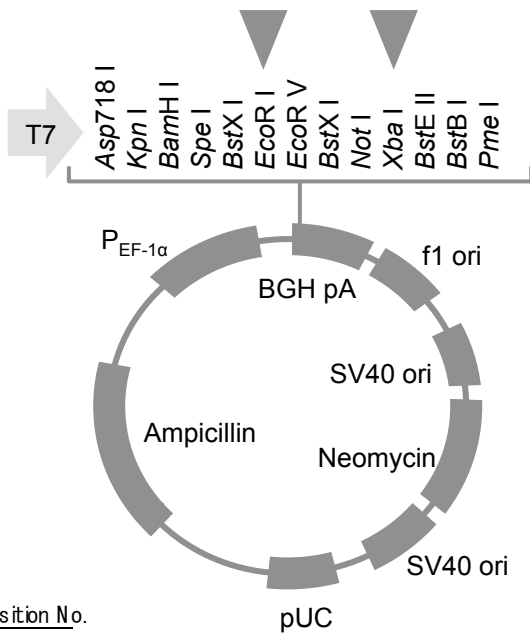


**Suppression of R5-type of HIV-1 in CD4<sup>+</sup> NKT cells by V $\delta$ 1<sup>+</sup> T cells activated by flavonoid glycosides, hesperidin and linarin**

Michiyuki Yonekawa, Masumi Shimizu, Atsushi Kaneko, Jiro Matsumura, and Hidemi Takahashi

**Supplementary Figures**

## y1 TCR gene insert



## pEF1/Myc-His A plasmid

The sequence for pEF1/Myc-His A (Thermo Fisher Scientific, Cat. No.: V921-20) is available for downloading from [www.invitrogen.com](http://www.invitrogen.com).

### Composition:

L - Vy1.4 - N - Jy2.3 - Cy2

Boxed sequence: Restriction enzyme site

Gray area: Vy1.4 region (TCR GV1S4)

Dash line: -N- region

Solid line: Jy2.3 region (TCR GJ2S2)

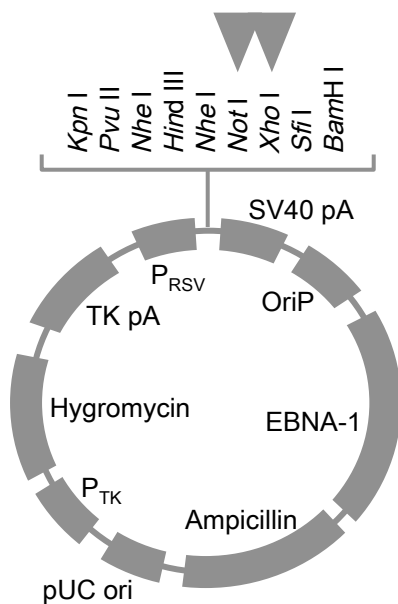
Position No.

