# Supporting Information

## Table of contents

Α	SI Materials and Methods	2
В	Fig. S1. Gating strategy	8
С	Fig. S2. Clonotype sharing of gluten-specific CD4 <sup>+</sup> T cells across anatomical compartments	
	and within the same sample	9
D	Fig. S3. Clonal distribution and diversity in CD patients	10
E	Fig. S4. Pre-existing T-cell clonotypes dominate during gluten challenge	11
F	Fig. S5. Identical secondary TCRα chain in persisting clonotypes	12
G	Fig. S6. Expanded T-cell clonotypes persist in gut tissue and blood over decades	13
Η	Table S1. Clinical features of patients included in the study	14
Ι	Table S2. List of CDR3 amino acid sequences of public TCR sequences	16
J	Table S3. List of CDR3 nucleotide sequences of paired public TCR sequences.	20

#### SI materials and Methods

#### Single-cell TCR sequencing using multiplex PCR

To obtain paired TCR $\alpha$  and TCR $\beta$  sequences, we performed PCR with multiplexed primers covering all TCR $\alpha$ and TCR $\beta$  V genes according to the published protocol (1). However, different from the protocol published by Han et al, we performed cDNA synthesis and the first PCR reaction in two separate steps. We sorted single cells into 96-well plates containing 5 µl capture buffer (20 mM Tris-HCl pH8, 1% NP-40, 1 U/µl RNase Inhibitor (optional)). The plates were stored at -70°C until cDNA synthesis to facilitate cell lysis. For cDNA synthesis, we added 5 µl cDNA mix (1X FS buffer, 1 mM dNTP, 2.5 mM DDT, 1 µM oligo d(T) (5'-CTGAATTCT<sub>(16)</sub>-3'), 1 μM reverse TRAC (5'-AGTCAGATTTGTTGCTCCAGGCC-3') and TRBC (5'-TTCACCCACCAGCTCAGCTCC-3') primers, 1.5 U/µl RNase Inhibitor, 2.5 U/µl Superscript II in final 10 µl reaction volume). The cDNA synthesis was carried out at 42°C for 50 min followed by an inactivation step at 72°C for 10 min. The cDNA plates were stored at -20°C. Each of the three nested PCR steps was carried out in a total volume of 10 µl using 1 µl cDNA/PCR template and KAPA HiFi HotStart ReadyMix (Kapa Biosystems). For the two first nested PCR reactions, the final concentration of each TCR V-gene and C-gene primers was  $0.06 \,\mu\text{M}$  and  $0.3 \,\mu\text{M}$ , respectively. In the final barcoding PCR step, we added 5'-barcoding primers (0.044  $\mu\text{M}$ ) and 1:4 ratio of the 3'-barcoding primers, TRBC (0.044 µM) and TRAC (0.18 µM). In addition, Illumina Paired-End primers were added to the master mix (0.5 µM each). Primer sequences and cycling conditions for all three PCR reactions are provided in the original protocol (1).

### Bulk TCR sequencing by PCR amplification of template-switched cDNA

When feasible due to high cell numbers, we sorted in bulk 150-3000 T cells in an eppendorf tube containing 50-100  $\mu$ l TCL lysis buffer (Qiagen) supplemented with 1%  $\beta$ -mercaptoethanol. We stored the tubes at -70°C until cDNA synthesis. Total RNA was extracted by incubation with 2.2x volume of RNAclean XP beads (Agencourt) for 10 min at room temperature before tubes were placed on a magnet (DynaMag-2, Invitrogen) and washed three times with 80% ethanol. We allowed the beads to dry while still on magnet and eluted in H<sub>2</sub>O. A modified SMART protocol (2) was used in first-strand cDNA synthesis. The eluted RNA was transferred to

RT1 mix (20 mM Tris-HCl pH 8, 0.2% Tween-20, 1 mM dNTP, 2 µM oligo d(T), 1 U/µl RNase Inhibitor) in total volume of 20 µl and incubated at 72°C for 3 min followed by 1 min on ice. To complete cDNA synthesis, we added equal volume of the RT2 mix (1X FS buffer, 0.8 M Betaine, 6 mM MgCl<sub>2</sub>, 2.5 mM DTT, 2 µM TSO (5'-Bio-AAGCAGTGGTATCAACGCAGAGTACrGrGrG-3'), 1 U/µl RNase Inhibitor, 10 U/µl SuperScript II). The cDNA synthesis was carried out at 42°C for 90 min followed by 15 min at 72°C. Subsequently, TRA and TRB genes were amplified in two rounds of semi-nested PCR reactions. The cDNA from each sample was divided into 3-6 replica and amplified with indexed primers. The reaction mix for the first PCR: 2 µl cDNA template, 200/40 nM forward primer mix (STRT-fwd S/L), 200 nM reverse primer (TRAC rev1 or TRBC rev1) with KAPA HiFi HotStart ReadyMix in a total volume of 20 µl was amplified by touchdown PCR to increase specificity. The cycling conditions were: 3 min at 95°C followed by 5 cycles (15s x 98°C, 60s x 72°C), 5 cycles (15s x 98°C, 30s x 70°C, 40s x 72°C) and 8 cycles (15s x 98°C, 30s x 65°C, 40s x 72°C). The second PCR was done in a total volume of 10 µl with 1 µl of first PCR product, 200 nM indexed forward primers (R2\_STRT\_In01-12), 200 nM barcoded reverse primers (TRAC\_01-10\_rev2 or TRBC\_01-10\_rev2) and KAPA HiFi HotStart ReadyMix for 2 min at 95°C followed by 10 cycles (20s x 98°C, 30s x 65°C, 40s x 72°C) with final elongation at 72°C for 5 min. A final third PCR reaction was carried out in a total volume of 20 µl with 2 µl of second PCR product, 200 nM forward primer (Illumina Seq Primer R2), 200 nM reverse primer (Illumina Seq Primer R1) and KAPA HiFi HotStart ReadyMix to prepare the sequencing library for the Illumina MiSeq platform. The cycling conditions were: 2 min at 95°C followed by 15 cycles (20s x 98°C, 30s x 60°C, 40s x 72°C) with final elongation at 72°C for 5 min. The PCR products were pooled, cleaned and concentrated with Ampure XP beads (Agencourt) or QIAquick PCR purification kit prior to gel extraction and cleaned with QIAquick Gel Extraction kit and QIAquick PCR purification kit (Qiagen). All primer sequences are listed below:

Oligo	Barcode	Sequence (5'-3')
1 <sup>st</sup> PCR		
fwdS		Bio-CTAATACGACTCACTATAGGGC
fwdL		Bio-CTAATACGACTCACTATAGGGCAAGCAGTGGTATCAACGCAGAGT
TRAC_rev1		GGAACTTTCTGGGCTGGGGAAGAAGGTGTCTTCTGG
TRBC_rev1		TGCTTCTGATGGCTCAAACACAGCGACCT
2 <sup>nd</sup> PCR fwd	Replica ba	arcode
R2_bulk01	ATGAGC	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNATGAGCAAGCAGTGGTATCAACGCAGAGT
R2_bulk02	CAACTA	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNCAACTAAAGCAGTGGTATCAACGCAGAGT
R2_bulk03	CTAGCT	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNCTAGCTAAGCAGTGGTATCAACGCAGAGT
R2_bulk04	ACTTGA	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNACTTGAAAGCAGTGGTATCAACGCAGAGT
R2_bulk05	CACTCA	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNCACTCAAAGCAGTGGTATCAACGCAGAGT
R2_bulk06	TACAGC	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNTACAGCAAGCAGTGGTATCAACGCAGAGT
R2_bulk07	CGTGAT	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNCGTGATAAGCAGTGGTATCAACGCAGAGT
R2_bulk08	CACTGT	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNCACTGTAAGCAGTGGTATCAACGCAGAGT
R2_bulk09	TGGTCA	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNTGGTCAAAGCAGTGGTATCAACGCAGAGT
R2_bulk10	ATTGGC	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNATTGGCAAGCAGTGGTATCAACGCAGAGT
R2_bulk11	TACAAG	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNTACAAGAAGCAGTGGTATCAACGCAGAGT
R2_bulk12	GGAACT	GGCATTCCTGCTGAACCGCTCTTCCGATCTNNNNNGGAACTAAGCAGTGGTATCAACGCAGAGT
2 <sup>nd</sup> PCR rev	Sample b	arcode
TRAC01_rev2	ACCGTA	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNACCGTACAGCTGGTACACGGCAGGGT
TRAC02_rev2	GAGTAG	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNGAGTAGCAGCTGGTACACGGCAGGGT
TRAC03_rev2	TTACGC	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNTTACGCCAGCTGGTACACGGCAGGGT
TRAC04_rev2	CGTACT	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNNCGTACTCAGCTGGTACACGGCAGGGT
TRAC05_rev2	GTGAAA	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNGTGAAACAGCTGGTACACGGCAGGGT
TRAC06_rev2	TAGCTT	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNTAGCTTCAGCTGGTACACGGCAGGGT
TRAC07_rev2	ACTGAT	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNACTGATCAGCTGGTACACGGCAGGGT
TRAC08_rev2	CCGTCC	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNNCCGTCCCAGCTGGTACACGGCAGGGT
TRAC09_rev2	GGCTAC	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNGGCTACCAGCTGGTACACGGCAGGGT
TRAC10_rev2	ATTCCT	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNATTCCTCAGCTGGTACACGGCAGGGT
TRBC01_rev2	ATCTCG	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNATCTCGCGACCTCGGGTGGGAACAC
TRBC02_rev2	CAGATC	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNCAGATCCGACCTCGGGTGGGAACAC
TRBC03_rev2	TGACGA	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNTGACGACGACCTCGGGTGGGAACAC
TRBC04_rev2	GCTGAT	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNGCTGATCGACCTCGGGTGGGAACAC
TRBC05_rev2	CGATGT	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNNCGATGTCGACCTCGGGTGGGAACAC
TRBC06_rev2	ACCACA	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNACCACACGACCTCGGGTGGGAACAC
TRBC07_rev2	GATCAG	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNGATCAGCGACCTCGGGTGGGAACAC
TRBC08_rev2	TCGGTC	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNTCGGTCCGACCTCGGGTGGGAACAC
TRBC09_rev2	GTCTGC	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNGTCTGCCGACCTCGGGTGGGAACAC
TRBC10_rev2	AGTCAA	ACACTCTTTCCCTACACGACGCTCTTCCGATCTNNNNNAGTCAACGACCTCGGGTGGGAACAC
3 <sup>rd</sup> PCR		
R1		AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATC
R2		CAAGCAGAAGACGGCATACGAGATCGGTCTCGGCATTCCTGCTGAACCGCTC

The sequencing was done at Norwegian Sequencing Centre (NSC), a core facility at the University of Oslo and

Oslo University Hospital.

#### Data processing and analysis

Raw reads from Illumina NGS were processed in a multistep pipeline. Single-cell TCR sequencing data was first pre-processed by using selected steps of the pRESTO toolkit (3). First, low-quality reads with average Phred quality score Q<30 were removed. Sequences were then unmasked according to barcodes (row, plate and column) and gene-specific primers (TRA/TRB), which were then annotated in the read header. Reads without recognizable primer sequences were removed. Subsequently, forward (R2) and reverse (R1) reads were paired according to Illumina coordinates and assembled into full-length TCR sequences. Next, identical duplicate sequences derived from the same cell were collapsed and the number of sequences collapsing as one sequence was denoted as "dupcount". Only sequences with dupcount > 2 were used for further analysis. In the last preprocessing step, we aligned the three highest ranking (in terms of dupcount) sequences on a per-cell, per-chain basis, implemented as a custom python script. Here, the highest-ranking sequence was aligned to the second highest ranking sequence using a dynamic programming algorithm (4). For sequences aligning with < 2%mismatches (relative to the length of the highest-ranking sequence, and ignoring gaps), the highest-ranking sequence was retained and the dupcounts were added up. Remaining sequences were discarded. Subsequently, the third-highest ranking sequence was aligned to the previous outcome, and possibly merged as well. Other pairs of the top three sequences were aligned as needed, always prioritizing the highest-ranking sequence in terms of dupcounts.

