

Supplementary Table S1 Sequences of primers used in the TCR gene amplification

Name	Description	Length	Sequence
HT-TCR#A	β chain-anchor-specific forward	43	ACTTAAGCTTGGTACCGAGCTCGGATCTGCGGCCGCCACCATG
HT-TCR#B	C β -specific Reverse	30	CTCAAACACAGCGACCTCGGGTGGGAACAC
HTTCR#C-1	TRBV2*1,2-specific-forward	34	CGGCCGCCACCATGGATACCTGGCTCGTATGCTG
HTTCR#C-2	TRBV2*3-specific-forward	34	CGGCCGCCACCATGGATACCTGGCTGTATGCTGG
HTTCR#C-3	TRBV3-1*1-specific-forward	28	CGGCCGCCACCATGGGCTGCAGGCTCCT
HTTCR#C-4	TRBV3-1*2/9*1,2,3-specific-forward	30	CGGCCGCCACCATGGGCTTCAGGCTCCTCT
HTTCR#C-5	TRBV4-1,2,3-specific-forward	27	CGGCCGCCACCATGGGCTGCAGGCTGC
HTTCR#C-6	TRBV5-1*1-specific-forward	28	CGGCCGCCACCATGGGCTCCAGGCTGT
HTTCR#C-7	TRBV5-4,5-specific-forward-specific-forward	26	CGGCCGCCACCATGGGCCCTGGGCTC
HTTCR#C-8	TRBV5-6*1-specific-forward-specific-forward	24	CGGCCGCCACCATGGGCCCCGGGC
HTTCR#C-9	TRBV5-8*1,2-specific-forward-specific-forward	28	CGGCCGCCACCATGGGACCCAGGCTCCT
HTTCR#C-10	TRBV6-1*1/6-9*1-specific-forward	30	CGGCCGCCACCATGAGCATCGGGCTCCTGT
HTTCR#C-11	TRBV6-2*1/6-3*1/6-8*1-specific-forward	28	CGGCCGCCACCATGAGCCTCGGGCTCCT
HTTCR#C-12	TRBV6-4*1-specific-forward	34	CGGCCGCCACCATGAGAATCAGGCTCCTGTGCTG
HTTCR#C-13	TRBV6-4*2-specific-forward	32	CGGCCGCCACCATGAGCATCAGGCTCCTGTGC
HTTCR#C-14	TRBV6-5*1-specific-forward	30	CGGCCGCCACCATGAGCATCGGCCTCCTGT
HTTCR#C-15	TRBV6-6*1,2,3,4,5-specific-forward	32	CGGCCGCCACCATGAGCATCAGCCTCCTGTGC
HTTCR#C-16	TRBV7-2,3,4/7-8*1,2-specific-forward	28	CGGCCGCCACCATGGGCACCAGGCTCCT
HTTCR#C-17	TRBV7-6*1/11-2*1,2,3-specific-forward	32	CGGCCGCCACCATGGGCACCAGTGTCTCTATGT
HTTCR#C-18	TRBV7-6*2-specific-forward	32	CGGCCGCCACCATGGGCACCAGTCTCTCTATGC
HTTCR#C-19	TRBV7-7*1-specific-forward	35	CGGCCGCCACCATGGGTACCAGTCTCTATGCTGG
HTTCR#C-20	TRBV7-9*1,2,3,7-specific-forward	28	CGGCCGCCACCATGGGCACCAGCCTCCT
HTTCR#C-21	TRBV7-9*4-specific-forward	28	CGGCCGCCACCATGGGGACCAGCCTCCT
HTTCR#C-22	TRBV7-9*6-specific-forward	30	CGGCCGCCACCATGGCCCTGTGTCTCTCTGG
HTTCR#C-23	TRBV10-1*1,2-specific-forward	30	CGGCCGCCACCATGGGCACGAGGCTCTTCT
HTTCR#C-24	TRBV10-2*1/7-2*2-specific-forward	30	CGGCCGCCACCATGGGCACCAGGCTCTTCT
HTTCR#C-25	TRBV10-2*2-specific-forward	32	CGGCCGCCACCATGTGGCCCTTTGTCTGCTGT
HTTCR#C-26	TRBV10-3*1,2,3,4-specific-forward	37	CGGCCGCCACCATGGGCACAAGGTTGTTCTTCTATGT
HTTCR#C-27	TRBV11-1*1-specific-forward	32	CGGCCGCCACCATGAGCACCAGGCTTCTCTGC
HTTCR#C-28	TRBV11-3*1,2,3-specific-forward	31	CGGCCGCCACCATGGGTACCAGGCTCCTCTG
HTTCR#C-29	TRBV12-3*1-specific-forward	32	CGGCCGCCACCATGGACTCCTGGACCTTCTGC
HTTCR#C-30	TRBV12-4*1-specific-forward	31	CGGCCGCCACCATGGACTCCTGGACCCTCTG
HTTCR#C-31	TRBV12-4*2-specific-forward	29	CGGCCGCCACCATGGGCTCCTGGACCCTC
HTTCR#C-32	TRBV12-5*1-specific-forward	28	CGGCCGCCACCATGGCCACCAGGCTCCT