P.	N.	(EcoR I)																																
1	1	GAATTCGGAAGGC	ATG	CGG	TGG	GCC	CTA	GCG	GTG	CTT	CTA	GCT	TTC	CTG	TCT	CCT	GCC	AGT	M	R	W	A	L	A	V	L	L	A	F	L	S	P	A	S
62	17	CAG AAA TCT TCC AAC TTG GAA GGG AGA ACG AAG TCA GTC ATC AGG CAG ACT GGG TCA TCT	Q	K	S	S	N	L	E	G	R	T	K	S	V	I	R	Q	T	G	S	S												
122	37	GCT GAA ATC ACT TGT GAT CTT GCT GAA GGA AGT ACC GGC TAC ATC CAC TGG TAC CTA CAC	A	E	I	T	C	D	L	A	E	G	S	T	G	Y	I	H	W	Y	L	H												
182	57	CAG GAG GGG AAG GCC CCA CAG CGT CTT CTG TAG TAT GAC TCC TAC ACC TCC AGC GTT GTG	Q	E	G	K	A	P	Q	R	L	L	Y	Y	D	S	Y	T	S	S	V	V												
242	77	TTG GAA TCA GGA ATC AGC CCA GGG AAG TAT GAT ACT TAT GGA AGC ACA AGG AAG AAC TTG	L	E	S	G	I	S	P	G	K	Y	D	T	Y	G	S	T	R	K	N	L												
302	97	AGA ATG ATA CTG CGA AAT CTT ATT GAA AAT GAC TCT GGA GTC TAT TAC TGT GCC ACC TGG	R	M	I	L	R	N	L	I	E	N	D	S	G	V	Y	Y	C	A	T	W												
362	117	GAT GGA GAT CTT TAT TAT AAG AAA CTC TTT GGC AGT GGA ACA ACA CTT GTT GTC ACA GAT	D	G	D	L	Y	Y	K	K	L	F	G	S	G	T	T	L	V	V	T	D												
422	137	AAA CAA CTT GAT GCA GAT GTT TCC CCC AAG CCC ACT ATT TTT CTT CCT TCG ATT GCT GAA	K	Q	L	D	A	D	V	S	P	K	P	T	I	F	L	P	S	I	A	E												
482	157	ACA AAA CTC CAG AAG GCT GGA ACA TAG CTT TGT CTT CTT GAG AAA TTT TTC CCA GAT ATT	T	K	L	Q	K	A	G	T	Y	L	C	L	L	E	K	F	F	P	D	I												
542	177	ATT AAG ATA CAT TGG CAA GAA AAG AAG AGC AAC ACG ATT CTG GGA TCC CAG GAG GGG AAC	I	K	I	H	W	Q	E	K	K	S	N	T	I	L	G	S	Q	E	G	N												
602	197	ACC ATG AAG ACT AAC GAC ACA TAC ATG AAA TTT AGC TGG TTA ACG GTG CCA GAA GAG TCA	T	M	K	T	N	D	T	Y	M	K	F	S	W	L	T	V	P	E	E	S												
662	217	CTG GAC AAA GAA CAC AGA TGT ATC GTC AGA CAT GAG AAT AAT AAA AAC GGA ATT GAT CAA	L	D	K	E	H	R	C	I	V	R	H	E	N	N	K	N	G	I	D	Q												
722	237	GAA ATT ATC TTT CCT CCA ATA AAG ACA GAT GTC ACC ACA GTG GAT CCC AAA TAC AAT TAT	E	I	I	F	P	P	I	K	T	D	V	T	T	V	D	P	K	Y	N	Y												
782	257	TCA AAG GAT GCA AAT GAT GTC ATC ACA ATG GAT CCC AAA GAC AAT TGG TCA AAA GAT GCA	S	K	D	A	N	D	V	I	T	M	D	P	K	D	N	W	S	K	D	A												
842	277	AAT GAT ACA CTA CTG CTG CAG CTC ACA AAC ACC TCT GCA TAT TAC ATG TAC CTC CTC CTG	N	D	T	L	L	L	Q	L	T	N	T	S	A	Y	Y	M	Y	L	L	L												
902	297	CTC CTC AAG AGT GTG GTC TAT TTT GCC ATC ATC ACC TGC TGT CTG CTT GGA AGA ACG GCT	L	L	K	S	V	V	Y	F	A	I	I	T	C	C	L	L	G	R	T	A												
962	317	TTC TGC TGC AAT GGA GAG AAA TCA TAA CAG TCTAGA	F	C	C	N	G	E	K	S	.	(Xba I)																						

## Supplementary Figure S1A.

Nucleotide and deduced amino acid sequences of y1 TCR gene in y1/pEF1 plasmid.

## δ1 TCR gene insert



## pREP4 plasmid

The sequence for pREP4 (Thermo Fisher Scientific, Cat. No.: V004-50) is available for downloading from [www.invitrogen.com](http://www.invitrogen.com).

