

Sustainability and biobanking: scrapping of biorepositories or continuing use

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Background Fully automated biorepositories capable of storing cryotubes at -80°C became commercially available approximately 15 years ago. Over this period, biobanking units have evolved in response to changing medical needs. Consequently, some of the initially constructed biorepositories no longer align with the current concept of a biobank unit and are deemed unnecessary. This raises the question: should they be scrapped or continue to be utilized?

- 80°C LiCONiC Biorepositories

Biobanking at the University Medicine Greifswald is organized by the Integrated Research Biobank (IRB), which is part of the Institute of Clinical Chemistry and Laboratory Medicine (IKCL).

- 2011: Introduction of the 1st fully automated biorepository from LiCONiC with a capacity for 500,000 aliquots.
 - Fig. 1 shows the sketch of the system and Fig. 2 the inner life of the real product.
 - The heart of the biorepository are trolleys, which are moveable like a classical library, with the exception of the outer trolleys. These trolleys are equipped with several cassettes, which are capable to store racks in the SBS format.
- 2016: Implementation of the 2nd fully automated biorepository from LiCONiC with a capacity for 2.5 Mio aliquots.
 - Fig. 3 shows the 2nd biorepository in Greifswald
 - Although the purchase included all trolleys, the biobank came with a limited number of cassettes in order to cut costs at that time.

