

Webinar: Advanced Virtual Multiplexing

ABSTRACT:

Whole Slide Imaging (WSI) with Quantitative Image Analysis (QIA) has rapidly augmented clinical pathology while providing new tools for biomedical research. Typically tissue samples are manually evaluated for only a single (and occasionally two) parameters due to limitations of reagents and human cognition. But the combination of WSI and QIA enables the evaluation of new combinations of stains and biomarkers previously unavailable on precious tissue samples. Today, multiplex assay development is reaching ever higher levels of complexity as the pantheon of chromogenic IHC and immunofluorescent reagents become available for histopathology. Furthermore, digital tools like Visiopharm's novel and patent protected VirtualDoubleStaining™ utilizing Tissuealign™, obviates the limitation of physical double staining by visually merging ideally prepared tumor and analytical markers from sequential serial sections. Tissuealign™ is now being applied to examine a multiplex of biomarkers in relation to tissue compartments allowing each serial section to be prepared under ideal conditions without compromise. Thus, there are several multiplexing methodologies available including new physical stains, fluorescence spectral separation, sequential rounds of labeling, and virtual multiplexing, each with their own advantages and limitations and analytical challenges. These techniques alone and in combination, allow for a more accurate assessment of tissue compartmentalization, cellular immune-profiling, and cellular proximity with proper context of the whole tissue sample. Each of these techniques require computer assisted visualization and sophisticated analytical tools to make proper assessments. This webinar will discuss the application of Visiopharm's Biotopix™ and Oncotopix® infinitely configurable toolbox in solving some of the multivariate challenges of histological multiplexing.

Augmented Pathology, like augmented reality, adds helpful information to real life pictures, improving the foundation for interpretation and data extraction. In pathology, information is process- and tissue-based to enable the extra layers of information. The process also includes whole slide scanning, storage, image analysis, network sharing and digital quality controls. The session will include examples of applications of the Biotopix™ and Oncotopix® software packages including the Author™ module, which can be used to customize existing APPs and design APPs for self-determined purposes.

