

CLAIM(S):

1. An isolated or purified T cell receptor (TCR) having antigenic specificity for a mutated epitope, the mutated epitope (a) comprising VVVGADGVGK (SEQ ID NO: 2) or (b) consisting of VVVGAVGVGK (SEQ ID NO: 33) or VVGAVGVGK (SEQ ID NO: 35).

2. The TCR of claim 1, wherein the TCR has antigenic specificity for the mutated epitope presented in the context of an HLA-A11 molecule.

3. The isolated or purified TCR of claim 1 or 2, comprising:

(a) an α chain complementarity determining region (CDR) 1 comprising the amino acid sequence of SEQ ID NO: 3, an α chain CDR2 comprising the amino acid sequence of SEQ ID NO: 4, an α chain CDR3 comprising the amino acid sequence of SEQ ID NO: 5, a β chain CDR1 comprising the amino acid sequence of SEQ ID NO: 6, a β chain CDR2 comprising the amino acid sequence of SEQ ID NO: 7, and a β chain CDR3 comprising the amino acid sequence of SEQ ID NO: 8;

(b) an α chain CDR 1 comprising the amino acid sequence of SEQ ID NO: 125, an α chain CDR2 comprising the amino acid sequence of SEQ ID NO: 126, an α chain CDR3 comprising the amino acid sequence of SEQ ID NO: 127, a β chain CDR1 comprising the amino acid sequence of SEQ ID NO: 128, a β chain CDR2 comprising the amino acid sequence of SEQ ID NO: 129, and a β chain CDR3 comprising the amino acid sequence of SEQ ID NO: 130;

(c) an α chain CDR 1 comprising the amino acid sequence of SEQ ID NO: 137, an α chain CDR2 comprising the amino acid sequence of SEQ ID NO: 138, an α chain CDR3 comprising the amino acid sequence of SEQ ID NO: 139, a β chain CDR1 comprising the amino acid sequence of SEQ ID NO: 140, a β chain CDR2 comprising the amino acid sequence of SEQ ID NO: 141, and a β chain CDR3 comprising the amino acid sequence of SEQ ID NO: 142;

(d) an α chain CDR 1 comprising the amino acid sequence of SEQ ID NO: 149, an α chain CDR2 comprising the amino acid sequence of SEQ ID NO: 150, an α chain CDR3 comprising the amino acid sequence of SEQ ID NO: 151, a β chain CDR1 comprising the amino acid sequence of SEQ ID NO: 152, a β chain CDR2 comprising the amino acid

sequence of SEQ ID NO: 153, and a β chain CDR3 comprising the amino acid sequence of SEQ ID NO: 154; or

(e) an α chain CDR1 comprising the amino acid sequence of SEQ ID NO: 149, an α chain CDR2 comprising the amino acid sequence of SEQ ID NO: 150, an α chain CDR3 comprising the amino acid sequence of SEQ ID NO: 207, a β chain CDR1 comprising the amino acid sequence of SEQ ID NO: 152, a β chain CDR2 comprising the amino acid sequence of SEQ ID NO: 153, and a β chain CDR3 comprising the amino acid sequence of SEQ ID NO: 154.

4. The isolated or purified TCR of any one of claims 1-3, comprising:

(a) an α chain variable region comprising the amino acid sequence of SEQ ID NO: 9 and a β chain variable region comprising the amino acid sequence of SEQ ID NO: 10;

(b) an α chain variable region comprising the amino acid sequence of SEQ ID NO: 131 and a β chain variable region comprising the amino acid sequence of SEQ ID NO: 132;

(c) an α chain variable region comprising the amino acid sequence of SEQ ID NO: 143 and a β chain variable region comprising the amino acid sequence of SEQ ID NO: 144;

(d) an α chain variable region comprising the amino acid sequence of SEQ ID NO: 155 and a β chain variable region comprising the amino acid sequence of SEQ ID NO: 156;
or

(e) an α chain variable region comprising the amino acid sequence of SEQ ID NO: 208 and a β chain variable region comprising the amino acid sequence of SEQ ID NO: 156.

5. The isolated or purified TCR of any one of claims 1-4, further comprising:

(a) an α chain constant region comprising the amino acid sequence of SEQ ID NO: 13 and a β chain constant region comprising the amino acid sequence of SEQ ID NO: 14;

(b) an α chain constant region comprising the amino acid sequence of SEQ ID NO: 135 and a β chain constant region comprising the amino acid sequence of SEQ ID NO: 136;

(c) an α chain constant region comprising the amino acid sequence of SEQ ID NO: 147 and a β chain constant region comprising the amino acid sequence of SEQ ID NO: 148;
or

(d) an α chain constant region comprising the amino acid sequence of SEQ ID NO: 159 and a β chain constant region comprising the amino acid sequence of SEQ ID NO: 160.