Bulk-cell derived sequencing data was pre-processed in much of the same manner as pre-processing of singlecell sequencing data described above. The difference was that sequences were marked according to barcoded gene-specific primers (TRA/TRB) in the R1 reads and the TSO sequence together with replicate barcodes in the R2 reads. The barcoded primers were then annotated in the read header.

We submitted pre-processed TCR sequences to the IMGT/HighV-QUEST online tool (5) for identification of V, D, J genes and alleles and the nucleotide sequences of the CDR3 junctions. Before analyzing the IMGT/HighV-QUEST output, the IMGT annotation was parsed, stored in a relational database and subjected

to additional filters before extracting the sequences. This workflow was implemented as an in-house Java program together with a custom MySQL database. First, only productive sequences according IMGT annotation was included. For single-cell data, within each cell and each chain, duplicate sequences that had identical V gene, J gene and nucleotide CDR3 sequences were collapsed. Next, only valid singleton cells containing single TRA and TRB and dual TRA or TRB (maximum 3 chains) with dupcount > 100 were considered for downstream analysis. Within samples taken from the same individual, cells were defined to belong to the same clonotype when they share identical V and J gene (subgroup level) in addition to identical nucleotide CDR3 region for both the TRA and TRB genes. All bulk samples were divided after cDNA synthesis and amplified in independent PCR reactions that were barcoded with 3-6 replicate indices. Within each bulk TCR sample replicate, duplicate sequences defined as identical V gene, J gene and allowing for one nucleotide mismatch in CDR3 regions to account for PCR and sequencing errors were collapsed. Only sequences present in  $\geq 2$  distinct replicas and cumulative dupcount > 10 were used for downstream analysis.

Area-proportional Venn diagrams were drawn by using free software available from Bioinforx (<u>http://apps.bioinforx.com</u>) and eulerAPE (6).

### References

1. Han A, Glanville J, Hansmann L, Davis MM. Linking T-cell receptor sequence to functional phenotype at the single-cell level. *Nat Biotechnol.* 2014;32(7):684-692.

2. Quigley MF, Almeida JR, Price DA, Douek DC. Unbiased molecular analysis of T cell receptor expression using template-switch anchored RT-PCR. *Curr Protoc Immunol.* 2011;Chapter 10:Unit10 33.

3. Vander Heiden JA, Yaari G, Uduman M, et al. pRESTO: a toolkit for processing high-throughput sequencing raw reads of lymphocyte receptor repertoires. *Bioinformatics*. 2014;30(13):1930-1932.

4. Needleman SB, Wunsch CD. A general method applicable to the search for similarities in the amino acid sequence of two proteins. *J Mol Biol.* 1970;48(3):443-453.

5. Alamyar E, Duroux P, Lefranc MP, Giudicelli V. IMGT((R)) tools for the nucleotide analysis of immunoglobulin (IG) and T cell receptor (TR) V-(D)-J repertoires, polymorphisms, and IG mutations: IMGT/V-QUEST and IMGT/HighV-QUEST for NGS. *Methods Mol Biol.* 2012;882:569-604.

Micallef L, Rodgers P. eulerAPE: drawing area-proportional 3-Venn diagrams using ellipses. *PLoS One*. 2014;9(7):e101717.

**Fig. S1: Gating strategy.** For PBMCs, cells within the singlet lymphocyte population were further gated to isolate tetramer-binding CD4<sup>+</sup> effector-memory gut-homing T cells that were: CD3<sup>+</sup>, CD11c<sup>-</sup>, CD14<sup>-</sup>, CD15<sup>-</sup>, CD19<sup>-</sup>, CD56<sup>-</sup>, CD45RA<sup>-</sup>, CD62L<sup>-</sup>, integrin  $\beta$ 7<sup>+</sup> and CD4<sup>+</sup>. For lamina propria cell suspensions of duodenal biopsies, live cells within the singlet lymphocyte population were further gated to obtain tetramer-binding CD4<sup>+</sup> T cells that were: CD3<sup>+</sup>, CD11c<sup>-</sup>, CD14<sup>-</sup>, CD15<sup>-</sup>, CD19<sup>-</sup>, CD56<sup>-</sup>, CD8<sup>-</sup> and CD4<sup>+</sup>. For T-cell lines, live cells within the singlet lymphocyte population were further gated to obtain tetramer-binding CD4<sup>+</sup> T cells within the singlet lymphocyte population were further gated to obtain tetramer-binding CD4<sup>+</sup>. For T-cell lines, live cells within the singlet lymphocyte population were further gated to obtain tetramer-binding CD4<sup>+</sup> T cells that were: CD3<sup>+</sup>, CD8<sup>-</sup> and CD4<sup>+</sup>.



Fig. S2: Clonotype sharing of gluten-specific CD4<sup>+</sup> T cells across anatomical compartments and within the same sample. Panel A shows clonotype sharing of HLA-DQ:gluten tetramer-sorted cells from matched blood and gut biopsy samples of untreated CD patients that were subjected to bulk TCR $\beta$  sequencing. TCR $\beta$  clonotype is defined by nucleotide sequence and the overlap is depicted in area-proportional Venn diagrams. Degree of sharing was calculated by dividing the number of shared clonotypes by the total clonotype number in the blood sample. Panel B shows the range of maximum expected clonotype overlap between two independent sequencing experiments (single-cell and bulk TCR sequencing) of the same sample. Percentages of TCR $\beta$  clonotype overlap was calculated by dividing the number of shared clonotypes by the total clonotype number in the smallest sample. Median is depicted as a line and 95% confidence interval is depicted as stippled lines.



**Fig. S3. Clonal distribution and diversity in CD patients.** Panel A shows clonal distribution of TCRαβ clonotypes obtained by single-cell TCR sequencing of gluten-specific T cells from four CD patients during the first weeks (w) and 1-2 years (yr) after commencement of gluten-free diet (GFD). Panel B shows clonal diversity as sample-corrected non-parametric estimate of the classic Shannon entropy in samples with >20 cells of the patients represented in Fig 1. Panel C shows clonal distribution of TCRαβ clonotypes obtained by single-cell TCR sequencing of gluten-specific T cells from five CD patients during 14-day gluten challenge; at baseline (B), on day 6 (D6), day 14 (D14) and day 28 (D28) after the onset of gluten challenge. Panel D shows clonal diversity as sample-corrected non-parametric estimate of the classic Shannon entropy in samples with >20 cells of the patients represented in Fig 2. Panels A and C show the distribution of clonotypes consisting of at least two cells plotted as stacked boxes in percentage of total number of cells. The clonal size of the most dominant clonotype is displayed with number inside the box. The total number of clonotypes and cells in each sample are shown below each stacked bar. For panel C, the colored boxes represent the three most dominant clonotypes at D6 that were also observed at other time points. The isolated and non-stacked colored boxes represent shared clonotypes with clonal size one.



Fig. S4. Pre-existing T-cell clonotypes dominate during gluten challenge. TCR $\alpha\beta$  clonotypes obtained by single-cell sequencing at baseline, day 6 and day 14 or day 28 of the gluten challenge were analyzed and compared in area-proportional Venn diagrams (A). The dark red areas represent clonotypes that were observed both at baseline and day 6 or day 14 or day 28. The percentage denotes the proportion of these shared clonotypes on day 6 (purple) or day 14 (blue) or day 28 (orange). Panel B shows overlap of TCR $\beta$ clonotypes at baseline, day 6 and day 14 or day 28 of the gluten challenge in patients CD442 and CD1300. The percentage in blue color denotes the proportion of shared clonotypes in the latest sample while purple color denotes the proportion of shared clonotypes in the earliest sample. The TCR $\beta$  clonotypes were obtained from compilation of both single-cell and bulk sequencing data and corresponds to panel D in Figure 4.



в



Overlap %= Earliest timepoint & latest timepoint

	2	_ Carliest time	point	
CD 1300	Base line	Day 6	Day 14	Day 28
Base line		59%	45%	19%
Day 6	48%		45%	17%
Day 14	58%	72%		26%
Day 28	55%	58%	57%	



Fig S5. Identical secondary TCR $\alpha$  chain in persisting clonotypes. Representative persisting glutenspecific TCR clonotypes that have identical secondary productive TCR $\alpha$  chains are shown. The number of circles represents the number of cells and each line represents the TCR $\alpha$  and TCR $\beta$  sequences used in the cell. The *TRAV/TRBV*, CDR3 $\alpha$ /CDR3 $\beta$  (nucleotide) and *TRAJ/TRBJ* usage in the respective TCR $\alpha$  and TCR $\beta$  sequences are shown.



Fig. S6. Expanded T-cell clonotypes persist in gut tissue and blood over decades. Panel A shows sharing of TCR $\alpha\beta$  clonotypes from in vitro expanded T-cell lines (TCL) from one single biopsy specimen and blood/gut samples of CD patients obtained 16-20 years apart. The overlap is depicted in area-proportional Venn diagrams and degree of overlap is calculated by dividing the number of shared clonotypes by the total number of clonotypes in the most recent samples. Panel B shows the fraction (%) of cells belonging to the shared clonotypes in the most recent samples. The total number of cells is depicted in the center of the pie charts.



Patient ID <sup>a</sup>	HLA- DQ2/8	Year of birth	Year of diagnosis	Gluten status <sup>b</sup>	Marsh Score⁰	lgA- TG2 <sup>d</sup>	lgG- DGP <sup>e</sup>	# Tetr+ T cells in gut <sup>f</sup>	# Tetr+ T cells in blood <sup>g</sup>	Sequencing library <sup>h</sup>
CD1228 (m)	2.5	1982	2013	UCD	3c	8.7	11	13400	-	bulkLib2
CD1308 (m)	2.5	1973	2015	UCD	3a	5.3	29	10300	16.9	bulkLib2
CD1317 (m)	2.5	1969	2015	UCD	3c	78.8	>100	9000	27.7	bulkLib2
CD1375				UCD	3a	41.7	14	24700	70.9	scLib3
(m)	2.5	1975	2016	4w GFD 10w GFD	-	9.1 5.1	9 6.9		21.8 9.6	scLib4
004074				UCD	3c	32	54	5100	2.5	
CD1374	8	1992	2016	4w GFD	-	17.6	39	-	1.4	scLib4
(1)				10w GFD	-	10.0	25	-	0.9	
				UCD	3c	18	>100	7200	8.4	
CD1368	25	1072	2015	10w GFD	-	3.8	>100	-	9.8	scLib4
(m)	2.0	1372	2015	16w GFD	-	2.8	90.8	-	10.4	
				1yr GFD	2	<1	17	3400	4.7	scLib6
CD1237	25	1961	2013	UCD	3b	3.1	16	9400	8.5	scl ib2
(m)			2010	1yr GFD	0	<1	<5	2400	0.5	
CD1283				UCD	3b	27.3	>100	-	12.7	scl ib4
(f)	2.5	1966	2014	1yr GFD	3a	4.0	39	4800	6.7	
				2yr GFD	3a-b	1.3	17	2300	3.3	scLib6
CD1268	o -		0011	UCD	3b-c	14.0	>100	-	34.0	scLib4
(m)	2.5	1991	2014	1yr GFD	3a-b	<1	16	3800	/1./	1 :1- 0
				2yr GFD	1-2	1.2	10	2900	10.7	SCLID6
00440				Baseline	3	2.3	8	22200	46.8	SCLIDZ/3,
(m)	2.5	1958	2000	Day 6	_	2.2	0	-	260.6	
(11)				Day 0	- -	2.2	10	22800	183.2	bulkt ib3
				Day 14	5	0.1	10	22000	100.2	scl ih1/2
				Baseline	0	<1	<5	13800	12.1	bulkLib3
CD1300	2.5	1954	1987	Day 6	-	<1	<5	-	881.4	scLib1, bulkLib2/3
(1)				Day 14	3	<1	<5	31100	71.0	scLib1/2, bulkLib2/3
				Day 28	-	<1	<5	-	-	scLib6
CD1299				Baseline	0	<1	<5	6000	5.0	scLib1/2
(f)	2.5	1993	2005	Day 6	-	<1	<5	-	55.9	scLib2
				Day 14	1	<1	<5	10800	23.1	
CD1340	0.5	4055	0000	Baseline	0	<1	<5	8200	2.2	
(m)	2.5	1955	2008	Day 6	-	<1	<5	-	169.4	SCLID3
				Day 14	1	<1	Z1	39900	23.4	
CD1339	25	105/	2000	Daseline	I	<1	O	3000	3.3 22.0	col ib?
(f)	2.0	1954	2009	Day 0	- 1	~1	7	- 8000	22.9	SCLIDS
				Baseline	۰ ۱	~1	-5	0000	/0.5	
CD1295	25	1972	2003	Daseinie	0	~1	~5	9200	49.0	scl ih2
(f)	2.0	1072	2000	Day 0	- 2		~5	17800	- 01 /	SOLIDZ
				Baseline	0	~1	<5	1000	16	
CD1342	25	1988	2005	Day 6	-	24	<5	-	21.0	scl ih3
(f)	2.0	1000	2000	Day 14	1	2.3	5	5000	18.4	COLIDO
				19.5vr GFD	-	-	-	-	28.0	bulkLib4
CD114	2.5	1965	1969	20yr GFD	-	-	-	-	50.8	scLib4/5.
(m)				47yr GFD	0	<1	<5	5500	11.7	bulkLib4
CD412	~ F	4004	4000	UCD	-	-	-	TCL	72.0	scLib4/5,
(f)	2.5	1961	1996	20yr GFD	0	<1	<5	3600	88.2	bulkLib4
00070				1yr GFD	-	-	-	TCL	-	
CD373	2.5	1967	1995	2yr GFD	-	-	-	-	4.3	SCLID4
(1)				21yr GFD	1	<1	<5	6800	13.2	scLib4/5
CD364				3yr GFD	-	-	-	-	2.4	scl ih4
(f)	2.5	1950	1991	9yr GFD	-	-	-	TCL	-	
00400				25yr GFD	U	<1	<5	12200	1.4	SCLID4/5
CD436	2.5	1953	1996	4yr GFD	-	-	-	-	25.8	SCLID4
(1)				20yr GFD	0	<1	<5	2800	21.1	scLib4/5

