SEQUENCES

SEQ ID NO:1 - huMov19 vHC CDR1
GYFMN

SEQ ID NO:2 - huMov19 vHC CDR2
RIHPYDGDTFYNQKFQG

SEQ ID NO:3 - huMov19 vHC CDR3
YDGSRAMDY

SEQ ID NO:4 - huMov19 vHC
QVQLVQSGAEVVKPGASVKISCKASGYTFTGYFMNWVKQSPGQSLEWIGRIHPYDGDTFY
NQKFQGKATLTVDKSSNTAHMELLSLTSEDFAVYYCTRYDGSRAMDYWGQGTTVTVSS

SEQ ID NO:5 - huMov19 vHC nucleic acid sequence
aagcttgccaccatgggttggtcatgcatcatcctcttcttggttgcaactgctaccggagtgcacagtcaggtacagctcgtgcagtccggcgc
cgaggtggtgaagcctggtgccagcgtgaagatctcctgtaaagccagtggatacacattcaccggttattttatgaattgggtgaaacagagcc
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gtggacaagagttccaacactgcacacatggagcttctctccctgaccagcgaagacttcgctgtttattactgtacccgttatgatggttcccgtg
caatggactactggggccaagggaccactgtcaccgtaagttccgccagcaccaagggccc

SEQ ID NO:6 - huMov19 HC amino acid sequence
QVQLVQSGAEVVKPGASVKISCKASGYTFTGYFMNWVKQSPGQSLEWIGRIHPYDGDTFY
NQKFQGKATLTVDKSSNTAHMELLSLTSEDFAVYYCTRYDGSRAMDYWGQGTTVTVSSA
STKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGL
YSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPSVF
LFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYR
VVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKN
QVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQQGN
VFSCSVMHEALHNHYTQKSLSLSPGK

SEQ ID NO:7 - huMov19 vLC CDR1
KASQSVSFAGTSLMH

SEQ ID NO:8 - huMov19 vLC CDR2
RASNLEA

SEQ ID NO:9 - huMov19 vLC CDR3
QQSREYPYT

SEQ ID NO:10 - huMov19 vLCv1.00
DIVLTQSPLSLAVSLGQPAIISCKASQSVSFAGTSLMHWYHQKPGQQPRLLIYRASNLEAGV
PDRFSGSGSKTDFTLNISPVEAEDAATYYCQQSREYPYTFGGGTKLEIKR

SEQ ID NO:11 - huMov19 vLCv1.60
DIVLTQSPLSLAVSLGQPAIISCKASQSVSFAGTSLMHWYHQKPGQQPRLLIYRASNLEAGV
PDRFSGSGSKTDFTLTISPVEAEDAATYYCQQSREYPYTFGGGTKLEIKR

gacatccagatgacccaatcctccagcagcttgtcagtatccgttgggggccgcgttactattacctgtaaggcctccgaccatataaataactgg
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aaagtctacgcctgcgaagtcacccatcagggcctgagctcgcccgtcacaaagagcttcaacaggggagagtgt

SEQ ID NO:48 - huFR1-21HC DNA sequence
gaggtgcaacttgtagaatctggcggggatgttgtgaagcctggaggtagtctcaagttgtcctgtgctgcatctgggtttaccttctcttcctacg
gaatgagctgggtgagacagactcctggcaaggggctggagtgcgttgccaccattagtagtggaggttcttacacctactattcacctggttttc
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cttagcccaggg

SEQ ID NO:49 - huFolR1 DNA sequence EcoRI to Xba1
gaattcgccaccatggcacagcgcatgaccactcagctcctgcttctgttggtttgggtggcagtcgtgggagaggcccagaccaggattgctt
gggcacgcacagagctgcttaatgtttgcatgaacgcaaagcaccataaagagaaacccggtcccgaggataagttgcacgaacagtgccgc
ccttggagaaagaatgcatgctgtagcacgaacacctctcaggaggcgcataaagacgtaagctatttgtatagatttaactggaaccattgcgg
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gcacagggcaaccctaacgaggaggtcgcacgcttctacgctgcagcaatgtctggagccggtccttgggctgcttggccatttctccttagcc
tcgccctcatgcttctctggctgttgtcataatctaga

