CLAIMS

1. An antibody or antigen-binding fragment thereof that specifically binds to FOLR1, wherein said antibody or antigen-binding fragment thereof comprises variable heavy chain CDR1, CDR2, and CDR3 and variable light chain CDR1, CDR2, and CDR3 comprising the amino acid sequences:

(a) SEQ ID NOs: 1, 2, and 3 and SEQ ID NOs: 13, 14, and 15, respectively;

(b) SEQ ID NOs: 7, 8, and 9 and SEQ ID NOs: 19, 20, and 21, respectively; or

(c) SEQ ID NOs: 10, 11, and 12 and SEQ ID NOs: 22, 23, and 24, respectively.

2. The antibody or antigen-binding fragment thereof of claim 1, wherein said antibody or antigen-binding fragment thereof comprises amino acid sequences selected from the group consisting of:

(a) SEQ ID NO:25 and SEQ ID NO:29;

(b) SEQ ID NO:27 and SEQ ID NO:31; and

(c) SEQ ID NO:28 and SEQ ID NO:32.

3. The antibody or antigen-binding fragment thereof of claim 1 or 2, wherein said antibody or antigen-binding fragment thereof is murine, humanized, chimeric, resurfaced, or human.

4. A polypeptide that specifically binds FOLR1, wherein said polypeptide comprises sequences selected from the group consisting of:

(a) SEQ ID NOs: 1, 2, and 3 and SEQ ID NOs: 13, 14, and 15;

(b) SEQ ID NOs: 7, 8, and 9 and SEQ ID NOs: 19, 20, and 21; and

(c) SEQ ID NOs: 10, 11, and 12 and SEQ ID NOs: 22, 23, and 24.

5. A nucleic acid molecule encoding the antibody, antigen-binding fragment thereof, or polypeptide of any one of claims 1-4.

6. The antibody, antigen-binding fragment thereof, or polypeptide of any one of claims 1-4, wherein the antibody or polypeptide comprises a detection agent.

7. The antibody, antigen-binding fragment thereof, or polypeptide of claim 6, wherein the detection agent is a chromogenic detection agent, a fluorogenic detection agent, an immunofluorescent detection agent, an enzymatic detection agent, or an electrochemiluminescent detection agent.

8. A method of detecting FOLR1 protein in a sample comprising contacting said sample with the antibody, antigen-binding fragment thereof, or polypeptide of any one of claims 1-4.

9. The method of claim 8, wherein the FOLR1 protein is detected by radioimmunoassay, Western blot assay, immunofluorescent assay, enzyme immunoassay, immunoprecipitation assay, chemiluminescent assay, cytometry, or immunohistochemical assay.

10. The method of claim 9, wherein the cytometry is flow cytometry.

11. The method of claim 9, wherein the enzyme immunoassay is enzyme linked immunosorbent assay (ELISA).

12. The method of claim 9, wherein the FOLR1 protein is detected by immunohistochemical assay.

13. The method of claim 8 or 9, wherein the sample is obtained from a patient who has been treated with an active agent comprising an FOLR1 antibody or antigen-binding fragment.

14. The method of claim 13, wherein anti-FOLR1 antibody or antigen-binging fragment thereof in the active agent comprises a variable heavy chain comprising the amino acid sequence of SEQ ID NO:46 and a variable light chain comprising the amino acid sequence of SEQ ID NO:4.

15. The method of claim 13 or 14, wherein the active agent comprises a FOLR1 antibody comprising 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 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.

16. The method of any one of claims 13-15, wherein the active agent comprises the FOLR1 antibody or antigen-binding fragment thereof conjugated to a cytotoxic agent.

17. The method of any one of claims 13-16, wherein the active agent comprises the FOLR1 antibody or antigen-binding fragment thereof conjugated to the maytansinoid DM4 via the cleavable sulfo-SPDB linker.

18. The method of any one of claims 13-17, wherein the patient has a FOLR1-expressing cancer selected from the group consisting of ovarian cancer, uterine cancer, endometrial cancer, and cancer of the peritoneum.

19. The method of claim 8 or 9, wherein said FOLR1 protein is shed FOLR1 protein.

20. A cell producing the antibody, antigen-binding fragment thereof, or polypeptide of any one of claims 1-4.

21. A method of making the antibody, antigen-binding fragment thereof, or polypeptide of any one of claims 1-4, comprising (a) culturing the cell of claim 20; and (b) isolating said antibody, antigen-binding fragment thereof, or polypeptide from said cultured cell.

22. An immunoassay kit for detecting FOLR1 protein in a sample, the kit comprising: (a) a first reagent, wherein the first reagent is antibody or antigen-binding fragment thereof of any one of claims 1-3 or the polypeptide of claim 4, and (b) a second reagent, wherein the second reagent is a detection reagent.

23. Use of an active agent comprising an FOLR1 antibody or antigen-binding fragment thereof in the manufacture of a medicament for the treatment of a FOLR1-expressing

cancer in a patient with an elevated FOLR1 protein level detected using the antibody or antigen-binding fragment thereof of any one of claims 1-3 or the polypeptide of claim 4.

24. Use of an active agent comprising an FOLR1 antibody or antigen-binding fragment thereof in the manufacture of a medicament for the treatment of a FOLR1-expressing cancer in a patient with an elevated shed FOLR1 protein level that was detected using the antibody or antigen-binding fragment thereof of any one of claims 1-3, or polypeptide of claim 4.

25. Use of an active agent comprising an FOLR1 antibody or antigen-binding fragment thereof comprising a variable heavy chain comprising the amino acid sequence of SEQ ID NO:46 and a variable light chain comprising the amino acid sequence of SEQ ID NO:48 in the manufacture of a medicament for the treatment of a FOLR1-expressing cancer in a patient with an elevated FOLR1 protein level detected using the antibody or antigen-binding fragment thereof of any one of claims 1-3 or the polypeptide of claim 4.

26. Use of an active agent comprising an FOLR1 antibody or antigen-binding fragment thereof comprising a variable heavy chain comprising the amino acid sequence of SEQ ID NO:46 and a variable light chain comprising the amino acid sequence of SEQ ID NO:48 in the manufacture of a medicament for the treatment of a FOLR1-expressing cancer in a patient with an elevated shed FOLR1 protein level that was detected using the antibody or antigen-binding fragment thereof of any one of claims 1-3, or polypeptide of claim 4.

27. The use of any one of claims 23-26, wherein the active agent comprises a FOLR1 antibody comprising 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 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.

28. The use of any one of claims 23-27, wherein the active agent comprises the FOLR1 antibody or antigen-binding fragment thereof conjugated to a cytotoxic agent.

29. The use of any one of claims 23-28, wherein the active agent comprises the FOLR1 antibody or antigen-binding fragment thereof conjugated to the maytansinoid DM4 via the cleavable sulfo-SPDB linker.

30. The use of any one of claims 23-29, wherein the FOLR1-expressing cancer is selected from the group consisting of ovarian cancer, uterine cancer, endometrial cancer, and cancer of the peritoneum.