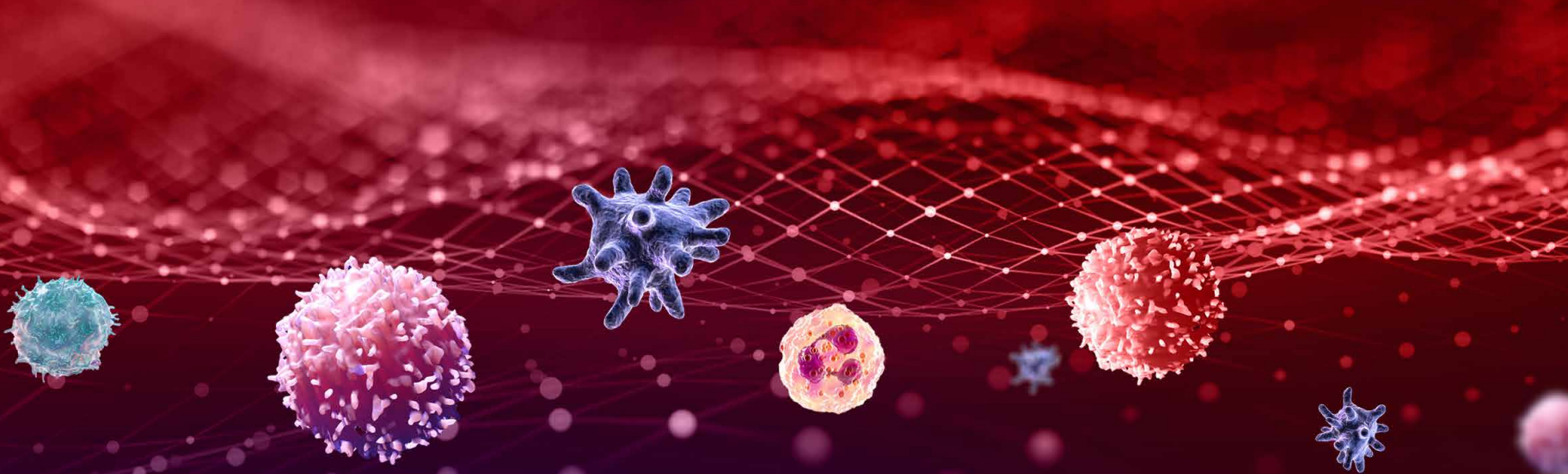


invitrogen



Immune cell guide



Antibodies

Human and mouse antigens

ThermoFisher
SCIENTIFIC

Full spectrum cell analysis

Each cell holds a mystery waiting to be solved. At Thermo Fisher Scientific, we are focussed on accelerating your science and advancing meaningful discoveries by providing a comprehensive suite of solutions for the analysis of cells and their functions. Our innovative products include the Invitrogen™ Attune™ NxT Flow Cytometer, eBioscience™ flow cytometry antibodies and Super Bright conjugates, PrimeFlow™ gene expression assays, and functional assays.

When you are on your quest for significant breakthroughs, we know that you never settle for average, and neither will we.

Abbreviations

Act	Activated
ASV	Alternative splice variants
ADCC	Antibody-dependent cellular cytotoxicity
AML	Acute myeloid leukemia
APC	Antigen presenting cells
BM	Bone marrow
CCRSF	Complement component receptor superfamily
CD	Cluster of differentiation
CHO	Carbohydrate moiety
CNS	Central nervous system
CRSF	Cytokine receptor superfamily
CTL	Cytotoxic T lymphocytes
DC	Dendritic cells
ECM	Extracellular matrix
Endoth	Endothelial cells
Epith	Epithelial cells
ESC	Embryonic stem cells
FDC	Follicular dendritic cells
GPI	Glycophosphatidylinositol
Gran	Granulocytes
HEV	High endothelial venule
HUVEC	Human umbilical vein endothelial cells
HSC	Hematopoietic stem cells
IgSF	Immunoglobulin superfamily
ILC	Innate lymphoid cell
Intra/Txn	Intracellular/transcription factors
kDa	Kilodalton
KO	Knockout
LAK	Lymphokine activated killer
Leuk	Leukocytes
LPS	Lipopolysaccharide
LRRF	Leucine rich repeat family
Lymph	Lymphocytes
Mac	Macrophages
MHC	Major histocompatibility complex
Mono	Monocytes
NK	Natural killer
PBMC	Peripheral blood mononuclear
pDC	Plasmacytoid dendritic cell
PNS	Peripheral nervous system

RBC	Red blood cells
RTK	Receptor tyrosine kinase
Tfh	Follicular T helper cells
Th	T helper cells
TF	Transcription factor
TM	Transmembrane
TM12SF	12-transmembrane spanning protein superfamily
TM4SF	4-transmembrane spanning protein superfamily
TM7SF	7-transmembrane spanning protein superfamily
TNFRSF	TNF receptor superfamily
TNFSF	TNF superfamily

Format abbreviations

FG purified	Functional grade purified (sterile and azide-free)
FG biotin	Functional grade biotin (sterile and azide-free)
FITC	Fluorescein isothiocyanate
PE	Phycoerythrin
PE-eFluor™ 610	Phycoerythrin-eFluor™ 610 Tandem
PE-Cyanine5	Phycoerythrin-Cyanine5 Tandem
PerCP-Cyanine5.5	Peridinin Chlorophyll Protein-Cyanine5.5 Tandem
PerCP-eFluor™ 710	Peridinin Chlorophyll Protein-eFluor™ 710 Tandem
PE-Cyanine7	Phycoerythrin-Cyanine7 Tandem
APC	Allophycocyanin
APC-eFluor™ 780	Allophycocyanin-eFluor™ 780

Contents

B cell markers	4
CD4 T cell markers	6
CD8 T cell markers	8
Dendritic cell markers	10
Granulocyte markers	12
Macrophage/monocyte	14
Megakaryocyte/platelet markers	16
NK/ILC markers	18
NKT/γδ T cell markers	20
Endothelial cell markers	22
Stem cell markers	24
Other cell type markers	26
Human CD antigens	28
Human non-CD antigens	52
Mouse CD antigens	57
Mouse non-CD antigens	76

B cell markers

Pan markers

CD19●
 CD20
 CD22
 CD70↑
 CD79α/β
 Igκ/λ

Follicular

Surface

CD20
 CD21
 CD22
 CD27
 CD23↑●
 CD24
 CD40↑
 CD45R (B220)
 CD69↑
 CD80↑
 CD81
 CD86↑
 CD137 (4-1BB)↑
 CD275 (B7-H2)
 CD279 (PD-1)
 CD360 (IL-2 receptor)
 HLA-DR
 IgD^{high}●
 IgM^{low/int}

Intracellular/ transcription factor

Bcl-6
 EBF1
 FoxO1
 Ikaros
 Pax5

Marginal zone

Surface

CD1d
 CD9
 CD21●
 CD45R (B220)
 CD81
 CD103
 CD180 (RP105)
 CD268
 CD307d (FcRL4)
 IgM

Intracellular/ transcription factor

EBF1
 Notch2
 Pax5

Germinal center

Secreted

IgA
 IgE
 IgG

Surface

CD45R (B220)
 CD81

Intracellular/ transcription factor

AID
 Bach2
 Bcl-6●
 IRF8
 NF-kappaB
 Pax5

Plasma cell

Secreted

IgA
 IgE
 IgG

Surface

CD9
 CD19^{low/neg}
 CD20^{low/neg}
 CD27
 CD31
 CD38
 CD81
 CD138●
 CD184 (CXCR4)
 CD252 (OX40 ligand)
 CD269 (BCMA)

Intracellular/ transcription factor

BLIMP1
 IRF4
 XBP-1

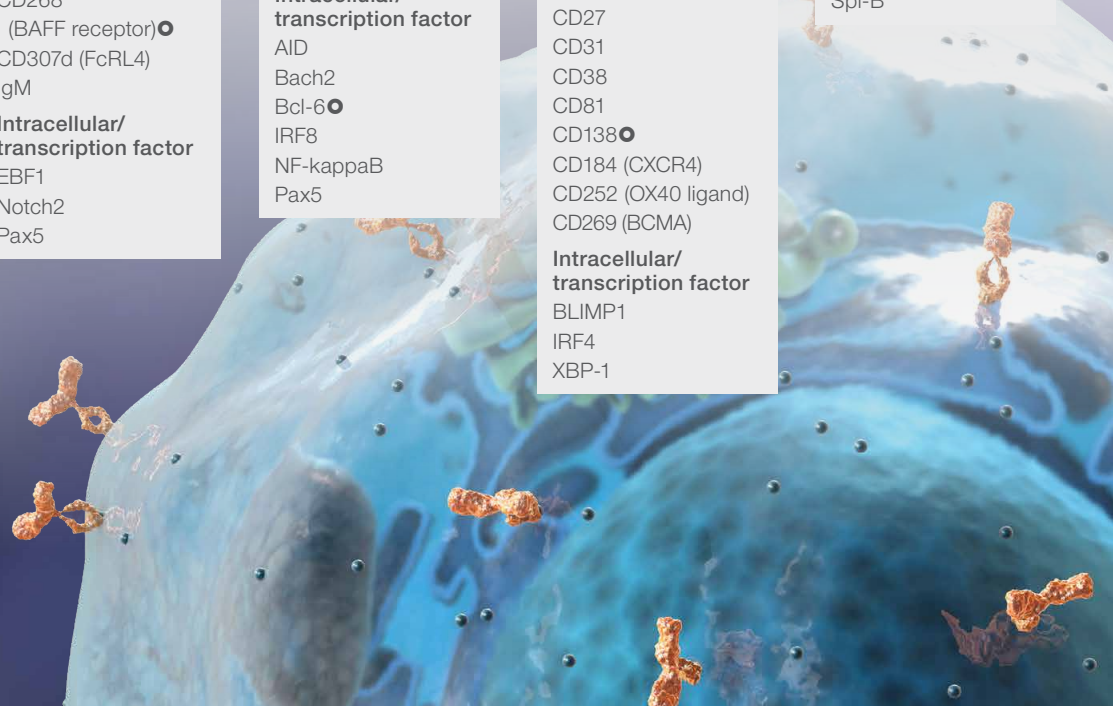
Memory

Surface

CD27○
 IgG
 TLR1, 2, 6, 7, 10

Intracellular/ transcription factor

CBF1
 Pax5
 Spi-B



Pan markers

B220 ●
 CD19 ●
 CD20 ●
 CD21/CD35^{low/neg}
 CD22
 CD23
 CD24 (HSA)^{low}
 CD25↑
 CD36↑
 CD40↑
 CD69↑
 CD80↑
 CD81
 CD86↑
 CD180 (RP105)
 CD252 (OX40 ligand)↑
 IgD^{high}
 IgM^{low/int}

Follicular

Surface

CD20
 CD21/CD35^{low/neg}
 CD22
 CD23 ●
 CD24 (HSA)^{low}
 CD25↑
 CD36↑
 CD40↑
 CD69↑
 CD80↑
 CD81
 CD86↑
 CD180 (RP105)
 CD252 (OX40 ligand)↑
 IgD^{high} ●
 IgM^{low/int}

Intracellular/ transcription factor

Bcl-6
 EBF1
 FoxO1
 Ikaros
 Pax5

Marginal zone

Surface

CD1d
 CD5^{low} ○
 CD9
 CD21/CD35^{high} ●
 CD23^{low/neg}
 CD24 (HSA)^{low}
 CD36
 CD81
 CD180 (RP105)
 CD363 (S1PR1)
 FcRL3
 IgD^{low/neg}
 IgM^{high} ●

Intracellular/ transcription factor

EBF1
 Notch2

Germinal center

Surface

CD19
 CD81
 CD95
 GL7 ●
 IgG

Intracellular/ transcription factor

AID
 Bach2
 Bcl-6
 IRF8
 NF-κB
 Pax5

Plasma cell

Surface

CD9
 CD16/32
 CD19^{low}
 CD81
 CD138 ●
 IgG

Intracellular/ transcription factor

BLIMP1
 IRF4
 XBP-1

Memory

Surface

CD38 ●
 CD45R (B220)^{low}
 CD267 (TACI)
 CD269 (BCMA)
 IgG

Intracellular/ transcription factor

CBF1
 Spi-B

CD4 T cell markers

Pan markers

CD2
 CD3●
 CD4●
 CD5
 CD7
 CD25↑
 CD27
 CD28
 CD45RA (naïve)
 CD45RO (memory)
 CD62L (naïve: high,
 effector: low,
 memory: high)
 CD69↑
 CD127 (IL7R α)
 CD134 (OX40)↑
 CD137 (4-1BB)↑
 CD152 (CTLA-4)↑
 CD154 (CD40L)↑
 CD272 (BTLA)↑
 CD279 (PD-1)↑

Th1

Secreted

IFN γ
 IL-2
 TNF α
 TNF β (LT α)

Surface

CD119 (IFN γ R1)
 CD183 (CXCR3)●
 CD186 (CXCR6)
 CD191 (CCR1)
 CD195 (CCR5)
 CD212 (IL-12R β 1)
 CD254 (RANKL)
 CD366 (TIM3)

Intracellular/ transcription factor

STAT1
 STAT4
 T-bet●

Th2

Secreted

Amphiregulin
 IL-4
 IL-5
 IL-9
 IL-10
 IL-13
 IL-21

Surface

CD184 (CXCR4)
 CD194 (CCR4)
 CD198 (CCR8)
 CD294 (CRTH2)●
 CD365 (TIM1)
 IL-25R (IL-17RB)
 IL-33R (ST2)

Intracellular/ transcription factor

BATF
 GATA-3●
 IRF4
 STAT6

Th17

Secreted

GM-CSF
 IL-17A
 IL-17AF
 IL-17F
 IL-21
 IL-22
 IL-26

Surface

CD121a
 CD161
 CD194 (CCR4)
 CD196 (CCR6)●
 CD360 (IL-21R)
 CD212 (IL-12 β 1)
 IL-23R

Intracellular/ transcription factor

AHR
 BATF
 c-Maf
 I κ B ζ
 IRF4
 ROR α
 ROR γ t●
 STAT3

Tfh

Secreted

IL-21

Surface

CD183 (CXCR3)⊙
 CD185 (CXCR5)●
 CD278 (ICOS)●
 CD279 (PD-1)●

Intracellular/ transcription factor

BATF
 Bcl-6
 c-Maf
 IRF4
 STAT3

Treg

Secreted

IL-10
 TGF β

Surface

CD25●
 CD39
 CD73
 CD101
 CD121a
 CD121b
 CD137 (4-1BB)
 CD152 (CTLA-4)
 CD357 (GITR/AITR)
 GARP↑
 TIGIT⊙

Intracellular/ transcription factor

c-Rel
 Eos
 Foxp3●
 Helios
 STAT5

Pan markers

CD3●
 CD4●
 CD5●
 CD7
 CD25↑
 CD27
 CD28
 CD44↑
 CD62L (naïve: high, effector: low, memory: high)
 CD69↑
 CD127 (IL7Rα)
 CD134 (OX40)↑
 CD137 (4-1BB)↑
 CD152 (CTLA-4)↑
 CD154 (CD40L)↑
 CD272 (BTLA)↑
 CD278 (ICOS)↑
 CD279 (PD-1)↑

Th1

Secreted

IFN γ
 IL-2
 TNF α
 TNF β (LT α)

Surface

CD94
 CD119 (IFN γ R1)
 CD183 (CXCR3)●
 CD186 (CXCR6)
 CD191 (CCR1)
 CD195 (CCR5)
 CD212 (IL-12R β 1)
 CD218a (IL-18R α)
 CD254 (RANKL)
 CD366 (TIM3)

Intracellular/transcription factor

STAT1
 STAT4
 T-bet●

Th2

Secreted

Amphiregulin
 IL-4
 IL-5
 IL-9
 IL-10
 IL-13
 IL-21

Surface

CD184 (CXCR4)
 CD194 (CCR4)
 CD198 (CCR8)
 CD294 (CRTH2)
 CD365 (TIM1)
 IL-25R (IL-17RB)
 IL-33R (ST2)●

Intracellular/transcription factor

BATF
 GATA-3●
 IRF4
 STAT6

Th17

Secreted

GM-CSF
 IL-17A
 IL-17AF
 IL-17F
 IL-21
 IL-22

Surface

CD194 (CCR4)
 CD196 (CCR6)●
 CD121a
 CD212 (IL-12 β 1)
 CD360 (IL-21R)
 IL-23R

Intracellular/transcription factor

AHR
 BATF
 c-Maf
 I κ B ζ
 IRF4
 ROR α
 ROR γ t●
 STAT3

Tfh

Secreted

IL-21

Surface

CD185 (CXCR5)●
 CD278 (ICOS)●
 CD279 (PD-1)●

Intra/Txn

BATF
 Bcl-6
 c-Maf
 IRF4
 STAT3

Treg

Secreted

IL-10
 TGF β

Surface

CD25
 CD137 (4-1BB)
 CD39
 CD73
 CD101
 CD121a
 CD121b
 CD152 (CTLA-4)
 CD304 (Neuropilin-1)●
 CD357 (GITR)

FR4
 GARP↑
 TIGIT

Intracellular/transcription factor

c-Rel
 Eos
 Foxp3●
 Helios
 STAT5

CD8 T cell markers

Pan markers

CD2
 CD3 ●
 CD5
 CD7
 CD8 ●
 CD25↑
 CD27
 CD28

Central memory

Secreted

IFN γ ^{int}
 IL-2^{int}
 TNF α ^{int}

Surface

CCR7^{low}
 CD27
 CD28
 CD45RO
 CD62L ●
 CD62L^{low}
 CD127 (IL7R α)^{high}
 CD197 (CCR7)^{low} ●

Intracellular/ transcription factor

Eomes
 T-bet^{int}

Effector memory

Secreted

Granzyme B
 IFN γ ^{high}
 IL-2^{low}
 Perforin
 TNF α ^{high}

Surface

CD44
 CD45RO ●
 CD62L^{low}
 CD127 (IL7R α)^{high}
 CD197 (CCR7)^{low}
 KLRG1 ●
 KRG1^{high}

Intracellular/ transcription factor

Eomes^{int}
 T-bet^{int}

Effector

Secreted

CCL3 (MIP-1 α)
 CCL4 (MIP-1 β)
 CCL5 (RANTES)
 Granzyme A
 Granzyme B
 Granzyme K
 IFN γ
 IL-2
 Perforin
 TNF α

Surface

CD25↑
 CD69↑
 CD30
 CD122↑ ●
 CD137 (4-1BB)
 CD134 (OX40)
 CD223 (LAG-3)
 CD272 (BTLA)
 CD278 (ICOS)
 CD279 (PD-1)
 CD366 (TIM3)
 KLRG1 ●

Intracellular/ transcription factor

T-bet

Naïve

Surface

CD27
 CD45RA
 CD62L
 CD127 (IL7R α)
 CD197 (CCR7)

Pan markers

CD3 ●
 CD5
 CD8 ●
 CD27
 CD28

Central memory

Secreted
 IL-4^{low}
 IFN γ ^{low}

Surface
 CD44
 CD62L ●
 CD127 (IL-7R α)
 CD197 (CCR7)^{high} ●

**Intracellular/
 transcription factor**
 bcl-6
 Eomes^{int}
 T-bet^{int}

Effector memory

Secreted
 Granzyme B
 IFN γ
 IL-2
 Perforin
 TNF α

Surface
 CD44
 CD57
 KLRG1 ●

**Intracellular/
 transcription factor**
 Eomes^{int}
 T-bet^{int}
 BLIMP1

Effector

Secreted
 CCL3 (MIP-1 α)
 CCL4 (MIP-1 β)
 CCL5 (RANTES)
 Granzyme A
 Granzyme B
 IFN γ
 IL-2
 Perforin
 TNF α

Surface
 CD25 \uparrow
 CD30
 CD44
 CD69 \uparrow
 CD122 \uparrow
 CD134 (OX40)
 CD137 (4-1BB)
 CD223 (LAG-3)
 CD272 (BTLA-4)
 CD278 (ICOS)
 CD279 (PD-1)
 CD366 (TIM3)
 KLRG1 ⊙

**Intracellular/
 transcription factor**
 BLIMP1
 Id2
 T-bet

Naïve

Surface
 CD62L
 CD127 (IL-7R α)
 CD197 (CCR7)
 CD183 (CXCR3)

Dendritic cell markers

Pan markers

CD11b
 CD13
 CD33
 CD80↑
 CD83
 CD86↑
 MHCII↑

Conventional dendritic cell

Secreted

IDO⊙
 IL-1β
 IL-6
 IL-8
 IL-12
 IL-15
 IL-23

Surface

CD1b⊙
 CD1c (BDCA-1)⊙
 CD11c●
 CD14⊙↓
 CD40↑
 CD49d⊙
 CD141 (BDCA-3)⊙
 CD172a (SIRPa)
 CD197 (CCR7)⊙
 CD205 (DEC-205)
 CD207 (Langerin)⊙
 CD206
 CD273 (B7-DC)
 CD282 (TLR2)
 CD284 (TLR4)
 CD369 (Dectin-1)
 CD370 (CLEC9A)

Intracellular/ transcription factor

CD135
 CD289 (TLR9)⊙
 Fit3

Plasmacytoid dendritic cell

Secreted

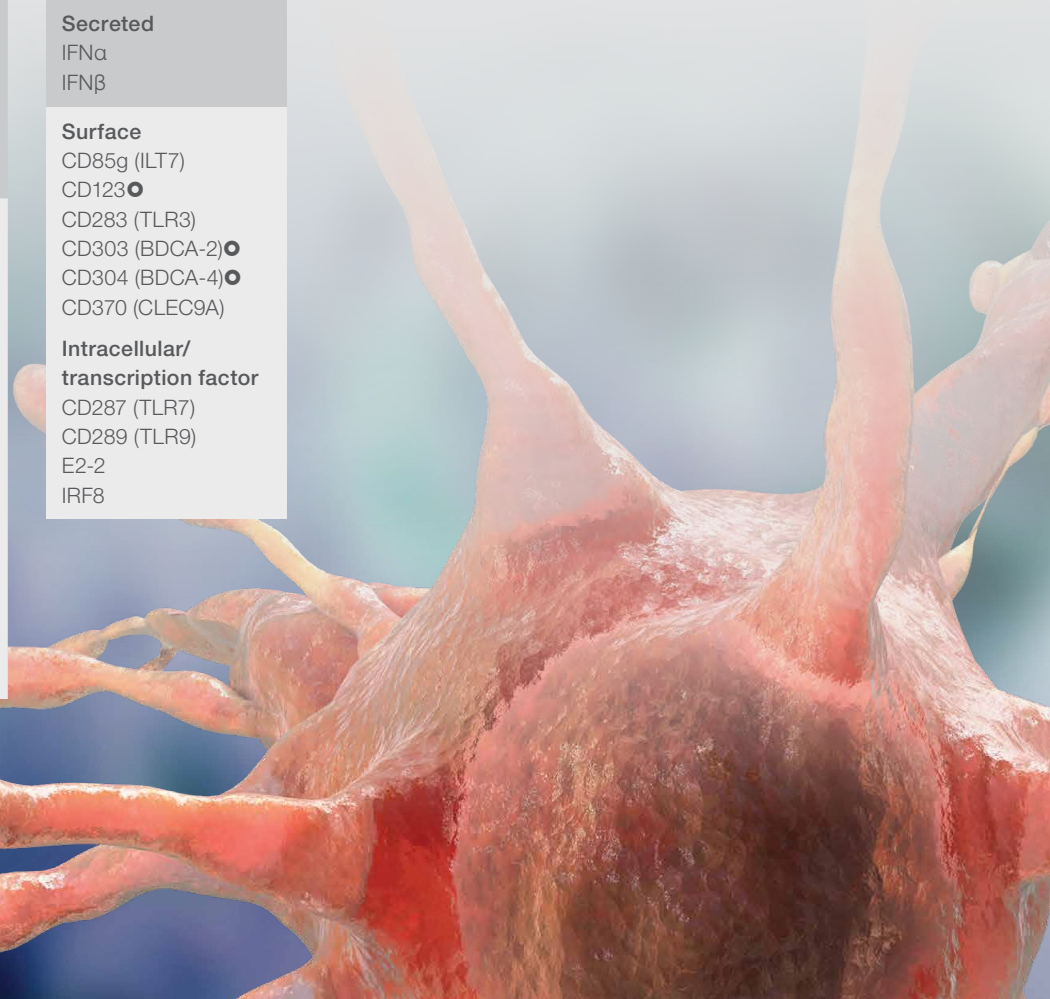
IFNα
 IFNβ

Surface

CD85g (ILT7)
 CD123●
 CD283 (TLR3)
 CD303 (BDCA-2)●
 CD304 (BDCA-4)●
 CD370 (CLEC9A)

