WHAT IS CLAIMED IS:

1. ~~A method of treating a subject in need of a non-syngeneic cell or tissue graft, the method comprising:~~

~~(a) transplanting into a subject~~ Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby treating the subject~~ for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

2. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic

cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

~~2~~3. The ~~method~~ use of claim 1 or 2, further comprising ~~conditioning the subject under~~a reduced intensity conditioning protocol ~~prior to step (a)~~.

~~3~~4. The ~~method~~ use of claim 1 or 2, further comprising ~~conditioning the subject with~~an *in-vivo* T cell debulking protocol ~~prior to step (a)~~.

~~4~~5. The ~~method~~ use of claim 1 or 2, wherein a dose of said T cell depleted immature hematopoietic cells comprises 5 - 40 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~.

~~5~~6. The ~~method~~ use of claim ~~4~~5, wherein a dose of said T cell depleted immature hematopoietic cells comprises at least about 10 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~.

~~6~~7. The ~~method~~ use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells are selected from the group consisting of T cell depleted bone marrow

cells, T cell depleted G-CSF mobilized peripheral blood progenitor cells, T cell depleted cord blood, purified CD34+ cells attained by positive selection from bone marrow and/or from G-CSF mobilized peripheral blood progenitor cells, and ex-vivo expanded $CD34^+$ cells.

~~7~~8. The ~~method~~ use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells comprise less than 1 x 10^6 $CD8^+$ $TCR\alpha/\beta^-$ cells per kilogram body weight ~~of the subject~~.

~~8~~9. The ~~method~~ use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells are obtained by magnetic-activated cell sorting~~MACS™~~.

~~9~~10. The ~~method~~ use of claim 1 or 2, wherein when said surface marker is a T cell surface marker, said unbound cells comprise T cell depleted immature hematopoietic cells.

~~10~~11. The ~~method~~ use of claim ~~9~~10, wherein said T cell surface marker is selected from the group consisting of CD2, CD3, CD4, CD8 and TCRα/β.

~~11~~12. The ~~method~~ use of claim 1 or 2, wherein when said surface marker is an immature hematopoietic cell surface marker, said bound cells comprise T cell depleted immature hematopoietic cells.

~~12~~13. The ~~method~~ use of claim ~~11~~12, wherein said immature hematopoietic cell surface marker is selected from the group consisting of CD34, CD33 and CD131.

~~13~~14. The ~~method~~ use of claim 1 or 2, further comprising separating B cells from said T cell depleted immature hematopoietic cells by the use of an antibody that specifically binds to a B cell surface marker.

~~14~~15. The ~~method~~ use of claim ~~13~~14, wherein said B cell surface marker is selected from the group consisting of CD19 and CD20.

~~15~~16. The ~~method~~ use of claim 1 or 2, wherein said matrix is a ferromagnetic matrix.

~~16~~17. The ~~method~~ use of claim 1 or 2, wherein said matrix comprises spheres of magnetically susceptible or ferromagnetic material.

~~17~~18. The ~~method~~ use of claim 1 or 2, wherein said magnetically responsive agent comprises a superparamagnetic particle.

~~18~~19. The ~~method~~ use of claim ~~17~~18, wherein said superparamagnetic particle is conjugated to said antibody in combination with an anti-immunoglobulin, an avidin and or anti-hapten-specific microbead.

~~19~~20. The ~~method~~ use of claim 1, 2 or ~~17~~18, wherein said separating said T cells from said immature hematopoietic cells is effected using a high gradient magnetic separation (HGMS).

~~20~~21. The ~~method~~ use of claim 1 or 2, wherein said separating said T cells from said immature hematopoietic cells is effected using a separation column.

~~21~~22. The ~~method~~ use of claim 1 or 2, wherein said antibody is selected from the group consisting of an anti-CD8 antibody, an anti-CD4 antibody, an anti-CD3 antibody, an anti-CD2 antibody, an anti-TCRα/β antibody, an anti-CD19 antibody, and an anti-CD20 antibody, an anti-CD21 antibody an anti-CD34 antibody, an anti-CD33 antibody and an anti-CD131 antibody.

~~22~~23. The ~~method~~ use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells are obtained from a non-syngeneic donor.

~~23~~24. The ~~method~~ use of claim ~~22~~23, wherein said non-syngeneic donor is allogeneic or xenogeneic with respect to ~~the~~ said subject.

~~24~~25. The ~~method~~ use of claim ~~23~~24, wherein said allogeneic donor is selected from the group consisting of an HLA matched sibling, an HLA matched unrelated donor, an HLA haploidentical related donor and a donor displaying one or more disparate HLA determinants.

~~25~~26. The ~~method~~ use of claim 1 or 2, wherein ~~the~~ said subject is a human subject.

~~26~~27. The ~~method~~ use of claim ~~3~~4, wherein said *in-vivo* T cell debulking is effected by antibodies.

~~27~~28. The ~~method~~ use of claim ~~26~~27, wherein said antibodies comprise at least one of an anti-CD8 antibody, an anti-CD4 antibody, an anti-thymocyte globulin (ATG) antibody, an anti-CD52 antibody and an anti-CD3 (OKT3) antibody.

~~28~~29. The ~~method~~ use of claim ~~2~~3, wherein said reduced intensity conditioning comprise a non-myeloablative conditioning protocol.

~~29~~30. The ~~method~~ use of claim ~~28~~29, wherein said non-myeloablative conditioning comprise at least one of a total body irradiation (TBI), a total lymphoid irradiation (TLI), a chemotherapeutic agent and/or an antibody immunotherapy.

~~30~~31. The ~~method~~ use of claim ~~29~~30, wherein said TBI comprises a single or fractionated irradiation dose within the range selected from the group consisting of 1-7.5 Gy and 1-3.5 Gy.

~~31~~32. The ~~method~~ use of claim ~~29~~30, wherein said chemotherapeutic agent comprises at least one of Busulfan, Fludarabine, Melphalan and Thiotepa.

