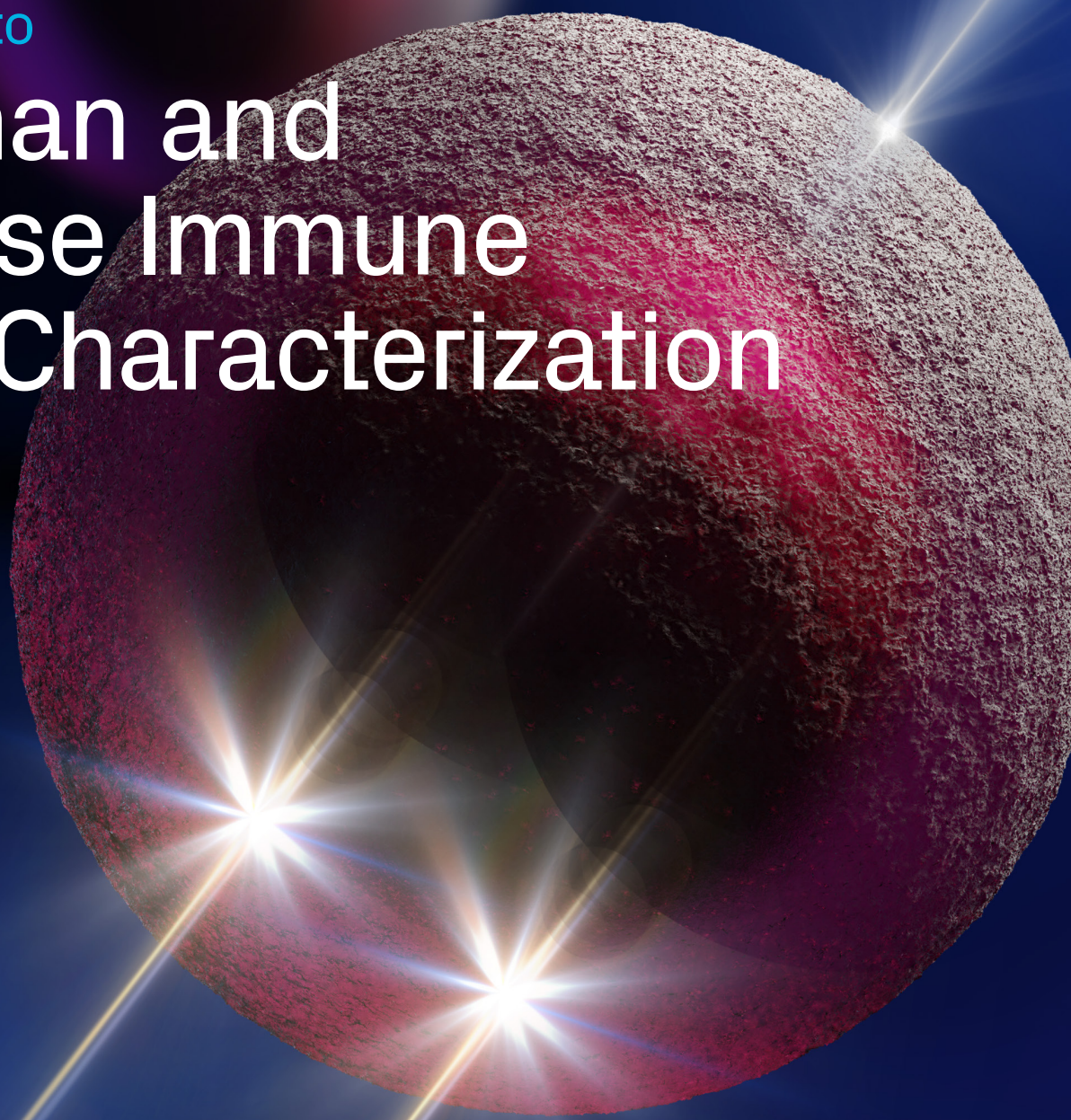


biotechne®

IMMUNE CELL
CHARACTERIZATION /

A Guide to

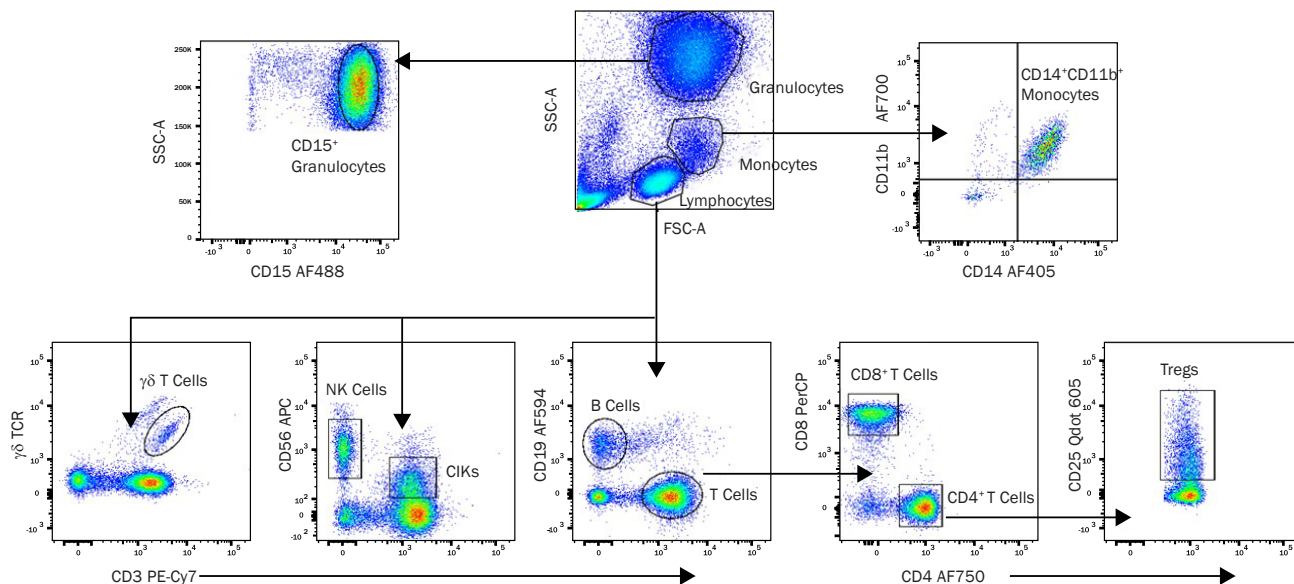
Human and Mouse Immune Cell Characterization



Immune Cell Characterization by Flow Cytometry

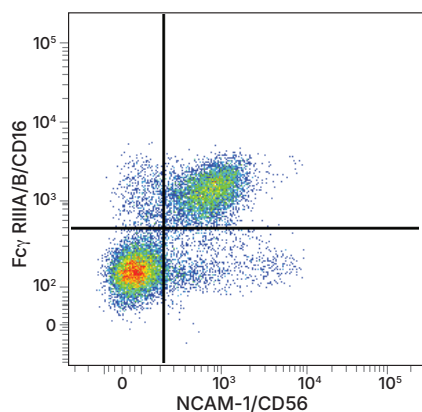
Flow cytometry is a powerful technique that is widely used to identify and characterize different immune cell types in heterogeneous samples. It primarily relies on the use of fluorochrome-conjugated antibodies to detect the expression of specific cell surface or intracellular antigens on single cells in suspension. Using a combination of antibodies against different targets that are conjugated to fluorochromes with different emission wavelengths, multiple antigens can be detected simultaneously. As a result, distinct cell populations can be identified, quantified, and gated for further analysis.

Bio-Techne offers an unparalleled selection of fluorochrome-conjugated R&D Systems™ and Novus Biologicals™ antibodies qualified for flow cytometry that can be used to detect markers on different immune cell types present in mixed population samples, such as peripheral blood or tissue samples. Hundreds of world-renowned unique clones are available from the R&D Systems brand, many of which have been used to establish CD nomenclature through HLDA workshops. Additionally, the Novus Biologicals brand includes an expansive collection of both proprietary antibodies and some of the most highly referenced antibody clones on the market.