Intracellular/ transcription factor

CD287 (TLR7)
 CD289 (TLR9)
 E2-2
 IRF8



Pan markers

CD11c
 CD80↑
 CD86↑
 MHCII↑

Conventional dendritic cell

Secreted

IDO⊙
 IL-1β
 IL-6
 IL-8
 IL-12
 IL-15
 IL-23

Surface

CD4⊙
 CD8⊙
 CD11b^{low}⊙
 CD40↑
 CD83
 CD197 (CCR7)
 CD205 (DEC-205)●
 CD207 (Langerin)⊙
 CD209 (DC-SIGN)
 CD273 (B7-DC)
 CD369 (Dectin-1)
 CD370 (CLEC9A)
 DCIR2

**Intracellular/
 transcription
 factor**

CD135 (Flt3)
 CD183 (TLR3)
 CD289 (TLR9)

**Plasmacytoid
 dendritic cell**

Secreted

IFNα
 IFNβ

Surface

CD45R (B220)
 CD317
 (BST2, PDCA-1)●
 Siglec-H●

**Intracellular/
 transcription factor**

CD287 (TLR7)
 CD289 (TLR9)
 E2-2
 IRF8

Granulocyte markers

Pan markers

CD11b
CD13
CD15
CD32
CD33

Mast

Secreted

Cathepsins
Histamine
TNF α
IL-4
TGFB
NGF

Surface

CD9
CD15
CD24
CD35
CD43
CD64
CD116
CD117 (c-kit)●
CD123
CD125
CD126
CD112
Fc ϵ R1●
IL-33R (ST-2)

Neutrophil

Secreted

Elastase
Lactoferrin
IL-6
IL-12
TNF α
IL-1 α/β

Surface

CD10
CD15
CD17
CD24
CD35
CD43
CD66a
CD66b●
CD66c
CD66d
CD89
CD93
CD112
CD114
CD116
CD157

CD177
CD181 (CXCR1)
CD282 (TLR2)
CD284 (TLR4)
CD286 (TLR6)
Calprotectin
(S100A8/A9)

**Intracellular/
transcription
factor**
CD281 (TLR1)
CD289 (TLR9)

Basophil

Secreted

IL-4
IL-13
Histamine
CCL3 (MIP-1 α)

Surface

Basophil Marker
CD9
CD11a
CD13
CD16
CD25
CD33
CD38
CD43
CD88
CD123●
CD125
CD154
CD192
CD203c
CD218 (IL-18R)
CD282 (TLR2)

CD284 (TLR4)
CD286 (TLR6)
CD294
Fc ϵ R1●

**Intracellular/
transcription
factor**
C/EBP α
CD281 (TLR1)
CD289 (TLR9)
GATA2

Eosinophil

Secreted

MBPs
EDN
EPX

Surface

CD9
CD15
CD24
CD35
CD43
CD64
CD116
CD123
CD125●
CD126
CD193 (CCR3)●
CD244
Fc ϵ R1

Pan markers

CD11b
CD16/CD32

Mast

Secreted
Cathepsins
Histamine
TNF α
IL-4
TGF β
NGF

Surface
CD9
CD15
CD24
CD35
CD43
CD64
CD116
CD117 (c-kit)●
CD123
CD125
CD126
Fc ϵ R1●
IL-33R (ST2)

Neutrophil

Secreted
Elastase
Lactoferrin
IL-6
IL-12
TNF α
IL-1 α/β

Surface
CD10
CD15
CD17
CD24
CD35
CD43
CD66a●
CD66b
CD66d
CD89
CD93
CD112 (Nectin-2)
CD114 (G-CSFR)
CD116
CD157
CD177
CD181 (CXCR1)
CD282 (TLR2)
CD284 (TLR4)
CD286 (TLR6)
Ly-6G (Gr-1)●
**Intracellular/
transcription factor**
CD281 (TLR1)
CD289 (TLR9)

Basophil

Secreted
IL-4
IL-13
Histamine
CCL3 (MIP-1 α)

Surface
CD9
CD11a
CD13
CD25
CD33
CD38
CD43
CD88 (C5a receptor)
CD123
CD125
CD154 (CD40 ligand)
CD192 (CCR2)
CD218 (IL-18 receptor)
CD282 (TLR2)
CD284 (TLR4)
CD286 (TLR6)
CD294 (CRTH2)
Fc ϵ R1●

**Intracellular/
transcription factor**
CD281 (TLR1)
CD289 (TLR9)
C/EBP α
GATA-2

Eosinophil

Secreted
EPX
MBPs

Surface
CD9
CD15
CD24
CD35
CD43
CD64
CD116
CD123
CD125
CD126
CD170 (SiglecF)●
CD193 (CCR3)●
CD244
Fc ϵ R1

Macrophage/monocyte markers

Pan markers

CD11b●
 CD15
 CD40
 CD63
 CD68 (mature)
 CD80↑
 CD85
 CD86↑
 CD105↑
 CD115
 CD169
 CD195 (CCR5)
 CD282 (TLR2)
 CD284 (TLR4)
 CD354 (Trem-1)
 CXCL10
 CXCL11
 CXCL9
 EMR1
 GPNMB
 Mature macrophage
 marker
 MIP-2α (CXCL2)
 VSIG4
 VISTA

M2 macrophage

Secreted

Arginase 1
 IL-10
 TGFβ

Surface

CD115
 CD163
 CD204
 CD206 (MMR)
 CD209 (DC-SIGN)
 CD369 (Dectin-1)
 FcεR1
 Mer (MerTK)
 VSIG4●

Intracellular/ transcription factor

IRF4
 STAT6

M1 macrophage

Secreted

IDO
 IFNγ
 IL-1α
 IL-1β
 IL-6
 IL-12
 IL-23
 TNFα

Surface

CD16
 CD32
 CD64
 CD80
 CD86
 MHCII

Intracellular/ transcription factor

CD68
 IRF5
 STAT1

Monocyte

Surface

CD14●
 CD33
 CD172a (SIRPα)

Tissue associated macrophage

Surface

Axl
 CD192 (CCR2)
 CD14
 CD68
 CD115
 CD163
 CD206
 CD273 (PD-L2)
 CD369 (Dectin-1)
 HLA-DR

Intracellular NOS2

Microglia

Surface

CD45
 CX3CR1
 TMEM119

Intracellular

Sall1
 Siglec-H

Pan markers

Axl⊖
 CD11b⊙
 CD16
 CD32
 CD40
 CD64
 CD68
 CD107b (Mac3)
 CD115
 CD282 (TLR2)
 CD284 (TLR4)
 F4/80⊖
 Galectin-3 (Mac2)
 GITRLO
 GPNMB
 MHC Class II↑
 VSIG4
 VISTA

M2 macrophage

Secreted

Arginase 1
 IL-10
 TGFβ
 YM1

Surface

CD14
 CD115
 CD163
 CD204
 CD206 (MMR)
 CD209 (DC-SIGN)
 CD369 (Dectin-1)
 FcεR1
 Ly-6C
 Mer (MerTK)

**Intracellular/
transcription factor**

IRF4
 RELMα
 STAT6

M1 macrophage

Secreted

IDO
 IFNγ
 IL-1
 IL-6
 IL-12
 IL-23
 TNFα

Surface

CD14
 CD16/CD32
 CD32
 CD64
 CD80
 CD86
 Ly-6C
 MHCII

**Intracellular/
transcription factor**

CD68
 IRF5
 NOS2
 STAT1

Monocyte

Surface

CD115⊙
 CD192 (CCR2)
 CX3CR1
 Ly-6C⊖

**Tissue associated
macrophage**

Surface

Axl
 CD192 (CCR2)
 CD14
 CD68
 CD115
 CD206
 CD273 (PD-L2)
 CD369 (Dectin-1)
 HLA-DR

Intracellular

NOS2

Microglia

Surface

CD45
 CD115
 CX3CR1
 Siglec-H
 TMEM119

Intracellular

Sall1
 Siglec-H

Megakaryocyte/platelet markers

Platelet

Surface

CD9
CD23
CD31
CD36
CD41
CD42a●
CD42b●
CD42c
CD42d
CD49f
CD51
CD60a
CD61
CD84
CD92
CD107a†
CD107b†
CD110
CD147
CD151
CD173
CD226
GARP
LAP

Megakaryocyte

Surface

CD41●
CD42a
CD42b●
CD42c
CD42d
CD49f
CD51
CD61
CD110
CD112
CD123



Platelet

Surface

CD9
CD23
CD41
CD42a, b, and c
CD43
CD44
CD47
CD49b
CD49f
CD51
CD61
CD63
CD69
CD93
CD62P↑
CD107a↑
CD107b↑
CD110
CD147
CD151
GARP
LAP

Megakaryocyte

Surface

CD9
CD31
CD41●
CD42b
CD51
CD61
CD62P↑
CD93
CD147
CD151
CD154
GARP
LAP

NK/ILC markers

NK		ILC1	ILC2	ILC3	LTi
Secreted		Secreted	Secreted	Secreted	Secreted
Granulysin	IFN γ	CCL3 (MIP-1 α)	IL-4	IL-17A \odot	IL-17
Granzyme A	IL-10	IFN γ	IL-5	IL-17AF \odot	IL-22
Granzyme B	Perforin		IL-9	IL-17F \odot	LT β
Granzyme K	TNF α		IL-13	IL-22 \odot	TNF β (LT α)
Granzyme M			Amphiregulin		
Surface		Surface	Surface	Surface	Surface
CD11b	Intracellular/ transcription factor	CD56	CD25	CD56 \odot	CD7
CD16 \bullet	factor	CD103	CD45	CD117 \bullet	CD25
CD56 \bullet	E4BP4	CD183 (CXCR3)	CD117 \bullet	CD127 (IL-7R α) \bullet	CD117 \bullet
CD69 \uparrow	Eomes	CD335 (NKp46)	CD127 (IL-7R α) \odot	CD335 (NKp46) \odot	CD127 (IL-7R α)
CD94	GATA-3	CD336 (NKp44)	CD161	CD336 (NKp44) \odot	CD161
CD122	Id2	CD337 (NKp30)	CD184 (CXCR4)	CD337 (NKp30) \odot	CD196 (CCR6)
CD161	Runx1	Lin ^{neg}	CD186 (CXCR6)	IL-23R	CD252 (OX40L)
CD244 \bullet	T-bet	Intracellular/ transcription factor	CD199 (CCR9)	Lin ^{neg}	IL-23R
CD226	TOX	Id2	CD278 (ICOS)	Intracellular/ transcription factor	MHCII
CD314 (NKG2D)		Tbet	CD294 (CRTH2)	AHR	Intracellular/ transcription factor
CD335 (NKp46)			IL-25R (IL-17RB)	Id2	AHR
CD336 (NKp44) \odot			IL-33R (ST2)	ROR γ t	Id2
CD337 (NKp30)			Lin ^{neg}	T-bet \odot	ROR γ t
CD158 family			TSLP receptor	TCF1 \odot	Runx1
KLRG1 \odot			Intracellular/ transcription factor		TOX
TIGIT \odot			Arginase-1		
			GATA-3		
			Gfi1		
			Id2		
			ROR α		
			TCF1		

NK

Secreted

Granzyme A IL-10
 Granzyme B Perforin
 Granzyme K TNF α
 IFN γ

Surface

CD11b
 CD16
 CD25
 CD49b (DX5) ●
 CD94
 CD122
 CD161c (NK1.1) ●
 CD226
 CD314 (NKG2D)
 CD335 (NKp46) ●
 Ly-49 family
 TIGIT

**Intracellular/
transcription
factor**

E4BP4
 Eomes
 GATA-3
 Id2
 Runx1
 T-bet
 TOX

ILC1

Secreted

IFN γ
 CCL3 (MIP-1 α)

Surface

CD103
 CD183 (CXCR3)
 CD335 (NKp46) ●
 Lin^{neg}
 Ly-6A/E (Sca-1)

**Intracellular/
transcription factor**

Id2
 Tbet

ILC2

Secreted

Amphiregulin
 IL-4
 IL-5
 IL-9
 IL-13

Surface

CD25
 CD117
 CD127 (IL-7R α)
 CD184 (CXCR4)
 CD186 (CXCR6)
 CD199 (CCR9)
 CD278 (ICOS)
 CD294 (CRTH2) ●
 IL-25R (IL-17RB) ●
 Linneg
 Ly-6A/E (Sca-1)
 IL-33R (ST2)
 TSLP receptor

**Intracellular/
transcription factor**

Arginase-1
 GATA-3
 Gfi1
 Id2
 ROR α ●
 TCF1

ILC3

Secreted

IL-17A ⊙
 IL-17AF ⊙
 IL-17F ⊙
 IL-22 ⊙

Surface

CD117
 CD127 (IL-7R α)
 CD196 (CCR6) ●
 CD335 (NKp46) ⊙
 IL-23R
 Lin^{neg}

**Intracellular/
transcription factor**

AHR ●
 Id2
 ROR γ t
 T-bet ⊙
 TCF1 ⊙

LTi

Secreted

IL-17
 LTP β
 TNF β (LT α)

Surface

CD4
 CD25
 CD117
 CD127 (IL-7R α) ●
 CD185 (CXCR5)
 CD186 (CXCR6)
 CD196 (CCR6)
 IL-23R
 MHCII

**Intracellular/
transcription factor**

AHR
 Id2
 ROR γ t ●
 Runx1
 TOX

NKT/ $\gamma\delta$ T cell markers

Pan markers

CD3

$\gamma\delta$ T cell

Secreted

GM-CSF \ominus
 Granzyme B
 IFN γ \ominus
 IL-4 \ominus
 IL-5 \ominus
 IL-17A \ominus
 Perforin
 TNF α \ominus

Surface

CD5 \ominus
 CD16 \ominus
 CD27 \ominus
 CD28 \ominus
 CD45RA \ominus
 CD56 \ominus
 CD57 \ominus
 CD62L \ominus
 CD69
 CD70 \uparrow \ominus
 CD107a \ominus
 CD314 (NKG2D)
 TCR $\gamma\delta$ \bullet
 TCR V δ 1 \ominus
 TCR V δ 2 \ominus
 TCR V δ 3 \ominus

NKT

Secreted

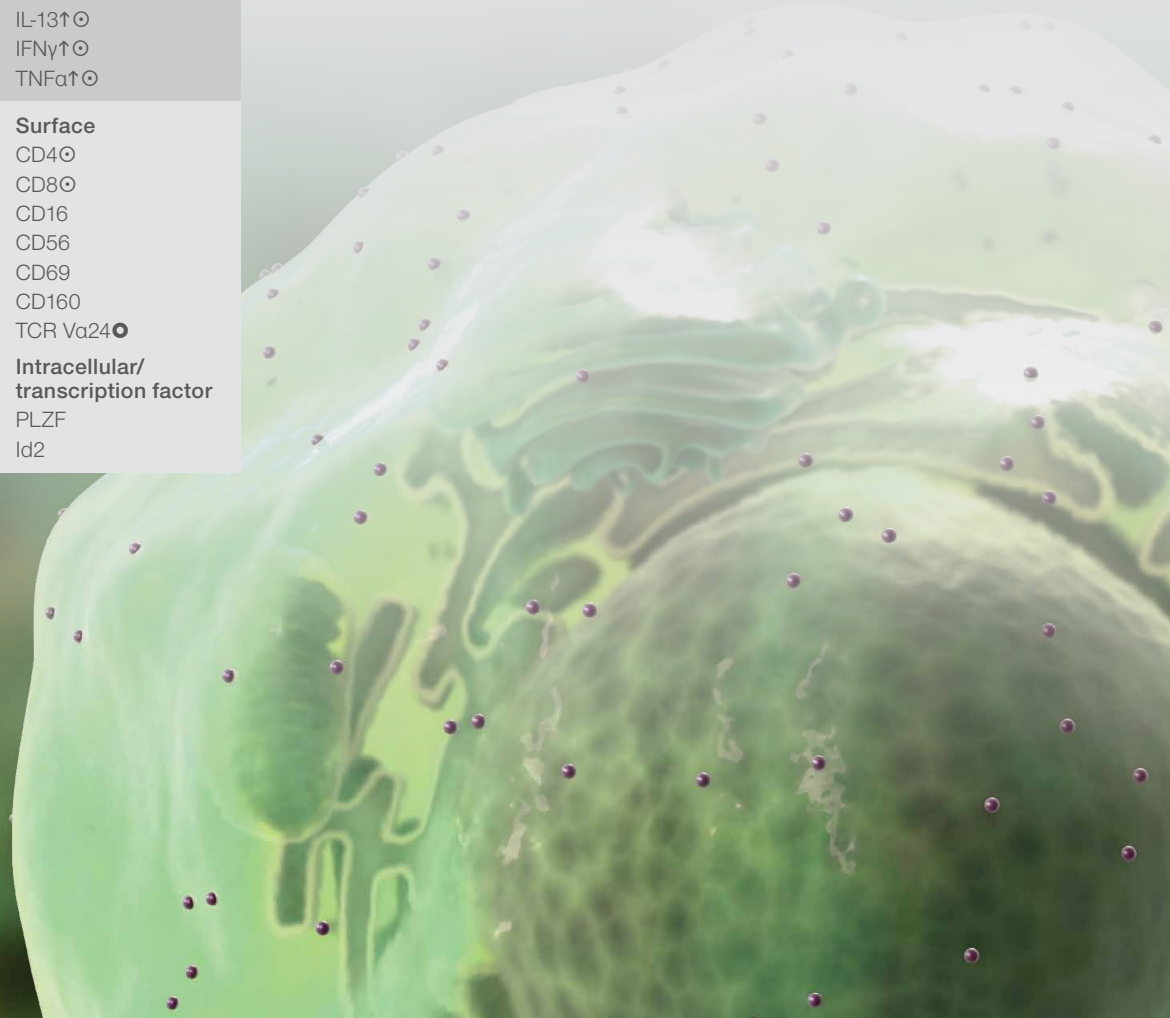
IL-4 \uparrow \ominus
 IL-10 \uparrow \ominus
 IL-13 \uparrow \ominus
 IFN γ \uparrow \ominus
 TNF α \uparrow \ominus

Surface

CD4 \ominus
 CD8 \ominus
 CD16
 CD56
 CD69
 CD160
 TCR V α 24 \bullet

Intracellular/ transcription factor

PLZF
 Id2



Pan markers

CD3

γδ T cell

Secreted

Granzyme B
IFN γ
IL-4 \odot
IL-5 \odot
IL-17A \odot
Perforin
TNF α \odot

Surface

CD25 \uparrow \odot IL-1R1 \odot
CD27 \odot NK1.1 (on C57BL/6) \odot
CD28 \odot TCR V γ 1 \odot
CD44 \odot TCR V γ 4 \odot
CD45R (B220) \uparrow \odot TCR V γ 5 \odot
CD45RB \odot TCR V γ 6 \odot
CD62L \odot TCR V γ 7 \odot
CD69 \uparrow \odot
CD71 \uparrow \odot **Intracellular/
transcription factor**
CD103 Eomes
CD122 \odot ROR γ t \odot
CD127 (IL-7R α) \odot T-bet \odot
CD150 \odot
CD196 (CCR6) \odot
TCR γ δ \bullet

NKT

Secreted

IFN γ \uparrow \odot
IL-4 \uparrow \odot
IL-10 \uparrow \odot
IL-13 \uparrow \odot
IL-17 \uparrow \odot
IL-21 \uparrow \odot
IL-22 \uparrow \odot
TNF α \uparrow \odot

Surface

CD4 \odot
CD8 \odot
CD44 \uparrow
CD49b \odot
CD94 \odot
CD160
CD183 (CXCR3)
CD184 (CXCR4)
CD186 (CXCR6)
CD314 (NKG2D) \odot
DX5
Ly-49 \odot
NK1.1 (on C57BL/6)
TCR Va14 \bullet

**Intracellular/
transcription
factor**

PLZF
Egr2
HEB
Hobit

Endothelial cell markers

Surface

CD31
CD34
CD54 (ICAM-1)
CD61 (Integrin β 3)
CD62E (E-selectin)
CD105 (Endoglin)
CD106 (VCAM-1)
CD144 (VE-cadherin)
CD146
CD202b (Tie2)
CD309 (FLK1)
Podoplanin

Surface

CD31 (PECAM-1)
CD34
CD54 (ICAM-1)
CD61 (Integrin β 3)
CD62E (E-selectin)
CD105 (Endoglin)
CD106 (VCAM-1)
CD144 (VE-cadherin)
CD146
CD202b (Tie2)
CD309 (FLK1)⊙
Podoplanin⊙
VEGF receptor 3⊙

Stem cell markers

Pan markers

CD34
CD117 (c-kit)
CD164

HSC

Surface

CD38^{low/neg}
CD59
CD133⁺
CD135 (Flt3)
CD338
Lin^{neg}

Intracellular/ transcription factor

GATA-3
TdT

CMP

Surface

CD33⁺
CD45RA
CD123^{low}
CD131
CD135 (Flt3)
CD173
CD174
Lin^{neg}

Intracellular/ transcription factor

Ikarrs
PU.1

CLP

Surface

CD7
CD38
CD45RA
CD90^{low}
CD110
CD117 (c-kit)^{low}
CD127 (IL-7R α)⁺
HLA-DR
Lin^{neg}

Intracellular/ transcription factor

Aiolos
c-myb
GATA-3
PU.1
TdT

HSC

Surface

CD34
 CD38^{low/neg}
 CD59
 CD117 (c-kit)●
 CD133 (prominin-1)
 CD135 (Flt3)
 CD150 (SLAM)●
 Lin^{neg}
 Ly-6A/E (Sca-1)●

Intracellular/ transcription factor

GATA-2
 TdT

CMP

Surface

CD34
 CD123 (IL-3R)●
 Lin^{neg}

Intracellular/ transcription factor

Ikaros
 PU.1

CLP

Surface

CD34
 CD43
 CD135 (Flt3)
 CD127 (IL-7Rα)●
 Lin^{neg}

Intracellular/ transcription factor

Aiolos
 c-myb
 GATA-3
 PU.1
 TdT

Other cell type markers

Epithelial cells

CD24
CD49f
CD66a
CD75
CD104
CD121a
CD133
CD167a
CD326 (EpCAM)
Cytokeratin
MHCII pos

Erythrocytes

CD45^{neg}
CD51
CD61
CD235a/glycophorin

Fibroblasts

CD10
CD29
CD47
CD81
CD91
CD121a
CD140a/PDGFRa
CD140b/PDGFRb
Vimentin

Neurons

CD6
CD24
CD90
CD143
CD166
CD171
CD200
CD230 (prion protein)
CD271 (NGFR)
CD304 (neuropilin)
Nestin

Stromal cells

CD10
CD34
CD157
Podoplanin/p38
Stro-1

Epithelial cells

CD24
 CD49f
 CD66a
 CD75
 CD104
 CD121a
 CD133
 CD167a
 CD326 (EpCAM)
 Cytokeratin
 MHCII pos

Erythrocytes

CD24
 CD45^{neg}
 CD51
 CD61
 Ter119

Fibroblasts

CD10
 CD29
 CD47
 CD81
 CD91
 CD121a
 CD140a/PDGFRa
 CD140b/PDGFRb
 Vimentin

Neurons

CD6
 CD24
 CD90
 CD143
 CD166
 CD171
 CD200
 CD230 (prion protein)
 CD271 (NGFR)
 CD304 (neuropilin)
 Nestin

