

## Investment in human resources

Over the next few decades, training will play a more and more crucial role in the development of biotechnology companies in the Walloon Region. Only continuous investment in human resources can assure the future of a sector as innovative as biotechnology.

Whether it's about biopharmacy or industrial biotechnology, with applications as promising as those which will allow us to decrease our ecological footprint tomorrow, everywhere in these areas of the future and of excellence, we notice a growing demand for, and sometimes also, alas, a striking shortage of, qualified personnel to face up to the resulting technological evolution and organisational changes. Researchers, lab technicians, technicians in production, the range of occupations and profiles is continually increasing and becoming more complex.

Training not only guarantees the employability of people and enables the appropriate management of the skills of workers throughout their career. It also makes it possible to reintegrate job-seekers on a long-term basis. It is therefore a common challenge uniting a number of partners, not only employers and workers but also trade unions and public authorities.

Our Walloon biopharmaceutical sector, with its enterprises, research centres and the perspectives brought by the competitiveness cluster BioWin, is eager for scientific and technological training and this demand is going to continue to increase rapidly with the growth of the present clusters and the arrival of new projects.

At this time of globalisation and increased competition with countries where the labour force is continuing to increase and be better trained, training centres have an essential role to play in assuring the future of our enterprises. And what could compete better than these training centres, armed with ultra-modern equipment

and the expertise of highly qualified scientific personnel, updating the initial training received by our workers?

In a world which moves at great speed, the quality of training, the transfer of knowledge and the adaptability of our workers will be our winning joker.

Biopark Formation/Training for the training of lab technicians, and Ce-fochim for the training of technicians working in production, provide much more than simple added value for the economic efficacy of our sector in the Walloon Region. They meet a real need in anticipating our needs.



**Pascal Lizin,**  
*Director of External and Public Affairs,  
 GSK Biologicals  
 President, Essenscia Wallonia,  
 Walloon Federation of the Chemical  
 and Life Science Industries*

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# Biopark Formation/Training

## First anniversary

*Biopark Formation/Training is scarcely one year old and it has already real achievements to its credit. An interview with its director, Arnaud Termonia, on the brink of launching with Forem its first set of training courses aimed at job-seekers.*



**> We met in March 2009 when you explained to us that your priority was to launch your first training modules. A year later, where are you ?**

**Arnaud Termonia :** We got off to a good start in 2009, with 79 trainees distributed over six modules of cutting-edge training in biotechnology. Those organised at the beginning of this year, dedicated to flow cytometry and molecular biology, have already catered for 88 trainees. Our first trainees came mainly from Hainaut and Brussels but now they come from all over the Walloon and Brussels

Regions, and even from abroad, for example, we had visits from scientists from the Institut Pasteur in Lille. Our public comes from academic laboratories (40%), enterprises (30%), Hautes Ecoles (25%) and job-seekers (5%).

**In addition to cutting edge training courses, you've also set up modules especially for teachers in Hautes Ecoles.**

**Arnaud Termonia :** As well as the actual training, many motivated teachers also find ideas for practical work and teaching aids, and come to the Biopark laboratories with their students to show them the state-of-the-art technologies. However, we see that training is sometimes given too late. It would be ideal to transfer continuous training modules oriented towards new technologies to classic student courses. We're working on this aspect with several Haute Ecole teachers.

**Even though you're new on the market, your training courses are already oversubscribed. How can you explain this success ?**

**Arnaud Termonia :** I think the success is linked to our «bottom-up» approach. We start from the needs of enterprises and set up suitable training using the expertise and equipment found in the Charleroi Brussels South Biopark. Our trainers design training courses from scratch, then write them and give them to the students. Input from the sector is essential for us. We validate our user requirements with academic and industrial players and we're even thinking about creating a label of excellence awarded by a jury of professionals in the sector. As well as being evaluated by all the participants, our training courses are also audited with a view to improving the

## Etienne Nyssen

Teacher, Institut Paul Lambin, Haute Ecole Vinci

**> You followed several training sessions in molecular biology in Biopark Formation/Training. What did you think of them ?**

As a teacher, these training courses are an efficient way of updating your knowledge and learning new things - but the main reward is more from a teaching point of view. It's interesting to see how a subject we teach every day can be approached in different ways. The training is therefore the opportunity to change the way we look at and pass on knowledge. It can certainly have a direct impact on our theoretical and practical courses.

content and the way it's taught. Another thing about our training is that it's short, taking place over half a day or a maximum of two days. Oriented towards the customers, our modules use the Russian doll model : introduction, application, design, specific focus... It's up to the customers to choose the modules which interest them.