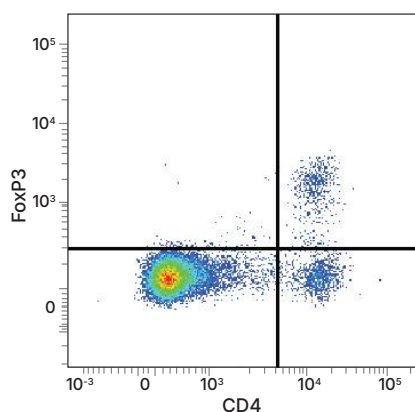


10-Parameter Flow Cytometric Analysis of Immune Cells in Human Whole Blood. Human whole blood was stained with the following panel of monoclonal antibodies: **Alexa Fluor® 700-conjugated Mouse Anti-Human CD11b/Integrin αM** (R&D Systems, Catalog # FAB1699N), **Alexa Fluor405-conjugated Mouse Anti-Human CD14** (R&D Systems, Catalog # FAB3832V), **Alexa Fluor 488-conjugated Mouse Anti-Human CD15/Lewis X** (R&D Systems, Catalog # FAB7368G), **PE-Cy7-conjugated Mouse Anti-Human CD3** (Novus Biologicals, Catalog # NB100-2726PECY7), **Alexa Fluor 750-conjugated Mouse Anti-Human CD4** (R&D Systems, Catalog # FAB3791S), **PerCP-conjugated Mouse Anti-Human CD8α** (R&D Systems, Catalog # FAB1509C), **Alexa Fluor 594-conjugated Mouse Anti-Human CD19** (R&D Systems, Catalog # FAB4867T), **AmCyan-conjugated Anti-Human γδTCR**, **BV605-conjugated Anti-Human CD25/IL-2 Rα**, and **APC-conjugated Mouse Anti-Human CD56/NCAM-1** (R&D Systems, Catalog # FAB2408A). Different immune cell populations identified by the specific staining shown in each dot plot were gated and labeled or further stained as indicated to identify subsets of that particular cell type.

Alexa Fluor® is a registered trademark of Molecular Probes, Inc., Eugene, OR.



Detection of CD3⁺CD56⁺CD16^{-/-} Human Blood Lymphocytes by Flow Cytometry. Human peripheral blood lymphocytes were stained with a **PE-conjugated Mouse Anti-Human NCAM-1/CD56 Monoclonal Antibody** (R&D Systems, Catalog # FAB2408P) and a **Fluorescein-conjugated Mouse Anti-Human Fcγ RIII/CD16 Monoclonal Antibody** (R&D Systems, Catalog # FAB2546F). Cells were gated on CD3⁺ lymphocytes.



Detection of FoxP3 in C57BL/6 Mouse Splenocyte Natural Tregs by Flow Cytometry. C57BL/6 mouse splenocyte natural regulatory T cells (Tregs) were surface stained with a **PE-conjugated Rat Anti-Mouse CD4 Monoclonal Antibody** (R&D Systems, Catalog # FAB554P) followed by intracellular staining with an **Alexa Fluor 647-conjugated Rabbit Anti-Human/Mouse FoxP3 Monoclonal Antibody** (R&D Systems, Catalog # IC8214R). To facilitate intracellular staining, cells were fixed and permeabilized using the **FlowX FoxP3 Fixation & Permeabilization Buffer Kit** (R&D Systems, Catalog # FC012). Cells were gated on lymphocytes.

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Fluorescent Conjugate Options

Primary conjugated antibodies simplify your workflow by allowing direct detection of a target antigen without the need for a secondary antibody. Removing the secondary antibody staining step saves time, reduces background, and provides more flexibility for multiplex assays as you are not limited by the species reactivity of your antibodies.

Primary antibody conjugation is readily available to biotin, horseradish peroxidase (HRP), or any of the 28 fluorescent labels listed in the table below.

