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WHAT IS CLAIMED IS:

1. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) contacting peripheral blood mononuclear cells (PBMC) with a third party antigen or antigens in the presence of IL-21 so as to allow enrichment of antigen reactive cells; and

(b) culturing said cells resulting from step (a) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment so as to allow proliferation of cells comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

2. The method of claim 1, further comprising depleting non-adherent cells from said PBMC prior to step (a).

3. The method of claim 1 or 2, further comprising depleting CD4+ or CD56+ cells from said PBMC prior to step (a).

4. The method of claim 1, 2 or 3, further comprising selecting CD45RA+ or CD45RO- cells from said PBMC prior to step (a).

5. The method of claim 1, wherein said PBMC comprise CD8+ T cells.

6. The method of claim 1, further comprising culturing said cells resulting from step (a) with a third party antigen or antigens in the presence of IL-21, IL-15 and IL-7 following step (a) and prior to step (b).

7. The method of claim 1, wherein said third party antigen or antigens comprise dendritic cells.

8. The method of claim 7, wherein said dendritic cells are irradiated dendritic cells.

9. The method of claim 1, wherein said third party antigen or antigens is selected from the group consisting of third party cells, a cell antigen, a viral antigen, a bacterial antigen, a protein extract, a purified protein and a synthetic peptide presented by autologous presenting cells, non-autologous presenting cells or on an artificial vehicle or on artificial antigen presenting cells.

10. The method of claim 9, wherein said third party cells are stimulatory cells selected from the group consisting of cells purified from peripheral blood lymphocytes, spleen or lymph nodes, cytokine-mobilized PBLs, in vitro expanded antigen-presenting cells (APC), in vitro expanded dendritic cells and artificial antigen presenting cells.

11. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with graft-versus-leukemia (GVL) activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) treating non-adherent peripheral blood mononuclear cells (PBMC) with an agent capable of depleting CD4+ or CD56+ cells so as to obtain CD8+ T cells;

(b) contacting said CD8+ T cells with third party dendritic cells in the presence of IL-21 for 12 hours to 5 days so as to allow enrichment of antigen reactive cells;

(c) culturing said cells resulting from step (b) with said third party dendritic cells in the presence of IL-21, IL-15 and IL-7 for 12 hours to 3 days; and

(d) culturing said cells resulting from step (c) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment for 5-20 days so as to allow proliferation of cells

comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

12. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) treating non-adherent peripheral blood mononuclear cells (PBMC) with an agent capable of depleting CD4+ or CD56+ cells so as to obtain CD8+ T cells;

(b) contacting said CD8+ T cells with non-syngeneic dendritic cells in the presence of IL-21 for 12 hours to 5 days so as to allow enrichment of antigen reactive cells;

(c) culturing said cells resulting from step (b) with said non-syngeneic dendritic cells in the presence of IL-21, IL-15 and IL-7 for 12 hours to 3 days; and

(d) culturing said cells resulting from step (c) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment for 5-20 days so as to allow proliferation of cells comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

13. The method of claim 11 or 12, further comprising selecting CD45RA+ or CD45RO- cells from said PBMC following step (a) and prior to step (b).

14. The method of claim 11 or 12, wherein said CD8+ T cells comprise naïve CD8+ T cells.

15. The method of claim 11 or 12, wherein said dendritic cells comprise in vitro expanded dendritic cells.

16. The method of claim 11 or 12, wherein said dendritic cells comprise irradiated dendritic cells.

17. The method of claim 1, wherein said contacting in said presence of IL-21 is effected for 12 hours to 5 days.

18. The method of claim 1, 11 or 12, wherein said contacting in said presence of IL-21 is effected for 2-3 days.

19. The method of claim 1, 11 or 12, wherein said contacting in said presence of IL-21 is effected for 3 days.

20. The method of claim 1, further comprising selecting for activated cells following step (a) and prior to step (b).

21. The method of claim 11, further comprising selecting for activated cells following step (b) and prior to step (c).

22. The method of claim 20 or 21, wherein said selecting for activated cells is effected by selection of CD137+ or CD25+ cells.