**What has your position in the Biopark brought to you ?**

**Arnaud Termonia :** Thanks to our interaction with neighbouring enterprises, we understand better the needs of the sector. It was, in fact, following a conversation with one of these enterprises that the idea of a set of multipurpose biotechnology training courses for job-seekers came to mind. One aim is to remove the complexes a trainee might have

## Michel Dehottay

R&D Technician,  
GSK Biologicals

**> You followed training in flow cytometry given by Biopark Formation/Training. What did you think of it ?**

The training let me review the basic principles of flow cytometry with highly-skilled trainers and consultants, and also exchange very instructive ideas with researchers who have a more academic approach to science. For me the most rewarding moments were the question and answer sessions at the end.

about biotechnology, to give him or her a good common base and to enable him or her to specialise later during work practice in an enterprise. We start this set of training courses with Forem in June. We're also a showcase for the cutting edge R&D technologies in the Biopark. Let's take the example of the ImageStream equipment in the imaging centre CMMI. We organise the training to introduce the technology and the CMMI provides the tools in order to be able to use the technology in the best way. Another advantage of the Biopark is that we have access to both the expertise and the (often expensive) equipment of university laboratories. Some enterprises have also accepted to keep demonstration models of equipment in the Biopark which we can use during our training sessions.

**Looming on the horizon in 2012 is the technology campus...**

**Arnaud Termonia :** It's a great unifying project, bringing together on the Aéroport of Charleroi numerous players in Education and Conti-

nuous Training – to which Biopark Formation/Training is signing up. ULB has already reserved 400m<sup>2</sup> on the campus where we can develop training in a semi-industrial environment and interact even more closely with our natural partners such as the Hautes Ecoles, Forem, enterprises, trade unions, etc.

**Your team is still small..**

**Arnaud Termonia :** Yes, but dynamic and ambitious! Our team is made up of two trainers – Erika Baus and Valérie Hertveldt – who will soon be joined by a third trainer, an assistant – Valérie Claras – and myself. We're going to devote the next few months to consolidating our present training, organising the set of training courses with Forem, opening up to other countries and setting up new projects in line with the Plan Marshall2.Vert of the Walloon Region and the competitiveness cluster BioWin.

[www.biopark.be/formations](http://www.biopark.be/formations)

**Françoise Motte**  
Lecturer, Haute Ecole  
Louvain in Hainaut,  
site ISC in Fleurus

*>You've followed several Biopark Formation/Training courses in molecular biology. What did you think of them ?*

I learned about, or extended my knowledge of, certain theoretical concepts and, above all, had the opportunity to speak to specialists who could provide concrete answers to very practical questions. The strengths for me are the expertise of most of the trainers, the organisation, the quality of reception and the conviviality of the premises. A little downside: In my opinion it would be better to replace some half day modules by one day. The volume of subject matter to be covered is too large for a few hours. Next year I'll certainly use lots of the things I learned during the training in the molecular biology courses I'll give.

**Eva D'Amico**  
Researcher, IRIBHM-  
IBMM, ULB

*>You followed training in flow cytometry given by Biopark Formation/Training. What did you think of it ?*

As I'd never used a flow cytometer before, the training gave me the theory essential for its use. Also, the technical guidance I got meant I was able to work completely independently the first time I used the equipment.



## Forem

# Set of training courses for biotechnologists

**In June Biopark Formation/Training and Forem are launching a set of multipurpose biotechnology training courses for job-seekers - the successful meeting of two specialists, one giving training in biotechnology, the other involved in the sector of employment and occupational integration.**

There is a shortage of biotechnologists and this conclusion brought together Biopark Formation/Training and Forem who decided to provide together a set of training courses for biotechnologists. General multipurpose training, the courses aim not only to train specialists but also to make technologists confident in the use of different classic techniques, capable of doing basis analyses, understanding and applying a protocol correctly, taking into account the safety and quality requirements appropriate to industrial and academic laboratories.

