

Intracellular Markers for Flow Cytometry

When intracellular antigens are key for relevant results.



Intracellular staining in flow cytometry is a useful technique in analysis of intracellular antigens. It has emerged as a powerful tool in the study of immunological signaling and related cellular processes.

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Antibodies useful for identifying intracellular antigens

CD3: Human TCR/CD3 is a complex structure on the lymphocyte surface. It consists of the TCR $\alpha\beta$ or TCR $\gamma\delta$ heterodimer and the associated CD3 complex. The CD3 complex is crucial in transducing antigen-recognition signals into the cytoplasm of T cells and in regulating the cell surface expression of the TCR complex.

CD22: CD22 is a single chain type 1 transmembrane glycoprotein, member of the IgG superfamily and homologous to several other proteins, including myelin basic protein and members of the carcinoembryonic antigen (CEA) family. CD22 expression is restricted to B cells and is absent from other haemopoietic cell types. The antigen is lost during the terminal stages of differentiation prior to the plasma cell stage.

CD68: CD68 belongs to a family of lysosomal glycoprotein (LGP)/plasma membrane shuttling proteins that play a role in endocytosis and/or lysosomal trafficking. CD68 is expressed strongly in cytoplasmic granules, and weakly on the surface of macrophages, monocytes, neutrophils, basophils and NK-cells.

CD79acy: CD79 is non-covalently associated with surface Ig, forming the B-cell receptor complex, which is required for antigen recognition. In precursor B cells, the CD79 protein chains are already expressed in the cytoplasm (CyCD79). Surface expression of CD79 begins at the pro-B cell stage and persists throughout the B-cell differentiation.

IgD, IgG and IgM: Most B cells, with the exception of pre-B progenitor and pre-B cells, and mature plasma cells, express immunoglobulin on their surface. Pre-B cells express cytoplasmic mu-chains but no light chains, whereas the early B lymphocytes express membrane IgM only. The maturing B lymphocytes additionally produce IgD that is inserted into the cell membrane joining IgM and establishing a population of IgM+IgD+ B lymphocytes, which is the largest population of circulating B lymphocytes in man.

Kappa and Lambda Light Chains: Most B cells, with the exception of pre-B progenitors and pre-B cells, and mature plasma cells, express immunoglobulin on their surface. Each cell expresses only one light chain type. In normal peripheral blood and lymph nodes, there is a mixture of kappa-positive and lambda-positive cells, with two-thirds of the cells expressing kappa and one-third expressing lambda.

Lysozyme: Within the haematopoietic system, lysozyme is known as an intracellular pan-myeloid marker molecule that is selectively expressed by cells of the granulo-monocytic

lineage. Mature monocytes are thought to continuously synthesize and secrete lysozyme while granulocytes do not synthesize but only secrete the preformed enzyme.

Myeloperoxidase (MPO): Human myeloperoxidase (MPO) is a lysosomal enzyme present in the azurophilic granules of neutrophils and at lower levels in monocytes.

Plasma Cell: Anti-Human Plasma Cell, VS38c, was clustered as an anti-p63 protein. The p63 protein has a currently unknown function, but because of its homology to both rat and swine proteins, its abundance in secretory cells, and its localization to the rough endoplasmic reticulum, a conserved role in protein processing or secretion is suggested.

Terminal Deoxynucleotidyl Transferase (TdT): Terminal deoxynucleotidyl Transferase (TdT) catalyzes the random addition of deoxynucleotidyl residues on the 3' hydroxyl end of single-stranded DNA. TdT is present in the nuclei of T and B lymphocyte precursors.

Intracellular Markers for Flow Cytometry, ASR*

	Product	Clone	APC	FITC	PerCP	PerCP-Cy5.5	RPE	PB
ASR	Mo a Hu CD3	UCHT1			PR70201-1			PB98201-1
ASR	Mo a Hu CD22	4KB128	C728101-1	F706001-1		PR70750-1	R706101-1	
ASR	Mo a Hu CD68	KP1		F713501-1				
ASR	Mo a Hu CD79acy	HM57	C725201-1				R715901-1	
ASR	Rb a Hu IgD, Specific for Delta-Chains			F018901-1			R511201-1	
ASR	Rb a Hu IgG, Specific for Gamma-Chains			F018501-1				
ASR	Rb a Hu IgM, Specific for Mu-Chains			F005801-1			R511101-1	
ASR	Rb a Hu Kappa Light Chains		C022201-1	F043401-1			R043601-1	
ASR	Rb a Hu Lambda Light Chains			F043501-1		PR71250-1	R043701-1	
ASR	Rb a Hu Lysozyme EC 3.2.1.17			F037201-1				
ASR	Mo a Hu Myeloperoxidase	MPO-7	C724601-1	F071401-1		PR70450-1	R720901-1	
ASR	Mo a Hu Plasma Cell	VS38c		F714901-1		PR71350-1		
ASR	Mo a Hu Terminal Deoxynucleotidyl Transferase	HT-6		F713950-1				

* ASR: Analyte specific reagent. Analytical and performance characteristics are not established. Reagent provided consists of fluorochrome conjugated antibody that has been affinity isolated.

Learn more:

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Contact Agilent's Flow Cytometry support:

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