

SUPPLEMENTARY FIG. 1

A

TCR-BETA				LINE/n
CELLS	Vb	Mb	Jb	CELLS
CDR3				
MY8.3				MY8.3
Vb8.1	CAS..SD A		QNTLYFGAGTRLSVL	Va17.4-Ja42
ISLET-DERIVED CD8+ T-CELLS (DILORENZA ET. AL. - 5 WEEKS)				
Vb2.1-Jb1.3	CTC..S AH R GL		GNTLYFGEGRSLIVV	Va17.5-Ja42
Vb6.1-Jb1.1	CAS..S R SGIG		TEVFFGKGTIRLVV	Va17.6-Ja42
Vb16.1-Jb2.3	CAS..SL A RP	S....	AETLYFGSGTRILTVL	Va17.6-Ja26
Vb13.1-Jb2.7	CAS	S R	EQYFGPGTRILTVL	Va17.4-Ja5
Vb8.3-Jb2.7	CAS..S	GDR	Y.....EQYFGPGTRILTVL	Va17.4-Ja42
Vb11.1-Jb2.7	CAS..SL GD W GN		EQYFGPGTRILTVL	Va17.4-Ja42
Vb16.1-Jb2.7	CAS..S SD W G	Y.....	EQYFGPGTRILTVL	Va10-Ja42
Vb8.1-Jb2.7	CAS..S SD T	Y.....	EQYFGPGTRILTVL	Va8-Ja52
Vb8.1-Jb2.4	CAS..S	GTGG	QNTLYFGAGTRLSVL	Va4-Ja12
Vb8.1-Jb2.4	CAS..S	GTGG	QNTLYFGAGTRLSVL	Va20-Ja56
Vb11.1-Jb2.4	CAS..S	WTGGG	TLYFGAGTRLSVL	Va4-Ja43
Vb13.1-Jb2.4	CAS	IKL GG	QNTLYFGAGTRLSVL	Va1-Ja53
Vb8.2-Jb1.5	CAS..GD A	GGDQ	APLFGEGTRLSVL	Va3-Ja37
Vb10.1-Jb2.7	CAS..S	L G Q	Y.....EQYFGPGTRILTVL	Va18-Ja24
Vb14.1-Jb1.6	CAW..S	HSY	Y.....NSPLYFAAGTRILTVT	Va4-Ja56
Va5-Ja15	CAV	IIY		
ISLET-DERIVED NRP-A7 TETRAMER+ CD8+ T-CELLS (9 WEEKS)				
Vb16.1-Jb2.7	CAS..S	SGTD	Y.....EQYFGPGTRILTVL	7/30
Vb16.1-Jb2.7	CAS..S	S GTDC	EQYFGPGTRILTVL	1/30
Vb8.2-Jb2.1	CAS..G	PGTGT..Y	NYAEQFFGPGTRILTVL	1/30
Vb7.1-Jb1.2	CAS..S	FR GT	NSDLYFGSGTRILTVL	1/30
Vb13.1-Jb2.1	CAS..S	FRA GG	Y.....AEQFFGPGTRILTVL	1/30
Vb11.1-Jb2.7	CAS..SL	FR DI	S.....YEQYFGPGTRILTVL	1/30
Vb8.1-Jb1.5	CAS	GGNNQ	APLFGEGTRLSVL	1/30
Vb8.1-Jb2.7	CAS..SD AA	TGGN	S.....YEQYFGPGTRILTVL	1/30
Vb8.1-Jb2.7	CAS..S	GDN	Y.....EQYFGPGTRILTVL	1/30
Vb8.1-Jb2.7	CAS..SD	DN	Y.....EQYFGPGTRILTVL	1/30
Vb14.1-Jb2.1	CAW..S	PGQD	Y.....AEQFFGPGTRILTVL	1/30
Vb8.2-Jb2.7	CAS..G	G DS	S.....YEQYFGPGTRILTVL	1/30
Vb14.1-Jb2.1	CAW..S	L GLA	Y.....AEQFFGPGTRILTVL	1/30
Vb2.1-Jb2.3	CTC..S	A GLGV	AETLYFGSGTRILTVL	1/30
Vb8.1-Jb2.7	CAS	KGS	S.....YEQYFGPGTRILTVL	1/30
Vb6.1-Jb2.7	CAS..S	MVD W GS	S.....YEQYFGPGTRILTVL	1/30
Vb16.1-Jb2.7	CAS..SL	TG	Y.....EQYFGPGTRILTVL	1/30
Vb8.1-Jb2.1	CAS..S	GF	NYAEQFFGPGTRILTVL	1/30
