Supplementary Table 1. VDJC locations and names on 14 mammalian TRB gene locus.

Mammal name	TRB locus	Forward TRBV	TRBD-TRBJ-TRBC	Reverse TRBV	Reference
Human (*Homo sapiens*), Primates	chromosome 7	V(1-29)	D1-J1(1-6)-C1-D2-J2(1-7)-C2	V30	IMGT
House mouse (*Mus musculus*), Rodentia	chromosome 6	V(1-30)	D1-J1(1-7)-C1-D2-J2(1-7)-C2	V31	IMGT
Rhesus monkey (*Macaca mulatta*), Primates	chromosome 3	V(1-29)	D1-J1(1-6)-C1-D2-J2(1-7)-C2	V30	IMGT
Crab-eating macaque (*Macaca fascicularis*), Primates	chromosome 3	V(1-29)	D1-J1(1-6)-C1-D2-J2(1-7)-C2	V30	IMGT
Dog (*Canis lupus familiaris*), Carnivora	chromosome 16	V(1-29)	D1-J1(1-6)-C1-D2-J2(1-6)-C2	V30	IMGT
Domestic cat (*Felis catus*), Carnivora	chromosome A2	V(1-29)	D1-J1(1-6)-C1-D2-J2(1-6)-C2	V30	IMGT
Naked mole-rat (*Heterocephalus glaber*), Rodentia		V(1-29)	D1-J1(1-6)-C1-D2-J2(1-7)-C2	V30	IMGT
Rabbit (*Oryctolagus cuniculus*), Lagomorpha		V(1-29)	D1-J1(1-6)-C1-D2-J2(1-6)-C2	V30	IMGT
Rhinolophus ferrumequinum, Chiroptera	chromosome 26	V(1-29)	D1-J1(1-6)-C1-D2-J2(1-9)-C2	V30	Zhou
Sheep (*Ovis aries*), Artiodactyla	chromosome 4	V(1-29)	D1-J1(1-6)-C1- D3-J3(1-6)-C3-D2-J2(1-7)-C2	V30	IMGT
Bovine (*Bos taurus*), Artiodactyla	chromosome 4	V(1-29)	D1-J1(1-6)-C1- D3-J3(1-5)-C3-D2-J2(1-7)-C2	V30	IMGT
Pig (*Sus scrofa*), Artiodactyla	chromosome 18	V(1-29)	D1-J1(1-7)-C1- D3-J3(1-7)-C3-D2-J2(1-6)-C2	V30	IMGT
Buffalo (*Bubalus bubalis*), Artiodactyla	chromosome 8	V(1-30)	D1-J1(1-6)-C1- D3-J3(1-6)-C3-D2-J2(1-7)-C2	V30	
Domestic ferret (*Mustela putorius furo*), Carnivora		V(1-30)	D1-J1(1-6)-C1-D2-J2(1-6)-C2	V30	IMGT

Note: The TRBV30 gene of Domestic ferret (*Mustela putorius furo*) is a pseudogene without RIC score, and thus it was not performed comparative analysis in the phylogenetic tree.

Supplementary Table 2. RSSs, RIC scores and V30-C2 distances of reverse TRBV30 gene in 14 mammals.

