CLAIMS

1. A monocyte proliferating agent consisting of at least one of Flt-3L, IL-3, and IFN-γ and being used before treatment for differentiating monocytes into dendritic cells.

2. A monocyte proliferating culture medium containing at least one of Flt-3L, IL-3, and IFN-γ and being used before treatment for differentiating monocytes into dendritic cells.

3. The monocyte proliferating culture medium according to Claim 2, further comprising GM-CSF.

4. A method of producing monocytes, the method comprising a proliferation step of culturing a monocyte material in the monocyte proliferating culture medium according to Claim 2 or 3 for allowing monocytes to proliferate.

5. The method of producing monocytes according to Claim 4, wherein the monocyte material is a mixture containing monocytes and a leukocyte component other than monocytes.

6. The method of producing monocytes according to Claim 4 or 5, the method further comprising a reduction step of reducing the content of a component other than monocytes in body fluid to obtain the monocyte material, before the proliferation step.

7. The method of producing monocytes according to Claim 6, wherein the reduction is performed using a magnetic bead having a higher affinity to at least one of monocytes, leukocyte components other than monocytes, plasma, and erythrocytes in the monocyte material than the others.

8. The method of producing monocytes according to Claim 6 or 7, wherein the monocyte material is prepared from 100 mL or less of peripheral blood.

9. The method of producing monocytes according to any one of Claims 6 to 8, the method not comprising a cryopreservation step of cryopreserving the monocytes.

10. A method of producing dendritic cells, the method comprising:

a monocyte production step of producing monocytes by the method of producing monocytes according to any one of Claims 4 to 9; and

a differentiation step of differentiating the monocytes prepared in the monocyte production step into dendritic cells.

11. The method of producing dendritic cells according to Claim 10, wherein in the differentiation step, the monocytes are cultured in a culture medium containing at least one of Flt-3L, IL-3, and IFN-γ.

12. The method of producing dendritic cells according to Claim 10 or 11, the method further comprising a pulse step of pulsing the dendritic cells.

13. A method of producing a dendritic cell vaccine, the method comprising:

a dendritic cell-producing step of producing dendritic cells by the method of producing dendritic cells according to any one of Claims 10 to 12; and

a preparation step of preparing a dendritic cell vaccine from the dendritic cells produced in the dendritic cell-producing step.

14. The method of producing a dendritic cell vaccine according to Claim 13, the method not comprising a cryopreservation step of cryopreserving at least one of the monocytes and the dendritic cells.

15. The method of producing a dendritic cell vaccine according to Claim 13 or 14, wherein the monocyte material is prepared from body fluid collected from a subject to which the dendritic cell vaccine is administered.

CLAIMS

1. A monocyte proliferating agent comprising at least one of Flt-3L, IL-3, and IFN-γ.

2. A culture medium comprising a monocyte proliferation agent according to Claim 1 .

3. A culture medium according to Claim 2, further comprising GM-CSF.

4. A method of producing monocytes, the method comprising a proliferation step comprising culturing monocyte material in the presence of a monocyte proliferating agent according to Claim 1 or a culture medium according to Claim 2 or 3, and allowing monocytes to proliferate.

5. A method of producing monocytes according to Claim 4, in which the monocyte material comprises a monocyte and a leukocyte component other than a monocyte.

6. A method of producing monocytes according to Claim 4 or 5, the method further comprising a reduction step of reducing the content of a component other than monocytes in body fluid to obtain the monocyte material, before the proliferation step.

7. A method of producing monocytes according to Claim 6, in which the reduction is performed using a magnetic bead having a higher affinity for at least one of monocytes, leukocyte components other than monocytes, plasma, and erythrocytes in the monocyte material than the others.

8. A method of producing monocytes according to Claim 6 or 7, in which the monocyte material is prepared from 100 ml or less of peripheral blood.

9. A method of producing monocytes according to any of Claims 6 to 8, the method not comprising a cryopreservation step of cryopreserving the monocytes.

10. A method of producing dendritic cells, the method comprising:

producing monocytes by a method according to any of Claims 4 to 9; and

differentiating the monocytes produced into dendritic cells.

11. A method of producing dendritic cells according to Claim 10, in which in the differentiation step, the monocytes are cultured in a culture medium containing at least one of Flt-3L, IL-3, and IFN-γ.

12. A method of producing dendritic cells according to Claim 10 or 11, the method further comprising a pulse step of pulsing the dendritic cells.

13. A method of producing a dendritic cell vaccine, the method comprising:

producing dendritic cells according to any one of Claims 10 to 12; and

preparing a dendritic cell vaccine from the dendritic cells produced.

14. A method of producing a dendritic cell vaccine according to Claim 13, the method not comprising a cryopreservation step of cryopreserving at least one of the monocytes and the dendritic cells.

15. A method of producing a dendritic cell vaccine according to Claim 13 or 14, in which the monocyte material is prepared from body fluid collected from a subject to which the dendritic cell vaccine is administered.