Miltenyi Biotec

Multi Tissue Dissociation Kit 2

Preservation of cell surface epitopes

Background

The Multi Tissue Dissociation Kit 2 enables the thorough dissociation of various tough tissues to enhance the yield of cells found at low frequencies after dissociation, such as endothelial cells. Preservation of cell surface epitopes is essential for several downstream applications such as cell separation, flow analysis, and sorting. The dissociation process involves enzymatic digestion steps. Here we tested how the enzymes of the Multi Tissue Dissociation Kit 2 affect the integrity of key epitopes serving for the identification of major leukocyte populations, endothelial cells, and epithelial cells in mouse and human. Our results show that many epitopes are well preserved during enzymatic treatment.

Method

For mouse tissue, preservation of cell surface epitopes was tested on mouse spleens, lungs, blood, or perfused livers, either treated with the Multi Tissue Dissociation Kit 2 enzymes or incubated in buffer without enzymes (30 min at 37 °C).
For human tissue, preservation of cell surface epitopes was tested on PBMCs, monocyte-derived dendritic cells, HUVECs, or SKBR3 cells either treated with the Multi Tissue Dissociation Kit 2 enzymes or incubated in buffer without enzymes (30 min at 37 °C).
The enzymatically treated and untreated samples were stained with each of the fluorochrome-conjugated MACS® Antibodies detecting cell surface epitopes and subsequently analyzed by flow cytometry. A decrease in fluorescence signal intensity of the fluorochrome conjugates in the treated cells indicated effects on epitope integrity.

Results, mouse

Antibody detecting cell surface epitope	Antibody clone
Anti-F4/80	REA126
Anti-Gr-1	RB6-8C5
Anti-LGR5	DA04-10E8.9
Anti-Ly-6C	1G7.G10
Anti-Ly-6G	REA526
Anti-MHC II	M5/114.15.2
Anti-NK1.1	PK136
Anti-NKp46	29A1.4.9
Anti-PDCA-1	JF05-1C2.4.1
Anti-Siglec-H	551.3D3
Anti-Ter119	Ter-119
CD3e	REA606
CD4	REA604
CD8a	REA601
CD11b	REA592
CD11c	N418

Antibody detecting cell surface epitope	Antibody clone
CD16/32	REA377
CD19	6D5
CD25	REA568
CD31	390
CD40	FGK45.5
CD43	REA364
CD45	30F11.1
CD45R	RA3-6B2
CD49b	REA541
CD51	mEF-SK4
CD61	2C9.G2(HMβ3-1)
CD62L	MEL-14-H2.100
CD80	16-10A1
CD81	EAT2
CD90.2	30-H12
CD105	MJ7/18

Antibody detecting cell surface epitope	Antibody clone
CD106	429 (MCCAM.A)
CD107a	1D4B
CD127	A7R34
CD140a	APA5
CD140b	APB5
CD205	NLDC-145
CD309	Avas12
CD326 (EpCAM)	caa7-9G8

Results, human

Antibody detecting cell surface epitope	Antibody clone
anti-CLA	HECA-452
anti-HLA-DR	AC122
anti-KIR2D	NKVFS1
anti-LGR5	DA03-22H2.8
anti-NKp80	4A4.D10
anti-PTK7 (CCK-4)	188B
anti-Slan (M-DC8)	DD1
anti-TCR α/β	BW242/412
anti-TCR γ/δ	11F2
CD1c (BDCA-1)	AD5-8E7
CD2	LT2
CD3	BW264/56
CD4	VIT4
CD4	M-T466
CD6	M-T411
CD8	BW135/80
CD10	97C5
CD11b	M1/70.15.11.5
CD11c	MJ4-27G12.4.6
CD14	TÜK4
CD15	VIMC6
CD16	VEP13
CD19	LT19
CD20	LT20
CD24	32D12
CD25	4E3
CD26	FR10-11G9
CD27	M-T271

Antibody detecting cell surface epitope	Antibody clone
CD28	15E8
CD31	AC128
CD33	AC104.3E3
CD34	AC136
CD36	AC106
CD38	IB6
CD39	MZ18-23C8
CD40	HB14
CD44	DB105
CD45	5B1
CD45RA	T6D11
CD45RO	UCHL1
CD49d	MZ18-24A9
CD49e	NKI-SAM1
CD49f	GoH3
CD56	AF12-7H3
CD57	TB03
CD62L	145/15
CD63	H5C6
CD66abce	TET2
CD73	AD2
CD84	MZ18-21F6
CD90	DG3
CD95	DX2
CD101	BB27
CD105	43A4E1
CD123	AC145
CD127	MB15-18C9

Antibody detecting cell surface epitope	Antibody clone
CD133	AC133
CD138	B-B4
CD141 (BDCA-3)	AD5-14H12
CD144	REA199
CD146	ME-9F1
CD158a/h (KIR2DL1/DS1)	11PB6
CD158b (KIR2DL2/DL3)	DX27
CD158e (KIR3DL1)	DX9
CD158e/k (KIR3DL1/DL2)	5.331
CD161 (NKR-P1A)	191B8
CD163	GHI/61.1
CD197 (CCR7)	FR11-11E8
CD203c	FR3-16A11
CD209	DCN47.5
CD226 (DNAM-1)	DX11
CD266	ITEM-4
CD271	ME20.4 1.H4
CD294 (CRTH2)	BM16
CD303 (BDCA-2)	AC144
CD314 (NKG2D)	BAT221
CD324	67A4
CD326 (EpCAM)	HEA-125
CD335 (NKp46)	9E2
CD337 (NKp30)	AF29-4D12

Legend
- Stable
- Moderate sensitivity*
- Strong sensitivity*

* Reducing the concentration of one of the kit components (Enzyme P) can aid in preserving sensitive epitopes. For more information please contact us.

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