

Claims

- 1) A polypeptide comprising the amino acid sequences of SEQ ID NOs: 1, 3, 5, 25, 31, 49, 53, 65, 85, 87, 111, 115, 127, 129, 177, 179, 183, 187, 191, 193, 195, 201, 207, 219, 221, 223, 229, 251, 261, 323, 337, 339, 349, 375, 379, 381, 389, 391, 393, 395, 397, 401, 403, and 405.
- 2) The polypeptide of claim 1, wherein the amino acid sequences are connected to each other in any order.
- 3) The polypeptide of claim 1, wherein the amino acid sequences are connected to each other in any order without a linker.
- 4) The polypeptide of any one of claims 1-3, wherein the polypeptide comprises one or more reverse peptide bonds, D-isomers of amino acids, chemical modifications, or any combination thereof.
- 5) A polynucleotide encoding a polypeptide of any one of claims 1-4.
- 6) The polynucleotide of claim 5, comprising SEQ ID NOs: 2, 4, 6, 26, 32, 50, 54, 66, 86, 88, 112, 116, 128, 130, 178, 180, 184, 188, 192, 194, 196, 202, 208, 220, 222, 224, 230, 252, 262, 324, 338, 340, 350, 376, 380, 382, 390, 392, 394, 396, 398, 402, 404, and 406.
- 7) The polynucleotide of claim 5 or 6, wherein the polynucleotide comprises DNA or RNA.
- 8) The polynucleotide of claim 7, wherein the RNA is mRNA.
- 9) A vector comprising the polynucleotide of any one of claims 5-8.

10) The vector of claim 9, wherein the vector is selected from an adenovirus vector, a poxvirus vector, an adeno-associated virus vector, a retrovirus vector, a self-replicating RNA molecule, and a combination thereof.

11) The vector of claim 10, wherein the adenovirus vector is hAd5, hAd7, hAd11, hAd26, hAd34, hAd35, hAd48, hAd49, hAd50, GAd20, GAd19, GAd21, GAd25, GAd26, GAd27, GAd28, GAd29, GAd30, GAd31, ChAd3, ChAd4, ChAd5, ChAd6, ChAd7, ChAd8, ChAd9, ChAd10, ChAd11, ChAd16, ChAd17, ChAd19, ChAd20, ChAd22, ChAd24, ChAd26, ChAd30, ChAd31, ChAd37, ChAd38, ChAd44, ChAd55, ChAd63, ChAd73, ChAd82, ChAd83, ChAd146, ChAd147, PanAd1, PanAd2, or PanAd3.

12) The vector of claim 10, wherein the poxvirus vector is derived from smallpox virus vector, vaccinia virus vector, cowpox virus vector, monkeypox virus vector, Copenhagen vaccinia virus (W) vector, New York Attenuated Vaccinia Virus (NYVAC) vector, or Modified Vaccinia Ankara (MVA) vector.

13) The vector of claim 10, wherein the vector is an adenovirus vector.

14) The vector of claim 10, wherein the vector is a poxvirus vector.

15) The vector of claim 10, wherein the vector is a self-replicating RNA molecule.

16) The vector of claim 11, wherein the adenovirus vector is an hAd26 vector.

17) The vector of claim 11, wherein the adenovirus vector is a GAd20 vector.

18) The vector of claim 10, wherein the poxvirus vector is an MVA vector.

19) The vector of claim 10, wherein the vector is a self-replicating RNA molecule.

20) A pharmaceutical composition comprising a polypeptide of any one of claims 1-4.

- 21) A pharmaceutical composition comprising a polynucleotide of any one of claims 5-7.
- 22) A pharmaceutical composition comprising a recombinant virus comprising a vector of any one of claims 9-18.
- 23) The pharmaceutical composition of claim 22, wherein the recombinant virus is selected from an Ad26 virus, a MVA virus, a GAd20 virus, and combinations thereof.
- 24) The pharmaceutical composition of any one of claims 20-23 for use in therapy.
- 25) A composition comprising a recombinant virus or a self-replicating RNA molecule comprising:
a polynucleotide encoding a polypeptide comprising the amino acid sequences of SEQ ID NOs: 1, 3, 5, 25, 31, 49, 53, 65, 85, 87, 111, 115, 127, 129, 177, 179, 183, 187, 191, 193, 195, 201, 207, 219, 221, 223, 229, 251, 261, 323, 337, 339, 349, 375, 379, 381, 389, 391, 393, 395, 397, 401, 403, and 405 , and
wherein the recombinant virus is selected from Ad26, MVA, or GAd20,
for use in therapy, wherein the composition is to be administered to a subject in need thereof,
and wherein the administration comprises one or more administrations of the composition.
- 26) Use of the pharmaceutical composition of any one of claims 20-23 in the manufacture of a medicament for the treatment, prevention or reduction of a risk of onset or delay of the onset of ovarian cancer in a subject in need thereof, wherein the composition is to be administered to the subject.
- 27) Use of a composition comprising a recombinant virus or a self-replicating RNA molecule comprising:

