

Talk Abstract

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How to Work with Biobanked Samples, the Possibilities and Impossibilities

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Tissue biobanking at a pathology department of an academic hospital is instrumental for creating a solid basis as a resource of well documented human material for medical translational research. Here surgical resection specimens arrive for further diagnosis. The routine pathology archive formalin-fixed and paraffin-embedded (FFPE) material can form a large resource for research. However, the DNA, RNA and proteins can be of poor quality. Fresh frozen tissues offer much stronger molecular capabilities. For procurement of high-quality samples it is important to work with standardised procedures and a quality program.

New quality issues are arising due to the fact that multi-center-translational-research is performed. These are needed for research with high statistical power having sufficient critical mass in sample number. Such experiments are needed to have impact on patient care. The largest institutes are not able to collect such high numbers in a foreseeable time, especially samples with long term follow-up. Therefore, samples and data need to be exchangeable.

Such quality issues are under investigation in the SPIDIA project. This European framework 7 project has the aim to improve the standardisation and pre-analytical procedures for *in vitro* diagnostics. Also new opportunities for tissue banking, like evidence-based biobanking and testing of an alternative fixative to Formalin called the PAXgene[®] Tissue System. This system has the capability to preserve tissue morphology comparable to formalin and next to that conserve the molecular aspects better. This could be a wonderful opportunity for molecular pathology to expand on the molecular capabilities and for research to enable investigation of materials that were so far out of reach. To completely replace formalin is too big a step, however, in those areas where an advantage can be made it can be considered. Implementation needs to be done step by step and with proper consideration and testing every aspect of the possibly encountered diagnostic applications.