

proliferation and cytokine production and block progression of the cell cycle. Thus, it was hypothesized that therapeutic blockade of the PD-1 pathway may be helpful in overcoming immune tolerance and that such a selective blockade may be of use in the treatment of cancer.

[0006] In human studies, R. M. Wong et al. (*Int. Immunol.* 19: 1223-1234 (2007)) showed that PD-1 blockade using a fully human anti-PD-1 antibody augmented the absolute numbers of tumor-specific CD8⁺ T cells (CTLs) in *ex vivo* stimulation assays using vaccine antigens and cells from vaccinated individuals. In a similar study, antibody blockade of PD-L1 resulted in enhanced cytolytic activity of tumor-associated antigen-specific cytotoxic T cells and increased cytokine production by tumor specific T_H cells (Blank C. et al., *Int. J. Cancer* 119: 317-327 (2006)). In 2014, the anti-PD-1 antibody pembrolizumab (Keytruda[®]) was approved by the United States Food and Drug Agency (US FDA) for the treatment of patients with unresectable or metastatic melanoma. Pembrolizumab was then subsequently approved for the treatment of certain patients with metastatic non-small cell lung cancer (NSCLC), recurrent or metastatic head and neck squamous cell cancer and refractory classical Hodgkin lymphoma.

[0007] Despite the recent developments, the prognosis for many patients with cancers, and in particular ovarian cancer, fallopian tube cancer, and cancer of the peritoneum, remains poor, there is a clear unmet medical need for more effective therapies that can, for example, achieve a high objective response rate as well as durable responses.

BRIEF SUMMARY

[0008] The present disclosure relates to the discovery that a combination of 6 mg/kg AIBW of IMGN853 (mirvetuximab soravtansine) and 200 mg pembrolizumab (Keytruda[®]) is effective for the treatment of ovarian cancer, fallopian tube cancer, and cancer of the peritoneum. Accordingly, combinations of an anti-FOLR1 immunoconjugate (*e.g.* IMGN853) with an anti-PD-1 antibody or antigen-binding fragment thereof (*e.g.*, pembrolizumab) are provided herein. To date, there is no clinical data available regarding treatment using combinations of an anti-FOLR1 immunoconjugate with a checkpoint inhibitor such as an anti-PD-1 antibody or antigen-binding fragment thereof.

[0008a] In one aspect, the present disclosure relates to use of a combination comprising an immunoconjugate that binds to FOLR1, wherein said immunoconjugate comprises a maytansinoid and an anti-FOLR1 antibody or an 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-PD-1 antibody or an antigen-binding fragment thereof comprising a VH CDR1 sequence of SEQ ID

NO:20, a VH CDR2 sequence of SEQ ID NO:21, and a VH CDR3 sequence of SEQ ID NO:22, and a VL CDR1 sequence of SEQ ID NO:23, a VL CDR2 sequence of SEQ ID NO:24, and a VL CDR3 sequence of SEQ ID NO:25 in the manufacture of a medicament for the treatment of an ovarian cancer, a peritoneal cancer, or a fallopian tube cancer.

[0009] Methods for treating a patient having ovarian cancer, peritoneal cancer, endometrial cancer or fallopian tube cancer are provided herein. In some examples, the method comprises administering to the patient in need thereof an immunoconjugate that binds to FOLR1, wherein the immunoconjugate comprises a maytansinoid and an anti-FOLR1 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-PD-1 antibody or antigen-binding fragment thereof comprising a VH CDR1 sequence of SEQ ID NO: 20, a VH CDR2 sequence of SEQ ID NO: 21, and a VH CDR3 sequence of SEQ ID NO: 22, and a VL CDR1 sequence of SEQ ID NO: 23, a VL CDR2 sequence of SEQ ID NO: 24, and a VL CDR3 sequence of SEQ ID NO: 25.