Step 1. Search your target at bio-techne.com

Step 2. Select a conjugate option from the drop-down menu

Step 3. Receive your conjugated antibody in 5-7 business days

Excitation Laser (nm)	Conjugate	Excitation Max (nm)	Emission Max (nm)	Emission Color
UV (350)	Alexa Fluor® 350	346	442	
UV (350)	DyLight 350	353	432	
Violet (405)	DyLight 405	400	420	
Violet (405)	Alexa Fluor® 405	401	421	
Violet (405)	mFluor™ Violet 450	406	445	
Violet (405)	mFluor™ Violet 500	410	501	
Violet (405)	mFluor™ Violet 610	421	613	
Blue (488)	PerCP	482	678	
Blue (488)	Y-G (561) PE/Cy7	489, 566	782	
Blue (488)	Alexa Fluor® 488	490	525	
Blue (488)	DyLight 488	493	518	
Blue (488)	FITC	498	519	
Blue (488)	Y-G (561) PE	498, 565	578	
Blue (488)	Y-G (561) PE/Atto594	498, 566	632	
Blue (488)	Y-G (561) PE/Cy5.5	498, 566	700	
Y-G (561)	Alexa Fluor® 532	532	554	
Y-G (561)	Janelia Fluor® 549	549	571	
Y-G (561)	DyLight 550	562	576	
Y-G (561)	Alexa Fluor® 594	590	617	
Y-G (561)	DyLight 594	593	618	
Red (633,640)	Janelia Fluor® 646	646	664	
Red (633,640)	APC	650	660	
Red (633,640)	DyLight 650	652	672	
Red (633,640)	Alexa Fluor® 647	653	669	
Red (633,640)	DyLight 680	692	712	
Red (633,640)	Alexa Fluor® 700	696	720	
Red (633,640)	Alexa Fluor® 750	749	775	
Red (633, 640)	APC/Cy7	652	790	

KEY: Y-G= Yellow-Green

Select Flow Cytometry Antibodies for Characterizing Cell Surface Markers on Human Immune Cells

Cell Surface Marker	Clone	Unconjugated Ab (Catalog #)	Fluorochrome Conjugates Available																																	
			Alexa Fluor® 350	Alexa Fluor 405	Alexa Fluor 488	Alexa Fluor 532	Alexa Fluor 594	Alexa Fluor 647	Alexa Fluor 700	Alexa Fluor 750	Allophycocyanin	Allophycocyanin/Cy7	Biotin	DyLight 350	DyLight 405	DyLight 488	DyLight 550	DyLight 594	DyLight 650	DyLight 680	DyLight 755	Fluorescein	HRP	Janella Fluor 549	Janella Fluor 646	mFluor Violet 450 SE	mFluor Violet 500 SE	mFluor Violet 610 SE	PerCP	Phycoerythrin	Phycoerythrin/Atto 594	Phycoerythrin/Cy5.5	Phycoerythrin/Cy7			
CCR1	53504*	MAB145	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
CCR2	48607*	MAB150	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR3	61828*	MAB155	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR4	205410*	MAB1567	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR5	45531	MAB1802	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR6	53103*	MAB195	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR7	150503*	MAB197	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR8	191704*	MAB1429	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR10	314305*	MAB3478	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD1a	O10*	NBP2-34697	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD1c/BDCA-1	L161*	NBP2-62220	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD3e	UCHT1*	MAB100	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD4	RPA-T4*	MAB37912	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD8	RPA-T8*	MAB3802	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD11b/Integrin αM	ICRF44	MAB1699	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD11c	3.9*	NB100-2711	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD14	M5E2*	NB100-77758	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD15	BRA-4F1*	NBP3-12070	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD16/Fcγ RIII	3G8*	NBP3-21452	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD19	1D3	NBP2-24965	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD24	ML5	MAB5247	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD25/IL-2 Rα	216*	NBP2-89307	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD27/TNFRSF7	O323*	NBP1-43426	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD28	CD28.2*	NBP1-79126	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD33/Siglec-3	WM53*	NBP2-34511	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD38	AT1	NBP2-47908	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD45	30-F11	NB100-77417	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD45RA	MEM-56*	NB500-329	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD45RO	UCHL1	MAB10642	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD56/NCAM-1	735*	NBP2-52669	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD62L/L-Selectin	DREG56*	NBP1-42795	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD63	H5C6*	NBP2-42225	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD66b/CEACAM-8	6/40c	NBP2-54627	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD68/SR-D1	ED1	NB600-985	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD69	FN50*	NBP1-43387	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD80/B7-1	16-10A1	NBP1-43385	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Fluorochrome Conjugates Available

