661 under 'land and buildings', primarily for the expansion of the head office in Ghent;
- K€ 6,963 under 'plant, machinery and equipment', primarily for investments in equipment intended for strategic basic research;
- K€ 23 under 'furniture and vehicles';
- -K€ 70 for 'fixed assets under construction' at the end of 2008 that are now in service.

Depreciation on tangible fixed assets totaled K€ 4,962 and was calculated in accordance with the applicable accounting rules.

The net book value of the tangible fixed assets at year end amounted to K€ 31,436. The considerable increase in tangible fixed assets of K€ 2,615 (up 9% from 2008) is explained by the expansion of the research activities, made possible by the increase in core funding from the Government of Flanders as of 2007.

Financial fixed assets

The book value of the financial fixed assets amounted to K€ 7,763 at year end, an increase of K€ 909 over 2008. The changes in the various items under fixed financial assets are discussed below:

- The account 'Affiliated companies' dropped to K€ 0.0 in 2009. The Bio-incubator Leuven NV effected a capital increase in 2009, subscribed only partially by VIB, which resulted in a dilution of VIB's stake in the company to 49.9% from 60%. As of the end of 2009, this participation will be reported under the account 'Participating share in other companies'.
- The item 'Participating share in other companies' rose by K€ 893 due to various factors. As mentioned above, the Bio-incubator Leuven NV is now included in this account (+K€ 2,000). VIB also subscribed a capital increase at Pronota (+K€ 500). Finally, VIB's stake in Actogenix was diluted from 10% at the end of 2008 to 8% at the end of 2009 following a capital increase. Hence, Actogenix is now included in 'Other financial assets' (-K€ 1,607).
- The item 'Other financial assets' increased by K€ 1,516. This reflects the addition of Actogenix (+K€ 1,607), as mentioned above. VIB also sold its stake in Algonomics as part of the latter's takeover by Lonza (-K€ 142) but acquired a stake in Argen-X (+K€ 50) and the Bio-Accelerator (+K€ 1).

Overview of participations as at 31.12.09

	Share of equity (%)	Book value (K€)
Solucel OY	50.0%	150
Bio-incubator Leuven NV	49.9%	2,000
Biolign	49.8%	53
Pronota NV	18.1%	2,788
Actogenix NV	8.0%	1,607
Ablynx NV	3.7%	1,084
Bio-Accelerator	2.0%	1
Argen-X	0.6%	50
Total		**7,733**

The total holdings have a book value of K€ 7,733.

The remaining balance of the financial fixed assets, i.e. K€ 30, represents warranties paid in cash.

Inventories and contracts in progress

In accordance with the applicable accounting rules, projects in progress for industrial partners are recorded as 'contracts in progress' as long as the projects have not been completed, delivered and accepted. At the end of 2009, the amount under 'contracts in progress' – based on the costs incurred – totaled K€ 8,659 compared to K€ 4,543 at the end of 2008. The nearly 100% increase of K€ 4,116 is mainly due to the significant increase in (long-term) contracts with industrial partners (which is explained in the notes on the Profit and Loss Statement).

Trade debtors and other amounts receivable within one year

The amount under trade debtors totaled K€ 3,058 in 2009, a decline of 7% or K€ 221 compared to 2008.
Other amounts receivable totaled K€ 6,267 at the end of the year, a year-over-year increase of K€ 327 or 5%.
The other amounts receivable consist of:

- outstanding grant money in the amount of K€ 3,397 (K€ 3,649 in 2008), which includes the outstanding balance of the 2009 core funding from the Government of Flanders;
- a claim against the National Office of Social Security, under the Act of 29 April 1996 for the promotion of scientific research, totaling K€ 2,068 for the third and fourth quarter of 2009;
- a credit of K€ 459 with regard to VAT payments made on ordinary operating activities;
- an advance payment of K€ 301 on the pension plan;
- other amounts receivable totaling K€ 41.

Cash investments

In 2009, the investment strategy regarding to cash was continued. A part of the funds needed only in the mid-term (an amount totaling K€ 26,653) remained invested for longer periods in products with a defensive investment strategy and a capital guarantee. The other available funds, totaling K€ 39,922, were invested in interest-bearing products.