~~32~~33. The ~~method~~ use of claim ~~29~~30, wherein said antibody comprises at least one of an anti-CD52 antibody, an anti-thymocyte globulin (ATG) antibody and anti-CD3 (OKT3) antibody.

~~33~~34. The ~~method~~ use of claim 1 or 2, wherein said concentration of said cyclophosphamide is about 100 – 200 or about 100 mg per kg body weight.

~~34~~35. The ~~method~~ use of claim 1 or 2, wherein said cyclophosphamide is ~~administered~~ effected in a single dose or in two doses.

~~35~~36. The ~~method~~ use of claim ~~34~~35, wherein each of said two doses comprises a concentration of about 50 mg per kg body weight.

~~36. The method of claim 34, wherein each of said two doses is administered on days 3 and 4 following step (a).~~

~~37. The method of claim 1, wherein the subject has a malignant disease.~~

~~38~~37. The ~~method~~ use of claim ~~37~~1, wherein said malignant disease is a hematopoietic cancer.

~~39. The method of claim 1, wherein the subject has a non-malignant disease.~~

~~40~~38. The ~~method~~ use of claim 1 or 2, wherein said cell or tissue graft comprises immature hematopoietic cells.

~~41~~39. The ~~method~~ use of claim 1 or 2, wherein said cell or tissue graft 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.

~~42~~40. The ~~method~~ use of claim ~~41~~39, wherein said cell or tissue graft is ~~transplanted into the subject~~effected prior to, concomitantly with or following said ~~transplanting said~~ dose of T cell depleted immature hematopoietic cells ~~into said subject~~.

~~43~~41. The use ~~method~~ of claim ~~41~~39, wherein said cell or tissue graft comprises a co-transplantation of several organs.

~~44~~42. The use ~~method~~ of claim ~~42~~40, wherein said cell or tissue graft and said T cell depleted immature hematopoietic cells are obtained from the same donor.

~~45~~43. ~~A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:~~

~~(a) transplanting into a conditioned subject~~ Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby treating the subject~~ for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

44. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

~~46~~45. ~~A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:~~

~~(a) conditioning a subject under~~ Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent;

~~(b) transplanting into the subject~~ a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight~~ of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight~~ of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and ~~subsequently~~

~~(c) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight,~~ thereby treating the subject~~ for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

46. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent;

a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

47. ~~A method of inducing donor-specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, the method comprising:~~

~~(a) transplanting into a subject~~ Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 $CD3^+$ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby inducing donor specific tolerance in the subject~~ for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

48. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

~~48~~49. ~~A method of treating a subject in need of a non-syngeneic cell or tissue graft, the method comprising:~~

~~(a) transplanting into a subject~~ Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise

less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby treating the subject~~ for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

50. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

~~49~~51. ~~A method of treating a subject in need of a non-syngeneic cell or tissue graft, the method comprising:~~

~~(a) transplanting into a subject~~ Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby treating the subject~~ for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

52. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

~~50~~53. The ~~method~~ use of claim ~~48~~49, 50, 51 or ~~49~~52, further comprising ~~conditioning the subject under~~a reduced intensity conditioning ~~prior to step (a)~~protocol.

~~51~~54. The ~~method~~ use of claim ~~48~~49, 50, 51 or ~~49~~52, further comprising ~~conditioning the subject with~~an *in-vivo* T cell debulking ~~prior to step (a).~~protocol.

~~52~~55. The ~~method~~ use of claim ~~48~~49, 50, 51 or ~~49~~52, wherein a dose of said T cell depleted immature hematopoietic cells comprises 5 - 40 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~.

~~53~~56. The ~~method~~ use of claim ~~52~~55, wherein a dose of said T cell depleted immature hematopoietic cells comprises at least about 10 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~.

~~54~~57. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said T cell depleted immature hematopoietic cells are selected from the group consisting of T cell depleted bone marrow cells, T cell depleted G-CSF mobilized peripheral blood progenitor cells, T cell depleted cord blood, purified CD34+ cells attained by positive selection from bone marrow and/or from G-CSF mobilized peripheral blood progenitor cells, and ex-vivo expanded $CD34^+$ cells.

~~55~~58. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said T cell depleted immature hematopoietic cells comprise less than 1 x 10^6 $TCR\alpha/\beta^-$ cells per kilogram body weight ~~of the subject~~.

~~56~~59. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said separating is effected using an antibody.

~~57~~60. The use ~~method~~ of claim ~~56~~59, wherein said antibody is coupled to a fluorescent dye, a hapten or a magnetic particle.

~~58~~61. The use ~~method~~ of claim ~~57~~60, wherein said separating is performed using flow-cytometry or magnetic cell sorting.

~~59. The method of claim 58, wherein said magnetic cell sorting comprises MACS™.~~

~~60~~62. The use ~~method~~ of claim ~~48~~49 or 50, wherein said separating said T cells from said immature hematopoietic cells based on said product secreted by said T cells comprises separating T cells labeled with a secretion product, wherein said T cells have been coupled to a capture moiety that specifically binds a product secreted by said T cells

and wherein said T cells have been cultured under conditions wherein the product is secreted and bound to said capture moiety, thereby producing T cells labeled with said secretion product, wherein said T cells are not lysed by said method and wherein said secretion product is labeled with a label moiety.

~~61~~63. The use ~~method~~ of claim ~~48~~49 or 50, further comprising separating B cells from said T cell depleted immature hematopoietic cells based on a product secreted by said B cells comprising separating B cells labeled with a secretion product, wherein said B cells have been coupled to a capture moiety that specifically binds a product secreted by said B cells and wherein said B cells have been cultured under conditions wherein the product is secreted and bound to said capture moiety, thereby producing B cells labeled with said secretion product, wherein said B cells are not lysed by said method and wherein said secretion product is labeled with a label moiety.

~~62~~64. The use ~~method~~ of claim ~~60~~ 62 or ~~61~~63, wherein said secretion product is a cytokine, antibody or hormone.

