

The Northern Ireland Virtual Tissue Archive (NIVTA)

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Tissue banking allows for the extensive collection of well classified and appropriately stored tissue samples that are linked to well defined clinical and pathological information. Presently, an element of tissue banking involves storing large volumes of microscopic glass slides, which are prone to loss or breakage, and can be viewed in only one location at a time. Virtual microscopy overcomes this problem by providing a virtual image of the tissue section for storage and review. The Northern Ireland Virtual Tissue Archive (NIVTA), has been established as a key centralised resource to support tissue-based translational research. Tissue samples for bio banking, clinical trials, biomarkers studies and tissue-based research are scanned, anonymously stored and linked with clinico-pathological staging information. NIVTA digitally scans slides using a bank of scanners, stored centrally and managed using the PathXL virtual slide platform. These can be instantly retrieved from storage using authorised access and viewed on-line using a dedicated web-based PathXL viewer anywhere in the world. To date, in excess of 25 Terabytes of virtual slide cases have been stored. Virtual slides facilitate transnational collaboration on tissue based research and enable external pathologists to review, score and digitally annotate material from multiple locations, without physically sending any glass slides. They also provide a platform for the automated quantitative analysis of tissue biomarkers, which will offer a more reliable and objective approach to tissue biomarker discovery. NIVTA provides a reliable institutional model for centralised virtual tissue archiving for a range of tissue research activities.