23. The method of claim 20 or 21, wherein said selecting for activated cells is effected 12-72 hours after said contacting.

24. The method of claim 6, wherein said culturing with said third party antigen or antigens in said presence of IL-21, IL-15 and IL-7 is effected for 12 hours to 3 days.

25. The method of claim 1, wherein said culturing in said presence of IL-21, IL-15 and IL-7 in said antigen free environment is effected for 5-20 days.

26. The method of claim 1, 11 or 12, wherein said culturing in said presence of IL-21, IL-15 and IL-7 in said antigen free environment is effected for 7-11 days.

27. The method of claim 1, further comprising depleting alloreactive cells following step (b).

28. The method of claim 11, further comprising depleting alloreactive cells following step (d).

29. The method of claim 27 or 28, wherein said depleting said alloreactive cells is effected by depletion of CD137+ or CD25+ cells following contacting said cells comprising said central memory T-lymphocyte (Tcm) with host antigen presenting cells (APCs).

30. The method of claim 1 or 12, wherein said peripheral blood mononuclear cells (PBMC) are syngeneic with respect to a subject.

31. The method of claim 1 or 11, wherein said peripheral blood mononuclear cells (PBMC) are non-syngeneic with respect to a subject.

32. The method of claim 11 or 31, wherein said non-syngeneic PBMC are xenogeneic or allogeneic with respect to a subject.

33. The method of claim 1, 11 or 12, wherein said anti-third party cells having a T central memory phenotype comprises a $CD3^+$, $CD8^+$, $CD62L^+$, $CD45RA^-$, $CD45RO^+$ signature.

34. The method of claim 33, wherein at least 50 % of the isolated population of cells are CD3+CD8+ cells of which at least 50 % have said signature.

~~35. An isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, wherein at least 50 % of the isolated population of cells are CD3+CD8+ cells of which at least 50 % comprise a $CD3^+$, $CD8^+$, $CD62L^+$, $CD45RA^-$, $CD45RO^+$ signature, and further wherein said cells~~

~~are tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation.~~

~~36~~35. An isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, generated according to the method of claims 1-34.

~~37~~36. Use of a therapeutically effective amount of the isolated population of cells of claim ~~35 or 36~~ 35 for the manufacture of a medicament ~~identified~~ for treating a disease in a subject in need thereof, wherein the disease is selected from the group consisting of a leukemia, a lymphoma and a disease associated with transplantation of a graft~~malignant disease, a viral disease and an autoimmune disease~~.

~~38. The use of claim 37, wherein said malignant disease comprises a leukemia or a lymphoma.~~

~~39~~37. The use of claim ~~37~~36, wherein said isolated population of cells are syngeneic with the subject.

~~40~~38. The use of claim ~~37~~36, wherein said isolated population of cells are non-syngeneic with the subject.

~~41~~39. Use of a therapeutically effective amount of the isolated population of cells of claim ~~35 or 36~~ 35 for the manufacture of a medicament ~~identified~~ for treating a subject in need of a cell or tissue transplantation.

~~42~~40. The use of claim ~~41~~39, further comprising a sublethal, lethal or supralethal conditioning protocol.

~~43~~41. The use of claim ~~41~~39, wherein said cell or tissue transplant is syngeneic with the subject.

~~44~~42. The use of claim ~~41~~39, wherein said cell or tissue transplant is derived from a donor selected from the group consisting of an HLA identical allogeneic donor, an HLA non-identical allogeneic donor and a xenogeneic donor.

~~45~~43. The use of claim ~~41~~39, wherein said cell or tissue transplant comprises immature hematopoietic cells.

~~46~~44. The use of claim ~~41~~39, wherein said cell or tissue transplant is selected from the group consisting of a liver, a pancreas, a spleen, a kidney, a heart, a lung, a skin, an intestine and a lymphoid/hematopoietic tissue or organ.

~~47~~45. The use of claim ~~41~~39, wherein said cell or tissue transplant comprises a co-transplantation of several organs.

