

SUMMARY

[0010] In one aspect, the present disclosure provides a use of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1 in the manufacture of a medicament for treating a subject having or at risk of having cancer, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region (HCVR) having at least 95% identity to SEQ ID NO:1, and a light chain variable region (LCVR) having at least 95% identity to SEQ ID NO:2, wherein the cancer is prostate cancer, optionally wherein the prostate cancer is castration resistant prostate cancer, and optionally wherein the prostate cancer is an adenocarcinoma of the prostate.

[0010a] In another aspect, the present disclosure provides a use of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1 in the manufacture of a medicament for treating a subject having or at risk of having cancer, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region (HCVR) having at least 95% identity to SEQ ID NO:1, and a light chain variable region (LCVR) having at least 95% identity to SEQ ID NO:2, wherein the cancer is melanoma, and optionally wherein the melanoma is cutaneous malignant melanoma.

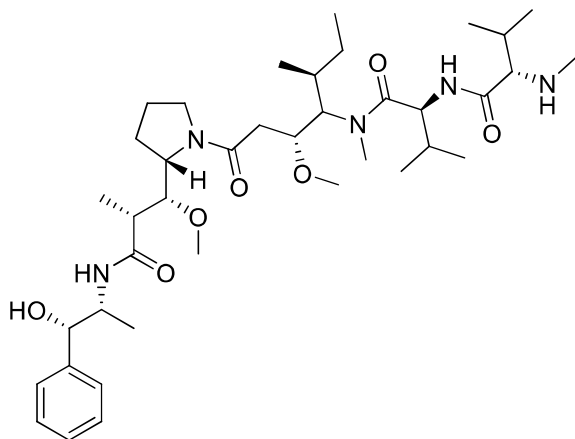
[0010b] Provided herein is a method of treating a subject having or at risk of having cancer, comprising administering to the subject a therapeutically effective dose of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region (HCVR) having at least 95% identity to SEQ ID NO:1, and a light chain variable region (LCVR) having at least 95% identity to SEQ ID NO:2, wherein the cancer is prostate cancer. In some embodimentexamples, the cancer is metastatic. In some embodimentexamples, the prostate cancer is castration resistant prostate cancer. In some embodimentexamples, the subject has not been previously treated with chemotherapy for the castration resistant prostate cancer. In some embodimentexamples, the subject has not been previously treated with radioisotope therapy. In some embodimentexamples, the subject has been previously treated with no more than one line of an androgen-receptor targeted therapy. In some embodimentexamples, the androgen-receptor targeted therapy is selected from the group consisting of abiraterone acetate,

enzalutamide, apalutamide, and darolutamide. In some embodimentexamples, the subject does not have a BRCA mutation. In some embodimentexamples, the prostate cancer is an adenocarcinoma of the prostate.

