What is claimed is:

CLAIMS

1. A human cytomegalovirus (hCMV) immunogenic composition comprising (a) a messenger ribonucleic acid (mRNA) polynucleotide comprising an open reading frame encoding a hCMV gH polypeptide; (b) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gL polypeptide; (c) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL128 polypeptide; (d) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL130 polypeptide; (e) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL131A polypeptide; and (f) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gB polypeptide, wherein:

the molar ratio of (a):(f) within the immunogenic composition is about 1:1;

the molar ratio of (b):(c):(d):(e) within the immunogenic composition is about 1:1:1:1; and

the molar ratio of each of (a) and (f) to any one of (b), (c), (d) or (e) within the immunogenic composition is about 1.5:1 to 2:1.

2. The hCMV immunogenic composition of claim 1, wherein the molar ratio of (a):(b):(c):(d):(e):(f) is about 2:1:1:1:1:2.

3. The hCMV immunogenic composition of claim 1~~ or 2~~, wherein the hCMV immunogenic composition is maintained as a liquid formulation until use in administration to patients.

4. The hCMV immunogenic composition of claim 1~~ or 2~~, wherein the hCMV immunogenic composition is maintained as a lyophilized formulation until use in administration to patients.

5. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-4~~, wherein the hCMV immunogenic composition is stable for at least three months when stored at a temperature of greater than 0 °C and less than or equal to 10 °C.

6. The hCMV immunogenic composition of claim 5, wherein the hCMV immunogenic composition is stable for at least twelve to eighteen months when stored at a temperature of greater than 0 °C and less than or equal to 10 °C.

~~7. The hCMV immunogenic composition of claim 6, wherein the hCMV immunogenic composition is stable for at least twenty-four months when stored at a temperature of greater than 0 °C and less than or equal to 10 °C.~~

~~8~~7. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-7~~, wherein the hCMV immunogenic composition is stable for at least three months when stored at a temperature of about 5 °C.

~~9. The hCMV immunogenic composition of claim 8, wherein the hCMV immunogenic composition is stable for at least twelve to eighteen months when stored at a temperature of about 5 °C.~~

~~10. The hCMV immunogenic composition of claim 9, wherein the hCMV immunogenic composition is stable for at least twenty-four months when stored at a temperature of about 5 °C.~~

~~11~~8. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-10~~, wherein the hCMV immunogenic composition has increased stability relative to an hCMV immunogenic composition in which (a)-(f) are present in approximately equivalent masses.

~~12~~9. The hCMV immunogenic composition of claim ~~11~~8, wherein the hCMV immunogenic composition has increased stability when stored for at least three months, or at least twenty-four months, at a temperature of greater than 0 °C and less than or equal to 10 °C relative to an hCMV immunogenic composition in which (a)-(f) are present in approximately equivalent masses.

~~13. The hCMV immunogenic composition of claim 12, wherein the hCMV immunogenic composition has increased stability when stored for at least twenty-four months at a temperature of greater than 0 °C and less than or equal to 10 °C relative to an hCMV immunogenic composition in which (a)-(f) are present in approximately equivalent masses.~~

~~14~~10. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-13~~, wherein the hCMV immunogenic composition has~~:~~

(i) increased pentamer expression relative to an hCMV immunogenic composition in which (a)-(f) are present in approximately equivalent masses~~.~~

~~15. The hCMV immunogenic composition of any one of claims 1-14, wherein the hCMV immunogenic composition induces ;~~

(ii) increased pentamer antibody levels relative to an hCMV immunogenic composition in which (a)-(f) are present in approximately equivalent masses~~.~~

~~16. The hCMV immunogenic composition of any one of claims 1-15, wherein the hCMV immunogenic composition has;~~

(iii) increased gB expression relative to an hCMV immunogenic composition in which (a)-(f) are present in approximately equivalent masses~~.~~

~~17. The hCMV immunogenic composition of any one of claims 1-16, wherein the hCMV immunogenic composition induces~~; and/or

(iv) increased gB antibody levels relative to an hCMV immunogenic composition in which (a)-(f) are present in approximately equivalent masses.

~~18~~11. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-17~~, wherein the mRNA polynucleotides of (a)-(f) are formulated in at least one lipid nanoparticle in an amount sufficient to induce an antigen-specific immune response to hCMV or a hCMV antigen in a subject.