SEQ ID NO:50 - Primer EcoMH1 CTTCCGGAATTCSARGTNMAGCTGSAGSAGTC

SEQ ID NO:51 - Primer EcoMH2 CTTCCGGAATTCSARGTNMAGCTGSAGSAGTCWGG

SEQ ID NO:52 - Primer BamIgG1 GGAGGATCCATAGACAGATGGGGGTGTCGTTTTGGC

SEQ ID NO:53 - SacIMK GGAGCTCGAYATTGTGMTSACMCARWCTMCA

SEQ ID NO:54 - HindKL
TATAGAGCTCAAGCTTGGATGGTGGGAAGATGGATACAGTTGGTGC

Mixed bases are defined as follows: N=G+A+T+C, S=G+C, Y=C+T, M=A+C, R=A+G, W=A+T

Claims

1. An isolated polynucleotide comprising the nucleic acid sequence of SEQ ID NO:5, wherein the polynucleotide encodes a heavy chain (HC) variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1,

and wherein the polynucleotide further comprises the nucleic acid sequence encoding a light chain (LC) variable domain of SEQ ID NO: 14 or SEQ ID NO: 15.

2. The isolated polynucleotide of claim 1, wherein the polynucleotide encodes a heavy chain (HC) of the antibody comprising the amino acid sequence of SEQ ID NO:6, and wherein the polynucleotide encodes a light chain (LC) of the antibody comprising the amino acid sequence of SEQ ID NO: 12 or 13.

3. The isolated polynucleotide of claim 1, wherein the antibody comprises a HC 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 wherein the antibody comprises a light chain (LC) 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-10773 or PTA-10774.

4. An isolated polynucleotide encoding a polypeptide comprising an HC variable domain and a LC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, wherein the

HC variable domain comprises the amino acid sequence of SEQ ID NO:4, and the LC variable domain comprises the amino acid sequence of SEQ ID NO: 10 or SEQ ID NO: 11.

5. The isolated polynucleotide of claim 4, wherein the polynucleotide encodes a HC comprising the amino acid sequence of SEQ ID NO:6, and a LC comprising the amino acid sequence of SEQ ID NO: 12 or SEQ ID NO: 13.

6. The isolated polynucleotide of claim 4, wherein the polynucleotide encodes a HC comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the ATCC as PTA-10772, and wherein the polynucleotide encodes a LC 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-10773 or PTA-10774.

7. An isolated polynucleotide comprising a nucleic acid sequence encoding a HC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, wherein the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:125,

and wherein the isolated polynucleotide further comprises a nucleic acid sequence encoding a LC variable domain of the antibody or antigen binding fragment thereof, wherein the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:124.

8. An isolated polynucleotide encoding a polypeptide comprising an HC variable domain and a LC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, wherein the HC variable domain comprises the amino acid sequence of SEQ ID NO:101, and wherein the LC variable domain comprises the amino acid sequence of SEQ ID NO: 100.

9. An isolated polynucleotide comprising a nucleic acid sequence encoding a HC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, wherein the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:43

and wherein the isolated polynucleotide further comprises a nucleic acid sequence encoding a LC variable domain of the antibody or antigen binding fragment thereof, wherein the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:44.

10. An isolated polynucleotide comprising a nucleic acid sequence encoding a HC of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, wherein the nucleic acid sequence encoding the HC comprises the nucleic acid sequence of SEQ ID NO:48,

and wherein the isolated polynucleotide further comprises a nucleic acid sequence encoding a LC of the antibody or antigen binding fragment thereof, wherein the nucleic acid sequence encoding the LC comprises the nucleic acid sequence of SEQ ID NO:47.