Vb2.1-Jb2.1	CTC..S	G	Y.....AEQFFGPGTRILTVL	1/30
Vb8.1-Jb2.4	CAS..SD	PE	NTLYFGAGTRLSVL	3/30
Vb8.1-Jb2.4	CAS..SD		S.....QNTLYFGAGTRLSVL	1/30
Vb11.1-Jb2.4	CAS..SL A		QNTLYFGAGTRLSVL	1/30
Vb8.1-Jb2.4	CAS..SD		S.....QNTLYFGAGTRLSVL	1/30
ISLET-DERIVED NRP-A7 TETRAMER+ CD8+ T-CELLS (20 WEEKS)				
Vb8.1-Jb2.4	CAS..SD		S.....QNTLYFGAGTRLSVL	1/33
Vb8.1-Jb2.7	CAS..SD	DR	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS..S	SGD	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS	KGGS	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS	TA GD	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS	KGS	SY.....EQYFGPGTRILTVL	1/33
Vb8.3-Jb2.7	CAS..S	GDR	Y.....EQYFGPGTRILTVL	1/33
Vb16.1-Jb2.4	CAS..SL	YGGSR	QNTLYFGAGTRLSVL	1/33
Vb16.1-Jb2.2	CAS..S	LA	NTGQLYFGEGSKLTVL	1/33
Vb16.1-Jb1.4	CAS..SL	TGKAP	NERLFFGHGTRLSVL	1/33
Vb16.1-Jb2.3	CASS	VFGQP	ETLYFGSGTRILTVL	1/33
Vb2.1-Jb2.4	CTC..S	A HRGRG	NTLYFGAGTRLSVL	1/33
Vb2.1-Jb2.7	CTC..S	A GGR	EQYFGPGTRILTVL	1/33
Vb11.1-Jb2.4	CAS..S	PR TGG	S.....QNTLYFGAGTRLSVL	1/33
Vb11.1-Jb2.7	CAS..SL	GTGGG	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS	EGG	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS	TA GD	Y.....EQYFGPGTRILTVL	2/33
Vb8.2-Jb2.7	CAS..G	EP GT E	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS..SD	EQ	Y.....EQYFGPGTRILTVL	2/33
Vb8.1-Jb2.7	CAS	TA RD	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS	KGG	SY.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS..S	GGQ	Y.....EQYFGPGTRILTVL	1/33
Vb8.3-Jb2.4	CAS..SD	LDF	Y.....EQYFGPGTRILTVL	1/33
Vb13.1-Jb1.2	CAS	S RD	SA NSDLYFGSGTRILTVL	2/33
Vb11.1-Jb2.7	CAS..S	RGLVV	SY.....EQYFGPGTRILTVL	1/33
Vb11.2-Jb2.5	CAS..S	FHHRG	S.....QDTQYFGPGTRILTVL	1/33
Vb12.1-Jb2.5	CAS..SL	D W GV	QDTQYFGPGTRILTVL	1/33
Vb10.1-Jb2.7	CAS..S	TD W	SY.....EQYFGPGTRILTVL	1/33
Vb11.1-Jb2.7	CAS..S	D W G	SY.....EQYFGPGTRILTVL	1/33
Vb11.1-Jb2.7	CAS..S	WGD W G	Y.....EQYFGPGTRILTVL	1/33
Vb11.1-Jb2.4	CAS..SL	DY W G	S QNTLYFGAGTRLSVL	1/33
