CLAIMS

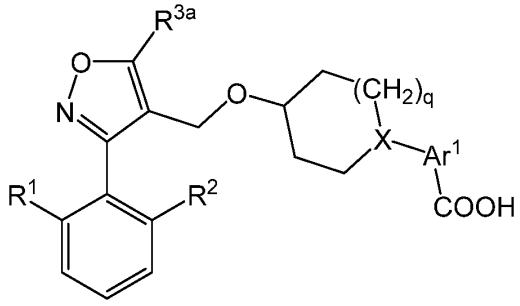
What is claimed is:

1. A method of treating a liver disorder in a patient in need thereof, comprising administering to the patient a Farnesoid X Receptor (FXR) agonist and a Semicarbazide-Sensitive Amine Oxidase (SSAO) inhibitor, wherein the liver disorder is selected from the group consisting of liver inflammation, liver fibrosis, alcohol induced fibrosis, steatosis, alcoholic steatosis, primary sclerosing cholangitis (PSC), primary biliary cirrhosis (PBC), non-alcoholic fatty liver disease (NAFLD), and non-alcoholic steatohepatitis (NASH).

2. The method of claim 1, wherein the FXR agonist is obeticholic acid, cilofexor, tropifexor, EYP001 (Vonafexor, proposed INN), MET409 (Metacrine), MET642 (Metacrine), EDP-305 (by Enanta), or EDP-297 (by Enanta).

3. The method of claim 1 or 2, wherein the SSAO inhibitor is PXS-4728A (BI-1467335).

4. The method of claim 1, wherein the FXR agonist is a compound of formula (I)



(I)

wherein:

q is 1 or 2;

R^1 is chloro, fluoro, or trifluoromethoxy;

R^2 is hydrogen, chloro, fluoro, or trifluoromethoxy;

R^{3a} is trifluoromethyl, cyclopropyl, or isopropyl;

X is CH or N,

provided that when X is CH, q is 1; and

Ar^1 is indolyl, benzothienyl, naphthyl, phenyl, benzoisothiazolyl, indazolyl, or pyridinyl, each of which is optionally substituted with methyl or phenyl,

or a pharmaceutically acceptable salt thereof.

5. The method of claim 4, wherein:

R^1 is chloro or trifluoromethoxy; and

R^2 is hydrogen or chloro.

6. The method of claim 4 or 5, wherein:

R^{3a} is cyclopropyl or isopropyl.

7. The method of any one of claims 4 to 6, wherein:

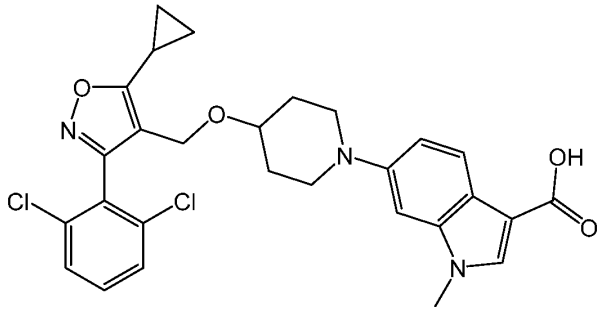
Ar^1 is 5-benzothienyl, 6-benzothienyl, 5-indolyl, 6-indolyl, or 4-phenyl, each of which is optionally substituted with methyl.

8. The method of any one of claims 4 to 7, wherein:

q is 1; and

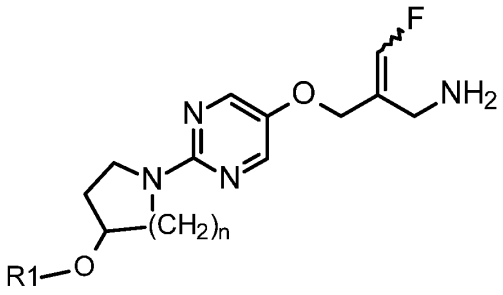
X is N.

9. The method of claim 1 or 4, wherein the FXR agonist is:



or a pharmaceutically acceptable salt thereof.

10. The method of any one of claims 1, 2, and 4 to 9, wherein the SSAO inhibitor is a compound of formula (II)



(II)

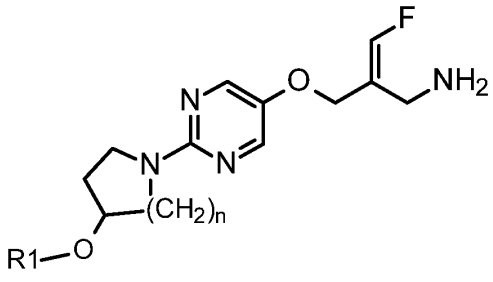
wherein:

n is 1 or 2; and

R^1 is H or -CH_3,

or a pharmaceutically acceptable salt thereof.