Stromal cells

CD10
 CD34
 CD157
 Podoplanin/p38
 Stro-1

Human CD antigens

Antigen name	Alternative name	MW	Distribution	Function
CD1a	T6, Leu-6, R4, HTA1	49 kDa	Cortical thymocytes, Langerhans cells, DCs	Antigen presentation with β 2-microglobulin
CD1b	R1, T6	45 kDa	Cortical thymocytes, Langerhans cells, DCs	Antigen presentation with β 2-microglobulin
CD1c	BDCA-1, R7, T6, M241	43 kDa	Cortical thymocytes, Langerhans cells, DCs, B cell subsets	Antigen presentation with β 2-microglobulin
CD1d	R3	49 kDa	Intestinal epithelial cells, B cell subset, monocytes ^{low} , DCs	Antigen presentation with β 2-microglobulin
CD1e	R4	28 kDa	DCs	Antigen presentations with β 2-microglobulin
CD2	T11, LFA-2, SRBC-R	50 kDa	Thymocytes, T cells, NK cells	Adhesion, T cell activation
CD2R	T11-3	50 kDa	T ^{act} cells	Activation-dependent form of CD2
CD3 ϵ	T3	20 kDa	T cells, thymocyte subset	Associates with TCR, TCR surface expression/signal transduction
CD4	T4, Leu3a	55 kDa	Thymocyte subset, T cell subset, monocytes, macrophages	MHC class receptor, HIV receptor, T cell differentiation/activation
CD5	T1, Tp67, Leu1, Ly-1	67 kDa	Thymocytes, T cells, B cell subset, B-CLL	TCR or BCR signaling, B-T cell interaction
CD6	T12	100–130 kDa	Thymocytes, T cells, B cell subset	T cell differentiation/co-stimulation
CD7	Leu9, gp40	40 kDa	Hematopoietic progenitors, thymocytes, T cells, NK cells	T cell co-stimulation
CD8a	T8, Leu-2, Ly-2	32–34 kDa	Thymocyte subset, T cell subset, NK cells	MHC class I coreceptor, receptor for some mutated HIV-1, T cell differentiation/activation
CD8b	Lyt-3	30–32 kDa	Thymocyte subset, T cell subset	MHC class I coreceptor, receptor for some mutated HIV-1, T cell differentiation/activation
CD9	p24, MRP-1, DRAP-27	22–27 kDa	Pre-B cells, eosinophils, basophils, platelets, T ^{act} cells, and neurons and glial cells in the peripheral nervous system	Cellular adhesion and migration
CD10	CALLA, NEP, gp100	100 kDa	B cell precursors, T cell precursors, neutrophils, acute lymphoblastic leukemias	Zinc-binding metalloprotease, B cell development
CD11a	LFA-1, integrin α L	180 kDa	Lymphocytes, granulocytes, monocytes, macrophages	CD11a/CD18 receptor for ICAM-1,-2,-3, intercellular adhesion, T cell co-stimulation
CD11b	Mac-1, integrin α M	170 kDa	Myeloid cells, NK cells	iC3b adhesion

Antigen name	Alternative name	MW	Distribution	Function
CD11c	p150, 95, CR4, integrin α X, LeuM5	150 kDa	DCs, macrophages, monocytes, granulocytes, NK cells, T and B cell subsets, leukemia cells	iC3b adhesion
CD13	Aminopeptidase N, APN, GP150	150–170 kDa	Monocytes, granulocytes, some macrophages, and connective tissue	Zinc-binding metalloprotease, antigen processing, receptor for corona virus strains
CD14	LPS-R	53–55 kDa	Monocytes, macrophages, Langerhans cells, granulocytes ^{low}	Innate response via LPS binding and TLR signaling
CD15	3-FAL, X-hapten, LeX antigen, SSEA-1		Granulocytes, neutrophils, eosinophils, monocytes	Carbohydrate interaction
CD15s	Sialyl-Lewis X		Neutrophils, eosinophils, monocytes, memory helper T and T ^{act} cells, B cells, NK cells, HEV	Adhesion
CD15u	Sulfated-Lewis X		Myeloid subsets	Adhesion
CD16b	Fc γ RIIIB	48 kDa	Neutrophils monocyte subsets, DCs, macrophages, NK cell subsets	Component of low-affinity Fc receptor, phagocytosis, and ADCC
CD17	Lactosylceramide		Neutrophils, monocytes, platelets	Unknown function
CD18	Integrin β 2, ITGB2	95 kDa	Broad, all leukocytes	Heterodimer with CD11a, b, and c; adhesion
CD19	B4	95 kDa	B cells, follicular DCs (FDCs)	Complex with CD21 and CD81, BCR coreceptor, B cell activation/differentiation
CD20	B1, Bp35, Ly-44	33–37 kDa	B cells, T cell subset (low)	B cell activation
CD21	C3DR, CR2, EBV-R	110, 145 kDa	B cells, FDCs, T cell subsets	Complement C3d and EBV receptor, complex with CD19 and CD81, BCR coreceptor
CD22	BL-CAM, Siglec-2, Leu-14	150 kDa	B cells	Adhesion, B–T cell interactions
CD23	Fc ϵ RII, BLAST-2	45 kDa	B cells, macrophages ^{act} , FDCs, platelets, T cell subsets, eosinophils	CD19-CD21-CD81 receptor, IgE low-affinity receptor, signal transduction
CD24	BA-1, HSA, heat-stable antigen	35–45 kDa	Thymocytes, erythrocytes, granulocytes, B cells	GPI-linked receptor for signal transduction
CD25	Tac, p55	55 kDa	T ^{act} cells, B ^{act} cells, lymphocyte progenitors, Treg cells	IL-2R α , associates with IL-2R β and γ to form high-affinity complex for IL-2, signal transduction
CD26	DPP IV, Ta1	110 kDa	Thymocyte subset, T ^{act} cells, soluble form, B cells, NK cells	Dipeptidyl peptidase, T cell co-stimulation/activation, HIV entry, glucose metabolism
CD27	S152, S152, LPFS2, T14, TNFRSF7, Tp55	50–55 kDa	Medullary thymocytes, T cells, B and NK cell subsets	T cell co-stimulation
CD28	Tp44, T44	44 kDa	Most T cells, thymocytes, plasma cells	T cell co-stimulation

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD29	Integrin $\beta 1$, platelet GPIIa, MSK12, VLAB	130 kDa	Lymphocytes, monocytes, granulocytes ^{low} , platelets, mast cells, fibroblasts, endothelial cells, nerve cells, connective tissue	Heterodimer with CD49a–f to form VLA-1 through VLA-6; adhesion, differentiation
CD30	Ki-1, Ber-H2, TNFRSF8	105–120 kDa	B ^{act} cells, T and NK cells, Reed–Sternberg cells, anaplastic large cell lymphoma	Lymph proliferation/apoptosis
CD31	PECAM-1, endocam	130–140 kDa	Monocytes, platelets, granulocytes, endothelial cells, lymphocyte subsets	Adhesion, signal transduction
CD32	Fc γ RII	40 kDa	Monocytes, granulocytes, B cells, platelets	Low-affinity Fc receptor for aggregated Ig and immune complexes
CD33	p67, Siglec-3	67 kDa	Myeloid progenitors, mono, gran, DC, mast cells, T ^{act} cells	Adhesion
CD34	MY10, mucosialin, gp105-120	105–120 kDa	Hematopoietic precursors, capillary endoth, embryonic fibroblasts	Stem cell marker, adhesion
CD35	Complement receptor 1 (CR1)	250 kDa	Erythrocytes, B cells, monocytes, neutrophils, eosinophils, FDCs, T cell subsets	Complement receptor 1, adhesion, phagocytosis
CD36	GPIV, GPIIb, fatty acid translocase, SCARB3, GP88	88 kDa	Platelets, monocytes, macrophages, endothelial cells,	ECM receptor, adhesion, phagocytosis
CD37	gp40-52, TSPAN26	40–52 kDa	B cells, T ^{low} cells, myeloid cells ^{low}	B cell activation, signal transduction
CD38	T10, cyclic ADP ribose hydrolase	45 kDa	Variable levels on majority of hematopoietic cells, high expression on plasma cells, B and T ^{act} cells	Ecto-ADP-ribosyl cyclase, cell activation, adhesion, proliferation
CD39	ENTPD-1, Gp80, EC3.6.1.5	78 kDa	B cells, NK cells, macrophages, Langerhans cells, DCs, Treg cells, T ^{act} cell subset	Removal of extracellular ATP by ectozyme, immune response support to anti-inflammatory conditions
CD40	Bp50, TNFRSF5	48 kDa	B cells, mono, mac, FDC, endoth, T cell subset	B cell differentiation/co-stimulation, isotype switching, rescues B cells from apoptosis
CD41	GpIIb, α II β integrin, ITGA2B	125 kDa	Platelets, megakaryocytes	Heterodimer with CD61, binds fibrinogen, fibronectin, vWF, thrombospondin; platelet activation, aggregation
CD42a	Glycoprotein IX, GP9	22 kDa	Platelets, megakaryocytes	Complex with CD42b, c, and d; receptor for vWF and thrombin; platelet adhesion to subendothelial matrices
CD42b	GPIIb	145 kDa	Platelets, megakaryocytes	Complex with CD42a, c, and d; binds to vWF and thrombin, platelet adhesion/activation

Antigen name	Alternative name	MW	Distribution	Function
CD42c	GPIIb β	24 kDa	Platelets, megakaryocytes	Complex with CD42a, b, d
CD42d	gpV	82 kDa	Platelets, megakaryocytes	Complex with CD42a-c
CD43	Leukosialin, sialophorin	115–135 kDa	Leukocytes, except resting B cells, platelets ^{low}	Inhibition of T cell interaction, adhesion
CD44	H-CAM, Pgp-1, Hermes Ag, lymphocyte homing receptor, ECM-III, hyaluronate receptor, HUTCH-1	80–95 kDa	Hematopoietic and non-hematopoietic cells, except platelets, hepatocytes, testis	Adhesion
CD44std	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD44var (v4)	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD44var (var10)	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD44var (v7–v8)	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD44 (v6)	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD44 (v3)	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD44 (v5)	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD44 (v7)	CD44 variant 1–10		Heterogeneous expression on CD44 variants; constitutive expression on epithelial cells, monocytes; upregulated on activated leukocytes	Adhesion, metastasis
CD45	LCA, PTPRC, (protein tyrosine phosphatase receptor type C)	180–240 kDa	Hematopoietic cells, multiple isoforms from alternative splicing	Tyrosine phosphatase, enhanced TCR and BCR signals

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD45R	B220		B cells, T cell subsets	Protein tyrosine phosphatase receptor
CD45RA	gp220	205–220 kDa	B cells, T cell subset ^{naïve} , mono	Exon A isoforms of CD45
CD45RB		190–220 kDa	B cells, T cell subset, monocytes, macrophages, granulocytes	Exon B isoforms of CD45
CD45RC		190–220 kDa	B cells, T cell subset, NK cells	Exon C isoforms of CD45
CD45RO	T200, gp180, UCHL1	180 kDa	T ^{act} cells, memory T cells, B cell subset, monocytes, mac, gran	Isoform of CD45 lacking A, B, C exons
CD46	MCP, membrane cofactor protein	56, 66 kDa	Nucleated cells	Membrane cofactor protein, degradation by Factor I
CD47	IAP, integrin associated protein	47–52 kDa	Hematopoietic cells, epithelial cells, endothelial cells, fibroblasts, other tissues	Leukocyte adhesion, migration, activation, thrombospondin receptor
CD47R	MEM-133	120 kDa	New designation for CDw149, similar distribution as CD47 but dimmer	
CD48	Blast-1, BCM1, Sgp-60, SLAMF2	45 kDa	Broad, most leukocytes; absent on granulocytes, erythrocytes, and platelets	GPI-linked receptor, adhesion, activation
CD49a	VLA-1, integrin α1	210 kDa	T ^{act} cells, memory T cell subset, monocytes, NK cell subset, smooth muscle cells, endothelial cells, mesenchymal stem cells	Adhesion, CD49a/CD29 binds collagen and laminin
CD49b	VLA-2, integrin α2	165 kDa	B cells, mono, platelets, T ^{act} cells, megakaryocytes	Adhesion, CD49b/CD29 binds collagen and laminin
CD49c	VLA-3, integrin α3	125 kDa	Most adherent cells, B cell lymphoma	Adhesion, CD49c/CD29 binds laminin, fibronectin, and collagen
CD49d	VLA-4, integrin α4	150 kDa	T cells, B cells, NK, thymocytes, monocytes, eosinophils, mast cells, DCs	Adhesion, CD49d/CD29 binds fibronectin, VCAM-1, and MAdCAM-1
CD49e	VLA-5, integrin α5	25, 135 kDa	Thymocytes, T cells, monocytes, platelets, B ^{act} cells	Adhesion, CD49e/CD29 binds fibronectin
CD49f	VLA-6, integrin α6	125 kDa	Memory T cells, thymocytes, monocytes, platelets, megakaryocytes, epithelial and endothelial cells	Adhesion, CD49f/CD29 binds laminin
CD50	ICAM-3	110–120 kDa	Hematopoietic cells, endothelial cells, epidermal Langerhans cells	Adhesion, co-stimulation

Antigen name	Alternative name	MW	Distribution	Function
CD51	Vitronectin receptor, integrin α V	24, 125 kDa	Platelets ^{low} , endothelial cells, osteoblasts, melanomas	Adhesion, CD51/CD61 binds vitronectin, vWF, fibrinogen, and thrombospondin
CD52	Cambridge pathology antigen 1 (CAMPATH-1), HE5	21–28 kDa	Thymocytes, T cells, B cells (not plasma cells), monocytes, macrophages, Treg cells	Unknown
CD53	OX-44, TSPAN25	35–42 kDa	Leukocytes, DC, osteoblasts, osteoclasts	Signal transduction
CD54	ICAM-1	90–110 kDa	Endothelial cells, monocytes, lymphocytes (high upon activation)	Adhesion
CD55	DAF, decay accelerating factor	60–70 kDa	Hematopoietic, endothelial cells, soluble in plasma	Complement regulation
CD56	NCAM, Leu-19, NKH-1	175–185 kDa	NK cells, T cell subset, neurons, some large granular lymphocyte leukemias, myeloid leukemias	Adhesion
CD57	HNK-1, Leu-7	110 kDa	NK and T cell subsets, CD8 subsets	Adhesion
CD58	LFA-3	55–70 kDa	Hematopoietic, non-hematopoietic cells	Adhesion
CD59	Protectin, H19, 1F-5Ag, HRF, MAC-inhibitor protein, MAC-IP, membrane inhibitor of reactive lysis, MIRL	19 kDa	Hematopoietic, non-hematopoietic cells	Blocks assembly of membrane attack complex
CD60a	GD3	90–120 kDa	T cell subset, platelets, thymic epithelial cells, astrocyte cells, T cell leukemic lymphoblasts	Co-stimulation
CD60b	9-O-sialyl GD3		T cell subset, B ^{act} cells	
CD60c	7-O-sialyl GD3		T cell subset	
CD61	GP11a, integrin β 3	105 kDa	Platelets, megakaryocytes, macrophages, endothelial cells	Heterodimer with CD41- or CD51-mediated adhesion to ECM
CD62E	E-selectin, ELAM-1, LECAM-2	97, 107–115 kDa	Endothelial cells	Cell rolling, metastasis
CD62L	L-selectin, LECAM-1, LAM-1	74, 95 kDa	B cells, naïve and memory T cells, mono, gran, NK cells, thymocytes	Leukocyte homing, tethering, rolling
CD62P	P-selectin, GMP-140, PADGEM	140 kDa	Activated platelets, endothelial cells	Adhesion, neutrophil rolling, platelet–neutrophil and platelet–mono interactions
CD63	LIMP, MLA1, LAMP-3	53 kDa	Intracellular on resting platelets and basophils; surface on basophils ^{act} , platelets ^{act} , monocytes ^{act} , macrophages ^{act} , granulocytes ^{act} , endothelial cells, fibroblasts, smooth muscle cells	Lysosomal membrane protein, moves to cell surface after activation

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD64	FcγRI	72 kDa	Monocytes, macrophages, DCs, interferon or G-CSF-activated granulocytes	High-affinity receptor for IgG, phagocytosis and ADCC
CD65	VIM2, ceramide-dodecasaccharide, fucoganglioside type II		Granulocytes, monocyte subsets, myeloid leukemias	Adhesion, extravasation
CD65s	VIM2, sialylated CD65		Myeloid leukemias	Phagocytosis
CD66a	BGP-1, NCA-160, CEACAM1, CEACAM6	160–180 kDa	Neutrophils, epithelial cells	Cell adhesion
CD66b	CD67, CGM6, NCA-95, CEACAM8	95–100 kDa	Granulocytes	Cell adhesion, neutrophil activation
CD66c	NCA, CEACAM6	90 kDa	Neutrophils, colon carcinoma	Cell adhesion
CD66d	CGM1, CEACAM3	35 kDa	Granulocytes	Putative role in cell adhesion and signaling
CD66e	CEA, CEACAM5	180–200 kDa	Colon epithelial cells, colon cancer	Cell adhesion
CD66f	PSG, Sp-1	54–72 kDa	Pregnancy-specific glycoprotein, placental syncytiotrophoblasts, fetal liver	Immune regulation, protects fetus from maternal immune system
CD68	Macrosialin, gp110	110 kDa	Intracellularly in monocytes, macrophages, neutrophils, basophils, large lymphocytes, mastcells, DCs, myeloid progenitors, liver	Scavenger receptor, antigen processing, phagocytosis
CD69	AIM, VEA	28, 32 kDa	T ^{act} , B ^{act} , and NK ^{act} cells; granulocytes ^{act} , resting BM memory T cells, thymocytes, Langerhans DCs	Signal transduction
CD70	Ki-24, CD27L, TNFSF7	50, 70, 90, 160 kDa	B ^{act} and T ^{act} cells	T and B cell co-stimulation
CD71	Transferrin receptor (TfR), T9	95 kDa	Proliferating cells, reticulocytes, erythroid precursors	Iron uptake
CD72	Lyb-2	42 kDa	B cells, FDCs	B cell proliferation
CD73	NT5E, Ecto-5'-nucleotidase	69 kDa	B cell subset, T cell subset, FDC, epithelial cells, Treg subsets	Ecto-5'-nucleotidase, nucleoside uptake, T cell co-stimulation, lymphocyte adhesion
CD74	Invariant chain (Ii), HLA class II histocompatibility antigen gamma chain, HLA-DR antigens-associated invariant chain	33, 35, 41, 43 kDa	B cells, macrophages, monocytes Langerhans cells, DC, T ^{act} cells	MHC class II traffic and function, binds MIF, maturation of follicular B cells

Antigen name	Alternative name	MW	Distribution	Function
CD75	Sialylated CD75	67, 85 kDa	B cell subset, epithelial cells	Lactosamines
CD75s	Siliated lactosamines		B and T cell subsets	α -2,6-sialylated lactosamines (previously CDw75 and CDw76)
CD77	Gb3, Pk blood group		Germinal center B cells, Burkitt's lymphomas ^{high} , follicular lymphomas ^{low}	Apoptosis
CD79a	Ig α , MB-1	33, 45 kDa	B cells, myeloid subsets	Component of BCR, BCR surface expression and signal transduction
CD79b	Ig β , B29	37 kDa	B cells	Component of BCR, BCR surface expression and signal transduction
CD80	B7, B7-1, BB1	60 kDa	B ^{act} and T ^{act} cells, macrophages, DCs	T cell co-stimulation
CD81	TAPA-1	26 kDa	T cells, B cells, NK cells, thymocytes, DCs, endothelial cells, fibroblasts, neuroblastomas, melanomas	Complex with CD19 and CD21, signaling, T cell co-stimulation
CD82	R2, 4F9, C33, Kai1	50–53 kDa	Leukocytes, fibroblasts, epithelial cells, endothelial cells	Signal transduction
CD83	HB15	43 kDa	B ^{act} and T ^{act} cells, DCs, Langerhans cells	Dendritic cell marker
CD84	GR6, SLAMF5	73 kDa	Monocytes, platelets, B cells, T cell subset, macrophage subsets	Putative role in adhesion, co-stimulation
CD85a	LIR-3, ILT-5, HL-9, LILRB3	110 kDa	Monocytes	Signaling through FC γ
CD85b	ILT8, LILRA6	–	NK cells, T cell subsets, monocytes, macrophages, DCs, B cells	Activation of NK cell-mediated cytotoxicity, association with FcR γ
CD85c	LIR8, LILRB5	–	NK cells, T cell subsets, monocytes, macrophages, DCs, B cells	Activation of NK cell-mediated cytotoxicity, association with FcR γ
CD85d	LIR-2, ILT-4, MIR10, ILT8	110 kDa	NK cells, monocytes, macrophages	Suppression of NK cell-mediated cytotoxicity
CD85e	ILT6, LIR4, LILRA3	–	B and NK cells	Activation of NK cell-mediated cytotoxicity, association with FcR γ
CD85f	ILT11, LIR9, LILRA5	–	Monocytes, neutrophils, macrophages, DCs	Activation of NK cell-mediated cytotoxicity, association with FcR γ
CD85g	LIR4, ILT-7	55 kDa	pDCs	Signaling for cytokine production
CD85h	LIR-7, ILT-1, LILRA2	53 kDa	Monocytes	Activation of NK cell-mediated cytotoxicity
CD85i	LIR6, LILRA1	–	T cell subsets, monocytes, macrophages, DCs, B cells	Activation of NK cell-mediated cytotoxicity, association with FcR γ

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD85j	LIR-1, ILT-2, MIR-7	110 kDa	NK cells, DCs, monocytes, T cells	Inhibitory receptor for MHC class I antigens
CD85k	LIR-5, ILT-3, HM18, LILRB4	60 kDa	DCs, macrophages, monocytes, plasmacytoid DCs	Thought to be an inhibitory receptor
CD85l	ILT9, LILRP1	–	NK cells, T cell subsets, monocytes, macrophages, DCs, B cells	Association with FcRγ
CD85m	ILT10	–	NK cells, T cell subsets, monocytes, macrophages, DCs, B cells	Association with FcRγ
CD86	B70, B7-2	80 kDa	Monocytes, DCs, B ^{act} and T ^{act} cells	T cell co-stimulation
CD87	Urokinase plasminogen activator (UPA-R), PLAUR	39–66 kDa	Granulocytes, monocytes, NK cells, T ^{act} cells, endothelial cells, fibroblasts	Inflammatory cell invasion, metastasis
CD88	C5aR	40 kDa	Granulocytes, macrophages, monocytes,	Granulocyte activation
CD89	FcαR	55–75 kDa	Monocytes, macrophages, granulocytes, B and T cell subsets	Phagocytosis, degranulation, respiratory burst
CD90	Thy-1	25–35 kDa	CD34 ⁺ hematopoietic subset, neurons	Hematopoietic stem cell and neuron differentiation, adhesion, signal transduction
CD91	LPR1, α2MR	600 kDa	Monocytes, macrophages, DCs, neurons, fibroblasts	Ligand clearance
CD92	Choline transporterlike protein 1 (CTL-1), CHTL1	70 kDa	Neutrophils, monocytes, platelets, endothelial cells, fibroblasts	Putative choline transporter for phospholipid biosynthesis
CD93	C1qRp	120 kDa	Neutrophils, monocytes, endothelial cells	Clearance of apoptotic cells
CD94	KP43, KLRD1	43 kDa	NK cells, T cell subsets	Complex with NKG2, inhibits NK cell function
CD95	Apo-1, Fas, TNFRSF6	45 kDa	Lymphocytes (high upon activation), monocytes, neutrophils	Apoptosis
CD96	TACTILE	160 kDa	NK cells, T ^{act} cells	Adhesion of activated NK and T cells
CD97	BL-KDAD/F12	74, 80, 90 kDa	B ^{act} and T ^{act} cells, monocytes, granulocytes	
CD98	4F2, CD98hc	40, 80 kDa	T cells, B cells, NK cells, granulocytes, all human cell lines	Activation
CD99	MIC2, E2	32 kDa	Leukocytes	T cell activation, adhesion
CD99R	E2	32 kDa	T cells, NK cells, myeloid cells	Isoform of CD99
CD100	Sema4D	150 kDa	Hematopoietic cells except immature bone marrow cells, RBC, and platelets	Cell adhesion, cellular activation

