

# Immuno8 FixVUE

formerly UltiMapper® I/O Immuno8

Get access to 256 distinct binary phenotypes.

Identify and characterize T-cell subsets, immunosuppressive cells, and interactions along the PD-1/PD-L1 checkpoint axis.

**This antibody panel consists of the following markers:**

CD3

CD4

CD8

CD68

FoxP3

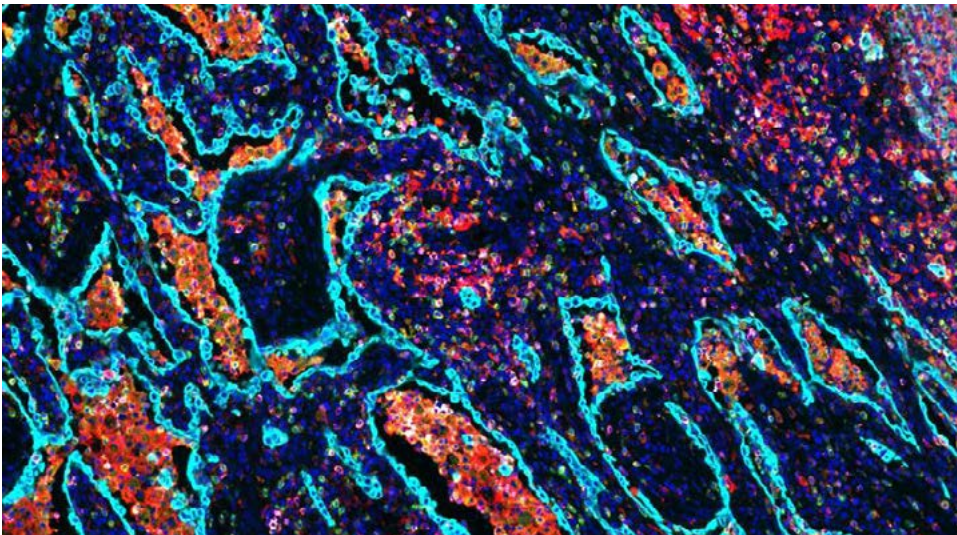
PD-1

PD-L1

CK/SOX10

## Cell Phenotypes

Cell Phenotyping with the Immuno8 FixVUE Panel



The Immuno8 FixVUE antibody panel enables users to identify and characterize T-cell subsets, immunosuppressive cells, and interactions along the PD-L1/PD-1 checkpoint axis. CD3 is a marker of T cells. CD4 is phenotypically expressed on the surface of T helper cells. CD8 is a marker for cytotoxic immune cells (primarily cytotoxic T cells). CD68 is a marker of monocytes and macrophages. FoxP3 is a transcription factor and marker of cellular activation.



The co-expression of CD3, CD4, and FoxP3 indicated the regulatory T cell (T-reg) phenotype. PD-1 marks exhausted or suppressive T cells (CD3+/PD-1+) and can serve a pro-tumor function to help tumors evade the immune system. PD-L1 is an immune checkpoint marker that can be expressed on both macrophages (CD68+/PD-L1+) and tumor cells (CK/SOX10+/PD-L1). SOX10 is a marker of melanoma tumor cells while pan-cytokeratin detects carcinoma tumor cells.

## Markers

Phenotype	CD3	CD4	CD8	CD68	FoxP3	PD-1	PD-L1	CK/SOX10
T cells	✓							
T helper cells	✓	✓						
Cytotoxic immune cells			✓					
Cytotoxic T cell	✓		✓					
FoxP3+ T cells	✓				✓			
Exhausted T cells	✓					✓		
Regulatory T cells (T-reg)	✓	✓			✓			
CD4/CD8 Double-positive T cells	✓	✓	✓					
CD8+ Regulatory T cell (CD8 T-reg)	✓		✓		✓			
Exhausted, Cytotoxic T cell	✓					✓		
Macrophage	✓							
Immunosuppressive macrophage				✓			✓	
Tumor cell				✓				✓
Immune-evading tumor cell							✓	✓

This multiplex IHC panel allows for the spatial identification of single biomarkers and co-expression of multiple markers in cells enabling the observation of several biologically relevant phenotypes. The above is a partial of the 256 distinct binary phenotypes that this can identify. The number of phenotypes increases if binned marker intensities are taken into account (e.g. PD-1, PD-L1, FoxP3 expression levels).



## Product Biology

Marker	Main Cell Type	Function
CD3	T cells	Identifies all T cells and is the most specific marker for T cells, including lineage based markers such as CD4 and CD8.
CD4	Helper T-cell	T-helper cells play an important role in the adaptive immune system by helping regulate the immune response. The main cellular phenotype that expresses CD4 is mature helper T cells.
CD8	Cytotoxic T cells	Cytotoxic T cells are responsible for mediating apoptosis of cancer cells through the release of perforin and granzyme B from the T cells.
CD68	Macrophages	Macrophages modulate the immune response.
FoxP3	Regulatory T cell	FoxP3 is a transcription factor and often regarded as a master regulator of regulatory T cells. Regulatory T cells expressing FoxP3 generally decrease the immune response and can prevent tumor cell infiltration. Recent evidence suggests that FoxP3 is transiently expressed by activated T cells.
PD-1	Exhausted T cell	A marker of T-cell exhaustion indicating that normal function of the cell has been disrupted. May also indicate an immuno-suppressive phenotype. Increased levels of PD-1+ T cells are associated with a poorer prognosis. PD-1 is the target of multiple therapeutics.
PD-L1	Checkpoint protein	Allows cells to escape immune surveillance by binding to PD-1. A search of ClinicalTrials.gov yields nearly 700 clinical trials with the keyword PD-L1. The association of PD-L1 expression with clinical outcome is uncertain at this time, but researchers are working to establish the relationship of this marker to other markers such as CD8.
CK/SOX10	Tumor cells	A cocktail of optimized reagents for the detection of pan-cytokeratin and SOX10 protein markers is provided. Cytokeratins are expressed in cells of an epithelial origin including most carcinomas. Sox10 is expressed in cells derived from the neural crest including melanocytes that give rise to melanomas.