[8] The present invention meets the need for improved treatment of ovarian cancer, peritoneal cancer, and fallopian tube cancer by providing highly specific and effective anti-TF antibody-drug conjugates.

[9] All references cited herein, including patent applications, patent publications, and scientific literature, are herein incorporated by reference in their entirety, as if each individual reference were specifically and individually indicated to be incorporated by reference.

SUMMARY

[10] Provided herein are methods of treating ovarian cancer, peritoneal cancer or fallopian tube cancer in a subject, the method comprising administering to the subject an antibody-drug conjugate that binds to tissue factor (TF), wherein the antibody-drug conjugate comprises an anti-TF antibody or an antigen-binding fragment thereof conjugated to a monomethyl auristatin or a functional analog thereof or a functional derivative thereof, wherein the antibody-drug conjugate is administered at a dose ranging from about 0.65 mg/kg to about 2.1 mg/kg.. In one aspect, the present disclosure provides use of an antibody-drug conjugate that binds to tissue factor (TF) in the manufacture of a medicament for treating ovarian cancer, peritoneal cancer or fallopian tube cancer in a human subject, wherein the antibody-drug conjugate comprises an anti-TF antibody or an antigen-binding fragment thereof conjugated to an auristatin or a functional analog thereof or a functional derivative thereof, wherein the antibody-drug conjugate is to be administered at a dose ranging from 0.65 mg/kg to 2.1 mg/kg. In some examples, the dose is about 2.0 mg/kg. In some examples, the dose is 2.0 mg/kg. In some of any of the examples herein, the antibody-drug conjugate is administered once about every 3 weeks. In some of any of the examples herein, the antibody-drug conjugate is administered once every 3 weeks. In some of any of the examples herein, the dose is about 0.65 mg/kg. In some of any of the examples herein, the dose is 0.65 mg/kg. In some of any of the examples herein, the dose is about 0.9 mg/kg. In some of any of the examples herein, the dose is 0.9 mg/kg. In some of any of the examples herein, the antibody-drug conjugate is administered once every week. In some

CLAIMS

1. Use of an antibody-drug conjugate that binds to tissue factor (TF) in the manufacture of a medicament for treating ovarian cancer, peritoneal cancer or fallopian tube cancer in a human subject, wherein the antibody-drug conjugate comprises an anti-TF antibody or an antigen-binding fragment thereof conjugated to an auristatin or a functional analog thereof or a functional derivative thereof, wherein the antibody-drug conjugate is to be administered at a dose ranging from 0.65 mg/kg to 2.1 mg/kg.

2. The use of claim 1, wherein the dose is about 2.0 mg/kg.

3. The use of claim 1, wherein the dose is 2.0 mg/kg.

4. The use of any one of claims 1-3, wherein the antibody-drug conjugate is to be administered once about every 3 weeks.

5. The use of any one of claims 1-3, wherein the antibody-drug conjugate is to be administered once every 3 weeks.

6. The use of claim 1, wherein the dose is about 0.65 mg/kg.

7. The use of claim 1, wherein the dose is 0.65 mg/kg.

8. The use of claim 1, wherein the dose is about 0.9 mg/kg.

9. The use of claim 1, wherein the dose is 0.9 mg/kg.

10. The use of any one of claims 1 or 6-9, wherein the antibody-drug conjugate is to be administered once about every week.

11. The use of any one of claims 1 or 6-9, wherein the antibody-drug conjugate is to be administered once every week.

12. The use of any one of claims 1 or 6-9, wherein the antibody-drug conjugate is to be administered once about every 1 week for 3 consecutive weeks followed by about a 1 week resting period during which the antibody-drug conjugate is not to be administered.

13. The use of any one of claims 1 or 6-9, wherein the antibody-drug conjugate is to be administered once every 1 week for three consecutive weeks followed by a one week resting period during which the antibody-drug conjugate is not to be administered.