Antigen name	Alternative name	MW	Distribution	Function
CD101	V7, p126	120 kDa	Monocytes, granulocytes, DCs, T ^{act} cells	T cell activation
CD102	ICAM-2	55–65 kDa	Leukocytes, endothelial cells	Co-stimulation
CD103	HML-1, α6, integrin αE	25, 150 kDa	Intraepithelial cells, lymph subsets, activated lymphocytes, Treg cells	Complex with integrin β7, binds E-cadherin, lymph homing/retention
CD104	β4 integrin	220 kDa	Epithelial cells, Schwann cells, keratinocytes, some tumor cells	Complex with integrin α6 (CD49f), cell adhesion, differentiation, metastasis
CD105	Endoglin	95 kDa	Endothelial cells, bone marrow subset, activated macrophages	Cellular response to TGF-β1, adhesion, embryonic angiogenesis
CD106	VCAM-1	110 kDa	Activated endothelial cells, FDCs	Leukocyte adhesion, migration, co-stimulation
CD107a	LAMP-1	110 kDa	Activated platelets, T cells, endothelial cells, metastatic tumors	Lysosomal membrane protein, metastasis
CD107b	LAMP-2	120 kDa	Activated platelets, T cells, endothelial cells, metastatic tumors	Lysosomal membrane protein
CD108	SEMA7A	80 kDa	Erythrocytes, lymphoblasts, resting lymphoblasts ^{low}	Putative role in inflammation
CD109	Platelet-specific Gov antigen	170 kDa	T ^{act} cells and platelets, CD34 ⁺ subsets, endoth	Negative regulator of TGF-β in keratinocytes
CD110	TPO-R, C-mpl	82–84 kDa	Megakaryocytes, platelets, some CD34 ⁺ stem cells ^{low}	Megakaryocyte progenitor cell growth/differentiation
CD111	PRR1, nectin-1	64–72 kDa	Stem cell subsets, macrophages, neutrophils	Intercellular adhesion
CD112	PRR2, nectin-2	64–72 kDa	Monocytes, neutrophils, CD34 ⁺ subsets, megakaryocytes, endothelial cells, epithelial cells	Adhesion
CD113	PVRL3, nectin3	83 kDa	Testis, placenta	Adhesion molecule that interacts with afadin
CD114	G-CSFR	95, 139 kDa	Myeloid progenitors, endothelial cells	Myeloid differentiation/proliferation
CD115	M-CSFR, c-fms	150 kDa	Monocytes, macrophages, monocytic progenitors	Monocytic differentiation/proliferation
CD116	GM-CSFR	70–85 kDa	Monocytes, granulocytes, DCs, endothelial cells	Association with CD131, myeloid differentiation/proliferation
CD117	c-kit, SCFR	145 kDa	Hematopoietic progenitors, mast cells	Hematopoietic progenitor development/differentiation
CD118	LIFR, gp190	190 kDa	Epithelial cells in adults and embryos	Membrane-bound protein involved in signal transduction, soluble form inhibits activity of LIF

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD119	IFN- γ R α	90–100 kDa	Macrophages, monocytes, B cells, T cells, NK cells, neutrophils, endothelial cells	IFN- γ R α , associates with IFN- γ AF-1, host defense
CD120a	TNFR-I, p55	50–60 kDa	Hematopoietic, non-hematopoietic cells	Signal transduction
CD120b	TNFR-II, p75	75–85 kDa	Hematopoietic, non-hematopoietic cells	Signal transduction
CD121a	IL-1R, type I	80 kDa	Dimly expressed on many cells	Signaling
CD121b	IL-1R, type II	60–70 kDa	B cells, macrophages, monocytes, T cell subsets	Negative signaling
CD122	IL-2R β	75 kDa	NK cells, T cells, B cells, monocytes	Signal transduction
CD123	IL-3R	70 kDa	Lymph subset, basophils, hematopoietic progenitors, macrophages, DCs, megakaryocytes, pDCs	Signal transduction, associates with CDw131
CD124	IL-4R	140 kDa	Lymphocytes ^{low} , monocytes, hematopoietic precursors, fibroblasts, epithelial cells	Complex with CD132 or IL-13R α , T cell growth/differentiation
CD125	IL-5R	60 kDa	Eosinophils, basophils	Signal transduction, complex with CDw131
CD126	IL-6R	80 kDa	T cells, B ^{act} cells, macrophages, granulocytes, fibroblasts, epithelial cells	Signal transduction, complex with CD130
CD127	IL-7R	65–75 kDa	T cells, pro-B cells, downregulated on T ^{reg} cells	Complex with CD132, B and T cell development
CD128	See CD181 and CD182			
CD130	IL-6R β , gp130	130 kDa	B ^{act} and plasma cells, Leuk (maj) ^{low} , endothelial cells	IL-6R β , IL-6, IL-11, LIF, CNF signals
CD131	Common β	95–120 kDa	Monocytes, granulocytes, early B cells	Complex with α subunit of IL-3R, IL-5R, and GM-CSFR; signal transduction
CD132	Common γ	64 kDa	T cells, B cells, NK cells, monocytes, granulocytes	Subunit of IL-2R, IL-4R, IL-7R, IL-9R, and IL-15R; signal transduction
CD133	AC133, prominin-like 1	120 kDa	HSC subsets, epithelial cells, endothelial cells, tumor cells, leukemias	Unknown
CD134	OX-40	48–50 kDa	T ^{act} cells	T cell activation, differentiation, apoptosis
CD135	Flt3/Flk2	130–150 kDa	Myelomonocytic, primitive B cell progenitors, mDCs	Tyrosine kinase, early lymph development
CD136	MSP-R, RON	180 kDa	Epithelial cells, CNS, PNS, hematopoietic subset	Migration, morphological change and proliferation of different target cells
CD137	4-1BB	30 kDa	T ^{act} cells, T and B cells; DCs, macrophages	T cell co-stimulation

Antigen name	Alternative name	MW	Distribution	Function
CD138	Syndecan-1	80–150 kDa	Plasma cells, pre-B cells, basolateral surface of epith, neurons	Adhesion, cell morphology
CD139		228 kDa	B cells, monocytes, granulocytes, erythrocytes ^{low} , FDCs	
CD140a	PDGFR α	180 kDa	Fibroblasts, smooth muscle and glial cells, chondrocytes	Signal transduction
CD140b	PDGFR β	180 kDa	Fibroblasts, smooth muscle and glial cells, chondrocytes	Signal transduction
CD141	Thrombomodulin	100 kDa	Monocytes, neutrophils, endothelial cells, smooth muscle cells	Initiation of protein C anticoagulant signal
CD142	Tissue factor	45 kDa	Monocytes, endothelial cells, keratinocytes, epithelial cells	Binds clotting factor VIIa, initiator of clotting
CD143	Agiontensin-converting enzyme (ACE)	170 kDa	Endothelial cells, epithelial cells, neurons, fibroblasts, activated macrophages	Angiotensin converting enzyme, angiotensin II and bradykinin metabolism
CD144	VE-cadherin, cadherin-5	130 kDa	Endothelial cells, stem cells	Adhesion
CD146	MUC18, S-endo	113–118 kDa	Endothelial cells, melanomas, FDC, T ^{act} cells	Adhesion
CD147	Neurothelin, basoglin, EMMPRIN	28 kDa	Leukocytes, erythrocytes, platelets, endothelial cells	Adhesion, T cell activation, thymocyte cycling
CD148	PTPRJ, PTP-eta	240–260 kDa	Granulocytes, monocytes, DCs, T cells (high upon activation)	Tyrosine phosphatase receptor Type III
CD150	SLAM	75–95 kDa	T cell subset (high upon activation), B cells, DC, endothelial cells	Co-stimulation, proliferation, Ig production, measles virus receptor, T and B cell activation
CD151	PETA-3	32 kDa	Endothelial cells, megakaryocytes, platelets, epithelial cells	Cell adhesion
CD152	CTLA-4	33 kDa	T ^{act} and B cells, Treg cells	Negative regulation of T cell co-stimulation
CD153	CD30L	40 kDa	Neutrophils, B cells, T ^{act} cells, and macrophages	T cell co-stimulation
CD154	CD40L, gp39, TRAP	32–39 kDa	T ^{act} cells	B cell and DC co-stimulation
CD155	PVR	80–90 kDa	Monocytes, macrophages, CD34 ⁺ thymocytes	Adherens junctions between epithelial cells
CD156a	ADAM8	69 kDa	Neutrophils, monocytes	Leukocyte extravasation
CD156b	TACE/ADAM 17	100 kDa	Broad	Cleaves membrane proteins (TNF, TGF- α) to generate soluble forms

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD156c	ADAM10	98 kDa	Lymphoid organs, peripheral blood leukocyte, cartilage, chondrocytes, and fetal liver	Proteolytic cleavage of cell-surface molecules including Notch, TNF- α , APP, and ephrin-A2
CD157	BST-1	42–45 kDa	Granulocytes, monocytes, B cell progenitors, endothelial cells	ADP-ribosyl-cyclic ADP-ribose hydrolase activities, pre-B cell growth
CD158a	p58.1	50–58 kDa	NK and T cell subsets	Inhibition of NK cytolytic activity, MHC class-I specific NK receptor
CD158b	p58.2	50–58 kDa	NK and T cell subsets	Inhibition of NK cytolytic activity, MHC class-I specific NK receptor
CD158b2	KIR2DL3, p58.2	50–58 kDa	NK and T cell subsets	Inhibition of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158d	KIR2DL4	41 kDa	NK and T cell subsets	Inhibition of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158e	KIR3DL1	70 kDa	NK and T cell subsets	Inhibition of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158f	KIR2DL5	50–58 kDa	NK and T cell subsets	inhibition of NK cytolytic activity, MHC class-I specific NK receptor
CD158g	KIR2DS5	–	NK and T cell subsets	Activation of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158h	KIR2DS1	50 kDa	NK and T cell subsets	Activation of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158i	KIR2DS4	35, 58 kDa	NK and T cell subsets	Activation of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158j	KIR2DS2	50 kDa	NK and T cell subsets	Activation of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158k	KIR3DL2	70 kDa	NK and T cell subsets	Inhibition of NK cell cytolytic activity, MHC class I-specific NK receptor
CD158z	KIR3DL3		NK and T cell subsets	Inhibition of NK cell cytolytic activity, MHC class I-specific NK receptor
CD159a	NKG2A	43 kDa	T cell subsets (TH17, CD8 subsets, $\gamma\Delta$ cells, CD3 thymocytes), NK cells	Associates with CD94, NK cell receptor
CD159c	NKG2C	40 kDa	NK cells	Associates with MHC class I HLA-E molecules, forms heterodimer with CD94
CD160	BY55	27 kDa	NK and T cell subsets	Co-stimulation

Antigen name	Alternative name	MW	Distribution	Function
CD161	NKR-P1A	40 kDa	T cell subsets (TH17, CD8 subsets, $\gamma\Delta$ cells, CD3 thymocytes), NK cells	NK cell-mediated cytotoxicity
CD162	PSGL-1	120 kDa	Monocytes, neutrophils, granulocytes, peripheral T cells, B ^{low} cells, and a subset of CD34 ⁺ hematopoietic progenitor cells (HPCs) in bone marrow	Adhesion, rolling
CD163	Hemoglobin scavenger receptor, macrophage marker	130 kDa	Monocytes, macrophages, HSC	Clearance of hemoglobin
CD164	MGC-24	80 kDa	Hematopoietic progenitor cell-stromal cell interaction	Putative role in intracellular adhesion
CD165	AD2, gp37	42 kDa	Mesothelial cells, T cell acute lymphoblastic leukemia (T-ALL) cells, epithelial cells, fibroblasts, platelets	Putative role in intracellular adhesion
CD166	ALCAM	105 kDa	Neurons, monocytes, epithelial cells, fibroblasts, T ^{act} cells	Adhesion
CD167a	Discordin domain receptor family-1 (DDR1)	120 kDa	Epithelial cells, myoblasts	Tyrosine kinase, adhesion to collagen
CD168	Hyaluronan-mediated motility receptor (HMMR)	84–88 kDa	Monocytes, T cell subset, thymocyte subsets, intracellularly in breast cancer cells	Adhesion, tumor migration, metastasis
CD169	Sialoadhesin, Siglec-1	185 kDa	Tissue macrophage subsets, DCs	Adhesion, cell-cell and cell-matrix interactions, binds CD227 on breast cancer cells and CD43 on T cells
CD170	Siglec-5, CD33-like2	140 kDa	Macrophage subsets, neutrophils, eosinophils	Adhesion
CD171	Cell adhesion molecule L1	200–210 kDa	CNS, PNS, glial cells, monocytes, T cell subset, B cells, DC, several human tumor cells	Kidney morphogenesis, lymph node architecture, T cell co-stimulation, neurohistogenesis, homotypic interaction
CD172a	SIRP	110 kDa	Monocytes, T cell subset, stem cells	Adhesion
CD172b	SIRPB, SIRB1	50 kDa	Monocytes and DCs	Negative regulation of RTK-coupled signaling
CD172g	SIRP γ , SIRPB2	45–50 kDa	mRNA: liver and at lower levels in many tissues	
CD173	Blood group H type 2		Erythrocytes, stem cell subsets, platelets	Putative role in homing immature stem cells to bone marrow
CD174	Lewis Y		Stem cell subsets, epithelial cells	Putative role as cofactor to pro-coagulant y
CD175	Tn		Stem cell subsets	CD175 precursor for ABO antigen

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD175s	Sialyl-Tn		Erythroblasts, myeloid leukemias, carcinoma cells	Putative role in tumor metastasis
CD176	Thomson Friedrenreich Ag		Stem cell subset, carcinoma cells	Putative role in tumor metastasis
CD177	NB1	56–62 kDa	Neutrophil subsets	Migration
CD178	FasL, CD95L	38–42 kDa	T ^{act} cells, testis, neutrophils, monocytes, NK cells	Apoptosis, immune privilege, soluble form in serum
CD179a	V pre B	16–18 kDa	Pro- and pre-B cells	B cell differentiation/signaling, associates with IgM
CD179b	Lambda 5	22 kDa	Pro- and pre-B cells	B cell differentiation/signaling, associates with IgM
CD180	RP-105	95–105 kDa	B cell subset, monocytes, DCs	B cell activation, LPS signaling, associates with MD-1
CD181	CXCR1, IL-8RA	39 kDa	Neutrophils, basophils, NK cells, T cell subsets, monocytes	Binding of IL-8 induces chemotaxis of neutrophils, phospholipase D activation, respiratory burst
CD182	CXCR2, IL-8RB	40 kDa	Neutrophils, basophils, NK, T cell subset, mono	Binding of IL-8 induces chemotaxis of neutrophils
CD183	CXCR3	40 kDa	Eosinophils, T ^{act} cells, NK cells, GM-CSF-activated CD34 ⁺ progenitors	T cell recruitment to inflammatory sites, enhancement of Th1 response, chemotaxis
CD184	CXCR4, fusin	45 kDa	B cells, DCs, T cell subsets, monocytes, endothelial cells	Inhibition of chemotaxis and Ca ²⁺ cells flux induced by SDF1
CD185	CXCR5, BLR1	45 kDa	Mature B cells, T follicular helper cells, and Burkitt lymphoma cells	Associates with chemokine BLC, possible regulatory function in Burkitt lymphomagenesis and/or B cell differentiation, activation of mature B cells
CD186	CXCR6, BONZO	40 kDa	T ^{act} cells	
CD191	CCR1, MIP-1 receptor, RANTES receptor	39 kDa	T cells, monocytes, stem cell subsets	Binds C-C type chemokines and transduces signal by increasing intracellular calcium ion levels
CD192	CCR2, MCP-1-receptor	40 kDa	Activated NK cells and mononuclear phagocytes, activated T cell subsets, B cells, endothelial cells	Alternative coreceptor with CD4 for HIV-1 infection
CD193	CCR3, CKR3	45 kDa	Eosinophils, lower expression in neutrophils and monocytes, T cell subset s (Th2), basophils, mast cells	Alternative coreceptor with CD4 for HIV-1 infection

Antigen name	Alternative name	MW	Distribution	Function
CD195	CCR5	45 kDa	Monocytes, T cell subsets, mDCs, pDCs	Chemotaxis R5 HIV-1 coreceptor
CD196	CCR6, LARC receptor, DRY6	45 kDa	T cell subsets, B cells, DC subset	Inflammation, differentiation
CD197	CCR7, EBI-1	45 kDa	T cell subset, DC subsets, B cell subsets	T cell migration
CD198	CCR8, GPRC6, TER1	50 kDa	T cells, high expression in Th2, NK cells, monocytes	Allergic inflammation, alternative coreceptor with CD4 for HIV-1 infection
CD199	CCR9, GPR-9-6	43 kDa	Thymic progenitors, T cell subsets	Alternative coreceptor with CD4 for HIV-1 infection
CD200	OX-2	45–50 kDa	Thymocytes, endothelial cells, B cells, T ^{reg} cells	Inhibition of immune response
CD200R	OX2R	48 kDa	Hematopoietic cells	inhibitory receptor, inhibits TNF secretion
CD201	EPC-R	50 kDa	Endothelial cell subset	Activated protein C receptor, role in coagulation, inflammation, migration
CD202b	Tie2, Tek	150 kDa	Stem cells, endothelial cells	Angiogenesis, hematopoiesis
CD203c	NPP3/PDNP3, ENpp1, PD-1B	130–150 kDa	Basophils, mast cells, glioma cells, megakaryocytes	Ectoenzyme, binding to and clearance of extracellular nucleotides
CD204	Macrophage scavenger-receptor	220 kDa	Macrophages (M2)	Endocytosis of macromolecules
CD205	DEC-205	205 kDa	DC, thymic epithelial cells	Mediates antigen processing and presentation
CD206	Macrophage mannose-receptor	180 kDa	DC subsets, macrophages, monocytes	Phagocytosis and pinocytosis of mannose-containing molecules
CD207	Langerin	40 kDa	Langerhans cells	Endocytosis, antigen processing
CD208	DC-LAMP	70–90 kDa	DC ^{rest} , interdigitating DCs	Putative role in sorting MHC class II
CD209	DC-SIGN	44 kDa	DC subsets	Recognition of pathogens, signal transduction HIV-1 binding protein
CD210	IL-10Ra	90–110 kDa	T, B, and NK cells; monocytes, macrophages	Signal transduction
CD210b	IL-10RB, IL-10RB		T cells, B cells, NK cells, monocytes, macrophages	
CD212	IL-12Rβ1	100 kDa	NK cells and T ^{reg} cells	Binds IL-12 with high affinity, associates with IL-12 receptor β2, signal transduction
CD213a1	IL-13Ra1	65 kDa	B cells, monocytes, fibroblasts, endothelial cells	Binds IL-13 with low affinity, associates with CD124, signal transduction
CD213a2	IL-13R2	65 kDa	B cells, monocytes	Binds IL-13 with high affinity, signal transduction

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD215	IL15R, interleukin 15 receptor, α	28 kDa	Brain tissue, activated monocytes, macrophages, NK cells	High-affinity receptor for IL-15, signal transduction, development and survival of NK cells
CD217	IL-17R	120 kDa	Broad, granulocytes	Signal transduction
CD218a	IL-18R α , IL-1Rrp	70 kDa	T cell subset (Th1 and Tc17), NK cells, DCs, neutrophils	Activation of NF- κ B
CD218b	IL-18R β , IL18RAP	70 kDa	T cell subset (Th1 and Tc17), NK cells, DCs, neutrophils, endothelial cells	Heterodimeric receptor with IL-18R to enhance IL-18 binding
CD220	Insulin-R	140, 70 kDa	Broad	Signal transduction via kinase domain
CD221	IGF-1 R	70, 140 kDa	Broad	Binds IGF with high affinity, signaling, cell proliferation/differentiation
CD222	IGF-II R, mannose-6 phosphate-R	250 kDa	Broad, mainly intracellular	Adhesion, tumor growth
CD223	LAG-3	70 kDa	NK cells and T ^{reg} cells, Treg cells	Downregulation of TCR signal transduction
CD224	Glutamyltransferase 1 (GGT1)	27, 68 kDa	Leukocytes, stem cells	Maintain cellular redox
CD225	Leu-13	17 kDa	Broad	B cell activation
CD226	DNAM-1, PTA-1, TLISA1	65 kDa	T cells, NK cells, monocytes, platelets, activated HUVEC	Activation of cell-mediated cytotoxicity, soluble form (50 kDa) found in normal serum
CD227	MUC1, EMA	300 kDa	Epithelial cells, stem cell subset, follicular DCs, monocytes, B cell subset, some myelomas	Adhesion, signaling
CD228	Melanotransferrin	80–95 kDa	Stem cells, melanomas	Iron transport, migration of endothelial cells
CD229	Ly-9	95, 110 kDa	T and B cells	Adhesion
CD230	Prion protein	35 kDa	Lymphocytes, monocytes	Homeostasis under oxidative stress, signal transduction
CD231	TALLA-1, A15, TSPAN7	30–45 kDa	T cell leukemias, neuroblastomas, brain neurons	Marker for T cell acute lymphoblastic leukemia
CD232	VESP-R	200 kDa	Broad	Possible role in DC function
CD233	Band 3, SLC4A1	90 kDa	Erythrocytes	Anion exchanger pump, transport of CO ₂ , linking red cell membrane to cytoskeleton
CD234	Duffy, DARC	35–45 kDa	Erythrocytes	Decoy receptor, inflammation
CD235a	Glycophorin A	36 kDa	Erythrocytes	Major glycoprotein of erythrocyte cell membrane

Antigen name	Alternative name	MW	Distribution	Function
CD235b	Glycophorin B	20 kDa	Erythrocytes	Major sialoglycoprotein of erythrocyte membrane, maintain erythrocyte structure
CD236	Glycophorin C/D	32, 23 kDa	Erythrocytes, stem cell subsets	
CD236R	Glycophorin C	32 kDa	Erythrocytes, stem cell subsets	
CD238	Kell	93 kDa	Erythrocytes, stem cell subsets, endothelial cells, epithelial cells	Zinc endopeptidase
CD239	B-CAM	78–85 kDa	Erythrocytes, stem cell subset	
CD240CE	Rh30CE	30–32 kDa	Erythrocytes	
CD240D	Rh30D	30–32 kDa	Erythrocytes	
CD241	RhAg, Rh50	50 kDa	Erythrocytes	Formation of complex with CD47, LW, glycophorin B
CD242	ICAM-4	42 kDa	Erythrocytes	Adhesion, Landsteiner-Wiener blood group
CD243	MDR-1, p170, P-gp	180 kDa	Stem cells, small intestine, kidney stem cells	Efflux transporter of various drugs
CD244	2B4, p38	70 kDa	T cell subset, monocytes, basophils, NK cells, mast cells, eosinophils	NK cell activation, costimulatory ligand for NK and T cells
CD245	p220/240	220–240 kDa	Granulocytes, resting PBLs, platelets, monocytes, NK cells	Signal transduction, co-stimulation of NK cells and T cells
CD246	ALK	80 kDa	Anaplastic T cell leukemias, small intestine, testis, brain, not on normal lymphocytes	Brain development, implicated in ALK lymphomas
CD247		16 kDa	NK cells and T cells	TCR complex subunit, coupling of antigen recognition to signaling
CD248	TEM1, Endosialin	175 kDa	Endothelial tissue, stromal fibroblasts	Tumor progression and angiogenesis
CD249	Aminopeptidase A	160 kDa	Epithelial cells, endothelial cells	Renin-angiotensin system
CD252	OX-40 ligand, gp34	34 kDa	B ^{act} cells, cardiac myocytes	T cell co-stimulation
CD253	TRAIL, Apo-2L, TL2, TNFSF10	32 kDa	T ^{act} cells, many tissues, B cells, NK cells	Death
CD254	TRANCE, RANKL, OPGL	35 kDa	Lymph node and BM stroma, T ^{act} cells	Osteoclast differentiation, enhances DC to stimulate naïve T cell proliferation, regulates Bcl-XL expression
CD255	TNFSF12, TWEAK, APO3L	18, 30–35 kDa	Endothelial cells, smooth muscle, fibroblasts	Induces apoptosis, promotes angiogenesis
CD256	APRIL, TALL-2	16 kDa	Monocytes, macrophages	B cell proliferation, induces cell death

