What is claimed is:

1. An anti-GCC antibody molecule comprising three heavy chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences SEQ ID NOs: 21, 22 and 23, respectively, or SEQ ID NOs: 33, 34 and 35, respectively; and three light chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences SEQ ID NOs: 27, 28 and 29, respectively, or SEQ ID NOS: 39, 40 and 41, respectively.

2. An anti-GCC antibody molecule the competes for binding or binds to the same epitope as an anti-GCC antibody comprising three heavy chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences SEQ ID NOs: 21, 22 and 23, respectively, and three light chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences SEQ ID NOs: 27, 28 and 29, respectively.

3. An anti-GCC antibody molecule the competes for binding or binds to the same epitope as an anti-GCC antibody comprising three heavy chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences SEQ ID NOs: 33, 34 and 35, respectively; and three light chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences SEQ ID NOS: 39, 40 and 41, respectively.

4. The anti-GCC antibody molecule of any of the preceding claims, wherein said anti-GCC antibody molecule is a monoclonal antibody.

5. The anti-GCC antibody molecule of any of the preceeding claims, wherein said anti-GCC antibody molecule is a rabbit or rabbit-derived antibody.

6. The anti-GCC antibody molecule of claim 5, wherein said antibody is a rabbit monoclonal antibody.

7. The anti-GCC antibody molecule of claim 1, further comprising a heavy chain variable region comprising an amino acid sequence according to SEQ ID NO: 11 or SEQ ID NO: 15, and a light chain variable region comprising an amino acid sequence according to SEQ ID NO: 13 or SEQ ID NO: 17.

8. The anti-GCC antibody molecule of claim 1, wherein the heavy chain CDR1, CDR2 and CDR3 comprise the amino acid sequences according to SEQ ID NOs: 21, 22 and 23, respectively, and the light chain CDRs comprise the amino acid sequences according to SEQ ID NOs: 27, 28 and 29, respectively.

9. The anti-GCC antibody molecule of claim 7, wherein the heavy chain variable region comprises an amino acid sequence according to SEQ ID NO: 11 and the light chain variable region comprises an amino acid sequence according to SEQ ID NO: 13.

10. The anti-GCC antibody molecule of any of the preceding claims, wherein said anti-GCC antibody molecule is conjugated to a detectable label.

11. The anti-GCC antibody molecule of claim 10, wherein said detectable label is selected from the group consisting of horseradish peroxidase (HRP), alkaline phosphatase, galactosidase, glucoamylase, lysozyme, saccharide oxidases, e.g., glucose oxidase, galactose oxidase, and

glucose 6-phosphate dehydrogenase, heterocyclic oxidases such as uricase and xanthine oxidase, coupled with an enzyme that employs hydrogen peroxide to oxidize a dye precursor such as HRP, lactoperoxidase, or microperoxidase, biotin/avidin, spin labels, bacteriophage labels, and stable free radicals.

12. The anti-GCC antibody molecule of claim 10, wherein said detectable label is a fluorophores selected from fluorescein or a derivatives thereof, rhodamine or a derivative thereof, dansyl, umbelliferone, a luceriferase, luciferin, and 2,3-dihydrophthalazinediones.

13. The anti-GCC antibody molecule of claim 10, wherein said detectable label is a radioactive agent selected from the group consisting of ^{32}P, ^{3}H, ^{14}C, ^{188}Rh, ^{43}K, ^{52}Fe, ^{57}Co, ^{67}Cu, ^{67}Ga, ^{68}Ga, ^{77}Br, ^{81}Rb/ ^{81M}Kr, ^{87M}Sr, ^{99}Tc, ^{111}In, ^{113}M In, ^{123}I, ^{125}I, ^{127}Cs, ^{129}Cs, ^{131}I, ^{132}I, ^{197}Hg, ^{203}Pb and ^{206}Bi, and ^{213}Bi.

14. Isolated nucleic acid sequences that encode an antibody molecule of any of claims 1, 7, 8 and 9.

15. A cell comprising the isolated nucleic acid sequences of claim 14.

16. A method of producing an antibody molecule of claim 1, 7, 8 or 9, comprising culturing the cell of claim 15 under conditions that allow production of an antibody molecule, thereby producing the antibody molecule of claim 1, 7, 8 or 9.

17. A vector comprising one or both of the light chain and heavy chain of an antibody molecule of claim 1, 7, 8 or 9.

18. A method of detecting a GCC molecule in a biological sample comprising contacting the biological sample with an antibody molecule of any of claims 1-13 and determining if said antibody molecule binds to said GCC molecule.

19. The method of claim 18, wherein said method detection method comprises an immunohistochemistry assay.

20. The method of claim 18 or claim 19, wherein said biological sample is a tumor biopsy derived from a patient suspected of having a GCC expressing cancer.