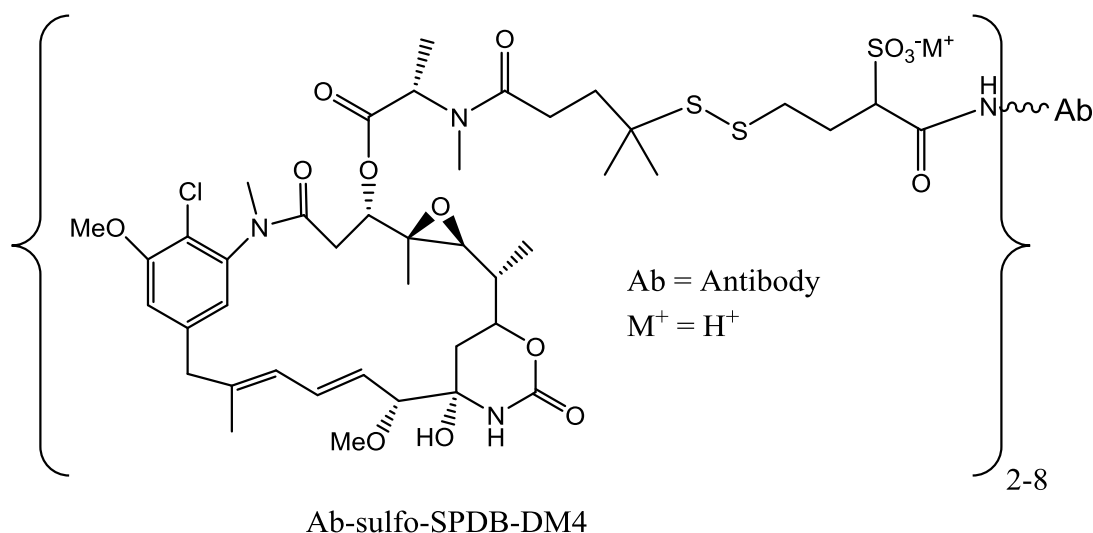
[0010] In some examples, the anti-FOLR1 antibody or antigen-binding fragment thereof comprises a VH comprising the sequence of SEQ ID NO: 3 and a VL comprising the sequence of SEQ ID NO: 5. In some examples, the anti-FOLR1 antibody or antigen-binding fragment comprises a heavy chain comprising the sequence of SEQ ID NO: 13 and a light chain comprising the sequence SEQ ID NO: 15. In some examples, the maytansinoid is DM4. In some examples, the maytanisonid is linked to the antibody or antigen-binding fragment thereof by a sulfo-SPDB linker.

[0010a] In another aspect, the present disclosure relates to use of a combination comprising an immunoconjugate that binds to FOLR1, wherein said immunoconjugate comprises a maytansinoid and an anti-FOLR1 antibody or an antigen-binding fragment thereof comprising (i) a heavy chain comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the American Type Culture Collection (ATCC) as PTA-10772 and (ii) a light chain comprising the same amino acid sequence as the amino acid sequence of the light chain encoded by the plasmid deposited with the ATCC as PTA-10774; and an anti-PD-1 antibody or an antigen-binding fragment thereof comprising a VH CDR1 sequence of SEQ ID NO:20, a VH CDR2 sequence of SEQ ID NO:21, and a VH CDR3 sequence of SEQ ID NO:22, and a VL CDR1 sequence of SEQ ID NO:23, a VL CDR2 sequence of SEQ ID NO:24, and a VL CDR3 sequence of SEQ ID NO:25 in the manufacture of a medicament for the treatment of an ovarian cancer, a peritoneal cancer, or a fallopian tube cancer.

[0011] In some examples, the method for treating a patient having ovarian cancer, peritoneal cancer, or fallopian tube cancer comprising administering to the patient in need thereof an immunoconjugate that binds to FOLR1, wherein the immunoconjugate comprises a maytansinoid and an anti-FOLR1 antibody or antigen-binding fragment thereof comprising (i) a heavy chain comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the American Type Culture Collection (ATCC) as PTA-10772 and (ii) a light chain comprising the same amino acid sequence as the amino acid sequence of the light chain encoded by the plasmid deposited with the ATCC as PTA-10774; and an anti-PD-1 antibody or antigen-binding fragment thereof comprising a VH CDR1 sequence of SEQ ID NO:20, a VH CDR2 sequence of SEQ ID NO:21, and a VH CDR3 sequence of SEQ ID NO:22, and a VL CDR1 sequence of SEQ ID NO:23, a VL CDR2 sequence of SEQ ID NO:24, and a VL CDR3 sequence of SEQ ID NO:25. In some examples, the the maytansinoid is DM4, and wherein the DM4 is linked to the

antibody by sulfo-SPDB. In some examples, the immunoconjugate comprises 1-10 maytansinoid molecules, 2-5 maytansinoid molecules, or 3-4 maytansinoid molecules. In some examples, the maytansinoid (*e.g.*, DM4) is linked to the anti-FOLR1 antibody or antigen-binding fragment thereof via a lysine residue of the antibody or antigen-binding fragment thereof. In some examples, the 1-10, 2-5, or 3-4 maytansinoid molecules (*e.g.*, DM4) are attached to the anti-FOLR1 antibody or antigen-binding fragment thereof via lysine residues of the antibody or antigen-binding fragment thereof.

