Claims

[Claim 1]

A method for producing an NKT cell ligand-pulsed human CD14 positive cell, comprising a step of culturing an isolated human CD14 positive cell in a medium containing an NKT cell ligand and GM-CSF and substantially free of IL-4 for at least two hours after addition of the NKT cell ligand, wherein the CD14 positive cell is a cell in which a CD14 molecule is expressed on the cell surface and specific binding by an antibody to the CD14 molecule can be confirmed, and the NKT cell ligand is α-galactosylceramide or an analog thereof that is specifically recognized, when presented on the CD1d molecule, by a T cell receptor (NKT cell receptor) on NKT cell and peculiar to the NKT cell, and can specifically activate NKT cells.

[Claim 2]

A method for producing an NKT cell ligand-pulsed human CD14 positive cell line, comprising a step of culturing an isolated human CD14 positive cell line in a medium containing an NKT cell ligand and substantially free of GM-CSF and IL-4 for at least two hours after addition of the NKT cell ligand, wherein the CD14 positive cell line is a cell line in which a CD14 molecule is expressed on the cell surface and specific binding by an antibody to the CD14 molecule can be confirmed, and the NKT cell ligand is α-galactosylceramide or an analog thereof that is specifically recognized, when presented on the CD1d molecule, by a T cell receptor (NKT cell receptor) on NKT cell and peculiar to the NKT cell, and can specifically activate NKT cells.

[Claim 3]

The method according to claim 1 or 2, wherein the medium is substantially free of SCF and/or Flt3L.

[Claim 4]

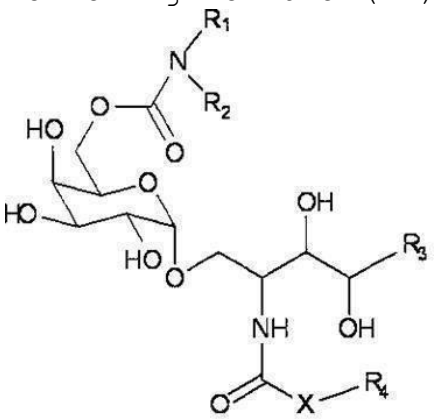
The method according to any one of claims 1 to 3, wherein the isolated human CD14 positive cell has a purity of not less than 70%.

[Claim 5]

The method according to any one of claims 1 to 4, wherein the cells are cultured at least for 16 - 72 hr after addition of the NKT cell ligand.

[Claim 6]

The method according to any one of claims 1 to 5, wherein the analog is a compound represented by the following formula (VI):

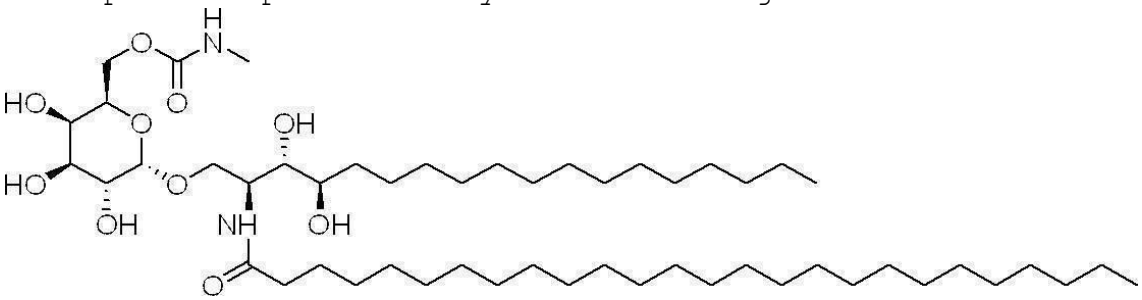


(VI)

wherein
X is an alkylene group or -NH-;
R_1 and R_2 are the same or different and each is a hydrogen atom, an alkyl group, a hydroxyl group, an alkoxy group, or an aryl group optionally having a substituent, R_1 and R_2 optionally form, together with the adjacent nitrogen atom, a 5- or 6-membered ring;
R_3 is a hydrocarbon group having 1 - 20 carbon atoms; and
R_4 is a hydrocarbon group having 1 - 30 carbon atoms, or a salt thereof.