Table S1. Clinical features of patients included in the study

#### a m - male, f - female

<sup>b</sup>Gluten status indicates time on a gluten-free diet; untreated celiac disease (UCD) (implicating a gluten-containing diet) or weeks (w) or years (yr) on a gluten-free diet. Gluten status also indicate stage of gluten challenge (Baseline, Day 6, Day 14, Day 28) <sup>c</sup> Celiac disease is diagnosed based on histological appearance in the small intestinal mucosa, which can be graded according to the Marsh score into normal mucosa (Marsh 0), increased intraepithelial lymphocyte number (Marsh 1), hyperplastic lesion and crypt hyperplasia (Marsh 2) and variable degree of villous atrophy (Marsh 3a-c). In some cases, patchy lesions give variations in the histological assessment of different biopsy specimens.

<sup>d</sup> Titer of IgA anti-transglutaminase 2 (IgA-TG2) at celiac disease diagnosis. Undetectable titers are shown as <1.

<sup>e</sup> Titer of IgG anti-deamidated gliadin peptide (IgG-DGP) at celiac disease diagnosis. Undetectable titers are shown as <5. <sup>f</sup>Number of HLA-DQ:gluten tetramer-binding CD4<sup>+</sup> T cells per million CD4<sup>+</sup> T cells in gut biopsy. TCL: T-cell line cultured in vitro from one single duodenal biopsy.

<sup>g</sup>Number of HLA-DQ:gluten tetramer-binding effector-memory gut-homing CD4<sup>+</sup> T cells per million CD4<sup>+</sup> T cells in blood. <sup>h</sup>T cells were sorted at various time points and prepared and included in multiple TCR sequencing libraries. scLib: single-cell sequencing TCR library, bulkLib: bulk TCR sequencing library

## Table S2. List of CDR3 amino acid sequences of public TCR sequences.

									Nu	mber	of se	quenc	ces						
		of										-							
	er of nts	nber nces	375	368	237	268	283	4	12	73	64	36	300	42	500	340	339	295	342
AV_CDR3α_AJ	umbe oatie	l nur	5	5	<u>[</u> ]	D12	01	Ð	50	CD3	CD3	CD4	D13	50	10	5	5	D1	5
	z -	Tota s€	0	0	0	0	0		0		0	0	0		0	0	0	0	0
AV4 LVGDDTGFQKLV AJ8	13	25	4		2	3	1		1	1	1	2	2	1	3			3	1
AV26-1 IAFNDYKLS AJ20	9	28			5		4	1	3				4		8	1		1	1
AV8-1 AVNARNAGNMLT AJ39	7	29	1	2		6		5	8			-	5		-		2		
AV4 LVGEGDSNYQLI AJ33	5	11				2		6	1			1	1						
AV4 LVGGSGGYNKLI AJ4	5	21				3			4						2	1			11
AV12-3 AMSAGTGNQFY AJ49	4	7						1			1	-		3		2			
AV14/DV4 AMREGRYSSASKII AJ3	3	6	4					1	1			-							
AV19 ALSEAFGAGGTSYGKLT AJ52	4	8	1			2								2	3				
AV4 LVGGAGGYNKLI AJ4	5	11		1	6						1	2						1	
AV8-3 AVGAAEYGNKLV AJ47	4	14									2		7			2		3	
AV41 AVESGSNYQLI AJ33	4	13	8			1							3			1			
AV12-3 AMSELPGGSNYKLT AJ53	4	18		9				1					7						1
AV26-1 IVLNARLM AJ31	4	7							1				2				2	2	
AV26-1 IVYGGSQGNLI AJ42	3	10			1												8		1
AV26-1 IVFNDYKLS AJ20	3	3	1	1								-				1			
AV19 ALSGAGANSKLT AJ56	3	4							1						1	2			
AV26-1 JAYNDYKLS AJ20	3	5							1			-						1	3
AV26-1 IVRVVGDDKII AJ30	4	6		1		1					1							3	
AV4 LVGDGDGGGATNKLI AJ32	4	5	1				2	1			-				1				
AV35 AGNYGGATNKLI AJ32	5	13	4	3					1	1							4		
AV12-3 AMTDYGNNRLA AJ7	4	5			1	1						-		1			2		
AV41 AVEGGSNYKLT AJ53	4	21					2					1				2	16		
AV12-2 AVSNRDDKII AJ30	4	7			1			3	1									2	
AV19 ALSEAGANSKLT AJ56	3	8			1							-	1			6			
AV9-2 ALSEGNFNKFY AJ21	3	7										1	5					1	
AV12-2 AVPNRDDKII AJ30	3	4				1			2				1						
AV12-1 VVTLMDTGRRALT AJ5	3	13	11		1								1						
AV26-1 IDPGSSNTGKLI AJ37	2	4	3												1				
AV35 AGFNTDKLI AJ34	2	2						1			1								
AV26-1_IPNYGGSQGNLI_AJ42	2	2		1											1				
AV4 LVGGDNQGGKLI AJ23	2	2		1										1					
AV19_ALSEGGNQGGKLI_AJ23	3	3	1							1						1			
AV1-2_AVTTSNTGKLI_AJ37	3	6				3									2	1			
AV26-1_IVYNDYKLS_AJ20	3	4		1			1	2											
AV35_AGPYNTDKLI_AJ34	3	3		1					1							1			
AV13-2_AETNAGGTSYGKLT_AJ52	3	3					1		1						1				
AV26-1_IGNYGGSQGNLI_AJ42	3	7							4		1					2			
AV12-3_AMIEAAGNKLT_AJ17	3	3												1		1			1
AV35_AGDSNYQLI_AJ33	3	10						1						1	8				
AV1-2_AVLTDSWGKLQ_AJ24	2	8						1					7						
AV26-1_ISFNDYKLS_AJ20	2	9											4					5	
AV13-2_AEGDAGGTSYGKLT_AJ52	2	4	2										2						
AV12-3_AMIQAAGNKLT_AJ17	2	2											1					1	
AV8-3_AVGAVEYGNKLV_AJ47	2	2											1		1				
AV8-3_AVGVSEYGNKLV_AJ47	2	7		1									6						
AV19_ALSEGGFGNVLH_AJ35	2	4	3										1						
AV35_AGQLGGATNKLI_AJ32	2	9					5						4						
AV8-3_AVGLTDSWGKLQ_AJ24	2	3									1		2						
AV4_LVGVMEYGNKLV_AJ47	2	2	1										1						
AV29/DV5_AASEETSGSRLT_AJ58	2	2					1						1						
AV12-3_AMSEIPGGSNYKLT_AJ53	2	3					2						1						
AV35_AGNDYKLS_AJ20	2	4											2					2	
AV38-1_AFTVYTGANSKLT_AJ56	2	4											1		3				

