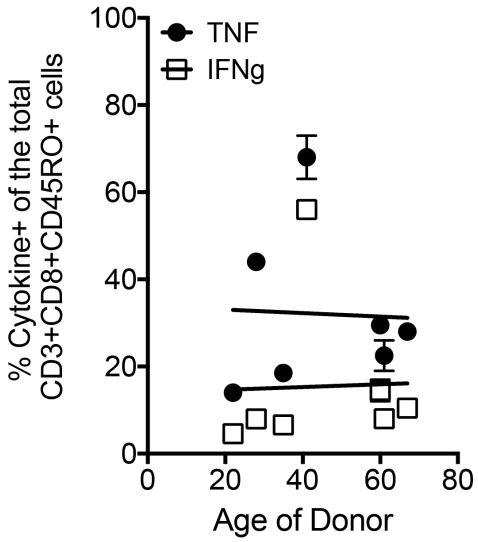
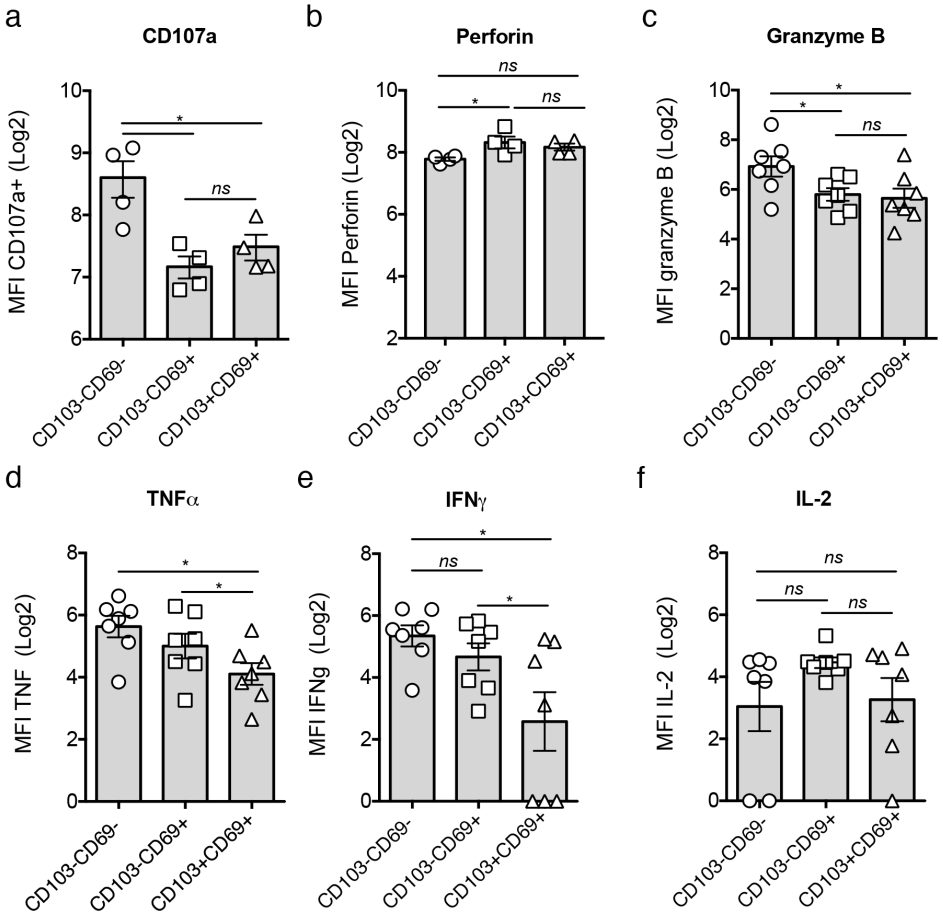
Figure S1



Supplementary Figure 1. No correlation between lung memory CD8 T cell cytokine production and donor age.