~~19~~12. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-18~~, wherein the mRNA polynucleotides of (a)-(f) are formulated in at least one lipid nanoparticle and lyophilized in an amount sufficient to induce an antigen-specific immune response to hCMV or a hCMV antigen in a subject.

~~20~~13. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-19~~, wherein at least one of the mRNA polynucleotides of (a)-(f) comprises a chemical modification.

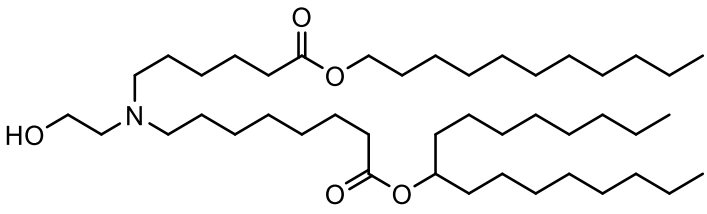
~~21~~14. The hCMV immunogenic composition of claim ~~20~~13, wherein at least 80% of the uracil in the open reading frame of mRNA polynucleotides (a)-(f) have a chemical modification selected from N1-methyl-pseudouridine or N1-ethyl-pseudouridine.

~~22~~15. The hCMV immunogenic composition of claim ~~21~~14, wherein the chemical modification is in the carbon-5 position of the uracil.

~~23~~16. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-22~~, wherein at least one of the mRNA polynucleotides of (a)-(f) further comprises at least one 5' terminal cap, and wherein the 5’ terminal cap is 7mG(5')ppp(5')N1mpNp.

~~24~~17. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ ~~18~~11~~-23~~, wherein the lipid nanoparticle comprises a mixture of lipids comprising: an ionizable amino lipid; cholesterol; 1,2-distearoyl-sn-glycero-3-phosphocholine (DSPC); and 1,2 dimyristoyl-sn-glycerol, methoxypolyethyleneglycol (DMG-PEG).

~~25~~18. The hCMV immunogenic composition of claim ~~24~~17, wherein the ionizable amino lipid comprises Compound I:



(Compound I)

~~26~~19. The hCMV immunogenic composition of claim 17~~24 or 25~~, wherein the lipid nanoparticle comprises a mixture of lipids comprising 20-60 mol% ionizable amino lipid, 25-55 mol% cholesterol, 5-25 mol% DSPC, and 0.5-15 mol% DMG-PEG.

~~27~~20. The hCMV immunogenic composition of claim ~~26~~19, wherein the lipid nanoparticle comprises a mixture of lipids comprising 45- 55 mol% ionizable amino lipid, 35-40 mol% cholesterol, 5-15 mol% DSPC, and 1-2 mol% DMG-PEG.

~~28. The hCMV immunogenic composition of claim 27, wherein the lipid nanoparticle comprises a mixture of lipids comprising 50 mol% ionizable amino lipid, 38.5 mol% cholesterol, 10 mol% DSPC, and 1.5 mol% DMG-PEG.~~

~~29. The hCMV immunogenic composition of claim 27, wherein the lipid nanoparticle comprises a mixture of lipids comprising 49 mol% ionizable amino lipid, 38.5 mol% cholesterol, 10 mol% DSPC, and 2.5 mol% DMG-PEG.~~

~~30. The hCMV immunogenic composition of claim 27, wherein the lipid nanoparticle comprises a mixture of lipids comprising 48 mol% ionizable amino lipid, 38.5 mol% cholesterol, 11 mol% DSPC, and 2.5 mol% DMG-PEG.~~

~~31. The hCMV immunogenic composition of claim 27, wherein the lipid nanoparticle comprises a mixture of lipids comprising 47 mol% ionizable amino lipid, 38.5 mol% cholesterol, 11.5 mol% DSPC, and 3 mol% DMG-PEG.~~

~~32~~21. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-31~~, wherein the molar ratio of mRNAs (a):(b):(c):(d):(e):(f) is about 2:1:1:1:1:2 and results in 10%~~, 20%, 30% 40% or 50%~~ less lipid administered to patients compared to when an equal mass of mRNAs (a):(b):(c):(d):(e):(f) is administered.

