WHAT IS CLAIMED IS:

1. A composition for providing lymphoid, myeloid, and erythroid cells, including T-lymphoid cells, in a tissue of the lymphopoietic and/or hematopoietic system in a subject comprising an effective amount of non-ES, non-germ, and non-embryonic germ cells that express one or more of telomerase, oct-4, rex-1, rox-1, sox-2, or SSEA4, wherein the non-ES, non-germ and non-embryonic germ cells provide lymphopoiesis and/or hematopoiesis in the subject.

2. The composition of claim 1 wherein the non-ES, non-germ, and non-embryonic germ cells can differentiate into cell types of at least two, preferably three, germ layers (ectodermal, endodermal, and mesodermal).

3. The composition of claim 1 or 2, suitable to be administered to the subject in conjunction with an effective amount of an agent that inhibits Natural Killer cell function

4. The composition of claims 1 or 2, wherein the non-ES, non-germ, and non-embryonic germ cells are isolated and/or cultured under conditions wherein the oxygen concentration is no greater than 10%.

5. The composition of claim 4, wherein the oxygen concentration is from 3-5%.

6. The composition of any of claims 1-5, wherein the non-ES, non-germ, and non-embryonic germ cells express oct-4.

7. The composition of any of claims 1-6, wherein the tissue is blood, bone marrow, thymus, lymph nodes or spleen.

8. A composition for providing lymphoid, myeloid, and erythroid cells, including T-lymphoid cells, in a tissue of the lymphopoietic and/or hematopoietic system in a subject comprising an effective amount of lymphopoietic and/or hematopoietic cells produced by differentiating non-ES, non-germ, and non-embryonic germ cells that express one or more of telomerase, oct-4, rex-1, rox-1, sox-2, or SSEA4, into lymphopoietic and/or hematopoietic cells *ex vivo*, wherein the lymphopoietic and/or hematopoietic cells provide lymphopoiesis and/or hematopoiesis in the subject.

9. The composition of claim 8 wherein the non-ES, non-germ, and non-embryonic germs cells differentiate into cell types of at least two, preferably three, germ layers (ectodermal, endodermal, and mesodermal).

10. The composition of claim 9, wherein the non-ES, non-germ, and non-embryonic germ cells are isolated and/or cultured under conditions wherein the oxygen concentration is no greater than 10%.

11. The composition of claim 10, wherein the oxygen concentration is from 3-5%.

12. The composition of claims 10 or 11, wherein the non-ES, non-germ, and non-embryonic germ cells express oct-4 and/or telomerase.

13. The composition of any of claims 1-12, wherein the subject has been exposed to radiation, chemotherapy or has a genetic deficiency.

14. The composition of any of claims 1-13, wherein the subject has a congenital lymphopoietic and/or hematopoietic disorder or an acquired malignant or nonmalignant lymphopoietic and/or hematopoietic disorder.

15. The composition of claim 14, wherein the disorder comprises a leukemia, a myelodysplastic syndrome, a lymphoma, an inherited red blood cell abnormality, an anemia, an inherited platelet abnormality, an immune disorder, a lymphoproliferative disorder, a phagocyte disorder or a coagulation disorder.

16. The composition of claim 15, wherein the disorder is chronic myelogenous leukemia (CML).

17. The composition of claim 15, wherein the disorder is Fanconi's anemia.

18. The composition of claim 15, wherein the anemia is sickle-cell anemia.

19. The composition of claim 15, wherein the immune disorder is an inherited immune deficiency.

20. The composition of any one of claims 1-19, wherein the non-ES, non-germ, and non-embryonic germ cells are autologous or allogeneic.

21. A composition for providing lymphopoietic and/or hematopoietic chimerism in a subject comprising an effective amount of lymphopoietic and/or hematopoietic cells produced by differentiating non-ES, non-germ, and non-embryonic germs cells that express one or more of telomerase, oct-4, rex-1, rox-1, sox-2, or SSEA4, into lymphopoietic and/or hematopoietic cells *ex vivo*, wherein the lymphopoietic and/or hematopoietic cells provide lymphopoietic and/or hematopoietic chimerism in the subject.

