

CLAIMS

What is claimed is:

1. A method for detecting ovarian cancer, comprising:
 - (a) providing a biological sample from a subject to be tested;
 - (b) detecting the amount of a cleaved complement component 3 (C3) polypeptide in said biological sample from the subject to be tested to obtain a detected amount of the cleaved C3 polypeptide;
 - (c) comparing the detected amount of the cleaved C3 polypeptide with a normal amount of the cleaved C3 polypeptide from a normal subject, to obtain a comparison result; and
 - (d) determining the likelihood that the subject to be tested suffers from ovarian cancer based on the comparison result, wherein if the comparison result shows the detected amount of the cleaved C3 polypeptide being higher than the normal amount of the cleaved C3 polypeptide, the subject to be tested is determined to have ovarian cancer or be at risk of developing ovarian cancer,
wherein the cleaved C3 polypeptide is a human C3 alpha chain fragment 2.
2. The method of claim 1, wherein the cleaved C3 polypeptide has an amino acid sequence corresponding to position 1321 to position 1663 of SEQ ID NO: 1.
3. The method of claim 1, wherein the cleaved C3 polypeptide has the amino acid sequence of SEQ ID NO: 2.
4. The method of claim 1, wherein the detection of step (b) is carried out by mass spectrometry or immunoassay.
5. The method of claim 1, wherein the detection of step (b) is carried out by immunoassay using an antibody that specifically binds to the cleaved C3 polypeptide having SEQ ID NO: 2.

6. The method of claim 1, wherein the biological sample is a body fluid sample, a tissue sample, or a biological specimen sample.

7. The method of claim 6, wherein the biological sample is a blood sample, a urine sample, or an ascites sample.

8. The method of any one of claims 1 to 7, wherein the ovarian cancer is selected from the group consisting of endometrioid ovarian cancer, clear cell ovarian cancer, serous ovarian cancer, and mucinous ovarian cancer, or selected from the group consisting of ovarian carcinosarcoma, ovarian immature teratoma, ovarian mucinous and granulosa tumor, and metastatic ovarian cancer (Krukenberg, ovarian Krukenberg's tumor).

9. The method of any one of claims 1 to 8, wherein the ovarian cancer is selected from the group consisting of stage I ovarian cancer, stage II ovarian cancer, stage III ovarian cancer, and stage IV ovarian cancer.

10. A method for monitoring progression of ovarian cancer in an ovarian cancer patient, the method comprising:

- (a) providing a first biological sample from the patient at a first time point;
 - (b) providing a second biological sample from the patient at a second time point, wherein the second time point is later than the first time point;
 - (c) detecting the amount of a cleaved C3 polypeptide in the first biological sample to obtain a first detected amount of the cleaved C3 polypeptide, and detecting the amount of the cleaved C3 polypeptide in the second biological sample to obtain a second detected amount of the cleaved C3 polypeptide;
 - (d) comparing the first detected amount of the cleaved C3 polypeptide with the second detected amount of the cleaved C3 polypeptide to obtain a comparison result; and
 - (e) determining the ovarian cancer progression of the patient based on the comparison result, wherein if the comparison result shows the second detected amount of the cleaved C3 polypeptide being higher than the first detected amount of the cleaved C3 polypeptide, it indicates progression of ovarian cancer,
- wherein the cleaved C3 polypeptide is a human C3 alpha chain fragment 2.

11. The method of claim 10, wherein the patient is subjected to an anti-ovarian cancer treatment, and the first biological sample and the second biological sample are obtained before or after the treatment or during the course of the treatment.

12. The method of claim 10, further comprising assessing efficacy of the anti-ovarian cancer treatment on the patient wherein a decrease of the amount of the cleaved C3 polypeptide after the treatment or during the course of the treatment indicates that the treatment is effective on the patient.

13. The method of claim 10, wherein the cleaved C3 polypeptide has an amino acid sequence corresponding to position 1321 to position 1663 of SEQ ID NO: 1.

14. The method of claim 10, wherein the cleaved C3 polypeptide has the amino acid sequence of SEQ ID NO: 2.

15. The method of claim 10, wherein the detection of step (c) is carried out by mass spectrometry or immunoassay.

16. The method of claim 10, wherein the detection of step (c) is carried out by immunoassay using an antibody that specifically binds to the cleaved C3 polypeptide having SEQ ID NO: 2.

17. The method of claim 10, wherein the biological sample is a body fluid sample, a tissue sample, or a biological specimen sample.

18. The method of claim 17, wherein the biological sample is a blood sample, a urine sample, or an ascites sample.

19. The method of any one of claims 10 to 18, wherein the ovarian cancer is selected from the group consisting of endometrioid ovarian cancer, clear cell ovarian cancer, serous ovarian cancer, and mucinous ovarian cancer, or selected from the group consisting of

ovarian carcinosarcoma, ovarian immature teratoma, ovarian mucinous and granulosa tumor, and metastatic ovarian cancer (Krukenberg, ovarian Krukenberg's tumor).

20. The method of any one of claims 10 to 19, wherein the ovarian cancer is selected from the group consisting of stage I ovarian cancer, stage II ovarian cancer, stage III ovarian cancer, and stage IV ovarian cancer.

21. Use of a reagent that recognizes a cleaved C3 polypeptide for diagnosing ovarian cancer or monitoring progression of ovarian cancer, or for manufacturing an agent or kit for diagnosing ovarian cancer or monitoring progression of ovarian cancer, wherein the cleaved C3 polypeptide is a human C3 alpha chain fragment 2.

22. The use of claim 21, wherein the cleaved C3 polypeptide has an amino acid sequence corresponding to position 1321 to position 1663 of SEQ ID NO: 1.

23. The use of claim 21, wherein the cleaved C3 polypeptide has the amino acid sequence of SEQ ID NO: 2.

24. The use of claim 21, wherein the reagent is an antibody.