CLAIM(S):

1. An isolated or purified, KRAS G12D-specific TCR comprising:

(a) the alpha chain CDR1 amino acid sequence of SEQ ID NO: 17, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 18, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 19, the beta chain CDR1 amino acid sequence of SEQ ID NO: 20, the beta chain CDR2 amino acid sequence of SEQ ID NO: 21, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 22;

(b) the alpha chain CDR1 amino acid sequence of SEQ ID NO: 25, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 26, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 27, the beta chain CDR1 amino acid sequence of SEQ ID NO: 28, the beta chain CDR2 amino acid sequence of SEQ ID NO: 29, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 30; or

(c) the alpha chain CDR1 amino acid sequence of SEQ ID NO: 33, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 34, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 35, the beta chain CDR1 amino acid sequence of SEQ ID NO: 36, the beta chain CDR2 amino acid sequence of SEQ ID NO: 37, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 38.

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 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 24;

(ii) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 23 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 24;

(iii) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 31 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 32;

(iv) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 39 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 40;

(v) an amino acid sequence at least 99% identical amino acids 20-129 of SEQ ID NO: 15 and an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 24;

(vi) an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 23 and an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 24;

(vii) an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 31 and an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 32; or

(viii) an amino acid sequence at least 99% identical to amino acids 21-132 of SEQ ID NO: 39 and an amino acid sequence at least 99% identical to the amino acids 22-130 of SEQ ID NO: 40.

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

(i) the amino acid sequences of SEQ ID NOs:15 and 24;

(ii) the amino acid sequences of SEQ ID NOs: 23 and 24;

(iii) the amino acid sequences of SEQ ID NOs: 31 and 32;

(iv) the amino acid sequences of SEQ ID NOs: 39 and 40;

(v) amino acids 20-129 of SEQ ID NO: 15 and amino acids 22-133 of SEQ ID NO: 24;

(vi) amino acids 20-129 of SEQ ID NO: 23 and amino acids 22-133 of SEQ ID NO: 24;

(vii) amino acids 20-129 of SEQ ID NO: 31 and amino acids 22-133 of SEQ ID NO: 32; or

(viii) amino acids 21-132 of SEQ ID NO: 39 and amino acids 22-130 of SEQ ID NO: 40.

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

and

(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.

5. The isolated or purified TCR of any one of claims 1-4, 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;

and

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

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

(1) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 52 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 53;

(2) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 50 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 53;

(3) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 54 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 55;

(4) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 56 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 57;

(5) an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 52 and an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 53;

(6) an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 50 and an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 53;

(7) an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 54 and an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 55; or

(8) an amino acid sequence at least 99% identical to amino acids 21-269 of SEQ ID NO: 56 and an amino acid sequence at least 99% identical to amino acids 22-303 of SEQ ID NO: 57.

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

(1) the amino acid sequences of SEQ ID NOs: 52 and 53;

(2) the amino acid sequences of SEQ ID NOs: 50 and 53;

(3) the amino acid sequences of SEQ ID NOs: 54 and 55;

(4) the amino acid sequences of SEQ ID NOs: 56 and 57;

(5) amino acids 20-266 of SEQ ID NO: 52 and amino acids 22-306 of SEQ ID NO: 53;

(6) amino acids 20-266 of SEQ ID NO: 50 and amino acids 22-306 of SEQ ID NO: 53;

(7) amino acids 20-266 of SEQ ID NO: 54 and amino acids 22-306 of SEQ ID NO: 55; or

(8) amino acids 21-269 of SEQ ID NO: 56 and amino acids 22-303 of SEQ ID NO: 57.

8. An isolated or purified polypeptide comprising a functional portion of a KRAS G12D-specific TCR, wherein the functional portion comprises:

(a) the alpha chain CDR1 amino acid sequence of SEQ ID NO: 17, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 18, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 19, the beta chain CDR1 amino acid sequence of SEQ ID NO: 20, the beta chain CDR2 amino acid sequence of SEQ ID NO: 21, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 22;

(b) the alpha chain CDR1 amino acid sequence of SEQ ID NO: 25, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 26, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 27, the beta chain CDR1 amino acid sequence of SEQ ID NO: 28, the beta chain CDR2 amino acid sequence of SEQ ID NO: 29, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 30; or

(c) the alpha chain CDR1 amino acid sequence of SEQ ID NO: 33, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 34, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 35, the beta chain CDR1 amino acid sequence of SEQ ID NO: 36, the beta chain CDR2 amino acid sequence of SEQ ID NO: 37, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 38.

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 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 24;

(ii) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 23 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 24;

(iii) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 31 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 32;

(iv) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 39 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 40;

(v) an amino acid sequence at least 99% identical amino acids 20-129 of SEQ ID NO: 15 and an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 24;

(vi) an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 23 and an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 24;

(vii) an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 31 and an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 32; or

(viii) an amino acid sequence at least 99% identical to amino acids 21-132 of SEQ ID NO: 39 and an amino acid sequence at least 99% identical to the amino acids 22-130 of SEQ ID NO: 40.