Species	Accession numbers	Gene	23RSS sequence	RIC	V30-C2 Distance(bp)
Homo sapiens	L36092	TRBV30	cacactgagctgggtggggcagacatctgtgcaaaaacc	-38.62	10056
Mus musculus	X03277	TRBV31	cacactgagtagggtggggcagacatctgtgcaaaaacc	-37.26	9473
Macaca mulatta	NW_001114291	TRBV30	cacactgagctgggtggggcagacatctgtgcaaaaact	-39.64	10239
Macaca fascicularis	IMGT000075	TRBV30	cacactgagctgggtggggcagacatctgtgcaaaaact	-39.64	10358
Canis lupus familiaris	IMGT000005	TRBV30	cacactgagtgggtgggggagacatctgtgcaaaaaac	-43.59	10584
Felis catus	IMGT000037	TRBV30	cacaccgagccgggtgaggtagacatctgtgcaaaaacc	-40.45	10705
Heterocephalus glaber	IMGT000070	TRBV30	cacaatgtaccgggcagagcagacatctgtgcaaaaacc	-38.19	9773
Oryctolagus cuniculus	IMGT000032	TRBV30	cacactgagctgggtggggcagagaactgtacaaaaacc	-42.37	10386
Rhinolophus ferrumequinum		TRBV30	cacactgagctgggtggggcagacatctgtgcaaaaacc	-38.62	9205
Ovis aries	AM420900	TRBV30	cacactgcactgggtggggcagacatccgtgcagaaacc	-45.41	11872
Bos taurus	IMGT000084	TRBV30	cacactgcgctgggtggggcagacatctgtgcagaaacc	-39.86	13654
Sus scrofa	IMGT000039	TRBV30	cacactgcgtccggtggggcagacatctgtgcaaaaacc	-38.38	13879
Bubalus bubalis		TRBV30	cacactgcactgggtggggcagacatctgtgcagaaacc	-43.36	15018
Mustela putorius furo	IMGT000023	TRBV30	cacagaggtgggtggggcagacatctgtacaaaaccc	FAIL	10778

Supplementary Table 3. Reverse TRBV30 gene sequences in 14 mammals.

Species	Accession numbers	Gene	TRBV Sequence
Homo sapiens	L36092	TRBV30	tctcagactattcatcaatggccagcgaccctggtgcagcctgtgggcagcccgctctctctggagtgcactgtggagggaacatcaaaccccaa cctatactggtaccgacaggctgcaggcaggggcctccagctgctcttctactccgttggtattggccagatcagctctgaggtgccccagaatctc tcagcctccagaccccaggaccggcagttcatcctgagttctaagaagctccttctcagtgactctggcttctatctctgtgcctggagtgt
Mus musculus	X03277	TRBV31	gctcagactatccatcaatggccagttgccgagatcaaggctgtgggcagcccactgtctctggggtgtaccataaaggggaaatcaagccctaa cctctactggtactggcaggccacaggaggcaccctccagcaactcttctactctattactgttggccaggtagagtcggtggtgcaactgaacctc tcagcttccaggccgaaggacgaccaattcatcctaagcacggagaagctgcttctcagccactctggcttctacctctgtgcctggagtct
Macaca mulatta	NW_001114291	TRBV30	tctcagactgttcatcaatggccagcgaccctggtgcagcctgcgggcagcccgctttctctggagtgcactgtggagggaacatcaaaccccaa cctatactggtaccgacaggctgcaggcaggggcctccagctgctcttctactccattggtgttgaccagatcagctctgaggtgccccagaatctc tcagcctccaggccccaggacaggcggttcatcctgagttctaagaagctcctcctcagtgactcaggcttctatctctgtgcctggagtgt
Macaca fascicularis	IMGT000075	TRBV30	tctcagactgttcatcaatggccagcgaccctggtgcagcctgcgggcagcccgctttctctggagtgcactgtggagggaacagcaaaccccaa cctatactggtaccgacaggctgcaggcaggggcctccagctgctcttctactccattggtgttgaccagatcagctctgaggtgccccagaacct ctcagcctccaggccccaggacaggcagttcatcctgagttctaagaagctcctcctcagtgactcaggcttctatctctgtgcctggagtgt
Canis lupus familiaris	IMGT000005	TRBV30	gctcagactatccaccaaaggccgcttgccagggtgcagcttgtgggcagcctgctctccctggaatgtaccgtgcagggggcatcgagcccttа tctctactggtaccggcagtccctgggaggtgcgccccagctactcttctcctcattaagtgttacccagatagtccctgagacaccgcacaacttca cagcctccaggccccagaacggccagttcatcctgagttctaagaagctccttctcagtgactctggcttctacctctgcgcctggagtct
Felis catus	IMGT000037	TRBV30	gctcagaccatccaccaatggccacctgtcagggtgcagcttgtgggcagcccgctctccctggagtgcatcgtgaaggggaatcaaaccctta tctatattggtacctgcaggccgagggagggccccccccagctgctcttctactccctaaatattcaccaggtagaccctgaggcaccacggaactt cacagcctccaggccccaggacggccagttcatcttgagttctcagaagctcctcctcagtgactctggcttctacctctgcgcctggggtct
Heterocephalus glaber	IMGT000070	TRBV30	gctcagactatccatcaatggccagttaccaaggtgcagcttgtgggcagccccctctctctggagtgcatcgtgaaggggaaatcaagccccaat ctatactggtaccagcaggtagcaggaggggccctccagctgctcttctactccatcggtgttggcgaggtgttctctgaggtactcagaaacctct cagcctccagaccccaggatggccagttcatcctgagctctaagaaactgctcctcaatgactctggcttctacctctgtgcctggagcct

