

Supplementary Table 4. Amino acid sequence of the functional mutation-reactive T cell receptors isolated from the peripheral blood CD8⁺PD-1⁺ subset of NCI-3998

Patient ID	Reactivity	TRA rank/ TRB rank (T cell population of origin)	TRAV /TRAJ	TCR alpha chain V-J amino acid sequence (CDR3 highlighted)	TRBV/TRBJ	TCR beta chain V-D-J amino acid sequence (CDR3 highlighted)
NCI-3998	MAGEA6 _{E168K} -specific TCR	A1/B1 (TMG1- enriched)	TRAV21*01/ TRAJ21*01F	METLLGILLILWLQLQWVSSK QEVTPQIPAALSVPEGENLVLN CSFTDSAIYNLQWFRQDPGK GLTSLLIQSSQREQTSGLRNA SLDKSSGRSTLYIAASQPGDSA TYLCAVDNFKFYFGSGTKLN VKP	TRBV7-3*01/ TRBJ1-2*01	MGTRLLCWAALCLLGADHTGAGVS QTPSNKVTEKGYVELRCDPISGH LYWYRQSLGQGPFLIYFQGTGAAD DSGLPNDRFFAVRPEGSVSTLKIQRTE RGDSAVYLCASSSQGGYGYTFGSGTR LTVV
	MAGEA6 _{E168K} -specific TCR	A2/B2 (TMG1- enriched)	TRAV39*01/ TRAJ58*01	MKKLLAMILWLQLDRLSGELK VEQNPLFLSMQEGKNYTIYCN YSTTSDRLYWYRQDPGKSL LFVLLSNGAVKQEGRLMASLD TKARLSTLHITAAVHDLSATYF CAGSGSRLTFEGEGTQLTVNP	TRBV7-6*01/ TRBJ1-2*01	MGTSLLCWVVLGFLGTDHTGAGVS QSPRYKVTKRGQDVALRCDPISGHVS LYWYRQALGQGPFLTYFNIEAQQD KSGLPNDRFSAERPEGSISTLTIQRTE QRDSAMYRCASSFDRGYGYTFGSGT RLTVV
	PDS5A _{Y1000F;H1} 007Y -specific TCR	A1/B2 (TMG3- enriched)	TRAV38- 1*01/ TRAJ53*01	MTRVSLWVAVVSTCLES AQTVTQSQPEMSVQEAETVT LSCYDTSENNYLFWYKQPP SRQMILVIRQEAYKQKNATE NRFVSNFQKAAKSFLKISDS QLGDTAMYFCAFTELNSGGG NYKLTFGKGTLLTVNP	TRBV27*01/ TRBJ2-2*01	MGPQLLGYVVLCLLGAGPLEAQVTQ NPRYLITVTGKKLTVTCSQNMNHEY MSWYRQDPGLRQIYYSMNVEVT DKGDVPEGYKVSKEKRNFLILESPS PNQTSLYFCASSLGGLLRTGELFFGE GSRLTVL
	MED13 _{P1691S} -specific TCR	A1/B1 (TMG5- enriched)	TRAV12- 1*01/ TRAJ27*01	MISLRVLLVILWLQLSWVWS QRKEVEQDPGPFNVPEGATV AFNCTYSNSASQSFFWYRQD CRKEPKLLMSVYSSGNEGDRF TAQLNRSQYISLLIRDSKLS SATYLCVVNTNAGKSTFGDGT TLTVKP	TRBV9*01/ TRBJ2-1*01	MGFRLLCCVAFCLLGAGPVDGVTQ TPKHLITATGQQRVTLRCSRSGDLSVY WYQQSLDQGLQFLIQYYNGEERAKG NILERFSAQQFPDLHSELNLSLELGD SALYFCASSGRVTGGFYNEQFFGPGT RLTVL
	MED13 _{P1691S} -specific TCR	A2/B2 (TMG5- enriched)	TRAV12- 2*01/ TRAJ29*01	MKSLRVLLVILWLQLSWVWS QQKEVEQNSGPLSVPEGAIAS LNCTYSDRGSQSFFWYRQYS GKSPPELIMFIYSNGDKEDGRF TAQLNKASQYVLLIRDSQPS DSATYLCASSGGNTPLVFGKG TRLSVIA	TRBV27*01/ TRBJ2-7*01	MGPQLLGYVVLCLLGAGPLEAQVTQ NPRYLITVTGKKLTVTCSQNMNHEY MSWYRQDPGLRQIYYSMNVEVT DKGDVPEGYKVSKEKRNFLILESPS PNQTSLYFCASSFGGAYEQYFGPGTR LTVT

The amino acid sequences of the TRAV-TRAJ or the TRBV-TRBD-TRBJ rearrangements, encoding for the hypervariable region of the TRA and TRB genes, used to construct each TCR are shown. The amino acid sequence of the complementarity determining region 3 (CDR3) important for peptide recognition is highlighted in grey.