

DIGITAL PATHOLOGY & IMAGE ANALYSIS

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The digital pathology inside Immunoscore® colon

Emmanuel G Prestat
HalioDx, France

Immunoscore® quantifies the immune infiltrate within the microenvironment of the tumor. It is assessed by IHC and digital pathology on FFPE colon cancer (CC) tissue. The Immunoscore® is intended as an aid for clinicians to assess prognosis of CC at diagnosis, in combination with the tumor staging (AJCC/UICC-TNM classification). For each patient, 2 slides are stained with primary anti-CD3 & anti-CD8 monoclonal antibodies respectively. Following digitization, virtual slides obtained using a whole slide scanner are analyzed by a dedicated software (Immunoscore® Analyzer) able to calculate a score from CD3- and CD8-positive T cells densities in the invasive margin and core tumor regions. The Immunoscore® provides a score defined as low when low densities of both cell types are found in both regions, intermediate when densities are moderate and high when high densities are found in both regions. Whereas the software is designed to allow the expert-driven reclassification of tissue types (tumor, normal tissue and epithelium) which are necessary to compute the Immunoscore®, the software also proposes an automated classification. Therefore, a recurring question is “how robust would the Immunoscore® be if digital pathology steps are performed without any human supervision?” This question was answered by the high overall agreement (92% [85 - 96] over the three-classes of Immunoscore®) between the automated classification with and without edition by a Pathologist.

Biography

Emmanuel G Prestat obtained his PhD in bioinformatics at the University Claude Bernard Lyon 1 (France) in 2010 then went to Berkeley, CA where he worked in Lawrence Berkeley National Laboratory to develop, during a postdoctoral fellowship, methods to analyze NGS data and classify newly resolved environmental microbes until 2013. Moving back to France in 2014, he joined Qiagen as a Senior Manager in Bioinformatics and Biostatistics and led the bioinformatics design work necessary to the first Qiagen NGS MDx assay. A year after, HalioDx (spin-off of Qiagen Marseille) was created with the ambition to become the reference company in immuno-oncology diagnostics. Member of the R&D department, he is Associate Director of Digital Pathology Solutions: his responsibilities include the coordination for the development of image analysis steps associated to HalioDx IHC products, bioinformatics and biostatistics.

emmanuel.prestat@haliodx.com