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD257	BlyS, BAFF, TALL-1	31 kDa	Monocytes ^{act} , soluble form	B cell growth factor and costimulator of Ig production
CD258	LIGHT, HVEM-L	28 kDa	T ^{act} cells, immature DC	T cell proliferation
CD261	TRAIL-R1, DR4	57 kDa	T ^{act} cells, peripheral blood leukocytes	Presence of death domain, apoptosis via FADD and caspase-8
CD262	TRAIL-R2, DR5	60 kDa	Widely expressed, peripheral blood lymphocytes	Contains death domain, apoptosis via FADD and caspase-8
CD263	TRAIL-R3, DcR1, LIT	65 kDa	Peripheral blood lymphocytes	Lack of death domain in receptor
CD264	TRAIL-R4, TRUNDD, DcR2	35 kDa	Peripheral blood leukocytes	Presence of truncated death domain
CD265	RANK, TRANCE-R, ODFR	97 kDa	Broad expression, DCs	Osteoclastogenesis, T cell–DC interactions
CD266	TWEAK-R, FGF-inducible 14	14 kDa	Heart, placenta, kidney, HUVECs	TWEAK receptor, cell–matrix interactions, and endothelial cell growth and migration
CD267	TACI, TNFR SF13B	32 kDa	T ^{act} and B cells	B cell development
CD268	BAFFR, TR13C	25 kDa	B cells	B cell survival and proliferation
CD269	BCMA, TNFRSF13B	20 kDa	Mature B cells (membrane and perinuclear)	B cell survival and proliferation
CD270	TNFRSF14, tumor necrosis factor receptor superfamily, member 14 (herpes virus entry mediator), TR2, ATAR, HVEA, HVEM, LIGHTR	30 kDa	Broad, Bhi cells	Viral entry, signal transduction
CD271	NGFR, p75 (NTR)	45 kDa	Neurons (Schwann cells, growing neurites), BM mesenchymal cells	Tumor suppressor, cell survival and death
CD272	BTLA	33 kDa	Lymphocytes, macrophages, progenitor B and T cells, mature BM DCs	Inhibitory response
CD273	B7DC, PD-L2, PDCD1L2	25 kDa	DC subsets, monocytes, macrophages	Co-stimulation or suppression of T cell proliferation
CD274	B7-H1, PD-L1	33 kDa	Leukocytes, broad	Co-stimulation of lymphocytes
CD275	B7-H2, ICOSL, B7-RP1, GL50	60 kDa	B cells, DCs, monocytes	Co-stimulation, cytokine production
CD276	B7-H3	40–45 kDa	<i>In vitro</i> –cultured DC and monocytes, T ^{act} cells, mammary tissue	Co-stimulation, T cell activation
CD277	BT3.1, butyrophilin SF3 A1, BTF5	56 kDa	T cells, B cells, NK cells, monocytes, DCs, endothelial cells, CD34 ⁺ cells, tumor cell lines, CD14 ⁺ cells	T cell activation

Antigen name	Alternative name	MW	Distribution	Function
CD278	ICOS, AILIM	55–60 kDa	T ^{reg} cells, Th2 cells	T cell co-stimulation
CD279	PD1, SLEB2	55 kDa	T ^{reg} and B ^{reg} cells	Autoimmune disease and peripheral tolerance
CD280	ENDO180, UPARAP	180 kDa	Chondrocytes, fibroblasts, endothelial cells, macrophages	Mannose receptor, collagen matrix remodeling and endocytic recycling
CD281	TLR1	90 kDa	Low levels in PBMC, monocytes and possibly DCs	Innate immunity with TLR2
CD282	TLR2	90 kDa	Monocytes, neutrophils, upregulated in macrophages	Response to bacterial lipoproteins, innate immunity
CD283	TLR3	100 kDa	May be intracellular	Innate immunity
CD284	TLR4	100 kDa	PBMC (weak in monocytes, immature DCs and neutrophils)	Binds LPS, innate immunity, associates with MD2 and CD14
CD285	TLR5	98 kDa	DCs, monocytes, epithelial cell subsets	Innate recognition to bacteria
CD286	TLR6	90 kDa	Macrophages, monocytes, epithelial cells, endothelial cells	Innate immune response to bacterial LPS, association with MD2 and CD14
CD288	TLR8	110 kDa	Leukocytes, monocytes, DCs	Pathogen recognition, activation of innate immunity
CD289	TLR9	120 kDa	B cells, monocytes, Treg cells, pDC (intracellular)	Pathogen recognition, activation of innate immunity
CD292	BMPR1A, ALK3	57 kDa	Bone progenitor	Bone development
CD293	BMPR1B, ALK6	57 kDa	Bone progenitor	Bone development
CD294	CRTH2, GPR44	55–70 kDa	Th2, eosinophils, basophils, T cell subsets	Stimulatory effects on Th2, allergic inflammation
CD295	LeptinR, LEPR	132 kDa	Broad	Adipose metabolism, immune dysfunction in obesity
CD296	ART1, RT6, ART2	37 kDa	Heart and skeletal muscle, peripheral T cells, NK cell subset	Modifies integrins during differentiation, ADP ribosylation of target proteins
CD297	ART4, dombrock blood group	38 kDa	Erythroid cells, monocytes ^{act}	ADP ribosylation of target proteins
CD298	Na ⁺ /K ⁺ -ATPase β3 subunit	52 kDa	Broad	Transport sodium and potassium ions across membrane
CD299	DC-SIGN-related, LSIGN, DC-SIGN2	45 kDa	Endothelial cell subsets, DCs, macrophages	Binds ICAM3, HIV-1 gp120, coreceptor with DC-SIGN, HIV infection
CD300a	CMRF35H, IRC1, IRp60 CLM-8, MAIR-1, LMIR-1	60 kDa	NK cells, monocytes, neutrophils, T and B cells subset and lymphocytic cell lines, AML	Unknown
CD300c	CMRF35A, LIR	23 kDa	Monocytes, neutrophils, monocytic cell lines, B and T cell subsets	Unknown

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD300e	CMRF35L	45 kDa	Monocytes, macrophages, DCs	Unknown
CD300f	IREM1, MAIR-V	60 kDa	Myeloid cells	Inhibitory receptor
CD301	MGL, HML2 DCASGPR, CLECSF13, CLECSF14, GalNAc	38 kDa	Immature DC	Binds Tn antigen, uptake of glycosylated antigens
CD302	DCL1, BIMLEC	19–28 kDa	Some myeloid and Hodgkin's cell lines	A fusion protein in Hodgkin's lymphoma with DEC-205
CD303	BDCA2, HECL CLEC4C	38 kDa	Plasmacytoid DC	Inhibits IFN- α production
CD304	BDCA4, neuropilin 1 VEGF165R	130 kDa	Neurons, CD4 ⁺ /CD25 ⁺ Treg cells, pDC, endothelial and tumor cells	Interacts with VEGF165 and semaphorins, coreceptor with plexin, axonal guidance, angiogenesis, cell survival, migration
CD305	LAIR1	32–40 kDa	NK cells, B cells, T cells, monocytes, DC, eosinophils, basophils, mast cells	Inhibitory receptor on NK and T cells
CD306	LAIR2	16 kDa	Monocytes	Soluble, mucosal tolerance
CD307	IRTA2 FcRL5 CD307e BXMAS1	55–105 kDa	B cell subset, B cell lymphoma	B cell development, translocation in some lymphomas
CD307a	FCRL1, Fc receptor-like 1, FCRH1, IFGP1, IRTA5, FCRL1	50 kDa	Mature B cells	May have role in B cell activation and differentiation
CD307b	FCRL2, Fc receptor-like 2, FCRH2, IFGP4, IRTA4, SPAP1, SPAP1A, SPAP1B, SPAP1C	55 kDa	Memory B cells	May have role in B cell development
CD307c	FCRL3, Fc receptor-like 3, FCRH3, IFGP3, IRTA3, SPAP2	89 kDa	NK cells and B cells	
CD307d	FCRL4, Fc receptor-like 4, FCRH4, IGFP2, IRTA1	57 kDa	Memory B cells	May inhibit B cell receptor
CD307e	FCRL5, Fc receptor-like 5, CD307, FCRH5, IRTA2, BXMAS1, PRO820	106 kDa	B cells	May have role in B cell development and differentiation
CD309	VEGFR2, KDR	230 kDa	Endothelial cells, angiogenic precursor cells, hemangioblast	Binds VEGF, regulates adhesion and cell signaling (annexin A5 and SHC1 binding also published)
CD312	EMR2	90 kDa	Monocytes, macrophages, monocyte-derived DCs, granulocytes ^{low}	Cell adhesion and migration for phagocytosis

Antigen name	Alternative name	MW	Distribution	Function
CD314	NKG2D, KLR	42 kDa	NK cells, CD8 ⁺ activated, NK1.1 ⁺ T cells, some myeloid cells	Binds MHC class I, MICA, MICB, Rae1, and ULBP4, activates cytotoxicity and cytokine production, co-stimulation
CD315	CD9P1, SMAP6, FPRP, PTGFRN	135 kDa	B cell subset, monocytes ^{act}	Associates with CD81 and CD9
CD316	EWI2, PGRL, CD81P3, KASP	63–75 kDa	B cells, T cells, low on NK cells	Associates with CD81 and CD9, involved in cell migration
CD317	BST2, HM1.24	30–36 kDa	B cells, T cells, NK cells, monocytes, DC, fibroblast cell lines, myeloma	Pre-B cell growth, overexpressed in multiple myeloma
CD318	CDCP1, SIMA135	135 kDa	HSC (subset of CD34 ⁺), tumors	Cell adhesion with ECM
CD319	CRACC, SLAMF7	66 kDa	T cells, B cells, DC subset, NK cells, upregulated in DCs	Regulates NK cells and T cells
CD320	8D6A, 8D6	30 kDa	Follicular DC, germinal centers	B cell proliferation, tumor formation
CD321	JAM1, F11 receptor	35 kDa	Platelet receptor, epithelial and endothelial cells, platelets	Tight junctions, involved in retrovirus entry into cells
CD322	JAM2, VE-JAM	43 kDa	HEV, other endothelial cells	Cell adhesion, lymphocyte homing to secondary lymphoid organs
CD324	E-Cadherin, Uvomorulin	120 kDa	Nonneural epithelial cells	Cell adhesion, homotypic interaction, and binds α e/ β 7
CD325	N-Cadherin, NCAD	140 kDa	Brain, skeletal, and cardiac muscle	Cell adhesion, neuronal recognition
CD326	Ep-CAM, Ly74 tumor-associated calcium signal transducer 1 (TACSTD1)	35–40 kDa	Most epithelial cell membranes, some tumors	Cell adhesion, metastatic carcinoma cell marker
CD327	SIGLEC6	49 kDa	Placenta, spleen, B cells, sialic acid dependent	Adhesion, membrane-bound and secreted forms, sialic acid dependent
CD328	SIGLEC7, AIRM-1	75 kDa	Resting and activated NK cells, placenta, liver, spleen, lower in granulocytes and monocytes	Sialic acid-dependent adhesion, inhibit NK cell activation, hemopoiesis
CD329	SIGLEC9	50 kDa	Neutrophils and monocytes	Sialic acid-dependent adhesion molecule
CD331	FGFR1, Fms-like tyrosine kinase-2, KAL2, N-SAM	30 kDa	Fibroblasts, epithelial cells	Binds FGF, high-affinity receptor for fibroblast growth factors
CD332	FGFR2, BEK, KGFR	115–135 kDa	Fibroblasts, epithelial cells	Binds FGF, high-affinity receptor for fibroblast growth factors
CD333	FGFR3, ACH, CEK2	115 kDa	Fibroblasts, epithelial cells	Binds FGF, high-affinity receptor for fibroblast growth factors

Human CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD334	FGFR4, JTK2, TKF	110 kDa	Fibroblasts, epithelial cells	Binds FGF, high-affinity receptor for fibroblast growth factors
CD335	NKp46, Ly-94 homolog	46 kDa	NK cells	Activates NK cells upon non-MHC ligand binding
CD336	NKp44, Ly-95 homolog	44 kDa	NK ^{act} cells, T cell subsets	Activates NK cells upon non-MHC ligand binding
CD337	NKp30, Ly117	30 kDa	NK cells	Activates NK cells upon non-MHC ligand binding
CD338	ABCG2, BCRP, Bcrp1, MXR	73 kDa	Stem cell subset (side population)	Multidrug resistance transporter
CD339	Jagged-1, JAG1, JAGL1, hJ1	135 kDa	Stromal cells, epithelial cells, AML	Binds notch, hematopoiesis
CD340	HER2/neu, ERBB2, p185HER2	185 kDa	BM, mesenchymal stem cells	Member of the ERBB family of RTK, involved in a wide range of cellular responses
CD344	Frizzled-4, Fz-4, hFz-4, FzE4	59 kDa	Adult kidney, lung, brain, liver, fetal neuronal intestinal cells	Acts in the Wntb-catenin pathway, regulation of tissue and cell polarity
CD349	Frizzled-9, Fz-9, hFz-9	65 kDa	Adult and fetal brain, testis, eye, skeletal muscle, kidney, BM mesenchymal stem cells	Acts in the Wntb-catenin pathway, regulation of tissue and cell polarity
CD350	Frizzled-10, Fz-10, hFz-10	65 kDa	Placenta and kidney, fetal lung and brain	Acts in the Wntb-catenin pathway, regulation of tissue and cell polarity
CD351	FCAMR, Fc receptor, IgA, IgM, high affinity, FCA/MR, FKSG87	57 kDa	Mesangial cell	Fc receptor for IgA and IgM
CD352	SLAMF6, SLAM family member 6, KALI, NTBA, KALib, Ly108, NTB-A, SF2000	37 kDa	NK, T, and B cells	Triggers cytolytic activity of NK cells
CD353	SLAMF8, SLAM family member 8, BLAME, SBB142	32 kDa	Lymph node, spleen, thymus, and bone marrow	May have role in B cell signalling and differentiation
CD354	TREM1, triggering receptor expressed on myeloid cells 1, TREM-1	26 kDa	Liver, lung, spleen	Stimulates neutrophils and monocytes
CD355	CRTAM, cytotoxic and regulatory T cell molecule	45 kDa	MHC-I-restricted cells	Cytotoxicity, tumor rejection
CD357	TNFRSF18, tumor necrosis factor receptor superfamily, member 18, AITR, GITR, GITR-D	26 kDa	Lymph node, peripheral blood leukocytes, spleen	Receptor for TNSF18
CD358	TNFRSF21, tumor necrosis factor receptor superfamily, member 21, DR6, BM-018	72 kDa	Fetal spinal cord, brain	Promotes apoptosis, elevated in Alzheimer's disease patients

Antigen name	Alternative name	MW	Distribution	Function
CD360	IL21R, interleukin 21 receptor, NILR	59 kDa	B, T, and NK cells, DCs	Receptor for IL-21
CD361	EVI2B, ecotropic viral integration site 2B, EVDB, D17S376	47 kDa	Bone marrow, PBMC, fibroblasts	
CD362	SDC2, syndecan 2, HSPG, HSPG1, SYND2	22 kDa		Cell surface proteoglycan that bears heparan sulfate
CD363	S1PR1, sphingosine-1-phosphate receptor 1, EDG1, S1P1, ECGF1, EDG-1, CHEDG1	42 kDa	Endothelial cells	Receptor for S1P, T cell migration
CD364	PI16, peptidase inhibitor 16, dJ90K10.5, MGC45378, MSMBBP	49 kDa	Prostate, testis, ovary, intestine	Putative serine protease inhibitor
CD365	HAVCR1, TIM-1, HAVCR-1, TIMD1	38 kDa	Activated CD4 T cells	Role in Th development, involved in hepatitis A virus entry into cells
CD366	HAVCR2, TIM-3, TIMD3	33 kDa	Th1	Inhibitory receptor on Th1 cells
CD367	CLEC4A, DCIR, DDB27, CLECSF6	27 kDa	DC, myeloid cells, B cells	Inhibitory receptor on DC and B cells
CD368	CLEC4D, MCL, CLECSF8, CLEC-6, MPCL	24 kDa	Monocytes, macro	Endocytic receptor
CD369	CLEC7A, DECTIN-1, CLECSF12	27 kDa	Monocytes, macrophages, DCs, neutrophils, lymphocytes ^{low}	TLR2-mediated inflammatory response
CD370	CLEC9A, HEEE9341, UNQ9341, DNGR1	27 kDa	DC subset, monocyte subsets	Endocytic receptor
CD371	CLEC12A, CLL-1, myeloid inhibitory C-type lectin-like (M1CL) receptor M1CL, DCAL-2	30 kDa	Neutrophils, eosinophils, monocytes, DCs	Signal transduction

Human non-CD antigens

Antigen name	Alternative name	MW	Distribution	Function
4-1BB ligand	CD137L		B ^{act} cells, DC, carcinoma cell lines	T cell co-stimulation
Act1	CIKS	62 kDa	B and T cells	Negative regulator of BAFFR and CD40 signaling, regulates IL-17RA signaling
AID			B ^{act} cells, germinal center B cells	Activation-induced deaminase, Ig class switch recombination
AITR	TNFRSF18, GITR		Treg and T ^{act} cells	Co-stimulation
AITRL	TNFSF18, TL6, GITRL		APC, endoth, peripheral mono	
B7 family	See CD273-276			
B7-H4	B7-S1, B7x			May interact with BTLA, inhibition
BAMBI	TGFBR	29 kDa	Carcinoma cells	Pseudoreceptor for TGF- β (short cytoplasmic domain), growth inhibition
β -catenin		83 kDa	Broad, B and T cell development	Positively regulates Wnt-signaling
BCMA	See CD269			
BLIMP-1		90 kDa	B and T cells	B cell, Th1 differentiation
BLyS	See CD257			
BR3	See CD268			
BTK/ITK	Bruton's tyrosine kinase, IL-2 inducible T-cell kinase	55–80 kDa	B or T lymphocytes, respectively	Phosphorylation by IL-2; proliferation and differentiation through the BCR/TCR (receptors)
BTLA	See CD272			
CCR5	See CD195			
CCR7	See CD197			
c-Met	HGFR/SFR	145 kDa	Epithelial cells, hematopoietic progenitors, early thymocytes	Tumor growth/metastasis, hepatocyte growth factor/scatter factor receptor, T cell development, hematopoiesis
CMKLR1	Chemokine-like receptor 1	42 kDa	pDC (CD123 ⁺), <i>in vitro</i> -derived moDC	Binds chemerin, pDC recruitment, bone development
Cytokeratin		52–67 kDa	Epithelial cells	Intermediate filament protein, cytoskeletal formation
DcR3	TR6, TNFRSF6B	24 kDa	Tumors	Fas decoy receptor, tumor evasion, secreted extracellularly
DEC-205	See CD205			
DR3	TRAMP, Apo-3, WSL-1, LARD, TR3	45 kDa	T ^{act} cells, leukocytes, mono, granulocytes	Lymphocyte homeostasis, activates NF- κ B

Antigen name	Alternative name	MW	Distribution	Function
DR6	TR7	72 kDa	Lymph node, thymus	Death, Th2 response, interacts with TRADD
Eomes	TBR2	70 kDa	Broad	Trophoblast development, CD8 ⁺ NK and T cell development
FcεR1a	High-affinity IgE receptor		Mast cells, basophils	Triggers IgE-mediated allergic reactions
Foxp3	SCURFIN	50 kDa	T cell subsets (CD4 ⁺ /CD25 ⁺ subset and CD8 ⁺ subset)	TF, upregulated in Treg cells
GATA-3	GATA binding protein 3	48 kDa	Various tissues, including CNS, inner ear, and mesodermal- and endodermal-derived tissues	TF that acts as a regulator in the following: Th2 differentiation, sympathetic neuron development, and the maintenance of the differentiated state in epithelial cells
GILZ		14 kDa	Mast cells, mono, mac, DC, T cells	Transcriptional modulator, inhibits IL-2 production
gp130	See CD130			
Granulysin		9, 15 kDa	NK cells, T ^{bet} cells	Kills bacteria, induces apoptosis
Granzyme B	Granzyme-2, CTLA-1	30 kDa	Cytotoxic T cells, NK cells	Targets cell apoptotic lysis, cell-mediated immune responses
HLA-ABC		11–12, 45 kDa	Nucleated cells	Cell-mediated immune response and tumor surveillance
HLA-DR			APC, T ^{bet} cells	Presentation of peptides to CD4 ⁺ T lymphocytes
HVEM	TNFRSF14, TR2	60 kDa	Broad expression	Receptor for LIGHT, LT-α, BTLA, Herpes Simplex Virus, lymphocyte activation
ICOS	See CD278			
ICOSL	See CD275			
IGF-1R	See CD221			
IL-15Ra	See CD215		Monocytes ^{act}	Binds to IL-15, associates with IL-2Rβ and common γ, IL-15 trans-presentation
ILT family	See CD85			
Integrin β1	See CD29			
Integrin β2	See CD18			
Integrin β3	See CD61			
Integrin β5		100 kDa	Carcinoma cell lines, fibroblast lines	Associates with αv subunit, vitronectin receptor
Integrin β7		130 kDa	Leuk (maj)	Associates with CD49d or CD103, adhesion of leukocytes to endothelial cells
IκBα		39 kDa	Broad	Phosphorylation by TNFα engagement of T cell and B cell receptors, apoptosis; inflammatory stimuli

Human non-CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
LAP		65–75 kDa		Noncovalently associates with TGFβ
Lck		61 kDa	T lymphocytes	Phosphorylation by activated TCR complex; found overexpressed in tumors; proliferation and differentiation of T lymphocytes
Mcl-1	BCL2L3, EAT; 21-37 kDa	28–37 kDa	Broad	Mitochondrial protein with role in survival and apoptosis
MD-2		30 kDa		TLR4 distribution and LPS recognition
MICA/MICB		70 kDa	Intestinal epithelial cells, some tumors	Unregulated on epithelial cells after shock, NKG2D receptors
mTOR		289 kDa	Broad	Involved in cell metabolism, survival, protein synthesis
Nanog		34 kDa	ESC	Transcription factor, self renewal of ESC
Nestin		220–240 kDa	Neural stem cells	
NKG2D	See CD314			
NOD2	CARD-15, IBD1	115 kDa	Monocytes, intracellular	
Notch-1	Lin-12, Tan 1	290 kDa	Developing embryo, variety of adult tissues	Cell-cell interaction, cell fate determination
OPG	Osteoprotegerin, TNFRSF11B	46 kDa	Lymph node, bone marrow	Bone resorption
OX-40	See CD134			
OX-40 Ligand	See CD252			
Pax5	BSAP	50 kDa	B cells	B cell differentiation
PD-1	See CD279			
PD-L1	See CD274			
PD-L2	See CD273			
Perforin		70–75 kDa	CTL, NK	Cytolytic protein
Podoplanin		40 kDa	Lymphatic endothelial, follicular DC	Platelet aggregation, cancer metastasis
RP105	See CD180			
RANK	See CD181			
RANKL	See CD182			
RORγ(t)	See CD183	58 kDa	Colon, muscle, lymph node, kidney	TF that plays roles in multiple physiological processes

Antigen name	Alternative name	MW	Distribution	Function
SAP	SLAM-associated protein	14 kDa	T and NK cells	Negatively regulates SLAM-family receptors
Siglec-7	AIRM1, QA79, see CD328			
SLP76		60 kDa	T cells	Phosphorylation by activated TCR; T cell development and activation as well as mast cell and platelet function
SLP-76	LCP2, pp76	76 kDa	T cells, B ^{low} cells	T cell receptor-mediated signaling
SSEA-1	Stage-specific embryonic antigen-1		ESC, embryonic carcinomas, germ cells	Downregulated by differentiation
SSEA-3	Stage-specific embryonic antigen-3		ESC, embryonic carcinomas, germ cells	Downregulated by differentiation
SSEA-4	Stage-specific embryonic antigen-4		ESC, embryonic carcinomas, germ cells	Downregulated by differentiation
STAT1		91 kDa	Broad	Phosphorylation by IFN γ ; inflammation, innate and adaptive tolerance apoptosis
STAT2		113 kDa	Broad	Phosphorylation by IFN α or β ; anti-viral anti-proliferative activity
STAT3		88 kDa	Broad	Phosphorylation by IL-6; cell survival, immune tolerance
STAT4		85 kDa	Broad	Phosphorylation by IL-12 or type 1 IFNs (IFN α or β) cytokine production; TH1 cell differentiation
STAT5		97 kDa	Broad	Phosphorylation by IL-2 family (IL-2, 4, 7, 15), IL-3, IL-5, EPO, TPO and GM-CSF; proliferation, constitutive activation in many tumors
STAT6		94 kDa	Broad	Phosphorylation by IL-4 and IL-13; differentiation of Th2 cells, allergic inflammation, B cell Ig class switch
Stro-1			BM stroma, erythroid progenitors	Surface marker for immature mesenchymal cells
Syk		72 kDa	B lymphocytes, immature (CD4, CD8 double-negative and double-positive) thymocytes, myeloid cells, epithelial cell lines, and normal breast tissue	Role in B cell development
TAC1	See CD267			
T-bet	T-box protein 21	58 kDa	Th1 cells	Transcription factor, T cell development/differentiation
TCL1	T cell leukemia/lymphomal	13 kDa	B cell tumors, lymphoid lineages in a developmentally controlled manner, pDCs	Intracellular, lymphoid proto-oncogene

