

## PRESS FILE

# Academic opening of the Radiotheranostics Centre of Excellence at the Jules Bordet Institute

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This Wednesday 27 April the Jules Bordet Institute officially opens its "Radiotheranostics Centre of Excellence" in the Nuclear Medicine Department. An innovative form of targeted drug therapy in fighting cancer, radiotheranostics is today a priority axis in cancer research. The simultaneous emergence of radiotheranostics and the construction of the new Jules Bordet Institute enabled the Nuclear Medicine Department to adapt its rooms and infrastructure to the technology demanded by the introduction and development of these new techniques.



### What is radiotheranostics?

In recent years nuclear medicine has experienced a major revolution with the introduction of a new treatment in fighting cancer: radiotheranostics, a combination of (molecular) diagnostics and (radionuclide) therapy. Radiotheranostics is an innovative (and still little known) form of targeted drug therapy in fighting cancer, supplementing treatments such as chemotherapy, radiotherapy and immunotherapy.

The action mechanism of this new cancer treatment is unique and very much a part of the modern paradigm of precision oncology. It uses tracers or vectors (small molecules, peptides or antibodies) that are specific to the tumour, to which a radioactive isotope is coupled. After intravenous administration, these (radiopharmaceutical) molecules accumulate specifically at all the tumour sites and deliver a radiation dose that destroys the cancer cells. Before administering radionuclide therapy, molecular imaging by PET/CT is used to check that all the cancer sites possess the therapy-specific receptors.

### **A demonstrated clinical effectiveness**

The clinical effectiveness of this therapy was recently proven and published in the renowned New England Journal of Medicine. These studies showed an extended survival coupled with an improved quality of life among patients with neuroendocrine tumours and advanced stage prostate cancer resistant to standard therapies.

Research is in progress worldwide to apply this same treatment principle to other malignant tumours, and brain, breast and pancreatic cancer in particular.

### **The Nuclear Medicine Department, Radiotheranostics Centre of Excellence in Belgium**

The Jules Bordet Institute Radiotheranostics Centre of Excellence in Belgium has all the infrastructure and technologies needed to make this treatment method available to its patients in optimal conditions:

- A hospitalisation service with 5 isolation rooms for patients receiving treatment and for short stays (generally 24 hours). These rooms are especially built and equipped to protect the environment from radioactive contamination.
- The toilets and showers of these 5 isolation rooms for patients receiving treatment are connected to 6 large tanks (12,000 litres each) to collect radioactive waste.



- A laboratory for the production of radiomarked pharmaceutical products. This laboratory meets the strictest quality demands of the GMP (Good Manufacturing Practice) standard.
- A latest generation fully digital SPECT/CT camera. It is therefore possible to visualise the location of the radiopharmaceutical products administered to the patient's body after treatment and to calculate the radiation doses. Such a camera has been installed in just 5 centres worldwide

- An additional digital PET/CT camera that will serve exclusively for imaging searches to identify the molecular characteristics of the tumours (receptor expression, for example).

### Investing in fundamental research

In addition, major investments have been made in preclinical (fundamental) research infrastructures. This department (located just outside the hospital, on the Faculty of Medicine campus) makes it possible to test new radiopharmaceutical products for radionuclide treatment on experimental models. This department will have a micro PET, a micro SPECT and a micro irradiator.

### New Institute, new opportunities

During the 80 years of its existence, the Jules Bordet Institute has always played a leading role in research and development for new diagnostic and treatment techniques in the fight against cancer. Today, this brand new and sophisticated hospital marks the beginning of a new era, with new possibilities for progress in cancer research: 80.000 m<sup>2</sup> dedicated exclusively to care, research and teaching missions in relation to cancerous diseases. An entire floor of 10,000 m<sup>2</sup> groups and centralises all the fundamental research units. This permits better communication and interaction between the various research units as well as optimal use of high-tech equipment.

The new Jules Bordet institute, now situated on the ULB university campus in Anderlecht, lies in an environment of key actors: The ULB's Faculty of Medicine and its laboratories, the Faculty of Motor Sciences, the ULB Faculty of Medicine, the Iya Prigogine Haute Ecole (nursing care, physiotherapists, etc.), and the School of Public Health. This physical proximity further strengthens the already existing cooperation and stimulates mutual enrichment.



### **United to strengthen our mission**

The H.U.B, University Hospital of Brussels, brings together the Jules Bordet Institute, the Erasmus Hospital and the Queen Fabiola Children's Hospital. The ambition of this major project is to pool skills and expertise to become a reference centre located at the heart of the Brussels Region with an international reputation. Uniting these three reference hospitals will make it possible to provide patients with the highest quality care accessible to all.

### **The beginning of a new era for research at the Jules Bordet Institute**

The field of application of cancer research at the Jules Bordet Institute covers the complete innovation pathway: from fundamental research in the laboratories that generates new knowledge on the behaviour of cancer cells and their environment to clinical research at the patient's bedside. Between the two, translational research aims specifically to bring laboratory innovations to the patient's bedside.

At the institutional level, the Jules Bordet Institute's Research Department has acquired a clear and unique strategic vision with the decision to limit research activities to five priority areas. These priority areas include the development of new molecular markers for a more personalised treatment, an improved knowledge of cancer resistance mechanisms and the development of innovative therapies in fighting cancer (including radiotheranostics). New models for improving patient empowerment and well-being will also be developed with the emphasis on the patient, their human values and their need to be more involved in increasingly complex cancer treatment. To support these projects effectively and operationally, the Jules Bordet Institute has created a clinical trials support unit, the CTSU. This unit, without which modern clinical research is impossible, assists researchers in realising their projects at the organisational level and brings together a number of experts for assistance with legal, financial, ethical and regulatory aspects

As a result of these reforms, today we meet the highest quality standards in the field of research and its integration in university teaching and patient care. The Jules Bordet Institute is also the only institution in Belgium to have been awarded the quality label of integrated multidisciplinary cancer centre by the OECl, the Organisation of European Cancer Institutes.

### Some key figures

- Every year, a hundred new research projects are launched with an average of 400 participating patients.
- 300 scientific publications a year, a quarter in high impact scientific journals
- 147 scientists, including 60 doctoral and postdoctoral researchers.
- 40% of the research projects are carried out in cooperation with the pharmaceutical industry and 60% are purely academic studies often as part of international collaborations between cancer researchers, such as the EORTC.
- The total annual research budget is 14.6 million euros.

## The Jules Bordet Association, biggest private sector donor to the Bordet Institute



Over the past 50 years cancer research at the Bordet Institute has been inseparable from the Jules Bordet Association (formerly "The Friends of the Bordet Institute"). As its biggest private sector donor, over the past 50 years this non-profit association has donated

over 100 million euros to enable the Institute to finance hundreds of research projects and to make major progress in cancer treatment, including a number of Belgian, European or even world firsts.

True to its mission, the Jules Bordet Institute has already given 18 million euros to fund research activities at the new hospital. Almost 2.5 million euros served to equip the floor that is now home to research laboratories while almost 15.5 million euros made it possible to acquire essential high-tech equipment for top-level research. These include the new Radiotheranostics Centre that received financing of 6.5 million euros from the Jules Bordet Association, thanks in particular to a targeted donation of 4.8 million euros from the Association Vinçotte Nuclear.