~~48~~46. The use of claim ~~47~~45, wherein said co-transplantation comprises transplantation of immature hematopoietic cells and a solid organ.

~~49~~47. The use of claim ~~48~~46, wherein said immature hematopoietic cells and said solid organ or obtained from the same donor.

~~50~~48. The use of claim ~~41~~39, wherein said isolated population of cells are syngeneic with the subject.

~~51~~49. The use of claim ~~41~~39, wherein said isolated population of cells are non-syngeneic with the subject.

~~52~~50. The use of claim ~~41~~39, wherein said cell or tissue transplant and said isolated population of cells are derived from the same donor.

~~53~~51. The use of claim ~~41~~39, wherein said cell or tissue transplant is syngeneic with the subject and said isolated population of cells are non-syngeneic with the subject.

~~54~~52. The use of claim ~~41~~39, wherein said cell or tissue transplant is syngeneic with the subject and said isolated population of cells are syngeneic with the subject.

~~55~~53. Use of a therapeutically effective amount of the isolated population of cells of claim ~~35 or 36~~ 35 for the manufacture of a medicament ~~identified~~ for treating a subject in need of an immature hematopoietic cell transplantation.

~~56~~54. The use of claim ~~55~~53, wherein said immature hematopoietic cells and said isolated population of cells are derived from the same donor.

~~57~~55. The use of claim ~~56~~54, wherein said donor is non-syngeneic with the subject.

~~58~~56. The use of claim ~~55~~53, wherein said immature hematopoietic cells and said isolated population of cells are derived from the subject.

~~59~~57. The use of claim ~~55~~53, further comprising a sublethal, lethal or supralethal conditioning protocol.

~~60~~58. The use of claims ~~37~~36, ~~41~~ 39 or ~~55~~53, wherein said subject is a human subject.

WHAT IS CLAIMED IS:

1. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) contacting peripheral blood mononuclear cells (PBMC) with a third party antigen or antigens in the presence of IL-21 so as to allow enrichment of antigen reactive cells; and

(b) culturing said cells resulting from step (a) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment so as to allow proliferation of cells comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

2. The method of claim 1, further comprising depleting non-adherent cells from said PBMC prior to step (a).

3. The method of claim 1 or 2, further comprising depleting CD4+ or CD56+ cells from said PBMC prior to step (a).

4. The method of claim 1, 2 or 3, further comprising selecting CD45RA+ or CD45RO- cells from said PBMC prior to step (a).

5. The method of claim 1, wherein said PBMC comprise CD8+ T cells.

6. The method of claim 1, further comprising culturing said cells resulting from step (a) with a third party antigen or antigens in the presence of IL-21, IL-15 and IL-7 following step (a) and prior to step (b).

7. The method of claim 1, wherein said third party antigen or antigens comprise dendritic cells.

8. The method of claim 7, wherein said dendritic cells are irradiated dendritic cells.

9. The method of claim 1, wherein said third party antigen or antigens is selected from the group consisting of third party cells, a cell antigen, a viral antigen, a bacterial antigen, a protein extract, a purified protein and a synthetic peptide presented by autologous presenting cells, non-autologous presenting cells or on an artificial vehicle or on artificial antigen presenting cells.

10. The method of claim 9, wherein said third party cells are stimulatory cells selected from the group consisting of cells purified from peripheral blood lymphocytes, spleen or lymph nodes, cytokine-mobilized PBLs, in vitro expanded antigen-presenting cells (APC), in vitro expanded dendritic cells and artificial antigen presenting cells.

11. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with graft-versus-leukemia (GVL) activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) treating non-adherent peripheral blood mononuclear cells (PBMC) with an agent capable of depleting CD4+ or CD56+ cells so as to obtain CD8+ T cells;

(b) contacting said CD8+ T cells with third party dendritic cells in the presence of IL-21 for 12 hours to 5 days so as to allow enrichment of antigen reactive cells;

(c) culturing said cells resulting from step (b) with said third party dendritic cells in the presence of IL-21, IL-15 and IL-7 for 12 hours to 3 days; and

(d) culturing said cells resulting from step (c) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment for 5-20 days so as to allow proliferation of cells

comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

12. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) treating non-adherent peripheral blood mononuclear cells (PBMC) with an agent capable of depleting CD4+ or CD56+ cells so as to obtain CD8+ T cells;

(b) contacting said CD8+ T cells with non-syngeneic dendritic cells in the presence of IL-21 for 12 hours to 5 days so as to allow enrichment of antigen reactive cells;

(c) culturing said cells resulting from step (b) with said non-syngeneic dendritic cells in the presence of IL-21, IL-15 and IL-7 for 12 hours to 3 days; and

(d) culturing said cells resulting from step (c) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment for 5-20 days so as to allow proliferation of cells comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

13. The method of claim 11 or 12, further comprising selecting CD45RA+ or CD45RO- cells from said PBMC following step (a) and prior to step (b).

14. The method of claim 11 or 12, wherein said CD8+ T cells comprise naïve CD8+ T cells.

15. The method of claim 11 or 12, wherein said dendritic cells comprise in vitro expanded dendritic cells.

16. The method of claim 11 or 12, wherein said dendritic cells comprise irradiated dendritic cells.

17. The method of claim 1, wherein said contacting in said presence of IL-21 is effected for 12 hours to 5 days.

18. The method of claim 1, 11 or 12, wherein said contacting in said presence of IL-21 is effected for 2-3 days.

19. The method of claim 1, 11 or 12, wherein said contacting in said presence of IL-21 is effected for 3 days.

20. The method of claim 1, further comprising selecting for activated cells following step (a) and prior to step (b).

21. The method of claim 11, further comprising selecting for activated cells following step (b) and prior to step (c).

22. The method of claim 20 or 21, wherein said selecting for activated cells is effected by selection of CD137+ or CD25+ cells.

23. The method of claim 20 or 21, wherein said selecting for activated cells is effected 12-72 hours after said contacting.

24. The method of claim 6, wherein said culturing with said third party antigen or antigens in said presence of IL-21, IL-15 and IL-7 is effected for 12 hours to 3 days.

25. The method of claim 1, wherein said culturing in said presence of IL-21, IL-15 and IL-7 in said antigen free environment is effected for 5-20 days.

26. The method of claim 1, 11 or 12, wherein said culturing in said presence of IL-21, IL-15 and IL-7 in said antigen free environment is effected for 7-11 days.

27. The method of claim 1, further comprising depleting alloreactive cells following step (b).

28. The method of claim 11, further comprising depleting alloreactive cells following step (d).

29. The method of claim 27 or 28, wherein said depleting said alloreactive cells is effected by depletion of CD137+ or CD25+ cells following contacting said cells comprising said central memory T-lymphocyte (Tcm) with host antigen presenting cells (APCs).

30. The method of claim 1 or 12, wherein said peripheral blood mononuclear cells (PBMC) are syngeneic with respect to a subject.

31. The method of claim 1 or 11, wherein said peripheral blood mononuclear cells (PBMC) are non-syngeneic with respect to a subject.

32. The method of claim 11 or 31, wherein said non-syngeneic PBMC are xenogeneic or allogeneic with respect to a subject.

33. The method of claim 1, 11 or 12, wherein said anti-third party cells having a T central memory phenotype comprises a $CD3^+$, $CD8^+$, $CD62L^+$, $CD45RA^-$, $CD45RO^+$ signature.

34. The method of claim 33, wherein at least 50 % of the isolated population of cells are CD3+CD8+ cells of which at least 50 % have said signature.

35. An isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, wherein at least 50 % of the isolated population of cells are CD3+CD8+ cells of which at least 50 % comprise a $CD3^+$, $CD8^+$, $CD62L^+$, $CD45RA^-$, $CD45RO^+$ signature, and further wherein said cells

are tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation.