AV123_AMSEGTGNOPY_ALMS 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <th>AV8-4/8-2 ASLSNFGNEKLT AJ48</th> <th>2</th> <th>3</th> <th></th> <th>1</th> <th></th> <th></th> <th></th> <th></th> <th>2</th> <th></th>	AV8-4/8-2 ASLSNFGNEKLT AJ48	2	3											1					2	
AN9.2 AUSODICANNUE AXIG 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td>AV12-3 AMSEGTGNQFY AJ49</td> <td>2</td> <td>2</td> <td></td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td>	AV12-3 AMSEGTGNQFY AJ49	2	2											1	1					
AV29DVS ANSACTISSENT AUS 8 I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I	AV9-2 ALSDQTGANNLF AJ36	2	2						1					1						
AV12-2.ASQDTGRRAT. JAS P I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I <td>AV29/DV5_AASAGETSGSRLT_AJ58</td> <td>2</td> <td>8</td> <td></td> <td>7</td> <td></td> <td>1</td>	AV29/DV5_AASAGETSGSRLT_AJ58	2	8															7		1
AT19 ASEGONAGNIAT AT39 2 2 1 1 1 1 1 1   AT16 ASEGONAGNIAT AT3 2 3 2 2 1 1 1   AVIS ASGANNOMR AJ31 2 3 2 2 1 1 1 1   AVIS ASGANNOMR AJ31 2 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV12-2 ASODTGRRALT AJ5	2	13															1		12
AVIE ALSOSINULI ALS 2 3 2 3 2 4 4 4   AV35 AGVYINNUR ALA 2 3 2 2 4 5 4 1 4   AV35 AGVYINNUR ALA 2 3 2 2 4 5 5 5 5 5 5 7 6 5 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td>AV19 ALSEGGNAGNMLT AJ39</td> <td>2</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td>	AV19 ALSEGGNAGNMLT AJ39	2	2						1										1	
AV35 ACCOMMNNUMER Alag 2 3 2 2 1 1 1   AV25-LIVYNARUR AJ31 2 3 2 1 2 1 1 1 1   AV7 ATEOMGEORUY AJ8 2 2 1 1 1 1 1 1 1   AV6 ALPSGYAIN AJ1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1<	AV16_ALSDSNYQLL_AJ33	2	3			2			•										1	
AV26-1_VYNARUM AJ31 2 3 2 2 1 2 1 1   AV17_ATEONTGFORUY AJ8 2 2 1 1 1 1 1   AV6 ALFSGYAIN AJ41 2 2 1 1 1 1 1 1   AV2 AVEDLRAGSYOLT AJ28 2 2 1 1 1 1 1 1   AV4_LVGGDSSYKLI_AJ12 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV35 AGVYNNNDMR AJ43	2	3			_		2											1	
ATT ATTECHTECHTER OKUV, AUB 2 2 1 1 1 1 1   NG ALPSGYALN AM1 2 2 1 1 1 1 1 1   AVB ALPGGYALT, AJ28 2 2 1 1 1 1 1 1   AVB ALVEORGSTLGRLY, AJ18 2 2 1 1 1 1 1 1   AVI2, AVEDRAGSTORIL, AJ22 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <		2	3						2										1	
ANG AUSSONAL AUT 2 2 1 1 1 1 1   AV2 AVEDLRAGSYOLT AUZ 2 1 1 1 1 1 1   AV3 AVGORGSTLGRLY AI18 2 7 6 1 1 1 1   AV3 AVGORGSTLGRLY AI18 2 7 6 1 1 1 1 2   AV4 LVGORGSTLGRLY AI12 2 1 1 1 1 1 2 2 1 1 1 2 2 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 <t< td=""><td>AV17 ATEGNTGEOKI V A.I8</td><td>2</td><td>2</td><td></td><td>1</td><td></td><td></td><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td></t<>	AV17 ATEGNTGEOKI V A.I8	2	2		1				_										1	
AV2 AV2 1 I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I II III II	AV6 ALPSGYALN A.I41	2	2							1									1	
AV83_AVGVDRCSTLGRLY_A118 2 7 6   1    AV   AV4_LVGGOSSYKLI AJ12 2 2 1    1    AV   AV12_AVFPGGATNKLI AJ32 2 3 1   1    2 2 1   AV AV AV AVGGOSSYKLT AJ42 2 1  1  1   AV AV AV AV AV 2 1 1 1 1  AV AV AV 2 1 1 1  AV AV AV 2 1 1 1 1  1 AV AV AV 2 1 1 1 AV AV AV AV 2 1 1 1 2 1 AV <td< td=""><td>AV2_AVEDLRAGSYQLT_AJ28</td><td>2</td><td>2</td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td></td<>	AV2_AVEDLRAGSYQLT_AJ28	2	2			1													1	
AVA_LYGGORSSYKUL_AI2 2 2 1 1 1 1 2   AV12-2 2 1 1 1 1 1 2   AV12-2 3 1 1 1 1 2   AV12-XAVFPGCATINKL_AJ2 2 1 1 1 1 2   AV12-XAVFPGCATINKL_AJ2 2 1 1 1 1 1 2   AV12-XAVFPGCATINKL_AJ2 2 1 1 1 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV8-3 AVGVDRGSTLGRLY AJ18	2	7	6											1					
AV12.2 AVFPGGATNKLI AJ32 2 3 1 1 1 2   AV13.4.LSGGGANSKLT AJ42 2 1 1 1 1 1 1   AV13.4.LSGGGANSKLT AJ42 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <	AV4   VGGDSSYKI   A.I12	2	2	1	1										-					
AV14DV4 AMREEGSOGNUL AJ22 2 1 1 1 1 1   AV19 ALSGGANSKIT AJ56 2 2 1 1 1 1 1   AV14 LVGDENTGASKIT AJ44 2 1 1 1 1 1 1 1   AV2 LVGDENTGASKIT AJ44 2 1 1 1 1 1 1 1 1   AV4 LVGDENTGASKIT AJ47 2 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		2	3		•															2
AV19 ALSGGCANSKLT AJ56 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV/14/DV4_AMREEGSOGNULA.142	2	2	1												1				-
AVL LYGOENTGTASKLT AJ44 2 1 10 1 1 1 1   AV2 LYGOENTGTASKLT AJ44 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV/19 ALSGGGANSKLT A.IS6	2	2	1											1					
Impendential and any of the second	AV4 I VGDENTGTASKI T A.I44	2	11				10									1				
AVG ALSDSWGKUQ A24 2 3 2 1 1 1 1   AVG ALINSGCYCK/T A/13 2 15 2 13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV29/DV5 AATNTNAGKST A.127	2	2				1			1										
AV16 ALISOCYAUT AJ13 2 15 2 13 1 1   AV29/DVS_AASALTSGYTKYI_AJ40 2 3 2 1 1 1 1   AV39_AUPORYAIN_AJ41 2 2 1 1 1 1 1   AV39_AUPORYAIN_AJ41 2 2 1 1 1 1 1 1   AV39_AUPORYAIN_AJ41 2 2 1 1 1 2 1 1 1 1   AV39_AUPORYNKTY_AJ21 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <t< td=""><td>AV6_ALSTDSWGKLO_A.124</td><td>2</td><td>3</td><td></td><td></td><td>2</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	AV6_ALSTDSWGKLO_A.124	2	3			2	1													
AV20/US_AASALTSGTYKYLAJ40 2 3 2 1 1 4   AV320/US_AASALTSGTYKYLAJ40 2 3 2 1 1 4   AV320/US_AASALTSGTYKYLAJ53 2 3 2 1 1 4   AV12-3_AMLEAAGNKLT_AJ17 2 24 1 1 23 4 1   AV12-3_AMLEAAGNKLT_AJ17 2 2 1 1 1 4 4   AV12-3_AMLEAAGNKLT_AJ17 2 2 1 1 1 4 4   AV13-3_AMROYGONEV_AJ28 2 1 1 1 4 4 4 5 2 1 1 4 4   AV12-3_MROYGONEV_AJ28 12 3 1 2 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 <t< td=""><td>AV16 ALNSGGYOKVT A.I.1.3</td><td>2</td><td>15</td><td></td><td>2</td><td></td><td></td><td></td><td>13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	AV16 ALNSGGYOKVT A.I.1.3	2	15		2				13											
AV39 AVDEGVALN AU4 A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A A	AV29/DV5_AASAI TSGTYKYI_A.I40	2	3		2								1							
AV220/US AASECOSGGS/NYKLT AU12 2 3 2 1 1 23 1 1   AV129/US AASECOSGS/NYKLT AU17 2 2 1 1 23 1 1 1   AV12 ALVENT/NEKY AU21 2 2 1 1 1 1 1   AV41 AVESSSIT AJS8 2 2 1 1 1 1 1   AV41 AVESSSIT AJS8 2 2 1 1 1 1 1 1   AV42 ASC	AV39 AVDPGYALN A.I41	2	2		1						1									
AV12-3 AULEAGONULT ALITY 2 2 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td>AV29/DV5 AASEOSGGSNYKLT A 153</td> <td>2</td> <td>3</td> <td></td> <td>2</td> <td></td> <td>1</td>	AV29/DV5 AASEOSGGSNYKLT A 153	2	3		2															1
AV9-2 ALAEYNFNKFY_A/21 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV12-3 AMI FAAGNKI T A.117	2	24		-						1		23							•
AV41_AVETSGSRLT_AJS6 2 2 1 1 1 1   AV31_AVETSGSRLT_AJS6 2 2 1 1 1 1 1   AV32_ALSDPTGTASKLT_AJ44 3 5 2 1 1 1 1 1 1   AV12_AMRDYGQNFV_AJ26 2 12 3 1 2 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV9-2 ALAFYNENKEY AJ21	2	2						1				1							
AN35 AGOVGSSNTGKLI_AJ37 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV41_AVETSGSRLT_AJ58	2	2					1	-				1							
AV9-2 ALSDPTGTASKLT_AJ44 3 5 2 1 2 1   AV1-2.3 AMRDYGONFV_AJ26 2 12 3 1 1 1 1   AV1-2. AVRAVVSGGYNKLI_AJ4 2 18 1 1 1 1 1 1 1   AV3-2. AVRAVVSGGYNKLI_AJ4 2 18 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV35_AGQVGSSNTGKLLAJ37	2	2										1			1				
AV12.3 AMRDYGQNFV AJ26 2 12 3 1 17 1   AV12.4 AWA 2 18 1 1 17 1 1   AV35 AGDSGGADGLT_AJ45 2 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV9-2 ALSDPTGTASKLT AJ44	3	5					2					1		2					
AV1-2_AVRAVVSGGYNKLI AJ4 2 18 1 1 17 1   AV3_AGDSGGAAGLT_AJ45 2 3 2 1 1 1 1   AV4_LVGTLTGGGNKLT_AJ10 2 9 8 1 1 31 1   AV9-2_ALSDQDTGRRALT_AJ5 2 32 1 9 2 1 1 31 1   AV9-2_ALSDQSGAGSYQLT_AJ28 2 11 9 2 1 1 1 1 1   AV9-2_ALSDGSGAGSYQLT_AJ28 2 11 9 2 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV12-3 AMRDYGQNFV AJ26	2	12					3								9				
AV35_AGDSGGADGLT_AJ45 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV1-2 AVRAVVSGGYNKLI AJ4	2	18					1							17					
AV4_UVGTLTGGGNKLT_AJ10 2 9 8 1 31 1 1   AV9-2_ALSDQSGAGSYQLT_AJ28 2 11 9 2 1 31 1 1   AV9-2_ALSDGSGAGSYQLT_AJ28 2 11 9 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV35 AGDSGGGADGLT AJ45	2	3							2					1					
AV9-2_ALSDQDTGRRALT_AJ5 2 32 1 9 2 1 1 31 1 1   AV9-2_ALSDGSGAGSYQLT_AJ28 2 11 9 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV4_LVGTLTGGGNKLT_AJ10	2	9							8		1								
AV9-2_ALSDGSGAGSYQLT_AJ28 2 11 9 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV9-2_ALSDQDTGRRALT_AJ5	2	32								1				31					
AV22_AVELQGAQKLV_AJ54 2 3 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV9-2_ALSDGSGAGSYQLT_AJ28	2	11						9		2									
AV29/DV5_AASVATDSWGKLQ_AJ24 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV22_AVELQGAQKLV_AJ54	2	3						1	2										
AV2_AVEVYNFNKFY_AJ21 2 3 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV29/DV5_AASVATDSWGKLQ_AJ24	2	2							1		1								
AV8-3_AVATDRGSTLGRLY_AJ18 2 3 1 1 1 2 1   AV19_ALSEGSNAGNMLT_AJ39 2 4 1 1 1 3 1 1   AV29/DV5_AASADAGGTSYGKLT_AJ52 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>AV2_AVEVYNFNKFY_AJ21</td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td>1</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	AV2_AVEVYNFNKFY_AJ21	2	3						1	2										
AV19_ALSEGSNAGNMLT_AJ39 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td>AV8-3_AVATDRGSTLGRLY_AJ18</td> <td>2</td> <td>3</td> <td></td> <td>1</td> <td>2</td> <td></td> <td></td> <td></td>	AV8-3_AVATDRGSTLGRLY_AJ18	2	3													1	2			
AV29/DV5_AASADAGGTSYGKLT_AJ52 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <t< td=""><td>AV19_ALSEGSNAGNMLT_AJ39</td><td>2</td><td>4</td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>3</td><td></td><td></td><td></td><td></td></t<>	AV19_ALSEGSNAGNMLT_AJ39	2	4						1							3				
AV12-1_VVNSASSASKII_AJ3 2 6 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td>AV29/DV5_AASADAGGTSYGKLT_AJ52</td> <td>2</td> <td>2</td> <td></td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td>	AV29/DV5_AASADAGGTSYGKLT_AJ52	2	2													1	1			
AV8-3_AVGLDRGSTLGRLY_AJ18 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1<	AV12-1_VVNSASSASKII_AJ3	2	6			5											1			
AV26-1_IVTGNQFY_AJ49 2 4 1 1 5 3   AV8-1_AVNRNTGFQKLV_AJ8 2 6 0 0 2 6 0 1 5 0   AV4_LVGQNFGNEKLT_AJ48 2 8 0 0 2 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AV8-3_AVGLDRGSTLGRLY_AJ18	2	2						1								1			
AV8-1_AVNRNTGFQKLV_AJ8 2 6 1 5 1 5   AV4_LVGQNFGNEKLT_AJ48 2 8 2 6 2 6 2 6 2 6 2 6 2 6 2 2 6 2 2 6 2 2 2 2 7 2 4 3 2 6 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	AV26-1_IVTGNQFY_AJ49	2	4						1									3		
AV4_LVGQNFGNEKLT_AJ48 2 8 1 1 1 1 2 1   AV12-3_AMKDYGQNFV_AJ26 2 8 1 1 6 1 1 2 2   AV12-3_AMSEAAGNKLT_AJ17 2 4 3 1 1 1 1 2 2   AV17_ATDDKGGSEKLV_AJ57 2 3 1 1 1 2 2   AV12-3_AMSASSGGGADGLT_AJ45 2 7 6 1 1 2 2   AV12-3_AMSASSGGGADGLT_AJ45 2 7 6 1 1 2 2   AV12-3_AVRAVFSGGYNKLI_AJ39 2 4 1 1 2 3 1 1   AV4_LVDNAGNMLT_AJ39 2 4 3 1 1 1 1 1 1   AV26-1_IVHNARLM_AJ31 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV8-1_AVNRNTGFQKLV_AJ8	2	6												1			5		
AV12-3_AMKDYGQNFV_AJ26 2 8 6 6 6 6 2 2   AV12-3_AMSEAAGNKLT_AJ17 2 4 3 6 1 6 1 1 2 2   AV12-3_AMSEAAGNKLT_AJ17 2 4 3 6 1 1 2 2   AV17_ATDDKGGSEKLV_AJ57 2 3 6 6 1 1 2 2   AV12-3_AMSASSGGGADGLT_AJ45 2 7 6 6 1 1 2 2   AV12-3_AVRAVFSGGYNKLI_AJ39 2 4 6 1 3 1 1 2 2   AV1-2_AVRAVFSGGYNKLI_AJ4 2 4 3 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	AV4_LVGQNFGNEKLT_AJ48	2	8								2	6								
AV12-3_AMSEAAGNKLT_AJ17 2 4 3 1 1 1 1 1 2 4 3 1 1 1 1 1 2 2 3 1 1 1 1 2 2 3 1 1 1 1 2 2 3 1 1 1 1 2 2 3 1 1 1 1 2 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td>AV12-3_AMKDYGQNFV_AJ26</td> <td>2</td> <td>8</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2</td>	AV12-3_AMKDYGQNFV_AJ26	2	8									6								2
AV17_ATDDKGGSEKLV_AJ57 2 3 1 1 1 2   AV12-3_AMSASSGGGADGLT_AJ45 2 7 6 1 1 1 1   AV4_LVDNAGNMLT_AJ39 2 4 1 1 3 1 1   AV4_LVDNAGNMLT_AJ39 2 4 3 1 3 1 1   AV1-2_AVRAVFSGGYNKLI_AJ4 2 4 3 1 1 1 1 1 1   AV26-1_IVHNARLM_AJ31 2 2 1 1 1 1 1 1 1   AV26-1_IVTNDMR_AJ43 2 2 1 1 1 1 1 1 1 1   AV26-1_IVTDGQKLL_AJ16 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </td <td>AV12-3_AMSEAAGNKLT_AJ17</td> <td>2</td> <td>4</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	AV12-3_AMSEAAGNKLT_AJ17	2	4	3								1								
AV12-3_AMSASSGGGADGLT_AJ45 2 7 6 6 6 6 6 1 1   AV4_LVDNAGNMLT_AJ39 2 4 1 1 1 3 1 1   AV12_AVRAVFSGGYNKLI_AJ4 2 4 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV17_ATDDKGGSEKLV_AJ57	2	3						_						1					2
AV4_LVDNAGNMLT_AJ39 2 4 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV12-3_AMSASSGGGADGLT_AJ45	2	7						6											1
AV1-2_AVRAVFSGGYNKLI_AJ4 2 4 6 3 6 1 6 6 1 6 6 1 6 6 6 1 6 6 6 1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 </td <td>AV4_LVDNAGNMLT_AJ39</td> <td>2</td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td>	AV4_LVDNAGNMLT_AJ39	2	4						1						3					
AV26-1_IVHNARLM_AJ31 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV1-2_AVRAVFSGGYNKLI_AJ4	2	4						3						1					
AV26-1_IVYNNDMR_AJ43 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV26-1_IVHNARLM_AJ31	2	2							1			1							
AV2b-1_IVIDGQKLL_AJ16 2 5 6 6 1 4 6   AV21_AVTGTYKYI_AJ40 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </td <td>AV26-1_IVYNNDMR_AJ43</td> <td>2</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td> </td> <td></td> <td></td> <td> </td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	AV26-1_IVYNNDMR_AJ43	2	2					1					1							
AV21_AV1G1YKY1_AJ40 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AV20-1_IVIDGQKLL_AJ16	2	5										1				4			
AVI-2_AVISSINIGKLI_AJ3/ 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td></td> <td>2</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>T</td> <td></td> <td></td> <td></td>		2	2						4			1					T			
Avo-5_Avo 1DRGS1LGRL1_AJ10 2 3 2 4 4 4 4   Total number of sequences 58 33 28 35 29 67 49 11 26 38 76 70 52 34 50 34 40		2	2		0				1		4	1								
	AVO-3_AVGIDKGSILGKLY_AJIO	2	3	E0	2	20	25	20	67	40	44	26	20	7¢	70	50	24	50	24	40
				J0	55	20	22	23	07	43		20	50	10	10	JZ	54	50	J4	40