21. The method of any of claims 18-20, further comprising the step of quantifying GCC expression in said biological sample.

22. The method of claim 21, wherein said quantification of GCC expression comprises apical GCC expression in said biological sample, cytoplasmic GCC expression in said biological sample, or both.

23. The method of claim 21 or 22, wherein said quantification step comprises an H-score approach.

24. The method of claim 20, wherein said GCC expressing cancer is selected from the group consisting of: colorectal cancer, gastric cancer, small intestine cancer, esophageal cancer, pancreatic cancer, lung cancer, a soft tissue sarcoma, a neuroectodermal tumor and a neuroendocrine tumor.

25. The method of claim 24, wherein said lung cancer is squamous cell carcinoma or adenocarcinoma.

25. The method of claim 24, wherein said soft tissue sarcoma is leiomyosarcoma or rhabdomyosarcoma.

26. The method of claim 24, wherein said neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

27. A kit comprising the anti-GCC antibody molecule of any of claims 1-13 and instructions for use.

28. The kit of claim 27, further comprising a GCC-targeted therapeutic agent.

29. The kit of claim 28, wherein the GCC-targeted therapeutic agent comprises an anti-GCC antibody molecule.

30. The kit of claim 29, wherein said therapeutic anti-GCC antibody molecule is a monoclonal antibody.

31. The kit of claim 29 or 30, wherein said therapeutic anti-GCC antibody molecule is a human IgG1 antibody.

32. The kit of claim 29, 30 or 31, wherein said therapeutic anti-GCC antibody molecule comprises three heavy chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 67, 68 and 69, respectively, and three light chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 70, 71 and 72, respectively.

33. The kit of claim 32, wherein said therapeutic anti-GCC antibody molecule comprises a heavy chain variable region comprising an amino acid sequence of SEQ ID NO: 79, and a light chain variable region comprising an amino acid sequence of SEQ ID NO: 80.

34. The kit of claim 29-33, wherein said therapeutic anti-GCC antibody molecule is conjugated to a cytotoxic agent.

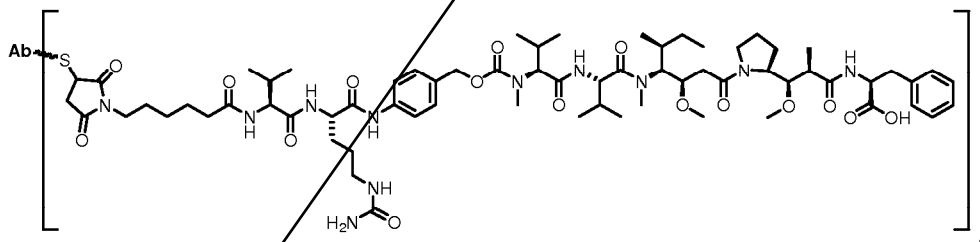
35. The kit of claim 34, wherein said cytotoxic agent is an auristatin molecule.

36. The kit of claim 35, wherein said auristatin molecule is monomethyl auristatin E (MMAE) or monomethyl auristatin F (MMAF).

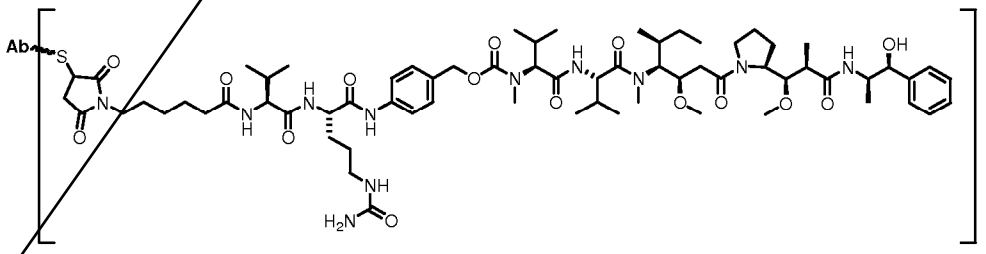
37. The kit of claim 34-36, wherein said cytotoxic agent is conjugated to said antibody via a linker containing a maleimide moiety.

38. The kit of claim 37, wherein said maleimide linker is selected from the group consisting of maleimidocaproyl (mc), maleimidocaproyl-L-phenylalanine-L-lysine-*p*-aminobenzyl-carbamate, and maleimidocaproyl-L-valine-L-citrulline-*p*-aminobenzylcarbamate (vc).

