CLAIM(S):

1. An isolated or purified TCR comprising the amino acid sequences of all of SEQ ID NOs: 9-14.

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

(i) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 15;

(ii) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 16;

(iii) an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 15;

(iv) an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 16; or

(v) both (i) and (ii); both (i) and (iv); both (ii) and (iii); or both (iii) and (iv).

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

(i) the amino acid sequence of SEQ ID NO: 15;

(ii) the amino acid sequence of SEQ ID NO: 16;

(iii) amino acids 20-129 of SEQ ID NO: 15;

(iv) amino acids 22-133 of SEQ ID NO: 16; or

(v) both (i) and (ii); both (i) and (iv); both (ii) and (iii); or both (iii) and (iv).

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

(A) an α chain constant region comprising an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 46, wherein:

(i) X at position 48 of SEQ ID NO: 46 is Thr or Cys;

(ii) X at position 112 of SEQ ID NO: 46 is Ser, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(iii) X at position 114 of SEQ ID NO: 46 is Met, Ala, Val, Leu, Ile, Pro, Phe, or Trp;

and

(iv) X at position 115 of SEQ ID NO: 46 is Gly, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(B) a β chain constant region comprising an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 47, wherein X at position 57 of SEQ ID NO: 47 is Ser or Cys; or

(C) both (A) and (B).

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

(A) an α chain constant region comprising the amino acid sequence of SEQ ID NO: 46, wherein:

(i) X at position 48 of SEQ ID NO: 46 is Thr or Cys;

(ii) X at position 112 of SEQ ID NO: 46 is Ser, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(iii) X at position 114 of SEQ ID NO: 46 is Met, Ala, Val, Leu, Ile, Pro, Phe, or Trp;

and

(iv) X at position 115 of SEQ ID NO: 46 is Gly, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(B) a β chain constant region comprising the amino acid sequence of SEQ ID NO: 47, wherein X at position 57 of SEQ ID NO: 47 is Ser or Cys; or

(C) both (A) and (B).

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

(1) an α chain comprising an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 50;

(2) a β chain comprising an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 51;

(3) an α chain comprising an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 50;

(4) a β chain comprising an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 51; or

(5) both (1) and (2); both (1) and (4); both (2) and (3); or both (3) and (4).

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

(1) an α chain comprising the amino acid sequence of SEQ ID NO: 50;

(2) a β chain comprising the amino acid sequence of SEQ ID NO: 51;

(3) an α chain comprising amino acids 20-266 of SEQ ID NO: 50;

(4) a β chain comprising amino acids 22-306 of SEQ ID NO: 51; or

(5) both (1) and (2); both (1) and (4); both (2) and (3); or both (3) and (4).

8. An isolated or purified polypeptide comprising the amino acid sequences of all of SEQ ID NOs: 9-14.

9. The isolated or purified polypeptide of claim 8, comprising:

(i) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 15;

(ii) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 16;

(iii) an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 15;

(iv) an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 16; or

(v) both (i) and (ii); both (i) and (iv); both (ii) and (iii); or both (iii) and (iv).

10. The isolated or purified polypeptide of claim 8, comprising:

(i) the amino acid sequence of SEQ ID NO: 15;

(ii) the amino acid sequence of SEQ ID NO: 16;

(iii) amino acids 20-129 of SEQ ID NO: 15;

(iv) amino acids 22-133 of SEQ ID NO: 16; or

(v) both (i) and (ii); both (i) and (iv); both (ii) and (iii); or both (iii) and (iv).

11. The isolated or purified polypeptide of any one of claims 8-10, further comprising:

(A) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 46, wherein:

(i) X at position 48 of SEQ ID NO: 46 is Thr or Cys;

(ii) X at position 112 of SEQ ID NO: 46 is Ser, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(iii) X at position 114 of SEQ ID NO: 46 is Met, Ala, Val, Leu, Ile, Pro, Phe, or Trp;

and

(iv) X at position 115 of SEQ ID NO: 46 is Gly, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(B) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 47, wherein X at position 57 of SEQ ID NO: 47 is Ser or Cys; or

(C) both (A) and (B).

12. The isolated or purified polypeptide of any one of claims 8-10, further comprising:

(A) the amino acid sequence of SEQ ID NO: 46, wherein:

(i) X at position 48 of SEQ ID NO: 46 is Thr or Cys;

(ii) X at position 112 of SEQ ID NO: 46 is Ser, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(iii) X at position 114 of SEQ ID NO: 46 is Met, Ala, Val, Leu, Ile, Pro, Phe, or Trp;

and

(iv) X at position 115 of SEQ ID NO: 46 is Gly, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(B) the amino acid sequence of SEQ ID NO: 47, wherein X at position 57 of SEQ ID NO: 47 is Ser or Cys; or

(C) both (A) and (B).

13. The isolated or purified polypeptide of any one of claims 8-12, comprising:

(1) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 50;

(2) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 51;

(3) an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 50;

(4) an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 51; or

(5) both (1) and (2); both (1) and (4); both (2) and (3); or both (3) and (4).

