

VIB is a life sciences research institute, based in Flanders, Belgium. We perform basic research with a strong focus on translating scientific results into pharmaceutical, agricultural and industrial applications



synopsis
Annual Report 2013

VIB ACTIVITIES IN 2012



This flyer is a synopsis of VIB's activities in 2012. For a complete overview of our life sciences' breakthroughs, our tech transfer and communication activities, staff and financial data, we refer you to our website:

www.vib.be/annualreport

Li-Kun Phng

Scientist

VIB Vesalius Research Center, KU Leuven (since October 2011)

I came to VIB for its scientific excellence. I like the fact that VIB offers many training courses and strives to be a top institute in the world while remaining dedicated to society.

Geert Goeminne

Expert Staff Employee

VIB Department of Plant Systems Biology, UGent (since August 1999)

VIB to me is a place where you get the chance to convert revolutionary ideas into reality, an environment that gives you the opportunity to make progress in ever innovative ways and, personally, I get a lot of satisfaction from that!

Kris Pauwels

Scientist

VIB Department of Structural Biology, Vrije Universiteit Brussel (2002-2008 and again since November 2011)

I had no doubts about returning to Flanders and rejoining VIB's ambitious research community. At VIB I get to work creatively on interesting, biotechnically and medically relevant research projects.



Ioanna Petta

PhD Student

VIB Department for Molecular Biomedical Research, UGent (since October 2010)

After I finished my undergraduate and Master studies in Greece in 2010, VIB gave me the opportunity to pursue a PhD in Belgium (Ghent) by awarding me one of its Scholarships for International PhD Students. I am delighted to work on a project shared between the VIB labs of Claude Libert and Jan Tavernier.



Bassem Hassan

Group Leader

VIB Center for the Biology of Disease, KU Leuven (since July 2001)

The combination of intellectual freedom, generous resources and support at all levels, the openness to new ideas and challenges, and the pressure to be among the top in it's fields of research make VIB, in my view, among the best life sciences research institutes to work at today and certainly the one to watch for the 21st century.



Sadia Vancauwenbergh

Research Manager

VIB Department of Molecular Genetics, University of Antwerp (since October 2009)

VIB stimulates a fertile research environment by fostering collaborations with academia and industry world-wide. This provides VIB researchers with ample opportunities to drive scientific discoveries. It's great to be part of that!



World-Class Science

18 contributions to Nature, Cell and Science confirm VIB's chosen path and illustrate the effect of our continued investments in an outstanding research environment.

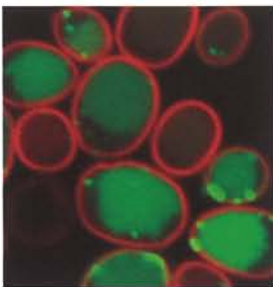


Patrik Verstreken and his team, using Vitamin K₂, succeeded in undoing the effects of one of the gene defects that lead to Parkinson's. This discovery offers new prospects for the treatment of Parkinson's.

VOS ET AL., SCIENCE 2012

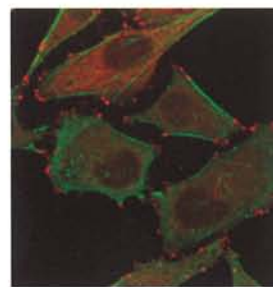


Together with Gimv and Biotech Fonds Vlaanderen, VIB organized its third Biotech Day on Saturday June 23, 2012. This time the locations were across Flanders. More than 1,000 scientists from some 50 academic and industrial biotech labs were available to welcome the numerous visitors.



For the lab of **Johan Thevelein** yeast hardly has any secrets. Although... In a study that involved screening 300 amino acid analogs, they identified three γ -glutamyl dipeptides with unexpected, remarkable properties. Never before had the persistent agonists of a transceptor been identified.

RUBIO-TEXEIRA ET AL.,
NAT CHEM BIOL 2012



Although N-terminal acetylation of proteins is a common modification, little is known about its function. The lab of **Kris Gevaert** changed this. N-terminal acetylome analyses led to the identification of 180 human and 110 yeast NatB substrates and revealed the conserved role of NatB in cell migration.