[0012] In some examples, the immunoconjugate has the following chemical structure:



wherein “Ab” represents the anti-FOLR1 antibody or antigen binding fragment thereof.

[0013] In some examples, the 2-8 maytansinoids (*e.g.*, DM4) are linked to the anti-FOLR1 antibody or antigen-binding fragment thereof via a lysine residue of the antibody or antigen-binding fragment thereof.

[0014] In some examples, the immunoconjugate comprises 2-5 or 3-4 maytansinoid molecules. In some examples, the 2-5 or 3-4 maytansinoid molecules (*e.g.*, DM4) are attached to the anti-FOLR1 antibody or antigen-binding fragment thereof via lysine residues of the antibody or antigen-binding fragment thereof. In some examples, the immunoconjugate is administered once every three weeks. In some examples, the immunoconjugate is administered at a dose of about 6 mg/kg AIBW. In some examples, the immunoconjugate is administered at a dose of about 5 mg/kg AIBW. In some examples, the anti-PD-1 antibody or antigen-binding fragment thereof comprises a VH comprising the sequence of SEQ ID NO:26 and a VL comprising the sequence of SEQ ID NO:27. In some examples, the anti-PD-1 antibody or antigen-binding fragment thereof is pembrolizumab. In some examples, the anti-PD-1 antibody or antigen-binding fragment thereof is administered once every 3 weeks. In some examples, the anti-PD-1 antibody or antigen-binding fragment thereof is administered at a dose of about 200 mg.

[0015] In some examples, the cancer is ovarian cancer. In some examples, the ovarian cancer is epithelial ovarian cancer. In some examples, the ovarian cancer is platinum resistant, relapsed, or refractory. In some examples, the administration results in a decrease in CA125.

[0016] In some examples, the cancer is peritoneal cancer. In some examples, the peritoneal cancer is primary peritoneal cancer.

[0017] In some examples, the cancer is endometrial cancer. In some examples, the endometrial cancer is serous endometrial cancer. In some examples, the endometrial cancer is endometrioid endometrial cancer.

[0018] In some examples, expression of FR α is low, medium, or high. Low expression refers to a range of at least 25% of cells to 49% of cells in the sample obtained from the patient having an IHC score of 2 or 3. Medium expression refers to a range of at least 50% of cells to 74% of cells in the sample obtained from the patient having an IHC score of 2 or 3. High expression refers to a range of 75% or more cells in the sample obtained from the patient having an IHC score of 2 or 3. The method of treatment described herein may be wherein the patient sample has an IHC score of at least 2, and wherein at least 25% to no more than 49% of the cells in the patient sample has an IHC score of at least 2. The method of treatment may be wherein the patient sample has an IHC score of at least 2, and wherein at least 50% to no more than 74% of the cells in the patient sample has an IHC score of at least 2. The method of treatment may be wherein the patient sample has an IHC score of at least 2, and wherein at least 75% to 100% of the cells in the patient sample has an IHC score of at least 2.

[0019] According to an immunohistochemistry visual scoring system, a patient may be determined to be FR α positive. FR α positive may refer to greater than or equal to 50% of tumor cells with FOLR1 membrane staining visible at less than or equal to 10X microscope objective. The methods of treatment described herein may be for a patient described as having medium or high FR α expression.

[0020] A patient may be determined to be FOLR1 positive and be referred to as having FOLR1 positive status.

[0021] In some examples, the cancer expresses PD-L1.

[0022] In some examples, the patient has at least one lesion that meets the definition of measurable disease according to RECIST 1.1.

[0023] In some examples, the immunoconjugate and the anti-PD-1 antibody or antigen-binding fragment thereof are administered sequentially in separate pharmaceutical compositions. In some embodiments, the immunoconjugate is administered before the anti-PD-1 antibody or antigen-binding fragment thereof.