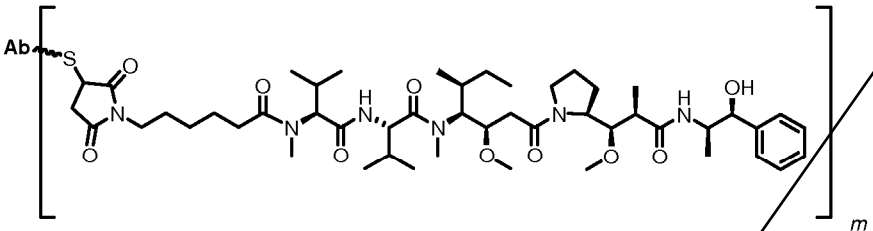
39. The kit of claim 28, wherein said GCC-targeted therapeutic agent is an immunoconjugate characterized by any one of formulas (***I-4***), (***I-5***) or (***I-6***):



(***I-4***),



(***I-5***),



(*I-6*),

wherein Ab is an anti-GCC antibody molecule comprising three heavy chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 67, 68 and 69, respectively, and three light chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 70, 71 and 72, respectively, and wherein m is an integer from 1 to 8.

40. The kit of claim 39, wherein m is from 3 to 5.

41. The kit of claim 39, wherein m is about 4.

42. A method of treating a patient having a disease characterized by one or more GCC-expressing cells, comprising:

a. detecting GCC protein expression in a biological sample obtained from the patient, e.g., by a method of any of claims 18-26; and

b. administering a GCC-targeted therapeutic agent, e.g., a GCC-targeted therapeutic agent described herein, to the patient if the biological sample expresses GCC.

43. The method of claim 42, wherein said detection step comprises the steps of:

i) contacting the biological sample with an anti-GCC antibody molecule described herein, e.g., an anti-GCC antibody molecule of any of claims 1-13, e.g., an anti-GCC antibody molecule comprising three heavy chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 21, 22 and 23, or SEQ ID NOs: 33, 34 and 35, respectively; and three light chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 27, 28 and 29, or SEQ ID NOS: 39, 40 and 41, respectively; and

ii) detecting formation of a complex between the anti-GCC antibody molecule and GCC protein.

44. The method of claim 43, wherein the detection step is performed via immunohistochemistry.

45. The method of claim 43, wherein the GCC-targeted therapeutic agent comprises an anti-GCC antibody molecule.

46. The method of claim 45, wherein said therapeutic anti-GCC antibody molecule is a monoclonal antibody.

47. The method of claim 45 or 46, wherein said therapeutic anti-GCC antibody molecule is a human IgG1 antibody.

48. The method of claim 45, wherein the anti-GCC antibody molecule comprises three heavy chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 67, 68 and 69, respectively, and three light chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 70,71 and 72, respectively.

49. The method of claim 48, wherein the anti-GCC antibody molecule further comprises a heavy chain variable region comprising an amino acid sequence according to SEQ ID NO: 79, and a light chain variable region comprising an amino acid sequence according to SEQ ID NO: 80.

50. The method of claim 45 wherein the anti-GCC antibody molecule is conjugated to a cytotoxic agent.

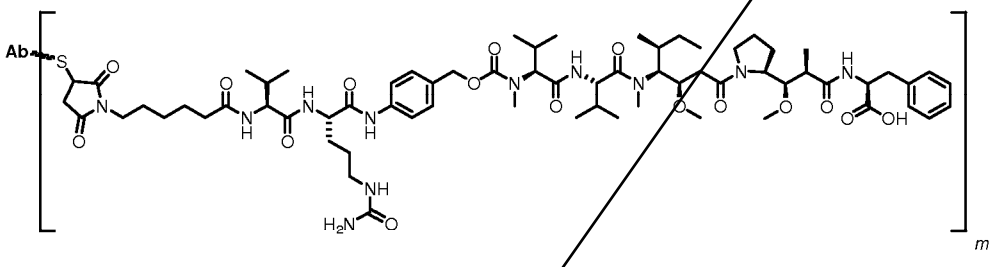
51. The method of claim 50, wherein said cytotoxic agent is an auristatin molecule.

52. The method of claim 51, wherein said auristatin molecule is monomethyl auristatin E (MMAE) or monomethyl auristatin F (MMAF).

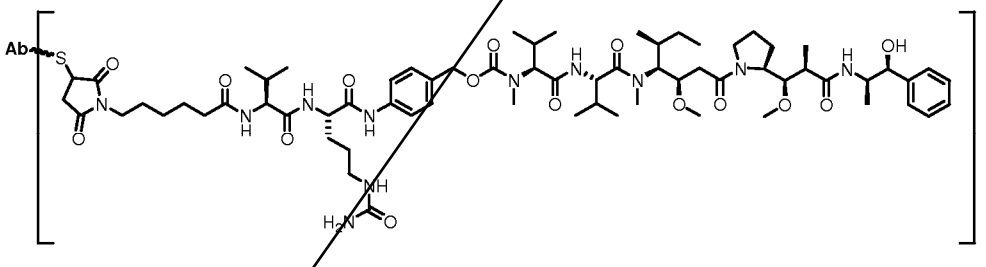
53. The method of claim 50-53, wherein said cytotoxic agent is conjugated via a linker containing a maleimide moiety.

