

What is Claimed:

1. An antibody or an antigen-binding fragment thereof, wherein the antibody
 - (a) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133,
 - (b) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and
 - (c) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16.
2. The antibody or antigen-binding fragment thereof of claim 1, wherein (i) the cell recombinantly expressing the first form of MUC16 is a SKOV3 cell; (ii) the cell recombinantly expressing the second form of MUC16 is a SKOV3 cell; and (iii) the cells in step (c) are SKOV3 cells.
3. The antibody or antigen-binding fragment thereof of any of claims 1 or 2, wherein the antibody or antigen-binding fragment thereof immunospecifically binds to the amino acid sequence CTRNGTQLQNFTLDRSSV (SEQ ID NO:130), wherein amino acid residue number 4 (N4) and amino acid residue number 10 (N10) of CTRNGTQLQNFTLDRSSV (SEQ ID NO:130) are glycosylated.
4. The antibody or antigen-binding fragment thereof of any of claims 1-3, wherein the antibody or antigen-binding fragment thereof immunospecifically binds to the amino acid sequence CGTQLQNFTLDRSSV (SEQ ID NO:131), wherein amino acid residue number 7 (N7) of CGTQLQNFTLDRSSV (SEQ ID NO:131) is glycosylated.

5. The antibody or antigen-binding fragment thereof of any of claims 3 or 4, wherein the glycosylation consists of an N-linked chitobiose.

6. The antibody or antigen-binding fragment thereof of any of claims 1-5, wherein the antibody inhibits growth of a tumor that expresses a glycosylated form of MUC16.

7. The antibody or antigen-binding fragment thereof of any of claims 1-6, wherein the antibody is a monoclonal antibody.

8. The antibody or antigen-binding fragment thereof of any one of claims 1-7, wherein the antibody lacks immunospecific binding to a cell recombinantly expressing a third form of MUC16, which third form is glycosylated, and wherein the amino acid sequence of the third form is SEQ ID NO: 139.

9. The antibody or antigen-binding fragment thereof of any of claims 1-7, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region (VH), which comprises:

- (I) (a) a VH complementarity determining region (CDR)1 comprising the amino acid sequence TX₁GMGVG (SEQ ID NO:103), wherein X₁ is L or V;
(b) a VH CDR2 comprising the amino acid sequence HIWWDDX₂DKYYX₃PALKS (SEQ ID NO:104), wherein X₂ is E or absent, and X₃ is Y or N; and
(c) a VH CDR3 comprising the amino acid sequence IGTAQATDALDY (SEQ ID NO:105); or
- (II) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:83, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:84, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:85; or

- (III) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:89, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:90, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:91; or
- (IV) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:95, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:96, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:97; or
- (V) (a) a VH CDR1 comprising the amino acid sequence GFSLX₈TX₉GM (SEQ ID NO:109), wherein X₈ is N or S, and wherein X₉ is L or V;
(b) a VH CDR2 comprising the amino acid sequence WDDX₁₀ (SEQ ID NO:110), wherein X₁₀ is E or absent; and
(c) a VH CDR3 comprising the amino acid sequence GTAQATDALD (SEQ ID NO:111); or
- (VI) (a) a VH CDR1 comprising the amino acid sequence GFSLX₁₅TX₁₆GMG (SEQ ID NO:115), wherein X₁₅ is N or S, and X₁₆ is V or L;
(b) a VH CDR2 comprising the amino acid sequence IWWDDX₁₇DK (SEQ ID NO:116), wherein X₁₇ is E or absent; and
(c) a VH CDR3 comprising the amino acid sequence X₁₈RIGTAQATDALDY (SEQ ID NO:117), wherein X₁₈ is T, A, or S; or
- (VII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:3, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:4, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:5; or

- (VIII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:9, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:10, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:11; or
- (IX) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:15, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:16, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:17; or
- (X) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:23, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:24, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:25; or
- (XI) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:29, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:30, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:31; or
- (XII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:35, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:36, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:37; or
- (XIII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:43, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:44, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:45; or
- (XIV) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:49, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:50, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:51; or