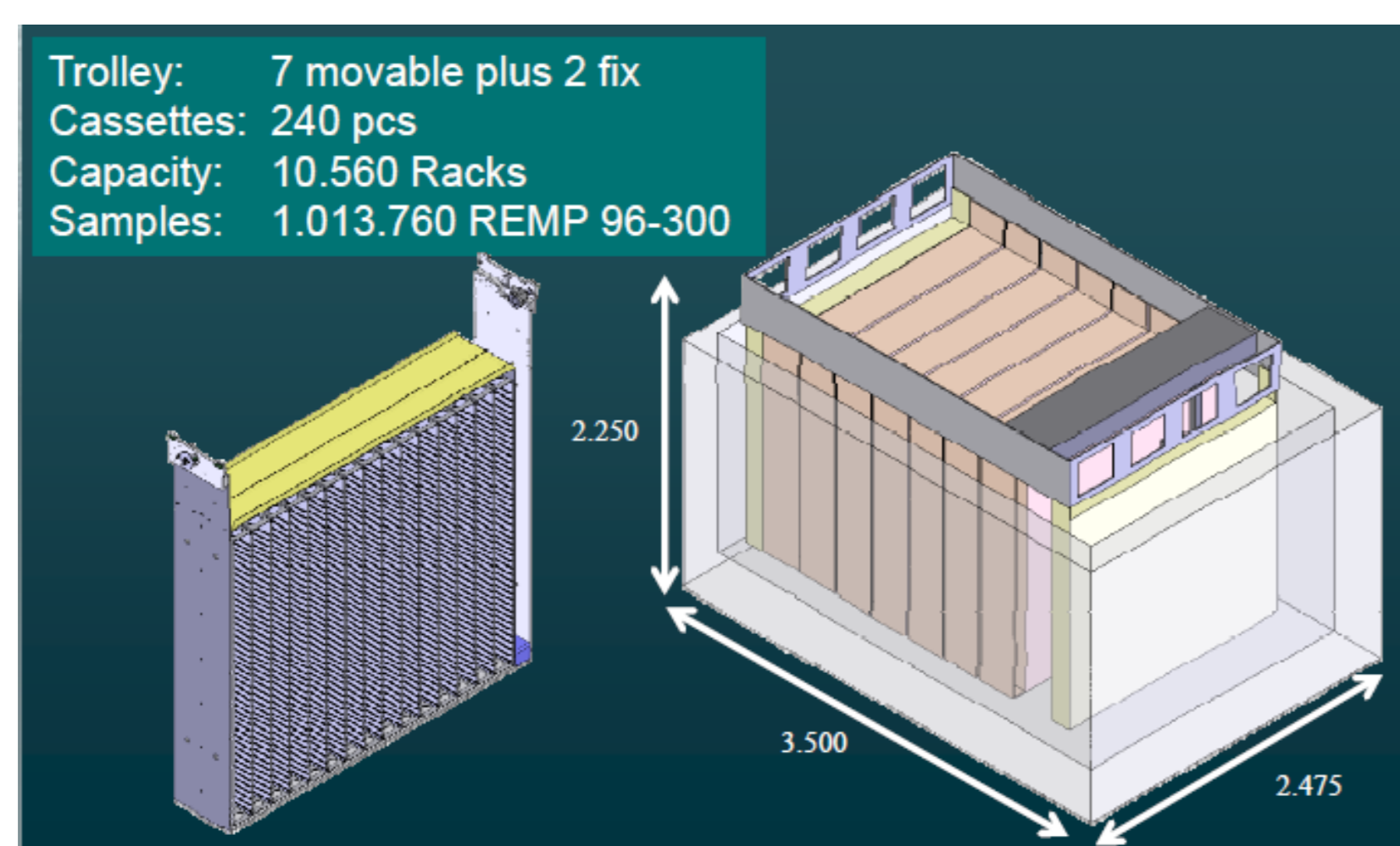


Fig 1. Sketch of the biorepository



Fig 2. Installation of the 1st biorepository in Greifswald

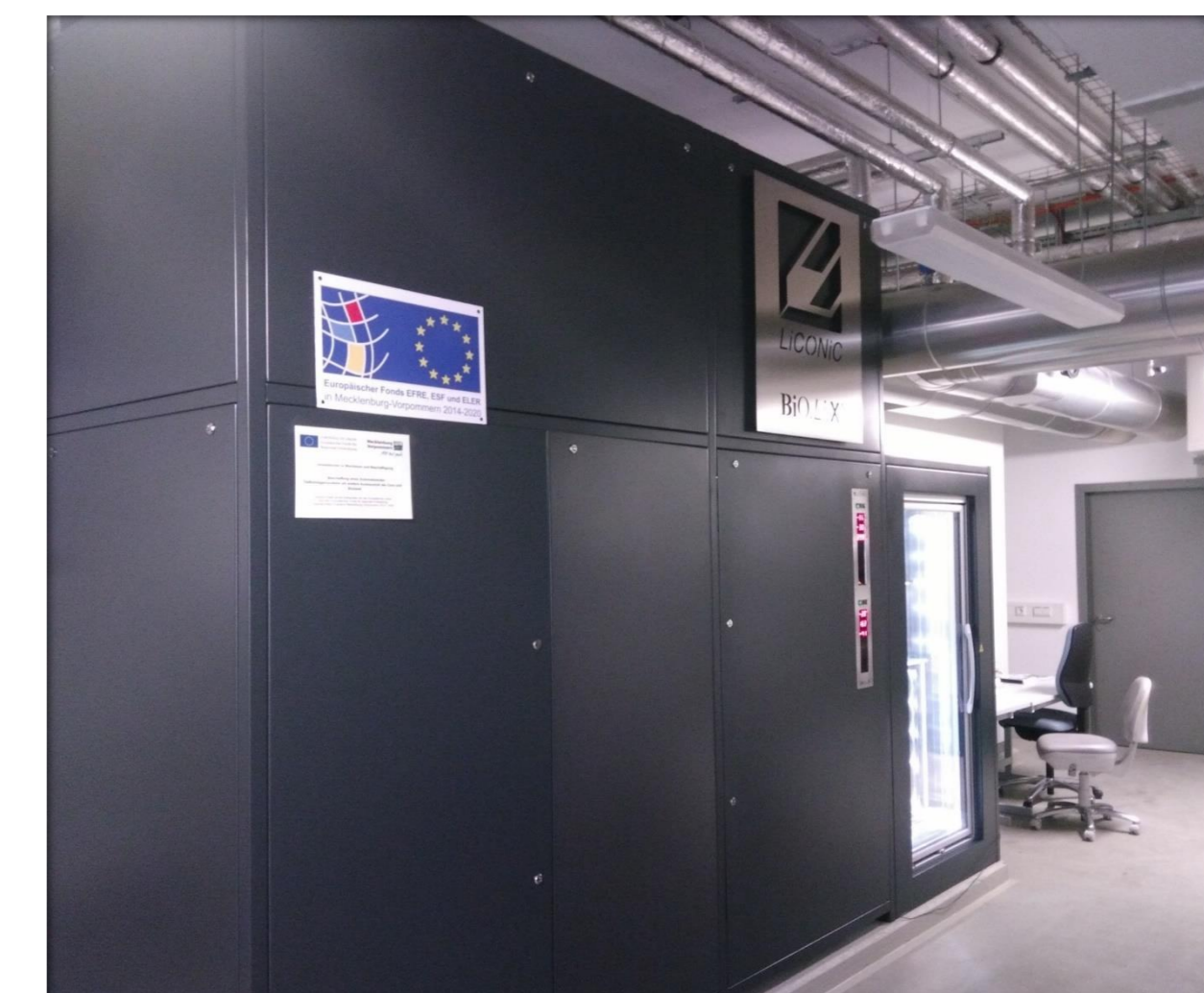


Fig 3. 2nd biorepository in Greifswald

Idea of sustainability

Need for new cassettes in the biorepository at the University Medicine Greifswald

Due to the acquisition of new projects, like the centralization of the Heart Bank of the German Centre for Cardiovascular Research in Greifswald, there was a need for new cassettes to fill up the trolleys of the second LiCONiC biorepository at the IRB. The classical approach would have been to purchase new cassettes from LiCONiC. According to the need of sustainability for our environment and with the knowledge within the biobanking community, that some of the early installed LiCONiC biorepositories were released, we searched for other biobanks that no longer required their.

Biobank Graz – a partner of BBMRI.at – decided to dismantle its LiCONiC store, which was originally established in 2012. Through communication between the parties, a decision was made to repurpose the cassettes of Biobank Graz in Greifswald. As a first result, the tear-off of the LiCONiC biorepository was performed carefully, to avoid any damage to the cassettes (Fig. 4).



Fig 4. Dismantled cassettes at Biobank Graz

Translation

As a partner LiCONiC actively participated in the communication process to assess the compatibility of the cassettes. Following a positive initial check based on engineering drawings, two cassettes were sent to the LiCONiC headquarters in Liechtenstein, where a hands-on examination also yielded positive results. For safety reasons, all cassettes will undergo a thorough check by LiCONiC before being sent to Greifswald. In addition to technical considerations, financial aspects were negotiated between Biobank Graz and Greifswald, resulting in a mutually beneficial win-win situation.

Conclusion Scientific infrastructures, including biobanking units, should enhance their sustainability by promoting the continuous use of components, like stainless steel cassettes. This goal can be achieved locally or by partnering with other biobanking units.