~~33. The hCMV immunogenic composition of any one of claims 1-32, wherein the molar ratio of mRNAs (a):(b):(c):(d):(e):(f) is about 2:1:1:1:1:2 and results in 30% less lipid administered to patients compared to when an equal mass of mRNAs (a):(b):(c):(d):(e):(f) is administered.~~

~~34. The hCMV immunogenic composition of any one of claims 1-33, wherein the molar ratio of mRNAs (a):(b):(c):(d):(e):(f) is about 2:1:1:1:1:2 and results in 40% less lipid administered to patients compared to when an equal mass of mRNAs (a):(b):(c):(d):(e):(f) is administered.~~

~~35. The hCMV immunogenic composition of any one of claims 1-34, wherein the molar ratio of mRNAs (a):(b):(c):(d):(e):(f) is about 2:1:1:1:1:2 and results in 50% less lipid administered to patients compared to when an equal mass of mRNAs (a):(b):(c):(d):(e):(f) is administered.~~

~~36~~22. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-35~~, wherein the mRNA encoding hCMV gH protein comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of sequence of SEQ ID NO: 5, the mRNA encoding hCMV gL protein comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of sequence of SEQ ID NO: 6, the mRNA encoding hCMV UL128 protein comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of sequence of SEQ ID NO: 2, the mRNA encoding hCMV UL130 protein comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of sequence of SEQ ID NO: 3, the mRNA encoding hCMV UL131A protein comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of sequence of SEQ ID NO: 4, and/or the mRNA encoding hCMV gB protein comprises a nucleotide sequence having at least 90% identity to the nucleotide sequence of sequence of SEQ ID NO: 1.

~~37~~23. The hCMV immunogenic composition of claim ~~36~~22, wherein the mRNA encoding hCMV gH protein comprises the nucleotide sequence of sequence of SEQ ID NO: 5, the mRNA encoding hCMV gL protein comprises the nucleotide sequence of sequence of SEQ ID NO: 6, the mRNA encoding hCMV UL128 protein comprises the nucleotide sequence of sequence of SEQ ID NO: 2, the mRNA encoding hCMV UL130 protein comprises the nucleotide sequence of sequence of SEQ ID NO: 3, the mRNA encoding hCMV UL131A protein comprises the nucleotide sequence of sequence of SEQ ID NO: 4, and/or the mRNA encoding hCMV gB protein comprises the nucleotide sequence of sequence of SEQ ID NO: 1.

~~38~~24. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-37~~, wherein the open reading frame encoding the hCMV gH polypeptide comprises a sequence having at least 90% identity to the sequence of SEQ ID NO: 11, the open reading frame encoding the hCMV gL polypeptide comprises a sequence having at least 90% identity to the sequence of SEQ ID NO: 12, the open reading frame encoding the hCMV UL128 polypeptide comprises a sequence having at least 90% identity to the sequence of SEQ ID NO: 8, the open reading frame encoding the hCMV UL130 polypeptide comprises a sequence having at least 90% identity to the sequence of SEQ ID NO: 9, the open reading frame encoding the hCMV UL131A polypeptide comprises a sequence having at least 90% identity to the of sequence of SEQ ID NO: 10, and/or

the open reading frame encoding the hCMV gB polypeptide comprises a sequence having at least 90% identity to the sequence of SEQ ID NO: 7.

~~39~~25. The hCMV immunogenic composition of claim ~~38~~24, wherein the open reading frame encoding the hCMV gH polypeptide comprises SEQ ID NO: 11, the open reading frame encoding the hCMV gL polypeptide comprises SEQ ID NO: 12, the open reading frame encoding the hCMV UL128 polypeptide comprises SEQ ID NO: 8, the open reading frame encoding the hCMV UL130 polypeptide comprises SEQ ID NO: 9, the open reading frame encoding the hCMV UL131A polypeptide comprises SEQ ID NO: 10, and/or the open reading frame encoding the hCMV gB polypeptide comprises the sequence of SEQ ID NO: 7.

~~40~~26. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-39~~, wherein each of the mRNA polynucleotides of (a)-(f) further comprises a polyA tail.

~~41~~27. The hCMV immunogenic composition of claim ~~40~~26, wherein the polyA tail is 100 nucleotides in length.

~~42~~28. The hCMV immunogenic composition of ~~any one of~~ claim~~s~~ 1~~-41~~, wherein the hCMV gH polypeptide comprises an amino acid sequence having at least 90% identity to the amino acid sequence of SEQ ID NO: 19, the hCMV gL polypeptide comprises an amino acid sequence having at least 90% identity to the amino acid sequence of SEQ ID NO: 20, the hCMV UL128 polypeptide comprises an amino acid sequence having at least 90% identity to the amino acid sequence of SEQ ID NO: 16, the hCMV UL130 polypeptide comprises an amino acid sequence having at least 90% identity to the amino acid sequence of SEQ ID NO: 17, the hCMV UL131A polypeptide comprises an amino acid sequence having at least 90% identity to the amino acid sequence of SEQ ID NO: 18, and/or the hCMV gB polypeptide comprises an amino acid sequence having at least 90% identity to the amino acid sequence of SEQ ID NO: 15.

