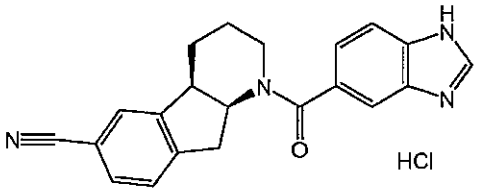
Claims

We claim:

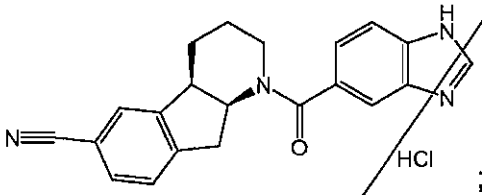
1. A compound represented by the following structural formula:



;

wherein at least 50 % by weight of the compound is crystalline.

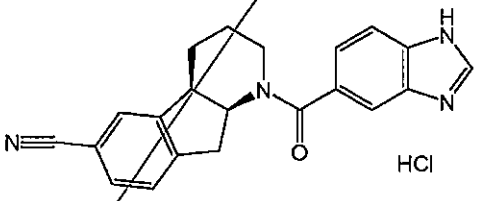
2. A compound represented by the following structural formula:



;

wherein at least 50 % by weight of the compound is a single crystalline form.

3. A compound represented by the following structural formula:



;

wherein at least 99% by weight of the compound is a single crystalline form.

4. The compound of any one of Claims 1-3, wherein at least 50 % by weight of the compound is crystalline Form I.

5. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by at least three x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°.

6. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by at least four x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°.

7. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by at least five x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°.

8. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°.

9. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by at least three x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 14.8°, 22.2° and 26.1°.

10. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 12.5°, 14.8°, 22.2° and 26.1°.

11. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by major x-ray powder diffraction peaks at 2Θ angles 12.5°, 14.8°, 22.2° and 26.1°.

12. The compound of any one of Claims 2-4, wherein the single crystalline form is characterized by the x-ray powder diffraction pattern of FIG. 1.

13. The compound of any one of Claims 2-12, wherein the single crystalline form is characterized by at least ten ^{13}C solid-state nuclear magnetic resonance peaks at chemical shifts selected from 170.3 ppm, 146.5 ppm, 142.8 ppm, 135.0 ppm, 130.6 ppm, 128.1 ppm, 122.1 ppm, 116.7 ppm, 115.6 ppm, 112.8 ppm, 109.8 ppm, 107.6 ppm, 44.6 ppm, 43.3 ppm, 41.4 ppm, 30.3 ppm, 26.3 ppm and 23.9 ppm.

14. The compound of any one of Claims 2-12, wherein the single crystalline form is characterized by ^{13}C solid-state nuclear magnetic resonance peaks at chemical shifts of 170.3 ppm, 146.5 ppm, 142.8 ppm, 135.0 ppm, 130.6 ppm, 128.1 ppm, 122.1 ppm, 116.7 ppm, 115.6 ppm, 112.8 ppm, 109.8 ppm, 107.6 ppm, 44.6 ppm, 43.3 ppm, 41.4 ppm, 30.3 ppm, 26.3 ppm and 23.9 ppm.

15. The compound of any one of Claims 1-3, wherein the compound is crystalline Form II.

16. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by x-ray powder diffraction peak at 2Θ angles 13.7°, 17.6°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

17. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized x-ray powder diffraction peaks at 2Θ angles 13.7°, 17.6°, 19.7, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

18. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 13.7°, 17.6°, 19.7, 20.9, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

19. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 13.7°, 17.6°, 19.3, 19.7, 20.9, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

20. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 13.3°, 13.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

21. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by at least seven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

22. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by at least eight x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

23. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by at least nine x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

24. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by at least ten x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

25. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by at least eleven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

26. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

27. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by major x-ray powder diffraction peaks at 2Θ angles selected from 13.7°, 17.6°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

28. The compound of any one of Claims 2, 3 or 15, wherein the single crystalline form is characterized by x-ray powder diffraction pattern of FIG. 5.