ISLET-DERIVED NRP-A7 TETRAMER- CD8+ T-CELLS (9 WEEKS)				
Vb11.1-Jb2.7	CAS..SL	GP	QGVV Y.....EQYFGPGTRILTVL	2/33
Vb6.1-Jb1.4	CAS..S	R GGGI	S.....NERLFFGHGTRLSVL	1/33
Vb8.1-Jb2.4	CAS..S	EGQGI	QNTLYFGAGTRLSVL	1/33
Vb14.1-Jb2.1	CAW..S	PGQD	Y.....AEQFFGPGTRILTVL	1/33
Vb2.1-Jb2.7	CTC..S	AID W GG	Y.....EQYFGPGTRILTVL	2/33
Vb6.1-Jb2.7	CAS..S	MVD W GS	S.....EQYFGPGTRILTVL	1/33
Vb12.1-Jb2.7	CAS..S	FW GS	S.....YEQYFGPGTRILTVL	1/33
Vb14.1-Jb1.5	CAW	TGGQ	APLFGEGTRLSVL	1/33
Vb11.1-Jb2.7	CAS..SL	VPGL GGR	EQYFGPGTRILTVL	1/33
Vb11.1-Jb2.7	CAS..S	PRL GGW	EQYFGPGTRILTVL	1/33
Vb8.2-Jb2.5	CAS..G	LR GG F	NDQTYFGPGTRILTVL	1/33
Vb13.1-Jb2.2	CAS..S	PRL GG	NSDLYFGSGTRILTVL	1/33
Vb14.1-Jb1.6	CAW	R TGG	Y.....NSPLYFAAGTRILTVT	1/33
Vb9.1-Jb2.2	CAS	RRL G D	TGQLYFGEGSKLTVL	1/33
Vb16.1-Jb1.3	CAS..S	FD RLSG D	TLYFGKGSRLIVV	1/33
Vb8.3-Jb2.3	CAS..S	VS LGGRF	AETLYFGSGTRILTVL	1/33
Vb16.1-Jb1.2	CAS..SL	D R GL	S.....DLYFGSGTRILTVL	1/33
Vb8.1-Jb1.3	CAS..S	YR G	S.....GNTLYFGEGSRILVIV	1/33
Vb6.1-Jb1.1	CAS..S	R SG	TEVFFGKGTIRLVV	1/33
Vb2.1-Jb2.1	CTC..S	G	Y.....AEQFFGPGTRILTVL	1/33
Vb11.1-Jb2.5	CAS..SL	E GG	QDTQYFGPGTRILTVL	1/33
Vb6.1-Jb1.4	CAS..S	MSGF	S.....NERLFFGHGTRLSVL	1/33
Vb2.1-Jb2.3	CTC..S	AGL GV	AETLYFGSGTRILTVL	1/33
Vb16.1-Jb2.7	CAS..S	SGTD	Y.....EQYFGPGTRILTVL	1/33
Vb16.1-Jb2.7	CAS..S	GTD	Y.....EQYFGPGTRILTVL	1/33
Vb8.1-Jb2.7	CAS	GRDI	S.....YEQYFGPGTRILTVL	1/33
Vb11.1-Jb2.5	CAS..S	TGLAPT	TQYFGPGTRILTVL	1/33
Vb14.1-Jb2.7	CAW..S	PYRS	S.....YEQYFGPGTRILTVL	1/33
Vb13.1-Jb2.3	CAS..S	FRI	S.....AETLYFGSGTRILTVL	1/33
Vb16.1-Jb2.7	CAS..S	F I	S.....YEQYFGPGTRILTVL	1/33
Vb2.1-Jb1.6	CTC..S	ADL	NSPLYFGFAAGTRILTVT	1/33
ISLET-DERIVED NRP-A7 TETRAMER- CD8+ T-CELLS (20 WEEKS)				
Vb12.1-Jb2.5	CAS..SL	D W GV	QDTQYFGPGTRILTVL	6/38
Vb16.1-Jb2.5	CAS..S	SD W G	QDTQYFGPGTRILTVL	1/38
Vb10.1-Jb2.7	CAS..S	T D W	S.....YEQYFGPGTRILTVL	1/38
Vb10.1-Jb2.7	CAS..S	YD YW	Y.....EQYFGPGTRILTVL	1/38
Vb12.1-Jb2.2	CAS..S	W G....Y	TGQLYFGEGSKLTVL	1/38
Vb16.1-Jb2.5	CAS..SL	D W V	QDTQYFGPGTRILTVL	1/38