14. The use of any one of claims 1 or 6-9, wherein the antibody-drug conjugate is to be administered on about days 1, 8, and 15 of about a 4-week cycle.

15. The use of any one of claims 1 or 6-9, wherein the antibody-drug conjugate is to be administered on days 1, 8, and 15 of a 4-week cycle.

16. The use of any one of claims 1-15, wherein the subject has been previously treated with one or more therapeutic agents and did not respond to the treatment, wherein the one or more therapeutic agents is not the antibody-drug conjugate.

17. The use of any one of claims 1-15, wherein the subject has been previously treated with one or more therapeutic agents and relapsed after the treatment, wherein the one or more therapeutic agents is not the antibody-drug conjugate.

18. The use of any one of claims 1-15, wherein the subject has been previously treated with one or more therapeutic agents and has experienced disease progression during treatment, wherein the one or more therapeutic agents is not the antibody-drug conjugate.

19. The use of any one of claims 1-18, wherein the subject has been previously treated with a platinum-based therapy.

20. The use of claim 19, wherein the cancer is platinum-resistant.

21. The use of claim 20, wherein the subject experienced disease progression or relapsed 2 or more months after treatment with the platinum-based therapy.

22. The use of claim 20, wherein the subject experienced disease progression or relapsed within 6 months after treatment with the platinum-based therapy.

23. The use of claim 20, wherein the subject experienced disease progression or relapsed between 2 months and 6 months after treatment with the platinum-based therapy.

24. The use of any one of claims 19-23, wherein cancer is not platinum-refractory.

25. The use of any one of claims 19-24, wherein the subject did not experience disease progression or relapse within 2 months after treatment with the platinum-based therapy.

26. The use of any one of claims 1-25, wherein the subject has been previously treated with a VEGF antagonist.

27. The use of claim 26, wherein the VEGF antagonist is an anti-VEGF antibody.

28. The use of claim 27, wherein the anti-VEGF antibody is bevacizumab.

29. The use of any one of claims 1-28, wherein the subject received prior systemic therapy and experienced disease progression on or after the systemic therapy.

30. The use of any one of claims 1-29, wherein the subject received 1, 2, 3, 4 or 5 rounds of prior systemic therapy.

31. The use of claim 30, wherein the prior systemic therapy is a chemotherapy regimen and wherein poly ADP ribose polymerase (PARP) inhibitors are not chemotherapy.

32. The use of any one of claims 1-31, wherein the cancer is ovarian cancer.

33. The use of claim 32, wherein the ovarian cancer is epithelial ovarian cancer.

34. The use of any one of claims 1-31, wherein the cancer is peritoneal cancer.

35. The use of claim 34, wherein the peritoneal cancer is primary peritoneal cancer.

36. The use of any one of claims 1-31, wherein the cancer is fallopian tube cancer.

37. The use of any one of claims 1-36, wherein the cancer is an advanced stage cancer.

38. The use of claim 37, wherein the advanced stage cancer is a stage 3 or stage 4 cancer.

39. The use of claim 37 or claim 38, wherein the advanced stage cancer is metastatic cancer.

40. The use of any one of claims 1-39, wherein the cancer is recurrent cancer.

41. The use of any one of claims 1-40, wherein the auristatin is a monomethyl auristatin, such as monomethyl auristatin E (MMAE).

42. The use of any one of claims 1-41, wherein the anti-TF antibody or antigen-binding fragment thereof of the antibody-drug conjugate is a monoclonal antibody or a monoclonal antigen-binding fragment thereof.