HTTCR#C-33	TRBV13*1,2-specific-forward	33	CGGCCGCCACCATGCTTAGTCCTGACCTGCCTG
HTTCR#C-34	TRBV14*1,2-specific-forward	38	CGGCCGCCACCATGGTTTCCAGGCTTCTCAGTTTAGTG
HTTCR#C-35	TRBV15*1,2,3-specific-forward	30	CGGCCGCCACCATGGGTCCTGGGCTTCTCC
HTTCR#C-36	TRBV16*1,3-specific-forward	36	CGGCCGCCACCATGAGCCCAATATTCACCTGCATCA
HTTCR#C-37	TRBV18*1-specific-forward	34	CGGCCGCCACCATGGACACCAGAGTACTCTGCTG
HTTCR#C-38	TRBV19*1,2,3-specific-forward	31	CGGCCGCCACCATGAGCAACCAGGTGCTCTG
HTTCR#C-39	TRBV20-1*1,2,3,4,5,6,7-specific-forward	30	CGGCCGCCACCATGCTGCTGCTTCTGCTGC
HTTCR#C-40	TRBV24-1*1-specific-forward	30	CGGCCGCCACCATGGCCTCCCTGCTCTTCT
HTTCR#C-41	TRBV25-1*1-specific-forward	36	CGGCCGCCACCATGACTATCAGGCTCCTCTGCTACA
HTTCR#C-42	TRBV27*1-specific-forward	26	CGGCCGCCACCATGGGCCCCAGCTC
HTTCR#C-43	TRBV28*1-specific-forward	33	CGGCCGCCACCATGGGAATCAGGCTCCTCTGTC
HTTCR#C-44	TRBV29-1*1,2,3-specific-forward	35	CGGCCGCCACCATGCTGAGTCTTCTGCTCCTTCTC
HTTCR#C-45	TRBV30*1,2,5-specific-forward	34	CGGCCGCCACCATGATGCTCTGCTCTCTCCTTGC
HT-TCR#D	α chain anchor-specific forward	29	GGAGACGTGGAAGAAAACCCCGGTCCCATG
HT-TCR#E	C α -specific reverse	30	AGGCAGACAGACTTGTCACTGGATTTAGAG
HTTCR#F-1	TRAV1-1*1,2-specific forward	37	AACCCCGGTCCCATGTGGGGAGCTTTCCTTCTCTATG
HTTCR#F-2	TRAV1-2*1-specific forward	42	AACCCCGGTCCCATGTGGGGAGTTTTCTTCTTTATGTTTCC
HTTCR#F-3	TRAV2*1-specific forward	33	AACCCCGGTCCCATGGCTTTGCAGAGCACTCTG
HTTCR#F-4	TRAV3*1-specific forward	31	AACCCCGGTCCCATGGCCTCTGCACCCATCT
HTTCR#F-5	TRAV4*1-specific forward	32	AACCCCGGTCCCATGAGGCAAGTGGCGAGAGT
HTTCR#F-6	TRAV5*1-specific forward	41	AACCCCGGTCCCATGAAGACATTTGCTGGATTTTCGTTTCT
HTTCR#F-7	TRAV6*1,3,4-specific forward	34	AACCCCGGTCCCATGGAGTCATTCCTGGGAGGTG
HTTCR#F-8	TRAV6*2,5,6-specific forward	32	AACCCCGGTCCCATGGAGTCATCCCTGGGAGG
HTTCR#F-9	TRAV7*1-specific forward	34	AACCCCGGTCCCATGGAGAAGATGCGGAGACCTG
HTTCR#F-10	TRAV8-1*1,2-specific forward	35	AACCCCGGTCCCATGCTCCTGTTGCTCATAACCAGT
HTTCR#F-11	TRAV8-2,4,6-specific forward	31	AACCCCGGTCCCATGCTCCTGCTGCTCGTCC
HTTCR#F-12	TRAV8-3*1,2,3-specific forward	34	AACCCCGGTCCCATGCTCCTGGAGCTTATCCAC
HTTCR#F-13	TRAV9-1*1-specific forward	39	AACCCCGGTCCCATGAATTCTTCTTAGGACCAGCGATT
HTTCR#F-14	TRAV9-2*1,2,3,4-specific forward	47	AACCCCGGTCCCATGAATCTTCTCCAGGCTTAGTATCTCTGATACT
HTTCR#F-15	TRAV10*1-specific forward	40	AACCCCGGTCCCATGAAAAAGCATCTGACGACCTTCTGG
HTTCR#F-16	TRAV12-1*1,2-specific forward	46	AACCCCGGTCCCATGATGATATCCTTGAGAGTTTTACTGGTGATCC
HTTCR#F-17	TRAV12-2-specific forward	47	AACCCCGGTCCCATGATGAAATCCTTGAGAGTTTTACTAGTGATCCT
HTTCR#F-18	TRAV12-3*1-specific forward	46	AACCCCGGTCCCATGATGAAATCCTTGAGAGTTTTACTGGTGATCC
HTTCR#F-19	TRAV12-3*2-specific forward	46	AACCCCGGTCCCATGATGAAATCCTTGAGAGTTTTACTGGTCATCC
HTTCR#F-20	TRAV13-1*1,2,3-specific forward	46	AACCCCGGTCCCATGACATCCATTTCGAGCTGTATTTATATTCCTGT
HTTCR#F-21	TRAV13-2*1,2-specific forward	45	AACCCCGGTCCCATGATGGCAGGCATTTCGAGTTTTATTTATGTAC
HTTCR#F-22	TRAV14/DV4*1,2,3,4-specific forward	37	AACCCCGGTCCCATGTCACTTTCTAGCCTGCTGAAGG
HTTCR#F-23	TRAV16*1-specific forward	34	AACCCCGGTCCCATGAAGCCCACCTCATCTCAG