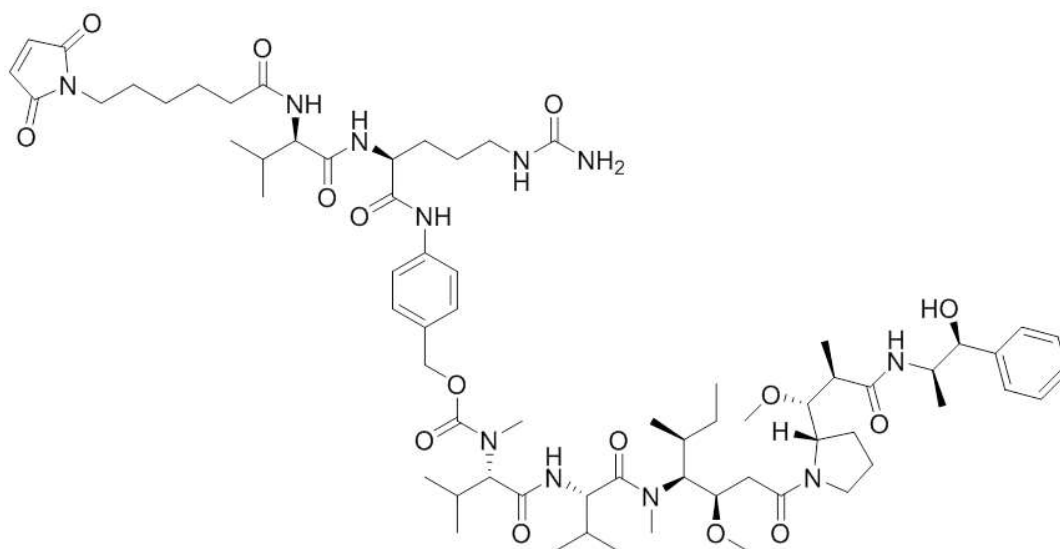
[0011] Also provided herein is a method of treating a subject having or at risk of having cancer, comprising administering to the subject a therapeutically effective dose of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region (HCVR) having at least 95% identity to SEQ ID NO:1, and a light chain variable region (LCVR) having at least 95% identity to SEQ ID NO:2, wherein the cancer is melanoma. In some embodimentexamples, the cancer is locally advanced unresectable or metastatic. In some embodimentexamples, the subject has not been previously treated with cytotoxic chemotherapy. In some embodimentexample, the subject has been previously treated with no more than 2 prior systemic therapies for advanced disease. In some embodimentexamples, the melanoma is cutaneous malignant melanoma. In some embodimentexamples, the subject has been previously treated with an anti-PD-L1 or anti-PD-1 therapy. In some embodimentexamples, the subject was treated with ipilimumab in combination with the anti-PD-L1 or anti-PD-1 therapy. In some embodimentexamples, the subject has a BRAF mutation. In some

embodimentexamples, the subject was treated with a BRAF inhibitor prior to being treated with the anti-PD-L1 or anti-PD-1 therapy. In some **embodimentexamples**, the subject was treated with a MEK inhibitor in combination with the BRAF inhibitor.

[0012] In some **embodimentexamples**, the heavy chain variable region of the antibody or antigen-binding fragment thereof comprises the three complementarity determining regions (CDRs) of SEQ ID NO:1 and the light chain variable region of the antibody or antigen-binding fragment thereof comprises the three CDRs of SEQ ID NO:2. In some **embodimentexamples**, the heavy chain variable region has at least 98% identity to SEQ ID NO:1 and the light chain variable region has at least 98% identity to SEQ ID NO:2. In some **embodimentexamples**, the heavy chain variable region has at least 99% identity to SEQ ID NO:1 and the light chain variable region has at least 99% identity to SEQ ID NO:2. In some **embodimentexamples**, the heavy chain variable region comprises the sequence of SEQ ID NO:1 and the light chain variable region comprises the sequence of SEQ ID NO:2. In some **embodimentexamples**, the antibody or antigen-binding fragment thereof is conjugated to monomethyl auristatin E (MMAE):



MMAE. In some **embodimentexamples**, the antibody or antigen-binding fragment thereof is conjugated to valine-citrulline-monomethyl auristatin E (vcMMAE):



vcMMAE.

In some [embodimentexamples](#), a vcMMAE to antibody or antigen-binding fragment thereof ratio is from about 1 to about 8. In some [embodimentexamples](#), the vcMMAE to antibody or antigen-binding fragment thereof ratio is about 4. In some [embodimentexamples](#), the dose administered is less than about 200 mg of the antibody or antigen-binding fragment thereof per treatment cycle. In some [embodimentexamples](#), the dose is about 1.0 mg/kg of body weight of the subject. In some [embodimentexamples](#), the dose administered is less than about 100 mg of the antibody or antigen-binding fragment thereof per treatment cycle. In some [embodimentexamples](#), the dose is about 1.25 mg/kg of body weight of the subject. In some [embodimentexamples](#), the dose administered is less than about 125 mg of the antibody or antigen-binding fragment thereof per treatment cycle. In some [embodimentexamples](#), the treatment cycle is a Q1W treatment cycle. In some [embodimentexamples](#), In some [embodimentexamples](#), 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 or antigen-binding fragment thereof. In some [embodimentexamples](#), 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 or antigen-binding fragment thereof. In some [embodimentexamples](#), 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 or antigen-binding fragment thereof. In some [embodimentexamples](#), the cancer is an advanced stage cancer. In some [embodimentexamples](#), the advanced stage cancer is a stage 3 or stage 4 cancer. In some [embodimentexamples](#),

