

A new molecular imaging centre

On 20 April, we officially presented the CMMI, the Centre for Microscopy and Molecular Imaging, taking an important step in the realisation of a slightly mad dream, to create an efficient multimodal preclinical imaging platform and to provide this cutting edge tool to players in biomedical research.

Such a project seemed a bit of a fantasy, both in its size and complexity. Its realisation, as so often in such cases, resulted from discussions about this and that and also an ulterior opportunity.

The small talk was between Professor Michel Goldman and myself during a trip to China in 2005. Among the subjects discussed, an inter-university multimodal imaging platform...

The opportunity came when projects were called for in the context of the «Plan de convergence» of the European Community and the Walloon Region.

A project was prepared in great detail within the context of what was called the «Hainaut Biomed» programme of the Académie universitaire Wallonie-Bruxelles.

The project was accepted and we moved from fantasy to realisation...

Unique in Belgium, rare in Europe, CMMI will provide industries and academic laboratories with a very wide range of modern instruments and methods, from electron microscopy to in vivo small animal imaging.

Why did we choose to set up CMMI in the Biopark Charleroi Brussels South ? Several things were decisive.

First of all, research skills : CMMI went in search of expertise and found it in Brussels, Mons and ... Charleroi where the Institut de Biologie et de

Médecine Moléculaires and the Institut d'Immunologie Médicale were developing. Concentrating everything in the Biopark was the occasion to share state-of-the-art equipment and provide one-stop shopping for preclinical imaging to customers.

Close interactions were possible on the site between research, development, enterprises, training... It's thanks to this proximity that, for example, an Imagestream training module was set up, associating CMMI with Biopark Formation/Training.

Lastly, the space available : the ground floor of the IMI building had a «welcome» area which could be converted according to the needs of the CMMI.

With the support of IGRETEC, the plans for the CMMI were then drawn up, planning permission applied for and granted, tenders were requested from construction enterprises and choices made.

Conscious of the need to launch a first collaborative research project of prestige as quickly as possible, the CMMI scientific team registered an ambitious interuniversity research project ARC (Action de Recherche Concertée) on the subject of apoptosis programmed cell death.

This flagship project will enable us to demonstrate the power of our platform and its synergies.

In parallel, several partnerships have been set up with industry.

We hope that, like IBMM, also created with the help of the European Union and the Walloon Region (Objective 1), the CMMI will participate actively in regional redeployment.

In 2011, the centre will move to new premises in the Biopark. It will provide one-stop shopping for preclinical ima-

ging, with analytical capacities from the molecular level to the animal. In the meantime, the CMMI also will «stay open during transformation»...



Robert Muller
Scientific Director of the CMMI

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CMMI

Imaging « all-in-one »

The new imaging center offers quality analysis and specific training sessions to industrials and to chemical laboratories. Description of a new efficient entity; where the whole analysis is performed within the same premises.

Biomedical sciences are a research field where physicians, pharmacologists, biologists, chemists, physicists, engineers, computer scientists and mathematicians interact, question, stimulate and challenge each other and work at fighting disease, handicap, pain, ... Molecular imaging – a new multidisciplinary tool of biomedical research – is the specialty of the CMMI (Center for Microscopy and Molecular Imaging), the new jewel of the Biopark Charleroi Brussels South.

The official presentation of the new imaging center took place on April 20th 2010, in presence of the Minister Jean-Marc Nollet. During the ceremony, the audience was also first to discover the plans of the new building and the brand new website of the imaging center (www.cmmi.be). From 2011, the CMMI should be fully operational in its new premises, next to the IMI, at the Aéroport.

An exemplary collaboration

This center, created by the Académie universitaire Wallonie-Bruxelles, fulfills the common wish of the Université libre de Bruxelles (ULB) and the Université de Mons (UMONS) of sharing and completing their equipments in imaging in order to increase their research potential and to offer an attractive platform to enterprises and to research centers alike. This 20th of April marked the official launch of the new center, but several partnerships are already signed and others are in the pipeline. The potential partners are numerous : the companies active in the biotechnologies sector - whether multinational



CMMI

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The opinion of Cardio3 BioSciences

Cardio3 BioSciences is a leading Belgian biotechnology company specialising in stem cell-based therapies for the treatment of cardiovascular disease. The Company's lead product, C-Cure®, is a highly innovative approach to the treatment of heart failure, one of the world's most pressing unmet medical needs. Based on a strategy developed by Cardio3 BioSciences' founders and leveraging technology licensed from Mayo Clinic, C-Cure allows the differentiation of a patient's own cells into cardiopoietic cells which grow into new heart cells and repair heart muscle.