Proportion of antigen experienced CD8+ T cells isolated from healthy lung tissue expressing TNF or IFNγ 5 hrs post stimulation with PMA/ION plotted against donor age (years). Dots represent individual donors/

Figure S2



Supplementary Figure 2. Functional profiles of memory CD8 T cell in human lung tissue

(a-f) CD8+ T cells isolated from human lung were stimulated for 5 hrs with PMA/ION and the intensity of (a) CD107a (b) perforin (c) Granzyme B (d) TNFα (e) IFNγ and (f) IL-2 cytokine production on a per cell basis within each of the $CD8^+$ T cell subsets was assessed by intracellular cytokine staining. Individual data dots represent the log2 mean fluorescence intensity of each cytokine, for each individual donor and the bar represents the mean $\pm$ SEM (n=4-7, one-way ANOVA, Tukey's multiple comparison)

Supplementary Table 1: Cytokine and phenotypic profile of individual organ donors

Donor	Age/Sex	HLA-A	HLA-B	CD8+ T cell subset	%CD3+CD8+CD45RO+	% Granzyme B	% IFNγ+	% IL-2+	% TNF+	%CD107a	% Perforin
A	60/F	29, 68	51, 57	CD103-CD69-	24	71.5	16.5	3.46	17.4		
				CD103-CD69+	36	46.8	15	13.1	20.3		
				CD103+CD69+	29	75.2	7.11	3.66	6.9		
B	41/M	3, 24	15, 55	CD103-CD69-	12	55.7	29.6	5.23	31.1	52	1.7
				CD103-CD69+	30	19.7	19.5	10.6	20.3	17	1.7
				CD103+CD69+	50	14.1	12	5.66	12.3	15	3.6
C	50/M	2, 2	40, 44	CD103-CD69-	18	68	6.65	2.63	23.8	55	0
				CD103-CD69+	39	67.7	17	5.63	26.8	28	0
				CD103+CD69+	34	63.4	10	5.84	15.6	25	4.8
D	44/F	1, 33	50, 57	CD103-CD69-	8.1	85.1	16.3	4.69	34.3		
				CD103-CD69+	8.3	38.1	6.06	2.67	18.1		
				CD103+CD69+	79	15.9	3.19	1.08	7.72		
E	22/M	2, 32	7, 8	CD103-CD69-	21	75.5	23.1	8.3	37.6	77	0
				CD103-CD69+	37	16.6	1.72	2.58	10.4	27	1.2
				CD103+CD69+	28	10.1	1.68	1.12	6.92	24	6.3
F	28/M	2, 2	40, 44	CD103-CD69-	18	89	34	8.41	35.3		
				CD103-CD69+	21	40	15.5	6.26	18		
				CD103+CD69+	50	37.8	9.78	4.89	12.7		
G	61/M	2, 26	37, 55	CD103-CD69-	19.7	39.5	4.74	1.05	14.4	26	1.7
				CD103-CD69+	40	33	3.42	0.85	9.66	9.95	0
				CD103+CD69+	25	36.1	6.04	2.38	13.7	21	5.8
H	35/M	1, 29	44, 57	CD103-CD69-	44						
				CD103-CD69+	20						
				CD103+CD69+	36						
I	67/F	1, 25	8, 39	CD103-CD69-	42						0
				CD103-CD69+	36						0.2
				CD103+CD69+	18						1.4
J	28/F	3, 38	14, 35	CD103-CD69-	27						
				CD103-CD69+	33						
				CD103+CD69+	35						
K	61/F	3,3	7, 7	CD103-CD69-	24						
				CD103-CD69+	58						
				CD103+CD69+	16.5						

Supplementary Table 2: TCRαβ repertoire of influenza virus specific lung memory CD8 T cells subsets. Frequency of each clone is indicated.