HTTCR#F-24	TRAV17*1-specific forward	35	AACCCCGGTCCCATGGAAACTCTCCTGGGAGTGTC
HTTCR#F-25	TRAV18*1-specific forward	33	AACCCCGGTCCCATGCTGTCTGCTTCCTGCTCA
HTTCR#F-26	TRAV19*1-specific forward	33	AACCCCGGTCCCATGAACATGCTGACTGCCAGC
HTTCR#F-27	TRAV20*1,2,3,4-specific forward	40	AACCCCGGTCCCATGGAGAAAATGTTGGAGTGTGCATTCA
HTTCR#F-28	TRAV21*1,2-specific forward	31	AACCCCGGTCCCATGGAGACCCTCTTGGGCC
HTTCR#F-29	TRAV22*1-specific forward	37	AACCCCGGTCCCATGAAGAGGATATTGGGAGCTCTGC
HTTCR#F-30	TRAV23/DV6*1,2,3,4-specific forward	47	AACCCCGGTCCCATGGACAAGATCTTAGGAGCATCATTTTTAGTTCT
HTTCR#F-31	TRAV24*1,2-specific forward	36	AACCCCGGTCCCATGGAGAAGAATCCTTTGGCAGCC
HTTCR#F-32	TRAV25*1-specific forward	44	AACCCCGGTCCCATGCTACTCATCACATCAATGTTGGTCTTATG
HTTCR#F-33	TRAV26-1*1,2,3-specific forward	34	AACCCCGGTCCCATGAGGCTGGTGGCAAGAGTAA
HTTCR#F-34	TRAV26-2*1-specific forward	40	AACCCCGGTCCCATGAGTTGGTGACAAGCATTACTGTAC
HTTCR#F-35	TRAV26-2*02-specific forward	42	AACCCCGGTCCCATGAAGTTGGTGACAAGCATTACTGTACTC
HTTCR#F-36	TRAV27*1,2,3-specific forward	36	AACCCCGGTCCCATGGTCCTGAAATTCTCCGTGTCC
HTTCR#F-37	TRAV29/DV5*1-specific forward	29	AACCCCGGTCCCATGGCCATGCTCCTGGG
HTTCR#F-38	TRAV30*1,3,4-specific forward	38	AACCCCGGTCCCATGGAGACTCTCCTGAAAGTGCTTTC
HTTCR#F-39	TRAV30*2-specific forward	35	AACCCCGGTCCCATGGAGACTCTCCTGAAAGTGCC
HTTCR#F-40	TRAV34*1-specific forward	37	AACCCCGGTCCCATGGAGACTGTTCTGCAAGTACTCC
HTTCR#F-41	TRAV35*1,2-specific forward	49	AACCCCGGTCCCATGCTCCTTGAACATTTATTAATAATCTTGTGGATGC
HTTCR#F-42	TRAV36/DV7*1-specific forward	33	AACCCCGGTCCCATGATGAAGTGCCGAGGCT
HTTCR#F-43	TRAV36/DV7*2,3,4-specific forward	38	AACCCCGGTCCCATGATGAAGTGCCACAGGCTTACT
HTTCR#F-44	TRAV38-1*1,2,3-specific forward	35	AACCCCGGTCCCATGACACGAGTTAGCTTGCTGTG
HTTCR#F-45	TRAV38-1*4-specific forward	35	AACCCCGGTCCCATGACACCAGTTAGCTTGCTGTG
HTTCR#F-46	TRAV38-2/DV8*1-specific forward	29	AACCCCGGTCCCATGGCATGCCCTGGCTT
HTTCR#F-47	TRAV39*1-specific forward	42	AACCCCGGTCCCATGAAGAAGCTACTAGCAATGATTCTGTGG
HTTCR#F-48	TRAV40*1-specific forward	43	AACCCCGGTCCCATGAACTCCTCTCTGGACTTTCTAATTCTGA
HTTCR#F-49	TRAV41*1-specific forward	39	AACCCCGGTCCCATGGTGAAGATCCGGCAATTTTTGTTG
HTTCR#G	C β -specific forward	30	GTGTTCCACCCGAGGTCGCTGTGTTTGAG
HTTCR#H	P2A-specific Reverse	30	CATGGGACCGGGTTTTCTTCCACGTCTCC