Same TCRα Shared with one TCRβ Shared with two TCRβ

Shared with three TCR $\beta$ 

									Nu	mber	of se	queno	ces						
BV_CDR3β_BJ	Number of patients	Total number of sequences	CD1375	CD1368	CD1237	CD1268	CD1283	CD114	CD412	CD373	CD364	CD436	CD1300	CD442	CD1299	CD1340	CD1339	CD1295	CD1342
BV7-2_ASSLRSTDTQY_BJ2-3	15	25	1	1	1	1	1	2	1	1	1	1	4			1	4	4	1
BV7-2_ASSIRSTDTQY_BJ2-3	13	29		3	3	2		3	2	3	1	1	4	1			2	3	1
BV7-2_ASSVRSTDTQY_BJ2-3	11	33		1	1		1	4	5	1		1	1		1		16		1
BV7-3_ASSIRSTDTQY_BJ2-3	8	15	4	1	1		1		1		1		5					1	
BV7-2_ASSFRSTDTQY_BJ2-3	10	30		3	1		4	1	3	1		1			9		4		3
BV7-2_ASSLRAGGADTQY_BJ2-3	6	9	1						1		1	2						3	1
BV7-2_ASSLRFTDTQY_BJ2-3	7	11		2			2		2			1					2	1	1
BV7-2_ASSIRATDTQY_BJ2-3	5	8		4			1					1	1		1				
BV15_ATSRAGGGGEKLF_BJ1-4	3	7	4						2									1	
BV7-2_ASSLVGWETQY_BJ2-5	4	4			1		1	1	1										
BV20-1_SASRQVNTEAF_BJ1-1	4	4				1	1	1									1		
BV7-2_ASSIRHTDTQY_BJ2-3	5	5			1				1					1			1	1	
BV5-1_ASSFDGETQY_BJ2-5	3	12				6		1					5						
BV29-1_SVGGSGANVLT_BJ2-6	4	10				1							3			1			5
BV7-3_ASSFRSTDTQY_BJ2-3	5	10				1			1				1				6		1
BV7-3_ASSIRATDTQY_BJ2-3	4	13	7			3							2			1			
BV11-2_ASSSTAQETQY_BJ2-5	3	7				2			4						1				
BV7-2_ASSLRYTDTQY_BJ2-3	4	5		1							1				1			2	
BV9_ASSVGGGAGDTQY_BJ2-3	4	9			3						1	4						1	
BV4-3/4-2_ASSQGSGGNEQF_BJ2-1	4	5	1				2	1							1				
BV4-3/4-2_ASSQGLAGRQETQY_BJ2-5	4	6		2		1						2				1			
BV7-2_ASSLRATDTQY_BJ2-3	4	6			1				2	1							2		
BV7-2_ASSLRHTDTQY_BJ2-3	3	12										2	8					2	
BV7-3_ASSQGQDTEAF_BJ1-1	3	3		1									1						1
BV19_ASSIRTGGSEQY_BJ2-7	3	12											3	1	8				
BV7-6_ASSFGSYNEQF_BJ2-1	3	3		1									1	1					
BV29-1_SVGAVSTDTQY_BJ2-3	3	5									1		3			1			
BV30_AWSVTGWDTGELF_BJ2-2	3	4									2		1		1				
BV5-1_ASSLGGGAGDTQY_BJ2-3	3	3											1			1			1
BV7-2_ASSFRYTDTQY_BJ2-3	2	2		1					1										
BV7-2_ASSYRSTDTQY_BJ2-3	2	2	1															1	
BV7-3_ASSLRATDTQY_BJ2-3	2	2					1											1	
BV7-2_ASSLRAGGGD1QY_BJ2-3	2	4		3														1	
BV7-2_ASSFRHIDTQY_BJ2-3	2	2		•	1				1										
BV7-2_ASSIRYTDTQY_BJ2-3	2	3		2						0		1			00			4	
BV7-2_ASSIRFTDTQY_BJ2-3	3	30						4		2					33			1	
BV7-3_ASSLRSTDTQY_BJ2-3	3	3				4		1	0						1				
BV7-Z_ASSVRFTDTQT_BJZ-3	3	0		2		I		2	Ö	4									4
	ა ი	0		ა ე				1	0	4									
	<u>、</u>	о С		1			1	1	2										
BV5-0/5-5_ASSFGVIGELF_BJ2-2	3	ა ი		1					1							1			
BV29-1 SCCOCETOV B125	с С	ა ა		1											1	1			
	с С	20		T			2									T	15		3
	5 2	20 2	1				2						1				10		5
	2	∠ 10											0			1			
	2	2					1						1						
BV12-3/12-4 ASRI TI GTDTOV B 12-3	2	2		1									1						
BV29-1 SAGOGGTGFLF BJ2-2	2	4							1				3						
BV4-1 ASSI SDSDOPOH B.II-5	2	2											1		1				
	-	-							I	I				I					

BV5-1_ASSLVAWDTEAF_BJ1-1	2	10					5						5						
BV7-2_ASSLRVGDTQY_BJ2-3	2	2											1	1					
BV5-1_ASSLGIALSSYNEQF_BJ2-1	2	2											1		1				
BV7-2 ASSIRDTDTQY BJ2-3	2	5			4								1						
BV7-2 ASSIRVTDTQY BJ2-3	2	2											1	1					
BV29-1 SVGLVSTDTQY BJ2-3	2	2						1					1						
BV5-1 ASSLGVALSSYNEQF BJ2-1	2	2					1						1						
BV6-1 ASFLGPVFPGGYT BJ1-2	2	3											1					2	
BV7-3 ASSLRHTDTQY BJ2-3	2	6				1												5	
BV19 ASSIFSLAGASYNEQF BJ2-1	2	3	2															1	
BV20-1 SASPGEEKLF BJ1-4	2	2												1				1	
BV7-7 ASSLLAGGDTQY BJ2-3	2	2													1			1	
BV7-2 ASSLRWTDTQY BJ2-3	3	3							1			1						1	
BV20-1 SARRQADQPQH BJ1-5	3	12	8								1				3				
BV5-1 ASSWGMNTEAF BJ1-1	2	2	1												1				
BV5-1 ASSEDAETQY BJ2-5	2	3	1	2															
BV6-5 ASSGRTGRYTEAF BJ1-1	2	2	1	_	1														
BV5-6/5-5 ASSI KEGYGYT B.I1-2	2	2	1								1								
BV5-6/5-5 ASSI GRSYGYT B.II-2	2	2				1			1										
BV29-1 SVGQVSTDTQY BI2-3	2	5				4			•							1			
BV7-2 ASSIRTGDGNTOY BI2-3	2	2				1						1							
BV7-6 ASSI GTWDTGFLF B.I2-2	2	3		2													1		
BV7-3 ASSIRGTDTOY B 12-3	2	2		1			1												
BV7-3 ASSI NWDTFAF B.I1-1	3	7		5							1								1
BV20-1 SLEGGGSTDTOY BI2-3	2	7		1							6								
BV4-3/4-2 ASSOROGONTIX B.II-3	2	2		1							•			1					
BV5-6/5-5 ASSI VNMNTEAE B.I1-1	2	3		1										2					
BV9_0/9_9_AGGEVININTEAL_BOTT	2	20								1		19		2					
BV20-1 SATLOGDYGYT B11-2	2	20			1					•		1		-					
BV20-1_0ATEQODIOTI_B01-2	2	2										1		-		2			
BV25 1_0V0A0000000000000000000000000000000000	2	2					1							1		2			
BV/19 ASSIGTSGETOY B 12-5	2	4					1									ર			
BV/5-6 /5-5 ASSBROGYGYT B 11-2	2	2					1			1				-		5			
	2	2					1			•				1					
	2	10							0		1			I					
	2	2						1	3										
	2	3			1			•	2										
	2	4			1				1		1								
BV10-3_AISASOTEAF_BJ1-1	2	11						0	1 2										
	2	11						3	2					2		2			
	2	4								1				2		1			
	2	∠ २			2												1		
	2	2 2			2			2									1		
	2	5						2						1			1		
BV20-1 SAESCANEOE P12 1	2	2												1			1		
	2	∠ 7								2	5								
	2	l Q								2	6								2
	2 2	2						1			0								2
	2	<u> </u>						י ר							1				
BV/5 6/5 5 ASSI SCI TEAE B I1 1	2	4			2			1											
BV/20 1 SVCTVSTDTOV B12 3	2	2			 1									1					
	2	2			1									1	1				
	2	2							1		1								
BV/5-6/5-5 ASSETNTGELE B 12-2	2	2					1			1									
Total number of accurace	۷.	۷		40		00	0.4	07	<u> </u>	40	20	40	70	40	67	40	<b>F^</b>	25	04
rotal number of sequences			34	48	26	26	31	31	60	19	32	40	72	18	6/	18	58	35	24
Same TCRβ																			
Shared with one TCRα																			
Shared with two TCRg																			

