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 range from 188°C to 198°C.

[Claim 5]

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

[Claim 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 7]

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

[Claim 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 9]

The sorbic acid salt according to claim 8 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 10]

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

[Claim 11]

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

[Claim 12]

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

[Claim 13]

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

[Claim 14]

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

[Claim 15]

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

[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 17]

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

[Claim 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 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.