the cancer is recurrent cancer. In some embodimentexamples, the cancer is unresectable. In some embodimentexamples, the subject received prior treatment with standard of care therapy for the cancer and failed the prior treatment. In some embodimentexamples, at least about 0.1%, at least about 1%, at least about 2%, at least about 3%, at least about 4%, at least about 5%, at least about 6%, at least about 7%, at least about 8%, at least about 9%, at least about 10%, at least about 15%, at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80% of the cancer cells express LIV1. In some embodimentexamples, one or more therapeutic effects in the subject is improved after administration of the antibody or antigen-binding fragment thereof relative to a baseline. In some embodimentexamples, 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, prostate-specific antigen (PSA) level, PSA duration of response, and PSA-PFS. In some embodimentexamples, the size of a tumor derived from the cancer is reduced by at least about 10%, at least about 15%, at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80% relative to the size of the tumor derived from the cancer before administration of the antibody or antigen-binding fragment thereof. In some embodimentexamples, the objective response rate is at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80%. In some embodimentexamples, the subject exhibits progression-free survival of at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof. In some embodimentexamples, the subject exhibits overall survival of at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least

about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof. In some [embodimentexamples](#), the duration of response to the antibody-drug conjugate is at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof. In some [embodimentexamples](#), the cancer is prostate cancer and the subject's PSA level is reduced by at least about 10%, at least about 15%, at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80% relative to the subject's PSA level before administration of the antibody or antigen-binding fragment thereof. In some [embodimentexamples](#), the cancer is prostate cancer and the subject exhibits PSA progression-free survival of at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof. In some [embodimentexamples](#), the cancer is prostate cancer and the PSA duration of response to the antibody-drug conjugate is at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof. In some [embodimentexamples](#), the subject has one or more adverse events and is further administered an additional therapeutic agent to eliminate or reduce the severity of the one or more adverse events. In some [embodimentexamples](#), the subject is at risk of developing one or more adverse events and is further administered an additional therapeutic agent to prevent or reduce the severity of the one

or more adverse events. In some embodimentexamples, the one or more adverse events is a grade 3 or greater adverse event. In some embodimentexamples, the one or more adverse events is a serious adverse event. In some embodimentexamples, the route of administration for the antibody or antigen-binding fragment thereof is intravenous infusion. In some embodimentexamples, the antibody or antigen-binding fragment thereof is administered as a monotherapy. In some embodimentexamples, the antibody or antigen-binding fragment thereof is administered in combination with a checkpoint inhibitor. In some embodimentexamples, the checkpoint inhibitor is an anti-PD-1 antibody, an anti-PD-L1 antibody, an anti-CTLA4 antibody, B7-DC-Fc, LAG3, or TIM3. In some embodimentexamples, the checkpoint inhibitor is selected from the group consisting of MEDI0680, AMP-224, nivolumab, pembrolizumab, pidilizumab, MEDI4736, MPDL3280A, ipilimumab and tremelimumab. In some embodimentexamples, the checkpoint inhibitor is pembrolizumab. In some embodimentexamples, the antibody or antigen-binding fragment thereof is in a pharmaceutical composition comprising the antibody or antigen-binding fragment thereof and a pharmaceutically acceptable carrier. In some embodimentexamples, the subject is a human.

[0013] In another aspect, aAlso provided herein is a kit comprising a dosage ranging from about 0.5 mg/kg to about 2.8 mg/kg of an antibody or antigen-binding fragment thereof that binds LIV1 and instructions for using the antibody or antigen-binding fragment thereof according to any of the embodimentexamples herein.

[0014] It is to be understood that one, some, or all of the properties of the various embodimentexamples described herein may be combined to form other embodimentexamples of the present inventiondisclosure. These and other aspectexamples of the inventiondisclosure will become apparent to one of skill in the art. These and other embodimentexamples of the inventiondisclosure are further described by the detailed description that follows.