14. The isolated or purified polypeptide of any one of claims 8-12, comprising:

(1) the amino acid sequence of SEQ ID NO: 50;

(2) the amino acid sequence of SEQ ID NO: 51;

(3) amino acids 20-266 of SEQ ID NO: 50;

(4) amino acids 22-306 of SEQ ID NO: 51; or

(5) both (1) and (2); both (1) and (4); both (2) and (3); or both (3) and (4).

15. An isolated or purified protein comprising:

(a) a first polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 9-11; and

(b) a second polypeptide chain comprising the amino acid sequences of SEQ ID NOs: 12-14.

16. The isolated or purified protein of claim 15 comprising:

(i) a first polypeptide chain comprising an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 15;

(ii) a second polypeptide chain comprising an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 16;

(iii) a first polypeptide chain comprising an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 15;

(iv) a second polypeptide chain comprising an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 16; or

(v) both (i) and (ii); both (i) and (iv); both (ii) and (iii); or both (iii) and (iv).

17. The isolated or purified protein of claim 15 comprising:

(i) a first polypeptide chain comprising the amino acid sequence of SEQ ID NO: 15;

(ii) a second polypeptide chain comprising the amino acid sequence of SEQ ID NO: 16;

(iii) a first polypeptide chain comprising amino acids 20-129 of SEQ ID NO: 15;

(iv) a second polypeptide chain comprising amino acids 22-133 of SEQ ID NO: 16; or

(v) both (i) and (ii); both (i) and (iv); both (ii) and (iii); or both (iii) and (iv).

18. The isolated or purified protein of any one of claims 15-17, wherein:

(A) the first polypeptide chain further comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 46, wherein:

(i) X at position 48 of SEQ ID NO: 46 is Thr or Cys;

(ii) X at position 112 of SEQ ID NO: 46 is Ser, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(iii) X at position 114 of SEQ ID NO: 46 is Met, Ala, Val, Leu, Ile, Pro, Phe, or Trp;

and

(iv) X at position 115 of SEQ ID NO: 46 is Gly, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(B) the second polypeptide chain further comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 47, wherein X at position 57 of SEQ ID NO: 47 is Ser or Cys; or

(C) both (A) and (B).

19. The isolated or purified protein of any one of claims 15-17, wherein:

(A) the first polypeptide chain further comprises the amino acid sequence of SEQ ID NO: 46, wherein:

(i) X at position 48 of SEQ ID NO: 46 is Thr or Cys;

(ii) X at position 112 of SEQ ID NO: 46 is Ser, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(iii) X at position 114 of SEQ ID NO: 46 is Met, Ala, Val, Leu, Ile, Pro, Phe, or Trp;

and

(iv) X at position 115 of SEQ ID NO: 46 is Gly, Ala, Val, Leu, Ile, Pro, Phe, Met, or Trp;

(B) the second polypeptide chain further comprises the amino acid sequence of SEQ ID NO: 47, wherein X at position 57 of SEQ ID NO: 47 is Ser or Cys; or

(C) both (A) and (B).

20. The isolated or purified protein of any one of claims 15-19, wherein:

(1) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 50;

(2) the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 51;

(3) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NOs: 50;

(4) the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 51; or

(5) both (1) and (2); both (1) and (4); both (2) and (3); or both (3) and (4).

21. The isolated or purified protein of any one of claims 15-19, wherein:

(1) the first polypeptide chain comprises the amino acid sequence of SEQ ID NO: 50;

(2) the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 51;

(3) the first polypeptide chain comprises amino acids 20-266 of SEQ ID NOs: 50;

(4) the second polypeptide chain comprises amino acids 22-306 of SEQ ID NO: 51; or

(5) both (1) and (2); both (1) and (4); both (2) and (3); or both (3) and (4).

22. An isolated or purified nucleic acid comprising a nucleotide sequence encoding the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, or the protein of any one of claims 15-21.

23. A recombinant expression vector comprising the nucleic acid of claim 22.

24. An isolated or purified host cell comprising the recombinant expression vector of claim 23.

25. A population of cells comprising at least one isolated or purified host cell of claim 24.

26. A pharmaceutical composition comprising one or more T cells expressing the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, or the protein of any one of claims 15-21, and a pharmaceutically acceptable carrier.

27. A method of detecting the presence of cancer in a mammal, the method comprising:

(a) contacting a sample comprising cells of the cancer with the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, or the protein of any one of claims 15-21, thereby forming a complex, wherein the TCR, polypeptide, and protein comprise a detectable label; and

(b) detecting the complex,

wherein detection of the complex is indicative of the presence of cancer in the mammal.

28. The method of claim 27, wherein the cancer is pancreatic, colorectal, lung, endometrial, ovarian, or prostate cancer.

29. Use of one or more T cells expressing the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, or the protein of any one of claims 15-21, in the manufacture of a medicament for the treatment of a $KRAS^{G12D}$-positive cancer in a mammal.

30. The use of claim 29, wherein the cancer is pancreatic, colorectal, lung, endometrial, ovarian, or prostate cancer.