WHAT IS CLAIMED IS:

1. A method of producing a cell population comprising natural killer cells and/or ILC3 cells, comprising the steps of:

(a) culturing hematopoietic stem or progenitor cells in a first medium comprising a stem cell mobilizing agent and thrombopoietin (Tpo) to produce a first population of cells;

(b) culturing the first population of cells in a second medium comprising a stem cell mobilizing agent and interleukin-15 (IL-15), and lacking Tpo, to produce a second population of cells; and

(c) culturing the second population of cells in a third medium comprising IL-2 and IL-15, and lacking low molecular weight heparin (LMWH), to produce a third population of cells;

wherein said method comprises culturing the hematopoietic stem cells in the first medium for 7-13 days; culturing said first population of cells in said second medium for 2-6 days; and culturing said second population of cells in said third medium for 10-30 days;

wherein:

(i) the method is a method of producing a cell population comprising natural killer cells, the third medium lacks a stem cell mobilizing agent, and the third population of cells comprises natural killer cells that are CD56+, CD3-, and wherein at least 80% of the natural killer cells are viable; or

(ii) wherein the method is a method of producing a cell population comprising ILC3 cells, the third medium lacks a stem cell mobilizing agent, and the method further comprises the step of:

(d) isolating CD11a- cells from the third population of cells to produce a fourth population of cells

wherein the fourth population of cells comprises ILC3 cells that are CD56+, CD3-, and CD11a-; or

(iii) wherein the method is a method of producing a cell population comprising natural killer cells and ILC3 cells, the third medium lacks a stem cell mobilizing agent, and the method further comprises the steps of:

(e) separating CD11a+ cells and CD11a- cells from the third population of cells; and

(f) combining the CD11a+ cells with the CD11a- cells in a ratio of 50:1, 40:1; 30:1, 20:1, 10:1, 5:1, 4:1, 3:1, 2:1, 1:1, 1:2, 1:3, 1:4, 1:5, 1:10, 1:20, 1:30, 1:40, or 1:50 to produce a fourth population of cells; wherein said stem cell mobilizing agent is an aryl hydrocarbon receptor inhibitor, wherein: said aryl hydrocarbon receptor inhibitor is StemRegenin-1 (SR-I) (4-(2-(2-(benzo[b]thiophen-3-yl)-9-isopropyl-9H-purin-6ylamino)ethyl)phenol), or the compound CH223191 (l -Methyl-N-[2-methyl-4-[2-(2-methylphenyl)diazenyl]phenyl-1H-pyrazole-5-carboamide].

2. The method of claim 1(i), wherein said third population of cells comprises natural killer cells that are (i) CD94+ or CD16+, (ii)CD94- or CD16-, (iii) CD94+ and CD16+, or (iv) CD94- and CD16-.

3 The method of claim 1(ii), wherein: (i) said ILC3 cells express RORγt and IL1R1 and/or (ii) wherein said ILC3 cells do not express either perforin or EOMES.

4. The method of any one of claims 1-3, wherein said hematopoietic stem or progenitor cells are mammalian cells, preferably wherein said hematopoietic stem or progenitor cells are human cells.

5 The method of any one of claims 1-4, wherein said hematopoietic stem or progenitor cells are CD34+ hematopoietic stem cells.

6. The method of any one of claims 1-5, wherein said hematopoietic stem or progenitor cells are:

(i) placental cells, optionally wherein:

(a) said placental cells are obtained from, or obtainable from, human placental perfusate, or

(b) said placental cells are obtained from, or obtainable from, nucleated cells isolated from human placental perfusate; or

(ii) obtained from, or obtainable from, umbilical cord blood, or

(iii) fetal liver cells, or

(iv) mobilized peripheral blood cells, or

(v) bone marrow cells.

7. The method of any of claims 1-6, wherein said Tpo, IL-2, and IL-15 are not comprised within an undefined component of the first medium, second medium or third medium, or wherein said Tpo, IL-2, and IL-15 are not comprised within serum.

8 The method of any of claims 1-7, wherein said first or second medium additionally comprises one or more of LMWH, Flt-3 Ligand (Flt-3L), stem cell factor (SCF), IL-6, IL-7, granulocyte colony-stimulating factor (G-CSF), or granulocyte-macrophage-stimulating factor (GM-CSF).

9. The method of any of claims 1-8, wherein said first or second medium does not comprise LMWH, and/or wherein said first medium does not comprise a desulphated glycosaminoglycan.

10. The method of any of claims 1-9, wherein said third medium additionally comprises one or more of IL-6, IL-7, G-CSF, or GM-CSF

11. The method of any of claims 1-10, wherein:

(a) said method comprises culturing the hematopoietic stem cells in the first medium for 8-12 days, in particular for about 10 days; or

(b) said method comprises culturing said first population of cells in said second medium for 3-5 days, in particular for about 4 days; and/or

(c) said method comprises culturing said second population of cells in said third medium for 15-25 days, in particular for about 21 days; and/or

(d) said culturing in said first medium, second medium and third medium are all done under static culture conditions, or wherein said culturing in at least one of said first medium, second medium or third medium are done in a spinner flask, or wherein said culturing in said first medium and said second medium is done under static culture conditions, and said culturing in said third medium is done in a spinner flask; and/or

(e) said hematopoietic cells are initially inoculated into said first medium from 1 x 10^4 to 1 x 10^5 cells/mL, in particular wherein said hematopoietic cells are initially inoculated into said first medium at about 3 x 10^4 cells/mL; and/or

(f) said first population of cells are initially inoculated into said second medium from 5 x 10^4 to 5 x 10^5 cells/mL, in particular at about 1 x 10^5 cells/mL; and/or

(g) said second population of cells is initially inoculated into said third medium from 1 x 10^5 to 5 x 10^6 cells/mL, in particular from 1 x 10^5 to 1 x 10^6 cells/mL, in particular at about 5 x 10^5 cells/mL or about 3 x 10^5 cells/mL.

12. The method of claim 1(iii), wherein.

(a) said first medium and/or said second medium lack LIF and/or MIP- 1α, and/or

(b) said third medium lacks LIF, MIP-1α, and Flt-3L, and/or

(c) said first medium and said second medium lack LIF and MIP-1α, and said third medium lacks LIF, MIP-Iα, and Flt3L, and/or

(d) none of the first medium, second medium or third medium comprises a desulphated glycosaminoglycan, and/or

(e) the first medium, second medium or third medium comprises heparin, optionally wherein said heparin is low-molecular weight heparin (LMWH), and/or

(f) in the fourth population of cells, the CD11a+ cells and CD11a- cells are combined in a ratio of 50:1, 20:1, 10:1, 5:1, 1:1, 1:5, 1:10, 1:20, or 1:50