WHAT IS CLAIMED IS:

1. A method for treating a patient having cancer comprising administering to said patient in need thereof

an immunoconjugate that binds to folate receptor 1 (FOLR1), wherein said immunoconjugate comprises an antibody or antigen-binding fragment thereof comprising a heavy chain variable region (VH) complementary determining region (CDR)1 sequence of SEQ ID NO:9, a VH CDR2 sequence of SEQ ID NO:10, and a VH CDR3 sequence of SEQ ID NO:12, and a light chain variable region (VL) CDR1 sequence of SEQ ID NO:6, a VL CDR2 sequence of SEQ ID NO:7, and a VL CDR3 sequence of SEQ ID NO:8, and

an anti-VEGF agent, a platinum-based agent, doxorubicin, or a combination thereof.

2. The method of claim 1, wherein the immunoconjugate is administered in combination with the anti-VEGF agent.

3. The method of claim 1, wherein the immunoconjugate is administered in combination with the platinum-based agent.

4. The method of claim 1, wherein the immunoconjugate is administered in combination with the doxorubicin.

5. The method of claim 1, wherein the immunoconjugate is administered in combination with the anti-VEGF agent and the platinum-based agent.

6. The method of claim 1, wherein the immunoconjugate is administered in combination with the anti-VEGF agent and the doxorubicin.

7. The method of claim 1, wherein the immunoconjugate is administered in combination with the platinum-based agent and the doxorubicin.

8. The method of any one of claims 1-7, wherein the immunoconjugate that binds to FOLR1 comprises an antibody or antigen-binding fragment thereof that comprises a VH comprising the sequence of SEQ ID NO:3 and a VL comprising the sequence of SEQ ID NO:5.

9. The method of claim 8, wherein the antibody or antigen-binding fragment is huMov19.

10. The method of any one of claims 1-9, wherein the immunoconjugate comprises a cytotoxin, wherein the cytotoxin is a maytansinoid.

11. The method of claim 10, wherein the maytansinoid is DM4.

12. The method of any one of claims 1-11, wherein the immunoconjugate comprises a linker, wherein the linker is sulfo-SPDB.

13. The method of any one of claims 1-12, wherein the immunoconjugate is IMGN853.

14. The method of any one of claims 1-13, wherein the administration is a first-line therapy.

15. The method of any one of claims 1-14, wherein the immunoconjugate is administered intravenously or intraperitoneally.

16. The method of any one of claims 1-15, wherein administration of the immunoconjugate with the anti-VEGF agent, the platinum-based agent, the doxorubicin, or the combination thereof produces a synergistic effect.

17. The method of any one of claims 1, 2, 5, 6, and 8-16, wherein administration of the immunoconjugate and the anti-VEGF agent does not produce more toxicity than administration of the immunoconjugate alone or the anti-VEGF agent alone.

18. The method of any one of claims 1, 3, 5, and 8-16, wherein administration of the immunoconjugate and the platinum-based agent does not produce more toxicity than administration of the immunoconjugate alone or the platinum-based agent alone.

19. The method of any one of claims 1, 4, and 6-16, wherein administration of the immunoconjugate and the doxorubicin does not produce more toxicity than administration of the immunoconjugate alone or the doxorubicin alone.

20. The method of any one of claims 5 and 8-16, wherein administration of the immunoconjugate, the anti-VEGF agent, and the platinum-based agent does not produce more toxicity than the administration of a taxol, the anti-VEGF agent, and/or the platinum-based agent, wherein the platinum-based agent is carboplatin or cisplatin.

21. The method of any one of claims 1-20, wherein the immunoconjugate is administered once every three weeks or once every four weeks.

22. The method of any one of claims 1-21, wherein the immunoconjugate is administered at a dose of about 4 mg/kg adjusted ideal body weight (AIBW), at a dose of about 5 mg/kg AIBW, or at a dose of about 6 mg/kg AIBW.

23. The method of any one of claims 1-20, wherein the immunoconjugate is administered weekly.

24. The method of any one of claims 1-20 and 23, wherein the immunoconjugate is administered at a dose of about 1.1 mg/kg AIBW, about 1.8 mg/kg AIBW, about 2.0 mg/kg AIBW, or about 2.5 mg/kg AIBW.

25. The method of any one of claims 1-20, wherein the immunoconjugate is administered once every two weeks.

26. The method of any one of claims 1-20 and 25, wherein the immunoconjugate is administered at a dose of about 2.0 mg/kg AIBW, about 2.5 mg/kg AIBW, about 3.0 mg/kg AIBW, about 3.5 mg/kg AIBW, or about 4.0 mg/kg AIBW.