~~43. The hCMV immunogenic composition of claim 42, wherein the hCMV gH polypeptide comprises the amino acid sequence of SEQ ID NO: 19, the hCMV gL polypeptide comprises the amino acid sequence of SEQ ID NO: 20, the hCMV UL128 polypeptide comprises the amino acid sequence of SEQ ID NO: 16, the hCMV UL130 polypeptide comprises the amino acid sequence of SEQ ID NO: 17, the hCMV UL131A polypeptide comprises the amino acid sequence of SEQ ID NO: 18, and/or the hCMV gB polypeptide comprises the amino acid sequence of SEQ ID NO: 15.~~

~~44. A method for producing an antigen-specific immune response to human cytomegalovirus (hCMV) in a subject comprising administering to a human subject an effective amount of the hCMV immunogenic composition of any one of claims 1-43 to thereby induce an antigen-specific immune response to hCMV or a hCMV antigen in the human subject.~~

~~45. The method of claim 44, wherein the hCMV immunogenic composition is administered via intramuscular injection.~~

~~46. The method of claim 44 or 45, wherein the human subject is CMV-seropositive prior to being administered the hCMV mRNA vaccine.~~

~~47. The method of claim 44 or 45, wherein the human subject is CMV-seronegative prior to being administered the hCMV mRNA vaccine.~~

~~48. The method of any one of claims 44-47, wherein the hCMV immunogenic composition is administered at a dose of 25 µg - 300 µg mRNA.~~

~~49. The method of claim 48, wherein the hCMV immunogenic composition is administered at a dose of 50 µg - 150 µg mRNA.~~

~~50. The method of any one of claims 49, wherein the hCMV immunogenic composition is administered at a dose of 50 µg.~~

~~51. The method of any one of claims 49, wherein the hCMV immunogenic composition is administered at a dose of 100 µg.~~

~~52. The method of any one of claims 49, wherein the hCMV immunogenic composition is administered at a dose of 150 µg.~~

~~53. The method of any one of claims 44-52, wherein the hCMV immunogenic composition is administered at least once, at least twice, or at least 3 times.~~

~~54. The method of claim 53, wherein the hCMV immunogenic composition is administered with a primary immunization followed by one booster immunization.~~

~~55. The method of claim 53, wherein the hCMV immunogenic composition is administered with a primary immunization followed by two booster immunizations.~~

~~56. The method of any one of claims 44-55, wherein the effective amount is sufficient to produce serum neutralizing anti-CMV antibody titers against epithelial cell infection on any of day 29, day 56, day 84, day 168, or day 196 after administration of the hCMV immunogenic composition.~~

~~57. The method of any one of claims 44-56, wherein the effective amount is sufficient to produce serum neutralizing anti-CMV antibody titers against fibroblast infection on any of day 29, day 56, day 84, day 168, or day 196 after administration of the hCMV immunogenic composition.~~

~~58. The method of any one of claims 44-57, wherein the effective amount is sufficient to produce serum neutralizing anti-CMV antibody titers against epithelial cell infection on any of day 29, day 56, day 84, day 168, or day 196 after immunization and associated geometric mean ratio (GMR) of post-baseline/baseline titers at one or more time points after administration of the hCMV immunogenic composition.~~

~~59. The method of any one of claims 44-58, wherein the effective amount is sufficient to produce serum neutralizing anti-CMV antibody titers against fibroblast infection on any of day 29, day 56, day 84, day 168, or day 196 after immunization and associated geometric mean ratio (GMR) of post-baseline/baseline titers at one or more time points after administration of the hCMV immunogenic composition.~~

~~60. The method of any one of claims 44-59, wherein the proportion of human subjects with ≥ 2-fold, ≥ 3-fold, ≥ 4-fold, ≥ 5-fold, ≥ 6-fold, ≥ 7-fold, ≥ 8-fold, ≥ 9-fold, ≥ 10-fold, ≥ 11-fold, ≥ 12-fold, or ≥ 13-fold increases in neutralizing antibody (nAb) over baseline against epithelial cell infection is at least 50%, at least 60%, at least 70% at least 80%, or at least 90% at one time point after administration of the hCMV immunogenic composition.~~

~~61. The method of any one of claims 44-60, wherein the proportion of human subjects with ≥ 2-fold increases in neutralizing antibody (nAb) over baseline against fibroblast infection is at~~

least 50%, at least 60%, at least 70% at least 80%, or at least 90% at one time point after administration of the hCMV immunogenic composition.