~~63~~65. The use ~~method~~ of claim ~~60~~ 62 or ~~61~~63, wherein said secretion product is selected from the group consisting of IFN-γ, IL1, IL2, IL4, IL10, IL12, TGF-β, TNF, GM-CSF and SCF.

~~64~~66. The use ~~method~~ of claim ~~60~~ 62 or ~~61~~63, wherein said capture moiety is coupled to said T cells or B cells through an anchoring moiety.

~~65~~67. The use ~~method~~ of claim ~~60~~ 62 or ~~61~~63, wherein said capture moiety is an antibody or an antigen-binding fragment thereof.

~~66~~68. The use ~~method~~ of claim ~~65~~67, wherein said antibody is bispecific.

~~67~~69. The use ~~method~~ of claim ~~65~~67, wherein said antibody is against a T cell or a B cell surface marker.

~~68~~70. The use ~~method~~ of claim ~~60~~ 62 or ~~61~~63, wherein said label moiety is an antibody specific for the secretion product.

~~69~~71. The use ~~method~~ of claim ~~60~~ 62 or ~~61~~63, wherein said label moiety is fluorochromated, magnetizable or comprises magnetic particles.

~~70~~72. The use ~~method~~ of claim ~~56~~ 59 or ~~67~~69, wherein said antibody is selected from the group consisting of an anti-CD8 antibody, an anti-CD4 antibody, an anti-CD3 antibody, an anti-CD2 antibody, an anti-TCRα/β antibody, an anti-CD19 antibody, an anti-CD20 antibody, an anti-CD21 antibody an anti-CD34 antibody, an anti-CD33 antibody and an anti-CD131 antibody.

~~71~~73. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said T cell depleted immature hematopoietic cells are obtained from a non-syngeneic donor.

~~72~~74. The use ~~method~~ of claim ~~71~~73, wherein said non-syngeneic donor is allogeneic or xenogeneic with respect to ~~the~~ said subject.

~~73~~75. The use ~~method~~ of claim ~~72~~74, wherein said allogeneic donor is selected from the group consisting of an HLA matched sibling, an HLA matched unrelated donor, an HLA haploidentical related donor and a donor displaying one or more disparate HLA determinants.

~~74~~76. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein ~~the~~ said subject is a human subject.

~~75~~77. The use ~~method~~ of claim ~~51~~54, wherein said *in-vivo* T cell debulking is effected by antibodies.

~~76~~78. The use ~~method~~ of claim ~~75~~77, wherein said antibodies comprise at least one of an anti-CD8 antibody, an anti-CD4 antibody, an anti-thymocyte globulin (ATG) antibody, an anti-CD52 antibody or an anti-CD3 (OKT3) antibody.

~~77~~79. The use ~~method~~ of claim ~~50~~53, wherein said reduced intensity conditioning protocol comprise a non-myeloablative conditioning protocol.

~~78~~80. The use ~~method~~ of claim ~~77~~79, wherein said non-myeloablative conditioning comprise at least one of a total body irradiation (TBI), a total lymphoid irradiation (TLI), a chemotherapeutic agent and/or an antibody immunotherapy.

~~79~~81. The use ~~method~~ of claim ~~78~~80, wherein said TBI comprises a single or fractionated irradiation dose within the range selected from the group consisting of 1-7.5 Gy and 1-3.5 Gy.

~~80~~82. The use ~~method~~ of claim ~~78~~80, wherein said chemotherapeutic agent comprises at least one of Busulfan, Fludarabine, Melphalan and Thiotepa.

~~81~~83. The use ~~method~~ of claim ~~78~~80, wherein said antibody comprises at least one of an anti-CD52 antibody, an anti-thymocyte globulin (ATG) antibody and an anti-CD3 (OKT3) antibody.

~~82~~84. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said concentration of said cyclophosphamide is about 100 – 200 or about 100 mg per kg body weight.

~~83~~85. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said cyclophosphamide is ~~administered~~ effected in a single dose or in two doses.

~~84~~86. The use ~~method~~ of claim ~~83~~85, wherein each of said two doses comprises a concentration of about 50 mg per kg body weight.

~~85. The method of claim 83, wherein each of said two doses is administered on days 3 and 4 following step (a).~~

~~86~~87. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein ~~the~~ said subject has a malignant disease.

~~87~~88. The use ~~method~~ of claim ~~86~~87, wherein said malignant disease is a hematopoietic cancer.

~~88~~89. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein ~~the~~ said subject has a non-malignant disease.

~~89~~90. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said cell or tissue graft comprises immature hematopoietic cells.

~~90~~91. The use ~~method~~ of claim ~~48~~49, 50, 51 or ~~49~~52, wherein said cell or tissue graft 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.

~~91~~92. The use ~~method~~ of claim ~~90~~91, wherein said cell or tissue graft is ~~transplanted into the subject~~effected prior to, concomitantly with or following said ~~transplanting said~~ dose of T cell depleted immature hematopoietic cells ~~into said subject~~.

~~92~~93. The use ~~method~~ of claim ~~90~~91, wherein said cell or tissue graft comprises a co-transplantation of several organs.

~~93~~94. The use ~~method~~ of claim ~~91~~92, wherein said cell or tissue graft and said T cell depleted immature hematopoietic cells are obtained from the same donor.

~~94~~95. ~~A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:~~

~~(a) transplanting into a conditioned subject~~ Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby treating the subject~~ for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

96. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

~~95~~97. ~~A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:~~

~~(a) transplanting into a conditioned subject~~ Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of

4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby treating the subject~~ for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

98. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

~~96~~99. ~~A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:~~

~~(a) conditioning a subject under~~ Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent;

~~(b) transplanting into the subject~~ a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the~~

~~subject~~, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and ~~subsequently~~

~~(c) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease ~~thereby treating the subject~~.

100. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

~~97~~101. ~~A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:~~

~~(a) conditioning a subject under~~ Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent;

~~(b) transplanting into the subject~~ a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression

of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and ~~subsequently~~

~~(c) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby treating the subject~~ for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

102. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

~~98~~103. ~~A method of inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, the method comprising:~~

~~(a) transplanting into a subject~~ Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said separating said T cells

from said immature hematopoietic cells is effected based on a product secreted by said T cells; and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby inducing donor specific tolerance in the subject~~ for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

104. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

~~99~~105. ~~A method of inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, the method comprising:~~

~~(a) transplanting into a subject~~ Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight ~~of the subject~~, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight ~~of the subject~~, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and ~~subsequently~~

~~(b) administering to the subject~~ a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, ~~thereby inducing donor specific tolerance in the subject~~ for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

106. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

WHAT IS CLAIMED IS:

1. A method of treating a subject in need of a non-syngeneic cell or tissue graft, the method comprising:

(a) transplanting into a subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

2. The method of claim 1, further comprising conditioning the subject under reduced intensity conditioning prior to step (a).

3. The method of claim 1, further comprising conditioning the subject with *in-vivo* T cell debulking prior to step (a).

4. The method of claim 1, wherein a dose of said T cell depleted immature hematopoietic cells comprises 5 - 40 x 10^6 CD34+ cells per kilogram body weight of the subject.

5. The method of claim 4, wherein a dose of said T cell depleted immature hematopoietic cells comprises at least about 10 x 10^6 CD34+ cells per kilogram body weight of the subject.

6. The method of claim 1, wherein said T cell depleted immature hematopoietic cells are selected from the group consisting of T cell depleted bone marrow cells, T cell depleted G-CSF mobilized peripheral blood progenitor cells, T cell depleted cord blood, purified CD34+ cells attained by positive selection from bone marrow and/or from G-CSF mobilized peripheral blood progenitor cells, and ex-vivo expanded $CD34^+$ cells.

7. The method of claim 1, wherein said T cell depleted immature hematopoietic cells comprise less than 1 x 10^6 $CD8^+$ $TCR\alpha/\beta^-$ cells per kilogram body weight of the subject.

8. The method of claim 1, wherein said T cell depleted immature hematopoietic cells are obtained by MACS™.

9. The method of claim 1, wherein when said surface marker is a T cell surface marker, said unbound cells comprise T cell depleted immature hematopoietic cells.

10. The method of claim 9, wherein said T cell surface marker is selected from the group consisting of CD2, CD3, CD4, CD8 and TCRα/β.

11. The method of claim 1, wherein when said surface marker is an immature hematopoietic cell surface marker, said bound cells comprise T cell depleted immature hematopoietic cells.

12. The method of claim 11, wherein said immature hematopoietic cell surface marker is selected from the group consisting of CD34, CD33 and CD131.

13. The method of claim 1, further comprising separating B cells from said T cell depleted immature hematopoietic cells by the use of an antibody that specifically binds to a B cell surface marker.

14. The method of claim 13, wherein said B cell surface marker is selected from the group consisting of CD19 and CD20.

15. The method of claim 1, wherein said matrix is a ferromagnetic matrix.

16. The method of claim 1, wherein said matrix comprises spheres of magnetically susceptible or ferromagnetic material.

17. The method of claim 1, wherein said magnetically responsive agent comprises a superparamagnetic particle.

18. The method of claim 17, wherein said superparamagnetic particle is conjugated to said antibody in combination with an anti-immunoglobulin, an avidin and or anti-hapten-specific microbead.

19. The method of claim 1 or 17, wherein said separating said T cells from said immature hematopoietic cells is effected using a high gradient magnetic separation (HGMS).

20. The method of claim 1, wherein said separating said T cells from said immature hematopoietic cells is effected using a separation column.

21. The method of claim 1, wherein said antibody is selected from the group consisting of an anti-CD8 antibody, an anti-CD4 antibody, an anti-CD3 antibody, an anti-CD2 antibody, an anti-TCRα/β antibody, an anti-CD19 antibody, and an anti-CD20

antibody, an anti-CD21 antibody an anti-CD34 antibody, an anti-CD33 antibody and an anti-CD131 antibody.

22. The method of claim 1, wherein said T cell depleted immature hematopoietic cells are obtained from a non-syngeneic donor.

23. The method of claim 22, wherein said non-syngeneic donor is allogeneic or xenogeneic with respect to the subject.

24. The method of claim 23, wherein said allogeneic donor is selected from the group consisting of an HLA matched sibling, an HLA matched unrelated donor, an HLA haploidentical related donor and a donor displaying one or more disparate HLA determinants.

25. The method of claim 1, wherein the subject is a human subject.

26. The method of claim 3, wherein said *in-vivo* T cell debulking is effected by antibodies.

27. The method of claim 26, wherein said antibodies comprise at least one of an anti-CD8 antibody, an anti-CD4 antibody, an anti-thymocyte globulin (ATG) antibody, an anti-CD52 antibody and an anti-CD3 (OKT3) antibody.

28. The method of claim 2, wherein said reduced intensity conditioning comprise a non-myeloablative conditioning.

29. The method of claim 28, wherein said non-myeloablative conditioning comprise at least one of a total body irradiation (TBI), a total lymphoid irradiation (TLI), a chemotherapeutic agent and/or an antibody immunotherapy.

30. The method of claim 29, wherein said TBI comprises a single or fractionated irradiation dose within the range selected from the group consisting of 1-7.5 Gy and 1-3.5 Gy.

31. The method of claim 29, wherein said chemotherapeutic agent comprises at least one of Busulfan, Fludarabine, Melphalan and Thiotepa.

32. The method of claim 29, wherein said antibody comprises at least one of an anti-CD52 antibody, an anti-thymocyte globulin (ATG) antibody and anti-CD3 (OKT3) antibody.

33. The method of claim 1, wherein said concentration of said cyclophosphamide is about 100 – 200 or about 100 mg per kg body weight.

