WHAT IS CLAIMED IS:

1. Use of a dose of T cell depleted immature hematopoietic cells from a non-syngeneic donor and a therapeutically effective amount of cyclophosphamide in the manufacture of a medicament for combination therapy for reducing graft rejection and/or graft versus host disease (GVHD) and/or for inducing donor specific tolerance in a conditioned subject in need of a non-syngeneic cell or tissue graft,

wherein said conditioned subject has been conditioned under a reduced intensity conditioning protocol comprising a total body irradiation (TBI) or a total lymphoid irradiation (TLI) at an irradiation dose within the range of 0.5-5 Gy,

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

wherein said therapeutically effective amount of cyclophosphamide comprises 25-200 mg per kilogram body weight, and wherein said cyclophosphamide is to be administered to the subject following transplantation of the T cell depleted immature hematopoietic cells, and further wherein said subject is not treated with GVHD prophylaxis for more than 10 days post-transplant.

2. The use of claim 1, wherein said reduced intensity conditioning protocol is effected 1-10 days.

3. The use of claim 1, wherein said reduced intensity conditioning comprises a non-myeloablative conditioning protocol.

4. The use of claim 3, wherein said non-myeloablative conditioning protocol comprises a chemotherapeutic agent and/or an antibody immunotherapy.

5. The use of claim 1, wherein said TBI comprises a single or fractionated irradiation dose within the range of 1-3.5 Gy.

6. The use of claim 1, wherein said TLI comprises a single or fractionated irradiation dose within the range of 1-3.5 Gy.

7. The use of claim 4, wherein said chemotherapeutic agent comprises at least one of Busulfan, Fludarabine, Melphalan and Thiotepa.

8. The use of claim 4, wherein said antibody comprises at least one of an anti-CD52 antibody, an anti-thymocyte globulin (ATG) antibody and anti-CD3 (OKT3) antibody.

9. The use of claim 1, wherein said conditioned subject has been conditioned with *in-vivo* T cell debulking.

10. The use of claim 9, wherein said *in-vivo* T cell debulking is effected 4-7 days.

11. The use of claim 9, wherein said *in-vivo* T cell debulking is effected by antibodies.

12. The use of claim 11, wherein said antibodies comprise an anti-CD8 antibody, an anti-CD4 antibody or both.

13. The use of claim 11, wherein said antibodies comprise anti-thymocyte globulin (ATG) antibodies, an anti-thymocyte globulin (ATG) antibody and anti-CD3 (OKT3) antibody.

14. The use of any one of claims 1-13, 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.

15. The use of claim 14, wherein a dose of said T cell depleted immature hematopoietic cells comprises at least 10 x 10^6 CD34+ cells per kilogram body weight of the subject.

16. The use of any one of claims 1-15, 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.

17. The use of any one of claims 1-16, wherein said T cell depleted immature hematopoietic cells comprise less than 1 x 10^6 $CD8^+$ $TCR\alpha/\beta^-$ cells per kilogram body weight.

18. The use of any one of claims 1-17, wherein said T cell depleted immature hematopoietic cells are obtained by T cell debulking.

19. The use of claim 18, wherein said T cell debulking is effected by antibodies.

20. The use of claim 19, wherein said antibodies are selected from the group consisting of an anti-CD8 antibody, an anti-CD4 antibody, an anti-CD3 antibody, an anti-CD2 antibody and an anti-TCRα/β antibody.

21. The use of any one of claims 1-20, wherein said immature hematopoietic cells are treated by B cell debulking.

22. The use of claim 21, wherein said B cell debulking is effected by an anti-CD19 antibody or by anti-CD20 antibody.

23. The use of claim 1, wherein said non-syngeneic donor is allogeneic with respect to the subject.

24. The use 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 use of any one of claims 1-24, wherein the subject is a human subject.

26. The use of any one of claims 1-25, wherein said concentration of said cyclophosphamide is 100 - 200 mg per kg body weight of the subject.

27. The use of claim 26, wherein said concentration of said cyclophosphamide is about 100 mg per kg body weight of the subject.

28. The use of any one of claims 1-27, wherein said cyclophosphamide is effected in two doses.

29. The use of claim 28, wherein each of said two doses comprises a concentration of about 50 mg per kg body weight of the subject.

30. The use of any one of claims 1-29, wherein said cyclophosphamide is to be administered to the subject in two doses 3 and 4 days post-transplant.

31. The use of any one of claims 1-30, wherein said subject has a malignant disease.

32. The use of claim 31, wherein said malignant disease is a hematopoietic cancer.

33. The use of claim 32, wherein said hematopoietic cancer comprises a leukemia or lymphoma.

34. The use of claim 32, wherein said hematopoietic cancer is selected from the group consisting of acute lymphoblastic leukemia (ALL), acute myelocytic leukemia (AML), acute nonlymphoblastic leukemia (ANLL), Chronic lymphocytic leukemia (CLL), chronic myelocytic leukemia (CML), Hodgkin's Lymphoma, non- Hodgkin's Lymphoma, Extranodal natural killer/T-cell lymphoma, Cutaneous T-cell lymphoma, Enteropathy type T-cell lymphoma, Angioimmunoblastic T-cell lymphoma, Anaplastic

large T/null-cell lymphoma, Subcutaneous panniculitis-like T-cell lymphoma, Unspecified T-cell lymphoma, Diffuse large B-cell lymphoma, B-cell chronic lymphocytic leukemia (B-CLL)/chronic lymphoid leukemia (CLL), Chronic lymphocytic leukemia/small lymphocytic lymphoma, Extranodal marginal zone B-cell lymphomas - mucosa-associated lymphoid tissue lymphomas, Follicular lymphoma, Mantle cell lymphoma, Nodal marginal zone B-cell lymphoma, Burkitt lymphoma, Hairy cell leukemia, Primary central nervous system lymphoma, Splenic marginal zone B-cell lymphoma, Lymphoplasmocytic lymphoma, Primary mediastinal B-cell lymphoma and multiple myeloma.

35. The use of claim 30, wherein said subject has disease selected from the group consisting of a genetic disease or disorder, an autoimmune disease, a metabolic disorder, a hematopoietic disease, a cardiovascular disease, a rheumatoid disease, a glandular disease, a gastrointestinal disease, a cutaneous disease, a hepatic disease, a neurological disease, a muscular disease, a nephric disease, a connective tissue disease, a systemic disease and a disease related to reproduction.

36. The use of claim 35, wherein said subject has disease selected from the group consisting of a sickle cells disease, a congenital neutropenia, a thrombocytopenia, an aplastic anemia, a myelodysplastic syndrome, a monosomy 7, an osteopetrosis, a Gaucher's disease, a Hurler's disease, a metachromatic leukodystrophy, an adrenal leukodystrophy, a thalassemia, a congenital or genetically-determined hematopoietic abnormality, lupus, autoimmune hepatitis, celiac disease, type I diabetes mellitus, Grave's disease, Guillain-Barr syndrome, Myasthenia gravis, Rheumatoid arthritis, scleroderma and psoriasis.

37. The use of any one of claims 1-36, wherein said non-syngeneic cell or tissue graft comprises immature hematopoietic cells.

38. The use of any one of claims 1-36, wherein said non-syngeneic 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.

39. The use of claim 38, wherein said cell or tissue graft comprises a co-transplantation of several organs.

40. The use of any one of claims 37-39, wherein said cell or tissue graft and said T cell depleted immature hematopoietic cells are obtained from the same donor.