### Composition:

L - Vδ1 - NDN - Jδ1 - Cδ1

Boxed sequence: Restriction enzyme site

Gray area: Vδ1 region (TCRDV101S1)

Dash line: -NDN- region

Solid line: Jδ1 region (TCRDJ1S1)

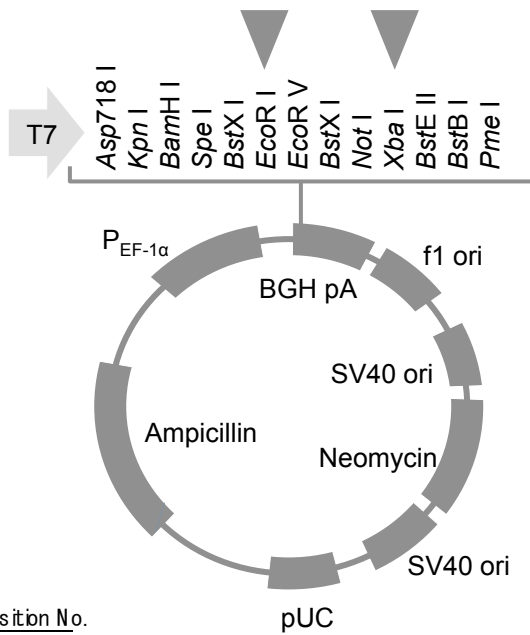
Position No.

P.	N. (Not I)	
1	1	<b>GCGGCCGC</b> CTTCAGGCAGCACAACTCACATTTGTGCAAAAGAGCTACATGCCAC ATG CTG TTC TCC AGC CTG
1		M L F S S L
72		CTG TGT GTA TTT GTG GCC TTC AGC TAG TCT <b>GGA TCA AGT GTG</b> GCC CAG AAG GTT ACT CAA
7		L C V F V A F S Y S G S S V A Q K V T Q
132		GCC CAG TCA TCA GTA TCC ATG CCA GTG AGG AAA GCA GTC ACC CTG AAC TGC CTG TAT GAA
27		A Q S S V S M P V R K A V T L N C L Y E
192		ACA AGT TGG TGG GCA TAT TAT ATT TTT TGG TAG AAG CAA CTT CGC AGC AAA GAG ATG ATT
47		T S W W A Y Y I F W Y K Q L P S K E M I
252		TTC CTT ATT CGC CAG GGT TCT GAT GAA CAG AAT GCA AAA AGT GGT CGC TAT TCT GTC AAC
67		F L I R Q G S D E Q N A K S G R Y S V N
312		TTC AAG AAA GCA GCG AAA TCC GTC GCC TTA ACC ATT TCA GCC TTA CAG CTA GAA GAT TCA
87		F K K A A K S V A L T I S A L Q L E D S
372		GCA AAG TAC TTT TGT GCT CTT GGG GAA <b>CCC GGA GGG TTC CCT CGT ACT GGG GGG ATA GGG</b>
107		A K Y F C A L G E P G G F P R T G G I G
432		<b>TGG ACC GAT AAA CTC ATC TTT GGA AAA GGA ACC CGT GTG ACT GTG GAA CCA</b> AGA AGT CAG
127		W T D K L I F G K G T R V T V E P R S Q
492		CCT CAT ACC AAA CCA TCC GTT TTT GTC ATG AAA AAT GGA ACA AAT GTC GCT TGT CTG GTG
147		P H T K P S V F V M K N G T N V A C L V
552		AAG GAA TTC TAC CCC AAG GAT ATA AGA ATA AAT CTC GTG TCA TCC AAG AAG ATA ACA GAG
167		K E F Y P K D I R I N L V S S K K I T E
612		TTT GAT CCT GCT ATT GTC ATC TCT CCC AGT GGG AAG TAC AAT GCT GTC AAG CTT GGT AAA
187		F D P A I V I S P S G K Y N A V K L G K
672		TAT GAA GAT TCA AAT TCA GTG ACA TGT TCA GTT CAA CAC GAC AAT AAA ACT GTG CAC TCC
207		Y E D S N S V T C S V Q H D N K T V H S
732		ACT GAC TTT GAA GTG AAG ACA GAT TCT ACA GAT CAC GTA AAA CCA AAG GAA ACT GAA AAC
227		T D F E V K T D S T D H V K P K E T E N
792		ACA AAG CAA CCT TCA AAG AGC TGC CAT AAA CCC AAA GCC ATA GTT CAT ACC GAG AAG GTG
247		T K Q P S K S C H K P K A I V H T E K V
852		AAC ATG ATG TCC CTC ACA GTG CTT GGG CTA CGA ATG CTG TTT GCA AAG ACT GTT GCC GTC
267		N M M S L T V L G L R M L F A K T V A V
912		AAT TTT CTC TTG ACT GCC AAG TTA TTT TTC TTG TAA GGCTGACTGGCATGAGGAAGCTACACTC
287		N F L L T A K L F F L .
979		<b>CCTCGAG</b>
		(Xho I)