VAN DAMME ET AL., PNAS 2012

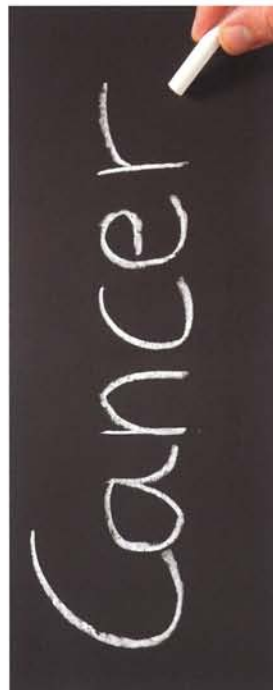


Currently Alzheimer's is incurable. Many candidate drugs have failed because they inhibited vital proteins. A discovery by the team of **Bart De Strooper** may provide a starting point for a treatment against Alzheimer's that has fewer side effects and can suppress the initial symptoms of the disease.

THATHIAH ET AL., NAT MED 2012

Peripheral neuropathies, a group of common hereditary disorders of the peripheral nervous system, are associated with a diverse range of symptoms and caused by mutations in various genes. Researchers in the team of **Albena Jordanova** and **Peter De Jonghe** were the first to demonstrate that mutations in the HINT1 gene could be linked to a very unusual type of peripheral neuropathy.

ZIMON ET AL., NAT GENET 2012



In Cancer Cell, **Max Mazzone** and his team confirmed their hypothesis that the effect of chemotherapy could be enhanced if the blood vessels were normalized by blocking oxygen sensor PHD2. They also demonstrated for the first time that this strategy could drastically reduce the negative side effects of chemo on healthy organs.

LEITE DE OLIVEIRA ET AL., CANCER CELL 2012

The lab of **Chris Marine** found a new line of approach for treating aggressive skin cancers by thwarting the interaction between the protein MDM4 and the tumor suppressor p53. Their research offers a new angle for the development of drugs and confirms that combination therapies hold the promise of further improvement of the clinical response to treatment.

GEMBARSKA ET AL., NAT MED 2012

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In 2012, VIB was involved in three field tests with genetically modified plants – one with poplars, one with potatoes and one with corn. The corn test was a first for VIB. After a difficult start due to wet weather conditions, the VIB researchers, assisted by ILVO, were able to confirm results obtained in the greenhouse for the corn in the field.



The thymus is a crucial organ for the proper function of our immune system. Aging and inflammation can severely shrink the thymus (thymic involution). Researchers from the lab of **Bart De Strooper** and **Adrian Liston** identified a microRNA network that plays a key role in the regulation of thymic involution.

PAPADOPOULOU ET AL.,
NAT IMMUNOL 2012



The team of **Wim Robberecht** is using zebra fish as a model in its search for genes that play a role in the development of amyotrophic lateral sclerosis (ALS). This led them to identify a target molecule that could be inhibited by a future ALS treatment. ALS is a progressively degenerative motor neuron disease for which there is currently no treatment.

VAN HOECKE ET AL., NAT MED 2012

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In part thanks to a donation from Ingrid Lieten's ministry, VIB started the Bio Imaging Core – with locations in Ghent and Leuven – in 2012. Besides conventional light and electron microscopy, the facilities will also develop three-dimensional correlative light and electron microscopy.

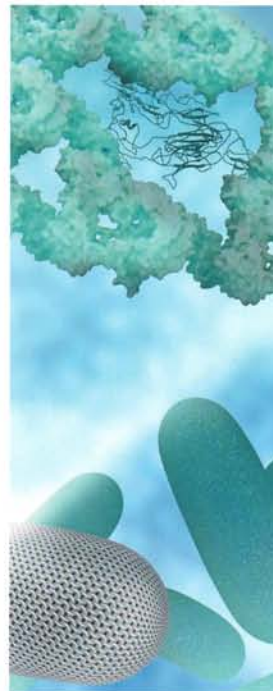


Jenny Russinova and her team unraveled the action mechanism of the main plant hormone that regulates the development of stomata. This breakthrough has important implications for environmental research and for the protection of plants against disease and stress.

GUDESBLAT ET AL., NAT CELL BIOL 2012

Have you ever wondered why stems grow upwards and roots downwards? The answer is simple: auxin, a plant hormone that is regulated by a complex interplay of factors. The lab of **Jiří Friml** identified an important new link in the transport of auxin through the plant whereby auxin is stored at specific sites.