36. An isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, generated according to the method of claims 1-34.

37. Use of a therapeutically effective amount of the isolated population of cells of claim 35 or 36 for the manufacture of a medicament identified for treating a disease in a subject in need thereof, wherein the disease is selected from the group consisting of a malignant disease, a viral disease and an autoimmune disease.

38. The use of claim 37, wherein said malignant disease comprises a leukemia or a lymphoma.

39. The use of claim 37, wherein said isolated population of cells are syngeneic with the subject.

40. The use of claim 37, wherein said isolated population of cells are non-syngeneic with the subject.

41. Use of a therapeutically effective amount of the isolated population of cells of claim 35 or 36 for the manufacture of a medicament identified for treating a subject in need of a cell or tissue transplantation.

42. The use of claim 41, further comprising a sublethal, lethal or supralethal conditioning protocol.

43. The use of claim 41, wherein said cell or tissue transplant is syngeneic with the subject.

44. The use of claim 41, wherein said cell or tissue transplant is derived from a donor selected from the group consisting of an HLA identical allogeneic donor, an HLA non-identical allogeneic donor and a xenogeneic donor.

45. The use of claim 41, wherein said cell or tissue transplant comprises immature hematopoietic cells.

46. The use of claim 41, wherein said cell or tissue transplant is selected from the group consisting of a liver, a pancreas, a spleen, a kidney, a heart, a lung, a skin, an intestine and a lymphoid/hematopoietic tissue or organ.

47. The use of claim 41, wherein said cell or tissue transplant comprises a co-transplantation of several organs.

48. The use of claim 47, wherein said co-transplantation comprises transplantation of immature hematopoietic cells and a solid organ.

49. The use of claim 48, wherein said immature hematopoietic cells and said solid organ or obtained from the same donor.

50. The use of claim 41, wherein said isolated population of cells are syngeneic with the subject.

51. The use of claim 41, wherein said isolated population of cells are non-syngeneic with the subject.

52. The use of claim 41, wherein said cell or tissue transplant and said isolated population of cells are derived from the same donor.

53. The use of claim 41, wherein said cell or tissue transplant is syngeneic with the subject and said isolated population of cells are non-syngeneic with the subject.

54. The use of claim 41, wherein said cell or tissue transplant is syngeneic with the subject and said isolated population of cells are syngeneic with the subject.

55. Use of a therapeutically effective amount of the isolated population of cells of claim 35 or 36 for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation.

56. The use of claim 55, wherein said immature hematopoietic cells and said isolated population of cells are derived from the same donor.

57. The use of claim 56, wherein said donor is non-syngeneic with the subject.

58. The use of claim 55, wherein said immature hematopoietic cells and said isolated population of cells are derived from the subject.

59. The use of claim 55, further comprising a sublethal, lethal or supralethal conditioning protocol.

60. The use of claims 37, 41 or 55, wherein said subject is a human subject.

WHAT IS CLAIMED IS:

1. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) contacting peripheral blood mononuclear cells (PBMC) with a third party antigen or antigens in the presence of IL-21 so as to allow enrichment of antigen reactive cells; and

(b) culturing said cells resulting from step (a) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment so as to allow proliferation of cells comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

2. The method of claim 1, further comprising depleting non-adherent cells from said PBMC prior to step (a).

3. The method of claim 1 or 2, further comprising depleting CD4+ or CD56+ cells from said PBMC prior to step (a).

4. The method of claim 1, 2 or 3, further comprising selecting CD45RA+ or CD45RO- cells from said PBMC prior to step (a).

5. The method of claim 1, wherein said PBMC comprise CD8+ T cells.

6. The method of claim 1, further comprising culturing said cells resulting from step (a) with a third party antigen or antigens in the presence of IL-21, IL-15 and IL-7 following step (a) and prior to step (b).

7. The method of claim 1, wherein said third party antigen or antigens comprise dendritic cells.

8. The method of claim 7, wherein said dendritic cells are irradiated dendritic cells.

9. The method of claim 1, wherein said third party antigen or antigens is selected from the group consisting of third party cells, a cell antigen, a viral antigen, a bacterial antigen, a protein extract, a purified protein and a synthetic peptide presented by autologous presenting cells, non-autologous presenting cells or on an artificial vehicle or on artificial antigen presenting cells.