54. The method of claim 53, wherein said maleimide linker is selected from the group consisting of maleimidocaproyl (mc), maleimidocaproyl-L-phenylalanine-L-lysine-*p*-amino-benzylcarbamate, and maleimidocaproyl-L-valine-L-citrulline-*p*-aminobenzylcarbamate (vc).

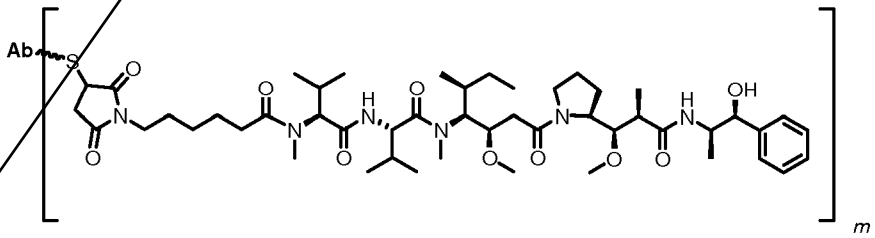
55. The method of claim 42, wherein said GCC-targeted therapy is an immunoconjugate characterized by any one of formulas (***I-4***), (***I-5)*** or (***I-6***):



(***I-4***),



(***I-5***),



(***I-6***),

wherein Ab is an anti-GCC antibody molecule comprising three heavy chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 67, 68 and 69, respectively, and three light chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 70, 71 and 72, respectively, and wherein m is an integer from 1 to 8.

56. The method of claim 55, wherein m is from about 3 to about 5.

57. The method of claim 56, wherein m is about 4.

58. The method of any of claims 42-57, wherein the disease characterized by one or more GCC-expressing cells is selected from the group consisting of: cancer, inflammatory bowel syndrome, Crohn's disease or Parkinson's disease.

59. The method of claim 58, wherein the cancer is selected from the group consisting of colorectal cancer, gastric cancer, small intestine cancer, esophageal cancer, pancreatic cancer, lung cancer, a soft tissue sarcoma, a neuroectodermal tumor and a neuroendocrine tumor.

60. The method of claim 59, wherein said lung cancer is squamous cell carcinoma or adenocarcinoma.

61. The method of claim 59, wherein said soft tissue sarcoma is leiomyosarcoma or rhabdomyosarcoma.

62. The method of claim 59, wherein said neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

63. The method of claim 42-62, wherein the biological sample is a cell or a tissue biopsy.

64. The method of claim 63, wherein the cell or tissue biopsy is a tumor biopsy.

65. A method of determining sensitivity of cancer cells to a GCC-targeted therapeutic agent and/or evaluating whether a subject is a potential candidate for a GCC-targeted therapy, the method comprising the steps of:

i) providing a sample from cancer cells from a patient that has cancer;

ii) contacting the sample with an anti-GCC antibody molecule described herein, e.g., an anti-GCC antibody of any of claims 1-13, e.g., an anti-GCC antibody comprising three heavy chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 21, 22 and 23, or SEQ ID NOs: 33, 34 and 35, respectively; and three light chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 27, 28 and 29, or SEQ ID NOS: 39, 40 and 41, respectively; and

iii) detecting formation of a complex between the anti-GCC antibody molecule and GCC protein, thereby determining the sensitivity of the cancer to the GCC-targeted therapeutic agent, e.g., a GC-targeted therapeutic agent dscribed herein, and/or determining if a subject is a

candidate for treatment with a GCC-targeted therapy, e.g., a GCC-targeted therapy described herein.

66. The method of claim 65, wherein the detection step is performed via immunohistochemistry.

67. The method of claim 65 or 66, wherein the cancer is selected from the group consisting of colorectal cancer, gastric cancer, small intestine cancer, esophageal cancer, pancreatic cancer, lung cancer, a soft tissue sarcoma, a neuroectodermal tumor and a neuroendocrine tumor.

68. The method of claim 67, wherein said lung cancer is squamous cell carcinoma or adenocarcinoma.

69. The method of claim 67, wherein said soft tissue sarcoma is leiomyosarcoma or rhabdomyosarcoma.

70. The method of claim 67, wherein said neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

71. The method of any of claims 65-70, further comprising the step of administering the GCC-targeted therapeutic agent, e.g., a GCC-targeted therapeutic agent described herein, to the patient.

72. The method of claim 71, wherein the GCC-targeted therapeutic agent comprises an anti-GCC antibody molecule.

73. The method of claim 72, wherein said therapeutic anti-GCC antibody molecule is a monoclonal antibody.

74. The method of claim 72 or 73, wherein said therapeutic anti-GCC antibody molecule is a human IgG1 antibody.

75. The method of any of claims 72, 73 or 74, wherein said therapeutic anti-GCC antibody molecule comprises three heavy chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 67, 68 and 69, respectively, and three light chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 70,71 and 72, respectively.