BARBEZ ET AL., NATURE 2012



Lysosomal storage diseases are metabolic disorders characterized by the accumulation of waste products in a lysosome due to an absent or defective enzyme. The lab of **Nico Callewaert** together with **Han Remaut** and Oxyrane developed a new technology for the production of a more efficient and possibly cheaper therapy for the disease.

TIELS ET AL., NAT BIOTECHNOL 2012

Numerous bacteria protect themselves against threats from the outside by developing a protective protein layer. The lab of **Han Remaut** was the first to image the structure of this armor. The potential implications of this research are varied and far-reaching, ranging from a better understanding of infectious disease to the production of new nanomaterials.

BARANOVA ET AL., NATURE 2012

We must take advantage of this momentum to continue the development of Flemish biotech firms into an economically sustainable and relevant cluster

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2012 will be remembered in the annals as a year of change for VIB's management. Rudy Dekeyser, co-Managing Director with Jo Bury since the institute's inception in 1995, expanded his horizons beyond VIB and had to be replaced. He was succeeded by Johan Cardoen. Also Hugo Van Heuverswyn, chairman of the VIB Board of Directors since the very beginning, left the institute. He was succeeded by Staf Van Reet. Replacing these two key figures proved to be a considerable challenge, but it was also an opportunity for VIB to bring in new expertise and gain innovative momentum. As expected, the Management and Board are once again running at full speed.

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2012 was also a year of scientific and technological innovation. Following the institute-wide audit of 2011, several projects were halted or reoriented. Significant investments were made in new technology and advanced research equipment, among other things, for setting up an institutional bio-imaging core facility. Ten top-level international scientists were also recruited to start new research groups with internal and/or external resources (e.g. ERC, Odysseus).

In 2012, much groundbreaking new knowledge was generated and published. There were 171 contributions to top journals (top 5%). The excellence of VIB research received further noteworthy external recognition in 2012 with the award of several ERC Starting and Consolidator Grants. Beginning 2013, the number of VIB group leaders with ERC grants reached 16.



The greatest challenge for VIB is translating this knowledge into tangible products or services with added social and/or economic value. For that reason, VIB protects the intellectual property of valuable knowledge with patent applications. In 2012, 34 new patent applications were submitted. Today, VIB owns a knowledge portfolio of 202 patent families. These are actively out-licensed to companies (116 agreements in 2012) or combined into technology platforms that can serve as the basis

- 1 Jo Bury *managing director*
- 2 Johan Cardoen *managing director*
- 3 Staf Van Reet
chairman of the Board

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for the launch of new biotech startups. In 2012, work was completed on the business plan and financing of the new VIB startup AgroSavfe, launched in early January 2013. VIB startups directly employed 584 people at the end of 2012. Indirect employment is a multiple of this figure. VIB thus contributes directly to the construction in Flanders of a new economy buttressed by new knowledge, technology, intellectual property rights, expertise and talent.

Once a new VIB startup has been launched, VIB continues to monitor and support the young firm until maturity. As part of this, VIB helped lead capital increase campaigns in 2012 for Pronota, ActoGenix and, more recently, Multiplicom.

VIB also plays a key role in the construction in Flanders of an infrastructure specifically designed for housing R&D-intensive growth firms in the biotech sector. A second bioincubator has opened its doors in Leuven and a third one is being built. In Ghent a second Bio-Accelerator is under construction. The focused, rapid development of the Flemish biotech cluster is being noticed both locally and internationally. As usual, VIB took several initiatives in 2012 to help publicize the cluster. Publicly traded Flemish biotech companies are thriving and attracting a growing number of foreign investors - a clear proof that there is international recognition of and support for the growth of the new economy in our region.

We must take advantage of this momentum to continue the development of Flemish biotech firms into an economically sustainable and relevant cluster. Much work remains to be done, but there is definitely no lack of commitment and enthusiasm!

Jo Bury
Johan Cardoen
Staf Van Reet

From top science to tangible added value

The innovative research at VIB results in new inventions. These inventions serve as the basis for creating economic and social added value via agreements with biotech companies and the foundation of startups.

VIB's patent portfolio: over 200 active patent families

In 2012, the IP Management team evaluated 70 potential new inventions for patent protection and submitted 34 new priority applications. VIB's portfolio contains 202 active patent families with commercialization potential, while 29 patent families have been transferred to VIB startups and other companies. In the meantime, the number of patents awarded to VIB has risen to 207.