10. The method of claim 9, wherein said third party cells are stimulatory cells selected from the group consisting of cells purified from peripheral blood lymphocytes, spleen or lymph nodes, cytokine-mobilized PBLs, in vitro expanded antigen-presenting cells (APC), in vitro expanded dendritic cells and artificial antigen presenting cells.

11. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with graft-versus-leukemia (GVL) activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) treating non-adherent peripheral blood mononuclear cells (PBMC) with an agent capable of depleting CD4+ or CD56+ cells so as to obtain CD8+ T cells;

(b) contacting said CD8+ T cells with third party dendritic cells in the presence of IL-21 for 12 hours to 5 days so as to allow enrichment of antigen reactive cells;

(c) culturing said cells resulting from step (b) with said third party dendritic cells in the presence of IL-21, IL-15 and IL-7 for 12 hours to 3 days; and

(d) culturing said cells resulting from step (c) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment for 5-20 days so as to allow proliferation of cells

comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

12. A method of generating an isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being endowed with anti-disease activity, and capable of homing to the lymph nodes following transplantation, the method comprising:

(a) treating non-adherent peripheral blood mononuclear cells (PBMC) with an agent capable of depleting CD4+ or CD56+ cells so as to obtain CD8+ T cells;

(b) contacting said CD8+ T cells with non-syngeneic dendritic cells in the presence of IL-21 for 12 hours to 5 days so as to allow enrichment of antigen reactive cells;

(c) culturing said cells resulting from step (b) with said non-syngeneic dendritic cells in the presence of IL-21, IL-15 and IL-7 for 12 hours to 3 days; and

(d) culturing said cells resulting from step (c) in the presence of IL-21, IL-15 and IL-7 in an antigen free environment for 5-20 days so as to allow proliferation of cells comprising said central memory T-lymphocyte (Tcm) phenotype, thereby generating the isolated population of cells.

13. The method of claim 11 or 12, further comprising selecting CD45RA+ or CD45RO- cells from said PBMC following step (a) and prior to step (b).

14. The method of claim 11 or 12, wherein said CD8+ T cells comprise naïve CD8+ T cells.

15. The method of claim 11 or 12, wherein said dendritic cells comprise in vitro expanded dendritic cells.

16. The method of claim 11 or 12, wherein said dendritic cells comprise irradiated dendritic cells.

17. The method of claim 1, wherein said contacting in said presence of IL-21 is effected for 12 hours to 5 days.

18. The method of claim 1, 11 or 12, wherein said contacting in said presence of IL-21 is effected for 2-3 days.

19. The method of claim 1, 11 or 12, wherein said contacting in said presence of IL-21 is effected for 3 days.

20. The method of claim 1, further comprising selecting for activated cells following step (a) and prior to step (b).

21. The method of claim 11, further comprising selecting for activated cells following step (b) and prior to step (c).

22. The method of claim 20 or 21, wherein said selecting for activated cells is effected by selection of CD137+ or CD25+ cells.

23. The method of claim 20 or 21, wherein said selecting for activated cells is effected 12-72 hours after said contacting.

24. The method of claim 6, wherein said culturing with said third party antigen or antigens in said presence of IL-21, IL-15 and IL-7 is effected for 12 hours to 3 days.

25. The method of claim 1, wherein said culturing in said presence of IL-21, IL-15 and IL-7 in said antigen free environment is effected for 5-20 days.

26. The method of claim 1, 11 or 12, wherein said culturing in said presence of IL-21, IL-15 and IL-7 in said antigen free environment is effected for 7-11 days.

27. The method of claim 1, further comprising depleting alloreactive cells following step (b).

28. The method of claim 11, further comprising depleting alloreactive cells following step (d).

29. The method of claim 27 or 28, wherein said depleting said alloreactive cells is effected by depletion of CD137+ or CD25+ cells following contacting said cells comprising said central memory T-lymphocyte (Tcm) with host antigen presenting cells (APCs).

