Biomarker Datasheet

Human CD45RO U-VUE® Biomarker

CD45RO is expressed on activated and memory T cells, some B cell subsets, activated monocytes/macrophages, and granulocytes. Lack of CD45RO on T cells indicates naive T cell subsets while CD45RO expression indicates previous antigen exposure and defines the memory T cell subset. High density of CD45RO+ T cells in solid tumors is associated with a better prognosis.

Overview

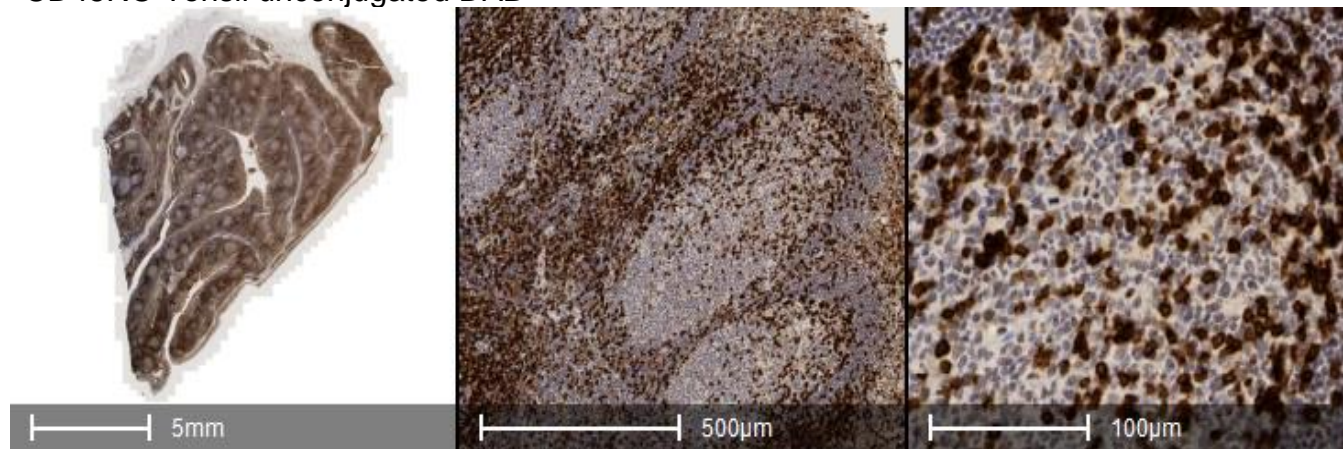| Target	Other names	Isotype	Primary cell type	Subcellular location	Positive control(s)
CD45RO	UCH-L1	Mouse IgG2a	T cells	Plasma membrane	Tonsil/ Spleen

*Clone available upon request

Quality Control

Each lot of antibody conjugate reagent is tested on positive control tissue and reviewed by reviewed by Ultivue's pathologists and scientists to ensure appropriate staining pattern and signal intensity by both qualitative and quantitative review.

Predicate Comparison

Serial sections of tonsil and tumor tissue controls were stained with traditional chromogenic DAB using unconjugated antibodies and with the InSituPlex® (ISP) monoplex assay to demonstrate concordance between staining modalities.

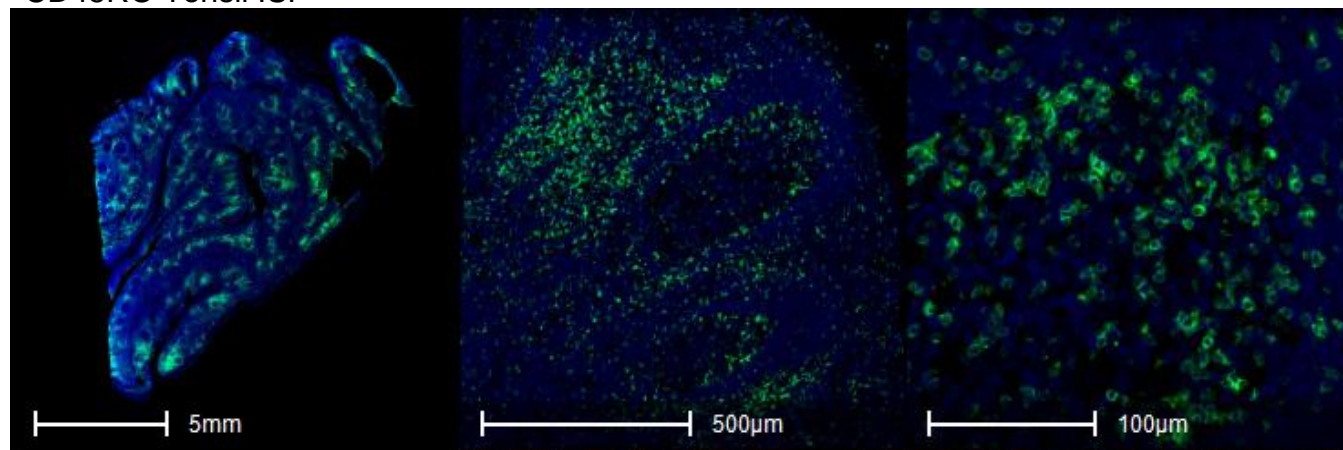CD45RO Tonsil unconjugated DAB

CD45RO Tonsil ISP

Figure 1: Comparison of unconjugated DAB and InSituPlex® monoplex assay in tonsil tissue. Chromogenic DAB(top panel), fluorescent ISP staining (bottom panel).