Refer to Supplementary Table 3

Species	Accession numbers	Gene	TRBV Sequence
Oryctolagus cuniculus	IMGT000032	TRBV30	gctcagaccattcaccagtggccagctttcagggtgcaacttgtgggcagcccactctccctgcagtgcaccgtgaagggtgtctcaagccccaa
			cctgtactggtaccggcaggctgcagaggggtctctccaggctctcttcttctccattggtgtcggccaggtggaccctgaggggccccagaacct
			gtcagcctccagaccccaggacgaccagttcatcctgagctctccgaagctcctcctcagtgactcgggcttctacctctgtgcctggagtct
Rhinolophus ferrumequinum		TRBV30	gctcagaccatccatcagtggccacctacaagggtgcaggctgtggacagtccactctctctgaactgcactgtgaaggggacgtcaagccccaa
			cctatactggtaccggcaggccgcaggaggggccctccagctgcttttctattccattagtattggggacgtagcctctgagggtgaccagaactg
			gaatgcgtccaggccccaggacggccacttcatcctgagcactgagaagctgctcctcagccactctggcttctacctctgtgcctggagtct
Ovis aries	AM420900	TRBV30	gctcagaccatccatcaatggccatccaccagggtgcagcctgcaggcagcccgctctctctggagtgcaccgtgaaggggacatcaagcccc
			aacctgtactggtaccggcaggaggcaggggggagcctccagctgctcttctcctctgttggtgttaaccagatagagcctagggagttccagaa
			cttcgaagcttccaggccccaggacggccagttcaccctgagttctaagaagctgcagctcaataactctggcttctacctctgcgcctggagtct
Bos taurus	IMGT000084	TRBV30	actcagaccatccatcagtggccatccacgagggtgcagcctgcaggcagcccgctctctctggagtgcaccgtgaaggggacatcaaacccc
			accctgtactggtaccggcaggaggcaggggggagcctccagcagctcttctactctgttagtgctggccagatagaacctagggagttccagaa
			cttcaaagcttccaggccccaggacggccagtttaccctgagttctaagaagctgcagctcaacaactccggcttctacttctgtgcctggagtct
Sus scrofa	IMGT000039	TRBV30	gctcagaccatccatcaatggccagctaccagggtgcagcttgtgggcagcgccctctccctggagtgcactgtgaaggggtatcaagcccca
			gcctatactggtacaggcaggccaccggcgggggggaccttcagctgctcttctactccattggcgttgaccagaaagatcctgaaaagctccag
			aacttcaacgcctccaggccccaggatggactgttcatcctgagttctacgaagctcctgctcagcaactctggcttctacctctgcgcctggagtct
Bubalus bubalis		TRBV30	gctcagaccatccatcaatggccatccaccagggtgcagcctgcaggcagcccgctctctctggagtgcaccgtgaaggggacatcaaacccca
			gcctgtactggtaccggcaggaggcaggggggagcctccagcagctcttctactctgttagtgctggccagatagaacctagggagttccagaac
			ttcaaagcttccaggccccaggacggccagtttaccctgagttctaagaagctgcagctcaataactcgggcttctacctctgcgcctggagtct
Mustela putorius furo	IMGT000023	TRBV30	gctccaaccatccaccaagggccgcctgtcagcgtgcagcctataggcagcctgcttgccctggaatgcactgtgaaggggacatcagtcccttа
			tctgtattggtacctgcggtccccgggagggaccccagcgttgctcttctcctctgtaaatgttgaccagatagttcgtgagacaccgcagaacttca
			cagccctcaggcccacggatggccagttcatcctgaattctgagaagctcctgctcagtgactccggcttctatctccgcgcctggagtgtcg

