What is Claimed:

1. A method of detecting folate receptor alpha (FRα) in a biological sample, comprising exposing the sample to an antibody or antigen-binding fragment comprising:

    a. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

    b. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

    c. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

    d. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

and detecting folate receptor alpha (FRα).

2. The method of claim 1, wherein the biological sample is derived from urine, blood, serum, plasma, saliva, ascites, circulating cells, circulating tumor cells, cells that are not tissue associated, tissues, surgically resected tumor tissue, biopsies, fine needle aspiration samples, or histological preparations.

3. A method of diagnosing a folate receptor alpha-expressing cancer in a subject, comprising:

    a. exposing a biological sample of the subject to:

        i. an antibody, or antigen-binding fragment thereof, comprising

        a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

        a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

        a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

or

ii. an antibody, or antigen-binding fragment thereof, capable of binding the epitope of folate receptor alpha (FRα) that is bound by said antibody or antigen-binding fragment of (i);

b. quantifying the amount of folate receptor alpha (FRα) present in the sample;

c. comparing the amount of folate receptor alpha (FRα) present in the sample to a known standard; and

d. determining whether the subject's folate receptor alpha (FRα) levels fall within the levels of folate receptor alpha (FRα) associated with cancer.

4. A method of monitoring a folate receptor alpha-expressing cancer in a subject, comprising:

a. exposing a biological sample of the subject to:

i. an antibody, or antigen-binding fragment thereof, comprising

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

or

ii. an antibody, or antigen-binding fragment thereof, capable of binding the epitope of folate receptor alpha (FRα) that is bound by said antibody or antigen-binding fragment of (i);

b. quantifying the amount of folate receptor alpha (FRα) present in the sample that is bound by the antibody or antigen-binding fragment thereof;

c. comparing the amount of folate receptor alpha (FRα) present in the sample to either

i. a known standard, or

ii. a biological sample obtained from the subject at an earlier point in time; and

d. determining whether the subject's folate receptor alpha (FRα) levels are indicative of cancer progression, regression or stable disease.

5. A method of treating folate receptor alpha-expressing cancer in a subject, comprising:

a. exposing a biological sample of the subject to:

i. an antibody, or antigen-binding fragment thereof, comprising

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

or

ii. an antibody, or antigen-binding fragment thereof, capable of binding the epitope of folate receptor alpha (FRα) that is bound by said antibody or antigen-binding fragment of (i);

b. quantifying the amount of folate receptor alpha (FRα) present in the sample;

c. comparing the amount of folate receptor alpha (FRα) present in the sample to a known standard;

d. determining whether the subject's folate receptor alpha (FRα) levels fall within the levels of FRα associated with cancer; and

e. administering to the patient, or prescribing, a treatment for the cancer.

6. A method of detecting folate receptor alpha (FRα) in a biological sample, comprising exposing a biological sample of a subject to a first antibody, or antigen-binding fragment thereof, selected from:

i. an antibody, or antigen-binding fragment thereof, comprising

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy

chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

or

ii. an antibody, or antigen-binding fragment thereof, capable of binding the epitope of folate receptor alpha (FRα) that is bound by said antibody or antigen-binding fragment of (i);

further comprising exposing the biological sample of the subject to a second antibody, or antigen-binding fragment thereof, selected from:

iii. an antibody, or antigen-binding fragment thereof, comprising

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

or

iv. an antibody, or antigen-binding fragment thereof, capable of binding the epitope of folate receptor alpha (FRα) that is bound by said antibody or antigen-binding fragment of (iii).

7. An isolated antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα) comprising:

a. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

b. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

c. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

d. a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

8. The isolated antibody or antigen-binding fragment of claim 7, wherein the antibody is a murine antibody.

9. The isolated antibody or antigen-binding fragment of claim 7, wherein the antibody isotype is IgG.

10. The isolated antibody or antigen-binding fragment of claim 7, wherein the antibody is chimeric.

11. The isolated antibody or antigen-binding fragment of claim 7, wherein the antibody is humanized.

12. The isolated antibody of claim 7, wherein the antibody is detectably labeled.

13. The isolated antibody of claim 7, wherein said antibody or antigen-binding fragment is capable of binding to folate receptor alpha (FRα) with a dissociation constant of $1x10^{-8}$ M or less.

14. A kit for detecting the presence of folate receptor alpha (FRα) in a biological sample, comprising the antibody or antigen-binding fragment of claim 7 and a vessel for containing the antibody or antigen-binding fragment, when not in use, and instructions for use of the antibody or antigen-binding fragment.