Deferred charges and accrued income

On the asset side, the deferred charges and accrued income totaled K€ 6,956. This amount represents mainly revenue related to contract research for the European Commission in the amount of K€ 6,672. The remaining balance represents miscellaneous deferred charges.

LIABILITIES

Allocated funds and investment grants

After appropriation of the 2009 result, the equity totals K€ 70,361. This amount consists of 'allocated funds' in the amount of K€ 46,603, which represents the surplus

from operations to date, and 'investment grants' in the amount of K€ 23,758.

De 'allocated funds' grew by K€ 2,625 in 2009. This increase represents the entire result for the financial year. The Board of Directors has decided to allocate this surplus to the VIB Technology Fund. This results in a de facto allocation for the 2009 result.

The 2009 result was calculated as follows (see Profit and Loss Statement):

- The operating result totals K€ 851. In concrete terms, operational losses resulting from the planned application of reserves to various budget items (including mainly core facilities) were more than offset by new revenues in 2009, including the amounts recovered from income tax deductions for researchers and social security contributions for additionally hired personnel.
- The financial result amounted to K€ 1,518, which can be explained by the increase in interest revenues.
- This exceptional result totals K€ 256. This amount mainly represents the capital gains realized on the sale of the holding in a spinoff company.

The item 'investment grants' grew by K€ 3,822 (+16%), totaling K€ 23,758 at the end of 2009. This increase can be attributed to the increased investments financed with grants, in particular the core funding grant received from the Government of Flanders. These investments exceeded the depreciation on existing assets financed with grants in the past.

Amounts payable after one year

At the end of 2009, VIB had an outstanding long-term loan (initial term of 20 years) in the amount of K€ 6,286, contracted to finance its share in the UGent-VIB Research Building FSVM at the Technology Park of UGent. In 2009, K€ 332 of this amount was transferred to 'amounts payable within one year', bringing the remaining balance of the long-term loan entered under 'amounts payable after one year' to K€ 5,953 as of the end of 2009. This loan is fully guaranteed by the Flemish Government. Another long-term loan was taken out (term of 19 years) in 2006 to finance a second bio-incubator. The amount outstanding as per the end of 2009 totals K€ 2,792. Of this amount, K€ 129 was transferred to 'amounts payable within one year' as per the end of 2009. A net amount of K€ 2,663 is therefore recorded on the balance sheet as additional long-term debt. Total outstanding debt to credit institutions payable after one year totaled K€ 8,617 at the end of 2009.

The other amounts payable after one year, which total K€ 1,427, consist of the realized value of future lease payments payable by VIB to the Ghent University for the land on which the VIB bio-incubators have been built.

Amounts payable within one year

The amounts payable after one year that came due in 2009 and as a result were recorded as amounts payable within one year total K€ 461 and are integrally related to the two previously mentioned loans.

The amounts payable to trade debtors dropped by K€ 1,866 to K€ 3,440.

Tax liabilities totaling K€ 910 include, on the one hand, non-matured tax liabilities in the amount of K€ 772 and, on the other, estimated taxes in the amount of K€ 138.

Liabilities related to salaries and social security charges, which total K€ 4,636, have been recorded as 'other amounts payable related to remuneration and social security'.

The prepayments received for contract research rose by K€ 4,244 to K€ 18,457 in 2009. This increase is mainly due to an increase in the number of research contracts.

The other amounts payable within one year totaled K€ 3,135. They include K€ 1,118 still owed to other research institutions as part of EC projects for which VIB acts as project coordinator and administrator of the project funds. The remaining amounts payable, totaling K€ 2,017, represent mainly amounts payable to inventors and the respective universities under the guidelines governing the allocation of income derived from realized gains on participations in VIB startups and from patent income.