- (XV) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:55, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:56, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:57; or
- (XVI) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:63, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:64, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:65; or
- (XVII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:69, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:70, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:71; or
- (XVIII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:75, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:76, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:77.
10. The antibody or antigen-binding fragment thereof of any of claims 1-7, wherein the antibody or antigen-binding fragment thereof comprises a VH comprising the amino acid sequence of:
- (I) QVX₂₁LKESGPGX₂₂LQPSQTLTCSFSGFSLX₂₃TX₂₄GMGVGWX₂₅RQX₂₆SGKGLEWLAHIWWDDX₂₇DKYYX₂₈PALKSRLTISX₂₉X₃₀X₃₁SKNQVFLKIX₃₂NVX₃₃TADX₃₄ATYYCX₃₅RIGTAQATDALDYWGQGTSVTVSS (SEQ ID NO:101), wherein X₂₁ is T or N, X₂₂ is I or K, X₂₃ is N or S, X₂₄ is V or L, X₂₅ is S or I, X₂₆ is P or S, X₂₇ is E or absent, X₂₈ is N or Y, X₂₉ is K or R, X₃₀ is A or D, X₃₁ is T or S, X₃₂ is V or A, X₃₃ is G or D, X₃₄ is T, I, or S, and X₃₅ is T, S, or A; or
- (II) SEQ ID NO:81; or

- (III) SEQ ID NO:1; or
- (IV) SEQ ID NO:21; or
- (V) SEQ ID NO:41; or
- (VI) SEQ ID NO:61.

11. The antibody or antigen-binding fragment thereof of any of claims 1-7, wherein the antibody or antigen-binding fragment thereof comprises a VL comprising the amino acid sequence of:

- (I) DIVMTQAAPSX₃₆X₃₇VTPGESVSISCRSSKSLX₃₈X₃₉SNGNTYLYWFLQRPQGSPQR
LIYYMSNLASGVDPDRFSGRSGTDFTLX₄₀ISRVEAX₄₁DVGVYYCMQX₄₂LEX₄₃PL
TFGGGTKLEIK (SEQ ID NO:102), wherein X₃₆ is I or V, X₃₇ is P or S, X₃₈ is R or L,
X₃₉ is K or H, X₄₀ is R or K, X₄₁ is E or G, X₄₂ is S or G, and X₄₃ is Y or H; or
- (II) SEQ ID NO:82; or
- (III) SEQ ID NO:22; or
- (IV) SEQ ID NO:42; or
- (V) SEQ ID NO:2; or
- (VI) SEQ ID NO:62.

12. The antibody or antigen-binding fragment thereof of any of claims 1-7, wherein the antibody or antigen-binding fragment thereof comprises:

(a) (i) a VH comprising a VH CDR1 comprising the amino acid sequence TX₁GMGVG (SEQ ID NO:103), wherein X₁ is L or V; a VH CDR2 comprising the amino acid sequence HIWWDDX₂DKYYX₃PALKS (SEQ ID NO:104), wherein X₂ is E or absent, and X₃ is Y or N; and a VH CDR3 comprising the amino acid sequence IGTAQATDALDY (SEQ ID NO:105); and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence RSSKSLX₄X₅SNGNTYLY (SEQ ID NO:106), wherein X₄ is R or L, and X₅ is K or H; a VL CDR2 comprising the amino acid sequence YMSNLAS (SEQ ID NO:107); and a VL CDR3 comprising the amino acid sequence MQX₆LEX₇PLT (SEQ ID NO:108), wherein X₆ is G or S, and X₇ is H or Y; or

(b) (i) a VH comprising a VH CDR1 comprising the amino acid sequence GFSLX8TX9GM (SEQ ID NO:109), wherein X8 is N or S, and wherein X9 is L or V; a VH CDR2 comprising the amino acid sequence WDDX₁₀ (SEQ ID NO:110), wherein X₁₀ is E or absent; and a VH CDR3 comprising the amino acid sequence GTAQATDALD (SEQ ID NO:111); and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence SKSLX₁₁X₁₂SNGNTY (SEQ ID NO:112), wherein X₁₁ is L or R, and X₁₂ is H or K; a VL CDR2 comprising the amino acid sequence YMS (SEQ ID NO:113); and a VL CDR3 comprising the amino acid sequence X₁₃LEX₁₄PL (SEQ ID NO:114), wherein X₁₃ is G or S, and X₁₄ is H or Y; or

(c) (i) a VH CDR1 comprising the amino acid sequence GFSLX₁₅TX₁₆GMG (SEQ ID NO:115), wherein X₁₅ is N or S, and X₁₆ is V or L; a VH CDR2 comprising the amino acid sequence IWWDDX₁₇DK (SEQ ID NO:116), wherein X₁₇ is E or absent; and a VH CDR3 comprising the amino acid sequence X₁₈RIGTAQATDALDY (SEQ ID NO:117), wherein X₁₈ is T, A, or S; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence KSLX₁₉X₂₀SNGNTY (SEQ ID NO:118), wherein X₁₉ is V or L, and X₂₀ is H or K; a VL CDR2 comprising the amino acid sequence YMS (SEQ ID NO:119); and a VL CDR3 comprising the amino acid sequence MQSLEYPLT (SEQ ID NO:120); or

