POSTER AT-A-GLANCE

Simplifying High-Parameter Phenotypic and Functional Characterization of Cancer Immune Cells

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IMMUNE PROFILING

A simple and powerful workflow combines a backbone 30-marker immune profiling assay with panels designed to **deeply characterize NK and T cells** together with an intracellular panel enabling **comprehensive phenotypic and functional analysis of multiple myeloma cells**. This workflow can be applied to other disease states to focus deeper on specific biological questions.

KEY TAKEAWAYS

- The addition of Expansion Panels to a backbone immune profiling assay enables deeper profiling of NK and T cells as well as analysis of cytokine responsiveness and cytotoxic potential.
- Important targets of immunotherapy such as PD-1, TIGIT, Tim-3, ICOS and 4-1BB could be quantified.
- The use of optimized and reproducible assays is critical in clinical and translational studies to ensure data variability is minimized and results are reliable.

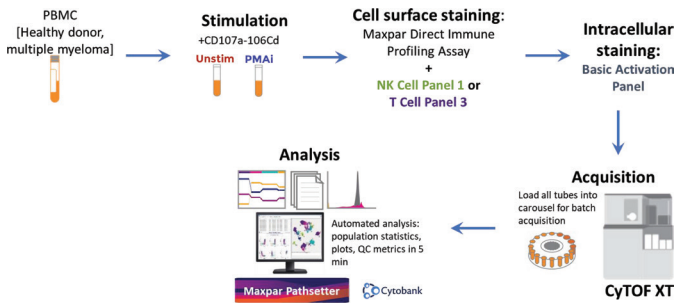
Background

Interrogating immune cell composition and function in patients with cancer is crucial for making disease prognoses, monitoring efficacy of immunotherapies and identifying novel therapeutic targets.

Cellular and antibody-mediated immunotherapeutic approaches, including CAR T cells and monoclonal antibodies, have been developed to treat multiple myeloma. Since NK and T cells can also indirectly impact CAR T cell or antibody-based immunotherapies, characterizing these cells using optimized and reproducible assays is critical.

Study Design

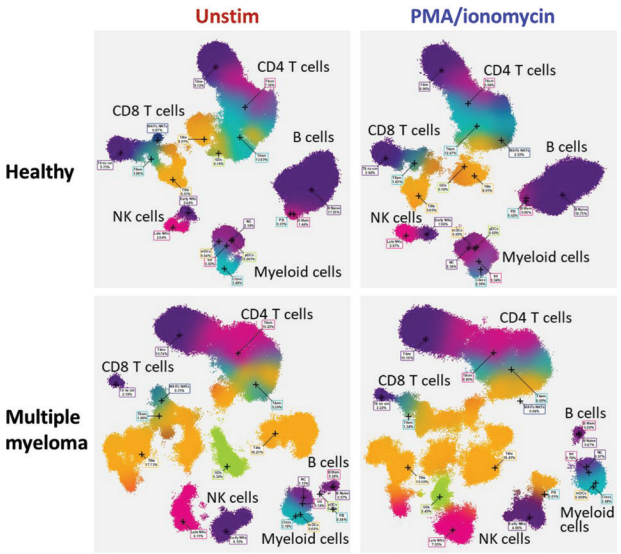
A validated 30-marker Maxpar® Direct™ Immune Profiling Assay™ for resolving 37 immune populations was expanded to two 43-marker panels by combining either the cell-surface T Cell Panel 3 or NK Cell Panel 1 with the intracellular Basic Activation Panel.



Peripheral blood mononuclear cells (PBMC) from healthy donor and multiple myeloma were stimulated, stained and acquired on a CyTOF® XT™ instrument. Normalized FCS files were analyzed with Maxpar Pathsetter™ software and Cytobank.

Results

- NK and T cell differentiation correlated with markers of degranulation, activation and exhaustion.
- Selective response of effector and memory CD4 and CD8 T cells was shown in response to stimuli in healthy donor and multiple myeloma PBMC.
- Detection of malignant plasma cells demonstrates that disease-specific processes can be identified and further characterized.



Pathsetter automatically identifies and enumerates 37 populations of immune cells in peripheral blood leukocytes stained with the Maxpar Direct Immune Profiling Assay. A Cen-se™ (variant of t-SNE) plot from automated Pathsetter analysis of healthy donor and multiple myeloma patient PBMC showing distribution and frequencies of major immune cell populations.

PROTOCOL

Cancer Immune Cell Profiling

Panel Information

Maxpar Direct Immune Profiling Assay						
30-marker single-tube backbone panel	CD45	CD8	CD161	CD183/CXCR3	TCRγδ	CD20
	CD196/CCR6	CD11c	CD194/CCR4	CD185/CSCR5	CD294	CD66b
	CD123/IR-3R	CD16	CD25	CD28	CD197/CCR7	HLA-DR
	CD19	CD45RO	CD27	CD38	CD14	IgD
	CD4	CD45RA	CD57	CD56	CD3	CD127

NK Cell Expansion Panel 1						
7-marker Expansion Panel	CD181	NKp30	NKp46	NKG2A	ICOS	TIGIT
	PD-1					

T Cell Expansion Panel 3						
7-marker Expansion Panel	OX40	TIGIT	CD69	PD-1	Tim-3	ICOS
	4-1BB					

Basic Activation Expansion Panel						
6-marker Expansion Panel	IL-2	TNFα	IFNγ	CD107a	Perforin	Granzyme B

Ordering Information

Product Name	Product Number
Maxpar® Direct™ Immune Profiling Assay™	201325
Maxpar Pathsetter™ v3.0	401019

Product Name	Product Number
Maxpar Direct NK Cell Expansion Panel 1	201404
Maxpar Direct T Cell Expansion Panel 3	201407
Maxpar Direct Basic Activation Panel	201408

Scan the QR code to see the full digital version of the poster.

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