a polynucleotide encoding a polypeptide comprising the amino acid sequences of SEQ ID NOs: 1, 3, 5, 25, 31, 49, 53, 65, 85, 87, 111, 115, 127, 129, 177, 179, 183, 187, 191, 193, 195, 201, 207, 219, 221, 223, 229, 251, 261, 323, 337, 339, 349, 375, 379, 381, 389, 391, 393, 395, 397, 401, 403, and 405, and

wherein the recombinant virus is selected from Ad26, MVA, or GAd20,

in the manufacture of a medicament for the treatment, prevention or reduction of a risk of onset or delay of the onset of ovarian cancer in a subject in need thereof, wherein the composition is to be administered to the subject,

and wherein the administration comprises one or more administrations of the composition.

28) The use of claim 26 or 27, wherein the subject expresses or is suspected to express one or more amino acid sequences of claim 1.

29) The use of claim 28, wherein the one or more amino acid sequences of claim 1 are present at a frequency of at least 1% or more, 2% or more, 3% or more, 4% or more, 5% or more, 6% or more, 7% or more, 8% or more, 9% or more, 10% or more, 11% or more, 12% or more, 13% or more, 14% or more, 15% or more, 16% or more, 17% or more, 18% or more, 19% or more, 20% or more, 21% or more, 22% or more, 23% or more, 24% or more, 25% or more, 26% or more, 27% or more, 28% or more, 29% or more, 30% or more, 35% or more, 40% or more, 45% or more, 50% or more, 55% or more, 60% or more, 65% or more, or 70% or more in a population of subjects having the ovarian cancer.

30) The use of claim 26 or 27, wherein the ovarian cancer is a relapsed ovarian cancer, a refractory ovarian cancer, a metastatic ovarian cancer, a platinum-resistant ovarian cancer, or any combination thereof.

31) The use of claims 28 or 29, wherein the subject is treatment naïve.

32) The use of claims 28 or 29, wherein the subject has received surgery.

33) The use of claims 28 or 29, wherein the subject has an elevated level of cancer antigen 125 (CA 125).

34) The use of any one of claims 27-33, further comprising an additional cancer therapeutic agent to be administered to the subject.

35) The use of claim 34, wherein the additional cancer therapeutic agent is a surgery, a chemotherapy, radiation, a checkpoint inhibitor, a targeted therapy, or any combination thereof.

36) The use of claim 35, wherein the additional cancer therapeutic agent is a CTLA-4 antibody, a CTLA-4 ligand, a PD-1 axis inhibitor, a PD-L1 axis inhibitor, a TLR agonist, a CD40 agonist, an OX40 agonist, hydroxyurea, ruxolitinib, fedratinib, a 4-1BB agonist, a CD28 agonist, a STING antagonist, a RIG-1 antagonist, TCR-T therapy, CAR-T therapy, a FLT3 ligand, aluminum sulfate, a BTK inhibitor, a CD38 antibody, a CDK inhibitor, a CD33 antibody, a CD37 antibody, a CD25 antibody, a GM-CSF inhibitor, IL-2, IL-15, IL-7, CD3 redirection molecules, pomalimib, IFN γ , IFN α , TNF α , a VEGF antibody, a CD70 antibody, a CD27 antibody, a BCMA antibody, a GPRC5D antibody, or any combination thereof.

37) The use of claim 35, wherein the checkpoint inhibitor is ipilimumab, cetrelimab, pembrolizumab, nivolumab, sintilimab, cemiplimab, toripalimab, camrelizumab, tislelizumab, dostrealimab, spartalizumab, prolgolimab, balstilimab, budigalimab, sasanlimab, avelumab, atezolizumab, durvalumab, envafolimab, iodapolimab, or any combination thereof.