76. The method of claim 75, wherein said therapeutic anti-GCC antibody molecule further comprises a heavy chain variable region comprising an amino acid sequence according to SEQ ID NO: 79, and a light chain variable region comprising an amino acid sequence according to SEQ ID NO: 80.

77. The method of any of claims 72-76 wherein the anti-GCC antibody molecule is conjugated to a cytotoxic agent.

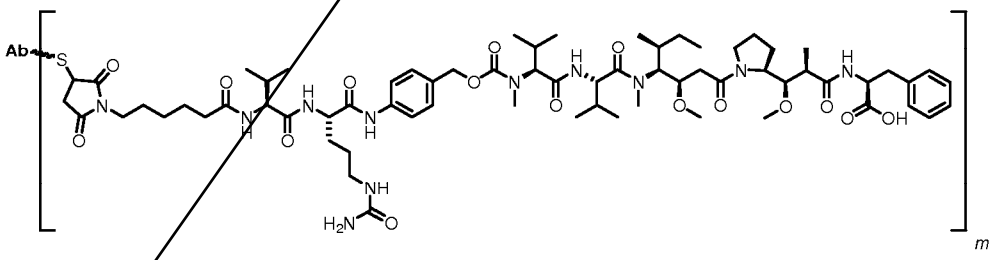
78. The method of claim 77, wherein said cytotoxic agent is an auristatin molecule.

79. The method of claim 78, wherein said auristatin molecule is monomethyl auristatin E (MMAE) or monomethyl auristatin F (MMAF).

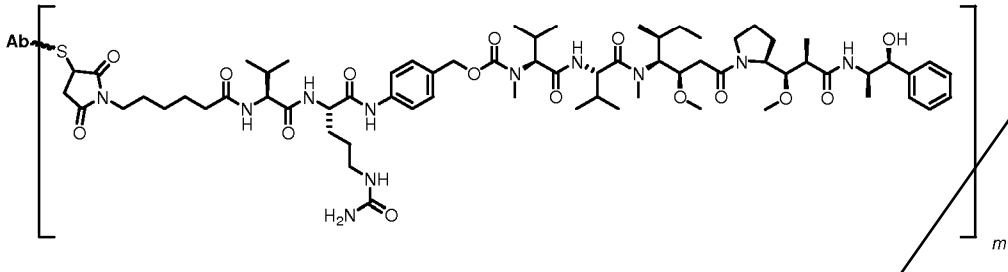
80. The method of any of claims 77, 78 or 79, wherein said cytotoxic agent is conjugated via a linker containing a maleimide moiety.

81. The method of claim 80, wherein said maleimide linker is selected from the group consisting of maleimidocaproyl (mc), maleimidocaproyl-L-phenylalanine-L-lysine-*p*-amino-benzylcarbamate, and maleimidocaproyl-L-valine-L-citrulline-*p*-aminobenzylcarbamate (vc).

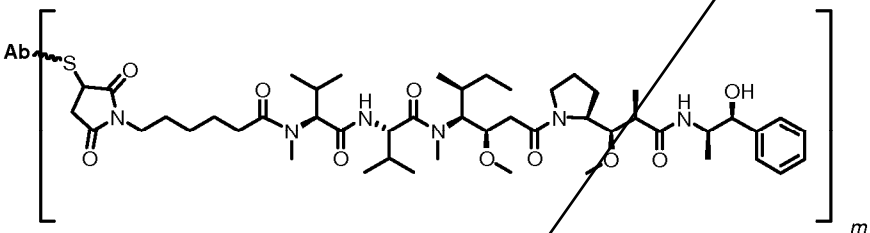
82. The method of claim 65-71, wherein said GCC-targeted therapeutic agent is an immunoconjugate characterized by any one of formulas (***I-4***), (***I-5)*** or (***I-6***):



m (***I-4***),



(*I-5*),



(*I-6*),

wherein Ab is an anti-GCC antibody molecule comprising three heavy chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 67, 68 and 69, respectively, and three light chain complementarity determining regions (CDR1, CDR2 and CDR3) comprising amino acid sequences according to SEQ ID NOs: 70, 71 and 72, respectively, and wherein m is an integer from 1 to 8.

83. The method of claim 82, wherein m is from about 3 to about 5.

84. The method of claim 83, wherein m is about 4.

85. A reaction mixture comprising a biological sample and an anti-GCC antibody molecule described herein, e.g., an anti-GCC antibody of any of claims 1-13, e.g., an anti-GCC antibody molecule comprising three heavy chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 21, 22 and 23, or SEQ ID NOs: 33, 34 and 35, respectively; and three light chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 27, 28 and 29, or SEQ ID NOS: 39, 40 and 41, respectively.

