

Figure 1

SEQ ID NO: 2 Amino acid sequence of a native alpha chain extracellular region. The variable region comprises residues 1 – 113. CDRs are underlined and CDR1, 2, 3 are designated SEQ ID NO: 6, 7 and 8, respectively. The FR2 and FR3 regions are in bold and are designated SEQ ID NO: 9 and 10, respectively. The constant region is shown in italics.

KNQVEQSPQSLIILEGKNCTLQCNYTVSPFSNLRWYKQDTGRGPVSLTIMTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVNHSGGSYIPTFGRGTSLIVHPYIQKPDPAVYQLR
DSKSSDKSVCLFTDFDSQTNVSQSKDSDVYITDKTVLDMRSMDFKSNSAVAWSNKSDFACA
*NAFNNSIIPEDTFFPSP*ESS

SEQ ID NO: 3 Amino acid sequence of a native beta chain extracellular region. The variable region comprises residues 1-116. CDRs are underlined and are designated SEQ ID NO: 11, 12 and 13, respectively. The FR2 and FR3 regions are in bold and are designated SEQ ID NO: 14 and 15, respectively. The constant region is shown in italics.

DVKVTQSSRYLVKRTGEKVFLQDMDHENMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSFLMTSGDPYEQYFGPGTRLTVTEDLKNV
FPPEVAVFEPSEAEISHTQKATLVCLATGFYPDHVELSWVNGKEVHSGVSTDPQPLKEQP
ALNDSRYCLSSRLRVSATFWQNP RNHFRCQVQFYGLSENDEWTQDRAKPVTQIVSAEAWGR
AD

Figure 2

SEQ ID NO: 4 Amino acid sequence of the soluble extracellular region of a native TCR alpha chain. CDRs are underlined. The constant region is shown in italics and the non-native cysteine residue is shown in bold (at position 48 of constant region).

KNQVEQSPQSLIIILEGKNCTLQCNYTVSPFSNLRWYKQDTGRGPVSLTIMTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV^VNHSGGSYIPTFGRGTS LIVHPYIQKPDPAVYQLR
DSKSSDKSVCLFTDFDSQTNVSQSKDSDVYITDK**C**VLDMRSMDFKSNSA VAWSNKSDFACA
NAFNNSIIPEDTFFPSPSS

SEQ ID NO: 5 Amino acid sequence of the soluble extracellular region of a native TCR beta chain. CDRs are underlined. The constant region is shown in italics and the non-native cysteine residue is shown in bold (at position 57 of constant region). Additional non-native amino acids at position 75 and position 89 of the constant region are also shown in bold.

DVKVTQSSRYLVKRTGEKVFLECVQDMDHENMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLIILEASTNQTSMYLCASSFLMTSGDPYEQYFGPGTRLTVTEDLKNV
FPPEVAVFEPSEAEISHTQKATLVCLATGFYPDHVELSWWVNGKEVHSGV**C**TDPQPLKEQP
ALNDSRY**A**LSSRLRVSATFWQDPRNHFR**C**QVQFYGLSENDEWTQDRAKPVTQIVSAEAWGR
AD

Figure 3

Amino acid sequences of mutated TCR alpha chain variable regions. CDRs are underlined and mutations are in bold

SEQ ID NO: 16 mutant alpha chain (c19v).

KNQVEQSPQSLI ILEGKN**V**TLQCNYTVSPFSNLRWYKQDTGRGPVSLT IMTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVNHSGGSYIPTFGRGTS LIVHP

SEQ ID NO: 17 mutant alpha chain (a7)

KNQVEQSPQSLI ILEGKN**V**TLQCNYTVSPFSNLRWYKQDTGRGPVSLT LDYAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVNHSGGSYIPTFGRGTS LIVHP

SEQ ID NO: 18 mutant alpha chain (a12)

KNQVEQSPQSLI ILEGKN**V**TLQCNYTVSPFSNLRWYKQDTGRGPVSLT IMTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVN**RADGLY**IPTFGRGTS LIVHP

SEQ ID NO: 19 mutant alpha chain (a13)

KNQVEQSPQSLI ILEGKN**V**TLQCNYTVSPFSNLRWYKQDTGRGPVSLT IMTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVN**SANGLY**IPTFGRGTS LIVHP

SEQ ID NO: 20 mutant alpha chain (a13ka)

ANQVEQSPQSLI ILEGKN**V**TLQCNYTVSPFSNLRWYKQDTGRGPVSLT IMTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVN**SANGLY**IPTFGRGTS LIVHP