11. The method of claim 10, wherein the SSAO inhibitor is a compound of formula (IIa)



(IIa)

wherein:

n is 1 or 2; and

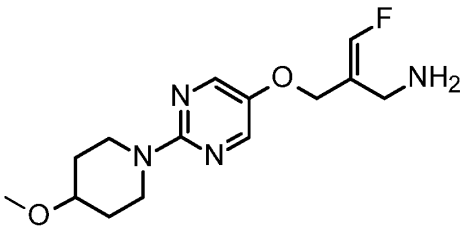
R^1 is H or -CH_3,

or a pharmaceutically acceptable salt thereof.

12. The method of claim 10 or 11, wherein n is 2.

13. The method of any one of claims 10 to 12, wherein R^1 is CH_3.

14. The method of any one of claims 1, 2, and 4 to 9, wherein the SSAO inhibitor is:



or a pharmaceutically acceptable salt thereof.

15. The method of any one of claims 1 to 14, wherein the FXR agonist and the SSAO inhibitor are administered simultaneously.

16. The method of any one of claims 1 to 14, wherein the FXR agonist and the SSAO inhibitor are administered sequentially.

17. The method of any one of claims 1 to 16, wherein the administration does not result in pruritus in the patient at a severity of Grade 2 or more.

18. The method of any one of claims 1 to 17, wherein the administration does not result in pruritus in the patient at a severity of Grade 1 or more.

19. The method of any one of claims 1 to 18, wherein the administration does not result in pruritus in the patient.

20. The method of any one of claims 1 to 19, wherein the patient also has diabetes mellitus and/or a cardiovascular disorder.

21. The method of any one of claims 1 to 20, wherein the treatment period is the remaining lifespan of the patient.

22. The method of any one of claims 1 to 21, wherein the method does not comprise administering an antihistamine, an immunosuppressant, a steroid, rifampicin, an opioid antagonist, or a selective serotonin reuptake inhibitor (SSRI).

23. The method of any one of claims 1 to 22, wherein the FXR agonist is administered once daily or twice daily.

24. The method of any one of claims 1 to 23, wherein the SSAO inhibitor is administered once daily or twice daily.

25. The method of any one of claims 1 to 24, wherein the administration comprises administering the FXR agonist daily for a treatment period of one or more weeks.

26. The method of any one of claims 1 to 25, wherein the administration comprises administering the SSAO inhibitor daily for a treatment period of one or more weeks.

27. The method of any one of claims 1 to 26, wherein the liver disorder is selected from the group consisting of non-alcoholic fatty liver disease (NAFLD) and non-alcoholic steatohepatitis (NASH).

28. The method of any one of claims 1 to 26, wherein the liver disorder is non-alcoholic steatohepatitis.

29. The method of any one of claims 1 to 28, wherein the administration results in differential expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the FXR agonist or the SSAO inhibitor.

30. The method of claim 29, wherein the administration results in increased expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the FXR agonist or the SSAO inhibitor.

31. The method of claim 30, wherein the administration results in increased expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the FXR agonist, wherein the one or more genes are selected from Irs2, Irs1, Ppara, Slc27a1, Ldlrap1, Ldlr, Ppargc1a, Rxra, or Slc27a5.

32. The method of claim 30, wherein the administration results in increased expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the SSAO inhibitor, wherein the one or more genes associated is selected from Lrp2, Irs2, Vegfa, Lrp1, Irs1, Ppara, Slc27a1, Ldr1, Ppargc1a, Rxra, and Slc27a5.

33. The method of claim 29, wherein the administration results in reduced expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the FXR agonist or the SSAO inhibitor.

34. The method of claim 33, wherein the administration results in reduced expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the FXR agonist, wherein the one or more genes associated is selected from Vldlr, Fabp2, Il1r2, and Vegfc.

35. The method of claim 33, wherein the administration results in reduced expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the SSAO inhibitor, wherein the one or more genes associated is selected from Fabp2, Il1r2, and Vegfc.

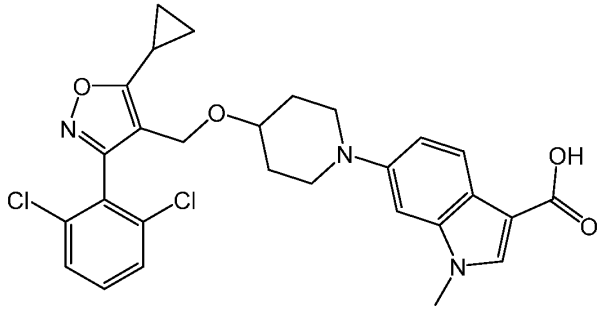
36. A pharmaceutical composition comprising an effective amount of an FXR agonist, a therapeutically effective amount of an SSAO inhibitor, and a pharmaceutically acceptable carrier, diluent, excipient, or a combination of any of the foregoing.

