CLAIMS:

1. A method of transplanting haematopoietic precursor cells into a subject in need thereof, the method comprising:

culturing haematopoietic precursor cells in the presence of a population of cells enriched for STRO-1^{bright} cells or supernatant or progeny derived therefrom, wherein such STRO-1^{bright} cells are mesenchymal precursor cells (MPC) which comprise mesenchymal precursor cells capable of giving rise to colony forming unit-fibroblasts (CFU-F), so as to expand the haematopoietic precursor cells; and

administering the expanded haematopoietic precursor cells to a subject.

2. The method of claim 1, wherein the population of cells enriched for STRO-1^{bright} cells are allogeneic cells.

3. The method of claim 1 or claim 2 wherein the expanded haematopoietic precursor cells comprise CFU-GM cells.

4. The method of claim 3 wherein the expanded haematopoietic precursor cells comprise 1 x 10^4 CFU-GM cells per kg of subject body weight.

5. The method of any one of claims 1 to 4 wherein haematopoietic reconstitution occurs in the subject following administration of the expanded haematopoietic precursor cells.

6. The method of claim 5 wherein haematopoietic reconstitution occurs in the subject within 10 to 30 days of administration of the expanded haematopoietic precursor cells.

7. The method of claim 5 or claim 6 wherein haematopoietic reconstitution occurs in the absence of an adverse immune response.

8. The method of any one of claims 5 to 7 wherein haematopoietic reconstitution is determined by neutrophil engraftment, platelet engraftment, lymphoid engraftment, erythroid engraftment and/or megakaryocyte engraftment.

9. The method of any one of claims 1 to 8 which further comprises administering to the subject a factor which enhances differentiation of the haematopoietic precursor cells to a specific haematopoietic lineage cell.

10. The method of claim 9 wherein the factor which enhances differentiation is administered simultaneously with the expanded haematopoietic precursor cells.

11. The method of claim 9 wherein the factor which enhances differentiation is administered separately after administration of the expanded haematopoietic precursor cells.

12. The method of any one of claims 9 to 11 wherein the haematopoietic lineage cell is a B-cell, T-cell, dendritic cell, monocyte, neutrophil, macrophage, natural killer cell, granulocyte, erythrocyte, eosinophil, megakaryocyte, platelet, bone marrow, splenic, dermal, or stromal cell.

13. The method of any one of claims 10 to 12 wherein the factor which enhances differentiation is stem cell factor (SCF), GM-SCF, M-CSF, G-CSF, MGDF, EPO, FLT3-ligand, IL-1, IL-2, IL-3, IL-4, IL-6, IL-7, IL-11. TNFα or thrombopoietin.

14. The method of any one of claims 1 to 13 wherein transplantation of the expanded haematopoietic precursor cells is effected together with the co-cultured MPC or progeny thereof.

15. The method of any one of claims 1 to 14 wherein transplantation of the expanded haematopoietic precursor cells is effected together with supernatant or one or more soluble factors derived from the co-cultured MPC or progeny thereof.

16. The method of any one of claims 1 to 15 wherein administering the expanded haematopoietic precursor cells reduces the risk of host versus graft disease when compared to administration of haematopoietic precursor cells that have not been subject to *ex vivo* expansion.

17. The method of any one of claims 1 to 15 wherein the subject has a haematologic disorder.

18. The method of claim 17 wherein the haematologic disorder is a disorder of platelet number and/or function.

19. The method of claim 18 wherein the haematologic disorder is thrombocytopenia, idiopathic thrombocytopenic purpure (ITP), or a disorder related to viral infection, drug abuse or malignancy.

20. The method of claim 17 wherein the haematologic disorder is a disorder of erythrocyte number and/or function.

21. The method of claim 20 wherein the haematologic disorder is an anaemia.

22. The method of claim 21 wherein the anaemia is aplastic anaemia, autoimmune haemolytic anaemia, blood loss anaemia, Cooley's anaemia, Diamond-Blackfan anaemia,, Fanconi anaemia, folate (folic acid) deficiency anaemia, haemolytic anaemia, iron-deficiency anaemia, pernicious anaemia, sickle cell anaemia, thalassaemia or Polycythemia Vera.

23. The method of claim 17 wherein the haematologic disorder is a disorder of lymphocyte number and/or function.

24. The method of claim 23 wherein the disorder is due to a T-cell or B-cell deficiency.

25. The method of claim 23 wherein the disorder is AIDS, a leukemia, a lymphoma, Hodgkins lumphoma, a chronic infection such as military tuberculosis, a viral infection, rheumatoid arthritis, systemic lupus erythematosus, or a hereditary disorder such as agammaglobulinemia, DiGeorge anomaly, Wiskott-Aldrich syndrome, or ataxia-telangiectasia.

26. The method of claim 17 wherein the haematologic disorder is a disorder of multilineage bone marrow failure.

27. The method of claim 26 wherein the haematologic disorder is a result of radiotherapy or chemotherapy.

28. The method of claim 26 wherein the haematologic disorder is a result of malignant replacement.

29. The method of claim 26 wherein the haematologic disorder is myelofibrosis, acute myelogenous leukemia (AML), myelodysplastic syndrome (MDS), acute lymphoblastic leukemia (ALL), chromic myelogenous leukemia (CML), chronic lymphocytic leukemia (CLL)), Non-Hodgkin's lymphoma (NHL), Hodgkin's Disease (HD), multiple myeloma, or a secondary malignancy disseminated to bone.

Claims:

1. A method of preparing cultured haematopoietic precursor cells, which comprises culturing a starting population of haematopoietic precursor cells so as to expand said cells for administration to treat a haematological disorder in a subject, wherein said culturing is in the presence of a population of mesenchymal precursor cells enriched for STRO-1^{bright} cells, or supernatant or progeny derived therefrom,

wherein such STRO-1^{bright} cells are mesenchymal precursor cells (MPCs) which comprise mesenchymal precursor cells capable of giving rise to colony forming unit-fibroblasts (CFU-F); and

optionally followed by separation of the expanded haematopoetic cells and co-cultured MPCs.

2. A method as claimed in claim 1 wherein the expanded haematopoietic cells resulting from said culturing are separated from co-cultured MPCs.

3. A method as claimed in claim 1 or claim 2 wherein said starting population of haematopoietic precursor cells are cord blood cells derived from or present in umbilical cord blood.

4. A method as claimed in any one of claims 1 to 3, wherein the population of mesenchymal precursor cells enriched for STRO-1^{bright} cells are allogeneic cells.

5. A method as claimed in any one of claims 1 to 4, wherein the expanded haematopoietic precursor cells comprise CFU-GM cells.