Human non-CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
TCR $\alpha\beta$			Peripheral T cell subset	Antigen recognition
TCR $\gamma\delta$			T cell subset	Antigen recognition
TdT	Terminal deoxynucleotidyl transferase	60 kDa	Immature B cells, T cells	Template-independent addition of nucleotides at VDJ breakpoints
TLR1–TLR4	See CD281–CD284			
TLR5	TIL3	103 kDa	mRNA: leukocytes, prostate, ovary, liver, lung	Interacts with microbial lipoproteins, NF- κ B, responds to <i>Salmonella</i>
TLR6		100 kDa	mRNA: leukocytes, ovary, lung	Interacts with microbial lipoproteins, protein sequence similar to hTLR1; regulates TLR2 response
TLR7		116 kDa	mRNA: spleen, placenta, lung; upregulated on macrophages	Innate immunity
TLR8		119 kDa	mRNA: leukocytes, lung, neurons	Innate immunity
TLR9	See CD289	115 kDa	Lung, spleen	Innate immunity
TLR10		94 kDa	mRNA: lymphoid tissues	Most closely related to TLR1 and TLR6
TNFRI	See CD120a			
TRA-1-60	Podocalyxin	200–250 kDa	ESC, embryonic carcinomas, germ cells, podocytes	Downregulated by differentiation
TRA-1-81	Podocalyxin	200–250 kDa	ESC, embryonic carcinomas, germ cells, podocytes	Downregulated by differentiation
TRAIL	See CD253			
TSLPR		50 kDa	Monocytes, DCs, B cells	Binds TSLP (thymic stromal lymphopoietin) to activate DC
TWEAK	TNFSF12, APO3L		Activated monocytes	Death, promotes IL-8 secretion, endothelial cell proliferation, and apoptosis
TWEAK Receptor	See CD266			

Mouse CD antigens

Antigen name	Alternative name	MW	Distribution	Function
CD1d	CD1.1/1.2, Ly-38	43–49 kDa	Leukocytes, intestinal epithelial cells	Ag presentation, mucosal immunity, associates with β 2m, ligand for NKT cells
CD2	LFA-2, Ly-37, SRBC-R	45–58 kDa	Lymphocytes, pre-B cells, erythrocytes, myeloid cells, DC	Adhesion, T cell activation
CD3 δ	T3d	20 kDa	T cells, thymocyte subset, NKT cells	TCR subunit, TCR expression and signaling
CD3 ϵ	T3e	20 kDa	T cells, thymocyte subset, NKT cells	TCR subunit, TCR expression and signaling
CD3 γ	T3g	25 kDa	T cells, thymocyte subset, NKT cells	TCR subunit, TCR expression and signaling
CD4	Ly-4, L3T4	55 kDa	Thymocyte subset, T cell subset, DC	TCR coreceptor, thymic differentiation, T cell activation
CD5	Ly-1	67 kDa	Thymocytes, T cells, B cell subset (B1)	T cell activation, T–B cell interaction, CD72 receptor
CD6	T12	100–130 kDa	Thymocytes, T cells, neurons, not on B cells	T cell differentiation and co-stimulation, CD166 receptor
CD7		40 kDa	Human early T cell marker, CD7KO has normal phenotype	
CD8 α	Ly-2	32–34 kDa	Thymocyte subset, T cell subset, DC subset, not fresh NK cells	TCR coreceptor, MHC class I receptor, T cell differentiation, homodimer or heterodimer with CD8 α
CD8 β	Ly-3	30 kDa	Thymocyte subset, T cell subset, not fresh NK cells	TCR coreceptor, T cell differentiation, heterodimer with CD8 α
CD9	p24	24–27 kDa	Myeloid, platelets, T ^{hct} cells, B cell subset, stromal cells, mesenchymal stem cells	Cell adhesion, migration, T cell co-stimulation
CD10	CALLA, NEP, Mme	100 kDa	Fibroblasts, BM stromal cells, non-lymphoid tissue	Zinc-binding metalloprotease, neutral endopeptidase ectoenzyme
CD11a	Integrin α L, Ly-15, Itgal	80 kDa	NK cells, T, and B cells, granulocytes, mono, macrophages, DC, thymocytes	CD11a/CD18 (LFA-1) receptor for ICAM-1 and ICAM-2, adhesion, T cell co-stimulation
CD11b	Mac-1, integrin α M, Itgam, CR3	170 kDa	Myeloid cells, NK cells, T ^{hct} cells, B cell subset	CD11b/CD18 receptor for CD54 and CD102, adhesion to ECM, fibrinogen, and complement iC3b

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD11c	p150, integrin α X, Itgax, CR4	150 kDa	DC, myeloid cells, NK cells, T cell subset	CD11c/CD18 receptor for fibrinogen and iC3b, adhesion
CD13	Aminopeptidase N, Lap1	150 kDa	Myeloid cells, endothelial cells, DC	Zinc-binding metalloprotease, antigen processing
CD14	LPS-R, Mo2	53–55 kDa	Macrophages, granulocytes ^{low}	Receptor for LPS/LPB, LPS recognition
CD15	Lewis-X		Transient in brain	Fucosyl transferase (Fut4)
CD16	Fc γ RIII, Ly-17, Fc γ r3	50–60 kDa	NK cells, neutrophils, mast cells, macrophages	Fc γ low-affinity receptor, phagocytosis, ADCC, NK cell activation
CD18	Integrin β 2, Itgb2	90–95 kDa	Leukocytes	Associates with CD11a, b, and c, adhesion
CD19	B4	95 kDa	B cells, FDC, good B cell lineage marker, not plasma cells	Associates with CD21 and CD81, BCR coreceptor, B cell activation/differentiation
CD20	Ly-44, B1, Ms4a2	33–37 kDa	B cells, Transitional T1 B cells	B cell differentiation/activation
CD21	CR2, CR1	150 kDa	B cells, DC	CD21/CD35 variant of CR2 gene, complement C3dR, associates with CD19 and CD81, BCR coreceptor
CD22	Lyb-8, Siglec-2	140–160 kDa	B cells	Adhesion, B cell–mono and B–T cell interactions, B cell activation, BM homing receptor for IgD ⁺ B cells, CD75 counter-receptor
CD23	Fc ϵ RII, Ly-42, Fc ϵ r1a	45–49 kDa	B cells, mono, macrophages, granulocytes, platelets, FDC, not B1 cells	CD19/CD21/CD81 receptor, low-affinity IgER, signaling
CD24a	HSA, Ly-52, Nectadrin	35–52 kDa	B cells, granulocytes, mono, macrophages, T ^{act} cells, erythrocytes, neurons	Several isoforms, B cell differentiation and adhesion, T cell co-stimulation, CD62P receptor
CD25	Ly-43, p55, IL2R α	55 kDa	Pre-B, pre-T, T ^{act} , and B ^{act} cells, DCs	Low-affinity IL-2 binding, associates with IL-2R β and γ , forms IL-2 receptor high affinity, also soluble form
CD26	DPP4, THAM	110 kDa	Thymocyte subset, T ^{act} , B, and NK cells, epithelial cells	Dipeptidyl peptidase ectoenzyme, activation, adhesion
CD27	T14, Tnfrsf7	45 kDa	Medullary thymocytes, T cells, NK cells, B cell subset	CD70 receptor, T cell co-stimulation

Antigen name	Alternative name	MW	Distribution	Function
CD28	Tp44	45 kDa	T cells, thymocytes, NK cells	CD80 (B7-1) and B7-2 (CD86) receptor, T cell co-stimulation
CD29	Integrin β 1, gp11a, Itgb1	130 kDa	Leukocytes, fibroblasts, endothelial cells, epithelial cells	Associates with CD49a-f (VLA-1-6), receptor for VCAM-1, MAdCAM-1, and ECM, VLA β , adhesion, embryonic development
CD30	Ki-1, Tnfrsf8	105–120 kDa	T ^{act} cells	CD153 receptor, lymphocyte proliferation, apoptosis, peripheral tolerance
CD31	PECAM-1, pgl1a	130–140 kDa	Leukocytes, endothelial cells	Multiple isoforms, CD38 receptor, signaling, platelet-endothelial cells adhesion
CD32	Fc γ RII, Ly-17, Fc γ R2b	40–60 kDa	Mono, macrophages, granulocytes, B cells, T ^{act} cells, not NK cells	ADCC
CD33	Siglec-3, gp67	67 kDa	Myeloid progenitors; granulocytes, microglia	Possible role in hematopoiesis, binds sialic acid
CD34	Mucosialin	90–120 kDa	Hematopoietic precursors, capillary endothelial cells, BM stroma, mast cells	CD62L receptor, adhesion
CD35	Cr1, Cr2	190 kDa	B cells, granulocytes ^{act} , FDC	CD21 and CD35 alternative splice variants of CR2 gene, binds C3b and C4b, adhesion, phagocytosis
CD36	FAT, fatty acid translocase	88 kDa	Platelets, adipocytes, monocytes, macrophages, endothelial cells, erythrocytes, B cells	Oxidized LDL receptor
CD37			mRNA: lymphoid, myeloid	T–B cell interaction
CD38	Cd38-rs1, T10	42 kDa	B cells, marginal zone B ^{high} cells, T ^{act} cells, thymocyte subset, subsets in yolk sac, in fetal liver, in BM	B ^{act} cells, CD31 receptor, ectoenzyme, ADP-ribosyl cyclase/hydrolase
CD39	Entpd1	70–100 kDa	Lymphocyte ^{act} , microglia, endothelial cells, Treg subset	Ecto-nucleoside trisphosphate diphosphohydrolase
CD40	gp39 receptor, Tnfrsf5	45–50 kDa	B cells, monocytes, macrophages, T cell subset, DC, endothelial cells, thymic epithelial cells, induced on cardiac myocytes	CD154 receptor, T–B cell interaction, B cell co-stimulation, isotype-switching, and survival
CD41	gp11b, Itga2b, CD41b	110–125 kDa	Platelets, megakaryocytes	Associates with CD61, forms GPIIb/IIIa, binds fibrinogen, fibronectin, vWF, and thrombospondin
CD42	Gp9, GPIX	20 kDa	Platelets, megakaryocytes	Platelet activation, aggregation
CD43	Leukosialin, Ly-48, Spn, sialophorin	115, 135 kDa	T cells, T ^{act} cells, early B cells, B cell subset, platelets ^{ow} , not resting B cells, not DC	Isoforms, signaling, CD54R, B cell survival, adhesion
CD44	H-CAM, Pgp-1, Hermes Ag	80–95 kDa	Hematopoietic and non-hematopoietic cells, except platelets, hepatocytes, testis	Binds hyaluronic acid, adhesion

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD45	LCA, Ly-5, Ptprc	180–240 kDa	Leukocytes, not mature erythrocytes, lymphocyte activated killer (LAK)	Tyrosine phosphatase, leukocyte differentiation/activation, pan-leukocyte marker
CD45.1	Ly5.1	180–240 kDa	Ly-5.1 strains: SJL, DA, STS/A, RIII	Tyrosine phosphatase, signal transduction
CD45.2	Ly5.2	180–240 kDa	Ly-5.2 strains: BALB/c, C3H, C57BL/6, DBA/1, DBA/2, AKR, A, 129	Tyrosine phosphatase, signal transduction
CD45R/CT1			Cytotoxic T ^{act} cells	
CD45R	B220	220 kDa	B cells, NK cells progenitors, LAK, T ^{act} cells, T cells with lpr/lpr mutant allele	Tyrosine phosphatase
CD45RA				Exon A isoform, tyrosine phosphatase
CD45RB		200–240 kDa	T cell subset, B cells, monocytes, macrophages, DC	Tyrosine phosphatase, signal transduction
CD45RC		200–240 kDa	T cell subset, B cells	Tyrosine phosphatase, signal transduction
CD45RO	UCHL-1	180 kDa	T ^{act} cells, B ^{act} cells, DC subset	Tyrosine phosphatase, signal transduction
CD46	MCP, membrane cofactor protein	41 kDa	Broad	Complement regulation, role in fertilization
CD47	IAP, Itgp, neurophilin	50 kDa	Hematopoietic cells, epithelial cells, endothelial cells, fibroblasts, platelets	Associates with $\beta 3$ integrins, adhesion, binds SIRP, thrombospondin receptor
CD48	Blast-1, BCM-1, Sgp-60	45 kDa	Broad on lymphocytes, not fibroblasts	Adhesion, T cell co-stimulation, CD2 and Ly-9 receptor
CD49a	VLA-1, integrin $\alpha 1$, Itga1	180 kDa	T ^{act} cells, endothelial cells	Adhesion, CD49a/CD29 binds collagen and laminin
CD49b	VLA-2, integrin $\alpha 2$, Itga2	165 kDa	Platelets, T cell subset, megakaryocytes, NK cells	Adhesion, CD49b/CD29 binds collagen and laminin
CD49c	VLA-3, integrin $\alpha 3$, Itga3	125 kDa	B cell subset, T ^{low} cells	CD49c/CD29 binds laminin, fibronectin, collagen
CD49d	VLA-4, integrin $\alpha 4$, Itga4	150 kDa	T cells, B cells, monocytes	CD49d/CD29 binds fibronectin, VCAM-1, with B7 forms LPAM-1 and binds to MAdCAM-1, homing receptor
CD49e	VLA-5, integrin $\alpha 5$, Itga5	135 kDa	Thymocytes, T ^{act} cells, splenic B cells	Adhesion, CD49e/CD29 binds fibronectin
CD49f	VLA-6, integrin $\alpha 6$, Itga6	120 kDa	Memory T cells, thymocytes, platelets	Adhesion, CD49f/CD29 binds laminin

Antigen name	Alternative name	MW	Distribution	Function
CD50	Icam5, Tics, Telencephalin	130 kDa	Brain, dopaminergic neurons	Adhesion
CD51	VitronectinR, Integrin α v, Itgav	125, 24 kDa	Platelets, megakaryocytes, endothelial cells, osteoblasts,	Adhesion, CD51/CD61 binds vitronectin
CD52	CAMPATH-1, MB7, CLS1	12 kDa	Mature lymphocytes, Treg cell subset	
CD53	OX-44	35–42 kDa	Leukocytes, DC, osteoblasts, osteoclasts	Signaling
CD54	ICAM-1, Ly-47	85–110 kDa	Endothelial cells, mono, resting lymph (high on activation)	Adhesion, T cell co-stimulation
CD55	Decay accelerating factor	60–70 kDa	Broad, induced in uterus by estrogen	Similar to Crry, protection from autologous complement attack
CD56	NCAM	20–185 kDa	Neural tissue, multiple isoforms	Adhesion, neuron development, skeletal myogenesis
CD57	B3gat1, HNK-1	38 kDa	GlucuronosyltransferaseP	Cell adhesion molecule; memory
CD58 (H)	LFA-3		Not defined in mouse	
CD59	Protectin, MAC-inhibitor	19 kDa	Broad	Binds complement C8 and C9, blocks membrane attack complex assembly
CD60 (H)			Not defined in mouse	
CD61	GP1IIa, Integrin β 3, Itgb3	105 kDa	Platelets, megakaryocytes, macrophages, endothelial cells	CC41/CD61 or CD51/CD61 complexes adhere to ECM
CD62E	E-selectin, ELAM-1, Sele 97	107–115 kDa	Endothelial cells	Sialyl-Lewis X receptor, leukocyte rolling and migration, tumor metastasis
CD62L	L-selectin, LECAM-1, sell	74 and 95 kDa	B cells, T cells, monocytes, granulocytes, NK cells, thymocytes	CD34, GlyCAM, and MAdCAM-1 receptor, lymphocyte homing, leukocyte tethering and rolling
CD62P	P-selectin, Selp	140 kDa	Platelets ^{act} , endothelial cells	CD162 and sialyl-Lewis X receptor, adhesion, neutrophil rolling, platelet-neutrophil, binds to CD24
CD63	MLA1	53 kDa	Platelets ^{act} , mono, macrophages	Activated platelets marker, lysosomal membrane protein, translocates to surface upon activation, melanoma-associated antigen
CD64	Fc γ RI	72 kDa	Mono, macrophages, DC, granulocytes ^{act}	High-affinity IgG receptor, phagocytosis, trypsin-sensitive, ADCC
CD65 (H)			Not defined in mouse	
CD66a	Ceacam1, C-Cam	140–180 kDa	Colon, liver, hematopoietic tissues	Cell-cell interaction, hepatitis virus receptor

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD68	Macrosialin, gp110	87–115 kDa	Predominantly intracellular, tissue macrophages, DC ^{low}	Lysosomal associated protein
CD69	Activation Inducer Molecule, VEA	35–39 kDa	T ^{act} , B ^{act} , and NK ^{act} cells, granulocytes ^{act} , thymocytes, platelets	Early activation marker, thymocyte development
CD70	Ki-24, Tnfsf7	50, 70, 90, 160 kDa	B ^{act} cells, T ^{act} cells, cardiac myocytes	T and B cell co-stimulation
CD71	T9, Trfr	95 kDa	Proliferating cells, reticulocytes, erythroid precursors	Transferrin receptor, iron uptake, cell activation
CD72	Lyb-2	40–45 kDa	B cells, FDC, T cell subset	B cell co-stimulation
CD73	Nt5e	69 kDa	Treg, myeloid BM, CD4 ⁺ T cells	Ecto-5'-nucleotidase, T cell co-stimulation, adhesion
CD74	Ii, Ia-invariant chain	33–43 kDa	B cells, macrophages, monocytes	MHC class II traffic and function, antigen presentation
CD77 (H)			Not defined in mouse	
CD79a	Igα, mb-1, Ly-54	33 and 45 kDa	B cells	BCR subunit, BCR expression and signaling
CD79b	Igβ, B29	37 kDa	B cells	BCR subunit, BCR expression and signaling
CD80	B7, B7-1, Ly-53	60 kDa	B ^{act} cells, T ^{act} cells, monocytes, macrophages, DC, pancreatic β cells	Co-stimulation, T–B cell interaction
CD81	TAPA-1	26 kDa	T (double positive) cells, B cells, NK cells, thymocytes, DC, endothelial cells, fibroblasts, melanomas, neuroblastomas, macrophages	Associates with CD19 and CD21, signaling, T cell co-stimulation
CD82	KAI1, C33	50–53 kDa	T ^{act} cells, mRNA: spleen, kidney	Inhibits tumor cell mobility
CD83	HB15	43 kDa	DC, T ^{act} cells, thymic epithelial cells	Regulation of T cell response, binds to a ligand on B cells
CD84	SLAMF5, GR6	70–85 kDa	B cells, macrophages, mRNA: hematopoietic tissue	Homophilic adhesion
CD85K	gp49 receptor	37 kDa	Mast cells	Inflammation
CD86	B70, B7-2, Ly-58	80 kDa	Mono, B ^{act} cells, T ^{act} cells, DC	T cell co-stimulation, T–B cell interaction
CD87	UPA-R, Plaur	32–70 kDa	MuPAR1 luminal epithelial cells of gastric mucosa	PAR2-secreted uPA binding protein

Antigen name	Alternative name	MW	Distribution	Function
CD88	C5aR, C5r1	40 kDa	Granulocytes, neurons, astrocytes, microglia	Neurodegeneration
CD89	FcaR, IgA receptor	55–75 kDa	Mono, macrophages, neutrophils, B cell subset, T cell subset	Phagocytosis, degranulation
CD90	Thy-1	18 kDa	Thymocytes, T cells, hematopoietic cell subset, neurons	Hematopoietic stem cell and neuron differentiation, T cell activation
CD90.1	Thy-1.1	18 kDa	Thy1a (thy1.1) strains: AKR and RF and PL	
CD90.2	Thy-1.2	18 kDa	Thy1b (thy1.2) all other strains	
CD91	lrp1, A2mr	600 kDa	Mono, macrophages, neurons, liver, fibroblasts	Lipoprotein metabolism
CD92 (H)			Not defined in mouse	
CD93	AA4.1 antigen, C1qRp, early B lineage marker, Ly68	130–140 kDa	Progenitor marker for early B cells, endothelial cells, megakaryoblasts, platelets	Phagocytosis
CD94	KP43, klr1	43 kDa	NK cells, T cell subset	Associates with NKG2, inhibits NK cell function
CD95	Apo-1, Fas	35 kDa	Thymocytes, lymphocytes ^{act} , fibroblasts, mono, neutrophils	Apoptosis induction, immune system regulation
CD96	TACTILE, T cell activation increased late expression	160 kDa	mRNA: spleen, mammary gland	Adhesion of activated NK cells and T cells
CD97	TM7LN1 TM7S		Lymphoid, myeloid	
CD98	4F2, Ly-10	80, 40 kDa	Thymocytes, lymphocytes, mono, BM	Cell activation, calcium flux
CD99	Pilr-1, D4	19 kDa	Endothelial cells	Neutrophil migration
CD100	Sema4d, semaphorin H	150 kDa	mRNA: lymphoid and nervous tissues	Role in immune and nervous systems
CD101	IgSF3	131 kDa	Myeloid, DC, T cell subset, Treg subset	Role in susceptibility to type I diabetes
CD102	ICAM-2, Ly-60	55–65 kDa	Lymphocytes, mono, platelets, endothelial cells	Co-stimulation
CD103	HML-1, Integrin α EL, Itgae	150 kDa	Intraepithelial lymphocytes, BM mast, lymphocytes ^{act} , Treg subset	Associates with integrin β 7, binds E-cadherin, lymphocyte homing
CD104	β 4 integrin, Itgb4	220 kDa	Epithelial cells, endothelial cells, immature thymocytes, schwann cells, tumor cells, keratinocytes	Associates with CD49f, cell adhesion/migration, differentiation, tumor metastasis,
CD105	Endoglin, Eng	95 kDa	Endothelial cells, BM cell subset, macrophages ^{act}	Ligand for TGF- β , adhesion, embryonic angiogenesis

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD106	VCAM-1	110 kDa	Endothelial cells ^{act} , FDC, BM myeloid	Adhesion/migration, co-stimulation, binds LPAM-1
CD107a	LAMP-1	120 kDa	Platelets ^{act} , T ^{act} cells, endothelial cells ^{act} , macrophages	Adhesion, metastasis
CD107b	LAMP-2	110 kDa	Platelets ^{act} , T ^{act} cells, endothelial cells ^{act} , macrophages	Adhesion, metastasis
CD108	Sema7a	80 kDa	mRNA: nervous system ^{high} , immune system	
CD109	Gov platelet alloantigen	158 kDa		
CD110	TPO-R, c-mpl	82–84 kDa	Megakaryocytes, platelets	Megakaryocyte differentiation
CD111	PRR1, Nectin-1, Pvrl	64–72 kDa	Fibroblasts, epithelium, neurons	Poliovirus receptor-related protein1, entry of herpes simplex virus
CD112	PRR2, Pvs, Nectin-2	64–72 kDa	Brain, spinal cord, spleen, kidney, heart, liver, macrophages, DCs	Adhesion, not a receptor for poliovirus
CD113	PVRL3, Nectin3	100 kDa	Broad, epithelial cells	Adhesion molecule, interacts with afadin
CD114	G-CSFR, Csfgr, Csf3r	95, 139 kDa	Progenitor and mature neutrophils, endothelial cells, placenta, some myeloid leukemia	Myeloid proliferation and differentiation
CD115	M-CSFR, c-fms, Csf1r	150 kDa	Monocytic progenitors, osteoclasts, macrophages	Monocytic lineage proliferation/ differentiation, role in differentiation of osteoclasts
CD116	GM-Csf2ra	70–85 kDa	Monocytes, granulocytes, DC, endothelial cells	Proliferation, differentiation
CD117	c-kit, Steel factor	145 kDa	Hematopoietic stem cells and progenitors, neural crest-derived melanocytes, primordial germ cells, mast cells	Activation of mast cells
CD118	LIFR	190 kDa	Placenta, liver, kidney, heart, lung, brain epithelial cells	Signal transduction, soluble form inhibits LIF activity
CD119	IFN γ R, ifyr1, lfnr	90–100 kDa	Macrophages, monocytes, B cells, T cells, NK cells, neutrophils, endothelial cells	Host defense, signal transduction
CD120a	TNFR1, p55	50–60 kDa	Broad	Signal transduction, apoptosis
CD120b	TNFR2, p75	75–85 kDa	Broad	Signal transduction, apoptosis
CD121a	IL-1R type I	80 kDa	Broad ^{low}	Signal transduction