86. The reaction mixture of claim 85, wherein the biological sample comprises one or more cells.

87. The reaction mixture of claim 85, wherein the biological sample comprises a tissue sample.

88. The reaction mixture of claim 87, wherein the tissue sample is a paraffin-embedded tissue sample.

89. The reaction mixture of claim 85, wherein the biological sample is a primary or metastatic tumor biopsy sample.

90. The reaction mixture of claim 85, wherein the biological sample is mounted on a slide.

91. The reaction mixture of claim 89, wherein the tumor is a colorectal tumor, a gastric tumor, a small intestine tumor, an esophageal tumor, a pancreatic tumor, a lung tumor, a soft-tissue sarcoma, a neuroectodermal tumor or a neuroendocrine tumor.

92. The reaction mixture of claim 91, wherein the lung tumor is a squamous cell carcinoma or an adenocarcinoma.

93. The reaction mixture of claim 91, wherein the soft-tissue sarcoma is a leiomyosarcoma or a rhabdomyosarcoma.

94. The reaction mixture of claim 91, wherein the neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

95. The reaction mixture of claim 85, wherein the biological sample is suspected of containing GCC protein.

96. The reaction mixture of any of claims 85-95, further comprising a reagent suitable for detecting formation of a complex between the anti-GCC antibody and GCC protein.

97. A method for generating a personalized cancer treatment report, said method comprising the steps of:

contacting a biological sample comprising one or more cancer cells obtained from a cancer patient suspected of having a GCC-expressing cancer with an anti-GCC antibody

molecule described herein, e.g., an anti-GCC antibody molecule of any of claims 1-13, e.g., an anti-GCC antibody molecule comprising three heavy chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 21, 22 and 23, or SEQ ID NOs: 33, 34 and 35, respectively; and three light chain complementarity determining regions (CDR1, CDR2, and CDR3) comprising amino acid sequences according to SEQ ID NOs: 27, 28 and 29, or SEQ ID NOS: 39, 40 and 41, respectively,

detecting formation of a complex between the anti-GCC molecule and GCC protein in the biological sample, e.g., by a method of any of claims 18-26;

quantifying GCC expression in the biological sample;

comparing the GCC expression level against a database comprising GCC-targeted therapy, e.g., a GCC-targeted therapy described herein; and

selecting a GCC-targeted therapy and, optionally, a dosing regimen based on the GCC expression level.

98. The method of claim 97, wherein the GCC-expressing cancer is colorectal cancer, gastric cancer, small intestine cancer, esophageal cancer, pancreatic cancer, lung cancer, soft-tissue sarcoma, a neuroectodermal tumor or a neuroendocrine tumor.

99. The method of claim 98, wherein the lung tumor is a squamous cell carcinoma or an adenocarcinoma.

100. The method of claim 98, wherein the soft-tissue sarcoma is a leiomyosarcoma or a rhabdomyosarcoma.

101. The reaction mixture of claim 98, wherein the neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

102. The method of any of claims 97-101, wherein said detection step is performed via immunohistochemistry.

103. The method of any of claims 97-102, wherein said quantification of GCC expression comprises apical GCC expression in said biological sample, cytoplasmic GCC expression in said biological sample, or both.

104. The method of claim 97-103, wherein said quantification step comprises an H-score approach.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An anti-GCC antibody molecule or an antigen binding fragment thereof, comprising a heavy chain variable region and a light chain variable region, wherein

(a) the heavy chain variable region comprises three heavy chain complementarity determining regions (HCDR1, HCDR2, and HCDR3) comprising amino acid sequences according to SEQ ID NOs: 21, 22, and 23, respectively, and the light chain variable region comprises three light chain complementarity determining regions (LCDR1, LCDR2, and LCDR3) comprising amino acid sequences according to SEQ ID NOs: 27, 28 and 29, respectively; or

(b) the heavy chain variable region comprises three heavy chain complementarity determining regions (HCDR1, HCDR2, and HCDR3) comprising amino acid sequences according to SEQ ID NOs: 33, 34, and 35, respectively, and the light chain variable region comprises three light chain complementarity determining regions (LCDR1, LCDR2, and LCDR3) comprising amino acid sequences according to SEQ ID NOs: 39, 40 and 41, respectively.

2. The anti-GCC antibody molecule or antigen binding fragment of claim 1, wherein

(a) the heavy chain variable region comprises an amino acid sequence according to SEQ ID NO: 11, and the light chain variable region comprises an amino acid sequence according to SEQ ID NO: 13; or

(b) the heavy chain variable region comprises an amino acid sequence according to SEQ ID NO: 15, and the light chain variable region comprises an amino acid sequence according to SEQ ID NO: 17.

