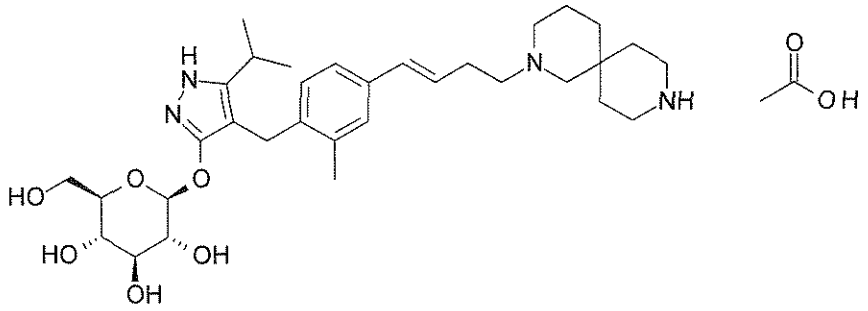
Summary

In a first aspect of the present disclosure, there is provided a compound of the formula:



or hydrate thereof.

In a second aspect of the present disclosure, there is provided a crystalline form of the compound according to the first aspect which is hydrated.

In a third aspect of the present disclosure, there is provided a use of a compound according to the first or second aspect in the manufacture of a medicament for treating diabetes in a patient.

In a fourth aspect of the present disclosure, there is provided a use of a compound according to the first or second aspect in the manufacture of a medicament for treating type 1 diabetes in a patient.

In a fifth aspect of the present disclosure, there is provided a use of a compound according to the first or second aspect in the manufacture of a medicament for treating type 2 diabetes in a patient.

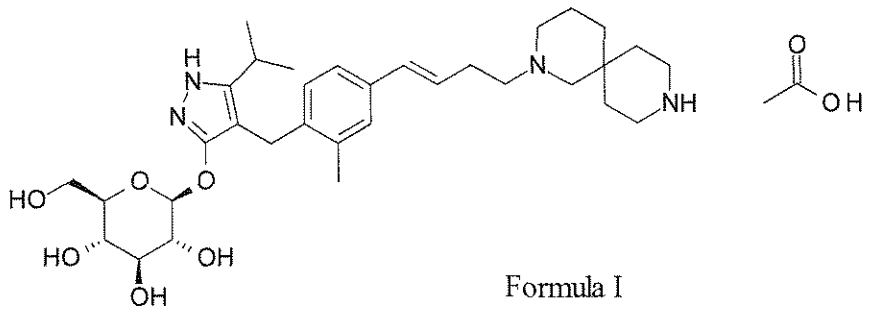
In a sixth aspect of the present disclosure, there is provided a compound according to the first or second aspect for use in therapy.

In a seventh aspect of the present disclosure, there is provided a compound according to the first or second aspect for use in the treatment of diabetes.

In an eighth aspect of the present disclosure, there is provided a pharmaceutical composition comprising a compound according to the first or second aspect with one or more pharmaceutically acceptable carriers, diluents, or excipients.

Description

Accordingly, the present invention provides a compound of Formula I:



Formula I

or hydrate thereof.

The present invention also provides a crystalline form of the compound of Formula I which is hydrated.

In addition, the present invention provides a crystalline form of a compound of Formula I, which is hydrated, characterized by at least one of the following:

a. an X-ray powder diffraction pattern using CuKα radiation having an intense peak at diffraction angle 2-theta of 5.2° in combination with one or more intense peaks selected from the group consisting of 7.8°, 8.0°, and 10.7° (± 0.2° respectively); and

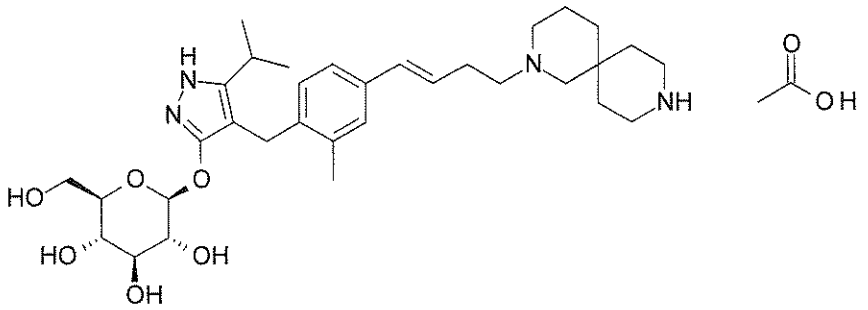
b. a ^{13}C solid state NMR spectrum which comprises intense peaks referenced to the highfield resonance of adamantane (δ=29.5 ppm) at: 181.8, 161.2, 160.0, 147.6 and 137.4 ppm (±0.2 ppm respectively).

The present invention further provides a crystalline form of Formula I which is hydrated, wherein the water content at ambient temperature is in the range of about 9% to about 12% by weight.

In addition, the present invention provides a method of treating diabetes in a patient comprising administering to a patient in need of such treatment an effective amount of a compound of Formula I or hydrate thereof. The present invention further provides a method of treating type 1 diabetes in a patient comprising administering to a patient in need of such treatment an effective amount of a compound of Formula I or hydrate thereof. In addition, the present invention provides a method of treating type 2 diabetes in a patient comprising administering to a patient in need of such treatment an

I CLAIM:

1. A compound of the formula:



or hydrate thereof.

2. A crystalline form of the compound according to claim 1 which is hydrated.
3. The compound according to claim 2 characterized by at least one of the following:
    a. an X-ray powder diffraction pattern using CuKα radiation having an intense peak at diffraction angle 2-theta of 5.2° in combination with one or more intense peaks selected from the group consisting of 7.8°, 8.0°, and 10.7° (± 0.2° respectively); and
    b. a ^{13}C solid state NMR spectrum which comprises peaks referenced to the highfield resonance of adamantane (δ=29.5 ppm) at: 181.8, 161.2, 160.0, 147.6 and 137.4 ppm (±0.2 ppm respectively).
4. The compound according to any of claims 1 to 3 wherein the water content at ambient temperature is in the range of about 9% to about 12% by weight.
5. Use of a compound according to any one of claims 1 to 4 in the manufacture of a medicament for ~~A method of~~ treating diabetes in a patient ~~comprising administering to a patient in need of such treatment an effective amount of a compound according to any one of claims 1 to 4~~.
6. Use of a compound according to any one of claims 1 to 4 in the manufacture of a medicament for ~~A method of~~ treating type 1 diabetes in a patient ~~comprising administering to a patient in need of such treatment an effective amount of a compound according to any one of claims 1 to 4~~.

7. Use of a compound according to any one of claims 1 to 4 in the manufacture of a medicament for ~~A method of~~ treating type 2 diabetes in a patient ~~comprising administering to a patient in need of such treatment an effective amount of a compound according to any one of claims 1 to 4~~.

8. A compound according to any one of claims 1 to 4 for use in therapy.

9. A compound according to any one of claims 1 to 4 for use in the treatment of diabetes.

10. A compound according to claim 9 wherein the diabetes is type 1 diabetes.

11. A compound according to claim 9 wherein the diabetes is type 2 diabetes.

12. A pharmaceutical composition comprising a compound according to any one of claims 1 to 4 with one or more pharmaceutically acceptable carriers, diluents, or excipients.