Antigen name	Alternative name	MW	Distribution	Function
CD121b	IL-1R, type II	68 kDa	B cells, macrophages, monocytes, T cell subset (th2), epidermis	A decoy receptor
CD122	IL-2R β p70	90–110 kDa	NK cells, T cells, B cells, monocytes, Treg cells	IL-2R and IL-15R chain, signaling, with CD25 and CD132 form high-affinity IL-2R, lymphocyte development
CD123	IL-3R α	70 kDa	Lymphocyte subset, basophils, hematopoietic progenitors, macrophages, pDC, megakaryocytes	IL-3R α chain, low-affinity binding to IL-3, with CDw131 form high-affinity IL-3 binding
CD124	IL-4R α	140 kDa	Lymphocytes ^{low} , monocytes, hematopoietic precursors, fibroblasts, epithelial cells	IL-4R chain, associates with CD132 or IL-13R α chain, T cell growth and differentiation, soluble form
CD125	IL-5R α	60 kDa	Eosinophils, basophils	IL-15R α chain, associates with CDw131 for low-affinity IL-5 binding, associates with β subunit for high-affinity IL-15 binding
CD126	IL-6R α	80 kDa	B ^{act} cells, plasma cells, most leukocytes ^{low} , fibroblasts	IL-6R α subunit, low-affinity IL-6 binding, associates with CD130 for high-affinity IL-6 binding, soluble form
CD127	IL-7R α	65–75 kDa	Pro-B and T cells	IL-7R α chain, associates with CD132 for high-affinity IL-7 binding, T and B cell development and activation
CD128	See CD181 and CD182			
CD130	IL-6R β , gp130	130 kDa	Broad in adult and embryonic cells	Common β chain of IL-6R, IL-11R, LIFR, OSMR
CD131	IL-3R, AIC2B/A, common β , Csf2rb1, Csf2rb2	95–120 kDa	Monocytes, granulocytes, early B cells	2 genes in mouse, signaling, associates with α subunits of IL-3, IL-5, GM-CSF receptors
CD132	IL-2R Common β	64 kDa	T, B, and NK cells, monocytes, granulocytes, DCs	Subunit of IL-2, IL-4, IL-7, IL-13, and IL-15R, signaling, mutation: X-linked SCID
CD133	Prominin-1	115–120 kDa	Primitive cells like hematopoietic progenitors, neural, retina, epithelial cells	Unknown
CD134	OX-40, Ly-70, Txgp1	48–50 kDa	T ^{act} cells	OX-40L receptor, apoptosis, T cell activation/differentiation
CD135	Flt3/Flk2, EMS-like tyr kinase 3	130–150 kDa	Hematopoietic progenitors: myeloid and primitive B progenitors, fetal liver, adult brain	Binds FLT3 ligand, myeloid and lymphoid development, expands hematopoietic progenitors and DC
CD136	STK, Mst1r, RON	180 kDa	Hematopoietic cells	Macrophage stimulatory 1 receptor
CD137	4-1BB, Tnfrsf9	30 kDa	T ^{act} cells	T cell co-stimulation, binds to 4-1BBL, fibronectin, vitronectin, laminin, collagen VI

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD138	Syndecan-1, Sdc1	80–150 kDa	Epithelial cells, plasma cells, pre-B cells, neurons	Receptor for ECM, B cell differentiation
CD139 (H)			Not defined in mouse	
CD140a	PDGF receptor a	180 kDa	Fibroblasts, smooth muscle, glial cells, chondrocytes	PDGFRaa binds PDGF AA, AB, BB, PDGFRab binds AB, BB, PDGFRbb binds PDGFBB, embryonic development, signaling
CD140b	PDGF receptor b	180 kDa	Fibroblasts, smooth muscle, glial cells, chondrocytes	See CD140a for ligands, signaling
CD141	Thrombomodulin, Thbd	100 kDa	Monocytes, neutrophils, endothelial cells, smooth muscle	Initiation of protein C anticoagulant pathway
CD142	Tissue Factor, factorIII, F3	45 kDa	Embryonic development	Binds clotting factor VIIa
CD143	ACE	170 kDa	Endothelial cells	Peptidyl-peptidase, angiotensin converting enzyme
CD144	Cadherin5, VECadherin	130 kDa	Endothelial cells	Adhesion, intercellular interaction
CD146	MUC18, S-endo, mcom	130 kDa	Embryonic tissue, mammary tumors	Cell adhesion during development
CD147	Neurothelin, basigin, Bsg	55–65 kDa	Leukocytes ^{act} , erythrocytes, platelets, endothelial cells	Adhesion, blood-brain barrier
CD148	HPTP-eta, M4, M56	240–260 kDa	mRNA: broad, high in brain, kidney	Tyrosine phosphatase R Type III
CD150	SLAM, IPO-3	75 kDa	T cells, B cells, Th1	Co-stimulation, proliferation, Ig production
CD151	PETA-3, SFA-1	32 kDa	Endothelial cells, megakaryocytes, platelets	Adhesion, signaling
CD152	CTLA-4, Ly-56	33 kDa	T ^{act} cells, B cell subset, Tregs	CD80, CD86 receptor, negative T cell stimulation
CD153	CD30L, Tnfsf8	40 kDa	T ^{act} cells, macrophages ^{act} , neutrophil, B cells, induced on cardiac myocyte	CD30 receptor, T cell co-stimulation
CD154	CD40L, gp39, Ly-62, Tnfsf5	32–39 kDa	Transiently on T ^{act} cells, B cell subset (intracellular), platelets, macrophages, DC	CD40 receptor, B cell and DC co-stimulation, T cell activation
CD155	PVR	80–90 kDa	Monocytes, macrophages	Polio virus receptor
CD156a	ADAM8, MS2	69 kDa	Neutrophils, monocytes	Metalloprotease, leukocyte extravasation
CD156b	TACE/ADAM 17	100 kDa	Broad	Zinc metalloprotease, TNF converting enzyme
CD156c	ADAM10, kuz, kuzbanian, Madm	60 kDa	Neural precursors, fibroblasts	Proteolytic cleavage of cell-surface molecules including Notch, TNF- α , APP and ephrin-A2
CD157	BST-1, Ly-65, Bp3	38–48 kDa	Granulocytes, monocytes, early B cells, T cell subset, BM stroma	ADP-ribosyl-cyclic ADP-ribose hydrolase, pre-B cell growth

Antigen name	Alternative name	MW	Distribution	Function
CD159a	NKG2A, Klrc1	43 kDa	NK and NKT cells	Associates with CD94, Qa-1(b) receptor, inhibitory signaling
CD159c	NKG2C		NK and NKT cells	Associates with CD94, Qa-1(b) receptor, stimulatory signaling
CD160	BY55	27 kDa	NK cell subset, T cell subset	Co-stimulation
CD161c	NKR-P1c, Ly-55, NK1.1	40 kDa	NK cells, T cell subset of NK1.1 strains	NK cell-mediated cytotoxicity
CD162	PSGL-1, Slp1	120 kDa	Myeloid cells, lymphocyte subset	CD62P and CD62L receptor, adhesion, leukocyte rolling
CD163		100–130 kDa	Peritoneal macrophages, M2 macrophages	Breaks down oxidized hemaglobin complexes, adhesion
CD164	MGC-24, A115, A24	80 kDa	mRNA: broad in various adult and embryonic tissues	Hematopoietic progenitor-stroma interaction
CD166	ALCAM	105 kDa	Neurons, T ^{act} cells, monocytes, epithelial cells, fibroblasts, B ^{act} cells	CD6 receptor, adhesion, T cell development, T–B cell interaction, role in nervous system, pluripotent stem cell marker
CD167a	DDR1	120 kDa	Epithelial cells, myoblasts, brain, early marker neuroectoderma	Discoidin domain receptor, tyrosine kinase, adhesion
CD168	RHAMM, Hmnr	70–73 kDa	Broad, high on B cells	Hyaluronan-mediated motility receptor, adhesion, cell locomotion, tumor metastasis (intracellular in human breast cancer)
CD169	Sialoadhesin, Sn, Siglec-1	185 kDa	Tissue, macrophage subsets, monocytes	Adhesion, cell-cell and cell-matrix interactions, binds α 2,3-sialylated ligands CD43, CD227, SRBC-R
CD170	Siglec-5, CD33-like2, Siglec-F	140 kDa	Macrophage subsets, neutrophils	Adhesion
CD171	L1, cell adhesion molecule	200–210 kDa	CNS, PNS, glial cells, monocytes, T cell subset, B cells, DCs, lymph node reticular fibroblasts, some epithelial cells	Homotypic adhesion, T cell co-stimulation, integrin binding, KO has neuropathologies similar to CRASH disorder
CD172a	SIRP α , Ptpns1	110 kDa	Monocytes, macrophages, DCs, T cell subset, stem cells	Adhesion, associates with CD47, SHP substrate-1
CD172b	SIRP β	60–90 kDa	Macrophages and other hematopoietic lineages	Engagement of SIRP β promotes phagocytosis in macrophages
CD172g (H)	SIRP γ		Not defined in mouse	
CD173-CD175 (H)			Not defined in mouse	
CD177	NB1, Pdp3	56–62 kDa	Neutrophil subset (surface and intracellular)	

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD178	Fas ligand, CD95L, TNFSF6	38–42 kDa	T ^{act} cells, testis	Apoptosis of CD95 ⁺ cells, immune privilege, soluble form in serum, gld mutation nonfunctional FasL
CD179a	V pre B	16 kDa	Pro- and early pre-B cells	B cell differentiation, signaling, pre-BCR associates with IgM/CD79α/β
CD179b	Lambda 5	22 kDa	Pro- and early pre-B cells	B cell differentiation, signaling, pre-BCR associates with IgM/CD79α/β
CD180	RP105, Ly-78	95–105 kDa	B cells, monocytes, DCs	B cell recognition and signaling of LPS, associates with MD-1, regulation of B cell growth and death
CD181	CXCR1, IL8Rα	39 kDa	Neutrophils, basophils, NK cells, T cell subset, monocytes	Binding of IL-8 induces chemotaxis of neutrophils
CD182	CXCR2, IL8Rβ	40 kDa	Neutrophils, basophils, NK cells, T cell subset, monocytes	Binding of IL-8 induces chemotaxis of neutrophils, also binds GRO and NAP-2
CD183	CXCR3, Cmkar3, gpr9	40 kDa	T ^{act} (Th1) cells, NK cells, eosinophils, GM-CSF activated hematopoietic progenitors	6CKine, IP-10, Mig and I-TAC receptor, T cell recruitment to inflammatory sites, Th1 response, allograft destruction
CD184	CXCR4, Cmkar4, Fusin/LESTR, sdf1r, HUMSTR	45 kDa	T cell subset, B cells, DCs, monocytes, endothelial cells	SDF-1 receptor, embryogenesis, lymphocyte migration, B cell development, (human: 4 HIV coreceptor)
CD185	CXCR5, BLR1	45 kDa	Spleen, resting B cells, T cells, skin-derived DCs	Binds BLC, involved in B cell migration into B cell follicles of spleen and Peyer's patches
CD186	CXCR6, BONZO	40 kDa	Memory T cells	Chemokine receptor for CXCL16, also a coreceptor by SIVs and by strains of HIV-2 and m-tropic HIV-1
CD191	CCR1, MIP-1αR, RANTES-R	39 kDa	Neutrophils, monocytes, lymph, eosinophils, and osteoclasts	Receptor for C-C type chemokines MIP-1α, RANTES, MIP-1β, MCP-1
CD192	CCR2, MIP-1αR	40 kDa	T cell subset, monocytes	Receptor for the MCP-1, MCP-3, and MCP-4 chemokines
CD193	CCR3, MIP-1αRL2	45 kDa	Skeletal muscle and low amounts in leukocytes, T cell subset	Receptor for C-C type chemokines eotaxin, MCP-3, MCP-4, and RANTES
CD195	CCR5, Cmkbr5	45 kDa	T cell subset, NK cells, monocytes ^{low}	MIP-1α, MIP-1β, and RANTES receptor (human: R5 HIV-1 coreceptor)
CD196	CCR6, KY411	45 kDa	Mainly B cells, T cells, and DC subset	Receptor for C-C type chemokines MIP-3α/LARC
CD197	CCR7, Cmkbr7	45 kDa	T cells, DC subset	6CKine and MIP-2β receptor, CCL19 and CCL21 receptor
CD198	CCR8, TER1	50 kDa	Monocytes, macrophages, neutrophils, T cell subset	Receptor for TCA-3/I-309
CD199	CCR9, CMKBR10	43 kDa	High in thymus, immature and mature T cells	Receptor for chemokine SCYA25/TECK, role in T cell development

Antigen name	Alternative name	MW	Distribution	Function
CD200	OX-2	45–50 kDa	Thymocytes, B cells, T ^{reg} cells, DC, endothelial cells, neurons	T cell co-stimulation, regulation of oxidoreductase pathway
CD200R	OX2		Myeloid cells, subset of lymphocytes, langerhans, dendritic epidermal T cells	Inhibitory receptor
CD201	Procr, EPCR	25 kDa	Endothelial cells and stem cell subset	Activated protein C receptor
CD202b	Tie2, Tek	140 kDa	Stem cells, endothelial cells from early development	Angiogenesis, angiopoietin-1 receptor
CD203c	ENpp1, PC-1, TWY	115 kDa	Antibody-secreting B cells, basophils, mast cells, megakaryocytes, glioma	Plasma cell alloantigen, ectoenzyme, binding/clearance of extracellular nucleotides
CD204	Macrophage scavenger-R, Scvr	220 kDa	Macrophages, macrophage subset (M2)	Endocytosis of macromolecules
CD205	DEC-205, Ly75	205 kDa	DC, thymic epithelial cells, B ^{low} cells, BM stromal, pulmonary epithelial cells, brain capillaries	Antigen uptake/presentation, immune inhibition
CD206	Macrophage mannose-R, Mrc1	180 kDa	Macrophages, monocytes, DC subsets	Phagocytosis/pinocytosis of mannose-containing molecules
CD207	Langerin	40 kDa	Langerhans cells	Ag capture and endocytic receptor, associates with Birbeck granules
CD208	DC-LAMP, Lamp3	70–90 kDa	DC ^{act} , interdigitating DCs	
CD209a	DC-SIGN, CIRE	44 kDa	DC subsets	ICAM-3 receptor, HIV-1 binding protein, T cell–DC interaction
CD209b	SIGN-R1		Macrophages (splenic, LN)	
CD210	IL-10R	90–110 kDa	Th1, B cells, NK cells, monocytes, mast cells, macrophages	IL-10 receptor, signaling, related to IFN receptors
CD212	IL-12Rβ1	100 kDa	NK ^{act} cells and T ^{reg} cells	High-affinity binding to IL-12, associates with IL-12 receptor β2, signaling, T and NK cell response to IL-12
CD213a1	IL-13Ra1, NR4	65 kDa	Monocytes, NK cells, fibroblasts, endothelial cells	Binds IL-13 with low affinity, associates with CD124
CD213a2	IL-13Ra2	65 kDa	B cells, monocytes	Binds IL-13 with high affinity
CD217	IL-17R	120 kDa		IL-17 receptor
CD218a	IL-18Ra, IL18Rrp	70 kDa	T cells, NK cell subsets, neutrophils	IL-18 binding leads to the activation of NF-κB
CD218b	IL-18Rb, IL18Rap	70 kDa	T cells, NK cells, DCs	Forms heterodimeric receptor with IL-18Ra to enhance IL-18 binding
CD220	InsulinR, Insr	140 and 70 kDa	Broad	Insulin receptor, regulation of metabolism

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD221	IGF-1R	140 and 70 kDa	Broad	Binds IGF with high affinity, proliferation/differentiation
CD222	IGF-II R, M6P/IGF2R	220–250 kDa	Broad, 90–95% intracellular	Cation-independent mannose 6-phosphate receptor, TGFβ-LAP, plasminogen and proliferin receptor
CD223	LAG-3	70 kDa	T ^{act} cells, NK ^{act} cells	MHC class II ligand, role in natural killing
CD224	GGT, Ggtp	27, 68 kDa	Yolk sac, protoplasmic astrocytes, endothelial cells, embryonic stem cell lines	γ-glutamyl transpeptidase
CD225	Ifitm1, fragilis2, Mil2	12 kDa	Primordial germ cells	Adhesion, differentiation, interferon-induced transmembrane protein 1
CD226	DNAM-1, PTA-1, TLISA1		Th1 cells, CD8 ⁺ T cells, platelets	Platelet activation, T cell differentiation, co-stimulation, Th1 function
CD227	Muc1, EMA	300 kDa	Lymphocytes, tumors, epithelial cells, increased in pregnancy	Epithelial membrane antigen, organogenesis
CD228	Melanotransferrin, Mfi2	80–95 kDa	mRNA: cartilage ^{high} , testis ^{moderate}	
CD229	Ly-9, Lgp100	95, 110 kDa	Thymocytes, T cells, B cells, BM subset, not erythrocytes	Adhesion
CD230	Prion protein, PrnP	35 kDa	Scrapie-associated fibril protein	
CD231	TALLA-1, A15	30–45 kDa	mRNA: brain, colon, muscle, heart, kidney, spleen	T cell acute lymphoblastic leukemia marker, neuronal function
CD232	VESP-R, PlexinC1	200 kDa	Broad	Viral-encoded semaphorin protein receptor
CD233	Band3, SLC4A1	90 kDa	Erythrocytes, mRNA: epithelial cells, other tissues	Anion pump, CO ₂ transport, linking membrane to cytoskeleton
CD234	Duffy, Dfy, DARC	36–37 kDa	mRNA: spleen, BM, liver, brain, not erythrocytes	Duffy blood group antigen chemokine receptor
CD235a	Glycophorin A, Gypa	36 kDa	Erythrocytes	One gene only in mouse for Glycophorin A
CD238	Kell blood group, Kel	110 kDa	Erythrocytes, mRNA: spleen	
CD239	B-CAM, Lu	78–85 kDa	mRNA: broad, erythrocytes	Lutheran blood group, B cell adhesion to laminin
CD240CE	Rhesus 30CE	30–32 kDa	Erythrocytes	Rh30CE and RH30D is one gene in mouse: RH30
CD241	Rh50, RhAg	50 kDa	Erythrocytes	Rh antigens associate with CD47 and LW
CD242	ICAM-4, LW blood group	42 kDa	Erythrocytes	Adhesion, Landsteiner-Wiener blood group
CD243	MDR-1, Abcb1, Pgp	170 kDa	T cell subset, stem cells, small intestine, kidney	Ion pump, cytokine export, CTL function

Antigen name	Alternative name	MW	Distribution	Function
CD244	2B4, Ly-90, Nmrk	78 kDa	NK cells, NKT cells, LAK	NK cell activation, CD48 receptor, MHC-unrestricted killing
CD246	ALK	200 kDa	mRNA: brain, not normal lymphocytes	Anaplastic lymphoma kinase, brain development
CD247	TCR ζ , cd3 ζ	16 kDa	T cells, NK cell subset	TCR subunit, signaling, low-level impaired immune function
CD248	TEM1, endosialin	175 kDa	Endothelial cells, tissue	May function in tumor progression and angiogenesis
CD249 (H)	Aminopeptidase A		Not defined in mouse	
CD252	OX-40 ligand, gp34	35 kDa	B ^{act} cells, cardiac myocytes	T-B cell interaction, T cell co-stimulation,
CD253	TRAIL, APO-2L		NK ^{act} cells, liver NK cells	Apoptosis
CD254	TRANCE, RANKL, OPGL	35 kDa	T ^{act} cells, osteoblasts	T cell-DC communication, osteoclast differentiation, T-B cell interaction
CD256	APRIL, TALL-2	16 kDa	T ^{act} cells, monocytes, macrophages	Binds TACI and BCMA, stimulates T and B cell proliferation
CD257	BlyS, BAFF, TALL-1	45 kDa	Monocytes, broader expression under stimulation	Binds TACI, BCMA, and BAFFR to induce B proliferation
CD258	LIGHT, HVEM-L	28 kDa	T ^{act} cells, immature DC	Binds LTBR to induce T cell proliferation, also binds HVEM
CD262	TRAIL-R2, DR5, Apo2, TRICK2, KILLER		Broad expression	Ligand for TRAIL, activates NF- κ B and mediates apoptosis, p53-dependent expression
CD265	RANK, TRANCE-R, ODFR	97 kDa	Broad expression	Binding mediates osteoclastogenesis and T cell-DC interactions
CD266	TWEAK receptor, Fn14	14 kDa	mRNA in liver regeneration	Cell migration, proliferation, angiogenesis, activates NF- κ B pathway
CD267	TACI, TNFRSF13b	32 kDa	T ^{act} cells	Binding of APRIL or BlyS stimulates B and T cell function
CD268	BAFFR, Bcmd	25 kDa	B cells, T ^{act} cell subset	BlyS binding promotes survival of mature B cells
CD269	BCMA, TNFRSF7	20 kDa	Mature B (membrane and perinuclear) cells	Binds APRIL, BAFF; survival and proliferation
CD270	NFRSF14, HVEM	30 kDa	T cells, monocytes, DCs, B cells, neutrophils	Stimulatory and inhibitory signaling
CD271	NGFR, TNFRSF16, p75 (NTR), Bex3, Ngfrap1	45 kDa	Neurons, mesenchymal stem cells	Binds NGF, BDNF, NT-3 and NT-4, tumor suppressor mediate cell survival and death

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD272	BTLA, B and T cell lymphocyte associated	33 kDa	T cells, B cells, BM, splenic macrophages, BM-derived DC	Binds HVEM, negative regulation
CD273	B7DC, PD-L2, PDCD1L2	25 kDa	DC cell subset, monocytes, macrophages	Binds PD-1, co-stimulation or suppression of T cell proliferation
CD274	B7-H1, PD-L1, PDCD1LG1	33 kDa	Leukocytes, decrease in mature thymic T cells, B cells, NK cells, DC	Binds PD-1, proliferation and cytokine production
CD275	B7-H2, GL50, ICOS-L, B7h, B7RP-1	40 kDa	APC, B cells, DC, macrophages	Lymphocyte co-stimulation, receptor for ICOS
CD276	B7-H3, B7RP-2	40–45 kDa	<i>In vitro</i> -cultured DC and monocytes, APC, developing bone	Negative regulator of T cell activation
CD277 (H)	BT3.1		Not defined in mouse	
CD278	ICOS, inducible T cell costimulator, Ly115	55–60 kDa	T ^{act} cells, Th2 cells	T cell co-stimulation, B7-H2 receptor, cytokine production
CD279	PD-1, programmed death-1	55 kDa	T ^{act} and B ^{act} cells	Negatively regulates lymphocytes, T cell development
CD280	ENDO180, UPARAP, MRC2	180 kDa	Chondrocytes	Binds uPAR, mannose receptor, collagen matrix remodeling and endocytic recycling
CD281	TLR1	90 kDa	Low levels in leukocytes, macrophages	Innate immunity, associates with TLR2
CD282	TLR2	90 kDa	Myeloid lineage: macrophages and DCs in spleen	Response to bacterial lipoproteins
CD283	TLR3	120 kDa	DC subset, macrophages, fibroblasts, induced by LPS	Binds dsRNA, activation of NK-kB
CD284	TLR4, Ly87, Rasl2-8	100 kDa	Thioglycolate-elicited peritoneal macrophages	Binds LPS, innate immunity
CD285	TLR5	90 kD	DCs, monocytes, epithelial subsets	
CD289	TLR9	120 kDa	DC subset (intracellular)	Binds CpG-DNA
CD292	BMPR1A, ALK3	57 kDa	Bone progenitor, broad	Binds BMP 2 and 4, bone development, germ layer specification
CD293	BMPR1B, ALK6	57 kDa	Bone progenitor, developing retina	Binds BMP, bone development, neurogenesis
CD294	CRTH2, GPR44	55–70 kDa	Th2, eosinophils, basophils	Binds prostaglandin D2, chemotaxis
CD295	LeptinR, LEPR	132 kDa	Broad	Adipose metabolism, may be involved in immune dysfunction in obesity
CD296	ART1, RT6, ART2	37 kDa	Heart and skeletal muscle, peripheral T cells, NK cell subset	GPI-linked protein modifies integrin during differentiation
CD297	ART4, dombrock blood group	38 kDa	Heart, lung, liver, and spleen, erythroid, monocytes ^{act}	