34. The method of claim 1, wherein said cyclophosphamide is administered in a single dose or in two doses.

35. The method of claim 34, wherein each of said two doses comprises a concentration of about 50 mg per kg body weight.

36. The method of claim 34, wherein each of said two doses is administered on days 3 and 4 following step (a).

37. The method of claim 1, wherein the subject has a malignant disease.

38. The method of claim 37, wherein said malignant disease is a hematopoietic cancer.

39. The method of claim 1, wherein the subject has a non-malignant disease.

40. The method of claim 1, wherein said cell or tissue graft comprises immature hematopoietic cells.

41. The method of claim 1, wherein said cell or tissue graft 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.

42. The method of claim 41, wherein said cell or tissue graft is transplanted into the subject prior to, concomitantly with or following said transplanting said dose of T cell depleted immature hematopoietic cells into said subject.

43. The method of claim 41, wherein said cell or tissue graft comprises a co-transplantation of several organs.

44. The method of claim 42, wherein said cell or tissue graft and said T cell depleted immature hematopoietic cells are obtained from the same donor.

45. A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:

(a) transplanting into a conditioned subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

46. A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:

(a) conditioning a subject under a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent;

(b) transplanting into the subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and subsequently

(c) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

47. A method of inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, the method comprising:

(a) transplanting into a subject a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby inducing donor specific tolerance in the subject.

48. A method of treating a subject in need of a non-syngeneic cell or tissue graft, the method comprising:

(a) transplanting into a subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight of the subject, and wherein said separating said T cells from said

immature hematopoietic cells is effected based on a product secreted by said T cells; and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

49. A method of treating a subject in need of a non-syngeneic cell or tissue graft, the method comprising:

(a) transplanting into a subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 $CD3^+$ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

50. The method of claim 48 or 49, further comprising conditioning the subject under reduced intensity conditioning prior to step (a).

51. The method of claim 48 or 49, further comprising conditioning the subject with *in-vivo* T cell debulking prior to step (a).

52. The method of claim 48 or 49, wherein a dose of said T cell depleted immature hematopoietic cells comprises 5 - 40 $\times 10^6$ CD34+ cells per kilogram body weight of the subject.

53. The method of claim 52, wherein a dose of said T cell depleted immature hematopoietic cells comprises at least about 10 x 10^6 CD34+ cells per kilogram body weight of the subject.

54. The method of claim 48 or 49, wherein said T cell depleted immature hematopoietic cells are selected from the group consisting of T cell depleted bone marrow cells, T cell depleted G-CSF mobilized peripheral blood progenitor cells, T cell depleted cord blood, purified CD34+ cells attained by positive selection from bone marrow and/or from G-CSF mobilized peripheral blood progenitor cells, and ex-vivo expanded $CD34^+$ cells.

55. The method of claim 48 or 49, wherein said T cell depleted immature hematopoietic cells comprise less than 1 x 10^6 TCRα/β^- cells per kilogram body weight of the subject.

56. The method of claim 48 or 49, wherein said separating is effected using an antibody.

57. The method of claim 56, wherein said antibody is coupled to a fluorescent dye, a hapten or a magnetic particle.

58. The method of claim 57, wherein said separating is performed using flow-cytometry or magnetic cell sorting.

59. The method of claim 58, wherein said magnetic cell sorting comprises MACS™.

60. The method of claim 48, wherein said separating said T cells from said immature hematopoietic cells based on said product secreted by said T cells comprises separating T cells labeled with a secretion product, wherein said T cells have been coupled to a capture moiety that specifically binds a product secreted by said T cells and wherein said T cells have been cultured under conditions wherein the product is

secreted and bound to said capture moiety, thereby producing T cells labeled with said secretion product, wherein said T cells are not lysed by said method and wherein said secretion product is labeled with a label moiety.

61. The method of claim 48, further comprising separating B cells from said T cell depleted immature hematopoietic cells based on a product secreted by said B cells comprising separating B cells labeled with a secretion product, wherein said B cells have been coupled to a capture moiety that specifically binds a product secreted by said B cells and wherein said B cells have been cultured under conditions wherein the product is secreted and bound to said capture moiety, thereby producing B cells labeled with said secretion product, wherein said B cells are not lysed by said method and wherein said secretion product is labeled with a label moiety.

62. The method of claim 60 or 61, wherein said secretion product is a cytokine, antibody or hormone.

63. The method of claim 60 or 61, wherein said secretion product is selected from the group consisting of IFN-γ, IL1, IL2, IL4, IL10, IL12, TGF-β, TNF, GM-CSF and SCF.

64. The method of claim 60 or 61, wherein said capture moiety is coupled to said T cells or B cells through an anchoring moiety.

65. The method of claim 60 or 61, wherein said capture moiety is an antibody or an antigen-binding fragment thereof.

66. The method of claim 65, wherein said antibody is bispecific.

67. The method of claim 65, wherein said antibody is against a T cell or a B cell surface marker.

68. The method of claim 60 or 61, wherein said label moiety is an antibody specific for the secretion product.

69. The method of claim 60 or 61, wherein said label moiety is fluorochromated, magnetizable or comprises magnetic particles.

70. The method of claim 56 or 67, wherein said antibody is selected from the group consisting of an anti-CD8 antibody, an anti-CD4 antibody, an anti-CD3 antibody, an anti-CD2 antibody, an anti-TCRα/β antibody, an anti-CD19 antibody, an anti-CD20 antibody, an anti-CD21 antibody an anti-CD34 antibody, an anti-CD33 antibody and an anti-CD131 antibody.

71. The method of claim 48 or 49, wherein said T cell depleted immature hematopoietic cells are obtained from a non-syngeneic donor.

72. The method of claim 71, wherein said non-syngeneic donor is allogeneic or xenogeneic with respect to the subject.

73. The method of claim 72, wherein said allogeneic donor is selected from the group consisting of an HLA matched sibling, an HLA matched unrelated donor, an HLA haploidentical related donor and a donor displaying one or more disparate HLA determinants.