DETAILED DESCRIPTION

[0015] So that the invention may be more readily understood, certain technical and scientific terms are specifically defined below. Unless specifically defined elsewhere in this document, all other technical and scientific terms used herein have the meaning commonly understood by one of ordinary skill in the art to which this invention belongs.

CLAIMS

What is claimed is:

1. Use of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1 in the manufacture of a medicament for ~~A method of~~ treating a subject having or at risk of having cancer, ~~comprising:~~

~~administering to the subject a therapeutically effective dose of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1,~~

wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region (HCVR) having at least 95% identity to SEQ ID NO:1, and a light chain variable region (LCVR) having at least 95% identity to SEQ ID NO:2,

wherein the cancer is prostate cancer,

optionally wherein the prostate cancer is castration resistant prostate cancer, and

optionally wherein the prostate cancer is an adenocarcinoma of the prostate.

2. The ~~method-use~~ of claim 1, wherein the cancer is metastatic.

~~3. The method of claim 1 or claim 2, wherein the prostate cancer is castration resistant prostate cancer.~~

~~43.~~ The ~~usemethod~~ of claim ~~31~~, wherein the subject has not been previously treated with chemotherapy for the castration resistant prostate cancer~~;~~

~~5. The method of any one of claims 1-4, optionally~~ wherein the subject has not been previously treated with radioisotope therapy.

~~64.~~ The ~~usemethod~~ of any one of claims 1-~~53~~, wherein the subject has been previously treated with no more than one line of an androgen-receptor targeted therapy~~;~~

~~7. The method of claim 6, optionally~~ wherein the androgen-receptor targeted therapy is selected from the group consisting of abiraterone acetate, enzalutamide, apalutamide, and darolutamide~~;~~
~~and~~

~~8. The method of any one of claims 1-7, optionally~~ wherein the subject has not been previously treated with chemotherapy to treat the metastatic prostate cancer.

~~95. The use~~method of ~~any one of claims 1-8 or claim 2,~~ wherein the subject does not have a BRCA mutation.

~~10. The method of any one of claims 1-9, wherein the prostate cancer is an adenocarcinoma of the prostate.~~

~~116. Use of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1 in the manufacture of a medicament for A method of~~treating a subject having or at risk of having cancer, ~~comprising:~~

~~administering to the subject a therapeutically effective dose of an antibody or an antigen-binding fragment thereof that specifically binds human LIV1,~~

wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region (HCVR) having at least 95% identity to SEQ ID NO:1, and a light chain variable region (LCVR) having at least 95% identity to SEQ ID NO:2,

wherein the cancer is melanoma, ~~and~~

~~optionally wherein the melanoma is cutaneous malignant melanoma.~~

~~127. The method-use~~ of claim ~~116,~~ wherein the cancer is locally advanced unresectable or metastatic.

~~138. The method-use~~ of claim ~~11-6~~ or claim ~~127,~~ wherein the subject has not been previously treated with cytotoxic chemotherapy~~;~~

~~14. The method of any one of claims 11-13, optionally~~ wherein the subject has been previously treated with no more than 2 prior systemic therapies for advanced disease.

~~15. The method of any one claims 11-14, wherein the melanoma is cutaneous malignant melanoma.~~

~~169.~~ The ~~method-use~~ of any one of claims ~~116-158~~, wherein the subject has been previously treated with an anti-PD-L1 or anti-PD-1 therapy~~-, and~~

~~17. The method of claim 16, optionally~~ wherein the subject was treated with ipilimumab in combination with the anti-PD-L1 or anti-PD-1 therapy.

~~1810.~~ The ~~method-use~~ of claim ~~16-9~~~~or claim 17~~, wherein the subject has a BRAF mutation.

~~1911.~~ The ~~method-use~~ of claim ~~1810~~, wherein the subject was treated with a BRAF inhibitor prior to being treated with the anti-PD-L1 or anti-PD-1 therapy, ~~and-~~

~~20. The method of claim 19, optionally~~ wherein the subject was treated with a MEK inhibitor in combination with the BRAF inhibitor.