More than 100 agreements signed with companies

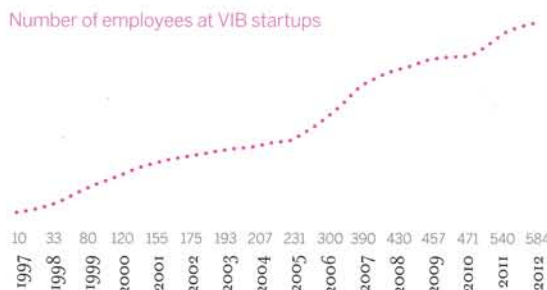
In 2012, 116 agreements were signed with life sciences companies around the globe. This brings the total number of research and licensing agreements signed since VIB's inception to 1,017. VIB's partners are quite diverse: from Flemish SMEs to multinationals, from large pharmaceutical corporations to small biotech firms, from food manufactures to instrument makers, from diagnostics companies to agrobiotech giants. Around half of the agreements involve companies located in Flanders. In total, the agreements generated over M€ 10 in industrial revenues in 2012, while also laying the groundwork for future revenues (milestone payments and royalties).

Growing employment in VIB startups

One of the main ways of creating economic and social added value is setting up new biotech companies. VIB has a strong track record with agrobiotech companies such as Devgen and CropDesign, diagnostics companies such as Pronota (protein markers) and Multiplicom (genetic markers), therapeutic companies such as Ablynx and Actogenix, and a CRO, namely Q-Biologicals. Over

25 different investment firms (including 15 international ones) have invested in VIB startup companies. VIB participated in a capital increase for Pronota and Actogenix through its seed money fund.

An important aspect of creating social added value is direct employment. At the end of 2012, VIB startups counted 584 employees.



The largest European research cluster in green biotechnology

The agrobiotech cluster at the Ghent Technology Park is home to 900 workers. In 2012, one of VIB's startups (Devgen) was taken over by Syngenta, a major multinational agribusiness corporation. With Bayer CropScience, BASF (via the takeover of CropDesign, another VIB spinoff) and Syngenta on location, three global players are now engaged in major R&D activities as part of the Ghent cluster. Together with the VIB Department of Plant System Biology, UGent, which is worldwide one of the leading research groups in the agrobiotech field, this cluster constitutes its own unique

Product/indication	Clinical Validation	Market
Molec. diagn. MALT lymphoma
Molec. diagn. breast cancer
Molec. diagn. cystic fibrosis
Molec. diagn. colon cancer FAP
Molec. diagn. colon cancer HNPCC
Molec. diagn. Marfan Syndrome
Molec. diagn. FMF (Familial Mediterranean Fever)
Molec. diagn. DMD (Duchenne Muscular Dystrophy)
Molec. diagn. Di George Syndrome
Molec. diagn. X-linked Mental Retardation
Molec. diagn. SACS
Molec. diagn. CMT1A/HNPP
Molec. diagn. APP
Molec. diagn. Kidney disease
Progranulin in FTLD
Protein marker pre-eclampsin
Protein biomarker cardiorenal (heart failure diagnosis)
Protein biomarker cardiorenal (kidney function)
Protein biomarker cardiorenal (Prognosis)
Protein biomarker ovarian cancer
Protein biomarker sepsis

..... License
..... Startup

ecosystem and provides a solid foundation for attracting other startup and foreign companies.

Foreign companies strengthen biotech cluster

VIB plays a support role in the development of the biotech cluster in Flanders. In 2012, several meetings and road shows were organized with the goal of attracting foreign companies to Flanders. VIB and the biotech companies employ many international workers. To support this ecosystem, VIB worked hard with others on setting up an international school in Ghent and is one of the founders of that school, which started in 2012. A similar initiative is under way in Leuven.

Thanks in part to VIB, arGEN-X and Biocartis have relocated a substantial part of their research activities to Flanders. Both companies recorded growing employment numbers in 2012, while Biocartis also completed a successful capital increase of M€ 34.5.

VIB inventions on the way to patients and consumers

The development of new, innovative drugs and therapies is VIB's most substantial way of creating added value for society. Thanks to our partners, a growing number of diagnostics are finding their way to patients. Our drug pipeline has also grown in strength.