43. The use of any one of claims 1-42, wherein the anti-TF antibody or antigen-binding fragment thereof of the antibody-drug conjugate comprises a heavy chain variable region and a light chain variable region, wherein the heavy chain variable region comprises:

(i) a CDR-H1 comprising the amino acid sequence of SEQ ID NO:1;

(ii) a CDR-H2 comprising the amino acid sequence of SEQ ID NO:2; and

(iii) a CDR-H3 comprising the amino acid sequence of SEQ ID NO:3; and

wherein the light chain variable region comprises:

(i) a CDR-L1 comprising the amino acid sequence of SEQ ID NO:4;

(ii) a CDR-L2 comprising the amino acid sequence of SEQ ID NO:5; and

(iii) a CDR-L3 comprising the amino acid sequence of SEQ ID NO:6.

44. The use of any one of claims 1-43, wherein the anti-TF antibody or antigen-binding fragment thereof of the antibody-drug conjugate comprises a heavy chain variable region comprising an amino acid sequence at least 85% identical to the amino acid sequence of SEQ ID NO:7 and a light chain variable region comprising an amino acid sequence at least 85% identical to the amino acid sequence of SEQ ID NO:8.

45. The use of any one of claims 1-44, wherein the anti-TF antibody or antigen-binding fragment thereof of the antibody-drug conjugate comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO:7 and a light chain variable region comprising the amino acid sequence of SEQ ID NO:8.

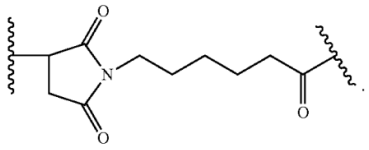
46. The use of any one of claims 1-45, wherein the anti-TF antibody of the antibody-drug conjugate is tisotumab.

47. The use of any one of claims 1-46, wherein the antibody-drug conjugate further comprises a linker between the anti-TF antibody or antigen-binding fragment thereof and the auristatin.

48. The use of claim 47, wherein the linker is a cleavable peptide linker.

49. The use of claim 48, wherein the cleavable peptide linker has a formula: -MC-vc-PAB-, wherein:

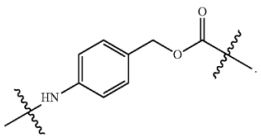
a) MC is:



,

b) vc is the dipeptide valine-citrulline, and

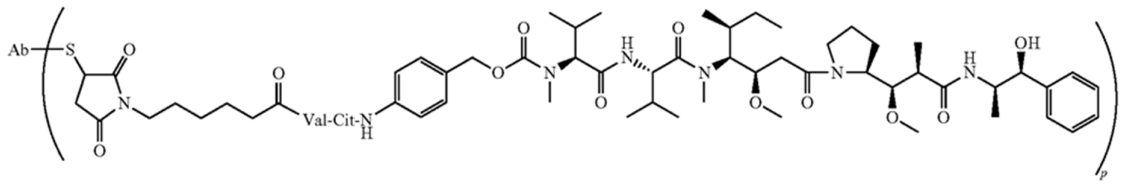
c) PAB is:



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50. The use of any one of claims 47-49, wherein the linker is attached to sulphydryl residues of the anti-TF antibody obtained by partial reduction or full reduction of the anti-TF antibody or antigen-binding fragment thereof.

51. The use of claim 50, wherein the linker is attached to monomethyl auristatin E (MMAE), wherein the antibody-drug conjugate has the following structure:



Ab-MC-vc-PAB-MMAE

wherein p denotes a number from 1 to 8, S represents a sulphydryl residue of the anti-TF antibody, and Ab designates the anti-TF antibody or antigen-binding fragment thereof.

52. The use of claim 51, wherein the average value of p in a population of the antibody-drug conjugates is about 4.

53. The use of any one of claims 1-52, wherein the antibody-drug conjugate is tisotumab vedotin.

54. The use of any one of claims 1-53, wherein the route of administration for the antibody-drug conjugate is intravenous.

55. The use of any one of claims 1-54, wherein at least 0.1%, at least 1%, at least 2%, at least 3%, at least 4%, at least 5%, at least 6%, at least 7%, at least 8%, at about 9%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 35%, at least 40%, at least 45%, at least 50%, at least 60%, at least 70%, or at least 80% of the cancer cells express TF.