37. A dosage form comprising a therapeutically effective amount of an FXR agonist and a therapeutically effective amount of an SSAO inhibitor.

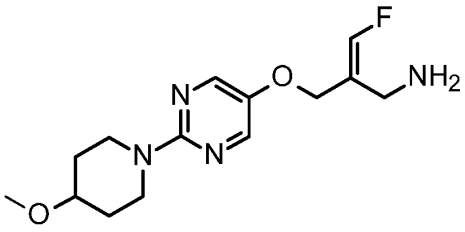
38. A kit comprising a container comprising an FXR agonist and an SSAO inhibitor.

39. A kit comprising a first container comprising an FXR agonist and a second container comprising an SSAO inhibitor.

40. The pharmaceutical composition of claim 36, the dosage form of claim 37, the kit of claim 38 or 39, wherein the FXR agonist is



or a pharmaceutically acceptable salt thereof, and the SSAO inhibitor is:



or a pharmaceutically acceptable salt thereof.

41. A method of reducing hepatic steatosis in a patient in need thereof, comprising administering to the patient a therapeutically effective amount of a FXR agonist and a therapeutically effective amount of a SSAO inhibitor.

42. A method of treating a disease or condition characterized by steatosis of the liver, said method comprising administering to a patient in need of treatment a therapeutically effective amount of a FXR agonist and a therapeutically effective amount of a SSAO inhibitor.

43. The method of claim 41 or 42, wherein the method increases expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the SSAO inhibitor, wherein the one or more genes associated is selected from Lrp2, Irs2, Vegfa, Lrp1, Irs1, Ppara, Slc27a1, Ldr1, Ppargc1a, Rxra, and Slc27a5.

44. The method of any one of claims 41 to 43, wherein the method reduces expression of one or more genes associated with lipid metabolism or fatty-acid transportation compared to administration with a monotherapy of the FXR agonist, wherein the one or more genes associated is selected from Vldlr, Fabp2, Il1r2, and Vegfc,

45. The method of any one of claims 41 to 44, wherein the FXR agonist is administered orally.

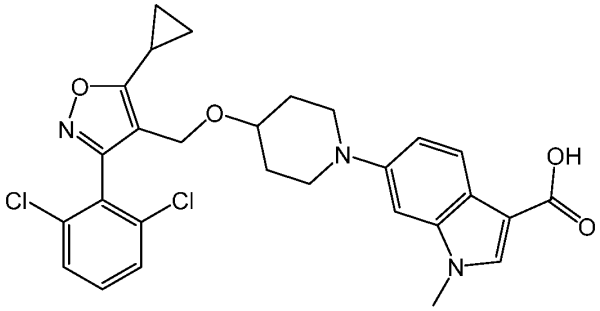
46. The method of any one of claims 41 to 45, wherein the SSAO inhibitor is administered orally.

47. The method of any one of claims 41 to 46, wherein the patient has NASH.

48. The method of any one of claims 41 to 47, wherein the patient has liver fibrosis.

49. The method of any one of claims 41 to 48, wherein the FXR agonist is obeticholic acid, cilofexor, tropifexor, EYP001 (Vonafexor, proposed INN), MET409 (Metacrine), MET642 (Metacrine), EDP-305 (by Enanta), or EDP-297 (by Enanta).

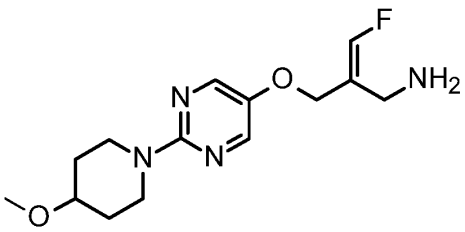
50. The method of any one of claims 41 to 48, wherein the FXR agonist is:



or a pharmaceutically acceptable salt thereof.

51. The method of any one of claims 41 to 50, wherein the SSAO inhibitor is PXS-4728A.

52. The method of any one of claims 41 to 50, wherein the SSAO inhibitor is:



or a pharmaceutically acceptable salt thereof.

53. A method of reducing hepatic inflammation in a patient in need thereof, comprising administering to the patient a therapeutically effective amount of a FXR agonist and a therapeutically effective amount of a SSAO inhibitor.