30. The method of claim 1 or 12, wherein said peripheral blood mononuclear cells (PBMC) are syngeneic with respect to a subject.

31. The method of claim 1 or 11, wherein said peripheral blood mononuclear cells (PBMC) are non-syngeneic with respect to a subject.

32. The method of claim 11 or 31, wherein said non-syngeneic PBMC are xenogeneic or allogeneic with respect to a subject.

33. The method of claim 1, 11 or 12, wherein said anti-third party cells having a T central memory phenotype comprises a $CD3^+$, $CD8^+$, $CD62L^+$, $CD45RA^-$, $CD45RO^+$ signature.

34. The method of claim 33, wherein at least 50 % of the isolated population of cells are CD3+CD8+ cells of which at least 50 % have said signature.

35. An isolated population of cells comprising non-GVHD inducing anti-third party cells having a central memory T-lymphocyte (Tcm) phenotype, said cells being tolerance-inducing cells and/or endowed with anti-disease activity, and capable of homing

to the lymph nodes following transplantation, generated according to the method of claims 1-34.

36. Use of a therapeutically effective amount of the isolated population of cells of claim 35 for the manufacture of a medicament for treating a disease in a subject in need thereof, wherein the disease is selected from the group consisting of a leukemia, a lymphoma and a disease associated with transplantation of a graft.

37. The use of claim 36, wherein said isolated population of cells are syngeneic with the subject.

38. The use of claim 36, wherein said isolated population of cells are non-syngeneic with the subject.

39. Use of a therapeutically effective amount of the isolated population of cells of claim 35 for the manufacture of a medicament for treating a subject in need of a cell or tissue transplantation.

40. The use of claim 39, further comprising a sublethal, lethal or supralethal conditioning protocol.

41. The use of claim 39, wherein said cell or tissue transplant is syngeneic with the subject.

42. The use of claim 39, wherein said cell or tissue transplant is derived from a donor selected from the group consisting of an HLA identical allogeneic donor, an HLA non-identical allogeneic donor and a xenogeneic donor.

43. The use of claim 39, wherein said cell or tissue transplant comprises immature hematopoietic cells.

44. The use of claim 39, wherein said cell or tissue transplant is selected from the group consisting of a liver, a pancreas, a spleen, a kidney, a heart, a lung, a skin, an intestine and a lymphoid/hematopoietic tissue or organ.

45. The use of claim 39, wherein said cell or tissue transplant comprises a co-transplantation of several organs.

46. The use of claim 45, wherein said co-transplantation comprises transplantation of immature hematopoietic cells and a solid organ.

47. The use of claim 46, wherein said immature hematopoietic cells and said solid organ or obtained from the same donor.

48. The use of claim 39, wherein said isolated population of cells are syngeneic with the subject.

49. The use of claim 39, wherein said isolated population of cells are non-syngeneic with the subject.

50. The use of claim 39, wherein said cell or tissue transplant and said isolated population of cells are derived from the same donor.

51. The use of claim 39, wherein said cell or tissue transplant is syngeneic with the subject and said isolated population of cells are non-syngeneic with the subject.

52. The use of claim 39, wherein said cell or tissue transplant is syngeneic with the subject and said isolated population of cells are syngeneic with the subject.

53. Use of a therapeutically effective amount of the isolated population of cells of claim 35 for the manufacture of a medicament for treating a subject in need of an immature hematopoietic cell transplantation.

54. The use of claim 53, wherein said immature hematopoietic cells and said isolated population of cells are derived from the same donor.

55. The use of claim 54, wherein said donor is non-syngeneic with the subject.

56. The use of claim 53, wherein said immature hematopoietic cells and said isolated population of cells are derived from the subject.

57. The use of claim 53, further comprising a sublethal, lethal or supralethal conditioning protocol.

58. The use of claims 36, 39 or 53, wherein said subject is a human subject.