

Mouse Flow Cytometry Panels

Table of Contents

Overview	1
Table 1. Immune Cell Types	3
General Mouse Immune Panel	4
Mouse T Cell Phenotyping Panel	5
Mouse T and NK Panel	6

Overview

The CIIA provides comprehensive, full-service flow cytometry support from experimental design through to panel development, sample preparation, data acquisition, analysis, and interpretation. Our team uses spectral flow cytometry to measure >20 surface and intracellular markers simultaneously within a single sample, allowing for the evaluation of multiple immune cell types and their activation states (**Page 2, Table 1**).

Explore our established panels (**Pages 4-6**) or connect with us at ciia@uhn.ca to design a custom panel that supports your discovery, translational and preclinical research needs.

Sample Requirements

Sample Type(s)	Sample Requirements	Sample Handling	Storage and Shipping
Fresh or viably cryopreserved single-cell suspensions from mouse blood and tissues (<i>incl. tumors</i>)	<u>Fresh cells:</u> $\geq 5 \times 10^5$ cells per panel; viability $\geq 80\%$ recommended <u>Viably cryopreserved cells:</u> $\geq 1 \times 10^6$ cells per panel; viability $\geq 80\%$ recommended <i><u>Note:</u> The CIIA can assist with blood and tissue processing</i>	Single-cell suspensions from mouse blood and tissues should be prepared <u>within 2 hours</u> of harvest Avoid freeze-thawing viably cryopreserved samples	<u>Fresh cells:</u> Transfer on ice within 1 hour of isolation <u>Cryopreserved cells:</u> Store in LN2 storage; ship on dry ice

Panel Selection and Costs

A subset of markers can be chosen from any panel to reduce costs and focus the analysis on the most relevant targets. Pricing is determined by the selected markers/panel(s), batch size, and level of analysis support required.

Instrument(s)

The panels listed in this document are compatible with the [Sony ID7000 Spectral Cell Analyzer](#).

Data Analysis Software

The CIIA uses Sony ID7000™ Analysis Software for spectral unmixing and [FlowJo](#) Software for gating and routine data analysis. High-dimensional analysis, including cell clustering and visualization, is performed using [Omiq](#) and custom workflows in R.

Data Delivery and File Formats

Data can be delivered in a range of formats including summary reports, publication-ready figures, gated population statistics, and FCS files compatible with downstream analysis platforms, supporting both routine and advanced computational workflows.


Table 1. Immune Cell Types

Immune Cell Type ^(a)	Flow Cytometry Markers	Main Functions
Conventional T cells	CD3, CD4, CD8	Provide adaptive, antigen-specific immunity including direct killing of infected and/or malignant cells (CD8+ cytotoxic T cells) and helper functions through cytokine secretion (CD4+ helper T cells).
Regulatory T cells (Tregs)	CD3, CD4, CD25, FOXP3	Suppress immune responses through cytokine secretion to maintain self-tolerance and prevent autoimmunity.
$\gamma\delta$ T cells	CD3, TCR- $\gamma\delta$	Innate-like T cells that respond to stress, infection, and malignant cells without classical MHC restriction.
B cells	CD19, B220	Produce antibodies in response to antigen and differentiate into memory B cells or plasma cells.
NK cells	NK1.1, CD49a, CD49b, Asialo GM1, KLRG1, NKG2A, NKG2D	Innate-like cells of lymphoid origin that kill infected and/or malignant cells that lack expression of MHC-I.
Monocytes	CD11b, Ly6C	Phagocytose pathogens, dead cells and debris, and produce inflammatory cytokines. Monocytes can differentiate into dendritic cells (DCs) and macrophages.
Macrophages	CD11b, F480	Tissue-resident or monocyte-derived myeloid cells that phagocytose pathogens, dead cells and debris, produce immunomodulatory cytokines and support tissue repair.
DCs	CD11c, MHCII	Bridge innate and adaptive immune responses by efficiently priming CD4 and CD8 T cell responses through antigen presentation, co-stimulation and cytokine production. Uniquely specialized antigen presenting cells that can cross-present antigen to CD8 T cells.
Granulocytes	CD11b, Ly6G	Rapid innate effector response; phagocytosis and acute inflammation.

