What is claimed is:

1. A method for determining whether a test subject having a metabolic disorder is a candidate for treatment with a FGF19 variant, comprising:

(a) co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject having a metabolic disorder, wherein the amount of the FGF19 or the FGF19 surrogate administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether an indicia of a cancerous condition is observed in the test subject;

wherein the absence of an indicia of a cancerous condition indicates that the test subject is a candidate for treatment with a FGF19 variant.

2. A method for determining whether a test subject having a metabolic disorder is a candidate for treatment with a FGF19 variant, comprising:

(a) providing a test subject having an indicia of a cancerous condition, the subject having a metabolic disorder, co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject, wherein the amount of the FGF19 or the FGF19 surrogate administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether an indicia of a cancerous condition is enhanced in the test subject;

wherein the absence of enhancement of an indicia of a cancerous condition indicates that the test subject is a candidate for treatment with a FGF19 variant.

3. A method for determining whether a test subject having a metabolic disorder is a candidate for treatment with a FGF19 variant, comprising:

(a) providing a test subject having an indicia of a cancerous condition, the test subject having a metabolic disorder, co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject, wherein the amount of the FGF19 or the FGF19

surrogate is administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether an indicia of a cancerous condition is reduced in the test subject;

wherein the reduction of an indicia of a cancerous condition indicates that the test subject is a candidate for treatment with a FGF19 variant.

4. The method of any one of claims 1 to 3, wherein an indicia of a cancerous condition is a tumor.

5. The method of claim 4, wherein the tumor is a colon tumor or a hepatic tumor.

6. The method of claim 3, wherein the reduction in an indicia of a cancerous condition is determined by a reduction in tumor number, tumor size, or tumor weight.

7. The method of any one of claims 1 to 6, wherein the FGF19 variant comprises or consists of an amino acid sequence set forth in SEQ ID NO:1.

8. The method of any one of claims 1 to 6, wherein the FGF19 variant comprises or consists of an amino acid sequence set forth in any one of SEQ ID NOS:5 to 29; or a subsequence or fragment thereof.

9. The method of any one of claims 1 to 3, wherein the subject is an animal.

10. The method of any one of claims 1 to 3, wherein the subject is a mouse.

11. The method of claim 10, wherein the mouse is a *db/db* mouse.

12. The method of any one of claims 1 to 3, wherein the candidate FGF19 variant polypeptide improves at least one condition selected from the group consisting of a hyperglycemic condition, insulin resistance, hyperinsulinemia, glucose intolerance and metabolic syndrome.

13. The method of claim 12, wherein the hyperglycemic condition comprises diabetes.

14. The method of any one of claims 1 to 3, wherein the candidate FGF19 variant polypeptide improves obesity or an undesirable body mass.

15. The method of any one of claims 1 to 3, wherein the test subject has an increased level of mature FGF19 compared to the level of mature FGF19 in a sample population.

16. The method of claim 15, wherein the test subject over-expresses FGF19.

17. The method of any one of claims 1 to 3, wherein at least one of the FGF19 or the FGF19 surrogate, and the FGF19 variant is labeled.

18. The method of claim 17, wherein the label comprises a FLAG-tag.

19. The method of any one of claims 1 to 3, wherein the determining step is performed more than 20 weeks after the co-administering step.

20. The method of any one of claims 1 to 3, wherein FGF19 is co-administered with the FGF19 variant.

21. A method for determining whether a FGF19 variant is a candidate for treating a test subject having a metabolic disorder, comprising:

(a) co-administering FGF19 or a FGF19 surrogate, and the FGF19 variant to the test subject having a metabolic disorder, wherein the amount of the FGF19 or the FGF19 surrogate administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether an indicia of a cancerous condition is observed in the test subject;

wherein the absence of an indicia of a cancerous condition indicates that the FGF19 variant is a candidate for treatment of the test subject.

22. A method for determining whether a FGF19 variant is a candidate for treating a test subject having a metabolic disorder, comprising:

(a) providing a test subject having a metabolic disorder, the test subject having an indicia of a cancerous condition, co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject, wherein the amount of the FGF19 or the FGF19

surrogate is administered to the test subject is sufficient to exacerbate a cancerous condition in a reference population, and

(b) determining whether an indicia of a cancerous condition is enhanced in the test subject;

wherein the absence of exacerbation of an indicia of a cancerous condition indicates that the FGF19 variant is a candidate for treatment of the test subject.

23. The method of claim 22, wherein an indicia of a cancerous condition is reduced in the test subject.

24. The method of any one of claims 21 to 23, wherein an indicia of a cancerous condition is a tumor.

25. The method of claim 24, wherein the tumor is a colon tumor or a hepatic tumor.

26. The method of claim 23, wherein the reduction in an indicia of a cancerous condition is determined by a reduction in tumor number, tumor size, or tumor weight.