## Supplementary Figure S1B.

Nucleotide and deduced amino acid sequences of δ1 TCR gene in δ1/pREP4 plasmid.

## γ2 TCR gene insert



## pEF1/Myc-His A plasmid

The sequence for pEF1/Myc-His A (Thermo Fisher Scientific, Cat. No.: V921-20) is available for downloading from [www.invitrogen.com](http://www.invitrogen.com).

### Composition:

L - Vγ2 - N - Jγ1.2 - Cγ1

Boxed sequence: Restriction enzyme site

Gray area: Vγ2 region (TCR<sub>GV2S1</sub>)

Dash line: -N- region

Solid line: Jγ1.2 region (TCR<sub>GJ1S2</sub>)

Position No.

P.	N.	(EcoR I)																				
1	1	GAATTCGCC	ATG	CTG	TCA	CTG	CTC	CAC	GCA	TCA	ACG	CTG	GCA	GTC	CTT	GGG	GCT	CTG	TGT			
			M	L	S	L	L	H	A	S	T	L	A	V	L	G	A	L	C			
61	18	GTA TAT GGT GCA GGT CAC CTA GAG CAA CCT CAA ATT TCC AGT ACT AAA ACG CTG TCA AAA																				
		V Y G A G H L E Q P Q I S S T K T L S K																				
121	38	ACA GCC CGC CTG GAA TGT GTG GTG TCT GGA ATA ACA ATT TCT GCA ACA TCT GTA TAT TGG																				
		T A R L E C V V S G I T I S A T S V Y W																				
181	58	TAT CGA GAG AGA CCT GGT GAA GTC ATA CAG TTC CTG GTG TCC ATT TCA TAT GAC GGC ACT																				
		Y R E R P G E V I Q F L V S I S Y D G T																				
241	78	GTC AGA AAG GAA TCC GGC ATT CCG TCA GGC AAA TTT GAG GTG GAT AGG ATA CCT GAA ACG																				
		V R K E S G I P S G K F E V D R I P E T																				
301	98	TCT ACA TCC ACT CTC ACC ATT CAC AAT GTA GAG AAA CAG GAC ATA GCT ACC TAC TAC TGT																				
		S T S T L T I H N V E K Q D I A T Y Y C																				
361	118	GCC TTG TGG GAG GAT CAA GAG TTG GGC AAA AAA ATC AAG GTA TTT GGT CCC GGA ACA AAG																				
		A L W E D Q E L G K K I K V F G P G T K																				
421	138	CTT ATC ATT ACA GAT AAA CAA CTT GAT GCA GAT GTT TCC CCC AAG CCC ACT ATT TTT CTT																				
		L I I T D K Q L D A D V S P K P T I F L																				
481	158	CCT TCA ATT GCT GAA ACA AAG CTC CAG AAG GCT GGA ACA TAC CTT TGT CTT CTT GAG AAA																				
		P S I A E T K L Q K A G T Y L C L L E K																				
541	178	TTT TTC CCT GAT GTT ATT AAG ATA CAT TGG GAA GAA AAG AAG AGC AAC ACG ATT CTG GGA																				
		F F P D V I K I H W E E K K S N T I L G																				
601	198	TCC CAG GAG GGG AAC ACC ATG AAG ACT AAT GAC ACA TAC ATG AAA TTT AGC TGG TTA ACG																				
		S Q E G N T M K T N D T Y M K F S W L T																				
661	218	GTG CCA GAA AAG TCA CTG GAC AAA GAA CAC AGA TGT ATC GTC AGA CAT GAG AAT AAT AAA																				
		V P E K S L D K E H R C I V R H E N N K																				
721	238	AAC GGA GTT GAT CAA GAA ATT ATC TTT CCT CCA ATA AAG ACA GAT GTC ATC ACA ATG GAT																				
		N G V D Q E I I F P P I K T D V I T M D																				
781	258	CCC AAA GAC AAT TGT TCA AAA GAT GCA AAT GAT ACA CTA CTG CTG CAG CTC ACA AAC ACC																				
		P K D N C S K D A N D T L L L Q L T N T																				
841	278	TCT GCA TAT TAC ACG TAC CTC CTC CTG CTC CTC AAG AGT GTG GTC TAT TTT GCC ATC ATC																				
		S A Y Y T Y L L L L L K S V V Y F A I I																				
901	298	ACC TGC TGT CTG CTT AGA AGA ACG GCT TTC TGC TGC AAT GGA GAG AAA TCA TAA TCTAGA																				
		T C C L L R R T A F C C N G E K S . (Xba I)																				

