CLAIMS

1. A method for producing a CD3-positive T cell, comprising step (I) of culturing ~~a~~the CD3-positive T cell in the presence of a CD3/TCR complex agonist, fibronectin or ~~a variant thereof~~RetroNectin, and a CD30 agonist~~.~~

~~2. The method according to claim 1, further comprising~~, and step (II) of culturing the CD3-positive T cell cultured in step (I) in the absence of a CD3/TCR complex agonist and fibronectin or RetroNectin ~~a variant thereof~~, and in the presence of a CD30 agonist.

2~~3~~. The method according to claim 1 ~~or 2~~, wherein the CD3-positive T cell is derived from a pluripotent stem cell.

3~~4~~. The method according to claim 2~~3~~, wherein the pluripotent stem cell is an iPS cell.

4~~5~~. The method according to any one of claims 1 to 3~~4~~, wherein the CD3-positive T cell is a chimeric antigen receptor-expressing CD3-positive T cell.

5~~6~~. The method according to any one of claims 1 to 4~~5~~, wherein the CD3-positive T cell is a CD3-positive CD8-positive T cell.

6~~7~~. The method according to claim 5~~6~~, wherein the CD3-positive CD8-positive T cell is a CD3-positive CD8-positive CD4-negative T cell.

7~~8~~. The method according to any one of claims 1 to 6~~7~~, wherein the CD3-positive T cell is a γTCR-positive and/or δTCR-positive T cell.

8~~9~~. The method according to any one of claims 1 to 7~~8~~, wherein the CD3/TCR complex agonist is a CD3 agonist and/or a TCR agonist.

9~~10~~. The method according to claim 8~~9~~, wherein the CD3 agonist is an anti-CD3 agonist antibody or a binding fragment thereof.

10~~11~~. The method according to claim 9~~10~~, wherein the anti-CD3 agonist antibody or a binding fragment thereof is an anti-CD3 agonist antibody or a binding fragment thereof produced from UCHT1 clone.

11~~12~~. The method according to claim 8~~9~~, wherein the TCR agonist is at least one selected from the group consisting of an anti-TCR antibody

or a binding fragment thereof, an HLA/peptide complex or a multimer thereof, and an HLA/superantigen complex or a multimer thereof.

12~~13~~. The method according to claim 9~~10~~ or 10~~11~~, wherein the anti-CD3 agonist antibody or a binding fragment thereof is immobilized on a culture container.

13~~14~~. The method according to claim 12~~13~~, wherein the anti-CD3 agonist antibody or a binding fragment thereof is immobilized by contacting 1 ng/ml - 50000 ng/ml of the anti-CD3 agonist antibody or a binding fragment thereof with the culture container.

~~15. The method according to any one of claims 1 to 14, wherein the fibronectin or a variant thereof is RetroNectin (registered trade mark).~~

14~~16~~. The method according to any one of claims 1 to 13~~claim 15~~, wherein the RetroNectin ~~(registered trade mark)~~ is immobilized on the culture container.

15~~17~~. The method according to claim 14~~16~~, wherein the RetroNectin ~~(registered trade mark)~~ is immobilized by contacting 1 - 150 μg/mL of the RetroNectin ~~(registered trade mark)~~ with the culture container.

16~~18~~. The method according to any one of claims 1 to 15~~17~~, wherein the CD30 agonist is at least one selected from the group consisting of an anti-CD30 agonist antibody or a binding fragment thereof and a CD30 ligand or a binding fragment thereof.

17~~19~~. The method according to claim 16~~18~~, wherein the anti-CD30 agonist antibody or a binding fragment thereof is contained in a~~the~~ medium.

18~~20~~. The method according to claim 17~~19~~, wherein a concentration of the anti-CD30 agonist antibody or a binding fragment thereof in the medium of 1 ng/ml - 1000 ng/ml.