27. The method of any one of claims 21 to 23, wherein the subject is an animal.

28. The method of any one of claims 21 to 23, wherein the subject is a mouse.

29. The method of claim 28, wherein the mouse is a *db/db* mouse.

30. The method of any one of claims 21 to 23, wherein the candidate FGF19 variant polypeptide improves at least one condition selected from the group consisting of a hyperglycemic condition, insulin resistance, hyperinsulinemia, glucose intolerance and metabolic syndrome.

31. The method of claim 30, wherein the hyperglycemic condition comprises diabetes.

32. The method of any one of claims 21 to 23, wherein the candidate FGF19 variant polypeptide improves obesity or an undesirable body mass.

33. The method of any one of claims 21 to 23, wherein the test subject has an increased level of mature FGF19 compared to the level of mature FGF19 in a sample population.

34. The method of claim 33, wherein the test subject over-expresses FGF19.

35. The method of any one of claims 1 to 3, wherein at least one of the FGF19 or the FGF19 surrogate, and the FGF19 variant is labeled.

36. The method of claim 35, wherein the label comprises a FLAG-tag.

37. The method of claim 21 or 22, wherein FGF19 is co-administered with the FGF19 variant.

38. The method of claim 21 or 22, wherein the determining step is performed more than 20 weeks after the co-administering step.

39. The method of claim 21 or 22, wherein the determining step is performed more than 9 months after the co-administering step.

40. The method of claim 21 or 22, wherein the determining step is performed more than 12 months after the co-administering step.

41. A method of treating a subject having a metabolic disorder, comprising:

(a) providing a subject having a metabolic disorder, wherein the subject exhibits an indicia of a FGF19–induced cancerous condition, and

(b) administering to the subject a therapeutically effective amount of a FGF19 variant identified in any one of claims 21 to 23;

wherein there is an improvement in the metabolic disorder in the subject.

42. The method of claim 41, wherein the subject is an animal.

43. The method of claim 42, wherein the subject is a human.

44. The method of claim 41, wherein the cancerous condition is a tumor.

45. The method of claim 44, wherein the tumor is a colon tumor or a hepatic tumor.

46. The method of claim 41, wherein the metabolic disorder is selected from the group consisting of a hyperglycemic condition, insulin resistance, hyperinsulinemia, glucose intolerance, obesity and metabolic syndrome.

47. The method of claim 46, wherein the hyperglycemic condition is diabetes.

48. The method of claim 41, wherein the improvement in the metabolic disorder in the subject is a decrease in blood glucose.

49. The method of claim 41, wherein the improvement in the metabolic disorder in the subject is a decrease in body weight.

50. The method of claim 41, wherein the improvement in the metabolic disorder in the subject is a decrease in insulin.

51. A model for determining whether a FGF19 variant is a candidate for preventing a cancerous disease, disorder or condition in a subject having a metabolic disorder, the model comprising a subject that i) does not exhibit an indicia of a cancerous condition prior to the administration of an effective amount of a FGF19 or a FGF19 surrogate, and ii) exhibits an indicia of a cancerous condition after the administration of the FGF19 or FGF19 surrogate; and wherein an indicia of a cancerous condition improves upon administration of an effective amount of a polypeptide comprising or consisting of an amino acid sequence set forth in SEQ ID NO:1.

52. A model for determining whether a FGF19 variant is a candidate for treating a cancerous disease, disorder or condition in a subject having a metabolic disorder, the model comprising a subject having at least one indicia of cancer resulting from administration of FGF19 or FGF19 surrogate, wherein the indicia of cancer improves upon administration of an effective amount of a polypeptide comprising or consisting of an amino acid sequence set forth in SEQ ID NO:1.

53. The model of claim 51 or 52, wherein the indicia of cancer is a tumor.

54. The model of claim 53, wherein the tumor is a colon tumor or a hepatic tumor.

55. The model of any one of claims 51 to 54, wherein the improvement of the indicia of cancer is a reduction in tumor number, tumor size, or tumor weight.

56. The model of any one of claims 51 to 55, wherein the subject is a mouse.

57. The model of claim 56, wherein the mouse is a *db/db* mouse.

58. The model of any one of claims 51 to 57, wherein at least one of the FGF19 or the FGF19 surrogate, and the FGF19 variant is labeled.

59. The model of claim 58, wherein the label comprises a FLAG-tag.

60. The model of claim 51 or 52, wherein the metabolic disorder is selected from the group consisting of a hyperglycemic condition, insulin resistance, hyperinsulinemia, glucose intolerance, obesity and metabolic syndrome.