54. A method of reducing leukocyte activation in a patient with a disorder characterized by high leukocyte levels in the liver, said method comprising administering to the patient a therapeutically effective amount FXR agonist and a therapeutically effective amount of a SSAO inhibitor.

55. The method of any one of claims 53 or 54, wherein the FXR agonist is administered orally.

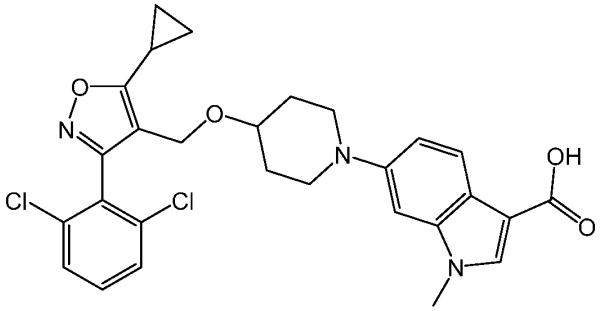
56. The method of any one of claims 53 to 55, wherein the SSAO inhibitor is administered orally.

57. The method of any one of claims 53 to 56, wherein the patient has NASH.

58. The method of any one of claims 53 to 57, wherein the patient has liver fibrosis.

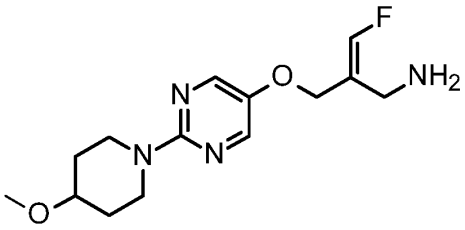
59. The method of any one of claims 53 to 58, wherein the FXR agonist is obeticholic acid, cilofexor, tropifexor, EYP001 (Vonafexor, proposed INN), MET409 (Metacrine), MET642 (Metacrine), EDP-305 (by Enanta), or EDP-297 (by Enanta).

60. The method of any one of claims 53 to 58, wherein the FXR agonist is:



or a pharmaceutically acceptable salt thereof.

61. The method of any one of claims 53 to 60, wherein the SSAO inhibitor is:



or a pharmaceutically acceptable salt thereof.

62. A method of treating a disease or condition characterized by fibrosis of the liver, said method comprising administering to a patient in need of treatment a therapeutically effective amount of a FXR agonist and a therapeutically effective amount of a SSAO inhibitor.

63. The method of claim 62, wherein the disease or condition is associated with hepatic inflammation.

64. The method of claim 62 or 63, wherein the administering reduces expression of at least one of Col1a1, Col3a1, Mmp2, Lgals3, Cd68, or Ccr2 compared to administration with a monotherapy of the FXR agonist or the SSAO inhibitor.

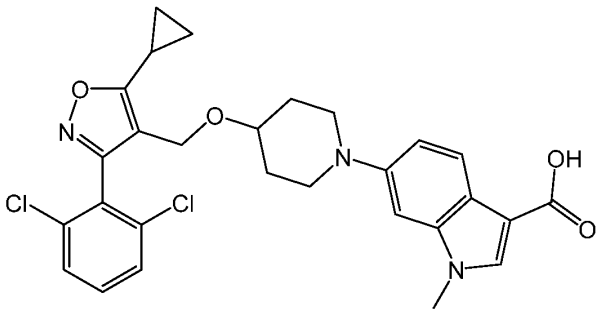
65. The method of any one of claims 62 to 64, wherein the FXR agonist is administered orally.

66. The method of any one of claims 62 to 65, wherein the SSAO inhibitor is administered orally.

67. The method of any one of claims 62 to 66, wherein the patient has NASH.

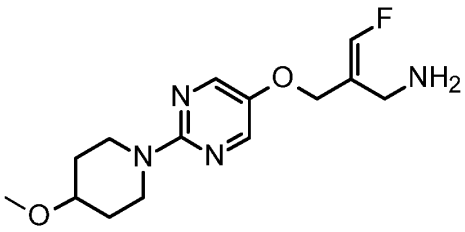
68. The method of any one of claims 62 to 67, wherein the FXR agonist is obeticholic acid, cilofexor, tropifexor, EYP001 (Vonafexor, proposed INN), MET409 (Metacrine), MET642 (Metacrine), EDP-305 (by Enanta), or EDP-297 (by Enanta).

69. The method of any one of claims 62 to 67, wherein the FXR agonist is:



or a pharmaceutically acceptable salt thereof.

70. The method of any one of claims 62 to 69, wherein the SSAO inhibitor is:



or a pharmaceutically acceptable salt thereof.