CLAIMS

1. A chimeric antigen receptor (CAR) which comprises an antigen-binding domain which selectively binds TCR beta constant region 1 (TRBC1) or TRBC2.

2. A CAR according to Claim 1, which selectively binds TRBC1.

3. A CAR according to Claim 2, in which the antigen-binding domain has a variable heavy chain (VH) and a variable light chain (VL) which comprise the following complementarity determining regions (CDRs):

VH CDR1: SEQ ID No. 7;

VH CDR2: SEQ ID No. 8;

VH CDR3: SEQ ID No. 9;

VL CDR1: SEQ ID No. 10;

VL CDR2: SEQ ID No. 11; and

VL CDR3: SEQ ID No. 12.

4. A CAR according to Claim 2, in which the antigen-binding domain comprises a variable heavy chain (VH) having the sequence shown as SEQ ID No. 1 and a variable light chain (VL) having the sequence shown as SEQ ID No. 2.

5. A CAR according to Claim 2, in which the antigen-binding domain comprises an scFv having the amino acid sequence shown as SEQ ID No. 3.

6. A CAR according to Claim 2, which comprises an amino acid sequence selected from SEQ ID No. 33, 34 and 35.

7. A CAR according to Claim 1 which selectively binds TRBC2.

8. A nucleic acid sequence encoding a CAR according to any preceding claim.

9. A vector which comprises a nucleic acid sequence according to Claim 8.

10. A cell which comprises a CAR according to any of Claims 1 to 7.

11. A T cell according to Claim 10.

12. A method for making a cell according to Claim 10 or 11 which comprises the step of transducing or transfecting a cell with a nucleic acid sequence according to Claim 8 or a vector according to Claim 9.

13. A cell according to Claim 10 or 11 for use in a method for treating a T-cell lymphoma or leukaemia in a subject.

14. A cell for use according to Claim 13, in which the method also comprises the step of investigating the TCR beta constant region (TRBC) of a malignant T cell from the subject to determine whether it expresses TRBC1 or TRBC2.

15. A cell for use according to Claim 13 or 14 in which the T-cell lymphoma or leukaemia is selected from peripheral T-cell lymphoma, not otherwise specified (PTCL-NOS); angio-immunoblastic T-cell lymphoma (AITL), anaplastic large cell lymphoma (ALCL), enteropathy-associated T-cell lymphoma (EATL), hepatosplenic T-cell lymphoma (HSTL), extranodal NK/T-cell lymphoma nasal type, cutaneous T-cell lymphoma,primary cutaneous ALCL, T cell prolymphocytic leukaemia and T-cell acute lymphoblastic leukaemia.

16. A method for diagnosing a T-cell lymphoma or leukaemia in a subject which comprises the step of determining the percentage of total T-cells in a sample isolated from the subject which are TRBC1 or TRBC2 positive.

17. A method according to Claim 16 in which a percentage of TRBC1 or TRBC2 positive T-cells which is greater than about 80% indicates the presence of a T-cell lymphoma or leukaemia.

18. A method according to Claim 16 or 17 in which the sample is a peripheral blood sample or a biopsy.

19. A method according to any of Claims 16 to 18 in which total T cells are identified in or isolated from the sample using an agent which binds CD3.