Overview

This whole-slide section of an invasive colorectal adenocarcinoma is stained with a 17-plex immuno-oncology biomarker panel and imaged with the Orion™ instrument. The panel includes PD-L1, PD-1, CD68, CD163, E-Cadherin, cytokeratins, and other markers.

In the lamina propria between the crypts, SMA+ myofibroblasts are present. These cells maintain the structural strength of the bowel wall.

The invasive border of the tumor contrasts with other tumor regions in two ways:

1. Tumor cells appear less cohesive and have less uniform shape within the malignant glands (figure 4).
2. Adenocarcinoma cells express membrane cell-cell adhesion glycoprotein E-Cadherin. Tumor cells in the lower autofluorescent elastin and nerve fibers areas can be identified by the markers CD68 and CD163 (figure 7).

Industrial Immune Cell Phenotyping

Dense collections of immune cells (CD45) can be seen at the base of the mucosa into the smooth muscle layer seen in the center (Smooth Muscle Actin - SMA). Dense collection of CD4+ (light blue) T helper cells with regulatory T cells (FOXP3, red) are scattered within. CD8+ cytotoxic T cells present in the tumor but are less aggressive compared to other tumor regions.

Multiplexed imaging distinctly reveals the invasive border of the tumor. Small clusters of malignant tumor cells are seen in the upper left (figure 8). A dense collection of immune cells surrounds the tumor. The infiltrating border of the tumor is part of epithelial to mesenchymal transition, leading to more aggressive tumor behavior.

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