SEQ ID NO: 21 mutant alpha chain (a19)

KNQVEQSPQSLI ILEGKN**V**TLQCNYTVSPFSNLRWYKQDTGRGPVSLT LDYAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVN**RADGLY**IPTFGRGTS LIVHP

SEQ ID NO: 22 mutant alpha chain (a19ka)

ANQVEQSPQSLI ILEGKN**V**TLQCNYTVSPFSNLRWYKQDTGRGPVSLT LDYAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVN**RADGLY**IPTFGRGTS LIVHP

Figure 3 continued

SEQ ID NO: 23 mutant alpha chain (a13kaLS)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~L~~TFSENTKSNGRYT
 ATLDADTKQSSLHITASQLSDSASYICVVNSASGLYIPTFGRGTSLIVHP

SEQ ID NO: 24 mutant alpha chain (a13kaLQ)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~L~~TFSENTKSNGRYT
 ATLDADTKQSSLHITASQLSDSASYICVVNSAQGLYIPTFGRGTSLIVHP

SEQ ID NO: 46 mutant alpha chain (a36)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~M~~TFSENTKSNGRYT
 ATLDADTKQSSLHITASQLSDSASYICVVNSAQGLYIPTFGRGTSLIVHP

SEQ ID NO: 47 mutant alpha chain (a37)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~L~~TYSENTKSNGRYT
 ATLDADTKQSSLHITASQLSDSASYICVVNSAQGLYIPTFGRGTSLIVHP

SEQ ID NO: 48 mutant alpha chain (a38)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~L~~TFSENTKSNGRYT
 ATLDADTKQSSLHITASQLSDSASYICVVNHAQGLYIPTFGRGTSLIVHP

SEQ ID NO: 49 mutant alpha chain (a39)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~L~~TFSENTKSNGRYT
 ATLDADTKQSSLHITASQLSDSASYICVVNSSQGLYIPTFGRGTSLIVHP

SEQ ID NO: 50 mutant alpha chain (a40)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~L~~TFSENTKSNGRYT
 ATLDADTKQSSLHITASQLSDSASYICVVNSAGGLYIPTFGRGTSLIVHP

SEQ ID NO: 51 mutant alpha chain

(a41)ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~L~~TFSENTKSN
 RYTATLDADTKQSSLHITASQLSDSASYICVVNSAQGSYIPTFGRGTSLIVHP

Figure 3 continued

SEQ ID NO: 52 mutant alpha chain (a30)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~MDY~~AINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~RADGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

SEQ ID NO: 53 mutant alpha chain (a42)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~LT~~YAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~RADGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

SEQ ID NO: 54 mutant alpha chain (a31)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~LD~~FAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~RADGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

SEQ ID NO: 55 mutant alpha chain (a43)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~LD~~YSINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~RADGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

SEQ ID NO: 56 mutant alpha chain (a32)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~LD~~YAENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~RADGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

SEQ ID NO: 57 mutant alpha chain (a44)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~LD~~YAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~HADGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

SEQ ID NO: 58 mutant alpha chain (a33)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~LD~~YAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~RSDGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

SEQ ID NO: 59 mutant alpha chain (a45)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFSNLRWYKQDTGRGPVSLTI~~LD~~YAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~VN~~RAGGLYIP~~T~~FGRGTS~~L~~I~~V~~H~~P~~

Figure 3 continued

SEQ ID NO: 60 mutant alpha chain (a34)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFNSLRWYKQDTGRGPVSLTI~~I~~LDYAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~V~~NRADGSYIPTFGRGTS LIVHP

SEQ ID NO: 61 mutant alpha chain (aWTka)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFNSLRWYKQDTGRGPVSLTIMTFSENTTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~V~~NHSGGSYIPTFGRGTS LIVHP

SEQ ID NO: 62 mutant alpha chain (aM50L)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFNSLRWYKQDTGRGPVSLTI~~I~~LTFSENTTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~V~~NHSGGSYIPTFGRGTS LIVHP

SEQ ID NO: 63 mutant alpha chain (aS95A)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFNSLRWYKQDTGRGPVSLTIMTFSENTTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~V~~NHAGGSYIPTFGRGTS LIVHP

SEQ ID NO: 64 mutant alpha chain (aS98L)