Cell Surface Marker	Clone	Unconjugated Ab (Catalog #)	Alexa Fluor® 350	Alexa Fluor 405	Alexa Fluor 488	Alexa Fluor 532	Alexa Fluor 594	Alexa Fluor 647	Alexa Fluor 700	Alexa Fluor 750	Allophycocyanin	Allophycocyanin/Cy7	Biotin	DyLight 350	DyLight 405	DyLight 488	DyLight 550	DyLight 594	DyLight 650	DyLight 680	DyLight 755	Fluorescein	HRP	Janelia Fluor 549	Janelia Fluor 646	mFluor Violet 450 SE	mFluor Violet 500 SE	mFluor Violet 610 SE	PerCP	Phycoerythrin	Phycoerythrin/Atto 594	Phycoerythrin/Cy5.5	Phycoerythrin/Cy7		
CD86/B7-2	BU63*	NBP2-34569	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD95/Fas	50825	MAB326	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
CD115/M-CSF R	12-3A3-1B10*	NBP1-43362	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD117/c-kit	YB5.B8*	NBP1-43358	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD123/IL-3 Rα	6H6	NB600-1185	X	X	X			X	X	X	X		X	X	X	X			X	X	X	X	X	X		X	X	X	X	X		X	X		
CD127/IL-7 Rα	40131	MAB306	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD138/Syndecan-1	017•	NBP2-89899	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD141/BDCA-3	501733	MAB3947	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD161	B199.2	NB100-65298	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD163	GHI/61*	NBP1-43341	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD172/SIRPα	602411	MAB4546	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CD206/MMR	685641	MAB25342	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CLEC9a	683409*	MAB6049	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X		X	X					X					
CX3CR1	528728	FAB5204P																															X		
CXCR4	12G5	MAB170	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CXCR5	51505*	MAB190	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
EpCAM/TROP1	28•	NBP2-89605	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fcε R1a	773735	MAB66781	X	X	X		X	X	X	X																									
HLA-DR	L203	MAB4869	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICOS	ISA-3	NBP1-43126							X				X						X							X	X	X							
IgD	IA6-2	MAB9857	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IgM	DA4-4	NBP2-34252	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IL-6 Rα	17506•	MAB227	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IL-23 R	218213	MAB14001	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Langerin/CD207	929F3.01	DDX0362P-100			X			X					X																						
Neuropilin-1/BDCA-4	446921	MAB3870	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
XCR1	1097A•	MAB8571	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Alexa Fluor® is a registered trademark of Molecular Probes, Inc., Eugene, OR.

KEY

Novus Biologicals Antibody

R&D Systems Antibody

* Clone was used by HLDA to establish CD designation.

• Indicates this antibody is either a recombinant monoclonal antibody or is available as one.

Select Flow Cytometry Antibodies for Characterizing Cell Surface Markers on Mouse Immune Cells