### Practical training

With a common thread of «From DNA to protein» and a carefully chosen context (use of biotechnology in the human health), the set of training courses will be essentially practical, broaching numerous laboratory techniques and the skills associated. After an introduction to the biomedical sector (typical development of a medicinal product, definition of biotechnologies, description of occupations linked to biotechnology...) and some basic reminders of (bio)chemistry, the courses will develop skills in the area of cell biology (culture of different types of

cell, phenotyping and cell sorting, cell imaging, prevention and detection of contamination, cell storage, biosafety and hygiene...). The area of molecular biology (DNA extraction, amplification by PCR, electrophoresis, purification, sequencing, cloning, bioinformatic analysis...) will be followed by proteomics (synthesis of a recombinant protein, extraction and assay of proteins, purification, 1D and 2D electrophoresis, Western blot, characterisation of proteins by mass spectrometry, bioinformatic analysis...). Finally, different techniques for fitting into the world of work (how to write a good CV and application letter, how to behave during a job interview, how to find a place for work experience) will be taught.

### Selection

To keep the training practical and interactive, the number of trainees will be limited to 12 per session, and there will be only one session per year for the pilot project launched in 2010. The places will therefore be very much sought after and the trainees will have to be selected. All trainees must be signed on at Forem as unemployed, have a Bachelor's or Master's degree in science or have significant profes-

sional experience (over 2 years) in the biotechnology, agronomy, biomedical or biopharmaceutical sectors. An information session with a written selection test has been organised at the beginning of May at the Aeropole of Charleroi. The candidates on the short list will then be invited for an interview.

The course will last 4 months (Monday to Friday, 9h to 17h) and will begin on the Aérople of Charleroi in June, finishing in October with one month's work experience in a company. If the trainee is engaged, this period can be prolonged by a Plan Formation Insertion (PFI) of the Walloon Region.

### Contacts

#### To sign up for the information session

Forem - Service Clientèle Charleroi :  
071 27 45 89

#### For more information on the content of the training

Biopark Formation,  
Valérie Hertveldt : 071 37 86 96 or  
valerie.hertveldt@ulb.ac.be



## Georges Vanhauwaert, Director of Forem Formation Charleroi

### > Why does Forem want to collaborate in these biotechnologist training courses ?

Forem proposes a wide range of training in different sectors but up to now we haven't had any specialisation in the area of biotechnology. As this is a buoyant market for future employment, we rapidly finalised this partnership with the Biopark. Thanks to this training, job-seekers will have the opportunity to extend their qualifications and hence meet the needs of industry in the sector, thus contributing to the development of Hainaut in this cutting edge sector.

# New Master

**A new Master in biochemistry and molecular and cell biology will be launched next September. This interuniversity Master, taught in Charleroi only is... bilingual. Overview of this Master's specifics.**



From next September on, the Institute of Molecular Biology and Medicine (IBMM) located in the Biopark Charleroi Brussels South, will welcome its first Master students in biochemistry and molecular and cell biology, with molecular physiopathology as specific orientation.

## Synergy ULB-UMONS

This Master is a perfect example of collaboration between the faculties of sciences and medicine of Université libre de Bruxelles (ULB) and these of Mons' University (UMONS), gathered in Brussels Alliance for Research and Higher Education.

Teachers from two universities, state-of-the-art technology labs and localization at the IBMM, in the heart of the Biopark, the privileged meeting point between companies, researchers and teachers; that was already worth of interest, but it was far from being all! The two universities have conceived

an ambitious program and offer Belgian and foreign students to follow their courses both in English and in French (50% of the courses and problem oriented activities in each language), in order for them to lead an international career afterwards.

The orientation in molecular physiopathology will focus on the molecular study of normal and pathological physiology. The graduates will then have the opportunity to lead careers in fundamental or applied research in a wide variety of sectors (biomedical, veterinary or agribusiness sciences for instance), but they will also be able to work in management, sales or teaching.