Shared with three TCRa

# Table S3. List of CDR3 nucleotide sequences of paired public TCR sequences.

ance ID	or ID	-point	urce	ing library	3α(nt)*	3 <b>ß</b> (nt)*
Seque	Don	Time	Sol	Sequenc	CDR	CDR
	CD1283	UCD	PBMC	lib4	ctcgtgggtgacggagatggtggtgctacaaacaagctcatc	gccagcagccaa <u>qqqaqcqqqqq</u> caatgagcagttc
AV4_LVGDGDGGATNKLI_AJ32 :	CD1283	2 yr GFD 20 yr GED	PBMC	lib6 lib5	ctcgtgggtgacggggggggggggggggggggggggggg	
BV4-2_ASSQGSGGNEQF_BJ2-1	CD114 CD1299	Day 14	Gut	lib3	ctcgtgggggacgggggatggtggtggtggtacaaacaagcicatc	
	CD1375	4 wk GFD	PBMC	lib4	ctcgtgggtgacggggatggtggtggtgctacaaacaagctcatc	gccagcagccaagqqagcqqqqqcaatgagcagttc
	CD1340	Day 14	PBMC	lib3	gcaatgagcg <u>caggg</u> accggtaaccagttctat	agcgttggggggggggggggggggggggggggggggggg
AV12-3_AMSAGTGNQFY_AJ49:	CD1300	Day 14	PBMC	lib1	gcaatgagcg <u>cgggg</u> accggtaaccagttctat	agcgttggggcagtaagcacagatacgcagtat
BV29-1_SVGAVSTDTQY_BJ2-3	CD1300	Day 6	PBMC	lib1	gcaatgagcg <u>cgggg</u> accggtaaccagttctat	agcgttggggcagta agcattagegeagtagegeagatagegeagatat
	CD364	20 yr GFD	PBMC	lib4		
	CD1268	1 year GFD	Gut	lib4	gccgtgaatgcacgaaatgcaggcaacatgctcacc	gccagcagctttgacgagagagagacccagtac
	CD1268	1 year GFD	Gut	lib4	gccgtgaatgcacgaaatgcaggcaacatgctcacc	gccagcagctttgacggagagagacccagtac
	CD1268	1 year GFD	PBMC	lib4	gccgtgaatgcacgaaatgcaggcaacatgctcacc	gccagcagcttttgacggagagacccagtac
	CD1268	2 yr GFD	Gut	lib6	gccgtgaatgcacgaaatgcaggcaacatgctcacc	gccagcagcttttgacggagagacccagtac
AV8-1_AVNARNAGNMLT_AJ39:	CD1268	UCD	PBMC	lib4	gccgtgaatgc <mark>acga</mark> aatgcaggcaacatgctcacc	gccagcagctt <u>tgacgg</u> agagacccagtac
BV5-1_ASSFDGETQY_BJ2-5	CD1268	UCD	PBMC	lib4	gccgtgaatgcacgaaatgcaggcaacatgctcacc	gccagcagctttgacggagagacccagtac
	CD1300	Baseline	PBMC	lib1	gccgtgaatgcgcggaatgcaggcaacatgctcacc	gccagcagctt <u>cgatgg</u> agagacccagtac
	CD1300	Day 14		IID I lib6		gccagcagcticgatggagagagagagagagagagagagagagagagagag
	CD1300	Day 20 Day 6		lib0		
	CD1300	Day 6	PBMC	lib1		
	CD1300	Day 6	PBMC	lib1	gctgtcgaatcgggggggggggggggggggggggggggg	agcqttqgaqqtccqqqqccaacqtcctqact
AV41 AVESGSNYQLI AJ33:	CD1300	Day 6	PBMC	lib1	gctgtcgaatcggggagcaactatcagttaatc	agcgttggagggtccggggccaacgtcctgact
BV29-1_SVGGSGANVLT_BJ2-6	CD1268	2 yr GFD	PBMC	lib6	gctgtcgagagtggtagcaactatcagttaatc	agcgttgggggctctggggccaacgtcctgact
	CD1340	Day 14	Gut	lib3	gctgtcgagtccggtagcaactatcagttaatc	agcgttggggggccaacgtcctgact
	CD1300	Day 14	Gut	lib2	atc <u>gccttc</u> aacgactacaagctcagc	gccagcagc <u>cttcgc</u> agcacagatacgcagtat
AV26-1_IAFNDYKLS_AJ20:	CD1300	Day 6	PBMC	lib1	atcg <u>ccttc</u> aacgactacaagctcagc	gccagcag <u>ccttcgc</u> agcacagatacgcagtat
BV7-2_ASSLRSTDTQY_BJ2-3	CD1342	Day 6	PBMC	lib3	atcgcctttaacgactacaagctcagc	gccagcagc <u>ctccgt</u> agcacagatacgcagtat
	CD412	20 yr GFD	PBMC	lib4	atcgccttaacgactacaagctcagc	gccagcagcatcagagagagagagagagagagagagagag
	CD1299	20 vr GED	PBMC	lib2		
BV11-2 ASSSTAQETQY BJ2-5	CD1268		PBMC	lib4	ctcotggggggtggttagggggtacaataagetgatt	
	CD1268	1 year GFD	Gut	lib4	ctcgtgggtgggtctggtggctacaataagctgatt	gccagcagctcaacagcccaagagacccagtac
	CD1340	Baseline	Gut	lib3	gctgggccttataacaccgacaagctcatc	gccagcagcttagcttcagcgggggggcacagatacgcagtat
BV7-6 ASSI ASAGGTDTQY BJ2-3	CD1368	16 wk GFD	PBMC	lib4	gctgg <u>cc</u> cttataacaccgacaagctcatc	gccagcagcttagc <u>ctcggcgggggg</u> gcacagatacgcagtat
	CD412	20 yr GFD	PBMC	lib4	gctgg <u>cccc</u> tataacaccgacaagctcatc	gccagcagcttagc <u>tagcgcggggg</u> gcacagatacgcagtat
	CD412	20 yr GFD	PBMC	lib4	atcg <u>catt</u> taacgactacaagctcagc	gccagcagctt <u>taga</u> agcacagatacgcagtat
	CD412	20 yr GFD	PBMC	lib4	atcg <u>cctt</u> taacgactacaagctcagc	gccagcagctt <u>tagg</u> agcacagatacgcagtat
	CD1299	Day 14	Gut	lib2	atogocttoaaogactacaagcicagc	
	CD1299	Day 14 Day 14	Gut	lib2	atcacettcaactactactactact	
	CD1299	Day 14	Gut	lib2	atcaccttcaacaactacaaactcaac	gccagcagctttaggagcacagatacgcagtat
AV26-1_IAFNDYKLS_AJ20:	CD1299	Baseline	PBMC	lib1	atcg <u>ccttc</u> aacgactacaagctcagc	gccagcagctttaggagcacagatacgcagtat
BV7-2_ASSERSTUTQT_BJ2-3	CD1299	Baseline	PBMC	lib1	atcg <u>ccttc</u> aacgactacaagctcagc	gccagcagctttaggagcacagatacgcagtat
	CD1299	Baseline	PBMC	lib1	atcg <u>ccttc</u> aacgactacaagctcagc	gccagcagctt <u>tagg</u> agcacagatacgcagtat
	CD1283	1 year GFD	PBMC	lib4	atcg <u>cttt</u> taacgactacaagctcagc	gccagcagctt <u>tagatc</u> cacagatacgcagtat
	CD1283	UCD	PBMC	lib4	atcg <u>cttt</u> taacgactacaagctcagc	gccagcagctt <u>tagatc</u> cacagatacgcagtat
	CD1283	1 year GFD	PBMC	lib4	atcg <u>cttt</u> aacgactacaagctcagc	gccagcagctt <u>tagatc</u> cacagatacgcagtat
	CD1283	2 yr GFD	PBINC	lib2		
	CD1300	Day 14 Day 14	Gut	lib2		
	CD1300	Day 14 Day 14	Gut	lib2	gctgggcaacttggtggtgctactaacaagctcatc	accaacaacttaattacttagaacactaaaactttc
	CD1300	Day 14	Gut	lib2	gctgggcaacttggtggtggtggtggtggtggtggtggtggtggtggtg	gccagcagcttggttgcttgggacactgaagctttc
AV35_AGQLGGATNKLI_AJ32:	CD1283	, 1 year GFD	PBMC	lib4	gctgggcagctcqgtggtgctacaaacaagctcatc	gccagcagcttggtggcgtgggacactgaagctttc
DVJ-1_ASSLVAVVDTEAF_BJT-T	CD1283	UCD	PBMC	lib4	gctgggcagctcggtggtgctacaaacaagctcatc	gccagcagcttggtggcgtgggacactgaagctttc
	CD1283	UCD	PBMC	lib4	gctgggcagctcggtggtgctacaaacaagctcatc	gccagcagcttggtggcgtgggacactgaagctttc
	CD1283	UCD	PBMC	lib4	gctgggca <mark>gctcggt</mark> ggtgctacaaacaagctcatc	gccagcagcttgg <u>tggcgtggg</u> acactgaagctttc
	CD1283	2 yr GFD	PBMC	lib6	gctgggca <mark>gctcggt</mark> ggtgctacaaacaagctcatc	gccagcagcttggtggcgtgggacactgaagctttc
AV12-3_AMSAGTGNQFY_AJ49 :	CD114	20 yr GFD	PBMC	lib4	gcaatgagcgcaggcaccggtaaccagttctat	agcgt <u>cggactagtc</u> agcacagatacgcagtat
	CD1300	Baseline	PBMC		gcaatgagcgcggggaccggtaaccagttctat	agcgtaggactagtcagcacagatacgcagtat
AVO-3_AVGAVEYGNKLV_AJ4/: BV30_AWSVTGWDTGELE_B12-2	CD 1300	Day 0 Day 1/		lid'i liho		
DIOU_ANOVIONDIOLLI_DUZ-Z	001233	Day 14	FDIVIC	IIUZ	ฐะเฐเฐฐฐฐฐฐฐฐฐลลเลเฐฐลลลเฉ <mark>ลู</mark> บเฐฐเต	ฐ๛ะเฐษุสนเนเ <u>ลละ<mark>๛</mark>นูนูนูนูนูน</u> สะสะะบูนูนูนูชนูนูเ