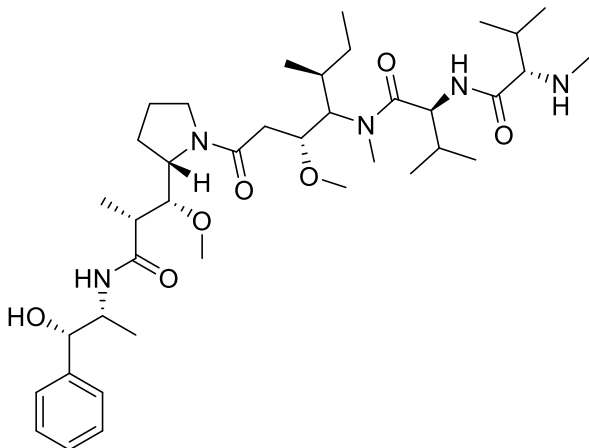
~~2412.~~ The ~~method-use~~ of any one of claims 1-~~2011~~, wherein the heavy chain variable region of the antibody or antigen-binding fragment thereof comprises the three complementarity determining regions (CDRs) of SEQ ID NO:1 and the light chain variable region of the antibody or antigen-binding fragment thereof comprises the three CDRs of SEQ ID NO:2~~-, and~~

~~22. The method of any one of claims 1-21, optionally~~ wherein the heavy chain variable region has at least 98% identity to SEQ ID NO:1 and the light chain variable region has at least 98% identity to SEQ ID NO:2~~-, and~~

~~23. The method of any one of claims 1-21, wherein the heavy chain variable region has at least 99% identity to SEQ ID NO:1 and the light chain variable region has at least 99% identity to SEQ ID NO:2.~~

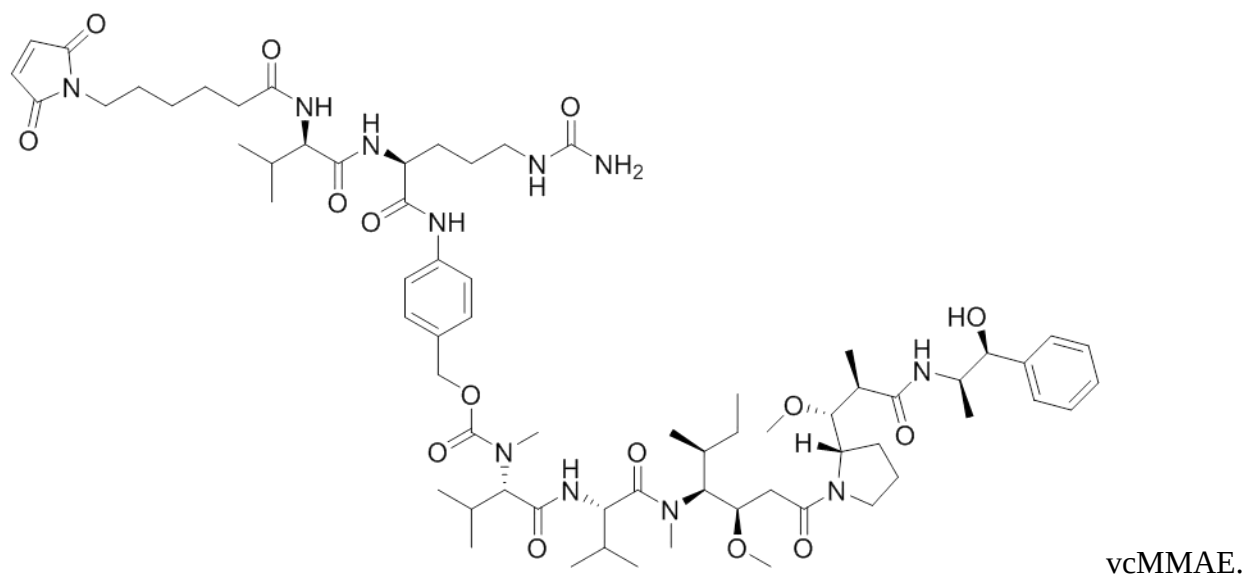
~~24. The method of any one of claims 1-21, optionally~~ wherein the heavy chain variable region comprises the sequence of SEQ ID NO:1 and the light chain variable region comprises the sequence of SEQ ID NO:2.