ANQVEQSPQSLIIILEGKNVTLQCN~~Y~~TVSPFNSLRWYKQDTGRGPVSLTIMTFSENTTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICV~~V~~NHSGGLYIPTFGRGTS LIVHP

Figure 4

Amino acid sequences of mutated TCR beta chain variable regions. CDRs are underlined and mutations are in bold

SEQ ID NO: 25 mutant beta chain (b1)

DVKVTQSSRYLVKRTGEKVFLECVQDMDHENMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 26 mutant beta chain (b14)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 27 mutant beta chain (b14L)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWYRQDPGLGLRLIYFSYDVKLKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 28 mutant beta chain (b21)

DVKVTQSSRYLVKRTGEKVFLECVQDMDHENMFWYRQDPGLGLRLIYFSSRFATGKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 29 mutant beta chain (b21L)

DVKVTQSSRYLVKRTGEKVFLECVQDLDHENMFWYRQDPGLGLRLIYFSSRFATGKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 65 mutant beta chain (b41)

DVKVTQSSRYLVKRTGEKVFLECVQDMDHENMFWYRQDPGLGLRLIYFSSRFATGKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 66 mutant beta chain (b42)

DVKVTQSSRYLVKRTGEKVFLECVQDLDHENMFWYRQDPGLGLRLIYFSYFATGKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

Figure 4 continued

SEQ ID NO: 67 mutant beta chain (b43)

DVKVTQSSRYLVKRTGEKVFLECVQDLDHENMFWYRQDPGLGLRLIYFSRDATGKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 68 mutant beta chain (b44)

DVKVTQSSRYLVKRTGEKVFLECVQDLDHENMFWYRQDPGLGLRLIYFSRFVTGKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 69 mutant beta chain (b45)

DVKVTQSSRYLVKRTGEKVFLECVQDLDHENMFWYRQDPGLGLRLIYFSRFAKGKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 70 mutant beta chain (b46)

DVKVTQSSRYLVKRTGEKVFLECVQDLDHENMFWYRQDPGLGLRLIYFSRFATMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 71 mutant beta chain (b32)

DVKVTQSSRYLVKRTGEKVFLECVQDMPLSKMFWYRQDPGLGLRLIYFSSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 72 mutant beta chain (b33)

DVKVTQSSRYLVKRTGEKVFLECVQDADLSKMFWYRQDPGLGLRLIYFSSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 73 mutant beta chain (b34)

DVKVTQSSRYLVKRTGEKVFLECVQDAPHSKMFWYRQDPGLGLRLIYFSSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 74 mutant beta chain (b35)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLEKMFWYRQDPGLGLRLIYFSSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

Figure 4 continued

SEQ ID NO: 75 mutant beta chain (b36)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLSKNMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 76 mutant beta chain (b37)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSFDQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 77 mutant beta chain (b38)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSLQNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 78 mutant beta chain (b39)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDMNSGDPYEQYFGPGTRLTVT

SEQ ID NO: 79 mutant beta chain (b40)

DVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSSDQTSGDPYEQYFGPGTRLTVT

SEQ ID NO: 80 mutant beta chain (bL96D)

DVKVTQSSRYLVKRTGEKVFLECVQDMDHENMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSFDMTSGDPYEQYFGPGTRLTVT

SEQ ID NO: 81 mutant beta chain (bM97Q)

DVKVTQSSRYLVKRTGEKVFLECVQDMDHENMFWYRQDPGLGLRLIYFSYDVKMKEKGDIP
EGYSVSREKKERFSLILESASTNQTSMYLCASSFLQTSGDPYEQYFGPGTRLTVT

Figure 5

Amino acid sequences of alpha chains of TCR anti-CD3 fusion molecules

SEQ ID NO: 38 alpha chain (a19ka)

ANQVEQSPQSLIIILEGKNVTLQCNYTVSPFSNLRWYKQDTGRGPVSLTILDYAINTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVNRADGLYIPTFGRGTSLIVHPYIQKPDPAVYQLR
DSKSSDKSVCLFTDFDSQTNVSQSKDSDVYITDKCVLDMRSMDFKSNSAVAWSNKSDFACA
NAFNNSIIPEDT

SEQ ID NO: 39 alpha chain (a13ka)

ANQVEQSPQSLIIILEGKNVTLQCNYTVSPFSNLRWYKQDTGRGPVSLTIMTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVNSANGLYIPTFGRGTSLIVHPYIQKPDPAVYQLR
DSKSSDKSVCLFTDFDSQTNVSQSKDSDVYITDKCVLDMRSMDFKSNSAVAWSNKSDFACA
NAFNNSIIPEDT