[0024] In some examples, the immunoconjugate is administered intravenously or intraperitoneally. In some examples, the anti-PD-1 antibody or antigen-binding fragment thereof is administered intravenously. In some examples, administration is a first-line therapy. In some examples, administration is a second-line therapy. In some examples, the administration is a third-line or later than third line therapy. In some examples, the patient has previously been treated with a platinum compound, a taxane, bevacizumab, a PARP inhibitor, or a combination thereof. In some examples, the cancer is primary platinum

refractory. In some examples, the cancer is platinum resistant. In some embodiments, the cancer is platinum sensitive. In some examples, the cancer is metastatic or advanced.

[0025] In some examples, administration of the immunoconjugate with the anti-PD-1 antibody or antigen-binding fragment thereof produces a greater therapeutic benefit than administration of the immunoconjugate alone or the anti-PD-1 antibody or antigen-binding fragment thereof alone. In some examples, administration of the immunoconjugate and the anti-PD-1 antibody or antigen-binding fragment thereof does not produce more toxicity than administration of the immunoconjugate alone or the anti-PD-1 antibody or antigen-binding fragment thereof alone.

[0026] In some examples, the method further comprises administering a steroid to the patient. In some examples, the steroid is administered prior to the administration of the immunoconjugate. In some examples, the steroid is administered about 30 minutes prior to the administration of the immunoconjugate. In some examples, the steroid is a corticosteroid. In some examples, the steroid is dexamethasone. In some examples, the steroid is administered orally, intravenously, or a combination thereof. In some embodiments, the steroid is administered as an eye drop. In some examples, the eye drop is a lubricating eyedrop. In some examples, the method further comprises administering acetaminophen, diphenhydramine, or a combination thereof to the patient.

[0026a] In another aspect, the present disclosure relates to use of a combination comprising 6 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab, wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the antibody comprises (i) a heavy chain comprising the sequence of SEQ ID NO:13 and (ii) a light chain comprising the sequence of SEQ ID NO:15 in the manufacture of a medicament for the treatment of an ovarian, a peritoneal, or a fallopian tube cancer.

[0027] In some examples, the methods comprises treating a patient having ovarian, peritoneal, or fallopian tube cancer comprising administering to the patient in need thereof 6 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab, wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the an antibody comprises (i) a heavy chain comprising the sequence of SEQ ID NO:13 and (ii) a light chain comprising the sequence of SEQ ID NO:15.

[0028] In some examples, the methods comprises treating a patient having ovarian, peritoneal, or fallopian tube cancer comprising administering to the patient in need thereof 5 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab,

wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the an antibody comprises (i) a heavy chain comprising the sequence of SEQ ID NO:13 and (ii) a light chain comprising the sequence of SEQ ID NO:15.

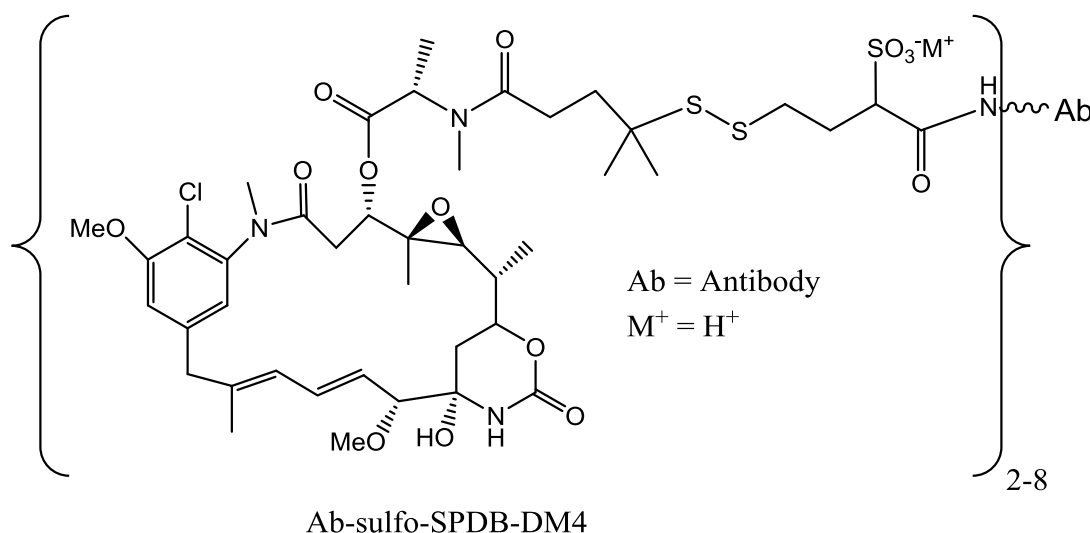
[0028a] In another aspect, the present disclosure relates to use of a combination comprising 6 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab, wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the antibody comprises (i) a heavy chain comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the American Type Culture Collection (ATCC) as PTA-10772 and (ii) a light chain comprising the same amino acid sequence as the amino acid sequence of the light chain encoded by the plasmid deposited with the ATCC as PTA-10774 in the manufacture of a medicament for the treatment of an ovarian, a peritoneal, or a fallopian tube cancer.