~~25~~¹³. The ~~method-use~~ of any one of claims 1-~~24~~¹², wherein the antibody or antigen-binding fragment thereof is conjugated to monomethyl auristatin E (MMAE):



MMAE~~.~~, and

~~26. The method of any one of claims 1-25, optionally~~ wherein the antibody or antigen-binding fragment thereof is conjugated to valine-citrulline-monomethyl auristatin E (vcMMAE):



2714. The ~~method-use~~ of claim 2613, wherein a vcMMAE to antibody or antigen-binding fragment thereof ratio is from about 1 to about 8~~.~~, and

~~28. The method of claim 27, optionally~~ wherein the vcMMAE to antibody or antigen-binding fragment thereof ratio is about 4.

2915. The ~~method-use~~ of any one of claims 1-~~2814~~, wherein the dose to be administered is less than about 200 mg of the antibody or antigen-binding fragment thereof per treatment cycle~~.~~, optionally wherein the dose to be administered is less than about 125 mg of the antibody or antigen-binding fragment thereof per treatment cycle, and optionally wherein the dose to be administered is less than about 100 mg of the antibody or antigen-binding fragment thereof per treatment cycle.

3016. The ~~method-use~~ of any one of claims 1-~~2915~~, wherein the dose is about 1.0 mg/kg of body weight of the subject~~.~~, and optionally wherein the dose is about 1.25 mg/kg of body weight of the subject.

~~31. The method of claim 30, wherein the dose administered is less than about 100 mg of the antibody or antigen-binding fragment thereof per treatment cycle.~~

~~32. The method of any one of claims 1-29, wherein the dose is about 1.25 mg/kg of body weight of the subject.~~

~~33. The method of claim 32, wherein the dose administered is less than about 125 mg of the antibody or antigen-binding fragment thereof per treatment cycle.~~

~~34~~17. The ~~method~~use of any one of claims 1-~~33~~16, wherein the treatment cycle is a Q1W treatment cycle.

~~35~~18. The ~~method~~use of any one of claims 1-~~34~~17, 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 or antigen-binding fragment thereof~~;~~.

~~36. The method of any one of claims 1-34, optionally~~ 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 or antigen-binding fragment thereof~~;~~.

~~37. The method of any one of claims 1-34, optionally~~ 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 or antigen-binding fragment thereof~~;~~, and
optionally wherein the subject received prior treatment with standard of care therapy for the cancer and failed the prior treatment.

~~38~~19. The ~~method~~use of any one of claims 1-~~37~~18, wherein the cancer is an advanced stage cancer~~;~~, and

~~39. The method of claim 38, optionally~~ wherein the advanced stage cancer is a stage 3 or stage 4 cancer.

~~40~~20. The ~~method~~use of any one of claims 1-~~39~~19, wherein the cancer is recurrent cancer~~;~~ and

~~41. The method of any one of claims 1-40, optionally~~ wherein the cancer is unresectable.

~~42. The method of any one of claims 1-41, wherein the subject received prior treatment with standard of care therapy for the cancer and failed the prior treatment.~~

~~43~~21. The ~~method~~-use of any one of claims 1-~~42~~20, wherein at least about 0.1%, at least about 1%, at least about 2%, at least about 3%, at least about 4%, at least about 5%, at least about 6%, at least about 7%, at least about 8%, at least about 9%, at least about 10%, at least about 15%, at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80% of the cancer cells express LIV1.

~~44~~22. The ~~method~~-use of any one of claims 1-~~43~~21, wherein one or more therapeutic effects in the subject is improved after administration of the antibody or antigen-binding fragment thereof relative to a baseline.

~~45~~23. The ~~method~~-use of claim ~~44~~22, 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, prostate-specific antigen (PSA) level, PSA duration of response, and PSA-PFS₂.

~~46. The method of any one of claims 1-45,~~ wherein the size of a tumor derived from the cancer is reduced by at least about 10%, at least about 15%, at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80% relative to the size of the tumor derived from the cancer before administration of the antibody or antigen-binding fragment thereof₁.

~~47. The method of any one of claims 1-46,~~ wherein the objective response rate is at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80%₁.