SEQ ID NO: 40 alpha chain (a13kaLQ)

ANQVEQSPQSLIIILEGKNVTLQCNYTVSPFSNLRWYKQDTGRGPVSLTILTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVNSAQGLYIPTFGRGTSLIVHPYIQKPDPAVYQLR
DSKSSDKSVCLFTDFDSQTNVSQSKDSDVYITDKCVLDMRSMDFKSNSAVAWSNKSDFACA
NAFNNSIIPEDT

SEQ ID NO: 41 alpha chain (a13kaLS)

ANQVEQSPQSLIIILEGKNVTLQCNYTVSPFSNLRWYKQDTGRGPVSLTILTFSENTKSNGRYT
ATLDADTKQSSLHITASQLSDSASYICVVNSASGLYIPTFGRGTSLIVHPYIQKPDPAVYQLR
DSKSSDKSVCLFTDFDSQTNVSQSKDSDVYITDKCVLDMRSMDFKSNSAVAWSNKSDFACA
NAFNNSIIPEDT

Figure 6

Amino acid sequences of beta chains of TCR-anti-CD3 fusion molecules

SEQ ID NO: 42 beta chain (b14). Anti-CD3 scFv shown in bold and linker shown in italics

AIQMTQSPSSLSASVGDRVTITCRASQDIRNYLNWYQQKPGKAPKLLIYYTSRLESGVPSR
FSGSGSGTDYTLTISSLPEDFATYYCQQGNTLPWTFGQGTKVEIKGGGGSGGGGSGGGGS
GGGGSGGGSEVQLVESGGGLVQPGGSLRLSCAASGYSTGYTMNWVRQAPGKGLEWVALIN
PYKGVSTYNQKFKDRFTISVDKSKNTAYLQMNSLRAEDTAVYYCARSGYYGDSDWYFDVWG
QGTLLVTVSS*GGGGSDVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWRQDPGLGLRLIY*
FSYDVKMKEKGDIPGYSVSREKKERFSLILESASTNQTSMYLCASSDQNSGDPYEQYFG
PGTRLTVTEDLKNVFPPEVAVFEPSEAEISHTQKATLVCLATGFYPDHVELSWVNGKEVH
SGVCTDPQPLKEQPALNDSRYALSSRLRVSATFWQDPRNHFRCQVQFYGLSENDEWTQDRA
KPVTQIVSAEAWGRAD

SEQ ID NO: 43 beta chain (b14L). Anti-CD3 scFv shown in bold and linker shown in italics

AIQMTQSPSSLSASVGDRVTITCRASQDIRNYLNWYQQKPGKAPKLLIYYTSRLESGVPSR
FSGSGSGTDYTLTISSLPEDFATYYCQQGNTLPWTFGQGTKVEIKGGGGSGGGGSGGGGS
GGGGSGGGSEVQLVESGGGLVQPGGSLRLSCAASGYSTGYTMNWVRQAPGKGLEWVALIN
PYKGVSTYNQKFKDRFTISVDKSKNTAYLQMNSLRAEDTAVYYCARSGYYGDSDWYFDVWG
QGTLLVTVSS*GGGGSDVKVTQSSRYLVKRTGEKVFLECVQDAPLSKMFWRQDPGLGLRLIY*
FSYDVKLKEKGDIPGYSVSREKKERFSLILESASTNQTSMYLCASSDQNSGDPYEQYFG
PGTRLTVTEDLKNVFPPEVAVFEPSEAEISHTQKATLVCLATGFYPDHVELSWVNGKEVH
SGVCTDPQPLKEQPALNDSRYALSSRLRVSATFWQDPRNHFRCQVQFYGLSENDEWTQDRA
KPVTQIVSAEAWGRAD

Figure 6 continued

SEQ ID NO: 44 beta chain (b21). Anti-CD3 scFv shown in bold and linker shown in italics