Donor B	CDR3β	TRBV	TRBJ	CDR3α	TRAV	TRAJ	CD103+CD69+	CD103-CD69+	CD103-CD69-
A(i)	CASSWDVSNQPQHF	TRBV5-5	TRBJ1-5	CAGVTTSGFRLTF	TRAV25	TRAJ58	31.25%	9.09%	31.25%
A(ii)	CASSWDVSNQPQHF	TRBV5-5	TRBJ1-5	ND			3.13%	3.03%	12.50%
A(iii)	ND			CAGVTTSGSRLTF	TRAV25	TRAJ58	9.38%	3.03%	
B(i)	CASSVDGVGEQYF	TRBV5-5	TRBJ2-7	CASRNNNAGNMLTF	TRAV12-2	TRAJ39	3.13%		
B(ii)	CASSVDGVGEQYF	TRBV5-5	TRBJ2-7	ND					3.13%
C	CASSQWTSGRGETQYF	TRBV14	TRBJ2-5	CAIRAGGYNKLIF	TRAV14/DV4	TRAJ4	12.50%	21.21%	9.38%
D		TRBV14		CAIRAGGYNKLIF	TRAV14/DV4	TRAJ4		3.03%	3.13%
E	CXXXQXXXXRXEXXYF	TRBV14	TRBJ2-5	XXXXAGGXNXLTF	TRAV14/DV4	TRAJ4	3.13%		
F	CASSQWTSGRGETQYF	TRBV14	TRBJ2-5	CAMREGAGGSYIPTF	TRAV14/DV4	TRAJ6	3.13%	12.12%	6.25%
GH	CASSQWTSGRGETQYF	TRBV14	TRBJ2-5	XXLXXXAGGXXXXTF	TRAV14/DV4	TRAJ6	6.25%	12.12%	9.38%
I	CASSQWTSGRGETQYF	TRBV14	TRBJ2-5	ND			9.38%	6.06%	
J	XXSSQXXXXRXEXQXF	TRBV14	TRBJ2-5	XXXXAGGXXXXTF	TRAV14/DV4	TRAJ6		6.06%	
K	XXXXQXXXGRRXXXXF	TRBV6-4	TRBJ2-2	CAXXAGGYNKLTF	TRAV14/DV4	TRAJ4	3.13%		
L	XXAXXGXXXXXXXX#F	TRBV6-4	TRBJ2-5	FXXXAGGXNXLTF	TRAV14/DV4	TRAJ4	3.13%		
M	CAAAXGRRGXXRDXIS	TRBV6-4	TRBJ2-5	XXXXAGGXNKLXF	TRAV14/DV4	TRAJ4		3.03%	
N	LCSSQXXXGXXEXXXF	TRBV6-4	TRBJ2-5	CAMREGAGGSYIXTF	TRAV14/DV4	TRAJ6		6.06%	
O	XXXXQXXXXRXEXXYF	TRBV6-4	TRBJ2-5	XXXXXXAGGXXXXTF	TRAV14/DV4	TRAJ6		3.03%	
P	CASSHPEEA#NTGELFF	TRBV6-4	TRBJ2-2	ND				3.03%	
Q	CASSPGQLQETQYF	TRBV14	TRBJ2-5	CAASGLNNNAGNMLTF	TRAV29/DV5	TRAJ39	3.13%		
R	CASSAGQGYEQYF	TRBV19	TRBJ2-7	CXVAPXXDKLIF	TRAV1-1	TRAJ34	3.13%		
S	CASSLGGHEQYF	TRBV27	TRBJ2-7	CAVRGSSYKLIF	TRAV23/DV6	TRAJ12	3.13%		
T	CASRSTGGNTEAFF	TRBV28	TRBJ1-1	ND			3.13%		
U(i)	CSVLGLETQYF	TRBV29-1	TRBJ2-5	CAGLRSNDYKLSF	TRAV25	TRAJ20		3.03%	3.13%
U(ii)	CSVLGLETQYF	TRBV29-1	TRBJ2-5	ND				3.03%	3.13%
V	CASSEDGGRATDTQYF	TRBV2	TRBJ2-3	CAMREXXXFGNEKLXF	TRAV14/DV4	TRAJ48			3.13%
W	CASSASSYNSPLHF	TRBV9	TRBJ1-6	CAMREHXNTGNQLYF	TRAV14/DV4	TRAJ49			3.13%
X	CASSGGTSGLTDTQYF	TRBV9	TRBJ2-3	ND				3.03%	
Y	CAISESSGELLHF	TRBV10-3	TRBJ1-6	XPXXXXTPTXVXXX#	TRAV5	TRAJ27			3.13%
Z	CAISDPGAYEQYF	TRBV10-3	TRBJ2-7	ND					3.13%
AA	CATSLRDRGPTDTQYF	TRBV15*02	TRBJ2-3	CLVGPMDSNYQLIW	TRAV4	TRAJ33			3.13%
AB	CASSPVVSSTEAFF	TRBV18	TRBJ1-1	CAIRNSGYSTLTF	TRAV12-3	TRAJ11			3.13%
				No. of αβ pairs			**32**	**33**	**32**