The Cardio3 BioSciences team has extensive experience in developing and commercialising new pharmaceutical products and medical technologies and the Company's strategy is to drive the clinical development of C-Cure and to market the product itself in major territories.

Cardio3 BioSciences was founded in July 2007 and is based in Mont-Saint-Guibert in the Walloon Region of Belgium.

What is your project with the CMMI ?

We are developing a quality control identity test for the liberation of a cell therapy product.

Why did you choose the CMMI ?

We chose the CMMI because it is the only center to have an Imagestream instrument at disposal, along with a dedicated skilled staff.

What are the center's specificities that are the most relevant for your project ?

We needed a cutting edge instrument, an experienced, dedicated and available staff. That is exactly what we found at the CMMI.

CMMI's facts and figures

Total budget: 15 million euro

New building surface: 730 m²

Personnel: 12 people hired until today

Disciplines: 10 specialised themes

Inauguration: planned for 2011



(GSK, UCB) or "spin-off" companies - academic research centers, hospitals and authorised collective research centers. On top of the research and services aspects, the center contributes also to the development of state-of-the-art trainings in imaging with Biopark Formation/Training. (See frame below)

Ten themes, only one place

The CMMI is currently one of the only centers in Europe where the whole analysis (from molecule to animal) is made at the same place, what optimizes the procedures and reduces the costs for the potential clients. There will hence be unity of place, time and action for all the analysis conducted. For a better description of the optimization reached at the CMMI, scientists

use the "3Rs-concept": « Reduce » (the number of experimental animals), « Refine » (optimize the methodology applied to animals), and « Replace » (use models that don't imply animal use).

The Center for Microscopy and Molecular Imaging combines several technologies like electronic, holographic and real-time microscopy, a robotized platform, Imagestream, in vivo imaging by magnetic resonance imaging (MRI), in vivo imaging by Pet Scan, optic, auto-radiography and immunohistochemistry. The geographical grouping of the 10 specialised development themes of the CMMI and their integration to imaging technologies currently available at the Biopark and in the Walloon Region present a unique range of competencies and

tools, and offer a tremendous analysis capacity of samples by different types of microscopy. The technology will be kept at the highest level thanks to its sharing; each theme being supervised by an academic person in charge.

Thanks to this center, the Biopark Charleroi Brussels South extends once more its expertise and its services offer and consolidates again its leader position in the sector.

More information: www.cmmi.be

Ovizio Imaging Systems, narrated by Philip Mathuis, CEO.

Could you briefly describe Ovizio ?

Ovizio is a spin-off company of the Université libre de Bruxelles (ULB). It is specialized in imaging systems based on Digital Holographic Microscopy (DHM) and is conceived around a patent portfolio elaborated at the Microgravity Research Center of the University. The company develops and commercializes optical instruments and associated services mainly intended for the life science sector.

Ovizio's innovative 3D technology produces high quality holographic images with a maximum horizontal resolution of 230nm and a maximum vertical resolution of 2nm and allows the study of dynamic phenomenon in real time. These sophisticated equipments can be used in traditional microscopy mode as well as fluorescence mode. Typical application fields are : bioreactors, biotechnology, thin films, laboratories and blood analysis.

What is your project with the CMMI ?

We would like to develop a services offer around our microscopy technology with the CMMI. A potential client could test and validate our technology at the CMMI facilities. We could then develop specific prototypes for clients in partnership with them.

Why did you choose the CMMI ?

We have chosen the CMMI thanks to the link we have with the ULB, for their skills in the different microscopy technologies and for their deep knowledge of the cell and biological culture fields.

What are the center's specificities that are the most relevant for your project ?

The disposal of several validation tools, the knowledge of measurement processes and the possibility to validate the outcome on different equipments. We also hope to benefit from the center's skills, in the field of trainings, by creating specific courses for our clients on our technology and its applications.