[0029] In some examples, the method comprises treating a patient having ovarian, peritoneal, or fallopian tube cancer comprising administering to the patient in need thereof 6 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab, wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the an antibody comprises (i) a heavy chain comprising the

same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the American Type Culture Collection (ATCC) as PTA-10772 and (ii) a light chain comprising the same amino acid sequence as the amino acid sequence of the light chain encoded by the plasmid deposited with the ATCC as PTA-10774.

[0030] In some examples, the method comprises treating a patient having ovarian, peritoneal, or fallopian tube cancer comprising administering to the patient in need thereof 5 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab, wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the antibody comprises (i) a heavy chain comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the American Type Culture Collection (ATCC) as PTA-10772 and (ii) a light chain comprising the same amino acid sequence as the amino acid sequence of the light chain encoded by the plasmid deposited with the ATCC as PTA-10774.

[0031] In some examples, the immunoconjugate comprises 1-10, 2-5, or 3-4 maytansinoids. In some embodiments, the immunoconjugate has the following chemical structure:



wherein “Ab” represents the anti-FOLR1 antibody or antigen binding fragment thereof.

[0032] In some examples, the 2-8 maytansinoid molecules (*e.g.*, DM4) are attached to the antibody via lysine residues of the antibody. In some examples, the immunoconjugate comprises 2-5 or 3-4 maytansinoids. In some examples, at least 25% of cells in a tumor sample obtained from the patient have an FOLR1 IHC score of at least 2. In some examples, the immunoconjugate and the pembrolizumab are administered intravenously, and the immunoconjugate is administered before the pembrolizumab. In some embodiments, a steroid is administered prior to the administration of the immunoconjugate.

WHAT IS CLAIMED IS:

1. Use of a combination comprising:

an immunoconjugate that binds to FOLR1, wherein said immunoconjugate comprises a maytansinoid and an anti-FOLR1 antibody or an 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-PD-1 antibody or an antigen-binding fragment thereof comprising a VH CDR1 sequence of SEQ ID NO:20, a VH CDR2 sequence of SEQ ID NO:21, and a VH CDR3 sequence of SEQ ID NO:22, and a VL CDR1 sequence of SEQ ID NO:23, a VL CDR2 sequence of SEQ ID NO:24, and a VL CDR3 sequence of SEQ ID NO:25

in the manufacture of a medicament for the treatment of an ovarian cancer, a peritoneal cancer, or a fallopian tube cancer.

2. The use of claim 1, wherein the anti-FOLR1 antibody or the antigen-binding fragment thereof comprises a VH comprising the sequence of SEQ ID NO:3 and a VL comprising the sequence of SEQ ID NO:5.

3. The use of claim 2, wherein the anti-FOLR1 antibody or the antigen-binding fragment comprises a heavy chain comprising the sequence of SEQ ID NO:13 and a light chain comprising the sequence SEQ ID NO:15.

4. The use of any one of claims 1-3, wherein the maytansinoid is DM4.

5. The use of any one of claims 1-4, wherein the maytanisonid is linked to the antibody or the antigen-binding fragment thereof by a sulfo-SPDB linker.