27. The method of any one of claims 1, 2, 5, 6, 8-17, and 20-26, wherein the anti-VEGF agent comprises an antibody or antigen-binding fragment thereof that binds to VEGF or a VEGF receptor.

28. The method of claim 27, wherein the antibody or antigen-binding fragment thereof that binds to VEGF is bevacizumab.

29. The method of any one of claims 1, 2, 5, 6, 8-17, and 20-26, wherein the anti-VEGF agent comprises a tyrosine kinase inhibitor.

30. The method of claim 29, wherein the tyrosine kinase inhibitor is selected from the group consisting of cediranib, pazopanib, axitinib, vatalanib, semaxanib, sunitinib, sorafenib, ramucirumab, and aflibercept.

31. The method of any one of claims1, 2, 5, 6, 8-17, and 20-26, wherein the anti-VEGF agent comprises a soluble VEGF receptor.

32. The method of claim 31, wherein the soluble VEGF receptor is VEGF-TRAP.

33. The method of any one of claims 1, 2, 5, 6, 8-17, and 20-33, wherein the anti-VEGF agent is administered once every 3 weeks or once every 4 weeks.

34. The method of any one of claims 1, 2, 5, 6, 8-17, and 20-34, wherein the anti-VEFG agent is administered at a dose of about 15 mg/kg, about 10 mg/kg, or about 7.5 mg/kg.

35. The method of claim 28, wherein the bevacizumab is administered once every 3 weeks at a dose of 15 mg/kg.

36. The method of claim 28, wherein the bevacizumab is administered once every 2 weeks at a dose of 10 mg/kg.

37. The method of any one of claims 1, 3, 5, 7-16, 18, and 20-36, wherein the platinum-based agent is carboplatin.

38. The method of claim 37, wherein carboplatin is administered once every three weeks.

39. The method of claim 37 or 38, wherein the carboplatin is administered at a dose to obtain an area under the curve (AUC) of 4 mg/ml·min, 5 mg/ml min, 6 mg/ml min, or 7 mg/ml min.

40. The method of any one of claims 1, 3, 5, 7-16, 18, and 20-36, wherein the platinum-based agent is cisplatin.

41. The method of claim 40, wherein cisplatin is administered every three weeks or once every four weeks.

42. The method of claim 40 or 41, wherein the cisplatin is administered at a dose of about 50 -70 mg/m2, about 75-100 mg/m^2, or about 100 mg/m^2.

43. The method of any one of claims 1, 4, 6-16, 19, and 21-42, wherein doxorubicin is pegylated doxorubicin, liposomal doxorubicin, or pegylated liposomal doxorubicin.

44. The method of any one of claims 1, 4, 6-16, 19, and 21-43, wherein the doxorubicin is administered once every four weeks.

45. The method of any one of claims 1, 4, 6-16, 19, and 21-44, wherein the doxorubicin is administered at a dose of 30 mg/m^2, 35 mg/m^2, 40 mg/m^2, 45 mg/m^2, or 50 mg/m^2.

46. The method of any one of claims 1, 2, 5, 6, and 8-20, wherein the anti-VEGF agent is bevacizumab, wherein the bevacizumab is administered once every three weeks at a dose of 15 mg/kg, and wherein the immunoconjugate is administered once every three weeks at a dose of 4 mg/kg AIBW.

47. The method of any one of claims 1, 2, 5, 6, and 8-20, wherein the anti-VEGF agent is bevacizumab, wherein the bevacizumab is administered once every three weeks at a dose of 15 mg/kg, and wherein the immunoconjugate is administered once every three weeks at a dose of 5 mg/kg AIBW.

48. The method of any one of claims 1, 2, 5, 6, and 8-20, wherein the anti-VEGF agent is bevacizumab, wherein the bevacizumab is administered once every three weeks at a dose of 15 mg/kg, and wherein the immunoconjugate is administered once every three weeks at a dose of 6 mg/kg AIBW.

49. The method of any one of claim 1, 2, 5, 6, and 8-20, wherein the anti-VEGF agent is bevacizumab, wherein the bevacizumab is administered once every two weeks at a dose of 10 mg/kg, and wherein the immunoconjugate is administered once every four weeks at a dose of 4 mg/kg AIBW.

50. The method of any one of claims 1, 2, 5, 6, and 8-20, wherein the anti-VEGF agent is bevacizumab, wherein the bevacizumab is administered once every two weeks at a dose of 10 mg/kg, and wherein the immunoconjugate is administered once every four weeks at a dose of 5 mg/kg AIBW.

51. The method of any one of claims 1, 2, 5, 6, and 8-20, wherein the anti-VEGF agent is bevacizumab, wherein the bevacizumab is administered once every two weeks at a dose of 10 mg/kg, and wherein the immunoconjugate is administered once every four weeks at a dose of 6 mg/kg AIBW.

