

Centralization biobanks UZ Leuven – KU Leuven centralization guarantees quality of stored material

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To centralize their biobanks, the academic hospital UZ Leuven and the University of Leuven (KU Leuven) are building a new facility. A 2,500 m² zone has been set aside for this purpose in research building O&N4 (KU Leuven) on the Gasthuisberg campus. Building a central biobank, including a cryostorage facility, requires not only professional equipment but also a high-performance technical installation.



The facility will consist of 450 m² of office space, technical areas and a quality lab, an 800 m² zone with more than 250 fridge-freezers that are now scattered throughout the campus, and a 325 m² area for the storage of 80 cryogenic containers for UZ Leuven. This makes the new facility the largest of its kind far beyond Leuven and Belgium. In addition, a new 35-container cryostorage unit is being built for KU Leuven. In cryostorage units, samples are stored in liquid nitrogen containers at -196°C. The centralization is intended to better guarantee the quality of the stored material. Around 30 employees will be active in the new facility.

Ingenium is responsible for the concept definition, technical design, site supervision and the sustainability and EPB aspects in this project. For the permit application, the supervision of the demolition, the structural work and the interior design we are being assisted by Architectenbureau Felix & Partners. Engineering firm Provoost is responsible for stability questions. The cooling plant and high and low voltage facilities are being built in collaboration with Deerns nv.



The activities in the various rooms are subject to different sets of regulations. As well as diagnostic services and scientific research, there are activities related to human medicine (GMP) with therapeutic banks, tissue and cell banks, banks for human body material (HBM) and GMP manufacturing facilities. Diversified access control ensures that only those who are approved to work in a specific zone are allowed to enter there.

A maximum number of liquid nitrogen containers are stored in this room with a minimum of support and in accordance with safety requirements. Most containers are intended for long-term storage. These are connected to an automatic filling system. This is linked to the building management system, with alarms that are activated if the containers are filled beyond certain thresholds.

The other nitrogen containers – with 'manual' filling – are intended for short-term storage or transportation. The transportation containers include data loggers stored in a closed cabinet. These are important in order to check the containers for safety at regular intervals and replace them if necessary.

This facility also supplies liquid nitrogen to a number of UZ Leuven users. The tapping point is autonomously accessible from the common central corridor.

A maximum number of cooling devices with minimum support will be installed in the existing and new biobank room. The units have temperatures of 4°C, -20°C, -80°C and -156°C and are connected to the building management system for temperature logging, monitoring and alarms. A flexible arrangement where cooling units can be easily moved and reconnected was an important requirement. The technical features are designed for this. Ample attention has also been paid to dissipating the huge amount of heat produced by the refrigerators – and which would otherwise shorten their lifespan. Access to the new facility from the common central corridor is sufficiently spacious to easily bring devices in or out.

Ingenium was responsible for BIM management during the entire design and construction process. All construction partners designed in BIM and during the execution we coordinated the 3D plans between the contractors.



For more information about biobanks / cryostorage units, please contact Koen Van Canneyt via 050 40 45 30 or via koen.vanconneyt@ingenium.be.