

# What are the future trends for Digital Pathology and IHC?

Digital pathology is increasingly used by large biopharmaceuticals and top clinical research organizations (CROs) to streamline drug development processes in discovery, pre-clinical and clinical trials. Particular opportunity exists for the potential future use of digital pathology for quantitative analysis of emerging companion diagnostics and novel theranostics. This opportunity may become especially relevant with the advent of assays which are difficult to discern with the human eye, such as multiplex, or markers which exhibit diffuse staining characteristics across multiple cellular compartments of which, for example, only one may be clinically relevant.

The increasing complexity of such assays is driving the development of digital pathology solutions with advanced high-throughput image capture (brightfield, fluorescent or

multispectral) coupled with pattern recognition to morphologically identify relevant tissue types and individual cellular compartments followed by the ability to quantify (IHC) intensity of staining.

This is leading to the advent of digital pathology systems that can offer a clinically relevant diagnostic or prognostic score by comparing sample analysis output against a standard curve derived from clinical data. Indeed much of the untapped potential of digital pathology may be in the potential ability to generate diagnostic or prognostic scores by combining IHC data and images with that of other modalities such as FACS or MALDI-TOF, in an effort to achieve more discrete patient stratification into clinically relevant groups. Rather than replacing IHC, new molecular tests and the integration of digital pathology may offer complementary diagnostic tools for the future.



This reference document is presented as a service to health care professionals by Leica Biosystems and has been compiled from available literature. Although every effort has been made to report faithfully the information, Leica Biosystems cannot be held responsible for the correctness. This document is not intended to be, and should not be construed as medical advice. For any use, the product information guides, inserts and operation manuals of the various drugs and devices should be consulted. Leica Biosystems and the editors disclaim any liability arising directly or indirectly from the use of drugs, devices, techniques or procedures described in this reference document.

**For Research Use Only. Not for use in diagnostic procedures. Clinical diagnostic use claims discussed in this article have not been reviewed or cleared by FDA for use in the U.S.**

Copyright © 2017 by Leica Biosystems Richmond Inc. All rights reserved. LEICA and the Leica Logo are registered trademarks of Leica Microsystems IR GmbH.

95.14186 Rev A · IMC-1126-REV-A 2/2017