74. The method of claim 48 or 49, wherein the subject is a human subject.

75. The method of claim 51, wherein said *in-vivo* T cell debulking is effected by antibodies.

76. The method of claim 75, wherein said antibodies comprise at least one of an anti-CD8 antibody, an anti-CD4 antibody, an anti-thymocyte globulin (ATG) antibody, an anti-CD52 antibody or an anti-CD3 (OKT3) antibody.

77. The method of claim 50, wherein said reduced intensity conditioning comprise a non-myeloablative conditioning.

78. The method of claim 77, wherein said non-myeloablative conditioning comprise at least one of a total body irradiation (TBI), a total lymphoid irradiation (TLI), a chemotherapeutic agent and/or an antibody immunotherapy.

79. The method of claim 78, wherein said TBI comprises a single or fractionated irradiation dose within the range selected from the group consisting of 1-7.5 Gy and 1-3.5 Gy.

80. The method of claim 78, wherein said chemotherapeutic agent comprises at least one of Busulfan, Fludarabine, Melphalan and Thiotepa.

81. The method of claim 78, wherein said antibody comprises at least one of an anti-CD52 antibody, an anti-thymocyte globulin (ATG) antibody and an anti-CD3 (OKT3) antibody.

82. The method of claim 48 or 49, wherein said concentration of said cyclophosphamide is about 100 – 200 or about 100 mg per kg body weight.

83. The method of claim 48 or 49, wherein said cyclophosphamide is administered in a single dose or in two doses.

84. The method of claim 83, wherein each of said two doses comprises a concentration of about 50 mg per kg body weight.

85. The method of claim 83, wherein each of said two doses is administered on days 3 and 4 following step (a).

86. The method of claim 48 or 49, wherein the subject has a malignant disease.

87. The method of claim 86, wherein said malignant disease is a hematopoietic cancer.

88. The method of claim 48 or 49, wherein the subject has a non-malignant disease.

89. The method of claim 48 or 49, wherein said cell or tissue graft comprises immature hematopoietic cells.

90. The method of claim 48 or 49, wherein said cell or tissue graft 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.

91. The method of claim 90, wherein said cell or tissue graft is transplanted into the subject prior to, concomitantly with or following said transplanting said dose of T cell depleted immature hematopoietic cells into said subject.

92. The method of claim 90, wherein said cell or tissue graft comprises a co-transplantation of several organs.

93. The method of claim 91, wherein said cell or tissue graft and said T cell depleted immature hematopoietic cells are obtained from the same donor.

94. A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:

(a) transplanting into a conditioned subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight of the subject, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

95. A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:

(a) transplanting into a conditioned subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

96. A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:

(a) conditioning a subject under a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent;

(b) transplanting into the subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight of the subject, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and subsequently

(c) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

97. A method of treating a subject in need of an immature hematopoietic cell transplantation, the method comprising:

(a) conditioning a subject under a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent;

(b) transplanting into the subject a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and subsequently

(c) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby treating the subject.

98. A method of inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, the method comprising:

(a) transplanting into a subject a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 $CD3^+$ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight of the subject, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby inducing donor specific tolerance in the subject.

99. A method of inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, the method comprising:

(a) transplanting into a subject a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight of the subject, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight of the subject, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and subsequently

(b) administering to the subject a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, thereby inducing donor specific tolerance in the subject.

WHAT IS CLAIMED IS:

1. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

2. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

3. The use of claim 1 or 2, further comprising a reduced intensity conditioning protocol.

4. The use of claim 1 or 2, further comprising an *in-vivo* T cell debulking protocol.

5. The use of claim 1 or 2, wherein a dose of said T cell depleted immature hematopoietic cells comprises 5 - 40 x 10^6 CD34+ cells per kilogram body weight.

6. The use of claim 5, wherein a dose of said T cell depleted immature hematopoietic cells comprises at least about 10 x 10^6 CD34+ cells per kilogram body weight.

7. The use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells are selected from the group consisting of T cell depleted bone marrow cells, T cell depleted G-CSF mobilized peripheral blood progenitor cells, T cell depleted cord blood, purified CD34+ cells attained by positive selection from bone marrow and/or from G-CSF mobilized peripheral blood progenitor cells, and ex-vivo expanded $CD34^+$ cells.

8. The use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells comprise less than 1 x 10^6 $CD8^+$ $TCR\alpha/\beta^-$ cells per kilogram body weight.

9. The use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells are obtained by magnetic-activated cell sorting.

10. The use of claim 1 or 2, wherein when said surface marker is a T cell surface marker, said unbound cells comprise T cell depleted immature hematopoietic cells.

11. The use of claim 10, wherein said T cell surface marker is selected from the group consisting of CD2, CD3, CD4, CD8 and TCRα/β.

12. The use of claim 1 or 2, wherein when said surface marker is an immature hematopoietic cell surface marker, said bound cells comprise T cell depleted immature hematopoietic cells.

13. The use of claim 12, wherein said immature hematopoietic cell surface marker is selected from the group consisting of CD34, CD33 and CD131.

14. The use of claim 1 or 2, further comprising separating B cells from said T cell depleted immature hematopoietic cells by the use of an antibody that specifically binds to a B cell surface marker.

15. The use of claim 14, wherein said B cell surface marker is selected from the group consisting of CD19 and CD20.

16. The use of claim 1 or 2, wherein said matrix is a ferromagnetic matrix.

17. The use of claim 1 or 2, wherein said matrix comprises spheres of magnetically susceptible or ferromagnetic material.

18. The use of claim 1 or 2, wherein said magnetically responsive agent comprises a superparamagnetic particle.

19. The use of claim 18, wherein said superparamagnetic particle is conjugated to said antibody in combination with an anti-immunoglobulin, an avidin and or anti-hapten-specific microbead.

20. The use of claim 1, 2 or 18, wherein said separating said T cells from said immature hematopoietic cells is effected using a high gradient magnetic separation (HGMS).

21. The use of claim 1 or 2, wherein said separating said T cells from said immature hematopoietic cells is effected using a separation column.