22. The composition of claim 21 wherein the non-ES, non-germ, and non-embryonic germs cells can differentiate into cell types of at least two, preferably three, germ layers (ectodermal, endodermal, and mesodermal).

23. A composition for providing lymphopoietic and/or hematopoietic chimerism in a subject comprising an effective amount of non-ES, non-germ, and non-embryonic germs cells that express one or more of telomerase, oct-4, rex-1, rox-1, sox-2, or SSEA4, and provide lymphoid, myeloid, and erythroid cells, including T-lymphoid cells, in the subject, wherein the lymphoid, myeloid, and erythroid cells, including T-lymphoid cells, provide lymphopoietic and/or hematopoietic chimerism in the subject.

24. The composition of claim 23 wherein the non-ES, non-germ, and non-embryonic germs cells can differentiate into cell types of at least two, preferably three, germ layers (ectodermal, endodermal, and mesodermal).

25. A method to screen for an agent that regulates lymphopoiesis and/or hematopoiesis, said method comprising contacting an agent with non-ES, non-germ, and non-embryonic germ cells that are positive for one or more of telomerase, oct4, rex-1, rox-1, sox-2, or SSEA4, exposing the cells to factors that promote lymphopoiesis and/or hematopoiesis in the presence and absence of the agent, and observing the effect of the agent on lymphopoiesis and/or hematopoiesis.

26. The method of claim 25 wherein the non-ES, non-germ, and non-embryonic germ cells can differentiate into cell types of at least two, preferably three, germ layers (ectodermal, endodermal, and mesodermal).

WHAT IS CLAIMED IS :

1. Use of an effective amount of human non-embryonic stem (ES), non-germ and non-embryonic germ cells that are positive for telomerase and can differentiate into lymphoid, myeloid and erythroid cells, Including T-lymphoid cells, and that have been cultured in the presence of an oxygen concentration of less than 10%, in the preparation of a medicament capable of providing lymphohematopoietic cells of lymphoid, myeloid and erythroid lineage, including T-lymphoid cells, in a tissue of the lymphohematopoielic system, thereby treating a congenital lymphohematopoielic disorder or an acquired malignant or non-malignant lymphohematopoietic disorder.

2. Use of an effective amount of human non-embryonic stem (ES), non-germ and non-embryonic germ cells that are positive for telomerase and can differentiate into lymphoid, myeloid and erythroid cells, including T-lymphold cells, and that have been isolated and cultured in the presence of an oxygen concentration of less than 10%, in the preparation of a medicament capable of providing lymphohematopoietic cells of lymphoid, myeloid and erythroid lineage, including T-lymphoid cells, in a tissue of the lymphohematopoietic system, thereby treating a congenital lymphohematopoietic disorder or an acquired malignant or non-malignant lymphohematopoietic disorder.

3. The use of claims 1 or 2 wherein the oxygen concentration is from about 3-5%.

4. The use of claims 1-3 wherein the non-embryonic stem, non-germ, non-embryonic germ cells can differentiate into cell types of at least two, preferably three, germ layers (ectodermal, endodermal, and mesodermal).

5. The use of claims 1-4 wherein the non-embryonic stem, non-germ, non-embryonic germ cells also express act-4.

6. The use of claims 1-5 in combination with use of an effective amount of a natural killer cell Inhibitor.

7. The use of any one of claims 1 to 6, wherein the disorder comprises a leukemia, a myelodysplastic syndrome, a lymphoma, an inherited red blood cell abnormality, an anemia, an inherited platelet abnormality, an immune disorder, a lymphoproliferative disorder, a phagocyte disorder or a coagulation disorder.

8. The use of any one of claims 1 to 6, wherein the disorder comprises chronic myelogenous leukemia (CML).

9. The use of any one of claims 1 to 6, wherein the disorder comprises Fanconi's anemia.

10. The use of any one of claims 1 to 6 wherein the non-embryonic stem, non-germ, non-embryonic germ cells also express CD13.

11. The use of any one of claims 1-10, wherein the non-embryonic stem, non-germ, and non-embryonic germ cells are autologous or allogeneic.

12. The use of any of one of claims 1-11, wherein the tissue is one or more of thymus, spleen, blood, bone marrow or lymph nodes.