Claims

[Claim 1]

A benzoic acid salt of 4-[5-[(3S)-3-aminopyrrolidine-1-carbonyl]-2-[2-fluoro-4-(2-hydroxy-2-methyl-propyl)phenyl]phenyl]-2-fluoro-benzonitrile.

[Claim 2]

The benzoic acid salt according to claim 1 wherein the salt comprises a crystal.

[Claim 3]

The benzoic acid salt according to claim 2 wherein the crystal has a powder X-ray diffraction spectrum having at least two peaks of diffraction angles (2θ±0.2°) selected from the group consisting of 15.3°, 16.2°, 17.8°, 21.4° and 25.5°.

~~[Claim 4]~~

~~The benzoic acid salt according to claim 2 or 3 wherein the crystal has a peak temperature in a differential scanning calorie (DSC) curve with an endothermic peak in the vicinity of 193°C.~~

[Claim ~~5~~4]

The benzoic acid salt according to claim 2 or 3 wherein the crystal has a peak temperature in a differential scanning calorie (DSC) curve with an endothermic peak in the range from 188°C to 198°C.

[Claim ~~6~~5]

The benzoic acid salt according to any one of claims 2 to ~~5~~ 4 wherein the crystal has a powder X-ray diffraction spectrum of FIG. 1.

[Claim ~~7~~6]

A sorbic acid salt of 4-[5-[(3S)-3-aminopyrrolidine-1-carbonyl]-2-[2-fluoro-4-(2-hydroxy-2-methyl-propyl)phenyl]phenyl]-2-fluoro-benzonitrile.

[Claim ~~8~~7]

The sorbic acid salt according to claim ~~7~~ 6 wherein the salt comprises a crystal.

[Claim ~~9~~8]

The sorbic acid salt according to claim 8 wherein the crystal has a powder X-ray diffraction spectrum having at least two peaks of diffraction angles (2θ±0.2°) selected from the group consisting of 5.5°, 10.9°, 16.2°, 17.2°, 20.3° and 24.4°.

~~[Claim 10]~~

~~The sorbic acid salt according to claim 8 or 9 wherein the crystal has a peak temperature in a differential scanning calorie (DSC) curve with an endothermic peak in the vicinity of 147°C.~~

[Claim ~~11~~9]

The sorbic acid salt according to claim 8~~ or 9~~ wherein the crystal has a peak temperature in a differential scanning calorie (DSC) curve with an endothermic peak in the range from 142°C to 152°C.

[Claim ~~12~~10]

The sorbic acid salt according to any one of claims ~~8~~ 7 to ~~11~~ 9 wherein the crystal fumarate has a powder X-ray diffraction spectrum of FIG. 13.

[Claim ~~13~~11]

An LSD1 inhibitor comprising the salt according to any one of claims 1 to ~~12~~10, as an active ingredient.

[Claim ~~14~~12]

A pharmaceutical composition comprising the salt according to any one of claims 1 to ~~12~~10.

[Claim ~~15~~13]

The pharmaceutical composition according to claim ~~14~~ 12 wherein the composition is a pharmaceutical composition for use in preventing or treating an LSD1-related disease or disorder.

[Claim ~~16~~14]

The pharmaceutical composition according to claim ~~14~~ 12 or ~~15~~ 13 which is an orally administered composition.

[Claim ~~17~~15]

An antitumor agent comprising the salt according to any one of claims 1 to ~~12~~10, as an active ingredient.

~~[Claim 18]~~

~~A method of treating an LSD1-related disease or disorder in a patient in need, the method comprising administering an effective amount of any one of claims 1 to 12 to the patient.~~

~~[Claim 19]~~

~~The salt compound according to any one of claims 1 to 12 for use in preventing and/or treating an LSD1-related disease or disorder.~~

[Claim 16]

Use of the salt according to any one of claims 1 to 10 in the manufacture of a pharmaceutical composition for the treatment of an LSD1-related disease or disorder in a patient in need.

[Claim ~~20~~17]

Use of the salt according to any one of claims 1 to ~~12~~ 10 in the manufacture of an antitumor agent.

[Claim ~~21~~18]

A production method of a benzoic acid salt of 4-[5-[(3S)-3-aminopyrrolidine-1-carbonyl]-2-[2-fluoro-4-(2-hydroxy-2-methyl-propyl)phenyl]phenyl]-2-fluoro-benzonitrile, the method comprising:

reacting 4-[5-[(3S)-3-aminopyrrolidine-1-carbonyl]-2-[2-fluoro-4-(2-hydroxy-2-methyl-propyl)phenyl]phenyl]-2-fluoro-benzonitrile with a benzoic acid.

[Claim ~~22~~19]

A production method of a sorbic acid salt of 4-[5-[(3S)-3-aminopyrrolidine-1-carbonyl]-2-[2-fluoro-4-(2-hydroxy-2-methyl-propyl)phenyl]phenyl]-2-fluoro-benzonitrile, the method comprising:

reacting 4-[5-[(3S)-3-aminopyrrolidine-1-carbonyl]-2-[2-fluoro-4-(2-hydroxy-2-methyl-propyl)phenyl]phenyl]-2-fluoro-benzonitrile with a sorbic acid.