Accrued charges and deferred income

The deferred income account on the liability side allows for offsetting the time differences between income payments and the spending of such funds, in accordance with general accounting principles governing income recognition and within the terms of the related contracts. The deferred income on the liability side totals K€ 22,014 (a drop of 8% year over year) and can be divided as follows:

- K€ 3,688 (+1%) for commitments VIB made under the project-based research program, in particular under the third project-based research program started up at the end of 2008;
- K€ 11,875 (+14%) for items such as the completion of tech transfer projects, the 'seed fund', potential claims, and miscellaneous activities proposed in the tech transfer strategic plan;
- K€ 362 (+21%) for community assignments;
- K€ 5,135 (-44%) for departmental strategic basic research to complete both current projects financed from the core funding grant and research contracts for third parties;
- K€ 818 for income that needs to be deferred to 2010;
- K€ 117 in accrued liabilities representing the interest payable on the loans contracted to finance the UGent-VIB Research Building FSVM and the expansion of the bio-incubator in Ghent.

Other information

Since the end of the 2009 financial year, no events have occurred to date that could have a major impact on the 2009 Financial Statements, nor are there any circumstances at present that could affect the operations of the organization in any significant way. VIB is in discussion with the VAT authorities with regard to the recuperation of VAT related to the construction of the Ghent bio-incubator in 2006. After consultation with our advisors, it is our opinion that there is no need to set up a provision in this respect.

For detailed information about the research activities of VIB, please consult VIB's website at www.vib.be, which features extensive information about the research activities and results of 2009.

VIB appointed BDO as its statutory auditor. VIB has not called on BDO for other services.

Auditor's Report

The preceding pages contain the Consolidated Balance Sheet and the Profit and Loss Statement of the Financial Statements of VIB vzw. The complete Financial Statements of 2009 are available at the organization's head office.

Below is the Auditor's Report about the Financial Statements of the reporting year ended December 31, 2009.

In accordance with the legal and statutory requirements, we report to you on the performance of the engagement of statutory auditor, which has been entrusted to us. This report contains our opinion on the true and fair view of the financial statements as well as the required additional statements and information.

Unqualified audit opinion on the financial statements
We have audited the financial statements for the year ended 31 December 2009, prepared in accordance with the financial reporting framework applicable in Belgium, which show a balance sheet total of 133,458,836 EUR and a profit for the year of 2,625,496 EUR.

The association's board of directors is responsible for the preparation and the fair presentation of these financial statements. This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the legal requirements and the Auditing Standards applicable in Belgium, as issued by the Institute of Registered Auditors (Institut des Réviseurs d'Entreprises/Instituut van de Bedrijfsrevisoren). Those standards require that we plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement, whether due to fraud or error.

In accordance with the above-mentioned auditing standards, we considered the association's accounting system, as well as its internal control procedures. We have obtained from the board of directors and from the association's officials the explanations and information necessary for executing our audit procedures. We have examined, on a test basis, the evidence supporting the amounts included in the financial statements. We have assessed the appropriateness of accounting policies and the reasonableness of the significant accounting estimates made by the association as well as the overall financial statement presentation. We believe that these procedures provide a reasonable basis for our opinion.

In our opinion, the financial statements for the year ended 31 December 2009 give a true and fair view of the association's assets and liabilities, its financial position and the results of its operations in accordance with the financial reporting framework applicable in Belgium.

Additional statements and information
The compliance by the association with the law of 27 June 1921 related to not-for-profit associations, international not-for-profit associations and foundations is the responsibility of the association's board of directors.

Our responsibility is to supplement our report with the following additional statements and information, which do not modify our audit opinion on the financial statements:

The review of the annual directors' report is explicitly excluded from the legal statutory auditor's engagement for associations and foundations. Therefore we cannot express an opinion on the annual report presented by the board of directors.

Without prejudice to formal aspects of minor importance, the accounting records were maintained in accordance with the legal and regulatory requirements applicable in Belgium.

There are no transactions undertaken or decisions taken in violation of the association's bylaws or the law of 27 June 1921 related to not-for-profit associations, international not-for-profit associations and foundations that we have to report to you.

Merelbeke, 30 March 2010

BDO Réviseurs d'Entreprises Soc. Civ. SCRL
Statutory auditor
Represented by Veerle Catry

Management Accounts 2009

CONTEXT

In the Management Accounts (see table below), income and expenditure are reported analytically on the basis of the various natures of income. The result of the management accounts matches the result reported in the annual financial statements. However, other accounting principles were used to prepare the management accounts than for the annual financial statements, including with regard to income recognition, the posting of investment costs instead of depreciation charges and the posting of commitments for budgets allocated but not yet spent.