Supplementary Table 4. RSSs and RIC scores of forward TRBV29 in 14 mammals.

Species	Accession numbers	Gene	23RSS	RIC
Homo sapiens	L36092	TRBV29-1	cacagtgcggggcacagatcaaagatctgagcaagaacc	-34.82
Mus musculus	AE000664	TRBV30	cacagtgctggttgcaagggagaaatctcagcgagaact	-50.42
Macaca mulatta	NW_001114291	TRBV29-1	cacagtgctgggcacagatcaaagatctgagcaagaacc	-33.46
Macaca fascicularis	IMGT000075	TRBV29-1	cacagtgctgggcacagatcaaagatctgagcaagaacc	-33.46
Canis lupus familiaris	IMGT000005	TRBV29	cacagcgcccagcacggatcaaagatctgaacaagaacc	-38.30
Felis catus	IMGT000037	TRBV29	cacagtactcagcacggatcagaggtctgagcaagaacc	-40.97
Heterocephalus glaber	IMGT000070	TRBV29	cacagtgctgggcacagatcaaagaactaagcaagaact	-43.69
Oryctolagus cuniculus	IMGT000032	TRBV29	cacagtgctgggcacagatcagagatctgagcaagaacc	-32.14
Rhinolophus ferrumequinum		TRBV29	cacagtgctgggcacagatcaaagatctgagcaagaact	-35.47
Ovis aries	IMGT000042	TRBV29	cacagtgctgggcacggatcaagggtctcagcaagaacc	-38.87
Bos taurus	IMGT000084	TRBV29-5	cacagtgctgggcacagttcaagggtctcagcaagaacc	-39.67
Sus scrofa	IMGT000039	TRBV29	cacagtgctgtgcacagatcaaaggtctcaacaagaacg	-43.24
Bubalus bubalis		TRBV29-5	cacagtgctgggcacagatcaagggtctcagcaagaacc	-37.81
Mustela putorius furo	IMGT000023	TRBV29	cacagtccccggcacagatcaaagatctgagcaagaacc	-41.86

Supplementary Table 5. The forward TRBV29 gene sequences in 14 mammals.