(d) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:83, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:84, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:85; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:86, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:87, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:88; or

(e) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:89, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:90, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:91; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:92, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:93, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:94; or

(f) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:95, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:96, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:97 and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:98, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:99, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:100; or

(g) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:23, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:24, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:25; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:26, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:27, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:28; or

(h) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:29, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:30, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:31; and (ii) a VL comprising a VL

CDR1 comprising the amino acid sequence of SEQ ID NO:32, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:33, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:34; or

(i) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:35, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:36, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:37; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:38, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:39, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:40; or

(j) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:43, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:44, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:45; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:46, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:47, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:48; or

(k) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:49, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:50, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:51; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:52, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:53, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:54; or

(l) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:55, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:56, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:57; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:58, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:59, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:60; or

(m) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:3, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:4, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:5; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:6, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:7, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:8; or

(n) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:9, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:10, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:11; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:12, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:13, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:14; or

(o) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:15, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:16, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:17; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:18, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:19, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:20; or

(p) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:63, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:64, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:65; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:66, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:67, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:68; or

(q) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:69, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:70, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:71; and (ii) a VL comprising a VL

CDR1 comprising the amino acid sequence of SEQ ID NO:72, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:73, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:74; or

(r) (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:75, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:76, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:77; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:78, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:79, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:80.

13. The antibody or antigen-binding fragment thereof of any of claims 1-7, wherein the antibody or antigen-binding fragment thereof comprises:

(a) (i) a VH comprising the amino acid sequence of QVX₂₁LKESGPGX₂₂LQPSQTLSTCSFSGFSLX₂₃TX₂₄GMGVGWX₂₅RQX₂₆SGKGLEWLAH IWWDDX₂₇DKYYX₂₈PALKSRLTISX₂₉X₃₀X₃₁SKNQVFLKIX₃₂NVX₃₃TADX₃₄ATYYCX₃₅RI GTAQATDALDYWGQGTSVTVSS (SEQ ID NO:101), wherein X₂₁ is T or N, X₂₂ is I or K, X₂₃ is N or S, X₂₄ is V or L, X₂₅ is S or I, X₂₆ is P or S, X₂₇ is E or absent, X₂₈ is N or Y, X₂₉ is K or R, X₃₀ is A or D, X₃₁ is T or S, X₃₂ is V or A, X₃₃ is G or D, X₃₄ is T, I, or S, and X₃₅ is T, S, or A; and (ii) a VL comprising the amino acid sequence of DIVMTQAAPSX₃₆X₃₇VTPGESVSISCRSSKSLX₃₈X₃₉SNGNTYLYWFLQRPQGSPQRLIYY MSNLASGVPDRFSGRSGTDFTLX₄₀ISRVEAX₄₁DVG VYYCMQX₄₂LEX₄₃PLTFGGGTKL EIK (SEQ ID NO:102), wherein X₃₆ is I or V, X₃₇ is P or S, X₃₈ is R or L, X₃₉ is K or H, X₄₀ is R or K, X₄₁ is E or G, X₄₂ is S or G, and X₄₃ is Y or H; or

(b) (i) a VH comprising the amino acid sequence of SEQ ID NO:81; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:82; or

(c) (i) a VH comprising the amino acid sequence of SEQ ID NO:1; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:2; or

(d) (i) a VH comprising the amino acid sequence of SEQ ID NO:21; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:22; or

(e) (i) a VH comprising the amino acid sequence of SEQ ID NO:41; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:42; or

(f) (i) a VH comprising the amino acid sequence of SEQ ID NO:61; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:62.

14. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises a VH, which VH comprises:

(a) a VH CDR1 comprising the amino acid sequence TX₁GMGVG (SEQ ID NO:103), wherein X₁ is L or V; a VH CDR2 comprising the amino acid sequence HIWWDDX₂DKYYX₃PALKS (SEQ ID NO:104), wherein X₂ is E or absent, and X₃ is Y or N; and a VH CDR3 comprising the amino acid sequence IGTAQATDALDY (SEQ ID NO:105); or

(b) a VH CDR1 comprising the amino acid sequence GFSLX₈TX₉GM (SEQ ID NO:109), wherein X₈ is N or S, and wherein X₉ is L or V; a VH CDR2 comprising the amino acid sequence WDDX₁₀ (SEQ ID NO:110), wherein X₁₀ is E or absent; and a VH CDR3 comprising the amino acid sequence GTAQATDALD (SEQ ID NO:111); or