The management accounts differentiate between four natures of financing. These are (i) the core funding VIB receives directly from the Government of Flanders under the Management Agreement, (ii) the external funding VIB acquires on a competitive basis through calls for applications to international research programs and from income derived from industrial research agreements, (iii) the funds drawn from the organization's reserves, and (iv) income of a financial or extraordinary nature.

DIRECT FUNDING FROM THE GOVERNMENT OF FLANDERS 2009

The Management Agreement between the Government of Flanders and VIB provided for a gross grant amount of K€ 39,456 in 2009 (up 1.3% from 2008). Expenditures in 2009, excluding commitments, totaled K€ 39,282 (up 9% from 2008).

The net change in commitments totaled K€ 174 (increase). This amount includes a reduction of K€ 1,399 for strategic basic research to the committed funds of the core funding of the Government of Flanders. For tech transfer activities, an amount of K€ 1,478 was entered for future initiatives such as the financing of tech transfer projects. An amount of K€ 133 was added to the accrued charges and deferred income for project-based research. For the communications commitment, an amount of K€ 63 was added.

EXTERNAL FUNDING

In 2009, VIB obtained K€ 20,388 in external funding (down 7% from 2008). Of this amount, K€ 15,135 was derived from research contracts with the industry, the European Commission and other international players in the research

Management Accounts 2009 (K€)

	Direct funding from Government of Flanders		External funding		Funding from reserves		Other income & expenditures		Total operating year	
INCOME	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**
Turnover	0	0	16,872	18,972	0	0	0	0	16,872	18,972
Grants	39,456	38,962	3,224	2,690	0	0	6,229	5,297	48,909	46,949
Financial	0	0	0	0	0	0	2,090	1,481	2,096	1,481
Extraordinary	0	0	242	220	0	0	0	0	242	220
TOTAL INCOME	**39,456**	**38,962**	**20,338**	**21,882**	**0**	**0**	**8,325**	**6,778**	**68,119**	**67,622**
EXPENDITURE	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**	**2008**
Personnel	21,731	19,871	9,006	8,211	2,063	1,222	654	593	33,454	29,897
Operation	11,488	9,850	9,290	10,783	1,994	1,881	208	0	22,980	22,514
Investments	5,659	5,814	1,223	260	1,159	612	0	0	8,041	6,686
Depreciation	404	407	571	412	0	119	0	0	975	938
Financial	0	0	0	0	0	0	202	226	202	226
Extraordinary	0	0	0	0	0	0	0	0	0	0
Commitments	174	3,020	-332	-1,422	0	0	0	0	-158	1,598
TOTAL EXPENDITURE	**39,456**	**38,962**	**19,758**	**18,244**	**5,216**	**3,834**	**1,064**	**819**	**65,494**	**61,859**
BALANCE	**0**	**0**	**580**	**3,638**	**-5,216**	**-3,834**	**7,261**	**5,959**	**2,625**	**5,763**

field. Making the VIB bio-incubator available to startup biotech companies generated a turnover of K€ 1,737 in 2009. This brings the total turnover for the organization to K€ 16,872, a year over year decrease of K€ 2,100 or 12%.

In addition, an amount of K€ 3,224 in other grant income was obtained from various national and international granting institutions and companies. This represents an increase of K€ 534 compared to the previous financial year (+17%).

An amount of K€ 242 was recorded as extraordinary income. It refers to an additional payment from the sale of VIB's participation in Cropdesign to BASF in the amount of K€ 242, representing the balance of the initial escrow amount. With this payment, the takeover file can be considered as closed.

Expenses, excluding commitments, amounted to K€ 20,090 compared to K€ 19,667 the previous year (+2%). Commitments totaling K€ 332 were used for ongoing projects. In addition, K€ 580 was added to the result for projects completed during the financial year under review.

Funding from reserves
In 2009, an amount of K€ 5,216 from VIB's Technology Fund was used:

- K€ 2,796 for institutional incorporation of advanced technologies and support for other institutional initiatives such as the international Ph.D. program and the implementation of electronic lab notebooks.
- K€ 1,596 for the continuation of project-based research.
- K€ 650 for NERF (Center for Neuro-Electronics Research Flanders). This amount includes VIB's own contribution to this initiative started up in collaboration with K.U.Leuven and IMEC. The function of the brain will be studied at NERF.
- K€ 174 for miscellaneous expenses incurred under the framework agreements with the universities.