15. An isolated polynucleotide encoding an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising:

a) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

b) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

c) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID

NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

d) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

16. A vector comprising the isolated polynucleotide of claim 15.

17. A cell comprising the isolated polynucleotide of claim 15.

18. The isolated polynucleotide of claim 15, wherein said polynucleotide encodes an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

19. A vector comprising the isolated polynucleotide of claim 18.

20. A cell comprising the isolated polynucleotide of claim 18.

21. A cell that produces an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising:

a) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

b) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino

acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

c) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

d) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

22. The cell of claim 21, wherein said cell is a hybridoma.

23. A recombinant polynucleotide encoding an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising:

a) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

b) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

c) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID

NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

d) a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

24. A cell comprising the recombinant polynucleotide of claim 23.

25. The recombinant polynucleotide of claim 23, wherein said polynucleotide encodes an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

26. A vector comprising the recombinant polynucleotide of claim 25.

27. A cell comprising the recombinant polynucleotide of claim 25.

Claims

1. A method of detecting folate receptor alpha (FRα) in a biological sample, comprising exposing the sample to an antibody or antigen-binding fragment comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

and detecting folate receptor alpha (FRα).

2. The method of claim 1, wherein the biological sample is derived from urine, blood, serum, plasma, saliva, ascites, circulating cells, circulating tumor cells, cells that are not tissue associated, tissues, surgically resected tumor tissue, biopsies, fine needle aspiration samples, or histological preparations.

3. A method of diagnosing a folate receptor alpha-expressing cancer in a subject, comprising:

a. exposing a biological sample of the subject to an antibody, or antigen-binding fragment thereof, comprising:

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

b. quantifying the amount of folate receptor alpha (FRα) present in the sample;

c. comparing the amount of folate receptor alpha (FRα) present in the sample to a known standard; and

d. determining whether the subject’s folate receptor alpha (FRα) levels fall within the levels of folate receptor alpha (FRα) associated with cancer.

4. A method of monitoring a folate receptor alpha-expressing cancer in a subject, comprising:

a. exposing a biological sample of the subject to an antibody, or antigen-binding fragment thereof, comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

b. quantifying the amount of folate receptor alpha (FRα) present in the sample that is bound by the antibody or antigen-binding fragment thereof;

c. comparing the amount of folate receptor alpha (FRα) present in the sample to either

i. a known standard, or

ii. a biological sample obtained from the subject at an earlier point in time; and

d. determining whether the subject's folate receptor alpha (FRα) levels are indicative of cancer progression, regression or stable disease.

5. A method of detecting folate receptor alpha (FRα) in a biological sample, comprising exposing a biological sample of a subject to a first antibody, or antigen-binding fragment thereof, comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

further comprising exposing the biological sample of the subject to a second antibody, or antigen-binding fragment thereof, selected from:

i. an antibody, or antigen-binding fragment thereof, comprising:

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 2, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 3, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 4, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 6, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 7, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 8;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 11, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 12, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 14, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 15, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 16;

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 18, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 19, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 20, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 22, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 23, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 24; or

a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32;

or

ii. an antibody, or antigen-binding fragment thereof, capable of binding the epitope of folate receptor alpha (FRα) that is bound by said antibody or antigen-binding fragment of (i).

6. An isolated antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα) comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

7. The isolated antibody or antigen-binding fragment of claim 6, wherein the antibody is a murine antibody.

8. The isolated antibody or antigen-binding fragment of claim 6, wherein the antibody isotype is IgG.

9. The isolated antibody or antigen-binding fragment of claim 6, wherein the antibody is chimeric.

10. The isolated antibody or antigen-binding fragment of claim 6, wherein the antibody is humanized.

11. The isolated antibody of claim 6, wherein the antibody is detectably labeled.

12. The isolated antibody of claim 6, wherein said antibody or antigen-binding fragment is capable of binding to folate receptor alpha (FRα) with a dissociation constant of 1×10^{-8} M or less.

13. A kit for detecting the presence of folate receptor alpha (FRα) in a biological sample, comprising the antibody or antigen-binding fragment of claim 6 and a vessel for containing the antibody or antigen-binding fragment, when not in use, and instructions for use of the antibody or antigen-binding fragment.

14. An isolated polynucleotide encoding an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

15. A vector comprising the isolated polynucleotide of claim 14.

16. A cell comprising the isolated polynucleotide of claim 14.

17. A cell that produces an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino

acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

18. The cell of claim 17, wherein said cell is a hybridoma.

19. A recombinant polynucleotide encoding an antibody, or antigen-binding fragment thereof, specific for folate receptor alpha (FRα), said antibody or antigen-binding fragment comprising a light chain CDR1 having the amino acid sequence of SEQ ID NO: 26, a light chain CDR2 having the amino acid sequence of SEQ ID NO: 27, a light chain CDR3 having the amino acid sequence of SEQ ID NO: 28, a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 30, a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 31, and a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 32.

20. A cell comprising the recombinant polynucleotide of claim 19.

21. A vector comprising the recombinant polynucleotide of claim 19.