(c) a VH CDR1 comprising the amino acid sequence GFSLX₁₅TX₁₆GMG (SEQ ID NO:115), wherein X₁₅ is N or S, and X₁₆ is V or L; a VH CDR2 comprising the amino acid sequence IWWDDX₁₇DK (SEQ ID NO:116), wherein X₁₇ is E or absent; and a VH CDR3 comprising the amino acid sequence X₁₈RIGTAQATDALDY (SEQ ID NO:117), wherein X₁₈ is T, A, or S; or

(d) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:83, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:84, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:85; or

(e) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:89, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:90, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:91; or

(f) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:95, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:96, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:97; or

(g) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:3, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:4, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:5; or

(h) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:9, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:10, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:11; or

(i) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:15, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:16, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:17; or

(j) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:23, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:24, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:25; or

(k) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:29, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:30, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:31; or

(l) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:35, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:36, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:37; or

(m) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:43, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:44, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:45; or

(n) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:49, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:50, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:51; or

(o) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:55, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:56, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:57; or

(p) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:63, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:64, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:65; or

(q) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:69, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:70, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:71; or

(r) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:75, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:76, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:77.

15. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises:

(a) a VH comprising:

(i) a VH CDR1 comprising: (1) the amino acid sequence TX₁GMGVG (SEQ ID NO:103), wherein X₁ is L or V; (2) the amino acid sequence GFSLX₈TX₉GM (SEQ ID NO:109), wherein X₈ is N or S, and wherein X₉ is L or V; or (3) the amino acid sequence GFSLX₁₅TX₁₆GMG (SEQ ID NO:115), wherein X₁₅ is N or S, and X₁₆ is V or L;

(ii) a VH CDR2 comprising: (1) the amino acid sequence HIWWDDX₂DKYYX₃PALKS (SEQ ID NO:104), wherein X₂ is E or absent, and X₃ is Y or N; (2) the amino acid sequence WDDX₁₀ (SEQ ID NO:110), wherein X₁₀ is E or absent; or (3) the amino acid sequence IWWDDX₁₇DK (SEQ ID NO:116), wherein X₁₇ is E or absent; and

(iii) a VH CDR3 comprising: (1) the amino acid sequence IGTAQATDALDY (SEQ ID

NO:105); (2) the amino acid sequence GTAQATDALD (SEQ ID NO:111); or (3) the amino acid sequence X₁₈RIGTAQATDALDY (SEQ ID NO:117), wherein X₁₈ is T, A, or S; and

(b) a VL comprising:

(i) a VL CDR1 comprising: (1) the amino acid sequence RSSKSLX₄X₅SNGNTYLY (SEQ ID NO:106), wherein X₄ is R or L, and X₅ is K or H; (2) the amino acid sequence SKSLX₁₁X₁₂SNGNTY (SEQ ID NO:112), wherein X₁₁ is L or R, and X₁₂ is H or K; or (3) the amino acid sequence KSLX₁₉X₂₀SNGNTY (SEQ ID NO:118), wherein X₁₉ is V or L, and X₂₀ is H or K;

(ii) a VL CDR2 comprising: (1) the amino acid sequence YMSNLAS (SEQ ID NO:107); (2) the amino acid sequence YMS (SEQ ID NO:113); or (3) the amino acid sequence YMS (SEQ ID NO:119); and

(iii) a VL CDR3 comprising: (1) the amino acid sequence MQX₆LEX₇PLT (SEQ ID NO:108), wherein X₆ is G or S, and X₇ is H or Y; (2) the amino acid sequence X₁₃LEX₁₄PL (SEQ ID NO:114), wherein X₁₃ is G or S, and X₁₄ is H or Y; or (3) the amino acid sequence MQSLEYPLT (SEQ ID NO:120).

16. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises: (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:83, 89, or 95, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:84, 90, or 96, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:85, 91, or 97; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:86, 92, or 98, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:87, 93, or 99, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:88, 94, or 100.

17. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises: (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:23, 29, or 35, a VH

CDR2 comprising the amino acid sequence of SEQ ID NO:24, 30, or 36, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:25, 31, or 37; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:26, 32, or 38, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:27, 33, or 39, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:28, 34, or 40.

18. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises: (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:43, 49, or 55, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:44, 50, or 56, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:45, 51, or 57; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:46, 52, or 58, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:47, 53, or 59, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:48, 54, or 60.

19. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises: (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:3, 9, or 15, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:4, 10, or 16, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:5, 11, or 17, ; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:6, 12, or 18, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:7, 13, or 19, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:8, 14, or 20.

20. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises: (i) a VH comprising a VH CDR1 comprising the amino acid sequence of SEQ ID NO:63, 69, or 75, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:64, 70, or 76, and a VH CDR3

comprising the amino acid sequence of SEQ ID NO:65, 71, or 77; and (ii) a VL comprising a VL CDR1 comprising the amino acid sequence of SEQ ID NO:66, 72, or 78, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:67, 73, or 79, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:68, 74, or 80.

21. An antibody or antigen-binding fragment thereof that immunospecifically binds to MUC16, wherein the antibody or antigen-binding fragment thereof comprises:

(a) (i) a VH comprising the amino acid sequence of QVX₂₁LKESGPGX₂₂LQPSQTLSTCSFSGFSLX₂₃TX₂₄GMGVGWX₂₅RQX₂₆SGKGLEWLAH IWWDDX₂₇DKYYX₂₈PALKSRLTISX₂₉X₃₀X₃₁SKNQVFLKIX₃₂NVX₃₃TADX₃₄ATYYCX₃₅RI GTAQATDALDYWGQGTSVTVSS (SEQ ID NO:101), wherein X₂₁ is T or N, X₂₂ is I or K, X₂₃ is N or S, X₂₄ is V or L, X₂₅ is S or I, X₂₆ is P or S, X₂₇ is E or absent, X₂₈ is N or Y, X₂₉ is K or R, X₃₀ is A or D, X₃₁ is T or S, X₃₂ is V or A, X₃₃ is G or D, X₃₄ is T, I, or S, and X₃₅ is T, S, or A; and (ii) a VL comprising the amino acid sequence of DIVMTQAAPSX₃₆X₃₇VTPGESVSISCRSSKSLX₃₈X₃₉SNGNTYLYWFLQRPQGSPQRLLIYY MSNLAGVPDRFSGRSGTDFTLX₄₀ISRVEAX₄₁DVGVIYYCMQX₄₂LEX₄₃PLTFGGGTKL EIK (SEQ ID NO:102), wherein X₃₆ is I or V, X₃₇ is P or S, X₃₈ is R or L, X₃₉ is K or H, X₄₀ is R or K, X₄₁ is E or G, X₄₂ is S or G, and X₄₃ is Y or H; or

(b) (i) a VH comprising the amino acid sequence of SEQ ID NO:81; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:82; or

(c) (i) a VH comprising the amino acid sequence of SEQ ID NO:1; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:2;

(d) (i) a VH comprising the amino acid sequence of SEQ ID NO:21; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:22; or

(e) (i) a VH comprising the amino acid sequence of SEQ ID NO:41; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:42; or

(f) (i) a VH comprising the amino acid sequence of SEQ ID NO:61; and (ii) a VL comprising the amino acid sequence of SEQ ID NO:62.

22. The antibody or antigen-binding fragment thereof of any one of claims 8-21, wherein the antibody is a monoclonal antibody.

23. The antibody or antigen-binding fragment thereof of any of claims 1-7, 9, 12, and 14-20, wherein the antibody or antigen-binding fragment thereof is humanized.

24. An antibody conjugate comprising the antibody or antigen-binding fragment thereof of any of claims 1-23 conjugated to an agent.

25. The antibody or antigen-binding fragment thereof of any of claims 1-23, wherein the antibody or antigen-binding fragment thereof is a bispecific antibody.

26. The bispecific antibody of claim 25, wherein the bispecific antibody comprises an immunoglobulin that immunospecifically binds MUC16, wherein the light chain of the immunoglobulin is conjugated via a peptide linker to a single chain variable fragment (scFv) that immunospecifically binds to CD3.

27. A bispecific antibody conjugate comprising the bispecific antibody of claim 25 or 26 conjugated to an agent.

28. The antibody or antigen-binding fragment thereof of any of claims 1-23, wherein the antigen-binding fragment thereof is a scFv.