3. An anti-GCC antibody molecule or an antigen binding fragment thereof that competes for binding with, or binds to the same epitope as, a reference antibody molecule comprising a heavy chain variable region and a light chain variable region, wherein

(a) the heavy chain variable region of the reference antibody molecule comprises an amino acid sequence according to SEQ ID NO: 11, and the light chain variable region of the reference antibody molecule comprises an amino acid sequence according to SEQ ID NO: 13; or

(b) the heavy chain variable region of the reference antibody molecule comprises an amino acid sequence according to SEQ ID NO: 15, and the light chain variable region of the reference antibody molecule comprises an amino acid sequence according to SEQ ID NO: 17.

4. The anti-GCC antibody molecule or antigen binding fragment of any one of claims 1 to 3, wherein the anti-GCC antibody molecule is a monoclonal antibody.

5. The anti-GCC antibody molecule or antigen binding fragment of any one of claims 1 to 4, wherein the antibody molecule is an antigen binding fragment.

6. The anti-GCC antibody molecule of any one of claims 1 to 5, wherein the anti-GCC antibody molecule is conjugated to a detectable label.

7. The anti-GCC antibody molecule of claim 6, wherein the detectable label is selected from horseradish peroxidase (HRP); alkaline phosphatase; galactosidase; glucoamylase; lysozyme; a saccharide oxidase; a heterocyclic oxidase; lactoperoxidase; microperoxidase; biotin; avidin; a spin label; a bacteriophage label; a stable free radical; a fluorophore optionally selected from a fluorescein, a rhodamine, a dansyl, an umbelliferone, a luciferase, a luciferin, and a 2,3-dihydrophthalazinedione; and a radioactive agent optionally selected from ^{32}P, ^{3}H, ^{14}C, ^{188}Rh, ^{43}K, ^{52}Fe, ^{57}Co, ^{67}Cu, ^{67}Ga, ^{68}Ga, ^{77}Br, ^{81}Rb, ^{81M}Kr, ^{87M}Sr, ^{99}Tc, ^{111}In, ^{113M}-In, ^{123}I, ^{125}I, ^{127}Cs, ^{129}Cs, ^{131}I, ^{132}I, ^{197}Hg, ^{203}Pb, ^{206}Bi, and ^{213}Bi.

8. An isolated nucleic acid sequence encoding an antibody molecule of any one of claims 1 to 5, or a variable region of an antibody molecule of any one of claims 1 to 5.

9. An expression vector comprising the isolated nucleic acid sequence of claim 8.

10. An isolated cell comprising the isolated nucleic acid sequence of claim 8 or the expression vector of claim 9.

11. A method of producing an anti-GCC antibody molecule of any one of claims 1 to 5, comprising culturing the cell of claim 10 under conditions that allow production of an antibody molecule, thereby producing the antibody molecule.

12. Use of an anti-GCC antibody molecule of any one of claims 1 to 7 for detecting a GCC molecule in a biological sample, the use comprising contacting the biological sample with the antibody molecule and determining if said antibody molecule binds to said GCC molecule.

13. The use of claim 12, wherein the detection of a GCC molecule comprises an immunohistochemistry assay.

14. The use of claim 12 or claim 13, wherein the biological sample is a tumor biopsy derived from a patient suspected of having a GCC expressing cancer, wherein the cancer is optionally selected from colorectal cancer, gastric cancer, small intestine cancer, esophageal cancer, pancreatic cancer, lung cancer, a soft tissue sarcoma, a neuroectodermal tumor, and a neuroendocrine tumor.

15. The use of claim 14, wherein

(a) the lung cancer is squamous cell carcinoma or adenocarcinoma;

(b) the soft tissue sarcoma is leiomyosarcoma or rhabdomyosarcoma; and

(c) the neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

16. The use of any one of claims 12 to 15, further comprising the step of quantifying GCC expression in said biological sample.

17. The use of claim 16, wherein the GCC expression in said biological sample comprises apical GCC expression, cytoplasmic GCC expression, or both.

18. The use of claim 16 or claim 17, wherein the quantification step comprises an H-score approach.

19. A kit comprising the anti-GCC antibody molecule of any one of claims 1 to 7 and instructions for use.

20. Use of an anti-GCC antibody molecule of any one of claims 1 to 7 for-determining sensitivity of cancer cells to a GCC-targeted therapeutic agent and/or evaluating whether a subject is a potential candidate for a GCC-targeted therapy, the use comprising the steps of:

i) contacting a biological sample comprising one or more cancer cells obtained from a patient that has cancer with the anti-GCC antibody molecule; and

ii) detecting formation of a complex between the anti-GCC antibody molecule and GCC protein in the sample in vitro, thereby determining the sensitivity of the cancer to the GCC-targeted therapeutic agent, and/or determining if a subject is a candidate for treatment with a GCC-targeted therapy.