61. The model of claim 60, wherein the hyperglycemic condition is diabetes.

62. The model of any one of claim 51 to 61, wherein step i) comprises the administration of an effective amount of FGF19.

63. A method of antagonizing the oncogenic activity of FGF19 in a subject, comprising administering to the subject a therapeutically effective amount of a FGF19 variant, thereby antagonizing the oncogenic activity of FGF19 in the subject.

64. A method of treating a FGF19-dependent cancer or tumor, or a symptom thereof, in a subject, comprising administering to the subject a therapeutically effective amount of a FGF19 variant, wherein there is an improvement in the cancer, tumor or symptom thereof in the subject.

65. A method of preventing a FGF19-dependent cancer or tumor, or a symptom thereof, in a subject, comprising administering to the subject a therapeutically effective amount of a FGF19 variant, wherein the cancer, tumor, or symptom thereof is prevented in the subject, thereby preventing the FGF19-dependent cancer or tumor in the subject.

66. The method of claim 64 or 65, wherein the FGF19-dependent cancer or tumor is hepatocellular carcinoma.

67. The method of claim 64 or 65, wherein the FGF19-dependent cancer or tumor is not hepatocellular carcinoma.

68. The method of claim 64 or 65, wherein the cancer or tumor is a colon cancer or tumor.

69. The method of claim 64 or 65, wherein the cancer or tumor is a prostate cancer or tumor.

70. The method of claim 64 or 65, wherein the cancer or tumor is a lung cancer or tumor.

71. The method of any one of claims 63 to 70, wherein the FGF19 variant is a polypeptide comprising or consisting of an amino acid sequence set forth in SEQ ID NO:1.

72. The method of any one of claims 63 to 71, wherein the subject is a subject in need thereof.

CLAIMS

1. A method for determining whether a test subject having a metabolic disorder is a candidate for treatment with a FGF19 variant, comprising:

(i) (a) co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject having a metabolic disorder, wherein the amount of the FGF19 or the FGF19 surrogate administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether an indicia of a cancerous condition is observed; wherein the absence of the indicia indicates that the test subject is a candidate for treatment with a FGF19 variant;

(ii) (a) providing a test subject having an indicia of a cancerous condition, the subject having a metabolic disorder, co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject, wherein the amount of the FGF19 or the FGF19 surrogate administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether the indicia of a cancerous condition is enhanced in the test subject; wherein the absence of enhancement of the indicia of a cancerous condition indicates that the test subject is a candidate for treatment with a FGF19 variant; or

(iii) (a) providing a test subject having an indicia of a cancerous condition, the test subject having a metabolic disorder, co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject, wherein the amount of the FGF19 or the FGF19 surrogate is administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether the indicia of a cancerous condition is reduced in the test subject; wherein the reduction of the indicia of a cancerous condition indicates that the test subject is a candidate for treatment with a FGF19 variant.

2. The method of claim 1, wherein the FGF19 variant comprises or consists of:

(i) an amino acid sequence set forth in any one of SEQ ID NO:1; or

(ii) an amino acid sequence set forth in any one of SEQ ID NOs: 5-29; or a subsequence or fragment thereof.

3. A method for determining whether a FGF19 variant is a candidate for treating a test subject having a metabolic disorder, comprising:

(i) (a) co-administering FGF19 or a FGF19 surrogate, and the FGF19 variant to the test subject having a metabolic disorder, wherein the amount of the FGF19 or the FGF19 surrogate administered to the test subject is sufficient to induce a cancerous condition in a reference population, and

(b) determining whether an indicia of a cancerous condition is observed in the test subject; wherein the absence of the indicia of a cancerous condition indicates that the FGF19 variant is a candidate for treatment of the test subject;

(ii) (a) providing a test subject having a metabolic disorder, the test subject having an indicia of a cancerous condition, co-administering FGF19 or a FGF19 surrogate, and a FGF19 variant to the test subject, wherein the amount of the FGF19 or the FGF19 surrogate is administered to the test subject is sufficient to exacerbate a cancerous condition in a reference population, and

(b) (1) determining whether the indicia of a cancerous condition is enhanced in the test subject; wherein the absence of exacerbation of the indicia of a cancerous condition indicates that the FGF19 variant is a candidate for treatment of the test subject; or (2) determining whether the indicia of a cancerous condition is reduced in the test subject; wherein the reduction of the indicia of a cancerous condition indicates that the FGF19 variant is a candidate for treatment of the test subject.

4. The method of claim 1 or 2,

(a) wherein the indicia of a cancerous condition is a tumor; wherein optionally the tumor is a colon tumor or a hepatic tumor; or

(b) wherein the reduction in the indicia of a cancerous condition in claim 1(iii) or claim 2 (ii) is determined by a reduction in tumor number, tumor size, or tumor weight.