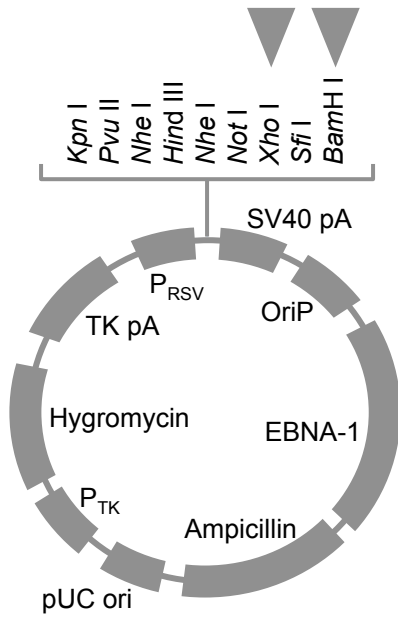
## Supplementary Figure S1C.

Nucleotide and deduced amino acid sequences of γ2 TCR gene in γ2/pEF1 plasmid.

## δ2 TCR gene insert

## pREP4 plasmid

The sequence for pREP4 (Thermo Fisher Scientific, Cat. No.: V004-50) is available for downloading from [www.invitrogen.com](http://www.invitrogen.com).



### Composition:

L - Vδ2 - NDN - Jδ1 - Cδ1

Boxed sequence: Restriction enzyme site  
Gray area: Vδ2 region (TCRDV102S1)