OTHER INCOME AND EXPENSES

This amount totaled K€ 8,325 and consists of:

- an amount of K€ 4,437 pursuant to the exemption from employer social security contributions for the 2009 financial year (in application of the Act of 29 April 1996 with respect to the exemption from social security contributions for additionally hired research personnel); on the liability side, this is offset by K€ 654, the amount of the reduction in structural employer contributions for social security, owing to the fact that both measures cannot be combined. The net result of this measure therefore is K€ 3,783;
- an amount of K€ 1,792 in application of the Royal Decree of 4 May 2004 with respect to the recognition of scientific institutions as referred to in section 385 of the Budget Act of 24 December 2002, whereby such institutions are entitled to a reduction in employer contributions by not having to forward half of the withholding tax due on the salaries of the researchers employed by them;
- financial income totaling K€ 2,096.

The 'Other expenses' totaled K€ 1,064 and can be divided as follows:

- a sum of K€ 654 to correct the exemption from social security payments described above;
- a sum of K€ 208 from this revenue stream as an adjustment of the balance of the general expenses;
- a sum of K€ 202 for the financial costs incurred.

No other extraordinary income or expenditure was recorded for 2009.

BALANCE FOR THE YEAR

The result of the 2009 financial year for all categories of financing totaled K€ 2,625.

Good Governance

Administrative and financial transparency

On April 16, 2008, the Good Governance Charter proposed by the Board of Directors was adopted by VIB's Annual General Meeting. Now in effect, the Charter's complete text can be read on VIB's website (www.vib.be). VIB plans to review and update its good governance principles regularly in the light of local and international developments and to meet the needs of the stakeholders in the non-profit corporation.

Board of Directors

Composition of Board of Directors

The non-profit corporation is governed by a 13-member **Board of Directors**, whose composition, as defined in the statutes, is as follows: six representatives from Flemish universities, four representatives from the industry, and three representatives from the Flemish Government. For the composition of the current Board of Directors, please see **Table 1**. The Board of Directors is chaired by Hugo Van Heuverswyn. Marc Vervenne is Vice-Chair.

The Board's meetings are also attended by two government representatives (Koen De Bock and Gil Beyen) appointed by the Flemish Government, the Executive Management of VIB (Jo Bury and Rudy Dekeyser), and Joël Vandekerckhove (UGent), who speaks for the Scientific Directors of the various VIB research departments.

Board of Director Meetings in 2009

The Board of Directors met a total of five times in 2009.

At these meetings, the following items were discussed:

1. Excellence management
- Policies to stimulate excellence
- Monitoring performance
- VIB technology fund
- VIB core and service facilities
- Appointment of departmental scientific auditors
- VIB Research Training Course

2. Strategic management
- Interdisciplinary neuro-electronics research program
- 2010-2014 strategic plan
- Succession of Department Directors

3. Tech transfer management
- Commercialization of research results
- Strategic investments in tech transfer projects and startups
- Bio-incubators and Bio-Accelerator

4. Communications and public education program
- VIB's communications program
- Biotechnology regulations, and environmental protection and safety policies
- VIB's field test with transgenic poplars

5. Financial and statutory management
- Amendment of mandate resolution
- Financial reporting and audit
- Spring budget 2010 and detailed budget 2009-2010
- Accounting rules and 2010 contract research cost calculation

