

Beta chain - VDJ regions

ATGGCCCCGGGGCTTTTGTGTTGGGCCTTGCTTTGTTTGCTTGGGGCAGGCTTGGTGGATGCTGGAGTCA
CACAGTCACCCACACACCTCATTA~~AAA~~ACCAGGGGACAACAAGTCACTCTGCGCTGCAGTCCTAAGTCAGG
CCATGACACAGTTTCTGGTATCAACAGGCTCTGGGGCAGGGCCCTCAGTTCATTTTCCAATATTACGAG
GAAGAGGAACGCCAACGCGGTAATTTCCCCGATCGGTTCTCTGGGCACCAGTTC~~CCAA~~ACTACTCAAGTG
AGTTGAACGTAAATGCTCTCCTCCTCGGAGACTCCGCCCTCTACTTGTGTGCCAGTTCCTTTGGTTGGCG
GGGCGGCCGATACAATGAACAATTTTTTGGACCTGGTACTCGGCTGACCGTGCTA

Beta chain - murine constant region

GAGGACCTGCGCAACGTCACCCACCAAAGGTCAGTTTGTGTTGAGCCATCAAAGGCGGAGATCGCCAACA
AACAGAAAGCTACGCTCGTGTGTTGGCTCGGGCTTCTTCCAGACCACGTAGAACTTTCCTGGTGGGT
CAATGGAAAGGAGGTTCAATTCGGAGTGTGCACTGATCCCCAAGCGTACAAGGAATCCAACTATAGCTAC
TGTCTCTCATCTCGGCTCCGGGTGAGTGCACATTCCTGGCATAATCCTCGGAACCACTTTCGATGCCAAG
TGCAGTTTCATGGGTTGAGCGAGGAAGACAAGTGGCCCCGAGGGCAGTCC~~TAA~~ACCAGTCACTCAAACAT
AAGCGCCGAGGCATGGGGTAGAGCCGATTGTGGGATTACTAGCGCTTCATACCAACAAGGGGTATTGAGC
GCTACAATTC~~TTT~~TACGAAATTCCTCCTCGGCAAGGCGACGCTCTACGCCGTAAGTGTCTACTCTCGTGG
TTATGGCAATGGTGAACGGAAAAACAGC

Furin-P2A Linker

AGAGCCAAAAGAAGTGGTTCTGGCGCGACGAATTTTAGTTTGCTTAAGCAAGCCGGAGATGTGGAGGAAA
ATCCTGGACCG

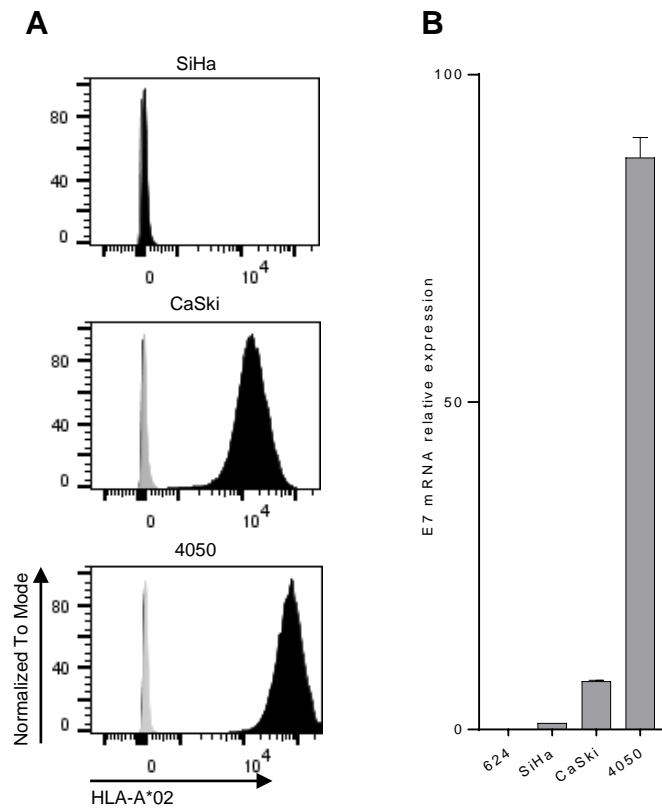
Alpha chain - VDJ regions

ATGTGGGGTGTCTTCCTTTTGTACGTCAGCATGAAGATGGGAGGCACTACTGGGCAAACATAGATCAGC
CTACCGAAATGACTGCTACCGAGGGAGCCATTGTCCAATCAACTGCACCTATCAGACTAGCGGCTTCAA
TGGACTCTTCTGGTACCAACAGCATGCGGGCGAAGCACCTACCTTCTTGTCTATAATGTCTTGGATGGT
CTCGAAGAGAAAGGCAGATTCTCCAGTTTCTCAGCCGGAGCAAGGATACTCATATCTTCTCCTGAAAG
AGCTTCAGATGAAGGATTCTGCATCCTATCTCTGTGCTTCAGTCGATGGCAATAACCGACTCGCCTTTGG
AAAAGGAATCAAGTGGTCGTCATACCG

Beta chain - murine constant region

AATATTCAGAACCCCGAACCAGCCGTATATCAGTTGAAGGACCCAAGATCTCAGGATAGTACACTCTGTT
TGTTTACGGACTTTGACTCACAAATCAACGTCCCGAAGACTATGGAAAGTGGTACGTTTATCACAGATAA
GTGCGTTCTGGACATGAAGGCTATGGACTCAAAGAGCAACGGGGCAATTGCTTGGTCCAACCAGACAAGC
TTTACCTGTCAGGACATTTTTAAGGAGACTAATGCTACTTATCCCTCCAGCGACGTTCCGTGTGATGCCA
CTCTTACCGAGAAGTCTTTTGGACCGATATGAATCTCAACTTCCAGAATCTG**CTGGTGATCGTT**CTGCG
GATCCTGCTTCTGAAGGTTGCAGGATTCAATCTTCTTATGACTCTCCGGCTCTGGTCTTCATGATAA

Supplemental Figure 1. The codon-optimized nucleotide sequence of E7 TCR. Cysteine modifications are underlined. Hydrophobic substitutions are in bold.



Supplemental Figure 2. The expression of HLA-A*02 and HPV-16 E7 in CaSki cells and 4050 cells. (A) The expression level of HLA-A*02 in CaSki cells and 4050 cells was assayed by flow cytometry using an APC-conjugated human anti-HLA-A*02 antibody. SiHa is an HLA-A*02-negative cell line. The control antibody (Clone: 27-35, Biolegend) is shaded gray. The HLA-A*02 antibody (Clone: BB7.2, Biolegend) is shaded black. (B) The mRNA level in CaSki cells and 4050 cells was measured by qPCR using QuantStudio 3 Real-Time PCR System (ThermoFisher Scientific.). Results were normalized to GAPDH mRNA and are presented relative to the reference control, HPV-16 E7 mRNA in SiHa cells. Data represent the mean \pm SEM of 3 technical replicates.