CLAIMS

1. A method for obtaining a cell population enriched for tumour reactive T-cells wherein T-cells expressing CD150/SLAM/SLAMF1 are selected and optionally expanded.

2. A method according to claim 1, wherein the T-cells expressing CD150/SLAM/SLAMF1 are T-cells selected from cells originating from a subject.

3. A method according to claim 1 or 2, wherein selecting the T-cells expressing CD150/SLAM/SLAMF1 comprises one or more of (i) flow cytometry, (ii) antibody panning, (iii) magnetic selection, (iv) biomarker targeted cell enrichment

4. A method according to claim 1 or claim 2 wherein selecting the T-cells comprises contacting the cell population with an anti- CD150/SLAM/SLAMF1 antibody.

5. A method according to any preceding claim, wherein the T-cells expressing CD150/SLAM/SLAMF1 are expanded by way of one or both of the following options:

expansion with irradiated feeder cells to provide a T-cell activation signal and costimulation driven by antibodies or costimulatory receptors; or

expansion with immobilised or soluble reagents which provide a T-cell activation signal and costimulation signals driven through CD150/SLAM/SLAMF1.

6. A method according to any preceding claim wherein the cell population is selected from:

i) a population of tumour infiltrating lymphocytes (TILs) from a tumour biopsy, lymph node or ascites; and/or

ii) a population of T-cells engineered to express a CAR and/or a TCR.

7. A population of cells obtained according to the method of any preceding claim.

8. A population of cells, wherein the population comprises T-cells and wherein >25%, >30% or >40% of the T-cells express CD150/SLAM/SLAMF1.

9. A population of cells according to claim 7 or claim 8, wherein the cells are TILs, preferably TILs that originate from a melanoma.

10. A T-cell comprising a first exogenous nucleic acid encoding CD150/SLAM/SLAMF1.

11. A T-cell according to claim 10, further comprising a second exogenous nucleic acid encoding a Chimeric Antigen Receptor (CAR) or a T-cell receptor (TCR).

12. A T-cell according to claim 10 or claim 11 wherein the T-cell is a TIL.

13. A population of cells according to any of claims 6 to 9, or a T-cell according to any of claims 10 to 12, for use in the treatment of cancer, preferably melanoma.

14. A method according to any of claims 1 to 6, a population of cells according to any of claims 7 to 9 or claim 13, wherein the T-cells expressing CD150/SLAM/SLAMF1, comprise a CD4+ or a CD8+ cell, optionally wherein the T-cells expressing CD150/SLAM/SLAMF1 comprise a memory cell.

15. A method of adoptive cell therapy, comprising administering the population of cells according to any of claims 7 to 9 or claims 13 and 14, or T-cells according to any of claims 10 to 12, to a subject, wherein the T-cells are autologous or allogenic.

16. A method for treating a disease in a subject, which comprises the step of administering a cell population according to any of claims 7 to 9 or claims 13 and 14, or T-cells according to any of claims 10 to 12, to the subject.

17. A method according to claim 16, wherein the disease is cancer, preferably melanoma.

18. A pharmaceutical composition comprising:
a population of cells according to any of claims 7 to 9 or claims 13 and 14, or comprising the T-cells according to any of claims 10 to 12.

19. A pharmaceutical composition according to claim 18 for use in the treatment of cancer, preferably melanoma.

20. A method for assessing the tumour reactivity of a cell population which method comprises quantifying the proportion of T-cells expressing SLAM/SLAMF1/CD150 in the cell population.

21. A method according to claim 20 wherein the cell population is i) TILs from a patient and the T-cells expressing SLAM/SLAMF1/CD150 are quantified pre-REP and/or post-REP; or ii) a population of T-cells engineered to express an exogenous CAR and/or a TCR.

22. A method according to Claim 20 or Claim 21 wherein the proportion of T-cells expressing SLAM/SLAMF1/CD150 being at least 25% of the cell population indicates that the cell population is tumour reactive.

CLAIMS

1. A method for obtaining a cell population enriched for tumour reactive T-cells, in which T-cells expressing CD150 are selected and optionally expanded, in which the T-cells expressing CD150 are T-cells selected from cells originating from a patient and the cell population is selected from a population of tumour infiltrating lymphocytes (TILs) from a tumour biopsy, lymph node or ascites.

2. A method according to Claim 1, in which selecting the T-cells expressing CD150 comprises one or more of (i) flow cytometry, (ii) antibody panning, (iii) magnetic selection, and (iv) biomarker targeted cell enrichment

3. A method according to Claim 1, in which selecting the T-cells comprises contacting the cell population with an anti-CD150 antibody.

4. A method according to Claim 1, 2 or 3, in which the T-cells expressing CD150 are expanded by way of one or both of the following options:

expansion with irradiated feeder cells to provide a T-cell activation signal and costimulation driven by antibodies or costimulatory receptors; or

expansion with immobilised or soluble reagents which provide a T-cell activation signal and costimulation signals driven through CD150.

5. A population of tumour infiltrating lymphocytes (TILs) obtained from a tumour biopsy, lymph node, or ascites of a patient and enriched for tumour reactive T-cells autologous to the patient and expressing CD150 for use in the treatment of cancer, in which at least 25% of the T-cells express CD150.

6. A population of cells according to Claim 5, in which the cancer is selected from melanoma, ovarian cancer and cervical cancer.

7. A population for use according to Claim 5 or 6, in which at least 30%, 40% or 50% of the T-cells express CD150.

8. A population for use according to Claim 5 or 6, in which >25%, >30%, >35% or >40% of the T-cells express CD150.

9. A method according to any of Claims 1 to 4, or a population for use according to any of Claims 5 to 8, in which the T-cells expressing CD150, comprise a CD4+ or a CD8+ cell, optionally in which the T-cells expressing CD150 comprise a memory cell.

10. A method for assessing the tumour reactivity of a cell population, which method comprises quantifying the proportion of T-cells expressing CD150 in the cell population, in which the cell population is: (i) TILs from a patient and the T-cells expressing CD150 are quantified pre-rapid expansion protocol (REP) and/or post-REP; or (ii) a population of T-cells engineered to express an exogenous chimeric antigen receptor (CAR) and/or a T-cell receptor (TCR).

11. A method according to Claim 10, in which the proportion of T-cells expressing CD150 being at least 25% of the cell population indicates that the cell population is tumour reactive.