19~~21~~. The method according to any one of claims 1 to 18~~20~~, wherein the medium comprises at least one selected from IL-7, IL-15, IL-18 and IL-21.

20~~22~~. The method according to claim 19~~21~~, wherein the medium comprises IL-7, IL-15, IL-18 and IL-21.

2123. The method according to claim 1921 or 2022, wherein the medium further comprises TL1A and/or IL-12.

2224. The method according to any one of claims 1 to 2123, wherein the CD3-positive T cell produced is further CD197-positive.

~~25. A CD3-positive cell obtained by the method according to any one of claims 1 to 24.~~

2326. A method for expansion culture of a CD3-positive T cell, comprising ~~a~~ step (I) of culturing the CD3-positive T cell in the presence of a CD3/TCR complex agonist, fibronectin or RetroNectin ~~a variant thereof~~, and a CD30 agonist, and step (II) of culturing the CD3-positive T cell cultured in step (I) in the absence of a CD3/TCR complex agonist and fibronectin or RetroNectin, and in the presence of a CD30 agonist.

~~27. A kit for expansion culture of a CD3-positive cell, comprising the following:~~
~~(1) a culture container in which a CD3/TCR complex agonist, and fibronectin or a variant thereof are immobilized, and~~
~~(2) a medium comprising a CD30 agonist.~~

~~28. A method for maintaining a CD3-positive cell as a CD3-positive CD197-positive cell, comprising a step of stimulating a CD30 signal in the CD3-positive cell.~~

~~29. The method according to claim 28, wherein the CD3-positive cell is a CD3-positive CD8-positive cell.~~

~~30. The method according to claim 29, wherein the CD3-positive CD8-positive cell is a CD3-positive CD8-positive CD4-negative cell.~~

~~31. The method according to any one of claims 28 to 30, wherein the medium used in the step of stimulation comprises at least one selected from IL-7, IL-15, IL-18 and IL-21.~~

~~32. The method according to claim 31, wherein the medium used in the step of stimulation comprises IL-7, IL-15, IL-18 and IL-21.~~

~~33. The method according to claim 31 or 32, wherein the medium used in the step of stimulation further comprises TL1A and/or IL-12.~~

~~34. A kit for maintaining a CD3-positive cell as a CD3-positive CD197-positive cell, comprising a CD30 agonist.~~

~~35. A chimeric antigen receptor comprising an antigen binding domain, a transmembrane domain and an intracellular signal transduction domain, wherein the intracellular signal transduction domain comprises a CD30 intracellular signal transduction domain or a mutant thereof.~~

~~36. A nucleic acid comprising a polynucleotide encoding the chimeric antigen receptor according to claim 35.~~

~~37. A chimeric antigen receptor expression vector comprising the nucleic acid according to claim 36.~~

~~38. A chimeric antigen receptor-expressing cell comprising the chimeric antigen receptor expression vector according to claim 37.~~

~~39. The cell according to claim 38, wherein the chimeric antigen receptor expression cell is a CD3-positive cell.~~

~~40. A medicament comprising the cell according to claim 38 or 39.~~

~~41. The medicament according to claim 40 for use in the prophylaxis or treatment of a tumor expressing an antigen recognized by the chimeric antigen receptor according to claim 35.~~

~~42. An agent for killing a cell expressing an antigen recognized by the chimeric antigen receptor according to claim 35, wherein the agent comprises the cell according to claim 38 or 39.~~

~~43. The cell according to claim 38 or 39 for use in the prophylaxis or treatment of a tumor expressing an antigen recognized by the chimeric antigen receptor according to claim 35.~~

~~44. Use of the cell according to claim 38 or 39 in producing an agent for the prophylaxis or treatment of a tumor expressing an antigen recognized by the chimeric antigen receptor according to claim 35.~~

~~45. A method for preventing or treating a tumor expressing an antigen recognized by the chimeric antigen receptor according to claim 35, comprising administering the cell according to claim 38 or 39.~~