

Press release

## Metastatic breast cancers

### Characterising the profile of metastases for improved treatment



© Benoit Deprez - The Image Factory

« Dr Christos Sotiriou and Christine  
Desmedt,  
Institut Jules Bordet »

Brussels, 24 April 2017 – **Researchers at the Jules Bordet Institute - Université libre de Bruxelles, VIB and KU Leuven published this 21 of April an important study offering a better understanding of the progression of breast cancer. The conclusions could have an impact on care for patients suffering from a metastatic breast cancer. This is one of the first studies based on the analysis of multiple metastases obtained at the time of patient autopsies.**

#### A global understanding of the dissemination of the disease

To date, the choice of treatment for metastases was based on the analysis of the primary tumour. A better understanding of the metastatic disease was crucial to arrive at an improved treatment. Unfortunately, the study of the dissemination of breast cancer, from the primitive tumour to the metastatic disease, is virtually impossible as it would require an analysis of all the patient's metastases over time. Studying the different metastases obtained at the time of the autopsy of patients who have unfortunately died of breast cancer therefore represents one of the only options for characterising the disease in its globality.

#### Discovery of a unique metastatic precursor

The team from the Breast Cancer Translational Research Center (BCTL) J.-C. Heuson laboratory at the Jules Bordet Institute – ULB-Cancer Research Center, Université libre de Bruxelles, investigated the biology of different metastases and of the primary tumour of 10 patients, thereby making it possible to reconstitute the history of the cancer's progression. This study, carried out in cooperation with VIB, KU Leuven and the University of Budapest, revealed that in the majority of cases all the metastases originate in a single metastatic precursor and do not result from independent multiple dissemination events from the primary tumour.

In the case of certain recurrences that occur shortly after the initial diagnosis, the characteristics of the metastases were close, from a genomic point of view, to those of the primary tumour. On the other hand, in the case of later recurrences, the molecular differences proved to be greater. Moreover, the genomic profile of the various metastases in the same patient could be very different, providing a potential explanation for the heterogeneous nature of the response to anti-cancer treatment sometimes observed in a hospital environment in the same patient.

### Study conclusions

This study suggests that at least one metastatic lesion (if possible several) should be biopsied and analysed at the time of the breast cancer recurrence, especially if the recurrence comes several years after the initial cancer given the possible modifications in the particular genomic profile of the metastatic disease. The determination of the genomic profile using high throughput sequencing techniques targeting a set of predefined and clinically relevant aberrations could be useful for making the therapeutic decision, in particular for the choice of targeted treatments.

**Study references:** “Phylogenetic analysis of metastatic progression in breast cancer using somatic mutations and copy number aberrations” published on 21 April 2017 in the science journal “Nature Communications”.

**Study financing:** The Friends of Bordet, the MEDIC Foundation, the Fonds National de la Recherche Scientifique.

**Enclosed:** Photograph of Dr Christos Sotiriou, MD, PhD, Maître de Recherche FNRS, Director of the BCTL (Breast Cancer Translational Research Laboratory at the Jules Bordet Institute) and of Christine Desmedt, PhD, Bio-Engineer and researcher at the BCTL. The BCTL is part of the U-CRC (ULB Cancer Research Center)

## Press Contacts

---

### Institut Jules Bordet

Ariane van de Werve

Tel: +32 2 541 31 39

GSM : +32.48617 33 26

E-mail : [ariane.vandewerve@bordet.be](mailto:ariane.vandewerve@bordet.be)

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

### VIB

Sooike Stoops

GSM : +32 474 28 92 52

E-mail : [sooike.stoops@vib.be](mailto:sooike.stoops@vib.be)

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

## About the Jules Bordet Institute

---

An integrated multidisciplinary centre, unique in Belgium, the Jules Bordet Institute is an autonomous hospital devoted exclusively to cancer.

For more than 75 years, the Jules Bordet Institute has been providing its patients with diagnostic and therapeutic strategies at the forefront of progress to prevent, detect and actively combat cancer. The Institute pursues three missions: care, research and teaching. Its international reputation attracts the world's leading cancer experts. Its spirit of innovation has enabled it to participate in the development and discovery of major new methods of diagnosis and treatment with the aim of bringing the findings to the patient as rapidly as possible.

In May 2013, the Jules Bordet Institute received official accreditation and designation from the OECI (Organisation of European Cancer Institutes) as a "Comprehensive Cancer Centre", a quality label reserved for multidisciplinary cancer care institutions whose activities include research and teaching. This is a first for Belgium.

The Jules Bordet Institute is a member of the Iris and Université Libre de Bruxelles hospital networks. With its 160 beds dedicated exclusively to cancer patients, every year the Institute treats more than 6,000 in-patients, 12,000 out-patients and provides 75,000 consultations. To effectively meet future demographic and scientific developments, the Institute is planning to build a new Institut Bordet on the ULB university campus in Anderlecht, next to the Erasmus Hospital. Inauguration is planned for 2018.