~~48. The method of any one of claims 1-47,~~ wherein the subject exhibits progression-free survival of at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof;~~;~~

~~49. The method of any one of claims 1-48,~~ wherein the subject exhibits overall survival of at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof~~-, and/or~~

~~50. The method of any one of claims 1-49,~~ wherein the duration of response to the antibody-drug conjugate is at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof.

~~5124. The method-use~~ of any one of claims 1-~~5023,~~ wherein the cancer is prostate cancer~~-and,~~ wherein the subject's PSA level is reduced by at least about 10%, at least about 15%, at least about 20%, at least about 25%, at least about 30%, at least about 35%, at least about 40%, at least about 45%, at least about 50%, at least about 60%, at least about 70%, or at least about 80% relative to the subject's PSA level before administration of the antibody or antigen-binding fragment thereof~~;~~

~~52. The method of any one of claims 1-51, optionally~~ wherein ~~the cancer is prostate cancer and~~ the subject exhibits PSA progression-free survival of at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof; and/or

~~53. The method of any one of claims 1-49, optionally~~ wherein ~~the cancer is prostate cancer and~~ the PSA duration of response to the antibody-drug conjugate is at least about 1 month, at least about 2 months, at least about 3 months, at least about 4 months, at least about 5 months, at least about 6 months, at least about 7 months, at least about 8 months, at least about 9 months, at least about 10 months, at least about 11 months, at least about 12 months, at least about eighteen months, at least about two years, at least about three years, at least about four years, or at least about five years after administration of the antibody or antigen-binding fragment thereof.

~~5425.~~ The method-use of any one of claims 1-~~53~~24, wherein the subject has one or more adverse events or is at risk of developing one or more adverse events and is to be further administered an additional therapeutic agent to prevent, eliminate or reduce the severity of the one or more adverse events.

~~55. The method of any one of claims 1-54, wherein the subject is at risk of developing one or more adverse events and is further administered an additional therapeutic agent to prevent or reduce the severity of the one or more adverse events.~~

~~56~~26. The method-use of claim ~~54~~25~~or claim 55~~, wherein the one or more adverse events is a grade 3 or greater adverse event; and

~~57. The method of claim 54 or claim 55, optionally~~ wherein the one or more adverse events is a serious adverse event.

~~5827~~. The ~~method-use~~ of any one of claims 1-~~5726~~, wherein the route of administration for the antibody or antigen-binding fragment thereof is intravenous infusion.

~~5928~~. The ~~method-use~~ of any one of claims 1-~~5827~~, wherein the antibody or antigen-binding fragment thereof is to be administered as a monotherapy.

~~6029~~. The ~~method-use~~ of any one of claims 1-~~5828~~, wherein the antibody or antigen-binding fragment thereof is to be administered in combination with a checkpoint inhibitor~~;~~₁

~~61~~. The ~~method of claim 60, optionally~~ wherein the checkpoint inhibitor is an anti-PD-1 antibody, an anti-PD-L1 antibody, an anti-CTLA4 antibody, B7-DC-Fc, LAG3, or TIM3~~;~~₁

~~62~~. The ~~method of claim 61, optionally~~ wherein the checkpoint inhibitor is selected from the group consisting of MEDI0680, AMP-224, nivolumab, pembrolizumab, pidilizumab, MEDI4736, MPDL3280A, ipilimumab and tremelimumab~~;~~, and

~~63~~. The ~~method of claim 62, optionally~~ wherein the checkpoint inhibitor is pembrolizumab.

~~6430~~. The ~~method-use~~ of any one of claims 1-~~6329~~, wherein the antibody or antigen-binding fragment thereof is in a pharmaceutical composition comprising the antibody or antigen-binding fragment thereof and a pharmaceutically acceptable carrier.

~~6531~~. The ~~method-use~~ of any one of claims 1-~~6430~~, wherein the subject is a human.

~~6632~~. A kit comprising:

(a) a dosage ranging from about 0.5 mg/kg to about 2.8 mg/kg of an antibody or antigen-binding fragment thereof that binds LIV1; and

(b) instructions for using the antibody or antigen-binding fragment thereof according to the ~~method-use~~ of any one of claims 1-~~6531~~.