AIQMTQSPSSLSASVGDRVTITCRASQDIRNYLNWYQQKPGKAPKLLIYYTSRLESGVPSR
FSGSGSGTDYTLTISSSLQPEDFATYYCQQGNTLPWTFGQGTKVEIKGGGGSGGGGSGGGGS
GGGGSGGGSEVQLVESGGGLVQPGGSLRLSCAASGYSTFTGYTMNWVRQAPGKGLEWVALIN
PYKGVSTYNQKFKDRFTISVDKSKNTAYLQMNSLRAEDTAVYYCARSGYYGDSDWYFDVWG
QGTLLVTVSSGGGGSDVKVTQSSRYLVKRTGEKVFLECVQDMDHENMFWYRQDPGLGLRLIY
FSRFATGKEKGDIPGYSVSREKKERFSLILESASTNQTSMYLCASSDQNSGDPYEQYFG
PGTRLTVTEDLKNVFPPEVAVFEPSEAEISHTQKATLVCLATGFYPDHVELSWVWNGKEVH
SGVCTDPQPLKEQPALNDSRYALSSRLRVSATFWQDPRNHFRQCQVQFYGLSENDEWTQDRA
KPVTVQIVSAEAWGRAD

SEQ ID NO: 45 beta chain (b21L). Anti-CD3 scFv shown in bold and linker shown in italics

AIQMTQSPSSLSASVGDRVTITCRASQDIRNYLNWYQQKPGKAPKLLIYYTSRLESGVPSR
FSGSGSGTDYTLTISSSLQPEDFATYYCQQGNTLPWTFGQGTKVEIKGGGGSGGGGSGGGGS
GGGGSGGGSEVQLVESGGGLVQPGGSLRLSCAASGYSTFTGYTMNWVRQAPGKGLEWVALIN
PYKGVSTYNQKFKDRFTISVDKSKNTAYLQMNSLRAEDTAVYYCARSGYYGDSDWYFDVWG
QGTLLVTVSSGGGGSDVKVTQSSRYLVKRTGEKVFLECVQDLHDHENMFWYRQDPGLGLRLIY
FSRFATGKEKGDIPGYSVSREKKERFSLILESASTNQTSMYLCASSDQNSGDPYEQYFG
PGTRLTVTEDLKNVFPPEVAVFEPSEAEISHTQKATLVCLATGFYPDHVELSWVWNGKEVH
SGVCTDPQPLKEQPALNDSRYALSSRLRVSATFWQDPRNHFRQCQVQFYGLSENDEWTQDRA
KPVTVQIVSAEAWGRAD

Figure 7

Potent and specific recognition of antigen positive cancer cells by MAGE A4 TCR-anti-CD3 fusion molecules I

