CLAIMS

What is claimed is:

1. An immunogenic fragment of an HSV-2 polypeptide selected from the group consisting of:

(a) an immunogenic fragment of UL19 polypeptide lacking at least 75% of amino acids 1-450 of SEQ ID NO: 4 and lacking at least 75% of amino acids of 1055-1374 of SEQ ID NO: 4;

(b) the sequence set out in SEQ ID NO: 12;

(c) an immunogenic variant of (a) or (b) that retains at least 85% amino acid identity over at least 15 contiguous amino acids;

(d) an immunogenic fragment of (a) or (b); and

(e) a chimeric fusion of (a), (b) (c) or (d).

2. An isolated polynucleotide encoding the polypeptide of claim 1.

3. An immunogenic, pharmaceutical composition comprising:

(i) an immunogenic fragment of an HSV-2 polypeptide selected from the group consisting of:

(a) an immunogenic fragment of UL19 polypeptide lacking at least 75% of amino acids 1-450 of SEQ ID NO: 4 and lacking at least 75% of amino acids of 1055-1374 of SEQ ID NO: 4;

(b) the sequence set out in SEQ ID NO: 12;

(c) an immunogenic variant of (a) or (b) that retains at least 85% amino acid identity over at least 15 contiguous amino acids;

(d) an immunogenic fragment of (a) or (b); and

(e) a chimeric fusion of (a), (b) or (c);

(ii) optionally, an agent that activates innate immunity; and

(iii) a pharmaceutically acceptable carrier.

4. The composition of claim 3 which further comprises UL25 or an immunogenic fragment thereof.

5. The composition of any one of claims 3 and 4 which further comprises gD2 or an immunogenic fragment thereof.

6. The composition of any of claims 3-5 wherein the agent is an adjuvant.

7. The composition of claim 6 wherein the adjuvant is GLA.

8. The composition of claim 7 wherein the GLA is in the form of an oil-in-water emulsion or is in an aqueous form.

9. The composition of claim 8 wherein the oil-in-water emulsion comprises squalene.

10. Use of a composition of any one of claims 3-9 in the manufacture of a medicament for the treatment of an HSV-2 infection in a subject, wherein said medicament is to be administered to the subject.

11. Use of a composition of any one of claims 3-9 in the manufacture of a medicament for generating an immune response in a subject, wherein said medicament is to be administered to the subject.

12. Use of a composition of any one of claims 3-9 in the manufacture of a medicament for immunizing a subject against HSV-2, wherein said medicament is to be administered to the subject.

13. The use of any one of claims 9-12 wherein the administration route is intradermal, mucosal, intramuscular, subcutaneous, sublingual, rectal, or vaginal.

14. The use of any one of claims 9-13 further comprising administration of a second, third or fourth composition according to any one of claims 3-9 to the subject.

CLAIMS

What is claimed is:

1. An immunogenic, pharmaceutical composition comprising:

(i) an immunogenic fragment of an HSV-2 UL19 polypeptide, wherein the immunogenic fragment is:

a fragment of the UL19 polypeptide lacking at least 75% of amino acids 1-450 of SEQ ID NO: 4 and lacks at least 75% of amino acids of 1055-1374 of SEQ ID NO: 4; or an immunogenic variant thereof that retains at least 85% amino acid identity thereto, and comprising at least 100 amino acids;

glycoprotein D of HSV-2 (gD2), or an immunogenic fragment thereof; and

UL25, or an immunogenic fragment thereof; and

(ii) Glucopyranosyl Lipid Adjuvant (GLA); and

(iii) a pharmaceutically acceptable carrier.

2. The composition of claim 1 wherein the GLA is in the form of an oil-in-water emulsion or is in an aqueous form.

3. Use of an immunogenic pharmaceutical composition comprising:

(i) an immunogenic fragment of an HSV-2 UL19 polypeptide, wherein the immunogenic fragment is

a fragment of the UL19 polypeptide that lacks at least 75% of amino acids 1-450 of SEQ ID NO: 4 and lacks at least 75% of amino acids of 1055-1374 of SEQ ID NO: 4; or an immunogenic variant thereof that retains at least 85% amino acid identity thereto, and comprising at least 100 amino acids;

glycoprotein D of HSV-2 (gD2), or an immunogenic fragment thereof; and

UL25, or an immunogenic fragment thereof; and

(ii) Glucopyranosyl Lipid Adjuvant (GLA),

in the manufacture of a medicament for the treatment of an Herpes Simplex virus type 2 infection (HSV-2 infection) in a subject.

4. Use of an immunogenic pharmaceutical composition comprising:

(i) an immunogenic fragment of an HSV-2 UL19 polypeptide wherein the immunogenic fragment is

a fragment of the UL19 polypeptide that lacks at least 75% of amino acids 1-450 of SEQ ID NO: 4 and lacks at least 75% of amino acids of 1055-1374 of SEQ ID NO: 4, or an immunogenic fragment thereof that retains at least 85% amino acid identity thereto and comprising at least 100 amino acids;

gD2, or an immunogenic fragment thereof; and

UL25, or an immunogenic fragment thereof; and

(ii) Glucopyranosyl Lipid Adjuvant (GLA)

in the manufacture of a medicament for generating an immune response to HSV-2 in a subject.

5. The use of claim 3, wherein the immunogenic fragment of an HSV-2 UL19 polypeptide has the amino acid sequence set forth in SEQ ID NO:12.

6. The use of claim 3, wherein the immunogenic pharmaceutical composition further comprises one or more HSV-2 proteins, or an immunogenic fragment thereof, selected from the group consisting of UL47, ICP0, UL25, UL46, UL39, UL7 and UL26.

7. The use of claim 3, wherein the GLA is in the form of an oil-in-water emulsion or is in an aqueous form.

8. The use of claim 3, wherein the immunogenic pharmaceutical composition further comprises a second adjuvant.

9. The use of claim 8, wherein the second adjuvant is selected from the group consisting of a TLR7 agonist, a TLR9 agonist, alum; an emulsion; a saponin; a cytokine; an unmethylated CpG dinucleotide; and a modified saponin.

10. The use of claim 8 or 9, wherein the second adjuvant is an oil-in-water emulsion.

11. The use of claim 4, wherein the immunogenic fragment of an HSV-2 UL19 polypeptide has the amino acid sequence set forth in SEQ ID NO:12.

12. The use of claim 4, wherein the immunogenic pharmaceutical composition further comprises one or more HSV-2 proteins, or an immunogenic fragment thereof, selected from the group consisting of UL47, ICP0, UL25, UL46, UL39, UL7 and UL26.

13. The use of claim 4, wherein the GLA is in the form of an oil-in-water emulsion or is in an aqueous form.

14. The use of claim 4, wherein the immunogenic pharmaceutical composition further comprises a second adjuvant.

15. The use of claim 14, wherein the second adjuvant is selected from the group consisting of a TLR7 agonist, a TLR9 agonist, alum; an emulsion; a saponin; a cytokine; an unmethylated CpG dinucleotide; and a modified saponin.

16. The use of claim 14 or 15, wherein the second adjuvant is an oil-in-water emulsion.