AV29/DV5 AASEETSGSRLT AJ58:	CD1300	Day 14	Gut	lib2	gcagcaagcgaagaaaccagtggctctaggttgacc	gccagcagcttgggggtagccctgagctcctacaatgagcagttc
BV5-1 ASSLGVALSSYNEQF BJ2-1	CD1283	1 vear GFD	Gut	lib4		
	CD364	9 vr GED	Gut	lih5	atenteanantentananatanananatente	accarcarcttaaggacggatagtagagatacgcagtat
	00004	Deceline		160	atogicagagic <u>giag</u> agaigacaagaicaic	
	CD1295	Dasellille	FDIVIC	IIUZ		gccagcagcia <u>agagcgggggggg</u> galacgcagial
BV1-2_ASSLRAGGADTQT_BJ2-3	CD1295	Baseline	PRMC	lib2	atcgtcagagtcgtaggggatgacaagatcatc	gccagcagctta <u>agagcgggggggggg</u> gatacgcagtat
	CD1295	Day 6	PBMC	lib2	atcgtcagagtcg <u>taggg</u> gatgacaagatcatc	gccagcagctta <u>agagcgggggggggg</u> gatacgcagtat
AV14/DV4_AMREEGSQGNLI_AJ42 :	CD1375	UCD	Gut	lib3	gcaatgagaga <mark>ag</mark> aggaagccaaggaaatctcatc	gccagcagctggggggatgaacactgaagctttc
BV5-1_ASSWGMNTEAF_BJ1-1	CD1299	Baseline	PBMC	lib1	gcaatgagagaggaaggaagccaaggaaatctcatc	gccagcagct <u>ggggaa</u> tgaacactgaagctttc
AV4 LVGDDTGFQKLV AJ8:	CD1375	UCD	Gut	lib3	ctcqtqqqtqacqacacaqqctttcaqaaacttqta	gccagcagcttgaaagagggctatggctacacc
BV5-5 ASSLKEGYGYT BJ1-2	CD364	25 vr GED	PBMC	lih4		
	CD1375		Gut	lih3	ataataacceteataacacaaacaaaaaaacaettaet	accarcatagaagaacaagaagaagaacaactagaacttto
BV6-5 ASSORTORVIEAE BI1-1	CD1070		Cut	lib0	giggiga <u>cccica</u> iggacacgggcaggagagagagagattact	gecagcagt <u>ggaaggacagggagg</u> acacigaagciiic
	001237		Gui	IIUZ	glyglya <u>cccica</u> lyyacacyyycayyayaycacilaci	gccagcagi <u>ggcaggacaggacga</u> acacigaagciiic
AV26-1_IVFNDYKLS_AJ20:	CD1340	Day 14	Gut	lib3	atcgtctttaacgactacaagctcagc	gccagcagcccccggtccacagatacgcagtat
BV7-2_ASSLRSTDTQY_BJ2-3	CD1375	UCD	Gut	lib3	atcgtc <u>tt</u> taacgactacaagctcagc	gccagcagctta <u>cgc</u> agcacagatacgcagtat
	CD1375	4 wk GFD	PBMC	lib4	gccgtgaatgcgaggaatgcaggcaacatgctcacc	gccagcagctt <u>cgacgcc</u> gagacccagtac
AVO-1_AVINARINAGINIVIL1_AJ39.	CD1368	UCD	Gut	lib4	gccgtgaatgcgcggaatgcaggcaacatgctcacc	gccagcagttttgacgcggagacccagtac
BV0-1_ASSEDAETQT_BJ2-0	CD1368	UCD	PBMC	lib4	gccgtgaatgcgcggaatgcaggcaacatgctcacc	gccagcagttttgacgcggagacccagtac
	CD412	UCD	PBMC	lib4		
BV5-5 ASSI GRSYGYT B.I1-2	CD1268	1 year GED		lib/	otogtagggtguoguoocaggotttoagaaacttata	accaaccaacctaagaccaatcatataactacacc
	CD1200		FDIVIC			gccagcagc <u>cigggacggicg</u> iaiggciacacc
AV4_LVGGSGGYNKLI_AJ4:	CD1268	1 year GFD	Gut	IID4	ctcgtgggggggatctggtggctacaataagctgatt	gccagcagcca <u>agggttagcgggaaga</u> caagagacccagtac
BV4-2_ASSQGLAGRQETQY_BJ2-5	CD1340	Day 14	Gut	lib3	ctcgtgggtggatctggtggctacaataagctgatt	gccagcagccagggactagcaggacgccaagagacccagtac
	CD1368	UCD	Gut	lib4	ctcgtggggggggctggtggctacaataagctgatt	gccagcagccaaggactagcggggcgccaagagacccagtac
	CD436	20 yr GFD	PBMC	lib5	ctcgtgggtggggccggtggctacaataagctgatt	gccagcagccagggactagcgggggagacaagagacccagtac
BV4-2_ASSQGLAGRQETQT_BJ2-5	CD436	20 vr GFD	PBMC	lib5	ctcataaataaaccaataaactaatt	
	CD442	Baseline	Gut	lih3		
BV4-2 ASSOROGGNTLY B 11-3	CD1368	16 wk CED		lib/	otogtagatagagatagagagagagagagagagagagaga	geologicageologicageologicageologicageologicatet
	CD1300	TO WK GI D	FDIVIC	1104		gecageagecagecagggeggaaacaccalala
AV26-1_IPNYGGSQGNLI_AJ42:	CD1299	Baseline	PBINC		atcccgaattatggaggaagccaaggaaatctcatc	gccagcagcitaaggtacacagatacgcagtat
BV7-Z_ASSERTIDTQT_BJZ-3	CD1368	16 wk GFD	PBMC	lib4	atc <u>cc</u> gaattatggaggaagccaaggaaatctcatc	gccagcagcttacggtacacagatacgcagtat
	CD436	20 yr GFD	PBMC	lib5	gcaatg <u>ttag</u> aagctgcaggcaacaagctaact	gccagcagc <u>ttgggcgggggggggccgg</u> agatacgcagtat
	CD436	20 yr GFD	PBMC	lib5	gcaatg <u>ttag</u> aagctgcaggcaacaagctaact	gccagcagcttgggcggggggggccggagatacgcagtat
	CD436	20 yr GFD	PBMC	lib5	gcaatgttagaagctgcaggcaacaagctaact	gccagcagcttgggcgggggggccggagatacgcagtat
	CD436	20 vr GFD	PBMC	lib5		
	CD436	20 yr GED	PBMC	lih5	acaatattaaaaactacaaacaaactaact	accaacaacttaaacaaaaaaaaaaaaaaaaaaaaaaa
	00400			libe		
	00430	20 yr GFD	PBIVIC	COIL	gcaalglaagcigcaggcaacaagciaaci	
	CD436	20 yr GFD	PBMC	lib5	gcaatg <u>ttag</u> aagctgcaggcaacaagctaact	gccagcagcttgggcgggggggggggggggggggggggg
	CD436	20 yr GFD	PBMC	lib5	gcaatg <u>ttag</u> aagctgcaggcaacaagctaact	gccagcagc <u>ttgggcgggggggggccgg</u> agatacgcagtat
	CD436	20 yr GFD	PBMC	lib5	gcaatg <u>ttag</u> aagctgcaggcaacaagctaact	gccagcagcttgggcggggggggccggagatacgcagtat
AV12-3 AMLEAAGNKLT AJ17:	CD436	20 yr GFD	PBMC	lib5	gcaatgttagaagctgcaggcaacaagctaact	gccagcagcttgggcgggggggccggagatacgcagtat
BV9 ASSLGGGAGDTQY BJ2-3	CD436	20 vr GFD	PBMC	lib5		
	CD/36	20 yr GED		lib5	acestattsaesactaceaacesecesactsect	accarcarctianaccarananaccaranatacarcartat
	00400			105		
	CD436	20 yr GFD	PBINC	COIL	gcaatgttagaagctgcaggcaacaagctaact	gccagcagc <u>itgggcggggggggggg</u> agatacgcagtat
	CD436	20 yr GFD	PBMC	lib5	gcaat <u>gttag</u> aagctgcaggcaacaagctaact	gccagcagc <u>ttgggcggggggggccgg</u> agatacgcagtat
	CD436	20 yr GFD	PBMC	lib5	gcaat <u>gttag</u> aagctgcaggcaacaagctaact	gccagcagc <u>ttgggcggggggggccgg</u> agatacgcagtat
	CD436	4 yr GFD	Gut	lib5	gcaatgttagaagctgcaggcaacaagctaact	gccagcagcttgggcgggggggccggagatacgcagtat
	CD436	20 vr GFD	PBMC	lib4	gcaatgttagaagctgcaggcaacaagctaact	accaacaacttaaacaaaaaaaaaaaaaaaaaaaaaaaa
	CD436	20 yr GED	PRMC	lih4	acaatattagaagctacaggcaacaagctaact	accaacaacttaaacaaaaaaaaaaaaaaaaaaaaaaa
	CD436	20 yr CED		lib/	goodig <u>iliag</u> aagoigooggoodgoodgolaadt	geeageagettagaeagaggggggggggggggggggggg
	00430		FDIVIC	1104	ycaal <u>yllay</u> aayciycayycaacaayciaaci	gccagcagc <u>iigggcgggggggggg</u> agaiacgcagiai
	CD3/3	ZTYRGFD	PBIVIC	IID4	gcaatgttagaagctgcaggcaacaagctaact	gccagcagc <u>itgggcggggggggggg</u> agatacgcagtat
AV41 AVEGGSNYKLT A.153	CD1340	Day 14	Gut	lib3	gcigtcgagggaggtagcaactataaactgaca	agcgtgggggggggggggggggggggggggggggggggg
BV29-1 SVGAGGSGELE BJ2-2	CD1340	Day 6	PBMC	lib3	gctgtc <u>gag</u> ggaggtagcaactataaactgaca	agcgt <mark>gggggggggggggggggggggggggggggggggg</mark>
	CD436	20 yr GFD	PBMC	lib5	gctgtcgaggggggggggggagcaactataaactgaca	agcgt <u>cgggggggggggggggg</u> ggggggggggggggggg
	CD1339	Day 6	PBMC	lib3	gctgtc <u>gaagg</u> aggtagcaactataaactgaca	agcgttg <u>gggggggggggagga</u> accgggggagctgttt
	CD1339	Day 6	PBMC	lib3	gctgtcgaaggaggtagcaactataaactgaca	agcgttggggcgggaggaaccggggagctgttt
	CD1339	Baseline	Gut	lib3		
	CD1330	Day 1/	Gut	lib3	actaticaeeaaaateaceectateeeateace	agogtig <u>agggggggg</u> cooggggggggggg
	001009	Day 14	Gut	1100		
	CD1339	Day 14	Gut	IID3	gcigicgaaggaggtagcaactataaacigaca	agcgttgggggggggggggggagctgttt
	CD1339	Day 14	Gut	lib3	gctgtc <u>gaagg</u> aggtagcaactataaactgaca	agcgttggggggggggggggggggggggggggggggggg
	CD1339	Day 14	Gut	lib3	gctgtc <u>gaagg</u> aggtagcaactataaactgaca	agcgttgggggggggggggggggggggggtgttt
	CD1339	Day 14	Gut	lib3	gctgtc <u>gaagg</u> aggtagcaactataaactgaca	agcgttgggggggggggggggggggggggtgttt
DV29-1_3VGAGG3GELF_BJ2-2	CD1339	Baseline	Gut	lib3		agcattagagagagagagagagagagagagagagagagag
	CD1330	Raseline	Gut	lih?	notationagenagenagenagenagenagenagenagenagenage	aucuttuuuuuuauaaaaaaaaaaaaaaaaaaaaaaaaa
	001000	Day 14		100	golgloggagggggggggggggggggggggggggggggg	agogttagagagagagagagagagagagagagagagagag
	001008	Day 14		iiuo	yoiyio <u>yaayy</u> ayyiayoaaolaladaciyaca	
	CD1339	Day 6	PRMC	IID3	gcigtcgaaggaggtagcaactataaactgaca	agcgttggggggggggggggggggggggggggggggggg
	CD1339	Day 14	Gut	lib3	gctgtc <u>gaagg</u> aggtagcaactataaactgaca	agcgttggggggggggggggggggggggggggtgttt
	CD1283	1 year GFD	PBMC	lib4	gctgtcgaaggaggtagcaactataaactgaca	agcgttgggggaggggggggggggggggggggggggggg
	CD1283	1 year GFD	PBMC	lib4	gctgtcgaaggaggtagcaactataaactoaca	agcgttggggggggggggcaccggggagctgttt
AV4 I VGDDTGEOKI V A.I8	CD373	21 yr GFD	PBMC	lib5		
BV5-5 ASSRROGYGYT B.I1-2	CD1283		PRMC	lih4		
	001200	202		t-Uli	<i>๛๛ฐเ</i> ฐฐฐเฐนอ <u>ฐ</u> นอนอนฐฐอแบอนฐสสสอแฐเส	ฐ๛๛ฐ๛๛ฐ๛ <mark>๛ฐ๛๛ฐ๛๛๛ฐ๚ฐฐ</mark> เฉเษฐ๛เลิบลิบบ