Donor D	CDR3β	TRBV	TRBJ	CDR3α	TRAV	TRAJ	CD103+CD69+	CD103-CD69+	CD103-CD69-
A	CATSPGSVLETQYF	TRBV24-1	TRBJ2-5	CAVKGETSGSRLTF	TRAV41	TRAJ58	23.33%	13.64%	3.57%
B	ND			CAVKGETSGSRLTF	TRAV41	TRAJ58	3.33%		3.57%
C	CATSPGSVLETQYF	TRBV24-1	TRBJ2-5	ND			3.33%	9.09%	
D	CATSPGSVLETQYF	TRBV24-1	TRBJ2-5	CAESGANSKLTF	TRAV27	TRAJ56	3.33%		
E	CASSNSETLF	TRBV19	TRBJ1-1	CSXXXXXXXXS#F	TRAV24	TRAJ10	3.33%		
F	CASTPFGGDTGELFF	TRBV19	TRBJ2-2	CATEQRNTGFQKLVF	TRAV17	TRAJ8	3.33%		
G	CASSITGMNTEAFF	TRBV19	TRBJ1-1	CALSEAWGSGAGSYQLTF	TRAV19	TRAJ28			7.14%
H	CASSITGMNTEAFF	TRBV19	TRBJ1-1	XVXXXXXGMGXXVTXSX#	TRAV19	TRAJ49			3.57%
I	CASSITGMNTEAFF	TRBV19	TRBJ1-1	CIA#TGNQFYF	TRAV26-1	TRAJ49			17.86%
J	CASSYEQGNSPLHF	TRBV11-2	TRBJ1-6*02	CGGTGNQFYF	TRAV29/DV5	TRAJ49	6.67%		
K	ND			CGGTGNQFYF	TRAV29/DV5	TRAJ49	10.00%		
L	CASSLEQGNSPLHF	TRBV11-2	TRBJ1-6	XXXXXGXXXVXXXX#	TRAV19	TRAJ35	3.33%		
M	CASSVGGGLQFF	TRBV9	TRBJ2-1	CAESGANSKLTF	TRAV27	TRAJ56	3.33%		
N	CASSVGQGQQPQHF	TRBV9	TRBJ1-5	CAVRYNAGNMLTF	TRAV21	TRAJ39	3.33%		
O	CASSERGGQGTDTQYF	TRBV9	TRBJ2-3	CAPRGGKLIF	TRAV16	TRAJ23	3.33%		
P	CASGPTSGSDYEQYF	TRBV9	TRBJ2-7	CAERDPNQGGKLIF	TRAV13-2	TRAJ23		4.55%	
Q	CASSGSNTEAFF	TRBV9	TRBJ1-1	CAVKKAGNMLTF	TRAV1-2	TRAJ39			3.57%
R(i)	CASKGEGRFRDEQFF	TRBV27	TRBJ2-1	CAGAPGQKVTF	TRAV27	TRAJ13	6.67%		
R(ii)	CASKGEGRFRDEQFF	TRBV27	TRBJ2-1	ND				4.55%	
S	CXTLAGVKETQYF	TRBV27	TRBJ2-5	CAVRDPGGDKIIF	TRAV1-1	TRAJ30		4.55%	
T	CASSSVAGGTSGANVLTF	TRBV27	TRBJ2-6	ND				4.55%	
U	CASSQKSQSEQYF	TRBV4-2/3	TRBJ2-7	CAVQGVGSNYQLIW	TRAV1-2	TRAJ33	3.33%		
V	CASSQESDTQYF	TRBV4-2/3	TRBJ2-3	CAASRTNAGKSTF	TRAV23/DV6	TRAJ27			14.29%
W	CASSQDSAGNTEAFF	TRBV4-2/3	TRBJ1-1	ND			3.33%		
X	CASSQDKWTNDEQFF	TRBV4-2/3	TRBJ2-1	ND			3.33%		
Y	CASGLAYEQYF	TRBV10-3	TRBJ2-7	CAASASDGGSQGNLIF	TRAV29/DV5	TRAJ42		4.55%	
Z	CAIAGGAHEQFF	TRBV10-3	TRBJ2-1	CALSLMEYGNKLVF	TRAV19	TRAJ47			3.57%
AA	CAISSGQGAFGYTF	TRBV10-3	TRBJ1-2	ND				4.55%	
AB	CASSGQDYGYTF	TRBV24-1	TRBJ1-2	CVVRMGYNKLIF	TRAV12-1	TRAJ49			3.57%
AC	CARRALGWADYNEQFF	TRBV24-1	TRBJ2-1	XSXXEXQFXGGGNXXTX	TRAV19	TRAJ10			3.57%
AD	CARRALGWADYNEQFF	TRBV2	TRBJ2-1	CAXSEGQFTGGGNKLTF	TRAV19	TRAJ10			7.14%
AE	CASTPPGQGAYEQYF	TRBV2	TRBJ2-7	CALISGNTGKLIF	TRAV19	TRAJ37			3.57%