- Jules Bordet Institute website: [www.bordet.be](http://www.bordet.be)
- To consult the Jules Bordet Institute presentation brochure, go to: <http://www.bordet.be/fr/presentation/brochure/index.html>
- To view the Jules Bordet Institute presentation video, go to: <http://www.bordet.be/fr/presentation/organigr/textes/bordet.htm>

## About the Friends of the Bordet Institute

---

The Friends of the Jules Bordet Institute is a non-profit-making organisation with the sole aim of supporting and financing research at the Jules Bordet Institute, a cancer centre that is a reference in Belgium and abroad. As the largest private donor to the Bordet Institute, "The Friends" have donated almost 12 million euros in the past five years.

Considerable progress has been made in the field of oncology in recent years. Our understanding of the biological origin of cancer is growing all the time. Whereas 10 years ago we spoke of the microscopic analysis of tumours, today we speak of genetic profile, of sequencing, etc. Dozens of new molecules and markers have been developed, permitting the advent of personalised treatment. This progress has to a large extent been made possible through the extraordinary technological progress of recent years. But these new techniques that now enable us to probe the infinitesimally small are increasingly expensive.

For more than 40 years, the help of the "Friends" has enabled the Jules Bordet Institute to pursue its research using the most advanced technologies, thereby providing patients with the most innovative screening and treatment techniques. Techniques that generate life and hope.

By helping and supporting "The Friends of the Bordet Institute" you are participating in the many research programmes that they support and that all pursue a single aim: victory for life.

Rue Héger-Bordetstraat 1, B-1000 Bruxelles/Brussel

T + 32 (0)2 541 31 11, F + 32 (0)2 541 35 06, BELFIUS: BE72 0910 0972 7816, [www.bordet.be](http://www.bordet.be)

Institut Jules Bordet, Association Hospitalière de Bruxelles régie par la loi du 8 juillet 1976  
Jules Bordet Instituut, Ziekenhuisvereniging van Brussel onderworpen aan de wet van 8 juli 1976



To find out more about the association The Friends of the Jules Bordet Institute, go to the website [www.amis-bordet.be](http://www.amis-bordet.be)

To find out more about the "101 tables pour la vie", go to the website [www.101tables.com](http://www.101tables.com)

## About the ULB Cancer Research Center, U-CRC

---

The "ULB-Cancer Research Center" (U-CRC), headed by Prof. Francois Fuks, brings together researchers from the Faculty of Medicine of the ULB, the Erasmus Hospital and the Bordet Institute.

Focused on the patient, the fundamental and translational research is carried out in close contact with clinical research.

The U-CRC, which is a centre of reference both nationally and internationally for cancer research, is dedicated to increasing cooperation between teams, sharing technological platforms and promoting interdisciplinary research.

The U-CRC website: <http://ucrc.ulb.be>

## About VIB

---

Basic research in life sciences is VIB's raison d'être. On the one hand, we are pushing the boundaries of what we know about molecular mechanisms and how they rule living organisms such as human beings, animals, plants and microorganisms. On the other, we are creating tangible results for the benefit of society. Based on a close partnership with five Flemish universities – Ghent University, KU Leuven, University of Antwerp, Vrije Universiteit Brussel and Hasselt University – and supported by a solid funding program, VIB unites the expertise of 75 research groups in a single institute. VIB's technology transfer activities translate research results into new economic ventures which, in time, lead to new products that can be used in medicine, agriculture and other applications. VIB also engages actively in the public debate on biotechnology by developing and disseminating a wide range of science-based information about all aspects of biotechnology. More information: [www.vib.be](http://www.vib.be).

### Questions from patients

A breakthrough in research is not the same as a breakthrough in medicine. The realizations of VIB researchers can form the basis of new therapies, but the development path still takes years. This can raise a lot of questions. That is why we ask you to please refer questions in your report or article to the email address that VIB makes available for this purpose: [patienteninfo@vib.be](mailto:patienteninfo@vib.be). Everyone can submit questions concerning this and other medically-oriented research directly to VIB via this address.

## About KU Leuven

---

KU Leuven (University of Leuven) is a leading European research university dedicated to excellent research, education and service to society. It is a founding member of the League of European Research Universities and has a strong European and international orientation. Its sizeable academic staff conducts basic and applied research in a comprehensive range of disciplines. University Hospitals Leuven, its network of research hospitals, provides high-quality healthcare and develops new therapeutic and diagnostic insights with an emphasis on translational research. The university welcomes more than 57,000 students from over 140 countries. Its doctoral schools organise internationally oriented PhD programmes for over 4,500 doctoral students. More info: [www.kuleuven.be/english/](http://www.kuleuven.be/english/)