CLAIMS

1. A method for preparing an enriched and expanded cell population of tumour reactive T-cells for use in cancer therapy comprising identifying and/or obtaining a cell population expressing CD150 and expanding the cell population,

in which the T-cells expressing CD150 are T-cells selected from cells originating from a subject;

in which the population is a population of tumour infiltrating lymphocytes (TILs) from a tumour biopsy, lymph node or ascites;

in which the method further comprises exposing the T-cells to a modulator that increases CD150 production; and

in which the modulator comprises a cytokine.

2. An enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer, comprising administering to a cancer patient in need thereof cells from a cell population, in which the cell population is prepared by a method comprising identifying and/or obtaining a cell population expressing CD150 and expanding the cell population to produce the enriched and expanded cell population,

in which the T-cells expressing CD150 are T-cells selected from cells originating from a subject;

in which the population is a population of tumour infiltrating lymphocytes (TILs) from a tumour biopsy, lymph node or ascites;

in which the method further comprises exposing the T-cells to a modulator that increases CD150 production, and

in which the modulator comprises a cytokine.

3. A method according to Claim 1 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to Claim 2, in which:

(I) selecting the T-cells expressing CD150 comprises one or more of (a) flow cytometry, (b) antibody panning, (c) magnetic selection and (d) biomarker targeted cell enrichment; or

(II) selecting the T-cells comprises contacting the cell population with an anti-CD150 antibody.

4. A method according to Claim 1 or 3 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to Claim 2 or 3, in which the expanding comprises:

(a) irradiating feeder cells and co-stimulating with an anti- CD150 antibody and optionally one or more cytokines;

(b) stimulating or activating CD150; or

(c) rapid expansion protocol (REP) in which cells are mixed with irradiated feeder cells and one or more cytokines until at least $1x10^9$ or at least $5x10^9$ or at least $1x10^{10}$ cells are obtained.

5. A method according to Claim 1, 3, or 4, or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to Claim 2, 3 or 4, in which:

(I) the cell population is a population of T-cells engineered to express a CAR and/or a TCR;

(II) the cancer is a melanoma, lung cancer, squamous cell cancer, cancer of the peritoneum, hepatocellular cancer, gastric or stomach cancer including gastrointestinal cancer, pancreatic cancer, glioblastoma, cervical cancer, ovarian cancer, liver cancer, bladder cancer, hepatoma, breast cancer, colon cancer, rectal cancer, colorectal cancer, endometrial cancer or uterine carcinoma, salivary gland carcinoma, kidney or renal cancer, prostate cancer, vulval cancer, thyroid cancer, hepatic carcinoma, anal carcinoma, penile carcinoma, head cancer or neck cancer; or

(III) the cancer treatment is adoptive cell therapy.

6. A method according to any of Claims 1 and 3 to 5 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to any of Claims 2 to 5, in which:

(I) the cytokine is IL-2, IL-15, IL-18, IL-12, IL-23, IL-27, IL-35, IL-39, IL-18, IL-36, IL-37, IL-38, IFN-alpha, IFN-beta, IFN-gamma or a combination thereof; or

(II) the modulator is a cytokine combination of IL-7+ IL-15, IL-2 + IL-7 + IL-15, IL-2 + IL-12, IL-2 + IL-18, IL-2 + IL-12 + IL-7 + IL-15, IL-2 + IL-12 + IL-7 + IL-15 + IL-6, IL-2 + IL-12 + IL-7 + IL-15 + IL-21, IL-2 + IL-12 + IL-7 + IL-15 + IL-6 + IL-21, IL-7 + IL-15 + IL-6, IL-7 + IL-15 + IL-21, IL-7 + IL-15 + IL-6 + IL-21, IL-2 + IL-12 + IL-6, IL-2 + IL-12 + IL-21, or IL-2 + IL-12 + IL-6 + IL-21.

7. A method according to any of Claims 1 and 3 to 6 or an enriched and expanded cell population of tumour reactive T-cells for use according to any of Claims 2 to 6, in which the modulator is a cytokine combination of IL-2 + IL-12.

8. A method according to any of Claims 1 and 3 to 6 or an enriched and expanded cell population of tumour reactive T-cells for use according to any of Claims 2 to 6, in which the modulator is a cytokine combination of IL-2 + IL-18.

9. A method according to any of Claims 1 and 3 to 6 or an enriched and expanded cell population of tumour reactive T-cells for use according to any of Claims 2 to 6, in which the modulator is a cytokine combination of IL-2 + IL-7 + IL-15.

10. A method according to any of Claims 1 and 3 to 6 or an enriched and expanded cell population of tumour reactive T-cells for use according to any of Claims 2 to 6, in which the modulator is a cytokine combination of IL-2 + IL-7 + IL-12 + IL-15.

11. A method according to any of Claims 1 and 3 to 10 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to any of Claims 2 to 10, in which the modulator further comprises a Th2 blocking agent, in which the Th2 blocking agent is an antibody.

12. A method according to Claim 11 or an enriched and expanded cell population of tumour-reactive T-cells for use according to Claim 11, in which:

(I) the antibody is selected from anti-IL-4 (aIL4), anti-IL-4R (aIL4R), anti-IL-5R (aIL5R), anti-IL-5 (aIL5), anti-IL13R (aIL13R) and anti-IL13 (aIL13); or

(II) the antibody is selected from Mepolizumab, Resilizumab, Benralizumab, Tralokinumab, Lebrikizumab and Dupilumab.

13. A method according to Claim 11 or 12 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to Claim 11 or 12, in which the modulator comprises:

(I) IL-2 + aIL4;

(II) IL-2 + IL-12 + aIL4; or

(III) IL-2+ IL-12 + IL-7 + IL- 15 + aIL4.

14. A method according to any of Claims 6 to 13 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to any of Claims 6 to 13, in which IL-12 is briefly added for 1-96 hours at 1-150 ng/ml at the expanding step and subsequently replaced with another cytokine.

15. A method according to any of Claims 1 and 3 to 14 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to any of Claims 2 to 14, in which the modulator is produced by an artificial antigen presenting cell and the tumour reactive T cells are co-cultured with the antigen presenting cell.

16. A method according to any of Claims 1 and 3 to 15 or an enriched and expanded cell population of tumour reactive T-cells for use in the treatment of cancer according to any of Claims 2 to 15, in which:

(I) the cell population is isolated and cultured with a modulator that increases CD150 production and in which the cultured cells are separated from unselected cells

(II) the T cells are engineered to express a cytokine receptor which provides cytokine signalling upon engagement of another drug or cytokine; or

(III) the T cell is a CD4+ or a CD 8+ T cell.