AE	CASTPPGQGAYEQYF	TRBV2	TRBJ2-7	CALISGNTGKLIF	TRAV19	TRAJ37			3.57%
AF	CAXXXXXXXXEXXX	TRBV13	TRBJ2-1	ND				4.55%	
AG	CATSRDEQNLGQFF	TRBV15*02	TRBJ2-1	CAVRDSGGYQKVTF	TRAV1-2	TRAJ13	3.33%		
AH	CASRGLANNEQFF	TRBV3-1/2	TRBJ2-1	CAFPAGTALIF	TRAV17	TRAJ15			7.14%
AI	CASGGGNTGELFF	TRBV4-1	TRBJ2-2	ND					3.57%
AJ	CASSLAASYEQYF	TRBV5-6	TRBJ2-7	ND	TRAV3			4.55%	
AK	CASSLEVTGGYEQYF	TRBV7-2	TRBJ2-7	CAVRGSSGGSYIPTF	TRAV3	TRAJ6			7.14%
AL	CASSLEGTSGGALDTQYF	TRBV7-2/8	TRBJ2-3	CAMRGYDRGSTLGRLYF	TRAV14/DV4	TRAJ18			3.57%
AM	CASSFGLAGARDEQFF	TRBV7-9	TRBJ2-1	CALSEAEVEVEYGNKLVF	TRAV19	TRAJ47		4.55%	
AN	CSATFLLAGDADTQYF	TRBV20-1	TRBJ2-3	ND				4.55%	
AO	CAWSLSTEAFF	TRBV30	TRBJ1-1	CAPXXXRDHKIIF	TRAV12-2	TRAJ30		4.55%	
AP	ND			CIV##NYGQNFVF	TRAV26-1	TRAJ26	10.00%	27.27%	
AQ	ND			ND					3.57%
				No. of αβ pairs			30	22	28

Donor C	CDR3β	TRBV	TRBJ	CDR3α	TRAV	TRAJ	CD103+CD69+	CD103-CD69+	CD103-CD69-
A	CASSIRSSYEQYF	TRBV19	TRBJ2-7	CAGGGSQGNLIF	TRAV27	TRAJ42	12.5 %	18.8 %	21.9 %
B	CASSIRSSYEQXF	TRBV19	TRBJ2-7	CAASGSQGNLIF	TRAV27	TRAJ42		3.1%	
C	CASSIRSSYEQYF	TRBV19	TRBJ2-7	CAAGGSQGNLIF	TRAV27	TRAJ42		3.1%	
D	CASSIRSSYEQYF	TRBV19	TRBJ2-7	CAGAGNTGKLIF	TRAV27	TRAJ37			3.1%
E(i)	CASSIXSSYEQYF	TRBV19	TRBJ2-7	CAGGGSQGNLIF	TRAV27	TRAJ42		3.1%	
E(ii)	ND	TRBV19	TRBJ2-7	CAGGGSQGNLIF	TRAV27	TRAJ42			3.1%
F	CASSIRSSYEQYF	TRBV19	TRBJ2-7	CAGGGSSNTGKLIF	TRAV27	TRAJ37			3.1%
G(i)	CASSIRSSYEQYF	TRBV19	TRBJ2-7	CAGVGGGSQGNLIF	TRAV27	TRAJ42		3.1%	6.3%
G(ii)	ND	TRBV19	TRBJ2-7	CAGVGGGSQGNLIF	TRAV27	TRAJ42			9.4%
H	CASSIRSSYEQYF	TRBV19	TRBJ2-7	XPGGRXXGNLIF	TRAV27	TRAJ42			3.1%
I	CASSIRSAYEQYF	TRBV19	TRBJ2-7	CAASGSQGNLIF	TRAV8-6	TRAJ42		3.1%	
J	CASSIXSSYEQYF	TRBV19	TRBJ2-7	CASGGSQGNLIF	TRAV8-6	TRAJ42			3.1%
K	CASSIRSTYEQYF	TRBV19	TRBJ2-7	CAVNKGGGSQGNLIF	TRAV12-2	TRAJ42			3.1%
L(i)	CASSSRASYEQYF	TRBV19	TRBJ2-7	CATDRSDGQKLLF	TRAV17	TRAJ16			6.3%
L(ii)	ND			CATDRSDGQKLLF	TRAV17	TRAJ16			3.1%
M	CASSSRSSYEQYF	TRBV19	TRBJ2-7	CAGAGSQGNLIF	TRAV27	TRAJ42		3.1%	
N	CASSTRSSYEQYF	TRBV19	TRBJ2-7	CAVRAPLEYGNKLVF	TRAV20	TRAJ47		3.1%	