6. Good Governance
- Drafting of Good Governance annual report
- Discussion of subcommittee reports

Table 1: Composition of VIB Board of Directors 2009

FLEMISH UNIVERSITIES	FUNCTION	ORGANIZATION	END OF TERM
Paul Van Cauwenberge	Rector	UGent	05-07-11
Luc Moens	Vice-Rector	UGent	05-07-10
Marc Vervenne	Rector Emeritus	K.U.Leuven	05-07-11
Mark Waer	Rector	K.U.Leuven	05-07-11
Dirk Van Dyck	Coordinator Strategic Basic Research	University of Antwerp	05-07-10
Gino Baron	Professor	Vrije Universiteit Brussel	05-07-10
FLEMISH INDUSTRY	**FUNCTION**	**ORGANIZATION**	**END OF TERM**
Hugo Van Heuverswyn	CEO	AIP	05-07-10
Staf Van Reet	President	Movetis	05-07-10
Ann De Clercq	CEO	De Clercq & Partners	05-07-10
André Roef	Managing Director	Bayer BioScience	05-07-11
FLEMISH GOVERNMENT	**FUNCTION**	**ORGANIZATION**	**END OF TERM**
Gerard Van Acker	Director	Limited Liability Companies	05-07-10
Danielle Raspoet	Secretary	VRWI	05-07-10
Bart De Moor	Professor	K.U.Leuven	05-07-10

Board of Directors: *(from left to right):* Rudy Dekeyser, Jo Bury, André Roef, Ann De Clerq, Mark Waer, Luc Moens, Dirk Van Dyck, Hugo Van Heuverswyn, Bart De Moor, Staf Van Reet, Gerard Van Acker, Koen De Bock, Danielle Raspoet, Gino Baron, Joël Vandekerckhove (representative Scientific Directors)
Absent: Paul Van Cauwenberghe, Marc Vervenne and Gil Beyen

Table 2: Attendance at meetings

DIRECTOR	BD	AC	RAC	AHC
Hugo Van Heuverswyn (Ch)	5		1	4
Staf Van Reet	2			3
Ann De Clercq	4			3
André Roef	5	2		1
Marc Vervenne (VCh)	3			
Luc Moens	4		1	1
Paul Van Cauwenberge	0			
Mark Waer	2			
Dirk Van Dyck	5	2		1
Gino Baron	5			3
Gerard Van Acker	3	2	1	3
Danielle Raspoet	5			3
Bart De Moor	2		1	4

Ch = *Chair* VCh = *Vice-Chair* BD = *Board of Directors* AC = *Audit Committee*
RAC = *Remuneration & Appointment Committee* AHC = *adhoc committees*

Board Committees
In 2009 a number of committees met around specific issues:

- The Audit Committee advises the Board of Directors on the execution of its supervisory mandate, especially as it relates to financial reporting, the external audit process, internal control, and risk management. The Audit Committee met twice in 2009.

- The Appointment and Remuneration Committee submits proposals to the Board regarding remuneration policies for the organization in general and the members of the Executive Management in particular. It also makes recommendations on the qualifications of candidate directors. The Appointment and Remuneration Committee met once in 2009.

- Depending on its needs, the Board can strike a number of adhoc committees. In 2009, adhoc committees were set up to deal with specific files regarding capital increases at existing biotech companies. The composition of these committees was based on the expertise of the various members regarding the files on the agenda. Where possible, one member was appointed from each of the three Board categories, i.e. the Flemish universities, Flemish industry and the Flemish Government, plus one or two members from the Executive Management, where necessary. In total, four different adhoc committees met seven times to deal, more specifically, with investment in Pronota, investment in Argen-X, the succession of Lode Wyns, and the definition of the topmost prestigious journals.

The table below gives an overview of the attendance at meetings of the Board, the Audit Committee, the Remuneration Committee and the adhoc committees. The directors were paid a total of K€ 41.7 for their 2009 activities.

Executive Management

The Management Committee of VIB consisted of the following members in 2009:

- Jo Bury, Managing Director VIB and Chair of the Management Committee
- Rudy Dekeyser, Managing Director VIB
- Rik Audenaert, Chief Financial Officer VIB
- Marijke Lein, Human Resources Director VIB
- Peter Carmeliet, Director Vesalius Research Center, K.U.Leuven
- Frans Van Roy, Director Department of Molecular Biomedical Research, UGent
- Dirk Inzé, Director Department of Plant System Biology, UGent
- Bart De Strooper, Director Department of Molecular and Developmental Genetics, K.U.Leuven
- Lode Wyns, Director Department of Molecular and Cellular Interactions, Vrije Universiteit Brussel
- Christine Van Broeckhoven, Director Department of Molecular Genetics, University of Antwerp
- Joël Vandekerckhove, Director Department of Medical Protein Research, UGent, and representative of the Scientific Directors on the Board of VIB
- Johan Thevelein, Director Department of Molecular Microbiology, K.U.Leuven

This Committee met four times in 2009.