Species	Accession numbers	Gene	TRBV Sequence
Homo sapiens	L36092	TRBV29-1	agtgctgtcatctctcaaaagccaagcagggatatctgtcaacgtggaacctccctgacgatccagtgtcaagtcgatagccaagtcaccatgatgtt ctggtaccgtcagcaacctggacagagcctgacactgatcgcaactgcaaatcagggctctgaggccacatatgagagtggatttgtcattgacaa gtttcccatcagccgcccaaacctaacattctcaactctgactgtgagcaacatgagccctgaagacagcagcatatatctctgcagcgttgaaga
Mus musculus	AE000664	TRBV30	agtgtcctcctctaccaaaagccaaacagggacatctgtcaaagtggcacttcactgaaaatccagtgtgtggctgacagtcaagttgtttcgatgtttt ggtaccaacagttccaggaacagagcttgatgctcatggcaactgcaaatgaaggctctgaagccacatacgagagtggattcaccaaggacaag tttccaatcagccggccaaacctaacattctcaacgttgacagtgaacaatgcaaggcctggagacagcagtatctatttctgtagttctagaga
Macaca mulatta	NW_001114291	TRBV29-1	agtgctgtcatctctcaaaagccaagcagggatgtctgtcaacgtggaacctccgtgaagatccagtgtcaagtcgatagccaagtcaccatgatgt tctggtaccgtcagcaacctggacagagcatgacactgattgcaactgcaaatcagggctctgaggccacatatgagagtggatttgtcattgacaa gtttcccatcagtcgcccaaacctaacattctcaactctaactgtgagcaacacgagccctgaagacagcagcatatacctctgcagcgttgaaga
Macaca fascicularis	IMGT000075	TRBV29-1	agtgctgtcgtctctcaaaagccaagcagggatgtctgtcaacgtggaacctccgtgacgatccagtgtcaagtcgatagccaagtcaccatgatgt tctggtaccgtcagcaacctggacagagcatgacactgattgcaactgcaaatcagggctctgaggccacatatgagagtggatttgtcattgacaa gtttcccatcagtcgcccaaacctaacattctcaactctgactgtgagcaacacgagccctgaagacagcagcatatacctctgcagcgttgaaga
Canis lupus familiaris	IMGT000005	TRBV29	ggagctcttgtctctcaaaagccgcgcagggacatctgtcaacgtgggacctccattaccatccactgtgaggtcgatacccaagtcaccttgatgtt ctggtaccgtcagctcccaggacagagcttgatactgattgcaaccgcaaaccagggtgcagaggccacctacgaaagtggatttaccagggag aagtttcccatcagccgccgaaccctaatgttctccactctgactgtgagcaacctgagcctcgaagacaccagctcttacttctgcagcgctagaga
Felis catus	IMGT000037	TRBV29	agcgctctcctctctcagaagccacacagagacatctgtcaacgtgggacctccgtgacaatccactgtgaggtcgatatccagttcaccttaatgtt ctggtaccatcagctcccaggacagagcttggtgctgatggcaaccacaaaccagggtctggaggccacttacgaacatggatttaccaaggaca agtttcccatcagccgcccaaccctagtgttctcaactatgaccataagcaacgtgagccttgaagatagcagcttttacttctgtagtgccggaga
Heterocephalus glaber	IMGT000070	TRBV29	ggtgttatccttcatcaaaagtcaaccagagaaatctgtcaaagtgggacctccatgacaatccagtatcaggctgacatccaggtatccctgatcttc tggtaccatcaggccccaggacagagcttggtgctgattgcaactggaaatcaaggctctgaggccacatatgagaatagattttccaaggacaaa gtttctcatcagccacccaaacctaacattcacaactctggctatgattagtacatgccccaaagatagcagcttctactactgctgtgctggaga