5. The method of any one of claims 1 to 3, wherein the test subject

(a) is an animal, a mouse, or a *db/db* mouse; or

(b) has an increased level of mature FGF19 compared to the level of mature FGF19 in a sample population; wherein optionally the test subject over-expresses FGF19.

6. The method of any one of claims 1 to 3, wherein the FGF19 variant polypeptide improves

(a) at least one condition selected from the group consisting of a hyperglycemic condition, insulin resistance, hyperinsulinemia, glucose intolerance and metabolic syndrome; wherein optionally the hyperglycemic condition comprises diabetes; or

(b) obesity or an undesirable body mass.

7. The method of any one of claims 1 to 3, wherein at least one of the FGF19 or the FGF19 surrogate, and the FGF19 variant is labeled; wherein optionally the label comprises a FLAG-tag.

8. The method of any one of claims 1 to 3, wherein FGF19 is co-administered with the FGF19 variant.

9. The method of any one of claims 1 to 3, wherein the determining step is performed more than 20 weeks, more than 9 months or more than 12 months after the co-administering step.

10. Use of a FGF19 variant in the manufacture of a medicament for treating a subject having a metabolic disorder, comprising a therapeutically effective amount of a FGF19 variant identified in claim 2, wherein the subject exhibits an indicia of a FGF19–induced cancerous condition, and

wherein there is an improvement in the metabolic disorder in the subject;

wherein optionally

(i) the subject is an animal; wherein optionally the animal is a human;

(ii) the cancerous condition is a tumor; wherein optionally the tumor is a colon tumor or a hepatic tumor;

(iii) the metabolic disorder is selected from the group consisting of a hyperglycemic condition, insulin resistance, hyperinsulinemia, glucose intolerance, obesity and metabolic syndrome; wherein optionally the hyperglycemic condition is diabetes; or

(iv) the improvement in the metabolic disorder in the subject is a decrease in blood glucose, a decrease in body weight or a decrease in insulin.

11. A model for determining whether a FGF19 variant is a candidate for preventing a cancerous disease, disorder or condition in a subject having a metabolic disorder, the model comprising a subject that i) does not exhibit an indicia of a cancerous condition prior to the administration of an effective amount of a FGF19 or a FGF19 surrogate, and ii) exhibits an indicia of a cancerous condition after the administration of the FGF19 or FGF19 surrogate; and wherein an indicia of a cancerous condition improves upon administration of an effective amount of a polypeptide comprising or consisting of an amino acid sequence set forth in SEQ ID NO:1.

12. A model for determining whether a FGF19 variant is a candidate for treating a cancerous disease, disorder or condition in a subject having a metabolic disorder, the model comprising a subject having at least one indicia of cancer resulting from administration of FGF19 or

FGF19 surrogate, wherein the indicia of cancer improves upon administration of an effective amount of a polypeptide comprising or consisting of an amino acid sequence set forth in SEQ ID NO:1.

13. The model of claim 11 or 12, wherein

(i) the indicia of cancer is a tumor; wherein optionally the tumor is a colon tumor or a hepatic tumor;

(ii) the improvement of the indicia of cancer is a reduction in tumor number, tumor size, or tumor weight;

(iii) the subject is a mouse; wherein optionally the mouse is a *db/db* mouse;

(iv) at least one of the FGF19 or the FGF19 surrogate, and the FGF19 variant is labeled; wherein optionally the label comprises a FLAG-tag;

(v) the metabolic disorder is selected from the group consisting of a hyperglycemic condition, insulin resistance, hyperinsulinemia, glucose intolerance, obesity and metabolic syndrome; wherein optionally the hyperglycemic condition is diabetes; or

(vi) the FGF19 or FGF19 surrogate is FGF19.

14. Use of a FGF19 variant in the manufacture of a medicament for antagonizing the oncogenic activity of FGF19 in the subject.

15. Use of a FGF19 variant in the manufacture of a medicament for treating a FGF19-dependent cancer or tumor, or a symptom thereof, in a subject.

16. Use of a FGF19 variant in the manufacture of a medicament for preventing a FGF19-dependent cancer or tumor, or a symptom thereof, in a subject.

17. The use of the FGF19 variant of claim 15 or 16, wherein the FGF19-dependent cancer or tumor is hepatocellular carcinoma, a colon cancer or tumor, a prostrate cancer or tumor, or a lung cancer or tumor.

18. The use of the FGF19 variant of claims 14 to 16, wherein the FGF19 variant is a polypeptide comprising or consisting of an amino acid sequence set forth in SEQ ID NO:1.

19. The use of the FGF19 variant of claims 14 to 16, wherein the subject is a subject in need thereof.