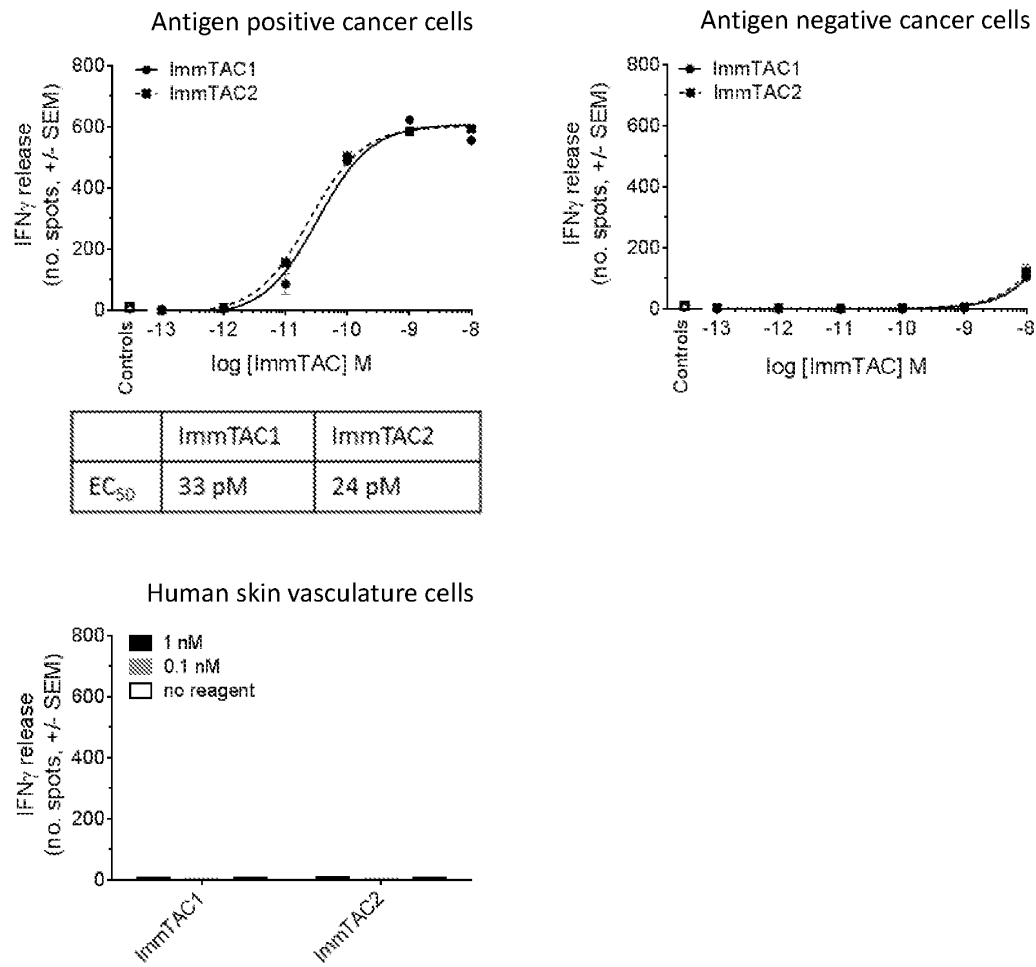


Figure 8

Potent and specific recognition of antigen positive cancer cells by MAGE A4 TCR-anti-CD3 fusion molecules II