6. Use of a combination comprising:

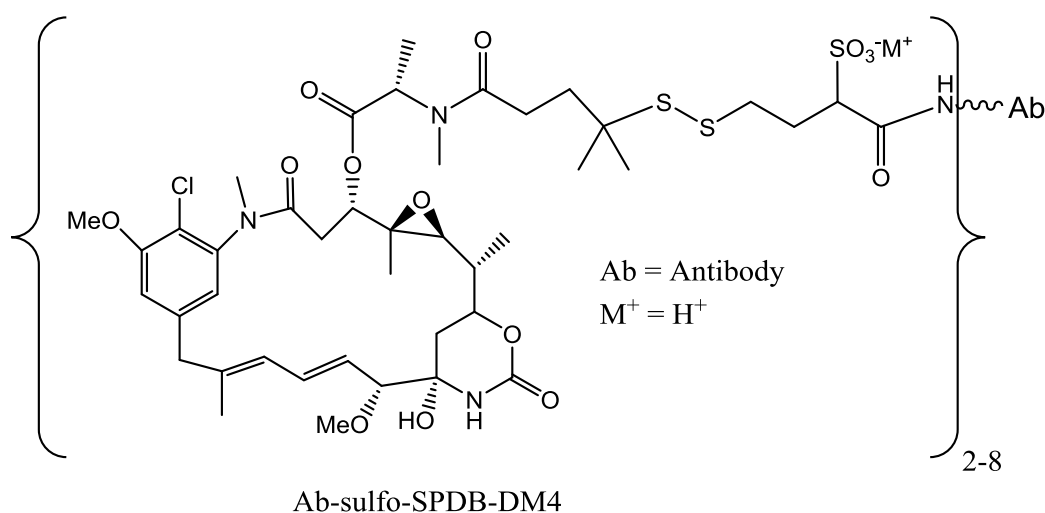
an immunoconjugate that binds to FOLR1, wherein said immunoconjugate comprises a maytansinoid and an anti-FOLR1 antibody or an antigen-binding fragment thereof comprising (i) a heavy chain comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the American Type Culture Collection (ATCC) as PTA-10772 and (ii) a light chain comprising the same

amino acid sequence as the amino acid sequence of the light chain encoded by the plasmid deposited with the ATCC as PTA-10774; and

an anti-PD-1 antibody or an antigen-binding fragment thereof comprising a VH CDR1 sequence of SEQ ID NO:20, a VH CDR2 sequence of SEQ ID NO:21, and a VH CDR3 sequence of SEQ ID NO:22, and a VL CDR1 sequence of SEQ ID NO:23, a VL CDR2 sequence of SEQ ID NO:24, and a VL CDR3 sequence of SEQ ID NO:25

in the manufacture of a medicament for the treatment of an ovarian cancer, a peritoneal cancer, or a fallopian tube cancer.

7. The use of claim 6, wherein the maytansinoid is DM4, and wherein the DM4 is linked to the antibody by sulfo-SPDB.
8. The use of any one of claims 1-7, wherein the immunoconjugate comprises 1-10 maytansinoid molecules, 2-5 maytansinoid molecules, or 3-4 maytansinoid molecules.
9. The use of any one of claims 1-7, wherein the immunoconjugate has the following chemical structure:



wherein “Ab” represents the anti-FOLR1 antibody or the antigen binding fragment thereof.

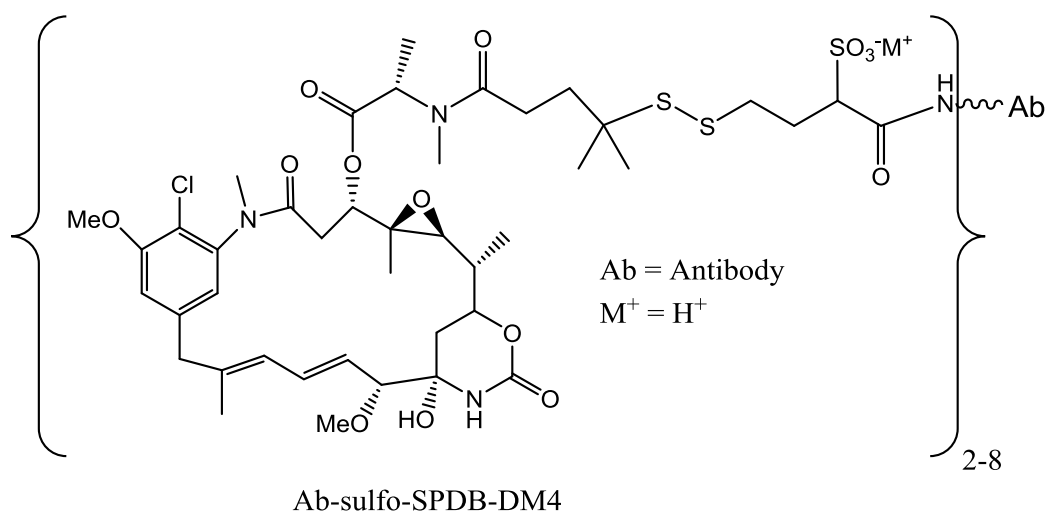
10. The use of claim 9, wherein the immunoconjugate comprises 2-5 or 3-4 maytansinoid molecules.
11. The use of any one of claims 1-10, wherein the immunoconjugate is to be administered once every three weeks.