## Focused on lab research

The program focuses on experimental approach and original projects development, in order to make students aware of the latest progress in fundamental research in the field of

the sciences of the living matter. The students will also be encouraged to follow lab research training (possibly abroad) or an interuniversity training in molecular physiopathology. Three main themes will be studied : molecular biology of the cell, molecular biology of the pluricellular organisms and molecular microbiology.

On the practical side, the program is two years long. The first year of the Master will consist of theoretical courses and problem oriented activities in laboratory. The second year is essentially devoted to the end of year study assessment and to a training period or to thematic interuniversity weeks. For the convenience of Brussels based students, the ULB organizes a shuttle between Solbosch campus and Gosselies.

## Informations :

### ULB :

+32 (0)2 650 97 02  
ou [dmalcour@ulb.ac.be](mailto:dmalcour@ulb.ac.be)

### UMONS :

+32 (0)65 37 33 12  
ou [ruddy.wattiez@umonts.ac.be](mailto:ruddy.wattiez@umonts.ac.be)

## Trypanosome : Details on an enzyme

The Laboratory of Molecular Parasitology (Prof. E. Pays) - IBMM - recently published, in the Journal of Biological Chemistry, an article on research into the compound in human serum which is capable of killing African trypanosomes, the parasites responsible for sleeping sickness. This trypanocide factor is called apolipoprotein L-I (apoL1). In an article published in Science in 2008, the team showed that apoL1 entered the trypanosome via a surface receptor, the first role of which is to import haemoglobin into the parasite. The question discussed in the article in the Journal of Biological Chemistry is why haemoglobin is actively imported by the trypanosome. The results show that, in order to work, the enzyme lanosterol demethylase in the parasite requires the haem part of haemoglobin. The first detailed structure of this enzyme has also been determined. The activity of the enzyme intervenes in the lipid composition of the parasite cell membrane and it is therefore important in its biology. Since the detailed structure of this enzyme is now known, we can envisage specific inhibitors which should allow us to fight against infection by the trypanosome.



# Birthe Fahrenkrog

## From Hamburg to Charleroi

*A new research team was set up in the Institute of Molecular Biology and Medicine (IBMM) last fall: the laboratory of Cell Nucleus Biology, led by Birthe Fahrenkrog, previously based at the University of Basel in Switzerland. We met her for an interview.*



The research team of Biopark Charleroi Brussels South is growing day by day. More than 500 researchers work there currently in several scientific fields. One of the newcomers is Birthe Fahrenkrog; she arrived in October 2009 in Belgium. She took a while to organize her lab her own way, recruit her collaborators and her team was ready to start experimenting in January. Actually, when she applied for a position at the IBMM, she didn't really know what to expect. Upon arrival, she realized the institute was located in the heart of the Biopark, a meeting point between companies, researchers and students. She's always been interested in cell nucleus biology and the position offered at the IBMM was focusing on the field she wanted to study more thoroughly, she seized this great opportunity at once.

### **In-depth cell biology**

Birthe Fahrenkrog is German; she grew up in Northern Germany, in a small town called Preetz, close to Kiel in Schleswig-Holstein. She graduated in Chemistry at the University of Hamburg, Germany. She finished a PhD thesis in cell biology at the Biozentrum, the University of Basel, in

Switzerland in 1999. After postdoctoral stays in Heidelberg, Germany, and the Biozentrum Basel, she became independent group leader at the Biozentrum in 2003. Since then, her research focuses on cell nucleus and more specifically on nuclear pore complexes. She still has contacts with her students in Basel and goes back to meet them and follow up on their progress once a month.

### **Nucleoporins and cancer**

From the beginning of her career as a researcher, Birthe focused on the structure and composition of nuclear pore complexes (NPCs). NPCs mediate all traffic between the nucleus and the cytoplasm of interphase eukaryotic cells. As time went by, the researcher discovered that the constituents of the NPCs, the nucleoporins, often have additional, non-transport functions, especially in mitosis. That was these non-conventional functions of the nucleoporins that interested her most. In that perspective, she is working on three different proteins. One of them is involved in cell cycle regulation and the two others seem to be implicated in different forms of cancers; the team is trying to figure out what is the exact function of these proteins in the development of the disease.