Refer to Supplementary Table 5

Species	Accession numbers	Gene	TRBV Sequence
Oryctolagus cuniculus	IMGT000032	TRBV29	ggtgttctcgtctctcaaaagccaatcagggacatctgtcagcgtggaaactccatcatgatccagtgtcaggtcgatgttcaagcgtccctgatgttct ggtaccgtcagctcccgggacagagcttgatactgatcgcaactgcaaatcagggttctgaggccacgtatgagagtggattcaccaaggacaagt ttcccatcactcgtcctaacctgacattttcaaccctcactgtgagtgatgtgagccctgaagacaacggcttatacctctgcagctttggaga
Rhinolophus ferrumequinum		TRBV29	ggtactctcgtctctcaaaagccaagcagggacatctgtcaacgcgggacctccgtgacgatcgagtgtcaagtagacagccaaataaacttcatgt tctggtaccgtcagctcccaggagggagcttgacactgattgcaactgcgaatcagggctccggggccacctatgaaagtggatttaccaaggaca aatttcccatcagccgcccaaacctaatgttctccaacctgactgtgaccaacgtgcgccccgaagacagcagcttttacttctgcagcgttggaga
Ovis aries	AM420900	TRBV29	ggtgctctcctctctcaaaagccaagcagggccatccgtcaacgtgggacctccatgatgatcgagtgtcaggtcgatagccagctcaccttgatgta ctggtaccgtcagcttccaggacagagcttggtgctgatggctactgccaatcagggctccaaggctacttacgagagtgggttcactgaggacaag tttcccattagccgcccgaacctggcgttctcaactctgactgtgagcaacgcgagctccgaagatagcagctcttatttctgcagtgctggaga
Bos taurus	IMGT000084	TRBV29-5	ggtgctctcctctctcaagagccaagcagggccatccgtcaacgcgggacctccatgacgatcgagtgtcaagtcgatagccagctcacctggatg tactggtaccgtcagcttccaggacagagcttggtgctgatggctactgccaatcagggctccaaggctacttatgagagtgggtttactgaggacaa gtttcccattgaccgcccgaaactggagttctcaaccctgactgtgagcaacgcgagctccgaagacagtagctcttatttctgcagtgctggaga
Sus scrofa	IMGT000039	TRBV29	ggtgttctcctctctcaaaagccaagcagagacatctgccaacgcgggacctctgtgatgatccagtgccaggtcgatagcgagttcacctacatgta ctggtaccgtcagcttctaggacaaagcttgacactgatggcagctgtgggtcgggacttcgaggccacttatgagagtggatttaccaaggaaaag tttcccattagccgcccaaacctgatgttctcaattctgaccgtgagcaacgtgagctctgaagacagcagctcctacttctgcagcgctggaga
Bubalus bubalis		TRBV29-5	ggtgctctcctctctcaaaagccaagcagggccatctctcaacgcgggacctccgtgatgatcgagtgtcgtcaggttgatagccagctcacctgga tgtactggtaccgtcagcttccaggacagagcttggtgctgatggctactgccaatcagggctccaaggctacttacgagagggggtttactgaggc caagtttcccattgaccgcccaaaactggagttctcaactctgactgtgagcaacgtgagctccgaagacagcagctcttatttctgcagtgctgcaga
Mustela putorius furo	IMGT000023	TRBV29	agcactctcctctctcaagagccacgcagggacatctgtcagtgcgggacctccatgacgatccagtgtgagactgatacccaagtctccttaatgta ctggtaccgtcagctcccaggacagagcctgatactgattgcaactgcaaaccagggcatggaggccacttatgaaagtggatttaccaaagagaa atttcccatcagccgcccaaccttaacgttctccagtctgaccgtgaacaacatgagcttcgaagatagcagcttttacctctgcagtgctgaaga

Supplementary Table 6-1. Basic information and unique TCRβ CDR3 sequences analyzed for all human samples.