29. A scFv conjugate comprising the scFv of claim 28 conjugated to an agent.

30. A chimeric antigen receptor (CAR) comprising: the scFv of claim 28 or the scFv conjugate of claim 29.

31. A CAR comprising the antigen-binding fragment of any of claims 1-23.

32. An antibody heavy chain or antigen-binding portion thereof, wherein the heavy chain or antigen-binding portion thereof comprises a VH, which VH comprises:

- (I) (a) a VH complementarity determining region (CDR)1 comprising the amino acid sequence TX₁GMGVG (SEQ ID NO:103), wherein X₁ is L or V;
(b) a VH CDR2 comprising the amino acid sequence HIWWDDX₂DKYYX₃PALKS (SEQ ID NO:104), wherein X₂ is E or absent, and X₃ is Y or N; and
(c) a VH CDR3 comprising the amino acid sequence IGTAQATDALDY (SEQ ID NO:105); wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (II) (a) a VH CDR1 comprising the amino acid sequence GFSLX₈TX₉GM (SEQ ID NO:109), wherein X₈ is N or S, and X₉ is L or V;
(b) a VH CDR2 comprising the amino acid sequence WDDX₁₀ (SEQ ID NO:110), wherein X₁₀ is E or absent; and
(c) a VH CDR3 comprising the amino acid sequence GTAQATDALD (SEQ ID NO:111);
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated,

and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (III) (a) a VH CDR1 comprising the amino acid sequence GFSLX₁₅TX₁₆GMG (SEQ ID NO:115), wherein X₁₅ is N or S, and X₁₆ is V or L;
- (b) a VH CDR2 comprising the amino acid sequence IWWDDX₁₇DK (SEQ ID NO:116), wherein X₁₇ is E or absent; and
- (c) a VH CDR3 comprising the amino acid sequence X₁₈RIGTAQATDALDY (SEQ ID NO:117), wherein X₁₈ is T, A, or S;
- wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (IV) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:83, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:84, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:85,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (V) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:89, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:90, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:91, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (VI) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:95, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:96, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:97,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (VII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:3, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:4, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:5, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (VIII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:9, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:10, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:11,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (IX) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:15, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:16, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:17, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (X) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:23, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:24, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:25,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XI) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:29, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:30, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:31,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:35, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:36, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:37,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(XIII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:43, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:44, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:45, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(XIV) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:49, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:50, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:51,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XV) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:55, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:56, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:57, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XVI) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:63, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:64, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:65,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(XVII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:69, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:70, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:71, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(XVIII) a VH CDR1 comprising the amino acid sequence of SEQ ID NO:75, a VH CDR2 comprising the amino acid sequence of SEQ ID NO:76, and a VH CDR3 comprising the amino acid sequence of SEQ ID NO:77,

wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16.

33. An antibody heavy chain or antigen-binding portion thereof, wherein the heavy chain or antigen-binding portion thereof comprises a VH comprising:

- (I) the amino acid sequence of
 QVX₂₁LKESGPGX₂₂LQPSQTL₂₃SLTCSFSGFSLX₂₃TX₂₄GMGVGWX₂₅RQX₂₆SGKGLE
 WLAHIWWDDX₂₇DKYYX₂₈PALKSRLTISX₂₉X₃₀X₃₁SKNQVFLKIX₃₂NVX₃₃TADX₃₄
 ATYYCX₃₅RIGTAQATD₃₅ALDYWGQGTSTVTVSS (SEQ ID NO:101), wherein X₂₁ is T or N, X₂₂ is I or K, X₂₃ is N or S, X₂₄ is V or L, X₂₅ is S or I, X₂₆ is P or S, X₂₇ is E or absent, X₂₈ is N or Y, X₂₉ is K or R, X₃₀ is A or D, X₃₁ is T or S, X₃₂ is V or A, X₃₃ is G or D, X₃₄ is T, I, or S, and X₃₅ is T, S, or A,
 wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (II) the amino acid sequence of SEQ ID NO:81,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (III) the amino acid sequence of SEQ ID NO:1,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (IV) the amino acid sequence of SEQ ID NO:21,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the

antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (V) the amino acid sequence of SEQ ID NO:41, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (VI) the amino acid sequence of SEQ ID NO:61, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody heavy chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16,

which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16.

34. The antibody heavy chain or antigen-binding portion thereof of claim 32, wherein said antibody heavy chain or antigen-binding portion thereof is humanized.

35. An antibody heavy chain conjugate comprising the antibody heavy chain or antigen-binding portion thereof of any of claims 32-34, wherein said antibody heavy chain or antigen-binding portion thereof is conjugated to an agent.