^(a) Please contact us at cija@uhn.ca regarding detection of immune cells (e.g., ILC subsets, iNKT cells) and non-immune cells (epithelial cells, fibroblasts) which are not listed in this table.

^(b) Fresh whole blood is required to accurately evaluate the proportions of circulating neutrophils, basophils and eosinophils.

General Mouse Immune Panel



Our general mouse immune panel (25 markers) enables high-dimensional profiling of innate and adaptive immune populations as well as characterization of T cell subsets and their expression of activation markers in preclinical mouse models.

This panel has been optimized for single-cell suspensions from mouse blood and tissues, including tumor models, and is suitable for a range of applications including:

- Assessment of peripheral immune populations in mouse blood samples.
- Assessment of the immune microenvironment in mouse tissue samples including lymph nodes.
- Assessment of T cell subsets and activation states.
- Assessment of immune responses to experimental treatments.
- Comparison of immune profiles across experimental groups, disease stages, and treatment conditions.

This panel is compatible with mouse models that use **GFP** and/or **mCherry** reporters. Single reporter controls are required if using both in your model.

General Mouse Immune Panel			
Immune Lineage	T Cell Subsets	T Cell Phenotyping	Immune Checkpoint
CD45 CD3 CD11b CD11c CD19 NK1.1 F4/80 Ly6G Ly6C MHC II	TCR- $\gamma\delta$ CD4 CD8 FOXP3	CD25 CD39 CD44 CD62L CD69 CD103 4-1BB Granzyme B Ki67	PD-1 PD-L1

Mouse T Cell Phenotyping Panel

Our mouse T cell phenotyping panel (29 markers) is a modified version of our general mouse immune panel with the addition of SLAMF6, TCF7, TIM3 and TOX. This panel further enables high-dimensional profiling of T cell subsets and their expression of activation, exhaustion-related and immune checkpoint markers.

This panel has been optimized for single-cell suspensions from mouse blood and tissues, including tumor models, and is suitable for a range of applications including:

- Assessment of peripheral immune populations in mouse blood samples.
- Assessment of the immune microenvironment in mouse tissue samples including lymph nodes.
- Assessment of T cell subsets and activation states.
- Assessment of immune responses to experimental treatments.
- Comparison of immune profiles across experimental groups, disease stages, and treatment conditions.

Mouse T Cell Phenotyping Panel			
Immune Lineage	T Cell Subsets	T Cell Phenotyping	Immune Checkpoint
CD45 CD3 CD11b CD11c CD19 NK1.1 F4/80 Ly6G Ly6C MHC II	TCR- $\gamma\delta$ CD4 CD8 FOXP3	CD25 CD39 CD44 CD62L CD69 CD103 4-1BB Granzyme B Ki67 SLAMF6 TCF7 TOX	PD-1 PD-L1 TIM3

Mouse T and NK Panel

Our mouse T and NK panel (26 markers) enables high-dimensional profiling of T cell subsets and NK cells.

This panel has been optimized for single-cell suspensions from mouse blood and tissues, including tumor models, and is suitable for a range of applications including:

- Assessment of peripheral T and NK cell populations in mouse blood samples.
- Assessment of T and NK cell populations in mouse tissue samples including lymph nodes.
- Assessment of T and NK cell responses to experimental treatments.
- Comparison of T and NK cell profiles across experimental groups, disease stages, and treatment conditions.

Mouse T and NK Panel			
Immune Lineage CD45 CD3 CD11b NK1.1 F4/80 Ly6G Ly6C MHC II	T Cell Subsets TCR- $\gamma\delta$ CD4 CD8 FOXP3	NK Cell Phenotyping NKG2D NKG2A Asialo GM1 CD49b	Immune Checkpoint PD-1
	T Cell Phenotyping CD27 CD39 CD44 CD62L CD103	T and NK Phenotyping 4-1BB CD25 CD49a CD69 Granzyme B Ki67 KLRG1 Perforin	