Claims

[Claim 1]

Use of a non-glucose sugar as a nephrotoxicity reducing agent and a first pharmaceutical composition comprising an antisense oligomer in the manufacture of a resulting pharmaceutical composition to be administered to a subject for reducing nephrotoxicity due substantially to the antisense oligomer in the subject, wherein the non-glucose sugar is used in an amount such that a concentration of the non-glucose sugar in the resulting pharmaceutical composition is 1 mg/mL to 400 mg/mL.

[Claim 2]

The use according to claim 1, wherein the non-glucose sugar is used in an amount such that the concentration of the non-glucose sugar in the resulting pharmaceutical composition is 5 mg/mL to 340 mg/mL.

[Claim 3]

The use according to claim 1 or 2, wherein a concentration of the antisense oligomer in the resulting pharmaceutical composition is 0.5 mg/mL to 200 mg/mL.

[Claim 4]

Use of a non-glucose sugar as a nephrotoxicity reducing agent and a first pharmaceutical composition comprising an antisense oligomer in the manufacture of a resulting pharmaceutical composition to be administered

to a subject for reducing nephrotoxicity due substantially to the antisense oligomer in the subject, wherein the non-glucose sugar is used in an amount such that a weight ratio of the non-glucose sugar is 0.05 to 30 per 1 of the antisense oligomer in the resulting pharmaceutical composition.

[Claim 5]

The use according to claim 6, wherein the non-glucose sugar is used in an amount such that the weight ratio of the non-glucose sugar is 0.1 to 13.3 per 1 of the antisense oligomer in the resulting pharmaceutical composition.

[Claim 6]

The use according to any one of claims 1 to 5, wherein the non-glucose sugar is a disaccharide.

[Claim 7]

The use according to any one of claims 1 to 6, wherein the non-glucose sugar is sucrose.

[Claim 8]

The use according to any one of claims 1 to 6, wherein the non-glucose sugar is trehalose.

[Claim 9]

The use according to any one of claims 1 to 8, wherein the antisense oligomer is a morpholino oligomer.

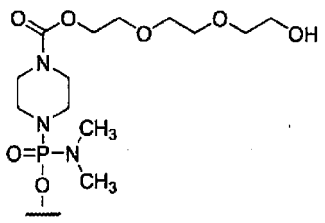
[Claim 10]

The use according to any one of claims 1 to 9, wherein the antisense oligomer is a phosphorodiamidate morpholino oligomer.

[Claim 11]

The use according to any one of claims 1 to 10, wherein the 5'-end of the antisense oligomer is any group represented by the following chemical formulae (1) and (2):

[Chem. 1]



(1)



(2)

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[Claim 12]

The use according to any one of claims 1 to 11, wherein the antisense oligomer comprises four consecutive purine bases in its base sequence.

[Claim 13]

The use according to claim 12, wherein at least two of the four consecutive purine bases are guanine.

[Claim 14]

The use according to any one of claims 1 to 13, wherein the antisense oligomer comprises a base sequence

selected from the group consisting of SEQ ID NOs: 1 to 12.

[Claim 15]

A method for reducing nephrotoxicity for a pharmaceutical composition comprising an antisense oligomer, comprising adding a non-glucose sugar in an amount such that a concentration of the sugar in the pharmaceutical composition is 1 mg/mL to 400 mg/mL.

[Claim 16]

Use of a non-glucose sugar in the manufacture of a medicament for reducing nephrotoxicity of an antisense oligomer in a subject to whom the antisense oligomer has been administered, wherein the non-glucose sugar is administered in an amount such that a weight ratio of the non-glucose sugar is 0.05 to 30 per 1 of the antisense oligomer.

[Claim 17]

A pharmaceutical composition comprising an antisense oligomer and having reduced nephrotoxicity, wherein the pharmaceutical composition comprises a nephrotoxicity reducing agent comprising a non-glucose sugar at a concentration of 1 mg/mL to 400 mg/mL.