29. The compound of any one of Claims 2, 3 or 15-28, wherein the single crystalline form is characterized by at least ten ^{13}C solid-state nuclear magnetic resonance peaks at chemical shifts selected from 172.6 ppm, 147.1 ppm 144.1 ppm, 132.9 ppm 129.6 ppm, 125.9 ppm 121.2 ppm, 119.5 ppm, 117.7 ppm, 114.6 ppm, 110.2 ppm, 45.1 ppm, 42.4 ppm, 32.6 ppm, 28.3 ppm and 24.4 ppm.

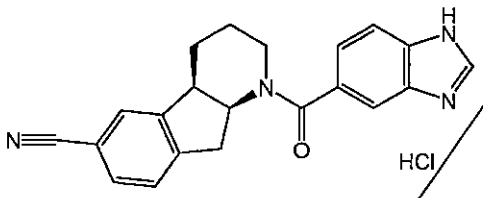
30. The compound of any one of Claims 2, 3 or 15-28, wherein the single crystalline form is characterized by ^{13}C solid-state nuclear magnetic resonance peaks at chemical shifts of 172.6 ppm, 147.1 ppm 144.1 ppm, 132.9 ppm 129.6 ppm, 125.9 ppm 121.2 ppm, 119.5 ppm, 117.7 ppm, 114.6 ppm, 110.2 ppm, 45.1 ppm, 42.4 ppm, 32.6 ppm, 28.3 ppm and 24.4 ppm.

31. A pharmaceutical composition comprising the compound of any one of Claims 1-30 and a pharmaceutically acceptable carrier or diluent.

32. A compound or pharmaceutical composition according to any one of the preceding claims, for the treatment or prevention of diseases or conditions which can be influenced by inhibiting the enzyme 11β-hydroxysteroid dehydrogenase (HSD) 1.

33. The compound of claim 32, wherein the disease or condition which can be influenced by inhibiting the enzyme 11β-hydroxysteroid dehydrogenase (HSD) 1 is a metabolic disorder.

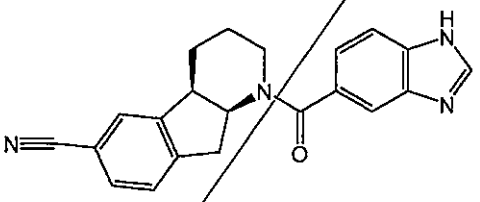
34. A method for producing crystalline form I of a compound represented by the following structural formula (II):



(II);

the method comprising:

dissolving a free base represented by the following structural formula (III):



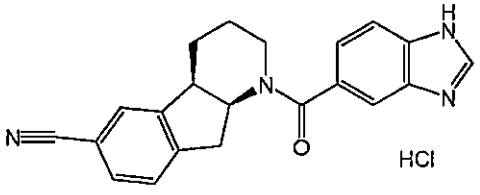
(III)

in ethanol at a temperature below about 30°C;

protonating the dissolved free base with hydrochloric acid; and

allowing crystalline form I to form by cooling the dissolved protonated free base (*e.g.*, at a temperature below about 30°C.

35. A method for producing crystalline form II of a compound represented by the following structural formula (II):



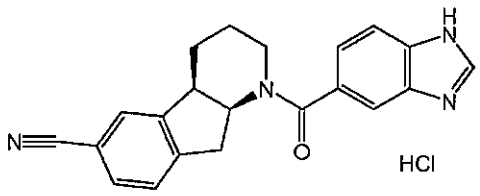
(II);

the method comprising:

contacting a compound represented by structural formula (II) with ethanol to form a suspension, and

stirring the suspension for a period of time sufficient to form crystalline form II.

36. A method for producing crystalline form II of a compound represented by the following structural formula (II):



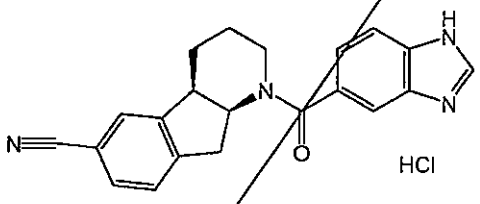
(II);

the method comprising

dissolving a compound represented by structural formula (II) in ethyl acetate at a temperature above about 40°C; and

allowing crystalline form II to form by cooling the dissolved compound (*e.g.*, at a temperature below about 15°C).