56. The use of any one of claims 1-55, wherein one or more therapeutic effects in the subject is improved after administration of the antibody-drug conjugate relative to a baseline.

57. The use of claim 56, wherein the one or more therapeutic effects is selected from the group consisting of: size of a tumor derived from the cancer, objective response rate, duration of response, time to response, progression free survival, overall survival and CA-125 level.

58. The use of any one of claims 1-57, wherein the size of a tumor derived from the cancer is reduced by at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 35%, at least 40%, at least 45%, at least 50%, at least 60%, at least 70%, or at least 80% relative to the size of the tumor derived from the cancer before administration of the antibody-drug conjugate.

59. The use of any one of claims 1-58, wherein the objective response rate is at least 20%, at least 25%, at least 30%, at least 35%, at least 40%, at about 45%, at least 50%, at least 60%, at least 70%, or at least 80%.

60. The use of any one of claims 1-59, wherein the subject exhibits progression-free survival of at least 1 month, at least 2 months, at least 3 months, at least 4 months, at least 5 months, at least 6 months, at least 7 months, at least 8 months, at least 9 months, at least 10 months, at least 11 months, at least 12 months, at least eighteen months, at least two years, at least three years, at least four years, or at least five years after administration of the antibody-drug conjugate.

61. The use of any one of claims 1-60, wherein the subject exhibits overall survival of at least 1 month, at least 2 months, at least 3 months, at least 4 months, at least 5 months, at least 6 months, at least 7 months, at least 8 months, at least 9 months, at least 10 months, at least 11 months, at least 12 months, at least eighteen months, at least two years, at least three years, at least four years, or at least five years after administration of the antibody-drug conjugate.

62. The use of any one of claims 1-61, wherein the duration of response to the antibody-drug conjugate is at least 1 month, at least 2 months, at least 3 months, at least 4 months, at least 5 months, at least 6 months, at least 7 months, at least 8 months, at least 9 months, at least 10 months, at least 11 months, at least 12 months, at least eighteen months, at least two years, at least three years, at least four years, or at least five years after administration of the antibody-drug conjugate.

63. The use of any one of claims 1-62, wherein the subject exhibits a reduction in CA-125 level in a blood sample from the subject by at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 35%, at least 40%, at least 45%, at least 50%, at least 60%, at least 70%, or at least 80% relative to the CA-125 level in a blood sample obtained from the subject before administration of the antibody-drug conjugate.

64. The use of any one of claims 1-63, wherein the subject has one or more adverse events and is to be further administered an additional therapeutic agent to eliminate or reduce the severity of the one or more adverse events.

65. The use of any one of claims 1-64, wherein the subject is at risk of developing one or more adverse events and is to be further administered an additional therapeutic agent to prevent or reduce the severity of the one or more adverse events.

66. The use of claim 64 or claim 65, wherein the one or more adverse events is anaphylaxis, anemia, abdominal pain, hypokalemia, hyponatremia, severe hypersensitivity, epistaxis, an infusion-related reaction, fatigue, nausea, alopecia, conjunctivitis, keratitis, symblepharon, constipation, decreased appetite, diarrhea, vomiting, peripheral neuropathy, or general physical health deterioration.

67. The use of any one of claims 64 -66, wherein the one or more adverse events is a grade 3 or greater adverse event.

68. The use of nay one of claims 64-66, wherein the one or more adverse events is a serious adverse event.

69. The use of any one of claims 64-68, wherein the one or more adverse events is conjunctivitis and/or keratitis and the additional agent is a preservative-free lubricating eye drop, an ocular vasoconstrictor and/or a steroid eye drop.

70. The use of any one of claims 1-69, wherein the antibody-drug conjugate is to be administered as a monotherapy.

71. The use of any one of claims 1-70, wherein the antibody-drug conjugate is in a pharmaceutical composition comprising the antibody-drug conjugate and a pharmaceutical acceptable carrier.

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