			Fluorochrome Conjugates Available																															
Cell Surface Marker	Clone	Unconjugated Ab (Catalog #)	Alexa Fluor® 350	Alexa Fluor 405	Alexa Fluor 488	Alexa Fluor 532	Alexa Fluor 594	Alexa Fluor 647	Alexa Fluor 700	Alexa Fluor 750	Allophycocyanin	Allophycocyanin/Cy7	Biotin	DyLight 350	DyLight 405	DyLight 488	DyLight 550	DyLight 594	DyLight 650	DyLight 680	DyLight 755	Fluorescein	HRP	Janelia Fluor 549	Janelia Fluor 646	mFluor Violet 450 SE	mFluor Violet 500 SE	mFluor Violet 610 SE	PerCP	Phycoerythrin	Phycoerythrin/Atto 594	Phycoerythrin/Cy5.5	Phycoerythrin/Cy7	
CCR1	643854•	MAB5986	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
CCR2	475301•	MAB55831	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR3	83101	MAB729	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR5	225307•	MAB18041	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR6	140706•	MAB590	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR8	1055C•	MAB8324	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CCR10	248918•	MAB2815	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD1d	1B1	NBP1-43461	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD3ε	145-2C11	MAB484	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD4	GK1.5	MAB554	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD5	53-7.3	MAB115	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD8α	53-6.7	MAB116	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD11b/Integrin αM	M1/70	MAB1124	X	X	X		X	X	X	X	X		X										X						X	X				
CD11c	N418	MAB69501	X	X		X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD14	503•	NBP2-90362	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD19	1D3	NBP2-24965	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD21	BB6.11C9.6	NBP1-28245		X	X		X		X		X		X	X	X	X							X						X	X				
CD22/Siglec-2	308501	MAB2296	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD23/Fcε RII	007•	NBP2-90682	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD25/IL-2 Rα	PC61.5.3	MAB9164	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD27/TNFRSF7	012•	NBP2-90423	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD44	IM7	NBP1-41266	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD45	30-F11	MAB114	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD62L/L-Selectin	MEL-14•	NBP2-81083	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD69	H1.2F3	NBP1-28011		X	X		X	X	X		X		X	X	X					X	X	X												
CD80/B7-1	16-10A1	NBP1-43385	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD83	101•	NBP3-12771	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD86/B7-2	GL1	MAB741	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD90/Thy1	OX-7	NB100-65543	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD103/Integrin αE	AP-MAB0828	NBP1-06674	X			X	X		X		X							X							X	X	X	X	X					
CD115/M-CSF R	AFS98	NBP1-43363	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD117/c-kit	ACK2	NBP1-43359	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Fluorochrome Conjugates Available

Cell Surface Marker	Clone	Unconjugated Ab (Catalog #)	Alexa Fluor® 350	Alexa Fluor 405	Alexa Fluor 488	Alexa Fluor 532	Alexa Fluor 594	Alexa Fluor 647	Alexa Fluor 700	Alexa Fluor 750	Allophycocyanin	Allophycocyanin/Cy7	Biotin	DyLight 350	DyLight 405	DyLight 488	DyLight 550	DyLight 594	DyLight 650	DyLight 680	DyLight 755	Fluorescein	HRP	Janelia Fluor 549	Janelia Fluor 646	mFluor Violet 450 SE	mFluor Violet 500 SE	mFluor Violet 610 SE	PerCP	Phycoerythrin	Phycoerythrin/Atto 594	Phycoerythrin/Cy5.5	Phycoerythrin/Cy7	
CD127/IL-7 Rα	1140A•	MAB7473	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
CD138/Syndecan-1	300506	MAB2966	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD172a/SIRPα	001•	NBP2-90751	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD206/MMR	857615	MAB25351	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CD317/BST-2	44E9R•	MAB8660	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CLEC9a	1F6	NBP3-08840	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
CX3CR1	Polyclonal	AF5825			X						X																				X			
CXCR4	247506•	MAB21651	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
DC-SIGN/CD209	MMD3	MAB83451	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
EpCAM/TROP1	G8.8R•	MAB8998	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
F4/80	Cl:A3-1•	NBP2-81029	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Fcε RI	43160	NBP1-43279	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fcγ RI/CD64	027•	NBP2-90405	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Gr-1/Ly-6G	1A8	MAB10371	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
ICOS	2317C•	MAB1682	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
IFN-γ R2	MOB47•	MAB773	X	X	X		X	X	X				X	X	X	X	X		X	X		X	X	X										
IgD	11-26C	MAB9858	X	X	X		X	X	X	X																								
IgM	II/41	NBP1-43303									X	X											X							X	X	X		
IL-6 Rα	033•	NBP2-90512	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
IL-23 R	753317	MAB16861	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Langerin/CD207	929F3.01	DDX0362P-100			X			X				X																						
MHC class II	M5/114	NBP2-21789	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NK1.1/CD161	PK136	MAB76141	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
NKp46	29A1.4	MAB22252	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Sca-1/Ly6	177228	MAB1226	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X		X	X					X				
ST2/IL-33R	245707	MAB10041	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				