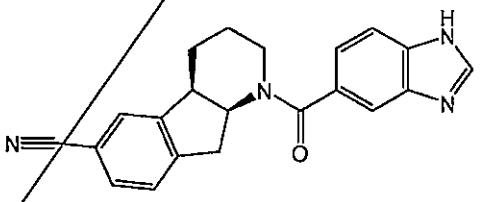
37. A method for producing crystalline form II of a compound represented by the following structural formula (II):



(II);

the method comprising:

dissolving a free base represented by the following structural formula (III):



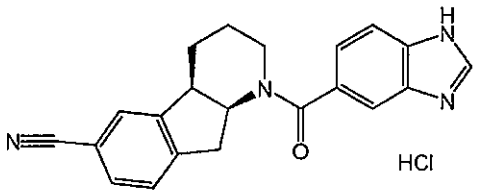
(III)

in isopropanol at a temperature above about 40°C;

protonating the free base with hydrochloric acid; and

allowing crystalline form II to form by cooling the dissolved protonated free base (*e.g.*, at a temperature below about 15°C).

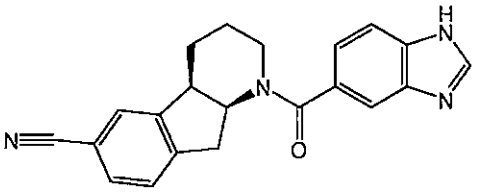
38. A method for producing crystalline form II of a compound represented by the following structural formula (II):



(II);

the method comprising

dissolving a free base represented by the following structural formula (III):



(III)

in ethanol at a temperature of above about 40°C;

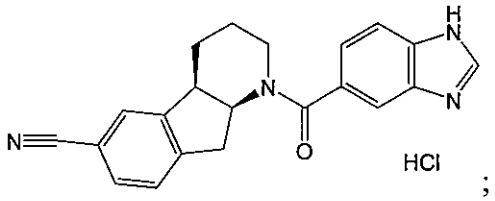
protonating the dissolved free base with hydrochloric acid and maintaining the dissolved protonated free base at a temperature above 40°C for at least two hours; and

allowing crystalline form II to form by cooling the dissolved protonated free base (*e.g.*, at a temperature below about 15°C).

39. A method according to claim 35 or claim 38, wherein the ethanol is 200 proof absolute ethanol.

CLAIMS:

1. A compound represented by the following structural formula:



;

wherein at least 50 % by weight of the compound is crystalline.

2. The compound of Claim 1, wherein at least 50 % by weight of the compound is a single crystalline form.

3. The compound of Claim 1 or 2, wherein at least 99% by weight of the compound is a single crystalline form.

4. The compound of Claim 2 or 3, wherein the single crystalline form is characterized by at least three x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°; or 12.5°, 14.8°, 22.2° and 26.1°.

5. The compound of Claim 2 or 3, wherein the single crystalline form is characterized by

at least four x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°; or

at least five x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1 .

6. The compound of Claim 2 or 3, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°; or 12.5°, 14.8°, 22.2° and 26.1°.

7. The compound of Claim 2 or 3, wherein the single crystalline form is characterized by x-ray powder diffraction peaks at 2Θ angles

13.7°, 17.6°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

13.7°, 17.6°, 19.7, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

13.7°, 17.6°, 19.7, 20.9, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

13.7°, 17.6°, 19.3, 19.7, 20.9, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

13.3°, 13.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

8. The compound of Claim 2 or 3, wherein the single crystalline form is characterized by at least seven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

at least eight x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

at least nine x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

at least ten x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°; or

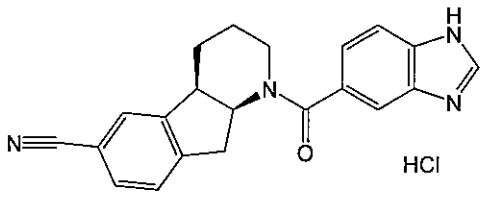
at least eleven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°.