### **Apoptosis**

Another research topic she studies here is apoptosis - a programmed cell death - in yeast; it seems that many of the key factors observed are typically organized in mitochondria, but in yeast these proteins are localized in the nucleus. Although the key parts are now observed and localized, of course there is a big difference between mammals and yeast... In

that perspective, two particular proteins are now analyzed to find out what their function is indeed.

Birthe Fahrenkrog's lab is currently organized with one PHD student and one technician, but the team will grow in the next few months, as she is expecting one more PHD students and two Postdocs to join the team in March and April. "So everyone starts approximately at the same time and from the same point, except me of course!" she says smiling. "I think there is a good working atmosphere and it feels great to receive the means you need to do your research".

On the teaching side of her activity, Birthe Fahrenkrog will also be part of the teachers involved in the new Master in biochemistry and molecular and cell biology with molecular physiopathology as specific orientation. (see our article on page 5).

# Laurent Alexandre New President of DNAVision



**Medical doctor and businessman, founder of Doctissimo on the net, Laurent Alexandre has become the president and major shareholder of DNA Vision. An interview with a passionate person recognised as an opinion leader in the health sector.**

**> Laurent Alexandre, you are the new president of DNA Vision. You know the occupations of medical doctor and businessman very well.**

**Laurent Alexandre :** I'm a surgeon and neuropharmacologist. I also studied law and economics and have diplomas from HEC Paris, IEP Paris and ENA. I've always created enterprises. The best known is doctissimo, which became the biggest health web site in Europe with around 2 million visitors a day. It's the 4th biggest French site all sectors combined. Three years ago, I sold doctissimo to the Lagardère group and I also stopped working as a surgeon so as to be able to devote my time exclusively to genetics. I informed and trained myself, wanting to understand how the market was going to be segmented and how to build up industrial services linked to genetics.

**> That's how you came across DNA Vision ?**

**Laurent Alexandre :** Yes, when you're interested in genomics in Belgium, it's impossible not to know DNA Vision. I decided to work with this enterprise and became its main shareholder with 60% of its shares. I also became the president and chairman of the board of directors. I get on very well with its CEO, Jean-Pol Detiffe, who is a real entrepreneur and a credit to the region.

**> A president who is in the office every day.**

**Laurent Alexandre:** It's essential for a company to have active shareholders directly involved in the business. Shareholders have to be in the office

every day and not only be present at the board of directors meeting once every six months. My role is to help DNA Vision set up more quickly a strategy and processes to fight against fierce scientific and technological competition. Today China has become the world number 1 in nanotechnology. Where will the biotechnology sector be in 2015 or in 2020 ? China and India together produce in one year as many PhDs as France and Germany have done since 1946. The western world is no longer the leader of high technology. If the Walloon start-ups want to survive, they have to understand that their competitor today isn't Gent but Beijing.

**> Where would you like to see DNA Vision go ?**

**Laurent Alexandre :** I want to strengthen the skills of DNA Vision in the key areas of genomics : oncogenetics, pharmacogenetics, steering leadership in the differentiation of stem cells, etc. We need to acquire new high-performance equipment, expand on the Charleroi site, be capable of meeting the needs of the customer in a few hours. This will entail new investments. I've given myself 10 years to build up something with DNA Vision - this is the minimum time required to make a business solid.

**> French, recently moved to Brussels, you've discovered Charleroi: What are your first impressions ?**

**Laurent Alexandre :** In my opinion, it's by high tech that the Charleroi basin can be revitalised but we must work quickly and hard. There's no rea-

son for us to be less professional than they are in Flanders, for example, and if I can contribute to this revitalisation, I'll be very happy because it's our collective responsibility. The biotechnology sector has a triple role. It creates employment in the Charleroi basin, it contributes to the improvement of health and it enables investors to make money and create a second generation of start-ups in the region. In the US, for example, we've seen lots of genomic enterprises created by people who have already made a fortune in IT. The region needs a sustainable network of start-ups listed on the stock exchange, where there is a merger between the shareholder and science. We must refine the financial strategy, increase the number of coaches from business and attract shareholders to invest in the business. The image of the region has to change. There have been improvements but today we have to go more quickly and be better than the others. We have to draw on some success stories to encourage others. An important asset is the Biopark Charleroi Brussels South campus in the Aeropole which has become a real place of life with nice restaurants to meet in for lunch.