11. An isolated polynucleotide comprising a nucleic acid sequence encoding a HC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1 and further comprising a nucleic acid sequence encoding a LC variable domain of the antibody or antigen binding fragment thereof, wherein:

(i) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:38 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ NO ID:37;
(ii) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:40 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:39;
(iii) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:121 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:120;
(iv) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:123and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:122; or
(v) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:127 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:126.

12. A vector comprising the polynucleotide of any one of claims 1-11.

13. An isolated host cell comprising the polynucleotide of any one of claims 1-11.

14. An isolated host cell comprising (i) a polynucleotide comprising the nucleic acid sequence of SEQ ID NO:5 that encodes a heavy chain (HC) variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, and (ii) a polynucleotide comprising the nucleic acid sequence of SEQ ID NO: 14 or SEQ ID NO:15 that encodes a light chain (LC) variable domain of the antibody or antigen binding fragment thereof.

15. The isolated host cell of claim 14, wherein the antibody comprises a HC 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 wherein the antibody comprises a LC 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-10773 or PTA-10774.

16. An isolated host cell comprising (i) a polynucleotide encoding a polypeptide comprising an HC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1 and (ii) a polynucleotide encoding a polypeptide comprising a LC variable domain of the antibody or antigen binding fragment thereof, wherein the HC variable domain comprises the amino acid sequence of SEQ ID NO:4, and the LC variable domain comprises the amino acid sequence of SEQ ID NO: 10 or SEQ ID NO: 11.

17. The isolated host cell of claim 16, wherein antibody comprises a HC comprising the same amino acid sequence as the amino acid sequence of the heavy chain encoded by the plasmid deposited with the ATCC as PTA-10772, and wherein the antibody comprises a LC 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-10773 or PTA-10774

18. An isolated host cell comprising (i) a polynucleotide comprising the nucleic acid sequence of SEQ ID NO:125, which encodes a heavy chain (HC) variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, and (ii) a polynucleotide comprising the nucleic acid sequence of SEQ ID NO:124, which encodes a light chain (LC) variable domain of the antibody or antigen binding fragment thereof.

19. An isolated host cell comprising (i) a polynucleotide encoding a polypeptide comprising an HC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1 and (ii) a polynucleotide encoding a polypeptide comprising a LC variable domain of the antibody or antigen binding fragment thereof, wherein HC variable domain comprises the amino acid sequence of SEQ ID NO:101, and wherein the LC variable domain comprises the amino acid sequence of SEQ ID NO: 100.

20. An isolated host cell comprising (i) polynucleotide comprising a nucleic acid sequence encoding a HC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, and (ii) a polynucleotide encoding a polypeptide comprising a LC variable domain of the antibody or antigen binding fragment thereof, wherein the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:43 and wherein the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:44.

21. An isolated host cell comprising (i) polynucleotide comprising a nucleic acid sequence encoding a HC of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, and (ii) a polynucleotide encoding a polypeptide comprising a LC of the antibody or antigen binding fragment thereof, wherein the nucleic acid sequence encoding the HC comprises the nucleic acid sequence of SEQ ID NO:48, and the nucleic acid sequence encoding the LC comprises the nucleic acid sequence of SEQ ID NO:47.

22. An isolated host cell comprising (i) polynucleotide comprising a nucleic acid sequence encoding a HC variable domain of an antibody or antigen binding fragment thereof that specifically binds human folate receptor 1, and (ii) a polynucleotide encoding a polypeptide comprising a LC variable domain of the antibody or antigen binding fragment thereof, wherein

(i) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:38 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ NO ID:37;

(ii) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:40 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:39;

(iii) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:121 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:120;

(iv) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:123and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:122; or

(v) the nucleic acid sequence encoding the HC variable domain comprises the nucleic acid sequence of SEQ ID NO:127 and the nucleic acid sequence encoding the LC variable domain comprises the nucleic acid sequence of SEQ ID NO:126.