Training in Imagestream

Among the cutting-edge activities linked to the CMMI, let us mention the training in "Imagestream" organised by Biopark Formation/Training, in collaboration with Frédéric Lhommé, the person in charge of the Imagestream axis of the imaging center. This training is approved by the BLOWIN pole. This half-day training highlights the principle and specific applications of this technique and is aimed at industrials and higher education teachers, to academics and job seekers alike.

Seeing the success of its first edition, a second session will be organized June 25th. A few seats are still available. Some other specialised continuous training sessions are currently being prepared. We will keep you posted in our next editions. For more information, please visit <http://www.biopark.be/formations/>

Apoptose under high surveillance

The CMMI is launching an integrated research project on apoptosis, or how to set up one-stop shopping and, at the same time, move science and clinical and industrial applications forward ...

Practice makes perfect. The well-known expression has already proved to be true. The Centre for Microscopy and Molecular Imaging has adopted a slightly reworked version : It's by setting up a research project together that you facilitate the integration of teams.

...and they went for it. Over several weeks, researchers from different CMMI teams slogged away at the same scientific subject, apoptosis. An integrated research project came out of it, associating different CMMI technologies and expertise, and aiming to answer both basic scientific questions and current clinical and industrial preoccupations.

Why this theme of apoptosis ? It was the theme of a scientific day at CMMI and it soon became apparent that it provided a scientific and technological base of interest for different research teams. The research project uniting all these scientific skills, all that technological expertise, still had to be defined.

Apoptosis

Apoptosis is the main form of cell suicide. It's a finely regulated physiological process enabling, for example, the development of fingers and toes in the foetus or the death of white blood cells after elimination of a pathogen. Deregulation of this mechanism has serious pathological consequences, the best known of these being cancer and neurodegenerative diseases.

Cell death doesn't bring about the inflammatory process. Apoptosis generates surface molecules signalling that they have to be eliminated.

During the last five years, scientists have identified other types of cell death : necroptosis, a different cell death leading to inflammatory consequences; death brought on by DNA damage; and autophagy where cells use up all their nutrients and die.

Molecules of choice

Some of these different types of cell death have been little studied up to now and are still not well understood. The CMMI teams intend to lift the

veil and, to do this, they're starting from molecules which in vivo enable detection of the cells which start up the process of programmed death. Some of these molecules are currently being tested by radiopharmaceutical companies with a view to their application in medicine. These studies are likely to provide essential information, especially for the follow-up of chemotherapy or for research into neuronal destruction.

Regarding clinical applications, these molecules continue to titillate the curiosity of scientists. The CMMI teams are going to follow the molecules in small animals, using different imaging techniques such as imaging by PET scan, optical imaging and MRI, and see if they are capable of distinguishing different types of cell death. They're also going to characterise the molecules in greater detail.

In parallel to this in vivo approach, the project also has an in vitro part. By fluorescence microscopy the researchers are going to follow cells in which they induce cell death and visualise what happens.

New markers

At a basic level, this research will help to answer an essential question : How are defined chemical structures capable of marking cells for cell death ? «One of the major characteristics of cell death by apoptosis is that when a cell goes into apoptosis, particular lipids appear at its surface, somehow giving off the signal «Eat me, I'm a goner». Our objective is to identify the molecules involved in controlling this signalling mechanism», stresses Véronique Kruys, IBMM researcher and head of fluorescence microscopy at CMMI. The responses will certainly help to identify new membrane markers.

And she insists: «In addition to the interest for both basic research and clinical and industrial applications, this research is also an integrated scientific project, unifying our teams who will illustrate in practical terms that one-stop shopping at CMMI is not a slogan but a reality».



Pierre Smeesters

From clinic to laboratory

At the end of March, Pierre Smeesters and his colleagues described, clinically and microbiologically, a case of nosocomial transmission of necrotizing fasciitis, an infection which can be fatal. Published in The Lancet, this translational research is a typical illustration of the philosophy of the young researcher.



A student in special maths, it would have been natural for Pierre Smeesters to go to the «polytechnic». Besides, he was preparing for the entrance exam in applied sciences. In the end, however, he changed his mind and signed up for a «candidature» in medicine at UCL. «I wanted a job relating to people. From the first year at university, I liked basic science, microbiology, but I also quickly realised I wanted to be a paediatrician as I was attracted by the contact with the patient» he says.

