

The nature of peptides presented by an HLA class I low expression allele

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Online Supplementary Table S1A. Natural ligands of HLA-A*3001.

Ligands*	Source
1 2 3 4 5 6 7 8 9 10 11 12	
V L D L V D P P V	Laminin subunit alpha-5 precursor
L G R V R D G P	IGF2R Cation-independent mannose-6-phosphate receptor
S P R P S V P A P	Thy-1 co-transcribed protein
A G L Q F P V G R	HIST1H2AK
L V V M P G A G K	SNF1LK2 Serine/threonine-protein kinase SNF1-like kinase 2
G P G A Q S A L R	RPS14 40S ribosomal protein S14
R E L H S Y D L K	ZBTB7B Zinc finger and BTB domain-containing protein 7B
V L D T P G P P V	TTN titin isoform N2-A
M R V D P V N E K	HBA2;HBA1 Alpha 2 globin variant (Fragment)
M E L S F P T T K	HBA2;HBA1 Alpha 2 globin variant (Fragment)
E I F G L H E N V	DNAH12;ASB14 Isoform 1 of Dynein heavy chain 12, axonemal
L I K D V M Q E T I	ZNF799 Zinc finger protein 799
A G T Q H S G L T K	Inositol monophosphatase
S D S D S N P A L Q V	egf-like module containing, mucin-like, hormone receptor-like 4
Q S M F T C K T E V	CDNA FLJ44225 fis, clone THYMU3006168
S R A P I T S S E R	Mucin 4 (Fragment)
K E S V S V V Y V Y K	H2BFS H2B histone family, member S
V E H S D L S F S K	B2M B2M protein
E V L A T V K E E R	FOXO1 Forkhead box protein E1
P T E Q P Q A W A V	MYO9B myosin IXB isoform 1
V L T V I N Q T Q K	RPL35 11 kDa protein
V T Y V P V T T F K	RPL31 60S ribosomal protein L31
G D R G D P P P G D L R	ACOT8 Acyl-CoA thioesterase 8
D G R D G G I C I F N	FBXO11 Isoform 1 of F-box only protein 11
L A K L P M E K I H Y	PNAS-139
E L P A P G L A L D K	UBR3 Isoform 1 of E3 ubiquitin-protein ligase UBR3
Q P S P T G G L M Q R	FOXO3 Forkhead box protein O3
E L K L R G L P V S G T	MKL2 Isoform 1 of MKL/myocardin-like protein 2
K L R S A A L Q G E K T H	214 kDa protein
V L K Q V H P D T G I S S K	H2BFS H2B histone family, member S

*Natural ligands of HLA-A*3001 obtained by single-peptide sequencing of 200 ligands using MS/MS fragmentation. This table is to show a representative of 30 ligands.

Online Supplementary Table S1B. Natural ligands of HLA-A*3014L.

Ligands*	Source
1 2 3 4 5 6 7 8 9 10 11 12	
P V F L Q P P P V	WNK2 lysine deficient protein kinase 2
L G R D G Q S P	DNA polymerase epsilon, catalytic subunit A
Q K R K K K L R K	SULF2 Isoform 2 of Extracellular sulfatase Sulf-2
M K K M S N I Y E	CPNE4 Isoform 1 of Copine-4
A R R T Q A A L S	URB1 Nucleolar pre-ribosomal-associated protein 1
Q E K N S G A N S	SRCAP cDNA FLJ44499 fis, clone UTERU3000665, highly similar to Homo sapiens
M T G G A N N S R	Transcription factor Sp4
F D F I G R Y S R	Isoform 1 of Putative methyltransferase UPF0383
V L H M G T I S K	similar to phosphodiesterase 4D interacting protein isoform 2
M V L E T A E N V	UBR4 Isoform 3 of E3 ubiquitin-protein ligase UBR4
G V C P N G R C V	FBN3 Fibrillin-3
D S Y P G Y I P K	KIAA1199 Isoform 1 of Protein KIAA1199
G A K E Q T G A R E	Cilorf86 Conserved hypothetical protein
F K R Q F L L P P N	Forkhead box protein D1
K E R P Q D L S D P	Isoform 4 of tenascin precursor
A E K A G I I R Y A	ITGAD integrin, alpha D precursor
A S F A D L G Q R	Isoform 3 of obscurin
P L V G V N G L D V	Filamin A, alpha
P Q Q R A A P Q Q K	TNFRSF10B Isoform short of tumour necrosis factor receptor superfamily member
T A F G S A Y K T K	MYH10 Isoform 1 of Myosin-10
G G P L K R E A P R	AKT2 23 kDa protein
R A G G S L R L F V	TTN titin isoform N2-A
L G K L Y I L L P E V	Sodium/potassium-transporting ATPase alpha-2 chain precursor
Q S K T S S A N N S K	Isoform 2 of AT-hook-containing transcription factor 1
D E R P R A V F H E E	AP3D1 Isoform 3 of AP-3 complex subunit delta-1
G S P F P T E S P T K	47 kDa protein
S A P V K R V A A S V	Mucin-16
D T R I K N G R P T V K	similar to phosphodiesterase 4D interacting protein isoform 2
P W M P V V T T S T Q T K	ZNF318 232 kDa protein
A G D K M A P D C N N H S K	similar to thyroid hormone receptor interactor 11

*Natural ligands of HLA-A*3014L obtained by single-peptide sequencing of 100 ligands using MS/MS fragmentation. This table is to show a representative of 30 ligands.

Online Supplementary Table S1C. Shared peptide epitopes of HLA-A*3014L and HLA-A*3001.

Peptide position	1 2 3 4 5 6 7 8 9 10 11 12	Source
Ligand	V L D T P G P P V	Titin (TTN titin isoform N2-A)
	E I T A L A P S T M K	Actin (ACTA1)
	D N I Q G I T K P A I R	Histone (HIST2H4A)

Shown are the sequences of peptides isolated from both soluble HLA-A*3014L and soluble HLA-A*3001.