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

(i) the amino acid sequences of SEQ ID NOs:15 and 24;

(ii) the amino acid sequences of SEQ ID NOs: 23 and 24;

(iii) the amino acid sequences of SEQ ID NOs: 31 and 32;

(iv) the amino acid sequences of SEQ ID NOs: 39 and 40;

(v) amino acids 20-129 of SEQ ID NO: 15 and amino acids 22-133 of SEQ ID NO: 24;

(vi) amino acids 20-129 of SEQ ID NO: 23 and amino acids 22-133 of SEQ ID NO: 24;

(vii) amino acids 20-129 of SEQ ID NO: 31 and amino acids 22-133 of SEQ ID NO: 32; or

(viii) amino acids 21-132 of SEQ ID NO: 39 and amino acids 22-130 of SEQ ID NO: 40.

11. The isolated or purified polypeptide of any one of claims 8-10, 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;

and

(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.

12. The isolated or purified polypeptide of any one of claims 8-11, 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;

and

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

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: 52 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 53;

(2) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 50 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 53;

(3) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 54 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 55;

(4) an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 56 and an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 57;

(5) an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 52 and an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 53;

(6) an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 50 and an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 53;

(7) an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 54 and an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 55; or

(8) an amino acid sequence at least 99% identical to amino acids 21-269 of SEQ ID NO: 56 and an amino acid sequence at least 99% identical to amino acids 22-303 of SEQ ID NO: 57.

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

(1) the amino acid sequences of SEQ ID NOs: 52 and 53;

(2) the amino acid sequences of SEQ ID NOs: 50 and 53;

(3) the amino acid sequences of SEQ ID NOs: 54 and 55;

(4) the amino acid sequences of SEQ ID NOs: 56 and 57;

(5) amino acids 20-266 of SEQ ID NO: 52 and amino acids 22-306 of SEQ ID NO: 53;

(6) amino acids 20-266 of SEQ ID NO: 50 and amino acids 22-306 of SEQ ID NO: 53;

(7) amino acids 20-266 of SEQ ID NO: 54 and amino acids 22-306 of SEQ ID NO: 55; or

(8) amino acids 21-269 of SEQ ID NO: 56 and amino acids 22-303 of SEQ ID NO: 57.

15. An isolated or purified protein comprising a functional portion of a KRAS G12D-specific TCR, wherein the functional portion comprises:

(a) a first polypeptide chain comprising the alpha chain CDR1 amino acid sequence of SEQ ID NO: 17, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 18, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 19 and a second polypeptide chain comprising the beta chain CDR1 amino acid sequence of SEQ ID NO: 20, the beta chain CDR2 amino acid sequence of SEQ ID NO: 21, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 22;

(b) a first polypeptide chain comprising the alpha chain CDR1 amino acid sequence of SEQ ID NO: 25, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 26, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 27 and a second polypeptide chain comprising the beta chain CDR1 amino acid sequence of SEQ ID NO: 28, the beta chain CDR2 amino acid sequence of SEQ ID NO: 29, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 30; or

(c) a first polypeptide chain comprising the alpha chain CDR1 amino acid sequence of SEQ ID NO: 33, the alpha chain CDR2 amino acid sequence of SEQ ID NO: 34, the alpha chain CDR3 amino acid sequence of SEQ ID NO: 35 and a second polypeptide chain comprising the beta chain CDR1 amino acid sequence of SEQ ID NO: 36, the beta chain CDR2 amino acid sequence of SEQ ID NO: 37, and the beta chain CDR3 amino acid sequence of SEQ ID NO: 38.

16. The isolated or purified protein of claim 15, wherein:

(i) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 23 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 24;

(ii) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 15 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 24;

(iii) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 31 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 32;

(iv) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 39 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 40;

(v) the first polypeptide chain comprises an amino acid sequence at least 99% identical amino acids 20-129 of SEQ ID NO: 15 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 24;

(vi) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 23 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 24;

(vii) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 20-129 of SEQ ID NO: 31 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-133 of SEQ ID NO: 32; or

(viii) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 21-132 of SEQ ID NO: 39 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acids 22-130 of SEQ ID NO: 40.

17. The isolated or purified protein of claim 15 or 16, wherein:

(i) the first polypeptide chain comprises the amino acid sequence of SEQ ID NO: 23 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 24;

(ii) the first polypeptide chain comprises the amino acid sequence of SEQ ID NO: 15 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 24;

(iii) the first polypeptide chain comprises the amino acid sequence of SEQ ID NO: 31 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 32; or

(iv) the first polypeptide chain comprises the amino acid sequence of SEQ ID NO: 39 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 40;

(v) the first polypeptide chain comprises amino acids 20-129 of SEQ ID NO: 15 and the second polypeptide chain comprises amino acids 22-133 of SEQ ID NO: 24;

(vi) the first polypeptide chain comprises amino acids 20-129 of SEQ ID NO: 23 and the second polypeptide chain comprises amino acids 22-133 of SEQ ID NO: 24;

(vii) the first polypeptide chain comprises amino acids 20-129 of SEQ ID NO: 31 and the second polypeptide chain comprises amino acids 22-133 of SEQ ID NO: 32; or

(viii) the first polypeptide chain comprises amino acids 21-132 of SEQ ID NO: 39 and the second polypeptide chain comprises amino acids 22-130 of SEQ ID NO: 40.