22. The use of claim 1 or 2, wherein said antibody is selected from the group consisting of an anti-CD8 antibody, an anti-CD4 antibody, an anti-CD3 antibody, an anti-CD2 antibody, an anti-TCRα/β antibody, an anti-CD19 antibody, and an anti-CD20 antibody, an anti-CD21 antibody an anti-CD34 antibody, an anti-CD33 antibody and an anti-CD131 antibody.

23. The use of claim 1 or 2, wherein said T cell depleted immature hematopoietic cells are obtained from a non-syngeneic donor.

24. The use of claim 23, wherein said non-syngeneic donor is allogeneic or xenogeneic with respect to said subject.

25. The use of claim 24, wherein said allogeneic donor is selected from the group consisting of an HLA matched sibling, an HLA matched unrelated donor, an HLA

haploidentical related donor and a donor displaying one or more disparate HLA determinants.

26. The use of claim 1 or 2, wherein said subject is a human subject.

27. The use of claim 4, wherein said *in-vivo* T cell debulking is effected by antibodies.

28. The use of claim 27, wherein said antibodies comprise at least one of an anti-CD8 antibody, an anti-CD4 antibody, an anti-thymocyte globulin (ATG) antibody, an anti-CD52 antibody and an anti-CD3 (OKT3) antibody.

29. The use of claim 3, wherein said reduced intensity conditioning comprise a non-myeloablative conditioning protocol.

30. The use of claim 29, wherein said non-myeloablative conditioning comprise at least one of a total body irradiation (TBI), a total lymphoid irradiation (TLI), a chemotherapeutic agent and/or an antibody immunotherapy.

31. The use of claim 30, wherein said TBI comprises a single or fractionated irradiation dose within the range selected from the group consisting of 1-7.5 Gy and 1-3.5 Gy.

32. The use of claim 30, wherein said chemotherapeutic agent comprises at least one of Busulfan, Fludarabine, Melphalan and Thiotepa.

33. The use of claim 30, wherein said antibody comprises at least one of an anti-CD52 antibody, an anti-thymocyte globulin (ATG) antibody and anti-CD3 (OKT3) antibody.

34. The use of claim 1 or 2, wherein said concentration of said cyclophosphamide is about 100 – 200 or about 100 mg per kg body weight.

35. The use of claim 1 or 2, wherein said cyclophosphamide is effected in a single dose or in two doses.

36. The use of claim 35, wherein each of said two doses comprises a concentration of about 50 mg per kg body weight.

37. The use of claim 1, wherein said malignant disease is a hematopoietic cancer.

38. The use of claim 1 or 2, wherein said cell or tissue graft comprises immature hematopoietic cells.

39. The use of claim 1 or 2, wherein said cell or tissue graft 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.

40. The use of claim 39, wherein said cell or tissue graft is effected prior to, concomitantly with or following said dose of T cell depleted immature hematopoietic cells.

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

42. The use of claim 40, wherein said cell or tissue graft and said T cell depleted immature hematopoietic cells are obtained from the same donor.

43. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T

cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

44. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

45. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

46. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells

per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

47. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

48. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells, by a method comprising:

(i) adding an antibody to the immature hematopoietic cells that specifically binds to a surface marker, wherein said antibody is labeled with a magnetically responsive agent;

(ii) immobilizing said immature hematopoietic cells specifically bound to said antibody labeled with said magnetically responsive agent in a matrix through a magnetic field;

(iii) washing said matrix to remove unbound cells; and

(iv) removing said magnetic field to elute bound cells from said matrix;

and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

49. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of

a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

50. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

51. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

52. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based

on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

53. The use of claim 49, 50, 51 or 52, further comprising a reduced intensity conditioning protocol.

54. The use of claim 49, 50, 51 or 52, further comprising an *in-vivo* T cell debulking protocol.

55. The use of claim 49, 50, 51 or 52, wherein a dose of said T cell depleted immature hematopoietic cells comprises 5 - 40 x 10^6 CD34+ cells per kilogram body weight.

56. The use of claim 55, wherein a dose of said T cell depleted immature hematopoietic cells comprises at least about 10 x 10^6 CD34+ cells per kilogram body weight.

57. The use of claim 49, 50, 51 or 52, wherein said T cell depleted immature hematopoietic cells are selected from the group consisting of T cell depleted bone marrow cells, T cell depleted G-CSF mobilized peripheral blood progenitor cells, T cell depleted cord blood, purified CD34+ cells attained by positive selection from bone marrow and/or from G-CSF mobilized peripheral blood progenitor cells, and ex-vivo expanded $CD34^+$ cells.

58. The use of claim 49, 50, 51 or 52, wherein said T cell depleted immature hematopoietic cells comprise less than 1 x 10^6 $TCR\alpha/\beta^-$ cells per kilogram body weight.

59. The use of claim 49, 50, 51 or 52, wherein said separating is effected using an antibody.

60. The use of claim 59, wherein said antibody is coupled to a fluorescent dye, a hapten or a magnetic particle.

61. The use of claim 60, wherein said separating is performed using flow-cytometry or magnetic cell sorting.

62. The use of claim 49 or 50, wherein said separating said T cells from said immature hematopoietic cells based on said product secreted by said T cells comprises separating T cells labeled with a secretion product, wherein said T cells have been coupled to a capture moiety that specifically binds a product secreted by said T cells and wherein said T cells have been cultured under conditions wherein the product is secreted and bound to said capture moiety, thereby producing T cells labeled with said secretion product, wherein said T cells are not lysed by said method and wherein said secretion product is labeled with a label moiety.

63. The use of claim 49 or 50, further comprising separating B cells from said T cell depleted immature hematopoietic cells based on a product secreted by said B cells comprising separating B cells labeled with a secretion product, wherein said B cells have been coupled to a capture moiety that specifically binds a product secreted by said B cells and wherein said B cells have been cultured under conditions wherein the product is secreted and bound to said capture moiety, thereby producing B cells labeled with said secretion product, wherein said B cells are not lysed by said method and wherein said secretion product is labeled with a label moiety.