At the end of his medical studies, he left for 4 months internship in Peru. «I worked in a small health centre in the Andes, 4 hours by truck from the nearest hospital. There I met huge numbers of fatalities from infection. It was bush medicine, practised in extreme conditions», he explains, «I learned a lot from my contacts with the local personnel, maybe less well qualified than me but so much more efficient! It was an enriching, fascinating experience».

Paediatrician

Back in Belgium, Pierre Smeesters went to ULB to become a paediatrician. After different internships, such as at the Children's Hospital, St Pierre in Brussels and the CHU in Charleroi, the young doctor decided to go off on his travels again. He did his fourth year of paediatrics at the University of

Brasília, specialising in infectious pathologies and tropical medicine. «In Brazil I discovered translational medicine par excellence. In the morning you see patients, in the afternoon you take the samples to the laboratory for analysis... There you spend an hour with the patient, not five minutes. I saw quality public medicine with extremely limited means», he remembers.

He then started a clinical and epidemiological research project on streptococcus A infections. These are benign here, causing, for example, throat infections. However, they have been increasing constantly over the last fifteen years, indicating a dangerous evolution especially towards invasive infections such as necrotizing fasciitis. Streptococcus A is a deadly micro-organism in developing countries where it kills over 500 000 people every year. Pierre Smeesters collected strains of streptococcus A in both Brasília and Belgium and compared their pathogenic properties. The goal was to understand the microbiological differences leading to different clinical situations.

Researcher

In 2005, he came back to Belgium with his samples and joined the IBMM Laboratoire de Génétique et Physiologie Bactérienne directed by Laurence Van Melderen. He intended to continue his research for a year and then go back to the clinic but he got a taste for basic research and the bench ended up replacing the consulting room... In 2009, he spent six months in Australia, in the laboratory of Kadaba Sriprakash, a specialist in streptococcus A.

Immunology

«I still wanted to keep in close touch with my clinician colleagues. I worked with several hospitals, tried to take part in medical meetings... For me, it's essential to make the link between basic research and clinical application and, reciprocally, start from a particular

case in the hospital as a basis for research in the laboratory» he explains. He is now in charge of FNRS research at ULB. It's, in fact, this translational approach to research which led to a recent publication in The Lancet about a case of nosocomial transmission of necrotizing fasciitis.

Towards immunology

«I was happy in an emergency room, I went into research and I'm beginning to feel at home there too. It's very pleasant to ask questions, nitpick, try like a child to find answers to new questions every time. I like to be the bridge between two worlds which have different languages, approaches, interests», he confides.

He freely admits «to being attracted by worlds which don't know each other», and would now like to steep himself in immunology. «My work on infectious diseases has led me to study the host-pathogen relationship. I have the feeling that, by knowing immunology better, I can be an even more creative researcher», he explains. At 34, Pierre Smeesters shows an insatiable curiosity and enthusiasm for the world around him. In a few days, this nature lover will be walking in the Mercantour nature reserve, with his wife, two sons and a... donkey.

In the Lancet

Fortunately rare but potentially fatal infection of the skin and sub-cutaneous tissues, necrotizing fasciitis is in most cases, caused by the bacterium *Streptococcus pyogenes*, sometimes nicknamed the «flesh-eating bacterium».

Pierre Smeesters and his colleagues have described for the first time, clinically and microbiologically, a case of nosocomial transmission of this infection, that of a nurse who developed a secondary necrosis on her finger after an operation on a baby suffering from this infection. The research was published in The Lancet of 20 March.

Marie Bouillez



About Biopark Incubator

A graduate of the ULB Solvay Brussels School of Economics and Management, Marie Bouillez took over the management of the Biopark Incubator on 1 March. We met her to peak about how an idea is converted to a real biotech business.

> Marie Bouillez, you took over the management of the Biopark Incubator on 1 March. Why was an incubator set up in the Biopark ?

Marie Bouillez : IBMM, IMI, CMMI and ImmuneHealth form a real breeding ground for innovative projects on the Biopark. The university Technology Transfer Office has a team of five scientific advisors and an economist, all specialised in life sciences, managing contacts with enterprises, intellectual property, applications for patents... There is also the Theodorus investment fund set up by the university and Sambrinvest, used to support more mature projects. These different components have led to a lot of economic activities in Gosse- lies, the creation and development of six spin-offs. The university wanted to speed up economic development on the Biopark, by adding a link to its value chain, an incubator. Thanks to support from the Walloon Region, we've been able to do this.