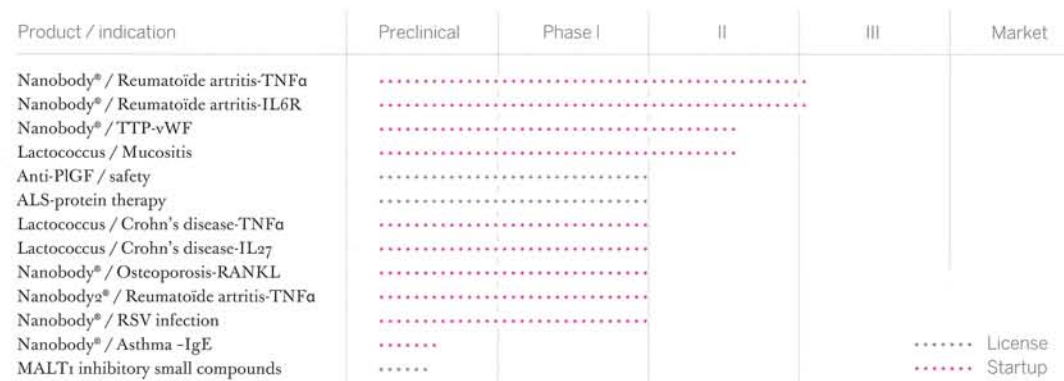
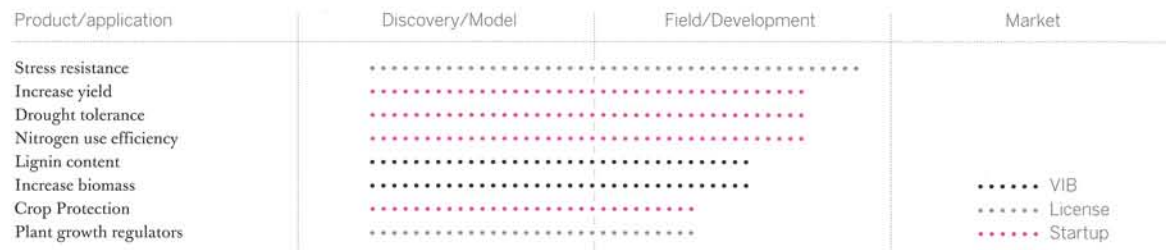
Appropriate infrastructure for biotech companies

VIB is the owner of two bioincubators at the Technology Park in Ghent. In addition, the institute has also invested, together with several academic and financial partners, in three bioincubators in Leuven and two Bio-Accelerators in Ghent.



Bio-Accelerator, Ghent 2011

In total, these facilities provide 48,500 m² of space for young, growing, Belgian and foreign biotech companies. At the end of 2012, they were home to 22 companies that together employed 634 people.



Financial Statements 2012

Balance Sheet (€ thousands)

ASSETS	31.12.2012	31.12.2011
INTANGIBLE FIXED ASSETS	1.399	1.419
TANGIBLE FIXED ASSETS	32.697	27.758
FINANCIAL FIXED ASSETS	9.223	8.839
CONTRACTS IN PROGRESS	10.106	10.992
AMOUNTS RECEIVABLE WITHIN ONE YEAR	13.762	10.663
INVESTMENTS	63.573	78.288
CASH AT BANK AND IN HAND	8.718	1.420
DEFERRED CHARGES	8.431	6.919
TOTAL ASSETS	147.909	146.298

LIABILITIES	31.12.2012	31.12.2011
ALLOCATED FUNDS	56.647	53.769
INVESTMENT GRANTS	27.747	21.952
AMOUNTS PAYABLE AFTER ONE YEAR	8.422	9.044
AMOUNTS PAYABLE WITHIN ONE YEAR	41.857	41.347
ACCRUED CHARGES AND DEFERRED INCOME	13.236	20.186
TOTAL LIABILITIES	147.909	146.298

Profit and Loss Statement (€ thousands)

	2012	2011
OPERATING INCOME	78.657	70.516
INCOME FROM PARTNERSHIPS	19.226	17.747
CONTRACTS IN PROGRESS (+/-)	-886	-687
GRANTS AND SUBSIDIES	57.595	51.723
OTHER INCOME	2.722	1.733
OPERATING EXPENSES	-76.674	-69.218
RAW MATERIALS AND CONSUMABLES	-7.532	-6.695
SERVICES AND OTHER GOODS	-19.143	-18.742
REMUNERATION, SOCIAL SECURITY COSTS AND PENSIONS	-40.092	-35.940
DEPRECIATION	-6.854	-6.689
OTHER OPERATING EXPENDITURES	-3.053	-1.152
FINANCIAL INCOME	1.483	1.215
FINANCIAL CHARGES	-598	-719
EXTRAORDINARY INCOME	10	2.290
EXTRAORDINARY EXPENDITURE	0	-877
PROFIT/LOSS FOR THE FINANCIAL YEAR	2.878	3.207

Good Governance

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 viewed 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.