	CD114	20 yr GFD	PBMC	lib5	atcgt <u>tta</u> taacgactacaagctcagc	gccagcagc <u>ctaagg</u> agcacagatacgcagtat
AV20-1_IVINDIKLS_AJ20: BV7-2 ASSI RSTDTOV B 12-3	CD114	20 yr GFD	PBMC	lib4	atcgt <u>tta</u> taacgactacaagctcagc	gccagcagc <u>ctaagg</u> agcacagatacgcagtat
DVT-Z_AGGERGTDTQT_DJZ-5	CD1283	1 year GFD	PBMC	lib4	atcgt <u>ttac</u> aacgactacaagctcagc	gccagcagctta <u>cga</u> agcacagatacgcagtat
	CD114	47 yr GFD	PBMC	lib4	gctgtggaggtatacaacttcaacaaattttac	agcgttgcagagagctcaaattcacccctccac
AV2_AVEVYNENKEY_AJ21:	CD412	20 yr GFD	PBMC	lib4	gctgtggaggtatacaacttcaacaaattttac	agcgttgccgagtcatctaattcacccctccac
BV29-1_SVAESSINSPLH_BJ1-0	CD412	20 yr GFD	PBMC	lib4	gctgtggaggtatacaacttcaacaaattttac	agcgttgccgagtcatctaattcacccctccac
AV29/DV5 AASVATDSWGKLQ AJ24:	CD364	25 yr GFD	PBMC	lib4	gcagcaagcgtggcaactgacagctgggggaaattgcag	gccatcagtgcatcgggactgaagctttc
BV10-3_AISASGTEAF_BJ1-1	CD412	20 vr GFD	PBMC	lib4		
	CD364	25 vr GFD	Gut	lib4	ctcqtqqqqaccctcacqqqaqqaaacaaactcacc	agcattgaagatcagtcgggtgaaaaaactattt
	CD412	20 vr GFD	PBMC	lib5		
	CD412	20 vr GFD	PBMC	lib5		agcattaaaaatcaaaatagaaaaaaactattt
	CD412	20 yr GED	PBMC	lib5		
	CD412		PBMC	lib4		agcattaaaaatcaaaataaaaaaaactattt
BV29-1 SVEDOSGEKLE B.I1-4	CD412	20 vr GED	PRMC	lib4	ctortagtaccetcacqqqaqqqqqqqqqacacaactcacc	
	CD412	20 yr GED	PBMC	lib4	ctcgtgggt <u>acc</u> ctcacgggaggaggaggadacaaactcacc	
	CD/12	20 yr GED		lib4	ctogtaggaggaggaggaggaggaggaggaggaggaggaggag	agegitgaaga <u>teaaagigga</u> gaaaaacigiii
	CD412			lib4	ctogtagataccotococagagagagagagagagagagagagagagagagagag	agogttaaagatoaaagtggggggaaaaactgttt
	CD412			lib4		aycyllyaaya <u>lcaadylyya</u> yaadaaciylli
	00412		DDMC	IID4		aycyllyaaya <u>lcaadylyya</u> yaaaaaciylli
	CD412	20 yr GFD	PBINC	IID4	gctctgagtga <u>tgga</u> tctggggctgggagttaccaactcact	
	CD114	20 yr GFD	PBINC	COIL	getetgagtga <u>tgg</u> etetggggetgggagttaceaacteact	gccaccagtgatti <u>ccaggg</u> taactatggctacacc
	CD114	47 yr GFD	PBMC		gctctgagtga <u>tgg</u> ctctgggggctgggagttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
	CD114	47 yr GFD	PBMC	1105	gctctgagtgatggctctggggctgggagttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
AV9-2_ALSDGSGAGSYQLT_AJ28:	CD114	47 yr GFD	PBMC	lib5	gctctgagtgatggctctggggctgggagttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
BV24-1_ATSDFQGNYGYT_BJ1-2	CD114	20 yr GFD	PBMC	líb4	gctctgagtgatggctctggggctgggagttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
	CD114	47 yr GFD	PBMC	lib4	gctctgagtgatggctctggggctgggagttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
	CD114	47 yr GFD	PBMC	lib4	gctctgagtga <u>tgg</u> ctctggggctgggagttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
	CD114	20 yr GFD	PBMC	lib4	gctctgagtga <u>tgg</u> ctctggggctgggagttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
	CD114	47 yr GFD	PBMC	lib4	gctctgagtgatggctgggggttaccaactcact	gccaccagtgattt <u>ccaggg</u> taactatggctacacc
AV19_ALSEGGNQGGKLI_AJ23:	CD1340	Baseline	Gut	lib3	gctctgagtgagggaggtaaccagggaggaaagcttatc	gccagcagcttg <u>cgacagct</u> ctacgagcagtac
BV5-5_ASSLRQLYEQY_BJ2-7	CD373	21 yr GFD	PBMC	lib4	gctctgagtgaggggggtaaccagggaggaaagcttatc	gccagcagcttg <u>agacagct</u> ctacgagcagtac
AV12-3_AMIEAAGNKLT_AJ17:	CD1342	Baseline	Gut	lib3	gcaatga <u>tcg</u> aagctgcaggcaacaagctaact	gccagcagcttggg <u>aggggggggccgg</u> agatacgcagtat
BV5-1_ASSLGGGAGDTQY_BJ2-3	CD1340	Baseline	Gut	lib3	gcaatgattgaagctgcaggcaacaagctaact	gccagcagc <u>cttgggggggggggggggg</u> gatacgcagtat
	CD1339	Day 6	PBMC	lib3	atcgtctatggaggaagccaaggaaatctcatc	gccagcagcttccggagcacagatacgcagtat
	CD1339	Day 14	Gut	lib3	atcgtctatggaggaagccaaggaaatctcatc	gccagcagcttccggagcacagatacgcagtat
AV26-1 IVYGGSQGNLI AJ42:	CD1339	Day 14	Gut	lib3	atcqtctatqqaqqaaqccaaqqaaatctcatc	gccagcagcttccggagcacagatacgcagtat
BV7-3_ASSFRSTDTQY_BJ2-3	CD1339	Dav 6	PBMC	lib3	atcatctatagaagaagccaaggaaatctcatc	
	CD1339	Day 14	Gut	lib3	atcatctatggaggaagccaaggaaatctcatc	
	CD1342	Day 14	Gut	lib3	atcatttatogaogaagccaaggaaatctcatc	
AV/12-3 AMTDYCNINRI A A I7	CD442	Day 6	PRMC	lih3	ncaatnacchactatonnaacaacanactcoct	
BV5-1 ASSI GGPNTGELE BJ2-2	CD1339	Day 14	Gut	lih3	gedalga <u>eo</u> gdolalgggddolalolggdlogdl	
	CD1330	Baseline	Gut	lib3	atcatcaccagtaaccagttetat	accarcarcateconagoacagatacocagatat
BV7-2 ASSIRSTIDTOY B.12-3	CD1000	17 vr GED		lib/	atogicacoggiaacoagticiat	gccagcagcatcongagcacagatacgcagtat
	00114			lib?	accylcaccyglaaccagiiciai	gecageageageageageageageageageageageageagea
	CD1237			lib2	gcaalgagcgaagctgcaggcaacaagctaact	
AV12-3_AMSEAAGNKL1_AJ17:	CD1237			IIDZ IIDZ		
DV9_A33VGGGAGDTQT_DJ2-3	001237		PDIVIC		gcaalgagcgaagcigcaggcaacaagciaaci	gccagcagcgiag <u>ucgggggggggg</u> agaiacgcagiai
	CD364	25 yr GFD	PBIMC	1104	gcaatgagcg <u>ag</u> gctgcaggcaacaagctaact	gccagcagcgtaggtgggggggggggggggagatacgcagtat
	CD364	9 yr GFD	Gut	1105	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	1105	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aa</u> gactatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aa</u> gactatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatga <u>aag</u> actatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
DV1-0_499LD9N9LU_R11-0	CD364	9 yr GFD	Gut	lib5	gcaatgaaagactatggtcagaattttgtc	gccagcagctt <u>cgacagc</u> aattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatgaaagactatootcagaattttotc	gccagcagcttcgacagcaattcacccctccac
	CD364	9 yr GFD	Gut	lib5	gcaatgaaagactatootcagaattttotc	gccagcagcttcgacagcaattcacccctccac
	CD364	9 vr GFD	Gut	lib5	gcaatgaaagactatootcagaattttotc	accagcagcttcgacagcaattcaccectecac
	CD364	9 vr GFD	Gut	lih5	gcaatgaaagactatootcagaatttotc	accaacaacticaacaacaatteaccecteeac
	CD364	25 vr GFD	Gut	lih4	gcaatgaagactatootcagaatttotc	accaacaacticaacaacaatteaccetecac
	CD364	25 yr GFD	Gut	lih/	geadiga <u>ac</u> actatootcanaatttoto	accaacaacttcaacaacaattcaccoctocac
	CD364		Gut	lib4	goodiya <u>aay</u> aciaiyyicayaaiiiyic	geographicanageographicaecontenan
	CD304	25 yr GED 25 yr CED	Gut	liD4 lik/	yudaiya <u>aay</u> aulaiyyiuayadiiiiyiu	youayuayua <u>uayu</u> aaliidadddddddd
	CD304		Gut	1104 1;⊾ 4		
		25 yr GFD	GUI	11D4		gccagcagcii <u>cgacagc</u> aattcacccciccac
	UD1342	Day 6	PRIMC	IID3	ycaaiga <u>agg</u> aciaiggicagaaiiiigic	gccagcagcii <u>cgacag</u> taaticacccciccac

	CD1342	Day 6	PBMC	lib3	atcg <u>ccta</u> taacgactacaagctcagc	gccagcagctt <u>taga</u> agcacagatacgcagtat
AV26-1_IAYNDYKLS_AJ20:	CD1342	Day 6	PBMC	lib3	atcg <u>ccta</u> taacgactacaagctcagc	gccagcagctt <u>taga</u> agcacagatacgcagtat
BV7-2_ASSFRSTDTQY_BJ2-3	CD1342	Day 6	PBMC	lib3	atcg <u>ccta</u> taacgactacaagctcagc	gccagcagctt <u>taga</u> agcacagatacgcagtat
	CD114	20 yr GFD	PBMC	lib4	atcgcttataacgactacaagctcagc	gccagcagcttcccggagcacagatacgcagtat

\* The non-germline encoded nucleotides are underlined. Due to uncertainities in D-segment assignment, all the nucleotide that are non-germline encoded in V or J are underlined. The different nucleotides that encode same amino acids are shown in red.