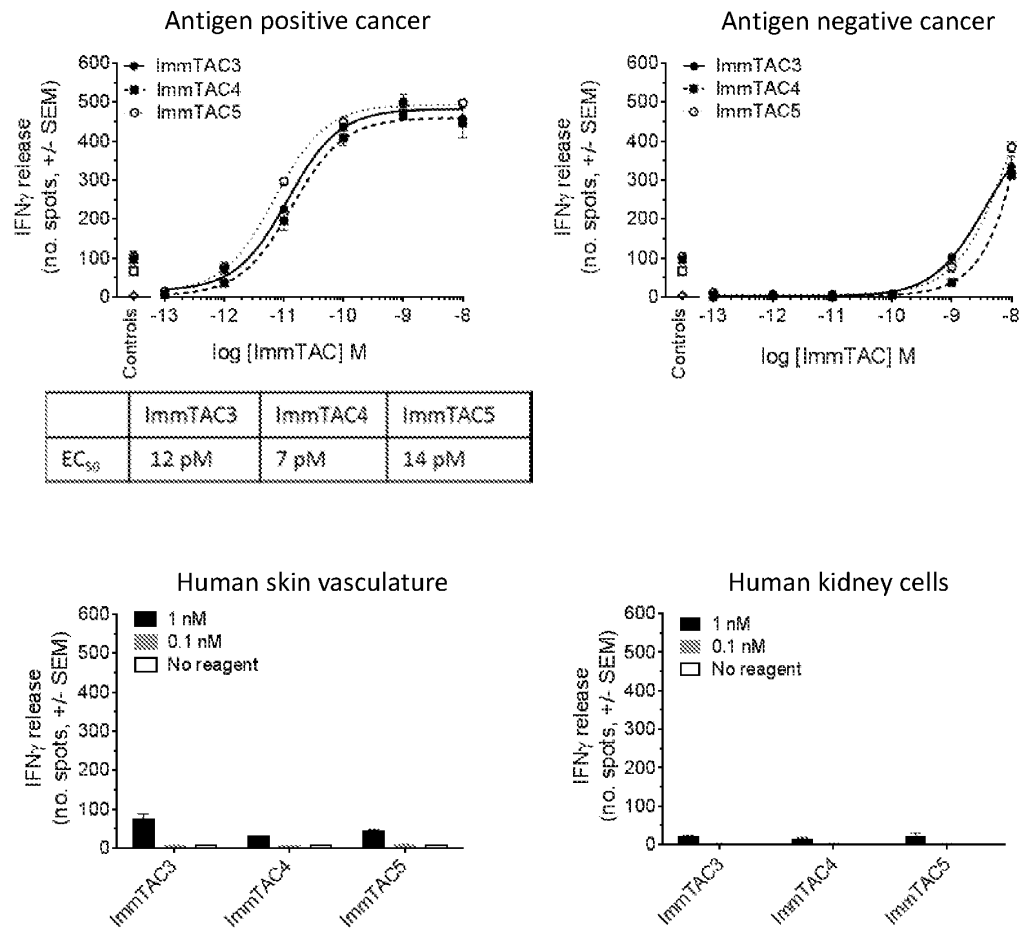


Figure 9

Further specificity tests for MAGE A4 TCR-anti-CD3 fusion molecules I

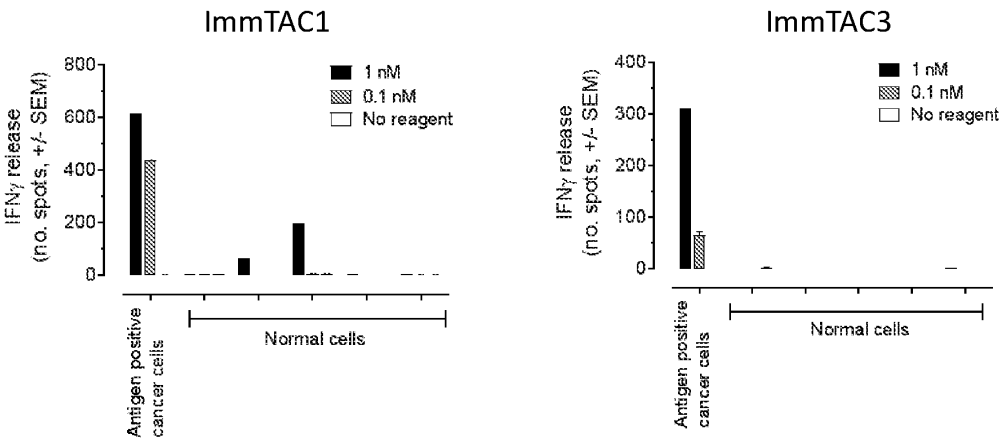


Figure 10

Further specificity tests for MAGE A4 TCR-anti-CD3 fusion molecules II

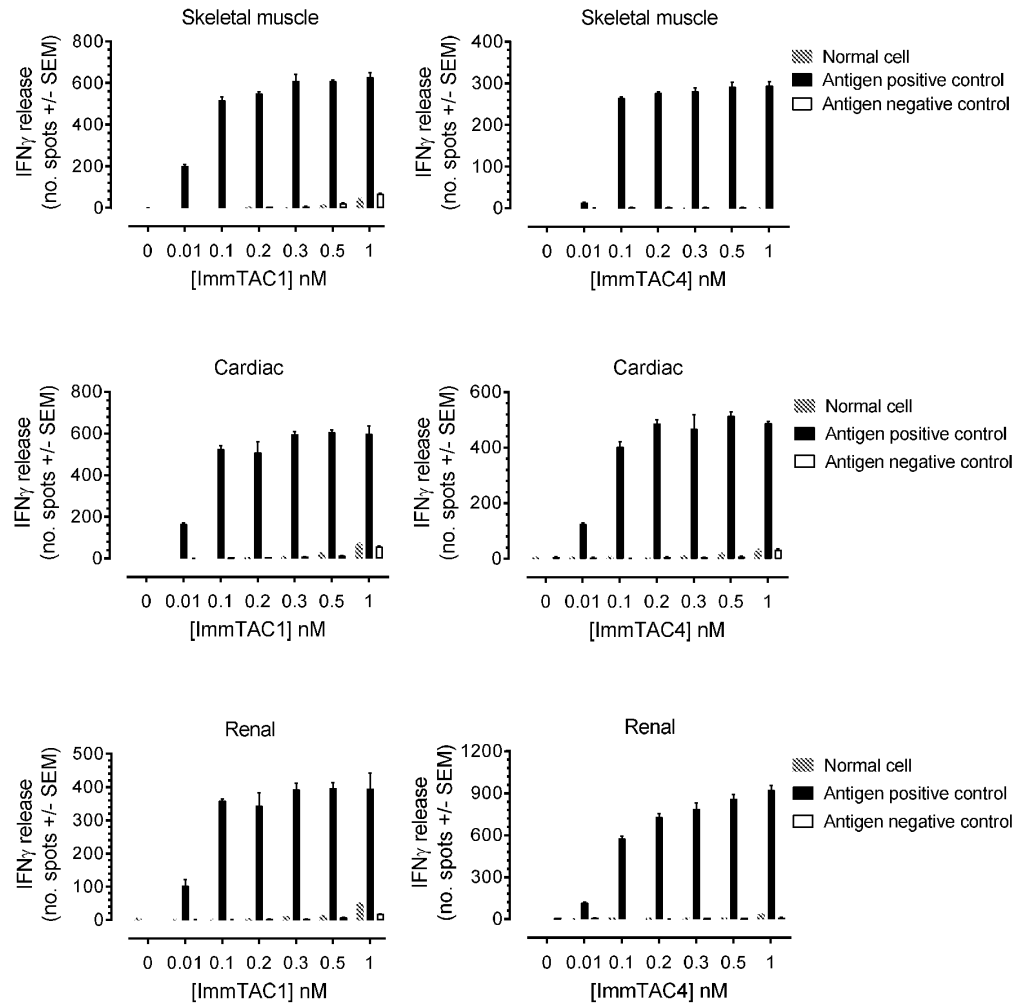


Figure 11a