> What are the missions of the Biopark Incubator ?

Marie Bouillez : We have three : to help the creation and backing of spin-offs and start-ups, to provide start-up facilities and to participate in the economic development of the Biopark. Regarding the backing of young enterprises, we help researchers evaluate the potential of their technology and define the strategic orientation of their future enterprise. We help them draw up their business plans and facilitate the setting up of their management teams and boards of directors, each with complemen-

tary skills. We advise them on fund raising... We provide all or some of these services depending on the maturity of the project.

> Are you only aiming at ULB teams based in Charleroi ?

Marie Bouillez : No, we're not limited as regards location and, even though we're especially concerned with ULB projects, we're open to anyone, such as, for example, a foreign company wanting to set up a subsidiary in the Biopark. We have one theme : we work exclusively with enterprises which are biotech, in the broadest sense of the term.

> Biopark Incubator has also got a reception building.

Marie Bouillez : That's right, we have a reception building for, in priority, incubator projects. Its surface area of around 4000 m² is distributed over three semi-equipped floors. Half the building will be immediately converted to offices and laboratories while the rest can be adapted according to the needs, especially BL2 and BL3, of the enterprises which set up there,. The inter-communal IGR-TEC started its construction near the two ULB research institutes, IMI and IBMM, and the first building where Delphi Genetics and Henogen are was inaugurated in 2007. IGRTEC and the Biopark Incubator will work together to assure harmonised management of the two buildings. The first building has just been renamed Biopark Incubator 1. The construction of Biopark Incubator 2 started in the spring and should be completed by the middle of 2011.

> You manage Biopark Incubator alone but you're far from isolated.

Marie Bouillez : That's correct. I work with different teams from the incubation centre EEBIC where I was a consultant for the past three years. Based on the ULB Erasme campus in Brussels since 1992, EEBIC has efficient tools and a valuable network : two investment funds, a network of Business Angels, a financial advisor specialised in SMEs, legal skills, business, biotech, etc. We adapt our teams to the projects. I also rely on regional players such as IGR-TEC and its economic development teams, the investor Sambrinvest, the enterprise centre Heraclès and other biotech incubators, especially Wallonia Biotech Coaching. Thanks to the Biopark Incubator, we plan to implement an incubation strategy integrated into the Charleroi-Bruxelles axis and, more generally, the whole Walloon Region.

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Herman Van Rompuy at the Biopark

On 27 May, Herman Van Rompuy, President of the Council of Europe, along with ministers from the Walloon government and the Communauté française visited the Institut de Biologie et de Médecine Moléculaires, IBMM.

The visit was the follow-up of a meeting in Namur during which the ministers presented to the President of the Council of Europe their priorities for the Belgian presidency of the European Union and mentioned, as shown by the results, the impact of the European structural funds on the economic fabric of Wallonia.

After a word of welcome from Jean-Marc Nollet, Minister of Research, Oberdan Leo, Assistant to the President for the development of ULB on the Aéroport de Charleroi, presented IBMM and the Biopark Charleroi Brussels South. Herman Van Rompuy then visited a scanning electron microscopy laboratory, started in IBMM and making up one of the areas of expertise of the new imaging centre, CMMI.

IMI

The foetus fights CMV

Cytomegalovirus (CMV) is the most frequent cause of infection in the foetus. Around 1 newborn in 100 is infected. Even though this infection doesn't cause any detectable symptoms in an immunocompetent adult, around 20% of newborns infected with this virus show serious symptoms such as cerebral malformations, deafness and mental retardation.

Researchers at the Institut d'Immunologie Médicale (IMI), in collaboration with clinicians from the hospitals Erasme and Saint-Pierre, have noted that human foetus T $\gamma\delta$ lymphocytes can show a strong response to CMV infection during development in utero. This could provide new hope for vaccination against CMV.

Biopark Training

The Biopark organised five training sessions on flow cytometry in June. One of the subjects dealt with on 25 June will be multispectral imaging by flow cytometry or «Imagestream». Training is free to job seekers and students. Other cycles are planned for autumn 2010.