36. An antibody light chain or antigen-binding portion thereof, wherein the light chain or antigen-binding portion thereof comprises a VL, which comprises:

- (I) (a) a VL CDR1 comprising the amino acid sequence RSSKSLX₄X₅SNGNTYLY (SEQ ID NO:106), wherein X₄ is R or L, and X₅ is K or H;
- (b) a VL CDR2 comprising the amino acid sequence YMSNLAS (SEQ ID NO:107); and
- (c) a VL CDR3 comprising the amino acid sequence MQX₆LEX₇PLT (SEQ ID NO:108), wherein X₆ is G or S, and X₇ is H or Y,
- wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (II) (a) a VL CDR1 comprising the amino acid sequence SKSLX₁₁X₁₂SNGNTY (SEQ ID NO:112), wherein X₁₁ is L or R, and X₁₂ is H or K;
- (b) a VL CDR2 comprising the amino acid sequence YMS (SEQ ID NO:113); and
- (c) a VL CDR3 comprising the amino acid sequence X₁₃LEX₁₄PL (SEQ ID NO:114), wherein X₁₃ is G or S, and X₁₄ is H or Y,
- wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (III) (a) a VL CDR1 comprising the amino acid sequence KSLX₁₉X₂₀SNGNTY (SEQ ID NO:118), wherein X₁₉ is V or L, and X₂₀ is H or K;
- (b) a VL CDR2 comprising the amino acid sequence YMS (SEQ ID NO:119); and
- (c) a VL CDR3 comprising the amino acid sequence MQSLEYPLT (SEQ ID NO:120),
- wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (IV) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:86, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:87, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:88, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (V) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:92, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:93, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:94, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(VI) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:98, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:99, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:100, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(VII) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:6, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:7, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:8, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (VIII) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:12, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:13, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:14, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (IX) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:18, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:19, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:20, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (X) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:26, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:27, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:28, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XI) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:32, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:33, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:34, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XII) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:38, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:39, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:40, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XIII) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:46, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:47, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:48, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XIV) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:52, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:53, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:54, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (XV) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:58, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:59, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:60, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(XVI) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:66, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:67, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:68, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(XVII) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:72, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:73, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:74, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second

form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

(XVIII) a VL CDR1 comprising the amino acid sequence of SEQ ID NO:78, a VL CDR2 comprising the amino acid sequence of SEQ ID NO:79, and a VL CDR3 comprising the amino acid sequence of SEQ ID NO:80, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16.

37. An antibody light chain, wherein the light chain comprises a VL comprising:

(I) the amino acid sequence of
DIVMTQAAPX₃₆X₃₇VTPGESVSISCRSSKSLX₃₈X₃₉SNGNTYLYWFLQRPQGSPQR
LIYYMSNLASGVDPDRFSGRGSGTDFTLX₄₀ISRVEAX₄₁DVGVYYCMQX₄₂LEX₄₃PL
TFGGGTKLEIK (SEQ ID NO:102), wherein X₃₆ is I or V, X₃₇ is P or S, X₃₈ is R or L,
X₃₉ is K or H, X₄₀ is R or K, X₄₁ is E or G, X₄₂ is S or G, and X₄₃ is Y or H,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks

immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (II) the amino acid sequence of SEQ ID NO:82, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (III) the amino acid sequence of SEQ ID NO:2, wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (IV) the amino acid sequence of SEQ ID NO:22,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (V) the amino acid sequence of SEQ ID NO:42,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16;

or

- (VI) the amino acid sequence of SEQ ID NO:62,
wherein, optionally, an antibody or antigen-binding fragment thereof comprising the

antibody light chain or antigen-binding portion thereof (i) immunospecifically binds to a cell recombinantly expressing a first form of MUC16, which first form is glycosylated, and wherein the amino acid sequence of the first form is SEQ ID NO:133; (ii) lacks immunospecific binding to a cell recombinantly expressing a second form of MUC16, which second form is unglycosylated, and wherein the amino acid sequence of the second form is SEQ ID NO:139; and (iii) inhibits matrigel invasion *in vitro* of cells recombinantly expressing said first form of MUC16.

38. The antibody light chain or antigen-binding portion thereof of claim 36, wherein said antibody light chain or antigen-binding portion thereof is humanized.

39. An antibody light chain conjugate comprising the antibody light chain or antigen-binding portion thereof of any of claims 36-38 conjugated to an agent.

40. A fusion protein comprising the antibody light chain of any one of claims 36-39 conjugated via a peptide linker to a scFv.

41. A T cell which recombinantly expresses the CAR of claim 30 or 31.

42. A polynucleotide comprising nucleic acid sequences encoding: (i) the scFv of claim 28, (ii) the scFv conjugate of claim 29, or (iii) the CAR of claim 30 or 31.

43. A polynucleotide comprising nucleic acid sequences encoding: (i) the antibody heavy chain of any of claims 32-34, or (ii) the antibody heavy chain conjugate of claim 35.