Dash line: -NDN- region

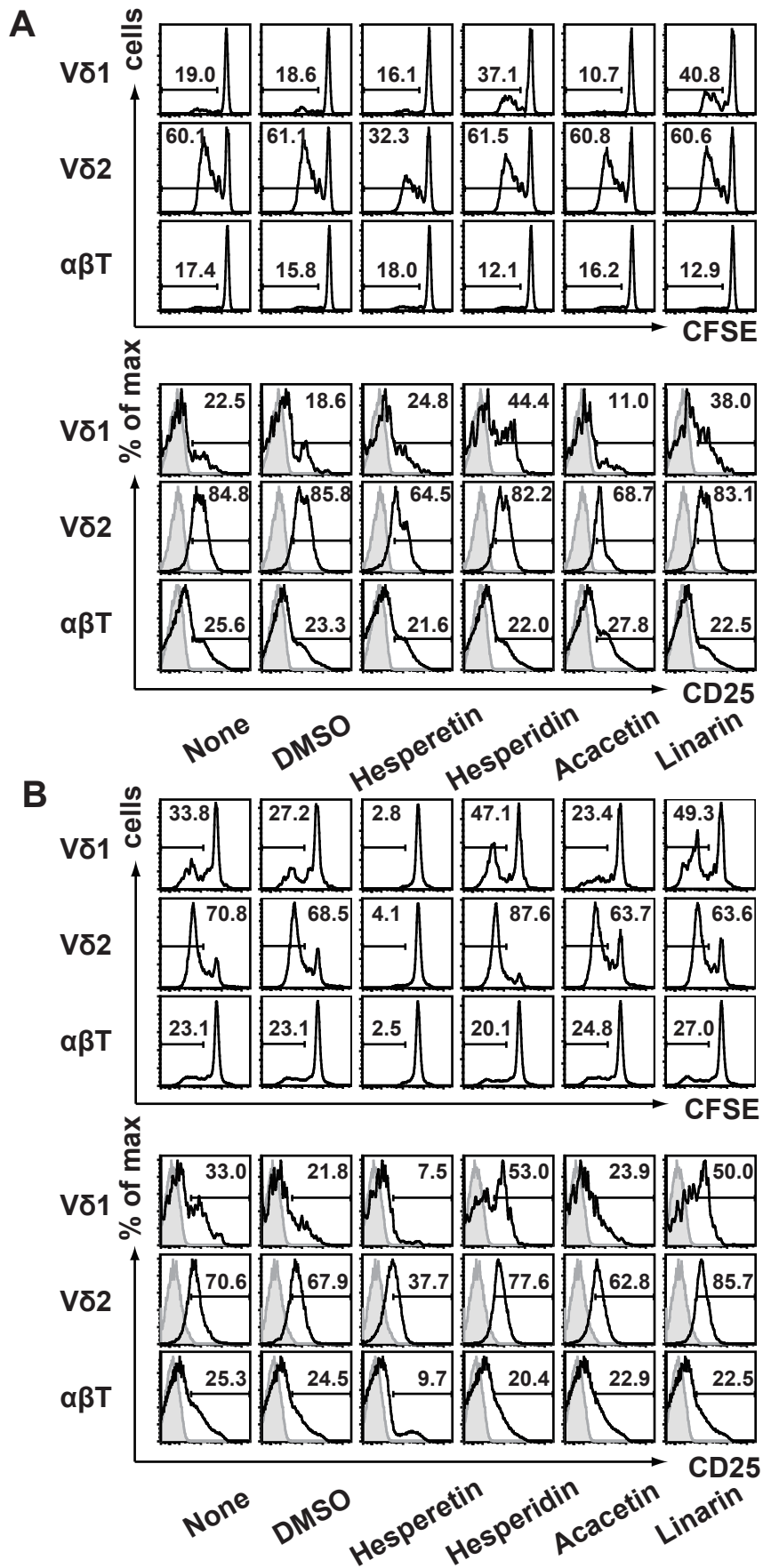
Solid line: Jδ1 region (TCRDJ1S1)

Position No.