Assay Reproducibility

An InSituPlex® monoplex assay was performed across serial sections of tonsil and colorectal cancer (CRC) tissue on the Leica BOND RX autostainer. Staining was found to be qualitatively and quantitatively equivalent across all slides in the run as demonstrated by coefficient of variance (CV) of positive cell density and signal intensity.
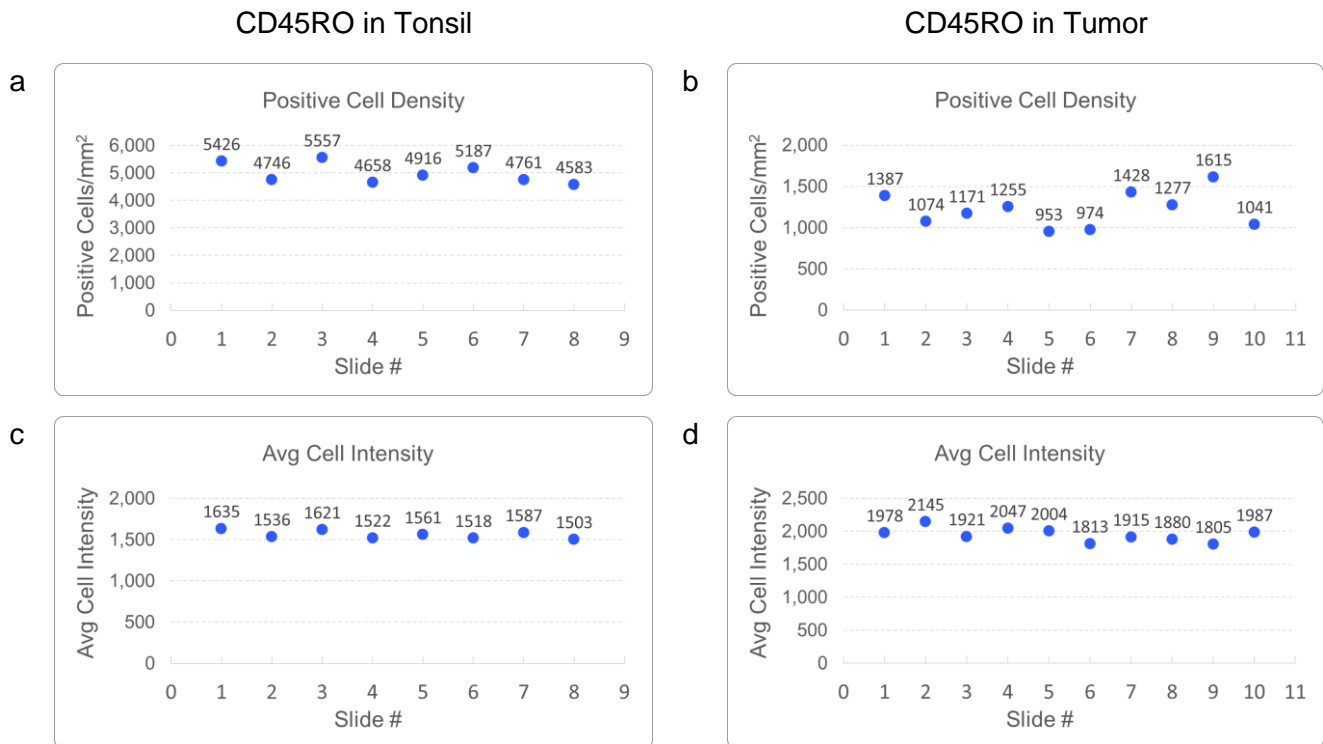
CD45RO in Tonsil   **CD45RO in Tumor**

Figure 2: a. Number of positive cells/mm^2 per slide on tonsil tissue. Inter-slide coefficient of variance (CV) =6.9% **b.** Number of positive cells/mm^2 per slide on CRC tissue. Inter-slide CV = 16.8% **c.** Mean positive signal intensity per slide on tonsil tissue. Inter-slide CV = 3.0%. **d.** Mean positive signal intensity per slide on CRC tissue. Inter-slide CV = 5.1%.

References

1. Fernandes, A., Carvalho, M., Avvad-Portari, E., Rocha, N. P., Russomano, F., Roma, E. H., & Bonecini-Almeida, M. (2021). A prognostic value of CD45RA^{+}, CD45RO^{+}, CCL20^{+} and CCR6^{+} expressing cells as 'immunoscore' to predict cervical cancer induced by HPV. *Scientific reports*, *11*(1), 8782. https://doi.org/10.1038/s41598-021-88248-x
2. Liu, Q., Sun, Z., & Chen, L. (2020). Memory T cells: strategies for optimizing tumor immunotherapy. *Protein & cell*, *11*(8), 549–564. https://doi.org/10.1007/s13238-020-00707-9
3. Wu, K., Zheng, X., Yao, Z., Zheng, Z., Huang, W., Mu, X., Sun, F., Liu, Z., & Zheng, J. (2021). Accumulation of CD45RO+CD8+ T cells is a diagnostic and prognostic biomarker for clear cell renal cell carcinoma. *Aging*, *13*(10), 14304–14321. https://doi.org/10.18632/aging.203045