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

(A) the first polypeptide chain 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;

and

(B) the second polypeptide chain 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.

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

(A) the first polypeptide chain 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;

and

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

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: 52 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 53;

(2) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 50 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 53;

(3) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 54 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 55;

(4) the first polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 56 and and the second polypeptide chain comprises an amino acid sequence at least 99% identical to the amino acid sequence of SEQ ID NO: 57;

(5) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 52 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 53;

(6) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 50 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 53;

(7) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 20-266 of SEQ ID NO: 54 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-306 of SEQ ID NO: 55; or

(8) the first polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 21-269 of SEQ ID NO: 56 and the second polypeptide chain comprises an amino acid sequence at least 99% identical to amino acids 22-303 of SEQ ID NO: 57.

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

(1) the first polypeptide chain comprises the amino acid sequence of SEQ ID NO: 52 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 53;

(2) the first polypeptide chain comprises the amino acid sequence of SEQ ID NO: 50 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 53;

(3) the first polypeptide chain comprises the amino acid sequence of SEQ ID NOs: 54 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 55;

(4) the first polypeptide chain comprises the amino acid sequence of SEQ ID NOs: 56 and the second polypeptide chain comprises the amino acid sequence of SEQ ID NO: 57;

(5) the first polypeptide chain comprises amino acids 20-266 of SEQ ID NO: 52 and the second polypeptide chain comprises amino acids 22-306 of SEQ ID NO: 53;

(6) the first polypeptide chain comprises amino acids 20-266 of SEQ ID NO: 50 and the second polypeptide chain comprises amino acids 22-306 of SEQ ID NO: 53;

(7) the first polypeptide chain comprises amino acids 20-266 of SEQ ID NO: 54 and the second polypeptide chain comprises amino acids 22-306 of SEQ ID NO: 55; or

(8) the first polypeptide chain comprises amino acids 21-269 of SEQ ID NO: 56 and the second polypeptide chain comprises amino acids 22-303 of SEQ ID NO: 57.

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 the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, the protein of any one of claims 15-21, the nucleic acid of claim 22, the recombinant expression vector of claim 23, the host cell of claim 24, or the population of host cells of claim 25, 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, the protein of any one of claims 15-21, the nucleic acid of claim 22, the recombinant expression vector of claim 23, the host cell of claim 24, the population of host cells of claim 25, or the pharmaceutical composition of claim 26, thereby forming a complex; and

(b) detecting the complex,

wherein detection of the complex is indicative of the presence of cancer in the mammal, and

wherein the cancer is a KRAS G12D positive cancer.

28. The method of claim 27, wherein the cancer is a KRAS G12D positive pancreatic, colorectal, lung, endometrial, ovarian, or prostate cancer.

29. Use of a pharmaceutical composition in the manufacture of a medicament for treating or preventing cancer in a mammal, wherein the pharmaceutical composition comprises the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, the protein of any one of claims 15-21, the nucleic acid of claim 22, the recombinant expression vector of claim 23, the host cell of claim 24, or the population of host cells of claim 25.

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

31. A method of producing the TCR of any one of claims 1-7, the polypeptide of claims 8-14, or the protein of claims 15-21, comprising culturing a host cell comprising the recombinant expression vector of claim 23, so that the TCR is produced.

32. A method of producing a host cell expressing the TCR of any one of claims 1-7, the polypeptide of claims 8-14, or the protein of claims 15-21, comprising introducing into a host cell the recombinant expression vector of claim 23, so that the host cell is produced.

33. Use of the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, the protein of any one of claims 15-21, the nucleic acid of claim 22, the recombinant expression vector of claim 23, the host cell of claim 24, or the population of host cells of claim 25, in the manufacture of a medicament for the treatment or prevention of cancer in a mammal.

34. The use of claim 33, wherein the cancer is pancreatic, colorectal, lung, endometrial, ovarian, or prostate cancer.

35. Use of the TCR of any one of claims 1-7, the polypeptide of any one of claims 8-14, the protein of any one of claims 15-21, the nucleic acid of claim 22, the recombinant expression vector of claim 23, the host cell of claim 24, or the population of host cells of claim 25 in the manufacture of a medicament for the treatment or prevention of cancer in a mammal, wherein the cancer is a KRAS G12D positive cancer.

36. The use of claim 35, wherein the cancer is a KRAS G12D positive pancreatic, colorectal, lung, endometrial, ovarian, or prostate cancer.