Cytek® cFluor® MDSC Kit

Myeloid-derived suppressor cells (MDSCs) are neutrophils and monocytes that possess potent immunosuppressive activity. Cytek® cFluor® MDSC Kit has been designed and optimized to identify and analyze MDSCs. The panel includes markers to identify MDSCs, and its subsets monocytic MDSC (M-MDSC) and granuclocytic/polymorphonuclear MDSC (PMN-MDSC). A few newly identified MDSC markers, aka CD84, LOX-1, and CD181, could help to delineate the MDSC subsets and may also serve as indictors of cell status. MDSCs have been shown to play an important role in regulating immune responses in cancer and other pathological conditions, including chronic infection, sepsis, and autoimmunity. This panel can be a powerful tool to help researchers in their translational research and drug discovery.

The 15-marker, 13-color set of reagents below is in the Cytek® cFluor® MDSC Kit (P/N R7-40010).

R8-50010 Rev. A, Effective Date: 03/23/2023
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Product details for Cytek cFluor MDSC panel	
Catalog number:	R7-40010 (25 Tests)
Category:	Immunoprofiling
Format:	cFluor® conjugated antibodies in individual vials

Target	Clone	Fluorochrome
CD16	3G8	cFluor® V450
CD15	W6D3	cFluor® V505
CD14	MEM-18	cFluor® B515
CD45	HI30	cFluor® B548
CD84	CD84.1.121	cFluor® BYG575
CD11b	ICRF44	cFluor® BYG610
CD193 (CCR3)	5E8	cFluor® BYG667
CD181	8F1/CXCR1	cFluor® BYG710
CD33	WM53	cFluor® BYG781
Lox-1	15C4	cFluor® R659
CD3	SK7	cFluor® R685
CD19	HIB19	
CD56	LT56	
CD66b	G10F5	cFluor® R720
HLA-DR	L243	cFluor® R840

Test Dilution:	5 µl per test
Application:	Flow cytometry
Formulation:	Phosphate-buffered saline, pH 7.2, containing 0.09% sodium azide and 0.2% BSA (BSA Country of Origin USA)
Storage:	2-8°C and protected from light. Do not freeze

PRODUCT DESCRIPTION

The Cytek® cFluor® Immunoprofiling Kit, MDSC identifies MDSC subsets, M-MDSC and PMN-MDSC, and monocyte subsets, classical, intermediate, and non-classical monocytes. The kit can be used on whole blood and peripheral mononuclear cells (PBMC).

CD3 is expressed on all mature T cells, NK T cells and thymocytes. It plays a role in recognizing antigen, activating cytotoxic T cell and T helper cell, and signal transduction.

CD11b is a type I transmembrane glycoprotein also known as αM integrin, Mac-1, CR3, and C3biR. CD11b associated with integrin β2 (CD18) is expressed on the surface of monocytes, granulocytes, activated lymphocytes and a subset of NK cells. CD11b is a receptor for intercellular adhesion molecule family members CD54, CD102 and CD50 as well as for iC3b. These adhesions are crucial in cell-cell and cell-matrix interactions.

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CD14 is a glycosylphosphatidylinositol (GPI)-linked membrane glycoprotein that works as a receptor on myeloid cells for ligands such as lipopolysaccharide (LPS). CD14 is a receptor for and binds to complexes of LPS and LPS-binding protein (LBP) with high affinity. It expresses high levels on monocytes, also expressed on interfollicular macrophages, reticular dendritic cells and Langerhans cells. It is also found on granulocytes.

CD15 is also known as 3-fucosyl-N-acetyllactosamine (3-FAL), Lewis X, 3-FAL, X-hapten, and SSEA-1. It is highly expressed on granulocytes, including neutrophils and eosinophils, and some on monocytes. It is absent from lymphocytes or basophils. CD15, a marker for human myeloid cell, is involved in various cell functions including phagocytosis, bacterial activity, neutrophil adhesion to dendritic cells and chemotaxis.

CD16 is in the form of CD16a and CD16b. CD16a is expressed on NK cells and macrophages while CD16b is expressed on neutrophils. CD16a also plays a crucial role for antibody-dependent cellular cytotoxicity (ADCC) by NK cells.