52. The method of any one of claims 46-50, wherein carboplatin is administered.

53. The method of claim 52, wherein carboplatin is administered once every three weeks.

54. The method of claim 52 or 53, wherein the carboplatin is administered at a dose to obtain an area under the curve (AUC) of 4 mg/ml·min, 5 mg/ml min, 6 mg/ml min, or 7 mg/ml min.

55. The method of any one of claims 1, 3, 5, 7-16, 18, and 20, wherein the platinum-based agent is carboplatin, wherein the carboplatin is administered once every three weeks to obtain an AUC of 4 mg/ml·min, and wherein the immunoconjugate is administered once every three weeks at a dose of 4 mg/kg AIBW.

56. The method of any one of claims 1, 3, 5, 7-16, 18, and 20, wherein the platinum-based agent is carboplatin, wherein the carboplatin is administered once every three weeks to obtain an AUC of 4 mg/ml·min, and wherein the immunoconjugate is administered once every three weeks at a dose of 5 mg/kg AIBW.

57. The method of any one of claims 1, 3, 5, 7-16, 18, and 20, wherein the platinum-based agent is carboplatin, wherein the carboplatin is administered once every three weeks to obtain an AUC of

5 mg/ml·min, and wherein the immunoconjugate is administered once every three weeks at a dose of 5 mg/kg AIBW.

58. The method of any one of claims 1, 3, 5, 7-16, 18, and 20, wherein the platinum-based agent is carboplatin, wherein the carboplatin is administered once every three weeks to obtain an AUC of 5 mg/ml·min, and wherein the immunoconjugate is administered once every three weeks at a dose of 6 mg/kg AIBW.

59. The method of any one of claims 1, 4, 6-16, and 19, wherein the doxorubicin is pegylated liposomal doxorubicin (PLD), wherein the PLD is administered once every four weeks at a dose of about 30 mg/m^2, and wherein the immunoconjugate is administered once every four weeks at a dose of 4 mg/kg AIBW.

60. The method of any one of claims 1, 4, 6-16, and 19, wherein the doxorubicin is pegylated liposomal doxorubicin (PLD), wherein the PLD is administered once every four weeks at a dose of about 30 mg/m^2, and wherein the immunoconjugate is administered once every four weeks at a dose of 5 mg/kg AIBW.

61. The method of any one of claims 1, 4, 6-16, and 19, wherein the doxorubicin is pegylated liposomal doxorubicin (PLD), wherein the PLD is administered once every four weeks at a dose of about 40 mg/m^2, and wherein the immunoconjugate is administered once every four weeks at a dose of 5 mg/kg AIBW.

62. The method of any one of claims 1, 4, 6-16, and 19, wherein the doxorubicin is pegylated liposomal doxorubicin (PLD), wherein the PLD is administered once every four weeks at a dose of about 40 mg/m^2, and wherein the immunoconjugate is administered once every four weeks at a dose of 6 mg/kg AIBW.

63. The method of any one of claims 1-62, wherein the cancer is ovarian, peritoneal, fallopian, endometrial, or lung cancer.

64. The method of claim 63, wherein the cancer is ovarian cancer.

65. The method of claim 64, wherein the ovarian cancer is epithelial ovarian cancer.

66. The method of claim 64 or 65, wherein the ovarian cancer is platinum resistant, relapsed, or refractory.

67. The method of any one of claims 64-66, wherein the administration results in a decrease in CA125.

68. The method of claim 63, wherein the peritoneal cancer is primary peritoneal cancer.

69. The method of claim 63, wherein the endometrial cancer is serous endometrial cancer.

70. The method of claim 63, wherein the lung cancer is selected from the group consisting of non-small cell lung cancer (NSCLC), adenocarcinoma, and bronchioloalveolar carcinoma.

71. The method of any one of claims 1-70, wherein the cancer expresses FOLR1.

72. The method of claim 71, wherein the FOLR1 expression is measured by immunohistochemistry (IHC).

73. The method of claim 71, wherein the IHC has a staining score of at least 1 hetero, at least 1 homo, at least 2 hetero, at least 2 homo, or at least 3 hetero.

74. The method of claim 71, wherein at least 25%, at least 50%, or at least 75% of cells in a sample obtained from the patient have an immunohistochemistry (IHC) score of at least 2.

75. The method of claim 71, wherein at least 25%, at least 50%, or at least 75% of cells in a sample obtained from the patient have an immunohistochemistry (IHC) score of at least 3.

76. The method of any one of claims 1-75, further comprising administering a steroid to the patient.

77. The method of claim 76, wherein the steroid is dexamethasone.

78. The method of any one of claims 1-77, wherein the immunoconjugate and the anti-VEGF agent, platinum-based agent, doxorubicin, or combination thereof are administered in separate pharmaceutical compositions.