O	CASSVRSSYEQYF	TRBV19	TRBJ2-7	CAGEGGGSQGNLIF	TRAV27	TRAJ42			3.1%
P	CASSVRSSYEQYF	TRBV19	TRBJ2-7	CAGGGSQGNLIF	TRAV27	TRAJ42			3.1%
Q	CASSIXXSYEQYF	TRBV19	TRBJ2-7	XXXXNNXXXLMF	TRAV17	TRAJ31		3.1%	
R	CXSSISXSYEQXF	TRBV19	TRBJ2-7	XXGGXXXGNXXF	TRAV27	TRAJ42		3.1%	
S	CXSSIRSSYEQYF	TRBV19	TRBJ2-7	CAGPRDG#NNARLMF	TRAV13-2	TRAJ31	3.1%		
T	CASSIXASYEQYF	TRBV19	TRBJ2-7	XAEGXXPXQXX#F	TRAV13-2	TRAJ21			3.1%
U	CASSMRSADTQYF	TRBV19	TRBJ2-3	CASPGSNTGKLIF	TRAV12-2	TRAJ37	12.5%		3.1%
V	CASSSRSTDTQYF	TRBV19	TRBJ2-3	CAANYGGSQGNLIF	TRAV25	TRAJ42		3.1%	
W	CASSGRSSDTQYF	TRBV19	TRBJ2-3	WXVXAXQAX#TF	TRAV36/DV7	TRAJ27			3.1%
X	XASSIXSTDTQYF	TRBV19	TRBJ2-3	CAGGPXX#GNEKLTF	TRAV27	TRAJ48		3.1%	
Y(i)	CASSSRSHQPQHF	TRBV19	TRBJ1-5	CAGSYGGSQGNLIF	TRAV25	TRAJ42	50.0%	12.5%	9.4%
Y(ii)	CASXXXXHQPQHF	TRBV19	TRBJ1-5	CAGSYGGSQGNLIF	TRAV25	TRAJ42	3.1%		
Y(iii)	ND	TRBV19	TRBJ1-5	CAGSYGGSQGNLIF	TRAV25	TRAJ42		3.1%	
Z	CASSSRSHQPQHF	TRBV19	TRBJ1-5	CAGVGGGSQGNLIF	TRAV27	TRAJ42		3.1%	
AA	CASSSRSHQPQHF	TRBV19	TRBJ1-5	CAGGGSQGNLIF	TRAV27	TRAJ42	3.1%		
AB	CASSMRSQETQYF	TRBV19	TRBJ2-5	CIVRVMLR#TSGTYKYIF	TRAV26-1	TRAJ40		6.3%	
AC	CASSTRSQETQYF	TRBV19	TRBJ2-5	CIVRVMLR#TSGTYKYIF	TRAV26-1	TRAJ40		3.1%	
AD	CASSPRSGSTEAF	TRBV19	TRBJ1-1	CAGGGDGGSQGNLIF	TRAV35	TRAJ42	3.1%		
AE	CASSIRGAETQYF	TRBV19	TRBJ2-5	CAESINTGGFKTIF	TRAV5	TRAJ9		3.1%	
AF	ND	TRBV19		CAESINTGGFKTIF	TRAV5	TRAJ9		3.1%	
AG	CASSXXE#SYEQYF	TRBV19	TRBJ2-7	CAAAGDGGSQGNLIF	TRAV12-2	TRAJ42			3.1%
AH	ND			CAXGGXKTSSXKVIF	TRAV17	TRAJ50			3.1%
AI	ND			CAGSYGGSQGNLIF	TRAV25	TRAJ42	9.4%		
AJ	ND			CAGGGSQGNLIF	TRAV27	TRAJ42		3.1%	3.1%
AK	ND			CAGVGGGSQGNLIF	TRAV27	TRAJ42		6.3%	
AL	ND			CAGGSNFGNEKLTF	TRAV27	TRAJ48	3.1%		
AM	ND			CAAR#NFNKFYF	TRAV23/DV6	TRAJ21		3.1%	
				No. of αβ pairs			**32**	**32**	**32**