CD19 forms a signal transduction complex with the complement receptor 2 (CD21), a tetraspanin membrane protein, TAPA-1 (CD81), and Lue 13 to function as a dominant signaling component on the surface of B cells. It is expressed in all phases of B cell development, maturation, and differentiation except at the terminal stage of differentiation, lost in plasma cells. It is also present on follicular dendritic cells and absent on T cells.

CD33 also known as Siglec-3, gp67, and p67, is expressed on monocytes, activated T cells, myeloid progenitors, granulocytes, dendritic cells, and mast cells. It is absent on erythrocytes, platelets, and lymphoid cells. CD33 binds to sialic acids to act as a sialic acid-dependent cell adhesion molecule. It also contains intracellular tyrosine-based inhibition motifs (ITIMs), suggesting its function to inhibit cellular activity.

CD45 is the first and prototypic receptor-like protein tyrosine phosphatase that expresses on all human leukocytes. It is absent on mature erythrocytes, platelets, and non-hematopoietic cells.

CD56, also known as NCAM (Neural Cell Adhesion Molecule), Leu-19 and NKH1, is present on NK and NKT cells. CD56 is also expressed in the brain (cerebellum and cortex) and at neuromuscular junctions. Aberrant CD56 expression is observed in a range of hematological malignancies such as multiple myeloma and leukemia as well as in solid tumors such as lung cancer, ovarian cancer, and neuroblastoma.

CD66b, is a member of the carcinoembryonic antigen (CEA)-like subfamily. CD66b, expressed on granulocytes, has been reported to induce activation in neutrophils and to be involved in heterophilic adhesion with CD66c.

CD84 is a member of the SLAM (CD150) family, also known as SLAMF5 or Ly9b. CD84 is expressed on B cells, monocytes, thymocytes, subset of T cells (preferentially CD45RO+ T cells), and platelets. CD84 functions as a homophilic adhesion molecule and enhances T cell activation and cytokine production.

CD181 also known as CXCR1, IL-8 receptor A (IL-8RA), and CDw128a. It is a CXC chemokine receptor that belongs to the G protein-coupled receptor (CPCR) family. CXCR1 is expressed as homodimer or heterodimer with CXCR2 and found on granulocytes, NK cells, subset of T lymphocytes, mast cells, monocytes, endothelial cells, megakaryocytes, and oligodendrocytes. CXCR1 mediates neutrophil activation and chemotaxis, megakaryocytic proliferation, and angiogenesis.

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CD193 (CCR3) is a member of the G protein-coupled seven transmembrane receptors family, and binds to the CC chemokines eotaxin, eotaxin-2, and eotaxin-3 with high affinity. It has also been reported to bind RANTES, MCP-3, and MCP-4 with low affinity. CCR3 receptor is expressed on human eosinophils, basophils, mast cells, mononuclear phagocytes, platelets, $CD34^+$ hematopoietic progenitor cells, Th2-like lymphocytes, and keratinocytes. CCR3 is thought to play a role in allergic diseases such as bronchial asthma and allergic rhinitis. CCR3 is a co-receptor for HIV-1 and HIV-2, and the binding of eotaxin with CCR3 has been shown to inhibit HIV infection in some cell types.

HLA-DR, also known as human leukocyte antigen DR isotype, is present on the surface of antigen-presenting cells, including B cells, dendritic cells, macrophages, monocytes and activate T cells. MHC class II regulates the immune system by playing a critical role in binding and presenting antigen-derived peptides to peptide-MHC II-specific CD4 T cells.

Lox-1 is expressed by endothelial cells, smooth muscle cells, platelets, fibroblasts, and macrophages and is upregulated by inflammatory and oxidative stimuli. Lox-1 is involved is endocytosis, phagocytosis and cytokine production.

RECOMMENDED USAGE

Whole blood collected in K_2EDTA, Heparin, ACD and Cyto-Chex® BCT blood tubes have been tested to validate the performance of this kit. PBMCs and tissue infiltrating leukocytes have also been tested and validated. For staining procedures, product data, and gating strategy, please refer to the Reagents and Protocols sections of our website at www.cytekbio.com.

Please briefly centrifuge the reagent vial before use.

Use appropriate personal protective equipment per the product safety data sheet when using this product.

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