Claims

1. A method for producing CD4/CD8 double positive cells, the method comprising the following steps:
step 1: separating and / or selecting, from a cell population comprising hematopoietic progenitor cells, cells expressing one or more molecules selected from a first group consisting of CD24, CD62L, Notch3, CD32, CD39, CD49a, CD164, CD317, CD200, CD7, CD144, CD56, CD226, CD262 and CD325, and/or cells not expressing one or more molecules selected from a second group consisting of CD49f, CD51, CD102, CD42b, CD61, CD62P, CD69 and CD156c, and further separating and / or selecting cells expressing CD90, CD143, CD218a, CD263, CD34 and CD43, wherein the separated and / or selected cells express CD90, CD143, CD218a, CD263, CD34 and CD43, and
step 2: differentiating the cells separated in step 1 into CD4/CD8 double positive cells.

2. The method according to claim 1, further comprising separating and / or selecting cells not expressing CD235a or CD14 but expressing CD45 in said step 1, wherein the cells selected in said step 1 do not express CD235a or CD14 but express CD45, CD90, CD143, CD218a, CD263, CD34 and CD43.

3. The method according to claim 1 or 2, wherein said step 1 comprises separating and / or selecting, from a cell population comprising hematopoietic progenitor cells, cells expressing one or more molecules selected from the first group consisting of CD24, CD62L, Notch3, CD32, CD39, CD49a, CD164, CD317, CD200, CD7, CD144, CD56, CD226, CD262 and CD325.

4. The method according to claim 3, wherein the first group in said step 1 consists of CD24, CD62L, Notch3, CD200, CD7 and CD144.

5. The method according to claim 1 or 2, wherein said step 1 comprises separating and / or selecting, from a cell population comprising hematopoietic progenitor cells, cells not expressing one or more molecules selected from the second group consisting of CD49f, CD51, CD102, CD42b, CD61, CD62P, CD69 and CD156c.

6. The method according to claim 5, wherein the second group in said step 1 consists of CD49f, CD51 and CD102.

7. The method according to any one of claims 1 to 6, wherein the cell population comprising hematopoietic progenitor cells in said step 1 is obtained by inducing differentiation of pluripotent stem cells.

8. The method according to claim 7, wherein said pluripotent stem cells are human induced pluripotent stem cells.

9. A method for producing CD8 single positive cells, comprising a step of inducing CD4/CD8 double positive cells obtained by the method according to any one of claims 1 to 8 into CD8 single positive cells.

10. The method according to claim 9, wherein said CD8 single positive cells are cytotoxic T lymphocytes.

11. Use of a cell population in production of CD4/CD8 double positive cells obtained by separating and / or selecting, from a cell population comprising hematopoietic progenitor cells, cells expressing one or more molecules selected from a first group consisting of CD24, CD62L, Notch3, CD32, CD39, CD49a, CD164, CD317, CD200, CD7, CD144, CD56, CD226, CD262 and CD325, and/or cells not expressing one or more molecules selected from a second group consisting of CD49f, CD51, CD102, CD42b, CD61, CD62P, CD69 and CD156c, and further separating and / or selecting cells expressing CD90, CD143, CD218a, CD263, CD34 and CD43,, wherein the separated and / or selected cells express CD90, CD143, CD218a, CD263, CD34 and CD43.

12. The use according to claim 11, further comprising separating and / or selecting cells not expressing CD235a or CD14 but expressing CD45, wherein the separated cells do not express CD235a or CD14 but express CD45, CD90, CD143, CD218a, CD263, CD34 and CD43.

13. The use according to claim 11 or 12, wherein said cell population comprising hematopoietic progenitor cells is obtained by inducing differentiation of pluripotent stem cells.

14. The use according to claim 13, wherein said pluripotent stem cells are humaninduced pluripotent stem cells.

15. Use of a cell population in production of CD4/CD8 double positive cells comprising hematopoietic progenitor cells expressing one or more molecules selected from a first group consisting of CD24, CD62L, Notch3, CD32, CD39, CD49a, CD164, CD317, CD200, CD7, CD144, CD56, CD226, CD262 and CD325, and/or hematopoietic progenitor cells not expressing one or more molecules selected from a second group consisting of CD49f, CD51, CD102, CD42b, CD61, CD62P, CD69 and CD156c, at a ratio of number of the hematopoietic progenitor cells/total number of cells in the cell population not less than 40%, wherein the hematopoietic progenitor cells express CD90, CD143, CD218a, CD263, CD34 and CD43.

16. The use according to claim 15, wherein the ratio is of the hematopoietic progenitor cells expressing one or more molecules selected from the first group consisting of CD24, CD62L, Notch3, CD200, CD7 and CD144.

17. The use according to claim 15, wherein the ratio is of the hematopoietic progenitor cells not expressing one or more molecules selected from the second group consisting of CD49f, CD51 and CD102.

18. Use of a reagent for separating and / or selecting hematopoietic progenitor cells in production of CD4/CD8 double positive cells, the reagent comprising an antibody to CD34, an antibody to CD43, an antibody to CD90, an antibody to CD143, an antibody to CD218a, an antibody to CD263 as well as an antibody to one or more molecules selected from a group consisting of CD24, CD62L, Notch3, CD32, CD39, CD49a, CD164, CD317, CD200, CD7, CD144, CD56, CD226, CD262, CD325, CD49f, CD51, CD102, CD42b, CD61, CD62P, CD69 and CD156c, wherein the separated and / or selected cells express CD90, CD143, CD218a, CD263, CD34 and CD43.

19. The use according to claim 18 further comprising one or more antibodies to CD235a, CD14 and/or CD45.