44. A polynucleotide comprising nucleic acid sequences encoding: (i) the antibody light chain of any of claims 36-38, (ii) the antibody light chain conjugate of claim 39, or (iii) the fusion protein of claim 40.

45. A polynucleotide comprising nucleic acid sequences encoding (a) the antibody heavy chain of any of claims 32-34 or the antibody heavy chain conjugate of claim 35; and (b) the antibody light chain of any of claims 36-38, the antibody light chain conjugate of claim 39, or the fusion protein of claim 40.

46. A vector comprising the polynucleotide of any of claims 42-44 operably linked to a promoter.

47. A vector comprising (a) the polynucleotide of claim 43 operably linked to a first promoter; and (b) the polynucleotide of claim 44 operably linked to a second promoter.

48. An *ex vivo* cell comprising the vector of claim 46 or the polynucleotide of claim 42 operably linked to a promoter.

49. An *ex vivo* cell comprising the polynucleotide of claim 43 operably linked to a promoter.

50. An *ex vivo* cell comprising the polynucleotide of claim 44 operably linked to a promoter.

51. An *ex vivo* cell comprising the vector of claim 47.

52. An *ex vivo* cell comprising one or more polynucleotides encoding the antibody or antigen-binding fragment thereof of any of claims 1-23 operably linked to a promoter.

53. A method of producing an antibody heavy chain comprising culturing the cell of claim 49 under conditions such the polynucleotide is expressed by the cell to produce the antibody heavy chain or antibody heavy chain conjugate encoded by the polynucleotide.

54. A method of producing an antibody light chain comprising culturing the cell of claim 50 under conditions such that the polynucleotide is expressed by the cell to produce the antibody light chain, antibody light chain conjugate, or fusion protein encoded by the polynucleotide.

55. A method of producing an antibody or antigen-binding fragment thereof comprising culturing the *ex vivo* cell of claim 51 under conditions such that the polynucleotide operably linked to the first promoter and the polynucleotide operably linked to the second promoter are expressed by the cell to produce (i) the antibody heavy chain or the antibody heavy chain conjugate encoded by the polynucleotide; and (ii) the antibody light chain, the antibody light chain conjugate, or the fusion protein encoded by the polynucleotide.

56. A pharmaceutical composition comprising: a therapeutically effective amount of the antibody or antigen-binding fragment thereof of any of claims 1-23, the antibody conjugate of claim 24, the bispecific antibody of claim 25 or 26, the bispecific antibody conjugate of claim 27, the scFv of claim 28, the scFv conjugate of claim 29, the CAR of claim 30, the fusion protein of claim 40, or the T cell of claim 41; and a pharmaceutically acceptable carrier.

57. A pharmaceutical composition comprising a therapeutically effective amount of the CAR of claim 31 and a pharmaceutically acceptable carrier.

58. The pharmaceutical composition of claim 56 for use in the treatment of cancer in a patient in need thereof.

59. The pharmaceutical composition of claim 57 for use in the treatment of cancer in a patient in need thereof.

60. The pharmaceutical composition of claim 58 or 59, wherein said cancer is a cancer of the lung, pancreas, breast, uterine, fallopian tube, primary peritoneum, or ovary.

61. The pharmaceutical composition of any of claims 58-60, wherein said patient is a human patient.

62. The pharmaceutical composition of any of claims 58-61, wherein the pharmaceutical composition is to be administered to the patient in combination with a therapeutically effective amount of an additional therapeutic agent.

63. An immunogenic glycopeptide comprising one or more glycosylation sites, wherein (i) the immunogenic glycopeptide is 10 to 60 amino acid residues, 10 to 30 amino acid residues, 15 to 25 amino acid residues, 15 to 20 amino acid residues, or 15 to 18 amino acid residues in length, and (ii) at least one of the one or more glycosylation sites is linked with a carbohydrate.

64. A method of generating an antibody or an antigen-binding fragment thereof that specifically binds to a glycoprotein, comprising immunizing a subject with an immunogenic glycopeptide comprising one or more glycosylation sites, wherein (i) the immunogenic glycopeptide is 10 to 60 amino acid residues, 10 to 30 amino acid residues, 15 to 25 amino acid residues, 15 to 20 amino acid residues, or 15 to 18 amino acid residues in length; (ii) the immunogenic glycopeptide comprises an at least 10 amino acid portion of the amino acid sequence of the glycoprotein; (iii) at least one of the one or more glycosylation sites is linked with a carbohydrate; and (iv) at least one of the one or more glycosylation sites is in said portion of the amino acid sequence.