Supplementary Table S2 Sequences of TCR clones shown in Supplemental Figure S5*

Tumor #2	V region subtype	CDR3 sequence (D region subtype)	J region subtype
Clone #1 TCR β chain	TRBV6-5*01	CASSYRTGSDEQFF (TRBD1*01)	TRBJ2-1*01
Clone #1 TCR α chain	TRAV29/DV5*01	CAARLLNRDDKIIF	TRAJ30*01
Clone #4 TCR β chain	TRBV6-5*01	CASSYRTGSDEQFF (TRBD1*01)	TRBJ2-1*01
Clone #4 TCR α chain	TRAV29/DV5*01	CAARLLNRDDKIIF	TRAJ30*01
Clone #12 TCR β chain	TRBV6-5*01	CASSYRTGSDEQFF (TRBD1*01)	TRBJ2-1*01
Clone #12 TCR α chain	TRAV29/DV5*01	CAARLLNRDDKIIF	TRAJ30*01
Tumor #3, Clonotype 3A	V region subtype	CDR3 sequence (D region subtype)	J region subtype
Clone #1 TCR β chain	TRBV9*01	CASSLGTSGIQFF (TRBD2*02)	TRBJ2-1*01
Clone #1 TCR α chain	TRAV29/DV5*01	CAASEMGTSYDKVIF	TRAJ50*01
Clone #5 TCR β chain	TRBV9*01	CASSLGTSGIQFF (TRBD2*02)	TRBJ2-1*01
Clone #5 TCR α chain	TRAV29/DV5*01	CAASEMGTSYDKVIF	TRAJ50*01
Clone #12 TCR β chain	TRBV9*01	CASSLGTSGIQFF (TRBD2*02)	TRBJ2-1*01
Clone #12 TCR α chain	TRAV29/DV5*01	CAASEMGTSYDKVIF	TRAJ50*01
Tumor #3, Clonotype 3B	V region subtype	CDR3 sequence (D region subtype)	J region subtype
Clone #3 TCR β chain	TRBV9*01	CASSLGTSGIQFF (TRBD2*02)	TRBJ2-1*01
Clone #3 TCR α chain	TRAV2*01	CAVYSGGGADGLTF	TRAJ45*01
Clone #9 TCR β chain	TRBV9*01	CASSLGTSGIQFF (TRBD2*02)	TRBJ2-1*01
Clone #9 TCR α chain	TRAV2*01	CAVYSGGGADGLTF	TRAJ45*01

*TCR α and β chain sequences were obtained by the Sanger sequencing and were analyzed using the IMGT/V-QUEST platform (<http://www.imgt.org/>).