Antigen name	Alternative name	MW	Distribution	Function
CD298	Na ⁺ /K ⁺ -ATPase b3 subunit, ATP1B3	52 kDa	Broad	Transporter
CD300	C1m8, LMIR1, MMAC8, Pigr4, MAIR-1, mcpir1,		Myeloid cells	Receptors of the IgSF involved in immune regulation
CD301 (H)			Not defined in mouse	
CD302	DCL-1	30 kDa	Macrophages	Cell adhesion and migration
CD303	BDC4-2, CLECSF11, DLEC, HECL		Not defined in mouse	
CD304	BDC4, neuropilin 1, Nrp, NP-1	130 kDa	DCs, neurons, endothelial and tumor cells, CD4 ⁺ /CD25 ⁺ Treg cells	Binds VEGF165, semaphorins, coreceptor with plexin, axonal guidance, angiogenesis, cell survival, migration
CD305	LAIR1	32–40 kDa	Broad, NK cells, B cells, T cells, monocytes	Inhibitory receptor on NK and T cells
CD309	VEGFR2, Flk-1, KDR	230 kDa	Endothelial cells, angiogenic precursor cells; hemangioblast	Binds VEGF, regulates adhesion and cell signaling
CD314	NKG2D, KLRK1	42 kDa	NK cells, CD8 ⁺ activated, not CD4 ⁺ in the periphery, macrophages ^{act}	Binds MHC class I, Rae1 and ULBP4, cytotoxicity and cytokine production; co-stimulatory
CD315	CD9P1, SMAP6, FPRP, PTGFRN	135 kDa	B cell subset, monocytes ^{act}	Associates with CD81 and CD9
CD316	EWI2, PGRL, KASP	63–75 kDa	B cells, T cells, low on NK cells	Associates with CD81 and CD9; involved in cell migration
CD317	BST2, PDCA-1	30–36 kDa	Plasmacytoid DC	Trafficking of cytokines
CD318	CDCP1, CUB domain containing protein 1	92 kDa		
CD319	CRACC, SLAMF7	66 kDa	Predicted: T cells, B cells, and DC subset, NK cells, upregulated in DC	Regulate T and NK cells
CD320	VLDL, Ng29			
CD321	JAM1, F11 receptor, KAR	32–41 kDa	Epithelial cells and endothelial cells, platelets	Tight junction, binds reovirus and LFA1, platelet receptor
CD322	JAM2, VE-JAM	45 kDa	HEV and other endothelial cells	Mediates transendothelial migration of lymphocytes
CD324	E-cadherin, Uvomorulin	120 kDa	Non-neural epithelial cells	Binding to integrin α E/ β 7 and homotypic interactions mediate cell adhesion

Mouse CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
CD325	N-cadherin, cadherin-2	140 kDa	Brain, skeletal and cardiac muscle	Adhesion, may be involved in neuronal recognition mechanism
CD326	Ep-CAM, EGP, Ly-74	40 kDa	May function as growth factor receptor or adhesion molecule	
CD327 (H)	Siglec6		Not defined in mouse	
CD328 (H)	Siglec7		Not defined in mouse	
CD329 (H)	Siglec9, siglecl1		Not defined in mouse	
CD331	FGFR1, FLT2, N-SAM	30 kDa	Fibroblasts, epithelial cells	Binds FGF, wound healing, bone development
CD332	FGFR2, KGFR, KSAM	115–135 kDa	Fibroblasts, epithelial cells, ectoderm of embryo	Binds FGF, embryonic limb development, AER
CD333	FGFR3, ACH, CEK2	115 kDa	Fibroblasts, epithelial cells, astrocytes	Binds FGF, bone and CNS development
CD334	FGFR4, TKF	110 kDa	Fibroblasts, epithelial cells, hepatocytes	Binds FGF, bone development
CD335	NKp46, Ly-94, MAR1	46 kDa	NK cells	Binds non-MHC, NK cells activation
CD336 (H)	NKp44		Not defined in mouse	
CD337	Ncr3, IC7, Ly117		Mouse IC7 mRNA in liver	
CD338	ABCG2, Mxr, ABC15, BCRP1	73 kDa	Stem cell subset (side population)	Multidrug resistance transporter
CD339	Jagged-1, Serrate1	135 kDa	BM stromal and macrophages, stromal cell lines	Receptor for Notch-1, 2, and 3, hematopoiesis, Th2 fate
CD340	ErbB-2, c-neu, HER2	185 kDa	Fetal heart, gonads; adult-uterine epithelial cells and in synaptic sites of muscle fibers	Member of the ERBB family of receptor tyrosine kinases; involved in a wide range of cellular responses.
CD344	Frizzled-4, F24	59 kDa	Embryonic and adult tissue	Acts in the Wnt/ β -catenin pathway; regulation of tissue and cell polarity
CD349	Frizzled-9, Fzd9	65 kDa	Selectively expressed in the developing and adult	Acts in the Wnt/ β -catenin pathway; regulation of tissue and cell polarity
CD350	Frizzled-10, Fzd10	64 kDa	Embryonic and adult tissue	Activation of the Wnt/ β -catenin pathway; regulation of tissue and cell polarity
CD351	FCAMR	70 kDa	Oligodendrocytes, B cells, macrophages, T cells, T ^{bet} cells	–
CD352	SLAMF6, Ly108, NTB-A	60 kDa	T, B, and NK cells	Enhances NK cell activity
CD353	SLAMF8, Blame		Evidence at the transcript level	Possible role in B-lineage commitment or modulation of BCR signaling

Antigen name	Alternative name	MW	Distribution	Function
CD354	TREM1	30 kDa	Monocytes, DCs, macrophage subsets, platelets, megakaryocytes, microglia, hepatocytes, osteoclasts	Innate immune response to infection
CD355	Class-I MHC-restricted T-cell associated molecule (CRTAM)	70 kDa	NK ^{act} cells, CD8 Tact cells	Adhesion
CD357	TNFRSF18, Gitr	66–70 kDa	T ^{act} and Treg cells	Participation in dominant immunological self-tolerance
CD358	TNFRSF21, Dr6		Hematopoietic and nonhematopoietic cells; tumor cells	Apoptosis
CD360	IL-21R, Nlir	60 kDa	T cells, B cells, NK cells, DCs	Complex with CD132, activation, proliferation, development, apoptosis
CD361	EVI2B		Widely expressed in hematopoietic cells	
CD362	Syndecan-2, SDC2, HSPG1, SYND2	25 kDa	Epithelial cells, neuronal cells, mesenchymal cells	Adhesion, migration
CD363	Sphingosine-1-phosphate receptor 1 (S1PR1), EDG1, Lpb1	40 kDa	Lymphocytes, endothelial cells, monocytes/macrophages, neural cells	Adhesion, migration, cytoskeletal organization
CD364	PI16, peptidase inhibitor 16, MSMBBP	49 kDa	T cell subsets (Treg and memory)	Putative serine protease inhibitor
CD365	TIM-1, HAVCR1, HAVCR-1, TIMD1	38 kDa	Activated CD4+ T cells, B cell subset	Role in T-helper cell development, involved in hepatitis A virus entry into cells
CD366	TIM-3, HAVCR2, TIMD3	33 kDa	Th1 cells	Inhibitory receptor on Th1 cells
CD367	CLEC4A, DCIR, DDB27, CLECSF6	27 kDa	B cells, monocytes, granulocytes, plasmacytoid DCs, monocyte DCs	Inhibitory receptor on DCs and B cells
CD368	CLEC4D, MCL, CLECSF8, CLEC-6, MPCL	24 kDa	Monocytes, macrophages	Endocytic receptor
CD369	CLEC7A, DECTIN-1, CLECSF12,	27 kDa	Monocytes, macrophages, DCs, neutrophils, lymphocytes ^{low}	Lectin, necessary for TLR2-mediated inflammatory response
CD370	CLEC9A, HEEE9341, UNQ9341, DNGR1	27 kDa	DCs (conventional DCs, plasmacytoid DCs)	Endocytic receptor
CD371	CLEC12A, CLL-1, MICL, DCAL-2	30 kDa	Neutrophils, eosinophils, monocytes, DC subset	Signal transduction

Mouse non-CD antigens

Antigen name	Alternative name	MW	Distribution	Function
4-1BBL	Tnfsf9		B ^{act} cells, DC ^{act} cells, peritoneal macrophages ^{act}	DC activation, cytokine production, binds CDw137
33D1 antigen	DC-specific marker		DC subpopulations	Upregulated by GM-CSF, downregulated by IL-4
3G11 sialoganglioside	SM3G11		Thymocyte, peripheral T cells	
AA4.1 antigen	See CDw93			
ABCG2	See CDw338			
AID	Aicda		Germinal center B (low to undetectable levels)	Activation-induced deaminase, Ig class switch recombination
BAFFR	See CD268			
β-catenin		83 kDa	Broad, B cells, T cell development	Positively regulates Wnt signaling
B7-DC	See CD273			
B7-H1	see CD274			
B7-H2	See CD275			
B7-H3	See CD276			
B7-H4	B7S1, B7x, GPI-linkedF3		T cells, B cells, monocytes, DC subsets	Lymphocyte co-stimulation, regulation of T cell tolerance
BLIMP-1		90 kDa	B cells, T cells	B cell and Th1 differentiation
BP-1	Ly-51, 6C3, Enpep	120–160 kDa	Early B cell progenitors, BM stromal cells, thymic epithelial cells	Zinc metalloprotease, glutamyl aminopeptidase
BTK/ITK	Bruton's tyrosine kinase, IL-2 inducible T cell kinase	55-80 kDa	B or T lymphocytes, respectively	Phosphorylation by IL-2; proliferation and differentiation through the BCR/TCR (receptors)
BTLA	See CD272			
CCR5	See CD195			
CCR7	See CD197			
CCR9	See CD199			
CIRE	See CD209			
c-Met	Met, HGFR/SFR, Par4	170 kDa	Epithelial cells, hematopoietic progenitors, early thymocytes, not detected in adult tissues	Tumor growth/metastasis, hepatocyte growth factor/scatter factor receptor, T cell development, hematopoiesis
CMKLR1	Chemokine-like receptor 1	42 kDa	Resident macrophages	Binds chemerin
CXCR4	See CD184			

Antigen name	Alternative name	MW	Distribution	Function
Cytokeratin		52–67 kDa	Epithelial cells	Intermediate filament protein, cytoskeletal formation
DC maturation marker			Mature DC, B cells, intracellular granules	
Delta-like 1	Dll1		Thymic stroma, macrophages, DC	Lymphocyte development
DR5	See CD262			
DX5	See CD49b			
Epcam	See CD326			
ESAM		55 kDa	Endothelial cells, activated platelets	Cell adhesion, vascular permeability
Endomucin		75 kDa	Endothelial cells, HSC	Anti-adhesive molecule
Eomes	TBR2	70 kDa	Broad	Trophoblast development, CD8 ⁺ T cells and NK cell development
F4/80 antigen	Emr1, pan-macrophage marker	125 kDa	Resident tissue macrophages, liver Kupffer cells, not blood monocytes, DC	Macrophage maturation
FIRE	Emr4	90–100 kDa	Macrophages, neutrophil ^{act} , BM-derived DC	Myeloid–B cell interaction
Flk-1	See CD309			
Flk2/Flk3	See CD135			
Flt-4	VEGFR3	195 kDa	Lymphatic endothelial cells	Endothelial growth factor receptor, binds VEGF-C, tumor angiogenesis
FR4	FR4, FBP, FRd	35 kDa	Treg cells	Folate receptor
Foxp3	SCURFIN	49 kDa	Treg cells (CD4 ⁺ /CD25 ⁺ subset and CD8 ⁺ subset)	TF, upregulated in Treg cells
GARP	Lrrc32, garpin	80 kDa	Placenta, lung, kidney, heart, activated Treg	Necessary for suppressive function of Treg cells
GATA-3	GATA binding protein 3	48 kDa	Various tissues, including CNS, inner ear, and mesodermal- and endodermal-derived tissues	TF that acts as a regulator in the following: Th2 differentiation, sympathetic neuron development, and the maintenance of the differentiated state in epithelial cells
GILZ		14 kDa	Mast cells, monocytes, macrophages, DC, T cells	Transcriptional modulator, inhibits IL-2 production
GITR	AITR, Tnfrsf18	30 kDa	T cell subset, T ^{act} cells	Costimulator for CD4 ⁺ CD25 ⁺ Treg subset, induction of apoptosis, regulation of Treg and mucosal immunity
GITRL	AITRL, Tnfsf18 TNFSF		DC, macrophages, B cells	Co-stimulation for T cell subset
Granzyme B	CCP1, Ctla1, Gzmb	30 kDa	Cytotoxic granules of NK cells and CTL (CD8 ⁺)	Proteolysis, induction of perforin-mediated apoptosis

Mouse non-CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
HVEM	TNFRSF14, TR2	60 kDa	Broad expression	Receptor for LIGHT, LT α , BTLA, herpes simplex virus; involved in lymphocyte activation, binds glycoprotein D
ICOS	See CD278			
IgD		180 kDa	Peripheral mature B cells	
IgE Receptor high affinity	FcR1 α		Basophils, eosinophils, monocytes, mast, and Langerhans cells	High-affinity binding to IgE
IgM		900 kDa	Surface expression by mature B cells	
IL-17RA	CD217		Broad	IL-17 signaling, complex with IL-17RC or IL-17RB
IL-21R			Broad on T cells, B cells, NK cells, DC	Induction of apoptosis in B cells, expansion of CD3 activated T cells, NK cell activation, inhibition of DC
Integrin β 7		130 kDa	Broad	Associates with CD49d or CD103, adhesion of leukocytes to endothelial cells
IRF-1		45 kDa	Ubiquitous	Activates transcription of IFN γ
IRF-8		49 kDa	Activated macrophages, DC, B cells	Regulates expression of proinflammatory cytokines
I κ B α		39 kDa	Broad	Phosphorylation by TNF α engagement of T cell and B cell receptors, apoptosis; inflammatory stimuli
Jagged-1	CD339	135 kDa	BM stromal and macrophages, stromal cell lines	Receptor for Notch-1, 2, and 3; hematopoiesis, Th2 fate
Jagged-2				Receptor for Notch-1, 2, and 3; hematopoiesis, Th2 fate
JAML	JAM family		Neutrophils, monocytes	Neutrophil migration, binds to CAR (coxsackie and adenovirus receptor)
KLRG1	MAFA	30–38 kDa	NK cells, T cell subset	Inhibition of cytokine production and cytotoxicity
Langerin	See CD207			
Lck		61 kDa	T lymphocytes	Phosphorylation by activated TCR complex; found overexpressed in tumors; proliferation and differentiation of T lymphocytes
LTbR	Tnfrsf3	47 kDa	Mast, stromal cells, epithelial cells	Lymphoid organ development
Ly-6A/E	Sca-1	18 kDa	Hematopoietic progenitors, myeloid subset, peripheral lymphoid, mast cells	T cell activation, stem cell marker
Ly-6B				
Ly-6C		14–17 kDa	Endothelial cells, T cells, NK cells, monocytes, macrophages	
Ly-6D	ThB, Ly-61	15 kDa	B cells, T cells, thymic epithelial cells	

Antigen name	Alternative name	MW	Distribution	Function
Ly-6F				
Ly-6G	Gr-1	21–25 kDa	Myeloid cells, granulocyte	
Ly-49A/D	A1, Klra1	85 kDa	T cell subset, NK cell subset	Regulation of cytotoxicity, binds MHC class I
Ly-49B	Klra2			
Ly-49C	Klra3, 5E6	110 kDa	T cell subset, NK cell subset	Regulation of cytotoxicity, binds MHC class I
Ly-49D	Klra4		NK cell subset	NK cell activation
Ly-49E	Klra5			
Ly-49F	Klra6		NK cell subset	
Ly-49G	Klra7	85 kDa	T cell subset, NK cell subset	Regulation of cytotoxicity
Ly-49G2	LGL1			
Ly-49H	Klra8		NK cell subset	Enhances lysis of FcR ⁺ target cells by IL2-activated NK cells
Ly-49I	Klra9		NK cell subset, NKT, T cells from C57/Bl6	
Ly-49C/I/F/H			NK cell subset	
Ly108			NK cell, T cells, B cells	
LyVE-1	Lymphatic Vessel Endothelial Receptor 1		Lymphatic, liver endothelial cells, macrophages	Binds hyaluronan
Mac-3		93–110 kDa	Macrophages (surface and intracellular) related to CD107b, DC, epithelial cells	Upregulated during macrophage differentiation
MAdCAM-1		50 kDa	Endothelial cells subset, mucosal lymphoid, lamina propria	Mucosal vascular addressin cell adhesion molecule, adhesion, lymph homing, binds CD49d and CD62L
Mcl-1	BCL2L3, EAT; 21-37 kDa	28-37 kDa	Broad	Mitochondrial protein with role in survival/apoptosis
MCP-1	Monocyte chemoattractant protein; CCL2	16 kDa	Splenocytes	Chemoattractant for macrophages and basophils
MD-1	Ly86	28 kDa	Mature B, monocytes/macrophages, DC	Associates with RP105 (CD180), regulates CD180 surface expression and B cell response to LPS, also secreted
MHC Class I	H-2K, H-2D, H-2L	α (44–47 kDa), β2 (12 kDa)		Presents peptides to CD8 ⁺ CTL

Mouse non-CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
MHC Class II	I-A, I-E	α (32–34 kDa), β (29–32 kDa)		Presents peptides to CD4 ⁺ Th cells
mTOR		289 kDa	Broad	Involved in cell metabolism, survival, protein synthesis
Nanog			ESC	TF, ES self renewal
Nestin		220–240 kDa	Neural stem cells	
NKG2A	See CD159a			
NKG2AB6	CD159a, Klrc1	38 kDa	C57BL/6 mouse strain	Associates with CD94, Qa-1(b) receptor, inhibitory signaling
NKG2B			Splice variant of NKG2A	
NKG2C	See CD159c			
NKG2D	See CD314			
NKG2E			NK and NKT cells	Associates with CD94, Qa-1(b) receptor, stimulatory signaling
Notch-1	Lin-12, Tan1		Developing embryo, variety of adult tissues	Cell-cell interaction, cell fate determination
Notch-3			Developing embryo, variety of adult tissues	Cell-cell interaction, cell fate determination
Notch-4			Developing embryo, variety of adult tissues	Cell-cell interaction, cell fate determination
Oct3/4	Pou5f1, transcription factor 1	38 kDa	ESC and embryonic carcinoma cell lines	TF that helps maintain ESC in pluripotent state
OX-40 ligand	See CD252			
Pax5	BSAP	50 kDa	B cells	B cell differentiation
PD-1	See CD279			
PDCA	See CD317			
PDE3B	Cyclic nucleotide phosphodiesterase 3B	130 kDa	Adipose tissue, lymphocytes	Catalyze hydrolysis of cAMP and cGMP
Perforin	Perforin1, Pfp, Prf1	70 kDa	Intracellular, NK cells and CTL (CD8 ⁺)	Cytolysis, apoptosis
Plexin B2	Plxnb2, Debt		mRNA in nervous system, B cells	
Prominin-1	See CD133			
RAE-1 γ			RA inducible, NK cells	Ligand for NKG2D
RANK	See CD265			
ROR γ (t)	TOR, Thor, Nr1f3	55 kDa	Liver, lung, muscle, heart, thymus, and kidney	TF that plays roles in multiple physiological processes

Antigen name	Alternative name	MW	Distribution	Function
Sall1		140 kDa	Microglial cells (adult)	Transcriptional repressor and interacts physically with histone deacetylase and other components of the chromatin remodeling NuRD complex
SAP	SLAM-associated protein	14 kDa	T cells, NK cells	Negatively regulates SLAM-family receptors
Sca-1	See Ly6-A/E			
Sema4A	Sema b, SemB		DC, B cells, T ^{act} cells	T cell constimulation, may not be ligand for Tim-2
Siglec-H			pDC, IPC	Associates with DAP12, signal transduction
SLP76		60 kDa	T cell	Phosphorylation by activated TCR; T cell development and activation as well as mast cell and platelet function
SLP-76	LCP2	76 kDa	T cells, low in B cells	T cell receptor-mediated signaling, substrate of ZAP-70, promote T cell development, mast cell and platelet function
SSEA-1	Stage-specific embryonic antigen-1		Mouse ES cells, embryonic carcinomas, germ cells	Downregulated by differentiation
SSEA-3	Stage-specific embryonic antigen-3		ESC, embryonic carcinomas, germ cells	Downregulated by differentiation
STAT1		91 kDa	Broad	Phosphorylation by IFN γ ; inflammation, innate and adaptive tolerance apoptosis
STAT2		113 kDa	Broad	Phosphorylation by IFN α or β ; anti-viral anti-proliferative activity
STAT3		88 kDa	Broad	Phosphorylation by IL-6; cell survival, immune tolerance
STAT4		85 kDa	Broad	Phosphorylation by IL-12 or type 1 IFNs (IFN α or β) cytokine production; TH1 cell differentiation
STAT5		97 kDa	Broad	Phosphorylation by IL-2 family (IL-2, 4, 7, 15), IL-3, IL-5, EPO, TPO and GM-CSF; proliferation, constitutive activation in many tumors
STAT6		94 kDa	Broad	Phosphorylation by IL-4 and IL-13; differentiation of Th2 cells, allergic inflammation, B cell Ig class switch
Stro1				
Syk		72 kDa	B lymphocytes, immature (CD4, CD8 double-negative and double-positive) thymocytes, myeloid cells, epithelial cell lines, and normal breast tissue	Role in B cell development
TAC1	See CD267			
T-bet			Th1 cells	TF, T cell development/differentiation
TCR $\alpha\beta$			T cell subset	Antigen recognition

Mouse non-CD antigens (continued)

Antigen name	Alternative name	MW	Distribution	Function
TCR $\gamma\delta$			T cell subset	Antigen recognition
Tdt	Terminal deoxynucleotidyl transferase	60 kDa	Immature B cells, T cells	Template-independent addition of nucleotides at VDJ breakpoints
TER-119	Ly-76		Early proerythroblast to mature erythrocyte	Associates with glycophorinA, but not a typical glycophorin, yolk sac, fetal liver
Tie2	See CD202b			
TIM-1	Timd1, Havcr1		mRNA-activated T cells	
TIM-2	Timd2		mRNA-activated T cells	Receptor for Sema4A
TIM-3	Th1-specific marker, Havcr2		Late stage of T cell differentiation, CD4 ⁺ Th1, CD8 ⁺ Tc1	Effector function of Th1, macrophage activation, regulation of autoimmunity, hepatitis A virus cellular receptor 2
TIM-4	Timd4	42 kDa	Macrophages, spleen, lymph nodes, DC, fetal liver	Phosphatidylserine receptor for the engulfment of apoptotic cells
TLR1-TLR4	See CD281-CD284			
TLR5			mRNA: liver, lung, lower level in MOLF/Ei mice	Gram-negative bacterial infection
TLR6			mRNA: spleen, thymus, ovary, lung	Activation of NF- κ B and JunK
TLR7	PRO285	125 kDa	Many tissues, DC subset	Innate immune response to microbial agents
TLR8	PRO286	126 kDa	Many tissues, DC subset	Innate immune response to microbial agents
TLR9	See CD289			
TLR11				Binds uropathogenic bacteria
TLR13				
TMEM119		45 kDa	Microglial cells (adult)	Surface marker of microglia that can be used to reliably distinguish microglia from infiltrating macrophages
TRAIL	See CD253			
TRANCE	see CD254			
TWEAK	TNF-related weak inducer of apoptosis		mRNA in many adult and fetal tissues	Membrane-bound and secreted forms, apoptosis, binds Fn14, promotes IL8 secretion, activation of NF- κ B, proliferation of endothelial cells
TWEAK Receptor	See CD266			
ZAP-70	TCR ζ -associated kinase	70 kDa	T (intracellular) cells, NK cells	TCR signaling and development, prognostic marker for B cells

Quick, nonexclusive panels

B cells

Human
CD19

Mouse
B220
CD19

Monocytes

Human
CD11b
CD14
CD16^{neg}
MerTK^{neg}

Mouse
CD11b
CD115
Ly-6C

Macrophages

Human
CD14
MerTK

Mouse
CD14
F4/80

NK cells

Human
CD3^{neg}
CD16
CD56

Mouse
CD3^{neg}
CD49b

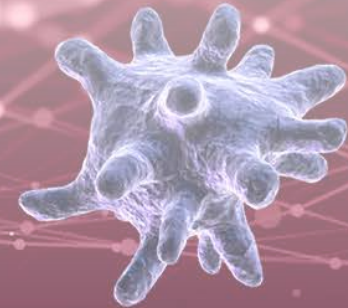
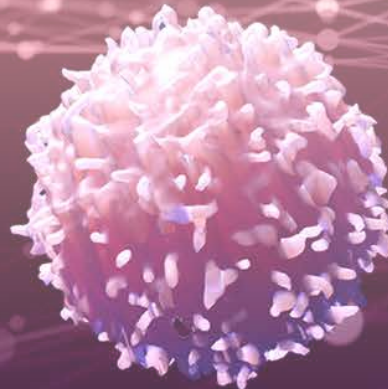
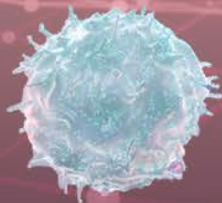
T cells

Human
CD3
CD4 or CD8

Mouse
CD3
CD4 or CD8
CD5

Treg

Human or mouse
CD4
CD25
CD127^{low}
Foxp3



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