Claims

[Claim 1]

A compound selected from the following group:
(3R)-3-{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-4-({3-O-[(3R)-3-(decanoyloxy)tetradecanoyl]-2-{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-2-deoxy-6-O-(3-deoxy-α-D-manno-oct-2-ulopyranonosyl)-4-O-phosphono-β-D-glucopyranosyl}oxy)butanoic acid,
(2S)-2-{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-3-{[3-deoxy-α-D-manno-oct-2-ulopyranonosyl-(2→4)-3-deoxy-α-D-manno-oct-2-ulopyranonosyl-(2→6)-3-O-[(3R)-3-(decanoyloxy)tetradecanoyl]-2-{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-2-deoxy-4-O-phosphono-β-D-glucopyranosyl]oxy}propanoic acid,
(2S)-2-{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-3-({3-O-[(3R)-3-(decanoyloxy)tetradecanoyl]-2-{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-2-deoxy-6-O-D-glucopyranuronosyl-4-O-phosphono-β-D-glucopyranosyl}oxy)propanoic acid,
6,10-anhydro-8-O-[(3R)-3-(decanoyloxy)tetradecanoyl]-3,7-bis{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-2,3,4,5,7-pentadeoxy-11-O-(3-deoxy-α-D-manno-oct-2-ulopyranonosyl)-9-O-phosphono-D-erythro-L-galacto-undecanoic acid, and
5,9-anhydro-7-O-[(3R)-3-(decanoyloxy)tetradecanoyl]-2,6-bis{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-2,3,4,6-tetradeoxy-10-O-(3-deoxy-α-D-manno-oct-2-ulopyranonosyl)-8-O-phosphono-D-erythro-L-galacto-decanoic acid,

or a pharmaceutically acceptable salt thereof.

[Claim 2]

The compound according to claim 1, which is: (3R)-3-{[(3R)-3-(Decanoyloxy)tetradecanoyl]amino}-4-({3-O-[(3R)-3-(decanoyloxy)tetradecanoyl]-2-{[(3R)-3-(decanoyloxy)tetradecanoyl]amino}-2-deoxy-6-O-(3-deoxy-α-D-manno-oct-2-ulopyranonosyl)-4-O-phosphono-β-D-glucopyranosyl}oxy)butanoic acid or a pharmaceutically acceptable salt thereof.

[Claim 3]

A pharmaceutical composition comprising a compound according to claim 1 or 2, or a pharmaceutically acceptable salt thereof.

[Claim 4]

A pharmaceutical composition comprising a compound according to claim 1 or 2, or a pharmaceutically acceptable salt thereof, and an antigen.

[Claim 5]

Use of a compound according to claim 1 or 2, or a pharmaceutically acceptable salt thereof, for the preparation of a medicament, wherein the compound is used in combination with an antigen and wherein the compound and the antigen are to be administered at the same time or at different times.

[Claim 6]

The pharmaceutical composition according to claim 4, wherein the antigen is one or more selected from the group consisting of an attenuated virus, an inactivated

virus, a recombinant protein of a viral structural protein of influenza virus, adenovirus, rubella virus, mumps virus, RS virus, enterovirus, rotavirus, norovirus, or coronavirus, and an extract of Japanese cedar pollen, cypress pollen, birch pollen, ragweed pollen, goldenrod pollen, Japanese hop pollen, orchard grass pollen, spinach pollen, black pine pollen, narrow leaf cattail pollen, red pine pollen, chrysanthemum pollen, artemisia pollen, timothy pollen, Bermuda grass pollen, Kentucky grass pollen, meadow fescue grass pollen, redtop grass pollen, perennial ryegrass pollen, sweet vernal grass pollen, fat hen pollen, mite, cat hair, chicken egg, milk, peanut, wheat, or buckwheat.

[Claim 7]

The use according to claim 5, wherein the antigen is one or more selected from the group consisting of an attenuated virus, an inactivated virus, a recombinant protein of a viral structural protein of influenza virus, adenovirus, rubella virus, mumps virus, RS virus, enterovirus, rotavirus, norovirus, or coronavirus, and an extract of Japanese cedar pollen, cypress pollen, birch pollen, ragweed pollen, goldenrod pollen, Japanese hop pollen, orchard grass pollen, spinach pollen, black pine pollen, narrow leaf cattail pollen, red pine pollen, chrysanthemum pollen, artemisia pollen, timothy pollen, Bermuda grass pollen, Kentucky grass pollen, meadow fescue grass pollen, orchard grass pollen, redtop grass pollen, perennial ryegrass pollen, sweet vernal grass

pollen, fat hen pollen, mite, cat hair, chicken egg, milk, peanut, wheat, or buckwheat.

[Claim 8]

The use according to claim 5 for the prevention or treatment of viral infection, allergy disease, bacterial infection and bacterium-derived toxin, cancer, or intracellular parasitic protozoa.

[Claim 9]

The use according to claim 5 for the prevention or treatment of influenza virus, coronavirus, RS virus, norovirus, or rotavirus infection.

[Claim 10]

The use according to claim 5 for the prevention or treatment of allergy disease caused by Japanese cedar pollen, cypress pollen, birch pollen, ragweed pollen, goldenrod pollen, Japanese hop pollen, orchard grass pollen, spinach pollen, black pine pollen, narrow leaf cattail pollen, red pine pollen, chrysanthemum pollen, artemisia pollen, timothy pollen, Bermuda grass pollen, Kentucky grass pollen, meadow fescue grass pollen, redtop grass pollen, perennial ryegrass pollen, sweet vernal grass pollen, fat hen pollen (*Chenopodium album* [white goosefoot or lamb's quarters]), mite, cat hair, chicken egg, milk, peanut, wheat, or buckwheat.

[Claim 11]

Use of a compound according to claim 1 or 2, or a pharmaceutically acceptable salt thereof, for the

preparation of a medicament, wherein the compound is used as a TLR4 activator.

[Claim 12]

Use of a compound according to claim 1 or 2, or a pharmaceutically acceptable salt thereof, for the preparation of a medicament, wherein the compound is used as an immunostimulant.

[Claim 13]

The use according to claim 12, wherein the immunostimulant is a vaccine adjuvant.