Accession Number	Species	Tissue	Condition	Starting material	Library Preparation approach	Sequencing	Analysis Sequence Clonetype
ERZ1694549	*Homo sapiens*	Thymus	Congenital heart defects	DNA	multiplex PCR	HTS	96616
ERZ1694551	*Homo sapiens*	Thymus	Congenital heart defects	DNA	multiplex PCR	HTS	81013
ERZ1694560	*Homo sapiens*	Thymus	Congenital heart defects	DNA	multiplex PCR	HTS	61308
ERZ1694569	*Homo sapiens*	Thymus	Congenital heart defects	DNA	multiplex PCR	HTS	55729
ERZ1694578	*Homo sapiens*	Blood	Congenital heart defects	DNA	multiplex PCR	HTS	33817
ERZ1694579	*Homo sapiens*	Blood	Congenital heart defects	DNA	multiplex PCR	HTS	31686
ERZ1694580	*Homo sapiens*	Blood	Congenital heart defects	DNA	multiplex PCR	HTS	46336
ERZ16945481	*Homo sapiens*	Blood	Congenital heart defects	DNA	multiplex PCR	HTS	35756
GSM5171626	*Homo sapiens*	Blood	Healthy	RNA	Nested PCR	ScRNA-seq	12394
GSM5171627	*Homo sapiens*	Blood	Healthy	RNA	Nested PCR	ScRNA-seq	13473
GSM5171634	*Homo sapiens*	Blood	Healthy	RNA	Nested PCR	ScRNA-seq	8059
GSM5171635	*Homo sapiens*	Blood	Healthy	RNA	Nested PCR	ScRNA-seq	7223
GSM5171642	*Homo sapiens*	Blood	Healthy	RNA	Nested PCR	ScRNA-seq	50743

Note: It is important to note that the raw sequencing data, basic information and the unique TCRβ CDR3 sequences for all research samples have been uploaded to the NCBI database. Multiple laboratories, including our own, sequenced and uploaded the samples to the shared database. Researchers and readers have access to the shared data for each sample and can analyze and cite it. However, please include detailed information, such as the accession number, when citing the data.

Supplementary Table 6-2. Basic information and unique TCRβ CDR3 sequences analyzed for all mice samples.

Accession Number	Species	Tissue	Condition	Starting material	Library Preparation approach	Sequencing	Analysis Sequence Clonetype
GSM5172690	*Mus musculus*	Lymph node	Cancer	RNA	Nested PCR	scRNA-seq	7226
GSM5172691	*Mus musculus*	Lymph node	Cancer	RNA	Nested PCR	scRNA-seq	7803
GSM5172698	*Mus musculus*	Lymph node	Cancer	RNA	Nested PCR	scRNA-seq	3088
GSM5172688	*Mus musculus*	Spleen	Cancer	RNA	Nested PCR	scRNA-seq	10158
GSM5172689	*Mus musculus*	Spleen	Cancer	RNA	Nested PCR	scRNA-seq	6669
GSM5172696	*Mus musculus*	Spleen	Cancer	RNA	Nested PCR	scRNA-seq	5367
GSM5172686	*Mus musculus*	Blood	Cancer	RNA	Nested PCR	scRNA-seq	6856
GSM5172687	*Mus musculus*	Blood	Cancer	RNA	Nested PCR	scRNA-seq	5947
GSM5172694	*Mus musculus*	Blood	Cancer	RNA	Nested PCR	scRNA-seq	2777
SRR22438002	*Mus musculus*	Thymus	Healthy	RNA	5’RACE	HTS	795330
SRR22438001	*Mus musculus*	Thymus	Healthy	RNA	5’RACE	HTS	538438
SRR22438000	*Mus musculus*	Thymus	Healthy	RNA	5’RACE	HTS	465501
SRR24908413	*Mus musculus*	Thymus	Healthy	RNA	5’RACE	HTS	740204
SRR24908412	*Mus musculus*	Thymus	Healthy	RNA	5’RACE	HTS	846904
SRR24908411	*Mus musculus*	Thymus	Healthy	RNA	5’RACE	HTS	678187
SRR22437999	*Mus musculus*	Spleen	Healthy	RNA	5’RACE	HTS	416140
SRR22437998	*Mus musculus*	Spleen	Healthy	RNA	5’RACE	HTS	582692
SRR22437997	*Mus musculus*	Spleen	Healthy	RNA	5’RACE	HTS	766508

Supplementary Table 6-3. Basic information and unique TCRβCDR3 sequences analyzed for all rhesus monkey samples.