The members of the Executive Management who work at VIB's head office are on VIB's payroll. The other members are partly on VIB's payroll and partly on the payroll of their respective partner universities.

In 2008, VIB paid a total of K€ 1,630 in salaries and benefits to the Executive Management members. This amount included employee benefits, contributions to compulsory and supplementary non-compulsory insurance plans, and other benefits. The variable component of the remuneration paid amounted to K€ 490.

Organisation

Board of Directors		Mandate till
Hugo Van Heuverswyn	*Chairman*	*05/07/10*
Marc Vervenne	*Vice-Chairman*	*05/07/12*
Paul Van Cauwenberge	*non-executive director*	*05/07/11*
Luc Moens	*non-executive director*	*05/07/10*
Mark Waer	*non-executive director*	*05/07/11*
Dirk Van Dyck	*non-executive director*	*05/07/10*
Gino Baron	*non-executive director*	*05/07/10*
Staf Van Reet	*non-executive director*	*05/07/10*
André Roef	*non-executive director*	*05/07/11*
Ann De Clercq	*non-executive director*	*05/07/10*
Gerard Van Acker	*non-executive director*	*05/07/10*
Bart De Moor	*non-executive director*	*05/07/10*
Danielle Raspoet	*non-executive director*	*05/07/10*
Gil Beyen	*government commissioner*	
Koen De Bock	*government commissioner*	

Management Committee	
Jo Bury	*Managing Director, Chairman*
Rudy Dekeyser	*Managing Director*
Frans Van Roy	*Director of the VIB Department for Molecular Biomedical Research, UGent*
Dirk Inzé	*Director of the VIB Department of Plant Systems Biology, UGent*
Peter Carmeliet	*Director of the VIB Vesalius Research Center, K.U.Leuven*
Bart De Strooper	*Director of the VIB Department of Molecular and Developmental Genetics, K.U.Leuven*
Lode Wyns	*Director of the VIB Department of Molecular and Cellular Interactions, Vrije Universiteit Brussel*
Christine Van Broeckhoven	*Director of the VIB Department of Molecular Genetics, University of Antwerp*
Joël Vandekerckhove	*Director of the VIB Department of Medical Protein Research, UGent*
Johan Thevelein	*Director of the VIB Department of Molecular Microbiology, K.U.Leuven*
Rik Audenaert	*Chief Financial Officer*
Marijke Lein	*Human Resources Director*

Institutional Advisory Board	
Fotis Kafatos	*Imperial College, London, United Kingdom, Chairman*
Børge Diderichsen	*Novo Nordisk, Bagsvaerd, Denmark, Vice-Chairman*
Daniel Louvard	*Institut Curie, Paris, France*
Erin O'Shea	*FAS Center for Systems Biology, Harvard University, United States of America*
Leena Peltonen	*The Wellcome Trust Sanger Institute, Hinxton, Cambridge, United Kingdom*
Luis Serrano	*CRG Centre de Regulacio Genomica, Barcelona, Spain*
Detlef Weigel	*Max Planck Institute for Developmental Biology, Tübingen, Germany*

Group Leader Committee	
Vincent Timmerman	*VIB Department of Molecular Genetics, University of Antwerp, Chairman*
Geert Berx	*VIB Department for Molecular Biomedical Research, UGent*
Wout Boerjan	*VIB Department of Plant Systems Biologie, UGent*
Christophe Ampe	*VIB Department of Medical Protein Research, UGent*
Jean-Christophe Marine	*VIB Laboratory for Molecular Cancer Biology, K.U.Leuven*
Mieke Dewerchin	*VIB Vesalius Research Center, K.U.Leuven*
Patrick Van Dijck	*VIB Department of Molecular Microbiology, K.U.Leuven*
Patrik Verstreken	*VIB Department of Molecular and Developmental Genetics, K.U.Leuven*
Jan Steyaert	*VIB Department of Molecular and Cellular Interactions,Vrije Universiteit Brussel*
Mark Veugelers	*Integration Manager VIB*