64. The use of claim 62 or 63, wherein said secretion product is a cytokine, antibody or hormone.

65. The use of claim 62 or 63, wherein said secretion product is selected from the group consisting of IFN-γ, IL1, IL2, IL4, IL10, IL12, TGF-β, TNF, GM-CSF and SCF.

66. The use of claim 62 or 63, wherein said capture moiety is coupled to said T cells or B cells through an anchoring moiety.

67. The use of claim 62 or 63, wherein said capture moiety is an antibody or an antigen-binding fragment thereof.

68. The use of claim 67, wherein said antibody is bispecific.

69. The use of claim 67, wherein said antibody is against a T cell or a B cell surface marker.

70. The use of claim 62 or 63, wherein said label moiety is an antibody specific for the secretion product.

71. The use of claim 62 or 63, wherein said label moiety is fluorochromated, magnetizable or comprises magnetic particles.

72. The use of claim 59 or 69, wherein said antibody is selected from the group consisting of an anti-CD8 antibody, an anti-CD4 antibody, an anti-CD3 antibody, an anti-CD2 antibody, an anti-TCRα/β antibody, an anti-CD19 antibody, an anti-CD20 antibody, an anti-CD21 antibody an anti-CD34 antibody, an anti-CD33 antibody and an anti-CD131 antibody.

73. The use of claim 49, 50, 51 or 52, wherein said T cell depleted immature hematopoietic cells are obtained from a non-syngeneic donor.

74. The use of claim 73, wherein said non-syngeneic donor is allogeneic or xenogeneic with respect to said subject.

75. The use of claim 74, wherein said allogeneic donor is selected from the group consisting of an HLA matched sibling, an HLA matched unrelated donor, an HLA haploidentical related donor and a donor displaying one or more disparate HLA determinants.

76. The use of claim 49, 50, 51 or 52, wherein said subject is a human subject.

77. The use of claim 54, wherein said *in-vivo* T cell debulking is effected by antibodies.

78. The use of claim 77, wherein said antibodies comprise at least one of an anti-CD8 antibody, an anti-CD4 antibody, an anti-thymocyte globulin (ATG) antibody, an anti-CD52 antibody or an anti-CD3 (OKT3) antibody.

79. The use of claim 53, wherein said reduced intensity conditioning protocol comprise a non-myeloablative conditioning protocol.

80. The use of claim 79, wherein said non-myeloablative conditioning comprise at least one of a total body irradiation (TBI), a total lymphoid irradiation (TLI), a chemotherapeutic agent and/or an antibody immunotherapy.

81. The use of claim 80, wherein said TBI comprises a single or fractionated irradiation dose within the range selected from the group consisting of 1-7.5 Gy and 1-3.5 Gy.

82. The use of claim 80, wherein said chemotherapeutic agent comprises at least one of Busulfan, Fludarabine, Melphalan and Thiotepa.

83. The use of claim 80, wherein said antibody comprises at least one of an anti-CD52 antibody, an anti-thymocyte globulin (ATG) antibody and an anti-CD3 (OKT3) antibody.

84. The use of claim 49, 50, 51 or 52, wherein said concentration of said cyclophosphamide is about 100 – 200 or about 100 mg per kg body weight.

85. The use of claim 49, 50, 51 or 52, wherein said cyclophosphamide is effected in a single dose or in two doses.

86. The use of claim 85, wherein each of said two doses comprises a concentration of about 50 mg per kg body weight.

87. The use of claim 49, 50, 51 or 52, wherein said subject has a malignant disease.

88. The use of claim 87, wherein said malignant disease is a hematopoietic cancer.

89. The use of claim 49, 50, 51 or 52, wherein said subject has a non-malignant disease.

90. The use of claim 49, 50, 51 or 52, wherein said cell or tissue graft comprises immature hematopoietic cells.

91. The use of claim 49, 50, 51 or 52, wherein said cell or tissue graft 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.

92. The use of claim 91, wherein said cell or tissue graft is effected prior to, concomitantly with or following said dose of T cell depleted immature hematopoietic cells.

93. The use of claim 91, wherein said cell or tissue graft comprises a co-transplantation of several organs.

94. The use of claim 92, wherein said cell or tissue graft and said T cell depleted immature hematopoietic cells are obtained from the same donor.

95. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

96. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

97. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

98. Use of a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a conditioned subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

99. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+

cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

100. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

101. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5×10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5×10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a

subject in need of an immature hematopoietic cell transplantation, wherein said subject has a malignant disease.

102. Use of a reduced intensity conditioning protocol, wherein said reduced intensity conditioning comprises a total body irradiation (TBI) and a chemotherapeutic agent; a dose of T cell depleted immature hematopoietic cells, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 CD3+ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for treating a subject in need of an immature hematopoietic cell transplantation, wherein said subject has a non-malignant disease.

103. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

104. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells

comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said separating said T cells from said immature hematopoietic cells is effected based on a product secreted by said T cells; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.

105. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a malignant disease.

106. Use of a dose of T cell depleted immature hematopoietic cells obtained from a non-syngeneic donor, wherein said T cell depleted immature hematopoietic cells comprise less than 5 x 10^5 $CD3^+$ T cells per kilogram body weight, and wherein said dose comprises at least about 5 x 10^6 CD34+ cells per kilogram body weight, and wherein said T cell depleted immature hematopoietic cells are obtained by separating said T cells from said immature hematopoietic cells based on an expression of at least one surface marker of T cells selected from the group consisting of 4-1BB, FoxP3, CD154, CD4, CD8, CD25, GITR CD137, latent TGF-beta (LAP), GARP (LRRC32) and CD121a/b; and a therapeutically effective amount of cyclophosphamide, wherein said therapeutically

effective amount comprises 25-200 mg per kilogram body weight, for the manufacture of a medicament identified for inducing donor specific tolerance in a subject in need of a non-syngeneic cell or tissue graft, wherein said subject has a non-malignant disease.