Accession Number	Species	Tissue	Condition	Starting material	Library Preparation approach	Sequencing	Analysis Sequence Clonetype
SRR5647486	*Macaca mulatta*	Blood	Healthy	RNA	5'RACE	HTS	140355
SRR15249798	*Macaca mulatta*	Spleen	Healthy	RNA	Nested PCR	scRNA-seq	5223
SRR15249806	*Macaca mulatta*	Blood	Healthy	RNA	Nested PCR	scRNA-seq	5497
SRR15249810	*Macaca mulatta*	Blood	Healthy	RNA	Nested PCR	scRNA-seq	6487
SRR15249812	*Macaca mulatta*	Blood	Healthy	RNA	Nested PCR	scRNA-seq	21819
SRR15249814	*Macaca mulatta*	Blood	Healthy	RNA	Nested PCR	scRNA-seq	29906

Supplementary Table 6-4. Basic information and unique TCRβCDR3 sequences analyzed for all *Rhiolophus Affnis* samples.

Accession Number	Species	Tissue	Condition	Starting material	Library Preparation approach	Sequencing	Analysis Sequence Clonetype
SRR21464510	*Rhiolophus affnis*	Spleen	Healthy	RNA	5'RACE	HTS	2097
SRR21464509	*Rhiolophus affnis*	Spleen	Healthy	RNA	5'RACE	HTS	13050
SRR21464508	*Rhiolophus affnis*	Spleen	Healthy	RNA	5'RACE	HTS	26564

Supplementary Table 6-5. Basic information and unique TCRβCDR3 sequences analyzed for all *Hipposideros armige* samples.

Accession Number	Species	Tissue	Condition	Starting material	Library Preparation approach	Sequencing	Analysis Sequence Clonetype
SRR24889588	*Hipposideros armiger*	Spleen	Healthy	RNA	5'RACE	HTS	512
SRR24889587	*Hipposideros armiger*	Spleen	Healthy	RNA	5'RACE	HTS	26512
SRR24889586	*Hipposideros armiger*	Spleen	Healthy	RNA	5'RACE	HTS	8600

Supplementary Table 6-6. Basic information and unique TCRβ CDR3 sequences analyzed for all buffalo samples.

Accession Number	Species	Tissue	Condition	Starting material	Library Preparation approach	Sequencing	Analysis Sequence Clonetype
SRR24889447	*Bubalus bubalis*	Spleen	Healthy	DNA	multiplex PCR	HTS	29641
SRR24889446	*Bubalus bubalis*	Spleen	Healthy	DNA	multiplex PCR	HTS	18623
SRR24889445	*Bubalus bubalis*	Spleen	Healthy	DNA	multiplex PCR	HTS	15778
SRR24889444	*Bubalus bubalis*	Spleen	Healthy	DNA	multiplex PCR	HTS	34392
SRR24889443	*Bubalus bubalis*	Spleen	Healthy	DNA	multiplex PCR	HTS	13814
SRR22523497	*Bubalus bubalis*	Spleen	Healthy	DNA	multiplex PCR	HTS	32118

Supplementary Table 6-7. Basic information and unique TCRβ CDR3 sequences analyzed for all bovine samples.

Accession Number	Species	Tissue	Condition	Starting material	Library Preparation approach	Sequencing	Analysis Sequence Clonetype
SRR24889460	*Bos taurus*	Spleen	Healthy	DNA	multiplex PCR	HTS	33529
SRR24889459	*Bos taurus*	Spleen	Healthy	DNA	multiplex PCR	HTS	18514
SRR24889458	*Bos taurus*	Spleen	Healthy	DNA	multiplex PCR	HTS	42498
SRR24889457	*Bos taurus*	Spleen	Healthy	DNA	multiplex PCR	HTS	27470
SRR24889456	*Bos taurus*	Spleen	Healthy	DNA	multiplex PCR	HTS	21406
SRR24889455	*Bos taurus*	Spleen	Healthy	DNA	multiplex PCR	HTS	17585
SRR24889454	*Bos taurus*	Spleen	Healthy	DNA	multiplex PCR	HTS	18767