For more info go to: www.biopark.be/formations

DNA : A new scanner for DNAVISION

DNAVision has ordered a HiScanSQ apparatus, the latest product of the company Illumina. It's the first machine in Europe to do both DNA sequencing and microarray testing and will soon be installed on the Gosselies site. At first, DNAVision will use the HiScanSQ for GWAS (Genome-Wide Association Study) projects for customers working in pharmaceutical and medical research.

www.dnavision.be

10 000 trees examined every year

To identify and study the state of health of trees, the limited company Aliwen has developed cutting edge methods for the management of urban, public and private tree heritage. One of the technological tools used is ultrasound tomography. On average Aliwen manages 10 000 trees every year, including those of the Brussels-Capital Region and the city of Bordeaux.

In parallel, the enterprise has developed tree management computer software accessible by Internet. Aliwen Tree Manager (ATM), already in version 2, stocks thousands of tree identity cards in parallel with dynamic cartography.

www.aliwen.com

New Master's degree in Biochemistry and Molecular and Cell Biology

In September 2010, ULB and UMONS launch in Charleroi a Master's degree in biochemistry and molecular and cell biology, with specialisation in molecular physiopathology.

Bilingual (taught 50% in French, 50% in English), this new Master's will depend largely on the activities of the Biopark Charleroi Brussels South laboratories. It opens many career perspectives in basic and applied research, biology, biomedical, pharmaceutical, veterinary, agrifood sciences... Besides a career in a university or private research laboratory, the Master's also opens doors to careers in management, sales of laboratory or biotechnology products, and biology and chemistry teaching. For more information see :

<http://www.biopark.be/bbmc.html>

Delphi Genetics modifies its executive board

Following encouraging scientific and commercial results from its Staby™ technology in 2009, Delphi Genetics is reinforcing its commercial activity and modifying its executive board. Dr. Philippe Gabant is now Director of Business Development and Dr. Cédric Szpirer CEO. Philippe Gabant and Cédric Szpirer are two of the co-founders of the company, along with Michel Milinkovitch and the Université libre de Bruxelles.

In 2009, Delphi Genetics announced it had signed a licensing agreement for its StabyExpress™ technology with Sanofi-Pasteur for the production of vaccines for human use. Other non-exclusive agreements are currently being set up. Delphi Genetics recently obtained new scientific results which look very promising for the future.

For more information : www.delphigenetics.com

At BIO Chicago

ULB, through its Interface, was present in early May at the BIO Convention in Chicago. The occasion for the University to broaden its contacts with companies active in these areas. Several companies from the Biopark were also in Chicago: Delphi Genetics, DNAVision Novasep-Henogen ... BIO is the world's largest event for the biotechnology industry : this year more than 15,000 participants from 65 countries, over 2,000 companies, more than 1,700 exhibitors ...

WELBIO call for projects

The objective of WELBIO, the Walloon Institute for Life Lead Sciences, is to encourage high quality non-oriented research and development in areas which could lead to applications in all fields of medical, pharmaceutical and veterinary biotechnology.

WELBIO launched its first call for projects on 23 April. The projects have to be innovative life sciences projects on medical, pharmaceutical or veterinary biotechnology, based on scientifically established preliminary data and likely to generate useful applications.

For more information, go to : www.welbio.org

IMI : New Chief Administrative Officer

In February 2010 Jean-Michel Oost replaced Dominique Demonté (now Director of the Biopark Charleroi Brussels South) as the Assistant Director in charge of the daily general administration of IMI (Institut d'Immunologie Médicale). Jean-Michel Oost is a UCL graduate in administration and management. He gained wide experience in financial and administrative management and projects during his time as European project manager at the Institut De Duve and financial auditor for Deloitte.

Bovine Leukaemia Virus (BLV)

The bovine leukaemia virus, BLV, closely related to the human retrovirus HTLV-1 which is responsible for the development of leukaemia in adults, remains latent in most infected cells. This latency results from transcription repression and allows the virus to evade the immune system of the host, at the same time facilitating tumour development.

Researchers from the IBMM Laboratoire de Virologie Moléculaire, led by Carine Van Lint, have recently shown that DNA methylation, a repressive epigenetic marker, was present in the virus promoter region of cells latently infected by BLV. They also showed that the BLV virus was capable of reducing the expression level of DNA methyltransferases responsible for methylation in infected cells, via the intermediary viral protein Tax.

Published in the *Journal of Biological Chemistry* of 18 June, these results highlight for the first time the importance of DNA methylation in the maintenance of latency in the retrovirus BLV.

Have a nice holiday !