Vb12.1-Jb2.4	CAS..S	WNGV	NTLYFGAGTRLSVL	1/38
Vb8.2-Jb2.1	CAS..GD	LRW GG A	Y.....AEQFFGPGTRILTVL	1/38
Vb10.1-Jb2.7	CAS..S	YAPG L GGR	EQYFGPGTRILTVL	1/38
Vb8.3-Jb2.1	CAS..S	GGLANY....	AEQFFGPGTRILTVL	1/38
Vb14.1-Jb2.4	CAW..S	LG L GGR	QNTLYFGAGTRLSVL	1/38
Vb8.3-Jb2.1	CAS..S	GGLANY....	AEQFFGPGTRILTVL	1/38
Vb8.3-Jb2.2	CAS..S	R G	NTGQLYFGEGSKLTVL	1/38
Vb8.3-Jb2.1	CAS..SD	A R G	NY.....AEQFFGPGTRILTVL	1/38
Vb8.3-Jb2.4	CAS..S	GR G	QNTLYFGAGTRLSVL	1/38
Vb8.1-Jb2.4	CAS..S	GR G	QNTLYFGAGTRLSVL	1/38
Vb2.1-Jb2.4	CTC..S	AH R G RG	NTLYFGAGTRLSVL	1/38
Vb6.1-Jb2.7	CAS..S	PQ G	Y.....EQYFGPGTRILTVL	1/38
Vb12.1-Jb2.2	CAS..S	L GF	QDTQYFGPGTRILTVL	2/38
Vb2.1-Jb2.4	CTC..S	AAG A G	QNTLYFGAGTRLSVL	1/38
Vb16.1-Jb1.4	CAS..SL	TGKAP	NERLFFGHGTRLSVL	1/38
Vb12.1-Jb1.1	CAS..X	X GL	NTEVFFGKGTIRLVV	1/38
Vb11.1-Jb2.2	CAS..S	R D SA	NSDLYFGSGTRILTVL	1/38
Vb13.1-Jb2.2	CAS..S	R D SA	NSDLYFGSGTRILTVL	1/38
Vb3.1-Jb1.1	CAS	R DR	EVFFGKGTIRLVV	1/38
Vb8.3-Jb1.6	CAS..SD	R R	NSPLYFAAGTRILTVT	2/38
Vb11.1-Jb2.5	CAS..SL	E RA	NDQTYFGPGTRILTVL	1/38
Vb16.1-Jb2.7	CAS..SL	ET A	Y.....EQYFGPGTRILTVL	2/38
Vb8.1-Jb2.4	CAS..SD	D PT	S.....QNTLYFGAGTRLSVL	1/38
Vb6.1-Jb2.1	CAS..S	EK	FGPGTRILTVL	1/38

B

TCR-ALPHA				LINE/n
CELLS	Va	Ma	Ja	CELLS
CDR3				
MY8.3				MY8.3
Va17.4-Ja42	CA...M.R D		S....GGSNAKLTFGKGTKLSVK SN	MY8
ISLET-DERIVED CD8+ T-CELLS (DILORENZA ET. AL. - 5 WEEKS)				
Va17.5-Ja42	CA...M.R D		S....GGSNAKLTFGKGTKLSVK S	AI12.B1.3
Va17.6-Ja42	CA...M.R EG		GGSNAKLTFGKGTKLSVK S	AI15.A3
Va17.6-Ja26	CA...M.R EGG		NYAQGLT? FG??? ??????	AI11.A7
Va17.4-Ja5	CA...M.R EAGT		QVVQGLT FGRGTQLQVYA	AI15.F5
Va17.4-Ja42	CA...M.R V	S....	GGSNAKLTFGKGTKLSVK S	AI11.A5
Va17.4-Ja42	CA...M.R V	S....	GGSNAKLTFGKGTKLSVK S	AI11.B2
Va10-Ja42	CA...MER V		GGSNAKLTFGKGTKLSVK S	
Va8-Ja52	CA...L RTAG		ANTGKLTFGGTILRVHP	
Va4-Ja12	CA...L SG		TGGYKVV FGSSTRLLVSP	
Va20-Ja56	CAA M A		TGGNNKLTFGGTIVLSV P	
Va4-Ja43	CAAS A W		NNNAPRFAGATKLSV P	
Va1-Ja53	CAVS A.....S		GGSNYKLTFGKGTLLVTP	
Va3-Ja37	CAVS A A		GNTKRLI? FG??? ??????	
