

TITLE: Multi-color & Multiparameter Exvivo Analysis – Enumeration of Tumor Infiltrating Lymphocytes using Multispectral imaging technology

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Biological systems are complex; multiparameter detection methods such as expression arrays and flow cytometry make this apparent. In tissues it is important not just to measure the average expression of molecules, but also their spatial distribution, while preserving architectural features. Such high-resolution molecular imaging is challenging, especially when signals are co-localized. In fluorescence, sensitivity and quantitation can be compromised by autofluorescence, which is commonly present in formalin-fixed tissues. Imaging challenges can be addressed using multispectral imaging. In addition, the scoring of pathology-related images requires an automated method for deciding which cells in a tissue section are cells of interest, for which a user-trainable software for quantitation and scoring has been developed.

Here we present a technique that enables the researcher to visualize as many as 8 colours in a tissue sample, whilst removing autofluorescence and automatically deriving quantitative, accurate analysis.