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KEY

Novus Biologicals Antibody

R&D Systems Antibody

• Indicates this antibody is either a recombinant monoclonal antibody or is available as one.

Single Analyte ELISA Kits for Immune Cell Characterization

Analyte	Species	Quantikine Kit (Catalog #)	DuoSet ELISA Development System (Catalog #)
GM-CSF	Human*	DGM00	DY215
	Mouse	MGM00	DY415
IFN- γ	Human**	DIF50C	DY285B
	Mouse	MIF00	DY485
IL-1 β	Human**	DLB50	DY201
	Mouse*	MLB00C	DY401
IL-2	Human**	D2050	DY202
	Mouse	M2000	DY402
IL-4	Human*	D4050	DY204
	Mouse	M4000B	DY404
IL-5	Human	D5000B	DY205
	Mouse	M5000	DY405
IL-6	Human**	D6050B	DY206
	Mouse	M6000B	DY406
IL-9	Human		DY209
	Mouse		DY409
IL-10	Human*	D1000B	DY217B
	Mouse	M1000B	DY417
IL-12/IL-23 p40	Human	DP400	DY1240
	Mouse	M1240 (Allele-specific)	DY499
	Mouse	MP400 (Non-Allele-specific)	DY2398
IL-12 p70	Human*	D1200	DY1270
	Mouse	M1270	DY419
IL-13	Human	D1300B	DY213
	Mouse	M1300CB (Culture media)	DY413
IL-17/IL-17A	Human**	D1700	DY317
	Mouse*	M1700	DY421
IL-17A/F	Human		DY5194
	Mouse	M17AF0	DY5390
IL-17E/IL-25	Human		DY1258
	Mouse		DY1399
IL-17F	Human		DY1335B
	Mouse	M17F0	DY2057
IL-21	Human		DY8879
	Mouse		DY594
IL-22	Human	D2200	DY782
	Mouse	M2200	DY582
IL-23	Human	D2300B	DY1290
	Mouse	M2300	DY1887
TGF- β 1	Human	DB100C	DY240
	Mouse	DB100C	DY1679
TNF- α	Human**	DTA00D	DY210
	Mouse*	MTA00B	DY410

* Quantikine High Sensitivity ELISA Kits are also available for these analytes and species.

* QuickKit ELISAs are also available for these analytes and species.



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Luminex Assays are bead-based multiplex assays for simultaneously detecting and quantifying multiple target analytes in qualified complex sample types. Select from more than 490 targets to quantify up to 50 analytes in each sample. Luminex Assays can help you save time, money, and sample volume and will deliver data that is reliable and reproducible because every panel is QC tested.

Luminex Assays are available in 3 flexible formats:

- 1. Discovery Assays:** Mix and match analyte customization
- 2. Fixed High Performance Panels:** Fully stocked and ready to ship
- 3. Configurable High Performance Panels:** Choose from a selection of the analytes or the entire panel

High Performance cytokine assay panels include:

Human Cytokine Luminex Performance Assay 15-plex Fixed Panel

Human XL Cytokine Luminex Performance 46-plex Fixed Panel

Mouse XL Cytokine Luminex Performance 45-plex Fixed Panel

Human Th1/Th2 Luminex Performance Assay 13-plex Fixed Panel

Human Th9/Th17/Th22 Luminex Performance Assay 18-plex Fixed Panel

Human XL Cytokine Luminex Performance Panel Premixed Kit

Mouse XL Cytokine Luminex Performance Panel Premixed Kit



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