Va18-Ja24	CAT E TT		AS LGKLG FGTGTQVVVTP	
Va4-Ja56	CAL T		TGGNNKLTFGGTIVLSV P	
Va5-Ja15	CAV IIV		QGGRALI FGTGTIVSVS P	
ISLET-DERIVED NRP-A7 TETRAMER+ CD8+ T-CELLS (9 WEEK)				
Va17.4-Ja42	CA...M.R D	S....	GGSNAKLTFGKGTKLSVK S	13/47
Va17.5-Ja42	CA...M.R D	S....	GGSNAKLTFGKGTKLSVK S	6/47
Va17.5-Ja42	CA...M.R V	S....	GGSNAKLTFGKGTKLSVK S	1/47
Va17.4/5-Ja42	CA...M.R D	S....	GGSNAKLTFGKGTKLSVK S	11/47
Va17.6-Ja42	CA...M.R D	S....	GGSNAKLTFGKGTKLSVK S	8/47
Va17.5-Ja45	CA...M.R D		TGGADRILTFGKGTQLLIQ P	1/47
Va17.4-Ja53	CA...M SN	S....	GGSNYKLTFGKGTLLVTP	2/47
Va17.5-Ja53	CA...M SN	S....	GGSNYKLTFGKGTLLVTP	1/47
Va5.2-Ja31	CAV	SN	NNRIF FGDGTQLVVP	2/47
Va3.5-Ja30	CA G	D.....	TNAYKVI FGTGTHLHVLP	1/47
Va4.9-Ja30	CAL L	D.....	TNAYKVI FGTGTHLHVLP	1/47
ISLET-DERIVED NRP-A7 TETRAMER- CD8+ T-CELLS (20 WEEKS)				
Va17.4-Ja42	CA...M.R D	S....	GGSNAKLTFGKGTKLSVK S	17/65
Va17.5-Ja42	CA...M.R D	S....	GGSNAKLTFGKGTKLSVK S	18/65
Va17.5-Ja42	CA...M.R N	S....	GGSNAKLTFGKGTKLSVK S	3/65
Va17.5-Ja53	CA...M SN	S....	GGSNYKLTFGKGTLLVTP	2/65
Va17.4/5-Ja42	CA...M.R D	S....	GGSNAKLTFGKGTKLSVK S	9/65
Va17.4/5-Ja21	CA...M.R E G	MP.....	NYNVLY FGSSTKLIVE P	1/65
Va17.4/5-Ja53	CA...M SN	S....	GGSNYKLTFGKGTLLVTP	1/65
Va4.9-Ja18	CALS DR		GSALGRHFGAGTQLLIV P	1/65
Va3.x-Ja23	CAVS AV	Y.....	NQKGLI FGTGTKLSIK P	1/65
Va8.x-Ja42	CAL RLR	S....	GGSNAKLTFGKGTKLSVK S	1/65
Va10-Ja43	CA...M A		NNNAPRFAGATKLSV P	1/65
Va5.2-Ja48	CAV SA	G....	YGNKIT FGTGTKLSIK P	2/65
Va8-Ja41	CAL KGN		NNAGAKLTFGGTTRILV P	1/65
Va1.3-Ja22	CAVS S	SG.....	SWQLI FGSSTQLVMP	1/65
Va11-Ja40	CAA ERA	G.....	NYKYV FGTGTQLVVP	3/65
Va10.5-Ja37	CA...MERA	G....	NTRKLI FGLTTLQVQ P	1/65
Va3.1-Ja52	CA...V.R SN	T G....	ANTGKLT FGHGTILRVHP	1/65
Va8.x-Ja31	CAL CN		NNRIF FGDGTQLVVP	1/65
ISLET-DERIVED NRP-A7 TETRAMER- CD8+ T-CELLS (9 WEEKS)				
V				

Supplementary Figure 1. TCR repertoire of islet-derived, NRP-A7-reactive CD8⁺ T cells in 9- vs. 20-week-old NOD mice. A, CD8⁺ cells, isolated from islets of 15-20 mice/age group (9- or 20-wk-old NOD mice) were stained with NRP-A7 tetramers and anti-CD8 mAb, sorted by flow cytometry into tetramer⁺ and tetramer⁻ CD8⁺ cells, and used as a source of RNA to generate TCR-specific cDNA libraries by anchor-PCR. Figure shows the different VJ α and VDJ β rearrangements and junctional sequences that were obtained and the number of copies of each rearrangement/the total number of informative recombinants that were sequenced. The sequences are compared to the 8.3 TCR rearrangements (top), and to the rearrangements expressed by CD8⁺ lines and clones propagated from islets of ~5-wk-old NOD mice (second panel from the top (26)). B, TCR α sequences expressed by splenic CD8⁺ cells from acutely diabetic NOD mice and V α 17⁺ TCR α sequences expressed by splenic CD8⁺ cells of pre-diabetic NOD mice.