[Document Name]

Patent Claims

[Claim 1]

A method for maintenance culturing a dengue virus, the method comprising:

infecting a monocyte to which a cMYC gene, a BMI1 gene and a BCL2 gene or an LYL1 gene have been introduced, or a dendritic cell which has been induced to be differentiated from the monocyte with the dengue virus; and

culturing the infected cell.

[Claim 2]

A method for maintenance culturing a dengue virus, the method comprising:

introducing a cMYC gene, a BMI1 gene and a BCL2 gene or an LYL1 gene into a monocyte;

optionally inducing the monocyte to differentiate into a dendritic cell;

infecting the resultant monocyte or dendritic cell with the dengue virus; and

culturing the infected cell.

[Claim 3]

The method according to claim 1 or 2, wherein the least one gene selected from an EZH2 gene, an MDM2 gene, an MDM4 gene, and an HIF1A gene has been further introduced into the monocyte.

[Claim 4]

A method for identifying a therapeutic agent against an infection with a dengue virus, the method comprising:

infecting a monocyte to which a cMYC gene, and at least one gene selected from a BMI1 gene, an EZH2 gene, an MDM2 gene, an MDM4 gene, an HIF1A gene, a BCL2 gene, and an LYL1 gene have been introduced, or a dendritic cell which has been induced to be differentiated from the monocyte with the dengue virus in the presence of a test drug;

measuring an infection level with the dengue virus in the monocyte or the dendritic cell; and

determining whether the test drug has a therapeutic effect against the infection based on the measured infection with the dengue virus, wherein the test drug is determined to have the therapeutic effect against the infection if a level of the measured infection with the dengue virus is lower than a control infection level which is a level when infecting the cell with the dengue virus in the absence of the test drug.

[Claim 5]

A method for producing a mutant of a dengue virus, the method comprising:

infecting a monocyte to which a cMYC gene, and at least one gene selected from a BMI1 gene, an EZH2 gene, an MDM2 gene, an MDM4 gene, an HIF1A gene, a BCL2 gene, and an LYL1 gene have been introduced, or a dendritic cell which has been induced to be differentiated from the monocyte with the dengue virus;

culturing the infected monocyte or dendritic cell to thereby proliferate the dengue virus; and

isolating a mutant from the proliferated dengue virus.

[Claim 6]

A method for producing a vaccine against a dengue virus, the method comprising:

infecting a monocyte to which a cMYC gene, and at least one gene selected from a BMI1 gene, an EZH2 gene, an MDM2 gene, an MDM4 gene, an HIF1A gene, a BCL2 gene, and an LYL1 gene have been introduced, or a dendritic cell which has been induced to be differentiated from the monocyte with the dengue virus;

culturing the infected monocyte or dendritic cell to thereby proliferate the dengue virus;

collecting the proliferated dengue virus; and

using the collected dengue virus to produce a vaccine.

[Claim 7]

The method according to claim 6, further comprising inactivating the collected dengue virus.

[Claim 8]
A method for separating a dengue virus from blood derived from a patient infected with the dengue virus, the method comprising:
bringing a monocyte to which a cMYC gene, and at least one gene selected from a BMI1 gene, an EZH2 gene, an MDM2 gene, an MDM4 gene, an HIF1A gene, a BCL2 gene, and an LYL1 gene have been introduced, or a dendritic cell which has been induced to be differentiated from the monocyte into contact with the blood derived from a patient to thereby infect the monocyte or the dendritic cell with the dengue virus;
culturing the infected monocyte or dendritic cell; and
detecting and/or identifying a dengue virus in the cultured cell to thereby specify the dengue virus.
[Claim 9]
The method according to any one of claims 4 to 8, wherein the least one gene selected from a BMI1 gene, an EZH2 gene, an MDM2 gene, an MDM4 gene, an HIF1A gene, a BCL2 gene, and an LYL1 gene is a BMI1 gene and a BCL2 gene or an LYL1 gene.
[Claim 10]
The method according to any one of claims 1 to 9, wherein the monocyte is a cell obtained by inducing a human pluripotent stem cell or a human hematopoietic stem cell to differentiate, or a cell obtained by isolating from human peripheral blood.
[Claim 11]
The method according to claim 10, wherein the human pluripotent stem cell is an iPS cell.
[Claim 12]
The method according to any one of claims 1 to 9, further comprising preparing the monocyte by inducing a human pluripotent stem cell or a human hematopoietic stem cell to differentiate, or preparing the monocyte by isolating from human peripheral blood.
[Claim 13]
The method according to claim 12, wherein the human pluripotent stem cell is an iPS cell.

[Claim 14]

The method according to any one of claims 1 to 13, wherein a culturing time is 24 to 96 hours.

[Claim 15]

The method according to claim 5, wherein a number of times of culturing is 1 to 5.