Structure VIB

VIB is a non-profit research institute, financed by the Flemish Government, with scientists at the UGent, KU Leuven, University of Antwerp and Vrije Universiteit Brussel.

Ghent

- VIB Headquarters
- VIB Department of Medical Protein Research, UGent
- VIB Department for Molecular Biomedical Research, UGent
- VIB Department of Plant Systems Biology, UGent
 - VIB Proteomics Expertise Center, UGent (PEC)
 - VIB BioInformatics Training and Service Facility (BITS)
 - VIB Compound Screening Facility, UGent (CSF)
 - VIB Protein Service Facility, UGent (PSF)
- VIB Bio Imaging Core
- VIB Bio-incubator

Leuven

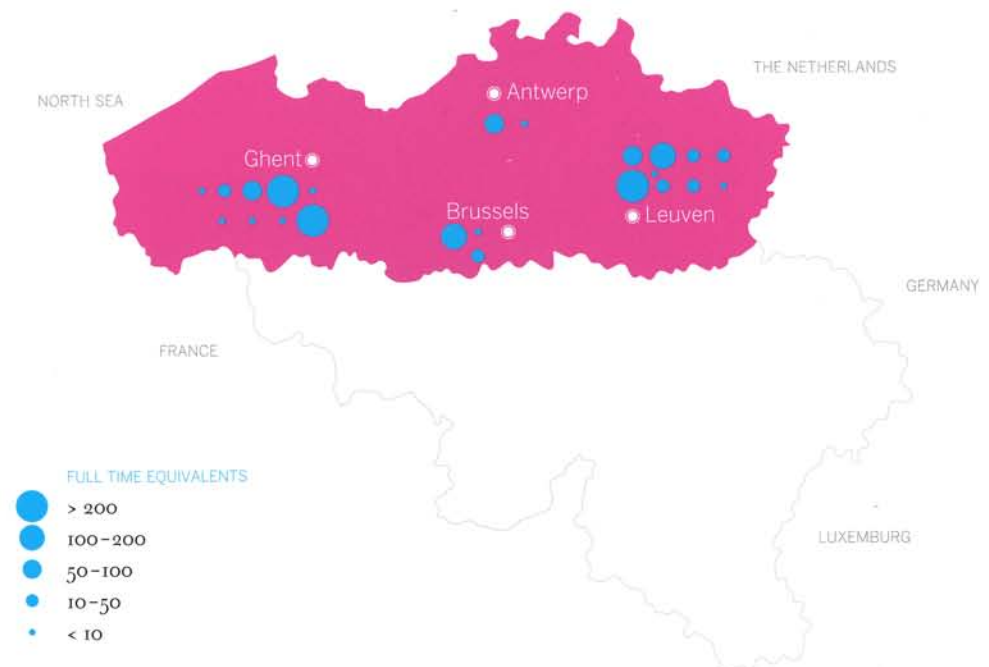
- VIB Department of Molecular Microbiology, KU Leuven
- VIB Center for the Biology of Disease, KU Leuven
- VIB Vesalius Research Center, KU Leuven
- VIB Switch Laboratory, KU Leuven
- VIB Laboratory of Systems Biology, KU Leuven
- Neuro-Electronics Research Flanders, VIB, Imec, KU Leuven
- VIB Autoimmune Genetics Laboratory, KU Leuven
- VIB Nucleomics Core
- VIB Bio Imaging Core

Antwerp

- VIB Department of Molecular Genetics, University of Antwerp
- VIB Genetic Service Facility, University of Antwerp (GSF)

Brussels

- VIB Department of Structural Biology, Vrije Universiteit Brussel
 - VIB Nanobody Service Facility, Vrije Universiteit Brussel (NSF)
- VIB Laboratory Myeloid Cell Immunology, Vrije Universiteit Brussel





VIB is a non-profit research institute in life sciences. About 1,300 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, KU Leuven, University of Antwerp, and Vrije Universiteit Brussel - and a solid funding program, VIB unites the forces of 76 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. More information: www.vib.be



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chairman of the Board

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