CLAIMS

What is claimed is:

1. A method of treating a subject suffering from a cancer, comprising the steps of:

obtaining a sample of a cancer cell from the subject;

determining a sequence of a phosphatidylinositol 3-kinase catalytic subunit (PIK3CA) protein in the sample; and

administering a first amount of a DKK1 inhibitor to the subject determined to have the sequence of PIK3CA protein (SEQ ID NO:23) that includes an activating mutation,

wherein the cancer is an epithelial endometrial cancer or an epithelial ovarian cancer.

2. A method of treating a cancer in a subject in need thereof, the method comprising:

administering a first amount of a DKK1 inhibitor to the subject,

wherein the subject is determined to have an activating mutation of a phosphatidylinositol 3-kinase catalytic subunit (PIK3CA) protein (SEQ ID NO:23), and

wherein the cancer is an epithelial endometrial cancer or an epithelial ovarian cancer.

3. A method of treating a subject suffering from a cancer, comprising the steps of:

obtaining a sample of a cancer cell from the subject;

determining a sequence of a phosphatidylinositol 3-kinase catalytic subunit (PIK3CA) protein in the sample; and

administering a first amount of a DKK1 inhibitor to the subject determined to have the sequence of PIK3CA protein (SEQ ID NO:23) that includes an activating mutation,

wherein the cancer is MMMT.

4. A method of treating a cancer in a subject in need thereof, the method comprising:

administering a first amount of a DKK1 inhibitor to the subject,

wherein the subject is determined to have an activating mutation of a phosphatidylinositol 3-kinase catalytic subunit (PIK3CA) protein (SEQ ID NO:23), and

wherein the cancer is MMMT.

5. The method of any one of Claims 1-4, wherein the DKK1 inhibitor is a DKK1 antibody or antigen binding-fragment thereof.

6. The method of any one of Claims 1-5, wherein the DKK1 antibody, or antigen binding-fragment thereof, comprises a light chain variable region (LCVR) and a heavy chain variable region (HCVR), wherein the LCVR comprises complementarity determining regions (CDRs) LCDR1, LCDR2, and LCDR3 and the HCVR comprises CDRs HCDR1, HCDR2 and HCDR3, wherein LCDR1 has the amino sequence of SEQ ID NO:1, LCDR2 has the amino sequence of SEQ ID NO:2, LCDR3 has the amino sequence of SEQ ID NO:3, HCDR1 has the amino sequence of SEQ ID NO:4, HCDR2 has the amino sequence of SEQ ID NO:5, and an HCDR3 has the amino sequence of SEQ ID NO:6.

7. The method of Claim 6, wherein the LCVR comprises the amino acid sequence of SEQ ID NO:7 and the HCVR comprises the amino acid sequence of SEQ ID NO:8.

8. The method of Claim 6 or 7, wherein the LCVR and HCVR comprise amino acid sequences selected from the group consisting of: (i) a LCVR comprising the amino acid sequence of SEQ ID NO:9 and a HCVR comprising the amino acid sequence of SEQ ID NO:10; (ii) a LCVR comprising the amino acid sequence of SEQ ID NO:11 and a HCVR comprising the amino acid sequence of SEQ ID NO:12; (iii) a LCVR comprising the amino acid sequence of SEQ ID NO:13 and a HCVR comprising the amino acid sequence of SEQ ID NO:10; (iv) a LCVR comprising the amino acid sequence of SEQ ID NO:14 and a HCVR comprising the amino acid sequence of SEQ ID NO:10.

9. The method of Claim 8, wherein the LCVR comprises the amino acid sequence of SEQ ID NO:11 and the HCVR comprises the amino acid sequence of SEQ ID NO:12.

10. The method of Claim 9, wherein the DKK1 antibody comprises a heavy chain and a light chain amino acid sequence selected from the group consisting of a) a heavy chain comprising the amino acid sequence of SEQ ID NO:19 and light chain comprising the amino acid sequence of SEQ ID NO:16, b) a heavy chain comprising the amino acid sequence of SEQ ID NO:17 and a light chain comprising the amino acid sequence of SEQ ID NO:18, c) a heavy chain comprising the amino acid sequence of SEQ ID NO:19 and a light chain comprising the amino acid sequence of SEQ ID NO:20, and d) a heavy chain comprising the amino acid sequence of SEQ ID NO:19 and a light chain comprising the amino acid sequence of SEQ ID NO:21.

11. The method of Claim 5, wherein the DKK1 antibody comprises a heavy chain comprising the amino acid sequence of SEQ ID NO:17 and a light chain comprising the amino acid sequence of SEQ ID NO:18.

12. The method of any one of claims 1-11, wherein the subject is a human.

13. The method of any one of Claims 1-12, further comprising administering to the subject a second amount of a second therapeutic agent.

14. The method of Claim 13, wherein the second therapeutic agent is a taxane.

15. The method of Claim 14, wherein the second agent is a paclitaxel.

16. The method of Claim 13, wherein the DKK1 inhibitor is the DKN01 antibody, and the second therapeutic agent is paclitaxel.

17. The method of Claim 13, further comprising administering to the subject a third amount of a third therapeutic agent.

18. The method of Claim 17, wherein the second therapeutic agent is gemcitabine and the third therapeutic agent is a cisplatin.

19. The method of any one of Claim 1,2 or 5, wherein the mutation is at least one of N345D, H1047R, and E545K.

20. The method of Claim 3, 4 or 5, wherein the mutation is M1043L and amplication is present.

21. The method of any one of Claims 1, 2 or 5, wherein the mutation is any one of the mutations of amino acid residues listed in Table 1.

22. The method of Claim 3, 4 or 5, wherein the mutation is any one of the mutations of amino acid residues listed in Table 1.

23. The method of any one of Claims 1-22, wherein the subject has undergone at least one prior therapy for the cancer being treated.