21. The use of claim 20, wherein the detection step is performed via immunohistochemistry.

22. The use of claim 20 or claim 21, wherein the cancer is selected from colorectal cancer, gastric cancer, small intestine cancer, esophageal cancer, pancreatic cancer, lung cancer, a soft tissue sarcoma, a neuroectodermal tumor and a neuroendocrine tumor.

23. The use of claim 22, wherein

(a) the lung cancer is squamous cell carcinoma or adenocarcinoma;

(b) the soft tissue sarcoma is leiomyosarcoma or rhabdomyosarcoma, and

(c) the neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

24. Use of a GCC-targeted therapeutic agent in the manufacture of a medicament for treating a disease characterized by one or more GCC-expressing cells, in a patient that has been evaluated as a potential candidate for a GCC-targeted therapy by the use of any one of claims 20 to 23.

25. Use of a GCC-targeted therapeutic agent in the manufacture of a medicament for treating a disease characterized by one or more GCC-expressing cells, in a patient wherein one or more GCC-expressing cells have been detected by the use of any one of claims 12 to 18 and 20 to 23.

26. The use of claim 24 or claim 25, wherein the GCC-targeted therapeutic agent comprises an anti-GCC antibody molecule.

27. The use of claim 26, wherein the anti-GCC antibody molecule is a monoclonal antibody.

28. The use of claim 26 or claim 27, wherein the anti-GCC antibody molecule is a human IgG1 antibody.

29. The use of any one of claims 26 to 28, wherein the anti-GCC antibody molecule comprises a heavy chain variable region and a light chain variable region, wherein

the heavy chain variable region comprises three heavy chain complementarity determining regions (HCDR1, HCDR2, and HCDR3) comprising amino acid sequences according to SEQ ID NOs: 67, 68 and 69, respectively; and

the light chain variable region comprises three light chain complementarity determining regions (LCDR1, LCDR2, and LCDR3) comprising amino acid sequences according to SEQ ID NOs: 70, 71 and 72, respectively

30. The use of claim 29, wherein the anti-GCC antibody molecule further comprises a heavy chain variable region comprising an amino acid sequence according to SEQ ID NO: 79, and a light chain variable region comprising an amino acid sequence according to SEQ ID NO: 80.

31. The use of any one of claims 26 to 30, wherein the anti-GCC antibody molecule is conjugated to a cytotoxic agent.

32. A reaction mixture comprising a biological sample and an anti-GCC antibody molecule of any one of claims 1 to 7.

33. The reaction mixture of claim 32, wherein

(a) the biological sample comprises one or more cells; or

(b) the biological sample comprises a tissue sample.

34. The reaction mixture of claim 32 or claim 33, wherein the biological sample is a primary or metastatic tumor biopsy sample, wherein the tumor biopsy sample is optionally selected from a colorectal tumor, a gastric tumor, a small intestine tumor, an esophageal tumor, a pancreatic tumor, a lung tumor, a soft-tissue sarcoma, a neuroectodermal tumor, and a neuroendocrine tumor.

35. The reaction mixture of claim 34, wherein

(a) the lung tumor is a squamous cell carcinoma or an adenocarcinoma;

(b) the soft-tissue sarcoma is a leiomyosarcoma or a rhabdomyosarcoma; and

(c) the neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

36. The reaction mixture of any one of claims 32 to 35, further comprising a reagent suitable for detecting formation of a complex between the anti-GCC antibody and GCC protein.

37. Use of an antibody molecule of any one of claims 1 to 7 for generating a personalized cancer treatment report, said use comprising the steps of:

(i) contacting a biological sample comprising one or more cancer cells obtained from a patient suspected of having a GCC-expressing cancer with the anti-GCC antibody molecule;

(ii) detecting formation of a complex between the anti-GCC antibody molecule and GCC protein in the biological sample;

(iii) quantifying GCC expression in the biological sample;

(iv) comparing the GCC expression level against a database comprising samples with normal GCC expression; and

(v) selecting a GCC-targeted therapy and, optionally, a dosing regimen based on the GCC expression level.

38. The use of claim 37, wherein the GCC-expressing cancer is selected from colorectal cancer, gastric cancer, small intestine cancer, esophageal cancer, pancreatic cancer, lung cancer, a soft-tissue sarcoma, a neuroectodermal tumor and a neuroendocrine tumor.

39. The use of claim 38, wherein

(a) the lung tumor is a squamous cell carcinoma or an adenocarcinoma;

(b) the soft-tissue sarcoma is a leiomyosarcoma or a rhabdomyosarcoma; and

(c) the neuroendocrine tumor is a gastrointestinal or a bronchopulmonary neuroendocrine tumor.

40. The use of any one of claims 37 to 39, wherein the detection step is performed via immunohistochemistry.

41. The use of any one of claims 37 to 40, wherein the GCC expression in said biological sample comprises apical GCC expression, cytoplasmic GCC expression, or both.

42. The use of any one of claims 37 to 41, wherein the quantification step comprises an H-score approach.