6. The isolated or purified TCR of any one of claims 1-5, comprising:
 - (a) an α chain comprising the amino acid sequence of SEQ ID NO: 11 and a β chain comprising the amino acid sequence of SEQ ID NO: 12;
 - (b) an α chain comprising the amino acid sequence of SEQ ID NO: 133 and a β chain comprising the amino acid sequence of SEQ ID NO: 134;
 - (c) an α chain comprising the amino acid sequence of SEQ ID NO: 145 and a β chain comprising the amino acid sequence of SEQ ID NO: 146;
 - (d) an α chain comprising the amino acid sequence of SEQ ID NO: 157 and a β chain comprising the amino acid sequence of SEQ ID NO: 158; or
 - (e) an α chain comprising the amino acid sequence of SEQ ID NO: 209 and a β chain comprising the amino acid sequence of SEQ ID NO: 158.
7. The TCR of any one of claims 1-6, having antigenic specificity for the mutated epitope comprising VVVGADGVGK (SEQ ID NO: 2).
8. The TCR of any one of claims 1-6, having antigenic specificity for the mutated epitope consisting of VVVGAVGVGK (SEQ ID NO: 33) or VVGAVGVGK (SEQ ID NO: 35).
9. An isolated or purified polypeptide comprising a functional portion of the TCR of any one of claims 1-6, wherein the functional portion comprises:
 - (i) the amino acid sequences of (a) SEQ ID NOs: 3-5, (b) SEQ ID NOs: 6-8, or (c) SEQ ID NOs: 3-8;
 - (ii) the amino acid sequences of (a) SEQ ID NOs: 125-127, (b) SEQ ID NOs: 128-130, or (c) SEQ ID NOs: 125-130;
 - (iii) the amino acid sequences of (a) SEQ ID NOs: 137-139, (b) SEQ ID NOs: 140-142, or (c) SEQ ID NOs: 137-142;
 - (iv) the amino acid sequences of (a) SEQ ID NOs: 149-151, (b) SEQ ID NOs: 152-154, or (c) SEQ ID NOs: 149-154; or
 - (v) the amino acid sequences of (a) SEQ ID NOs: 149-150 and 207, (b) SEQ ID NOs: 152-154, or (c) SEQ ID NOs: 149-150, 207, and 152-154.

10. The isolated or purified polypeptide comprising a functional portion of the TCR of any one of claims 1-6, wherein the functional portion comprises:

- (i) the amino acid sequence of (a) SEQ ID NO: 9, (b) SEQ ID NO: 10, or (c) both SEQ ID NOs: 9 and 10;
- (ii) the amino acid sequence of (a) SEQ ID NO: 131, (b) SEQ ID NO: 132, or (c) both SEQ ID NOs: 131 and 132;
- (iii) the amino acid sequence of (a) SEQ ID NO: 143, (b) SEQ ID NO: 144, or (c) both SEQ ID NOs: 143 and 144;
- (iv) the amino acid sequence of (a) SEQ ID NO: 155, (b) SEQ ID NO: 156, or (c) both SEQ ID NOs: 155 and 156; or
- (v) the amino acid sequence of (a) SEQ ID NO: 208, (b) SEQ ID NO: 156, or (c) both SEQ ID NOs: 208 and 156.

11. An isolated or purified polypeptide comprising a functional portion of the TCR of any one of claims 1-6, wherein the functional portion comprises:

- (i) the amino acid sequence of (a) SEQ ID NO: 11, (b) SEQ ID NO: 12, or (c) both SEQ ID NOs: 11 and 12;
- (ii) the amino acid sequence of (a) SEQ ID NO: 133, (b) SEQ ID NO: 134, or (c) both SEQ ID NOs: 133 and 134;
- (iii) the amino acid sequence of (a) SEQ ID NO: 145, (b) SEQ ID NO: 146, or (c) both SEQ ID NOs: 145 and 146;
- (iv) the amino acid sequence of (a) SEQ ID NO: 157, (b) SEQ ID NO: 158, or (c) both SEQ ID NOs: 157 and 158; or
- (v) the amino acid sequence of (a) SEQ ID NO: 209, (b) SEQ ID NO: 158, or (c) both SEQ ID NOs: 209 and 158.

12. An isolated or purified protein comprising at least one of the polypeptides of any one of claims 9-11.

13. The isolated or purified protein according to claim 12, comprising:

- (a) a first polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 3-5 and a second polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 6-8;

(b) a first polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 125-127 and a second polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 128-130;

(c) a first polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 137-139 and a second polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 140-142;

(d) a first polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 149-151 and a second polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 152-154; or

(e) a first polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 149, 150, and 207 and a second polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 152-154.

14. The isolated or purified protein according to claim 13, comprising:

(a) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 9 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 10;

(b) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 131 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 132;

(c) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 143 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 144;

(d) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 155 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 156; or

(e) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 208 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 156.

15. The isolated or purified protein of any one of claims 12-14, comprising:

(a) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 11 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 12;

(b) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 133 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 134;

(c) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 145 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 146;

(d) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 157 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 158; or

(e) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 209 and a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 158.

16. An isolated or purified nucleic acid comprising a nucleotide sequence encoding the TCR according to any one of claims 1-8, the polypeptide according to any one of claims 9-11, or the protein according to any one of claims 12-15.

17. A recombinant expression vector comprising the nucleic acid according to claim 16.

18. An isolated host cell comprising the recombinant expression vector of claim 17.

19. The host cell according to claim 18, wherein the cell is human.

20. A population of cells comprising at least one host cell of claim 18 or 19.

21. A pharmaceutical composition comprising the TCR according to any one of claims 1-8, the polypeptide according to any one of claims 9-11, the protein according to any one of claims 12-15, the nucleic acid according to claim 16, the recombinant expression vector of claim 17, the host cell of claim 18 or 19, or the population of cells of claim 20, and a pharmaceutically acceptable carrier.

22. The TCR according to any one of claims 1-8, the polypeptide according to any one of claims 9-11, the protein according to any one of claims 12-15, the nucleic acid according to claim 16, the recombinant expression vector of claim 17, the host cell of claim 18 or 19, the population of cells of claim 20, or the pharmaceutical composition of claim 21, for use in the detection, treatment or prevention of cancer in a mammal.

23. The TCR, polypeptide, protein, nucleic acid, recombinant expression vector, host cell, population of cells, antibody, or antigen binding portion thereof, or pharmaceutical

composition for the use of claim 22, wherein the cancer is pancreatic, colorectal, lung, endometrial, ovarian, or prostate cancer.