9. A pharmaceutical composition comprising the compound of any one of Claims 1-8 and a pharmaceutically acceptable carrier or diluent.

10. A compound or pharmaceutical composition according to any one of the preceding claims, for use in the treatment or prevention of diseases or conditions which can be influenced by inhibiting the enzyme 11β-hydroxysteroid dehydrogenase (HSD) 1.

11. The compound of claim 10, wherein the disease or condition which can be influenced by inhibiting the enzyme 11β-hydroxysteroid dehydrogenase (HSD) 1 is a metabolic disorder.

12. A method for producing crystalline form I of a compound represented by the following structural formula:



;

wherein the crystalline form I is characterized by at least three x-ray powder diffraction peaks at 2Θ angles selected from 12.5°, 12.9°, 14.8°, 20.0°, 22.2° and 26.1°; or 12.5°, 14.8°, 22.2° and 26.1°;

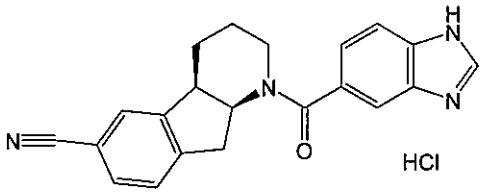
the method comprising:

dissolving a free base of the compound in ethanol at a temperature below 30°C;

protonating the dissolved free base with hydrochloric acid; and

allowing crystalline form I to form by cooling the dissolved protonated free base (*e.g.*, at a temperature below 30°C).

13. A method for producing crystalline form II of a compound represented by the following structural formula:



;

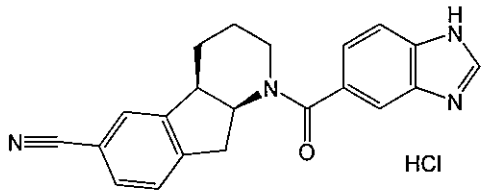
wherein the crystalline form II is characterized by at least seven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°;

the method comprising:

contacting the compound with ethanol to form a suspension, and

stirring the suspension for a period of time sufficient to form crystalline form II.

14. A method for producing crystalline form II of a compound represented by the following structural formula:



;

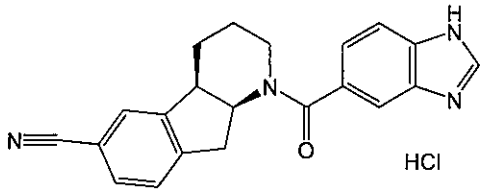
wherein the crystalline form II is characterized by at least seven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°;

the method comprising

dissolving the compound in ethyl acetate at a temperature above 40°C; and

allowing crystalline form II to form by cooling the dissolved compound (*e.g.*, at a temperature below 15°C).

15. A method for producing crystalline form II of a compound represented by the following structural formula:



;

wherein the crystalline form II is characterized by at least seven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°;

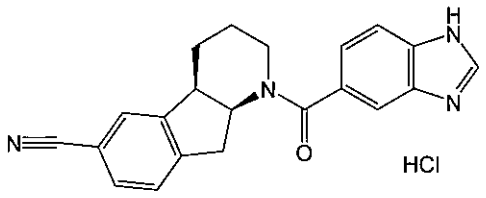
the method comprising:

dissolving a free base of the compound in isopropanol at a temperature above 40°C;

protonating the free base with hydrochloric acid; and

allowing crystalline form II to form by cooling the dissolved protonated free base (*e.g.*, at a temperature below 15°C).

16. A method for producing crystalline form II of a compound represented by the following structural formula:



;

wherein the crystalline form II is characterized by at least seven x-ray powder diffraction peaks at 2Θ angles selected from 13.3°, 13.7°, 15.7°, 17.6°, 19.3°, 19.7°, 20.9°, 21.3°, 21.9°, 23.3°, 25.6° and 26.5°;

the method comprising

dissolving a free base of the compound in ethanol at a temperature of above 40°C;

protonating the dissolved free base with hydrochloric acid and maintaining the dissolved protonated free base at a temperature above 40°C for at least two hours; and

allowing crystalline form II to form by cooling the dissolved protonated free base (*e.g.*, at a temperature below 15°C).