P.	N.	(Xho I)
1	CTCGAG	AACACTTGTGTGTTGGTTTCAGAGGAGGGACCAGGCAGAAAGGTGGTTGAGAGGCAGAGCTGCCCTGAGT
76	GAGCC	ATG CAG AGG ATC TCC TCC CTC ATC CAT CTC TCT CTC TTC TGG GCA GGA GTC ATG
1		M Q R I S S L I H L S L F W A G V M
135	TCA GCC ATT GAG TTG GTG CCT GAA CAC CAA ACA GTG CCT GTG TCA ATA GGG GTC CCT GCC	
19	S A I E L V P E H Q T V P V S I G V P A	
195	ACC CTC AGG TGC TCC ATG AAA GGA GAA GCG ATC GGT AAC TAC TAT ATC AAC TGG TAC AGG	
39	T L R C S M K G E A I G N Y Y I N W Y R	
255	AAG ACC CAA GGT AAC ACA ATC ACT TTC ATA TAC CGA GAA AAG GAC ATC TAT GGC CCT GGT	
59	K T Q G N T I T F I Y R E K D I Y G P G	
315	TTC AAA GAC AAT TTC CAA GGT GAC ATT GAT ATT GCA AAG AAC CTG GCT GTA CTT AAG ATA	
79	F K D N F Q G D I D I A K N L A V L K I	
375	CTT GCA CCA TCA GAG AGA GAT GAA GGG TCT TAC TAC TGT GCC TGT GAC ACC CTG GTT GCT	
99	L A P S E R D E G S Y Y C A C D T L V A	
435	GGG GGT TTG TAC ACC GAT AAA CTC ATC TTT GGA AAA GGA ACC CGT GTG ACT GTG GAA CCA	
119	G G L Y T D K L I F G K G T R V T V E P	
495	AGA AGT CAG CCT CAT ACC AAA CCA TCC GTT TTT GTC ATG AAA AAT GGA ACA AAT GTC GCT	
139	R S Q P H T K P S V F V M K N G T N V A	
555	TGT CTG GTG AAG GAA TTC TAC CCC AAG GAT ATA AGA ATA AAT CTC GTG TCA TCC AAG AAG	
159	C L V K E F Y P K D I R I N L V S S K K	
615	ATA ACA GAG TTT GAT CCT GCT ATT GTC ATC TCT CCC AGT GGG AAG TAC AAT GCT GTC AAG	
179	I T E F D P A I V I S P S G K Y N A V K	
675	CTT GGT AAA TAT GAA GAT TCA AAT TCA GTG ACA TGT TCA GTT CAA CAC GAC AAT AAA ACT	
199	L G K Y E D S N S V T C S V Q H D N K T	
735	GTG CAC TCC ACT GAC TTT GAA GTG AAG ACA GAT TCT ACA GAT CAC GTA AAA CCA AAG GAA	
219	V H S T D F E V K T D S T D H V K P K E	
795	ACT GAA AAC ACA AAG CAA CCT TCA AAG AGC TGC CAT AAA CCC AAA GCC ATA GTT CAT ACC	
239	T E N T K Q P S K S C H K P K A I V H T	
855	GAG AAG GTG AAC ATG ATG TCC CTC ACA GTG CTT GGG CTA CGA ATG CTG TTT GCA AAG ACT	
259	E K V N M M S L T V L G L R M L F A K T	
915	GTT GCC GTC AAT TTT CTC TTG ACT GCC AAG TTA TTT TTC TTG TAA GGCTGACTGGCATGAGGA	
279	V A V N F L L T A K L F F L	
978	AGCTACACTCCTGAAGAAACCAAAGGCTTACAAAAATGCATCTCCTTGGCTTCTGACTTCTTTGTGATTCAAGTTG	
1054	ACCTGTCATAGCCTTGTAAATGGCTGCTAGCCAAACCCTTTTTCTTCAAAGACAACAAACCCAGCTCATCCTC	
1130	CAGCTTGATGGGAAGACAAAAGTCTGGGGAAGGGGGTTTATGTCTTAAGCTGTTTGTATGCTGTTTTATAAAGG	
1206	GATAGAAGGATATAAAAAGATATAGGACTCTTTTTTACTCCTACAAGTGATACCC	
	TGGATCC	(BamH I)

### Supplementary Figure S1D.

Nucleotide and deduced amino acid sequences of δ2 TCR gene in δ2/pREP4 plasmid.



Supplementary Figure S2. Effects of hesperidin and ilinarin on the proliferation and activation of human PBMC-derived Vδ1+ T cells. The data shown as (A) and (B) are technical replicates of a single donor.