Real-time killing response against antigen positive cells (top panel) and antigen negative cells (bottom panel) for MAGE A4 TCR-anti-CD3 fusion molecules

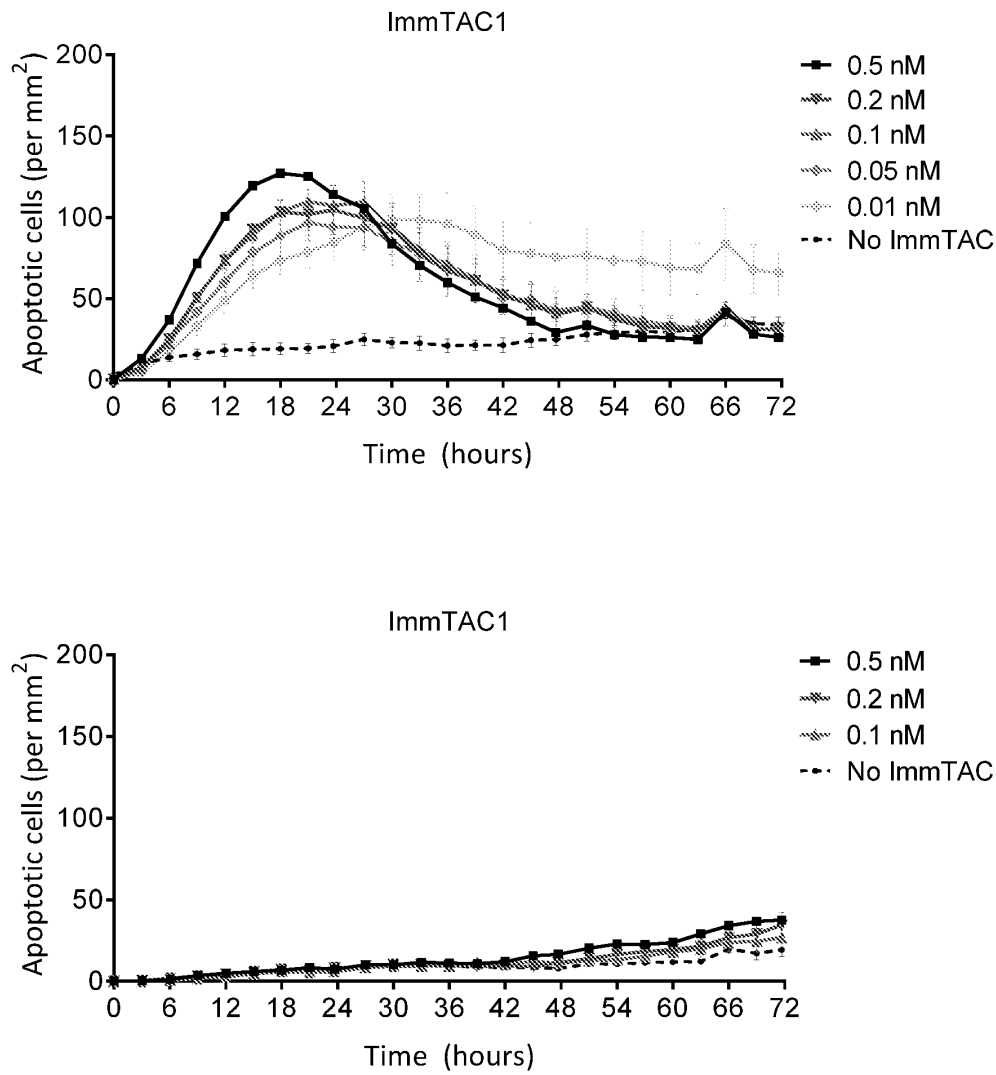


Figure 11b

Real-time killing response against antigen positive cells (top panel) and antigen negative cells (bottom panel) for MAGE A4 TCR-anti-CD3 fusion molecules