12. The use of any one of claims 1-11, wherein the immunoconjugate is to be administered at a dose of about 6 mg/kg AIBW.
13. The use of any one of claims 1-12, wherein the anti-PD-1 antibody or the antigen-binding fragment thereof comprises a VH comprising the sequence of SEQ ID NO:26 and a VL comprising the sequence of SEQ ID NO:27.
14. The use of claim 13, wherein the anti-PD-1 antibody or the antigen-binding fragment thereof is pembrolizumab.
15. The use of any one of claims 1-14, wherein the anti-PD-1 antibody or the antigen-binding fragment thereof is to be administered once every 3 weeks.
16. The use of any one of claims 1-15, wherein the anti-PD-1 antibody or the antigen-binding fragment thereof is to be administered at a dose of about 200 mg.
17. The use of any one of claims 1-16, wherein the cancer is an ovarian cancer.
18. The use of claim 17, wherein the ovarian cancer is an epithelial ovarian cancer.
19. The use of claim 17 or 18, wherein the ovarian cancer is platinum resistant, relapsed, or refractory.
20. The use of any one of claims 17-19, wherein the administration results in a decrease in CA125.
21. The use of any one of claims 1-16, wherein the peritoneal cancer is a primary peritoneal cancer.
22. The use of any one of claims 1-21, wherein the cancer expresses a FOLR1 protein.
23. The use of claim 22, wherein the FOLR1 protein expression was measured by immunohistochemistry (IHC) in a tumor sample that had been obtained from the patient.
24. The use of claim 23, wherein a staining score of the tumor sample of at least 1 hetero, at least 1 homo, at least 2 hetero, at least 2 homo, or at least 3 hetero was measured by the IHC.
25. The use of claim 23, wherein at least 25%, at least 33%, at least 50%, at least 66%, or at least 75% of cells in the tumor sample that had been obtained from the patient have an IHC score of at least 2.

26. The use of claim 23, wherein at least 25%, at least 33%, at least 50%, at least 66%, or at least 75% of cells in the tumor sample that had been obtained from the patient have an IHC score of at least 3.
27. The use of claim 23, wherein the patient is determined to be FR α positive.
28. The use of claim 27, wherein FR α positive comprises at least 50% of tumor cells having FOLR1 membrane staining visible at less than or equal to 10X microscope objective.
29. The use of claim 23, wherein at least 25% of cells in the tumor sample that had been obtained from the patient have an IHC score of at least 2.
30. The use of claim 29, wherein at least 25% to no more than 49% of cells in the tumor sample have an IHC score of at least 2.
31. The use of claim 29, wherein at least 50% to no more than 74% of cells in the tumor sample have an IHC score of at least 2.
32. The use of claim 29, wherein at least 75% to 100% of cells in the tumor sample have an IHC score of at least 2.
33. The use of any one of claims 1-32, wherein the cancer expresses PD-L1.
34. The use of any one of claims 1-33, wherein the patient has at least one lesion that meets the definition of measurable disease according to RECIST 1.1.
35. The use of any one of claims 1-34, wherein the immunoconjugate and the anti-PD-1 antibody or the antigen-binding fragment thereof are to be administered sequentially in separate pharmaceutical compositions.
36. The use of claim 35, wherein the immunoconjugate is to be administered before the anti-PD-1 antibody or the antigen-binding fragment thereof.
37. The use of any one of claims 1-36, wherein the immunoconjugate is to be administered intravenously or intraperitoneally.
38. The use of any one of claims 1-37, wherein the anti-PD-1 antibody or the antigen-binding fragment thereof is to be administered intravenously.
39. The use of any one of claims 1-38, wherein administration is a first-line therapy.

