Collection and storage of human biological materials (HBM) in biobanks for use in research is key to deliver better diagnostics and to develop better treatments for patients. To this effect, the university hospitals networks, as an academic medical Centre, have a very close collaboration with the Biomedical Sciences Group of the KU Leuven, being the legal entity but also with many partners in the wider area of academia and industry. Since several decades HBM has been obtained both as leftover material out of primary research, handling, and stored in diverse hospital locations of pathohistology, Medicine, Genetics and specialized Clinical Departments.

In 2003 a central initiative was started to comply with the changing Belgian legislation, to generate a generic informed consent and ethical code, to organize a generic data model and IT infrastructure and to create a central database facility. The central facility is called Biobanking. Furthermore, a central facility is needed to store the HBM which is not needed anymore for diagnostic purposes and to allow easier and faster access to a central facility.

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In 2011 the Tumorbank uZ Brussel started to collect whole-blood samples as researchers have the availability to dispose of reference tissue. Each patient involved in this project is asked to sign the informed consent, consenting with the withdrawal, storage and scientific use of his blood. Every patient not agreeing with this procedure has the possibility of opposing through his treating physician.

In 2013 Tumorbank uZ Brussel started to furnish tumor samples for future research. Patients are informed that leftover tumor tissue might be frozen and kept at -18°C. After necessary steps for DNA extraction and RNA isolation, paraffin blocks are created. Besides the tissue samples, also residual clinical and non-clinical data of patient are stored in a coded way (only identifiable for collaborators of the Tumorbank uZ Brussel). Every patient not agreeing with this procedure has the possibility of opposing through his treating physician.

In 2000, aware of the major input of the biobanking in research, we decided to collect specific samples for research purposes, we aimed for developing a preserved type of biobank including normal, information and tumor samples for also specific biobanking i.e. tumors from grafted patients. Tumor samples cover a wide variety of sites and include endocrine system, gastrointestinal tract and tumors and more particularly from brain, gastrointestinal tract and endocrine system.

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In 2007, a central biobanking activity was started, the uZ Leuven also participates in several tumours, surgical and oncologic procedures so we create a more transparent structure for biobanking and research related to biobanking.

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The Belgian Virtual Tumourbank Initiative

The Belgian Cancer Registry (BCR) is proud to present the Belgian Virtual Tumourbank (VTB) project, which consists of a collaborative venture between the BCR and the Walloon Biobanking Network (BWB). The BCR provides tumour samples available for scientific research, using several search criteria by means of a web application. The samples originate from cancer patients treated within adequately controlled procedures and are stored in several approved research facilities that assure a high-quality level of samples (tumour tissues, blood, bone marrows, and liver, kidney, lung, skin, etc.). The Brussels Regional Cancer Registry, within the framework of the Walloon Biobanking Network (BWB), has taken the initiative and collected residual tumour tissue, remaining within the Walloon region, to be stored prospectively for further scientific research. This collection of tissue samples (called a tumourbank) is essential to the advancement of translational research. The BCR is committed to collect those tissues and make them available for translational research, using several search criteria by means of a web application. The samples, in this case, will be made available to researchers through the Belgian Virtual Tumourbank (VTB). The BCR and the BCR-CERN lab are the two main contributors to these initiatives.

The BCR-CERN lab is a research facility managed by the Belgian Virtual Tumourbank (VTB) for approved scientific research. The Steering Committee has established a well-defined set of criteria, for collection, processing, storage and handling of tissue samples, ensuring that all samples are collected under strictly controlled procedures, that the samples are stored in approved facilities and that the data is handled following stringent standardised procedures and ethical guidelines.

In practice, this work is carried out in close collaboration between the participating institutions and the Belgian Cancer Registry, with the support of the Federal Public Service of Public Health and the Belgian Cancer Center. The BCR-CERN lab is a state-of-the-art biobank in a facility of 200m² by 2014, equipped with the latest high-tech equipment and dedicated staff. The BCR-CERN lab is located within the Pathology department, is analyzed by a pathologist and the left-over tissue is stored in a -80°C deep freezer and, more recently, a -150°C deep freezer. The BCR-CERN lab is also responsible for storing the centralised data, quality control and data validation.

In 2010, three additional university hospitals joined the network. These eleven partners present the activities in this brochure. In 2011, as well as every other year, the Belgian Virtual Tumourbank was issued a certificate of accreditation by the Walloon Biobanking Network (BWB), which assures the highest level of quality for the samples.

The purpose of the Bio-Repository of Liège is to be a cornerstone of translational cancer research in academic, medical and industrial settings. The ARO TumorBank opens tissue containers to researchers who follow stringent and standardised procedures and ethical guidelines, and the Bometra Biobank to researchers who follow standardised procedures and ethical guidelines.

The Bometra Biobank will act as a cornerstone of translational cancer research in academic, medical and industrial settings. The aPD-TumorBiobank stores tissues for researchers through the Belgian Virtual Tumourbank (VTB) for approved scientific research and not in industrial or commercial settings.

The purpose of the Bio-Repository of Antwerp is to collect, store, process and distribute tumour samples in an effective way and promote collaborative research projects, in order to improve the diagnosis, treatment and management of cancer. The aPD-TumorBiobank stores tissues for researchers through the Belgian Virtual Tumourbank (VTB) for approved scientific research and not in industrial or commercial settings.

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