[www.dnavision.be](http://www.dnavision.be)

**To support the development of its activities, DNA Vision is looking for the following profiles :**

- Molecular biologists (PhD, Master, Bachelor)
- Bioinformaticians
- Business developers

For details concerning the open positions at DNA Vision :  
<http://www.dnavision.be/press/careers.php>

## DNAVision : new sequencing platform

DNAVision announces the purchase of Illumina's new HiSeq 2000™ sequencing platform, which has officially been launched.

Illumina's latest sequencing system will be installed in Gosselies' facility and implemented in the highest quality certifications environment (GMP, GLP, CLIA, CAP, ISO17025).

This latest acquisition will further strengthen DNAVision's current portfolio of next generation sequencing services on GA IIx and Roche 454.

Initially, DNAVision will employ the HiSeq 2000™ for human genome sequencing projects for its pharmaceutical and medical research customers.

DNAVision wants to be the first company to provide human genome sequencing data deemed suitable for medical purposes and move with this breakthrough technology to personalized medicine. Illumina's HiSeq 2000™ with the estimated output of 200 GB per run allows to virtually sequence 2 human genomes at 30x coverage in a week.

## Biophotonics day

In collaboration with the Biopark and the Photonics Cluster, the asbl PromOptica, is organising a study day on Biophotonics on 30 April 2010 at Point Centre. This day will be given over to the promotion of research and development activities in cutting edge optics and biology. The challenge of these trans-disciplinary approaches will be presented by specialists of international renown. The conference is open to members of the public concerned by research, training and industrial development within this thriving interdisciplinary context. A debate on photonics-biology interdisciplinarity will close the day (inscription and information [www.promoptica.be](http://www.promoptica.be))

## IBMM – Cameroon visit

Tuesday 23 February, the Rector of the University of Buea, Professor Vincent P.K. Titanji visited the Biopark. This visit, honoured by the presence of the Ambassador of Cameroon in Belgium, Mr Daniel Evina Abe'e, was set up by Professor Jacob Souopgui, a Cameroon researcher at IBMM.

The objective of the visit was to find possible collaborations between the Biopark and the University of Buea. Two areas were identified in the context of teaching and training activities, firstly, the possibility of sending Biopark researchers to play a role in new teaching projects set up in the University of Buea and, secondly, setting up training in technology transfer and public-private partnerships.

## 2<sup>nd</sup> Press Discovery Tour

On 1 and 2 April, BioWin is organising the «2<sup>nd</sup> Press Discovery Tour». On this occasion European and international journalists, targeting both readers interested in biotechnology and the general public, will be invited. During these two days of meetings, the journalists will have the opportunity to visit different flagship development sites in the biotechnology sector, such as the Biopark Charleroi Brussels South, in the Walloon Region and to discover the enterprises, innovation projects and technology platforms representative of the Biotech projects in the Region.

The second «Discovery Tour» will conclude with a press conference during which BioWin will present a road map of Walloon biotech and its vision of the cluster for the years to come. The conference will gain prestige by the participation of the Minister responsible for the policy of competitiveness clusters, Mr Jean-Claude Marcourt.

## DNAVision : New President

DNAVision is pleased to announce the appointment of Dr Laurent Alexandre as President, Chairman of the Board of DNAVision SA. He becomes an important shareholder with the goal of increasing the capital of the company and its affiliate and creating a leading personalized medicine company in Europe. See interview p. 7

## EUROSCREEN - Partnership with Cephalo

Euroscreen achieves milestone in CNS Therapeutic Partnership with Cephalo.

In January, Euroscreen announced that it has completed its five-year target discovery and screening collaboration with Cephalo, Inc. In the last two year phase of the collaboration, Euroscreen delivered optimized lead molecules on a non-disclosed specific GPCR target, triggering a milestone payment by Cephalo.