40. The use of any one of claims 1-39 wherein administration is a second-line therapy.
41. The use of any one of claims 1-40, wherein the administration is a third-line therapy or later than third line therapy.
42. The use of any one of claims 1-38, 40, and 41, wherein the patient has previously been treated with a platinum compound, a taxane, bevacizumab, a PARP inhibitor, or a combination thereof.
43. The use of any one of claims 1-42, wherein the cancer is a primary platinum refractory.
44. The use of any one of claims 1-42, wherein the cancer is platinum resistant.
45. The use of any one of claims 1-18 and 20-42, wherein the cancer is platinum sensitive.
46. The use of any one of claims 1-45, wherein the cancer is a metastatic cancer or an advanced cancer.
47. The use of any one of claims 1-46, wherein administration of the immunoconjugate with the anti-PD-1 antibody or the antigen-binding fragment thereof produces a greater therapeutic benefit than administration of the immunoconjugate alone or the anti-PD-1 antibody or the antigen-binding fragment thereof alone.
48. The use of any one of claims 1-47, wherein administration of the immunoconjugate and the anti-PD-1 antibody or the antigen-binding fragment thereof does not produce more toxicity than administration of the immunoconjugate alone or the anti-PD-1 antibody or the antigen-binding fragment thereof alone.
49. The use of any one of claims 1-48, wherein said combination further comprises a steroid.
50. The use of claim 49, wherein the steroid is to be administered prior to the administration of the immunoconjugate.
51. The use of claim 50, wherein the steroid is to be administered about 30 minutes prior to the administration of the immunoconjugate.
52. The use of any one of claims 49-51, wherein the steroid is a corticosteroid.
53. The use of any one of claims 49-52, wherein the steroid is dexamethasone.
54. The use of any one of claims 49-53, wherein the steroid is to be administered orally, intravenously, or a combination thereof.

55. The use of any one of claims 49-53, wherein the steroid is to be administered as an eye drop.
56. The use of claim 55, wherein the eye drop is a lubricating eyedrop.
57. The use of any one of claims 1-56, wherein said combination further comprises acetaminophen, diphenhydramine, or a combination thereof.
58. Use of a combination comprising 6 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab,
- wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the antibody comprises (i) a heavy chain comprising the sequence of SEQ ID NO:13 and (ii) a light chain comprising the sequence of SEQ ID NO:15
- in the manufacture of a medicament for the treatment of an ovarian, a peritoneal, or a fallopian tube cancer.
59. Use of a combination comprising 6 mg/AIBW kg of an immunoconjugate that binds to FOLR1 and 200 mg of pembrolizumab,
- wherein the immunoconjugate that binds to FOLR1 comprises an antibody linked to the maytansinoid DM4 by a sulfo-SPDB linker, wherein the antibody comprises (i) a heavy chain comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the American Type Culture Collection (ATCC) as PTA-10772 and (ii) a light chain comprising the same amino acid sequence as the amino acid sequence of the light chain encoded by the plasmid deposited with the ATCC as PTA-10774
- in the manufacture of a medicament for the treatment of an ovarian, a peritoneal, or a fallopian tube cancer.
60. The use of claim 58 or 59, wherein the immunoconjugate comprises 1-10, 2-5, or 3-4 maytansinoids.
61. The use of claim 58 or 59, wherein the immunoconjugate has the following chemical structure:



wherein “Ab” represents the anti-FOLR1 antibody or antigen binding fragment thereof.

62. The use of claim 61, wherein the immunoconjugate comprises 2-5 or 3-4 maytansinoids.
63. The use of any one of claims 58-62, wherein at least 25% of cells in a tumor sample that had been obtained from the patient have an FOLR1 IHC score of at least 2.
64. The use of any one of claims 58-63, wherein the immunoconjugate and the pembrolizumab are to be administered intravenously, and the immunoconjugate is to be administered before the pembrolizumab.
65. The use of any one of claims 58-64, wherein a steroid is to be administered prior to the administration of the immunoconjugate.
66. The use of any one of claims 1-46, wherein said patient has medium or high FR α expression on the ovarian cancer, the peritoneal cancer or the fallopian tube cancer.
67. The use of any one of claims 1-66, wherein said patient has FOLR1 positive status.