VIB locations

Ghent

VIB Headquarters
Rijvisschestraat 120, 9052 GHENT

VIB Dept. for Molecular Biomedical Research, UGent
UGent-VIB Research Building FSVM
Technologiepark 927, 9052 GHENT

VIB Dept. of Plant Systems Biology, UGent
UGent-VIB Research Building FSVM
Technologiepark 927, 9052 GHENT

VIB Proteomics Expertise Center, UGent (PEC)
Albert Baertsoenkaai 3, 9000 GHENT

VIB BioInformatics Training and Service facility (BITS)
Rijvisschestraat 120, 9052 GHENT

VIB Compound Screening Facility, UGent (CSF)
UGent-VIB Research Building FSVM
Technologiepark 927, 9052 GHENT

VIB Protein Service Facility, UGent (PSF)
UGent-VIB Research Building FSVM
Technologiepark 927, 9052 GHENT

VIB Dept. of Medical Protein Research, UGent
Albert Baertsoenkaai 3, 9000 GHENT

VIB Bio-incubator
Technologiepark 4, 9052 GHENT

Antwerp

VIB Dept. of Molecular Genetics, University of Antwerp
Building V
Universiteitsplein 1, 2610 ANTWERP

VIB Genetic Service Facility, University of Antwerp (GSF)
Building V
Universiteitsplein 1, 2610 ANTWERP

Brussels

VIB Dept. of Molecular and Cellular Interactions, Vrije Universiteit Brussel
Building E
Pleinlaan 2, 1050 BRUSSELS

VIB Switch Laboratory, Vrije Universiteit Brussel
Building E
Pleinlaan 2, 1050 BRUSSELS

VIB Laboratory of Structural and Molecular Microbiology, Vrije Universiteit Brussel
Building E
Pleinlaan 2, 1050 BRUSSELS

VIB Nanobody Service Facility, Vrije Universiteit Brussel (NSF)
Building E
Pleinlaan 2, 1050 BRUSSELS

Leuven

VIB Vesalius Research Center, K.U.Leuven
Campus Gasthuisberg, O&N I,
Herestraat 49 box 912, 3000 LEUVEN

VIB Dept. of Molecular and Developmental Genetics, K.U.Leuven
Campus Gasthuisberg, O&N I,
Herestraat 49 box 602, 3000 LEUVEN

VIB Dept. of Molecular Microbiology, K.U.Leuven
Kasteelpark Arenberg 31 box 2438,
3001 LEUVEN-HEVERLEE

VIB Laboratory of Developmental Genetics, K.U.Leuven
Campus Gasthuisberg, O&N I,
Herestraat 49 box 602, 3000 LEUVEN

VIB Laboratory for Molecular Cancer Biology, K.U.Leuven
Campus Gasthuisberg, O&N I,
Herestraat 49 box 602, 3000 LEUVEN

VIB Laboratory of Systems Biology, K.U.Leuven
K.U.Leuven, Bio-Incubator Leuven,
Gaston Geenslaan 1, 3001 LEUVEN

VIB Laboratory for Mechanism of Cell Transformation, K.U.Leuven
Campus Gasthuisberg, O&N I,
Herestraat 49 box 602, 3000 LEUVEN

VIB Autoimmune Genetics Laboratory, K.U.Leuven
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Herestraat 49 box 1023, 3000 LEUVEN

VIB MicroArray Facility (MAF)
Campus Gasthuisberg, O&N I,
Herestraat 49 box 816, 3000 LEUVEN

www.vib.be

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VIB is a non-profit research institute in life sciences. About 1,200 scientists conduct strategic basic research on the molecular mechanisms that are responsible for the functioning of the human body, plants, and microorganisms. Through a close partnership with four Flemish universities – UGent, K.U.Leuven, University of Antwerp, and Vrije Universiteit Brussel – and a solid funding program, VIB unites the forces of 72 research groups in a single institute. The goal of the research is to extend the boundaries of our knowledge of life profoundly. Through its technology transfer activities, VIB wants to convert research results into products for the benefit of consumers and patients. VIB develops and disseminates a wide range of scientifically substantiated information about all aspects of biotechnology.

UNIVERSITEIT GENT

KATHOLIEKE UNIVERSITEIT LEUVEN

Universiteit Antwerpen

Vrije Universiteit Brussel

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