79. The method of any one of claims 1-13 and 15-78, wherein the cancer has previously been treated with bevacuzimab.

80. The method of any one of claims 1-78, wherein the cancer has not previously been treated with bevacuzimab.

81. The method of any one of claims 1-80, wherein the cancer is primary platinum refractory.

82. The method of any one of claims 1-80, wherein the cancer is platinum resistant.

83. The method of any one of claims 1-65 and 67-80, wherein the cancer is platinum sensitive.

84. The method of any one of claims 1-83, wherein the cancer is metastatic or advanced.

85. The method of any one of claims 1-13 and 15-84 wherein administration is a second-line therapy.

86. The method of any one of claims 1-13 and 15-84, wherein the administration is a third-line therapy.

87. The method of claim 71, wherein at least 33% or at least 66% of cells in a sample obtained from the patient have an immunohistochemistry (IHC) score of at least 2.

88. The method of claim 71, wherein at 33% or at least 66% of cells in a sample obtained from the patient have an immunohistochemistry (IHC) score of at least 3.

89. A kit comprising

an immunoconjugate that binds to FOLR1, wherein said immunoconjugate comprises an antibody or antigen binding fragment thereof comprising a VH CDR1 sequence of SEQ ID NO:9, a VH CDR2 sequence of SEQ ID NO:10, and a VH CDR3 sequence of SEQ ID NO:12, and a VL CDR1 sequence of SEQ ID NO:6, a VL CDR2 sequence of SEQ ID NO:7, and a VL CDR3 sequence of SEQ ID NO:8; and

an anti-VEGF agent, a platinum-based agent, or doxorubicin; and

instructions to administer the immunoconjugate with the anti-VEGF agent, the platinum-based agent, or doxorubicin.

90. A method of instructing a human subject with cancer, the method comprising providing instructions to receive cancer treatment with an immunoconjugate that binds to FOLR1 and an anti-VEGF agent, a platinum-based agent, doxorubicin, or a combination thereof.

91. The kit or method of claim 89 or 90, wherein the anti-VEGF agent is an anti-VEGF antibody.

92. The kit or method of claim 91, wherein the anti-VEGF antibody is bevacizumab.

93. The kit or method of claim 89 or 90, wherein the anti-VEGF agent is a tyrosine kinase inhibitor.

94. The kit or method of claim 93, wherein the tyrosine kinase inhibitor is selected from the group consisting of cediranib, pazopanib, axitinib, vatalanib, semaxanib, sunitinib, sorafenib, ramucirumab, and aflibercept.

95. The kit or method of claim 89 or 90, wherein the anti-VEGF agent is a soluble VEGF receptor.

96. The kit or method of claim 95, wherein the soluble VEGF receptor is VEGF-TRAP.

97. The kit or method of any one of claims 89-96, wherein the platinum-based agent is carboplatin or cisplatin.

98. The kit or method of any one of claims 89-97, wherein the doxorubicin is pegylated liposomal doxorubicin.

99. The kit or method of any one of claims 89-98, wherein the immunoconjugate is IMGN853.

100. The method of claim 1, wherein the immunoconjugate is IMGN853, wherein the immunoconjugate is administered once every three weeks at a dose of 6 mg/kg AIBW, wherein the anti-VEGF agent is bevacizumab, and wherein the bevacizumab is administered once every three weeks at a dose of 15 mg/kg.

101. The method of claim 1, wherein the immunoconjugate is IMGN853, wherein the immunoconjugate is administered once every three weeks at a dose of 6 mg/kg AIBW, wherein the anti-VEGF agent is bevacizumab, and wherein the bevacizumab is administered twice every four weeks at a dose of 10 mg/kg.

102. The method of claim 1, wherein the immunoconjugate is IMGN853, wherein the immunoconjugate is administered once every three weeks at a dose of 6 mg/kg AIBW, wherein the platinum-based agent is carboplatin, and wherein the carboplatin is administered once every three weeks to obtain an AUC of 5 mg/ml·min.

103. The method of claim 1, wherein the immunoconjugate is IMGN853, wherein the immunoconjugate is administered once every three weeks at a dose of 6 mg/kg AIBW, wherein the platinum-based agent is carboplatin, and wherein the carboplatin is administered once every three weeks to obtain an AUC of 6 mg/ml·min.

104. The method of claim 1, wherein the immunoconjugate is IMGN853, wherein the immunoconjugate is administered once every four weeks at a dose of 6 mg/kg AIBW, wherein the doxorubicin is pegylated liposomal doxorubicin (PLD), and wherein the PLD is administered once every four weeks at a dose of 40 mg/m^2.