[Claim 7]

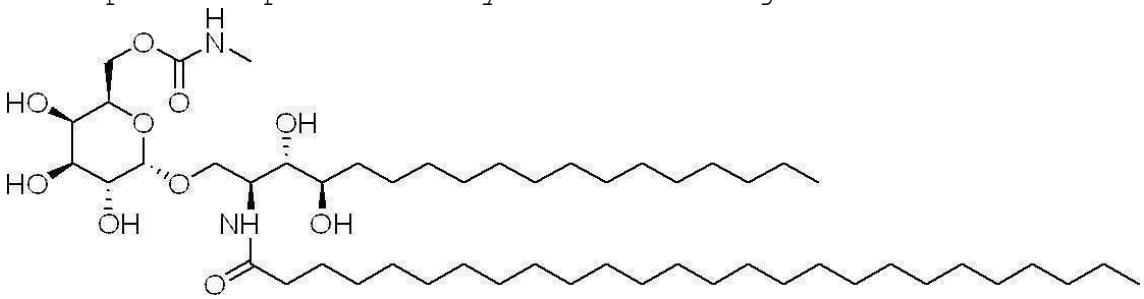
The method according to claim 6, wherein the analog is a compound represented by the following formula



or a salt thereof.

[Claim 8]

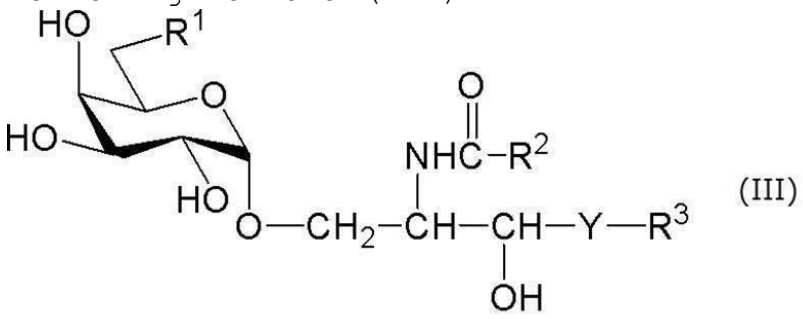
The method according to claim 6, wherein the analog is a compound represented by the following formula



or a salt thereof.

[Claim 9]

The method according to any one of claims 1 to 5, wherein the analog is a compound represented by the following formula (III)

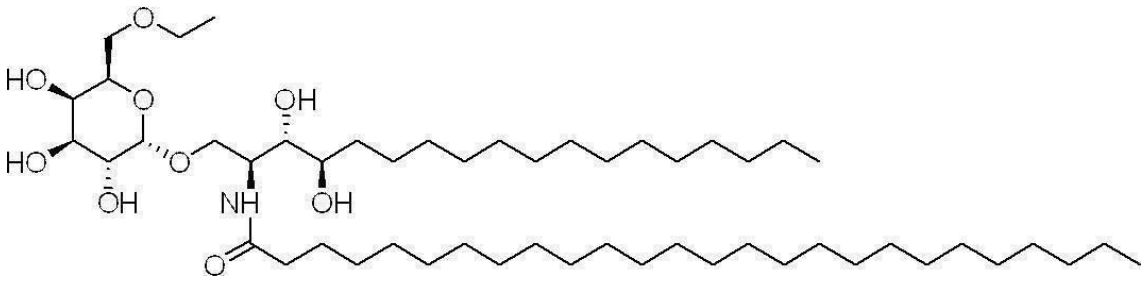


(III)

wherein R^1 is a hydrogen atom, an alkyl group having 1 - 7 carbon atoms, an alkoxy group having 1 - 6 carbon atoms or a halogen atom, R^2 and R^3 are each independently a substituted or unsubstituted hydrocarbon group having 1 - 28 carbon atoms, and Y is $-CH_2-$, -CH(OH)- or -CH=CH-, provided that when R^1 is a hydrogen atom, R^2 is a substituted or unsubstituted hydrocarbon group having 24 - 28 carbon atoms, or a salt thereof.

[Claim 10]

The method according to claim 9, wherein the analog is a compound represented by the following formula



or a salt thereof.

[Claim 11]

The method according to any one of claims 1 to 10, wherein a concentration of the NKT cell ligand in the medium is at least 30 ng/ml.

[Claim 12]

An NKT cell ligand-pulsed human CD14 positive CD1d positive CD40 positive cell obtained by the method according to any one of claims 1 to 11.

[Claim 13]

A cell preparation comprising the cell according to claim 12.

[Claim 14]

An NKT cell activator comprising the cell according to claim 12.

[Claim 15]

An agent for treating or preventing cancer or an infectious disease, comprising the cell according to claim 12.