62. A method for producing an antigen-specific immune response to human cytomegalovirus (hCMV) in a subject comprising administering to a human subject an effective amount of the hCMV immunogenic composition comprising (a) a messenger ribonucleic acid (mRNA) polynucleotide comprising an open reading frame encoding a hCMV gH polypeptide; (b) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gL polypeptide; (c) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL128 polypeptide; (d) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL130 polypeptide; (e) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL131A polypeptide; and (f) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gB polypeptide, to thereby induce an antigen-specific immune response to hCMV or a hCMV antigen in the human subject,

wherein the hCMV immunogenic composition is administered at a dose of 25 µg - 300 µg mRNA, and

wherein the proportion of human subjects with ≥ 2-fold, ≥ 3-fold, ≥ 4-fold, ≥ 5-fold, ≥ 6-fold, ≥ 7-fold, ≥ 8-fold, ≥ 9-fold, ≥ 10-fold, ≥ 11-fold, ≥ 12-fold, or ≥ 13-fold increase in neutralizing antibody (nAb) over baseline against epithelial cell infection is at least 50%, at least 60%, at least 70% at least 80%, or at least 90% at one time point after administration of the hCMV immunogenic composition.

63. A method for producing an antigen-specific immune response to human cytomegalovirus (hCMV) in a subject comprising administering to a human subject an effective amount of the hCMV immunogenic composition comprising (a) a messenger ribonucleic acid (mRNA) polynucleotide comprising an open reading frame encoding a hCMV gH polypeptide; (b) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gL polypeptide; (c) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL128 polypeptide; (d) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL130 polypeptide; (e) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL131A polypeptide; and (f) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gB polypeptide, to thereby induce an antigen-specific immune response to hCMV or a hCMV antigen in the human subject,

wherein the hCMV immunogenic composition is administered at a dose of 25 µg - 300 µg mRNA, and

wherein the proportion of human subjects with ≥ 2-fold increase in neutralizing antibody (nAb) over baseline against fibroblast infection is at least 50%, at least 60%, at least 70% at least 80%, or at least 90% at one time point after administration of the hCMV immunogenic composition.

64. A method for producing an antigen-specific immune response to human cytomegalovirus (hCMV) in a subject comprising administering to a human subject an effective amount of the hCMV immunogenic composition comprising (a) a messenger ribonucleic acid (mRNA) polynucleotide comprising an open reading frame encoding a hCMV gH polypeptide; (b) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gL polypeptide; (c) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL128 polypeptide; (d) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL130 polypeptide; (e) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL131A polypeptide; and (f) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gB polypeptide, to thereby induce an antigen-specific immune response to hCMV or a hCMV antigen in the human subject,

wherein the hCMV immunogenic composition is administered at a dose of 25 µg - 300 µg mRNA, and

wherein the proportion of human subjects with ≥ 2-fold, ≥ 3-fold, ≥ 4-fold, ≥ 5-fold, ≥ 6-fold, ≥ 7-fold, ≥ 8-fold, ≥ 9-fold, or ≥ 10-fold increase in anti-pentamer binding antibody (bAb) over baseline is at least 50%, at least 60%, at least 70% at least 80%, or at least 90% at one time point after administration of the hCMV immunogenic composition.

65. A method for producing an antigen-specific immune response to human cytomegalovirus (hCMV) in a subject comprising administering to a human subject an effective amount of the hCMV immunogenic composition comprising (a) a messenger ribonucleic acid (mRNA) polynucleotide comprising an open reading frame encoding a hCMV gH polypeptide; (b) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gL polypeptide; (c) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL128 polypeptide; (d) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL130 polypeptide; (e) a mRNA polynucleotide comprising an open reading frame encoding a hCMV UL131A polypeptide; and (f) a mRNA polynucleotide comprising an open reading frame encoding a hCMV gB polypeptide, to thereby induce an antigen-specific immune response to hCMV or a hCMV antigen in the human subject,

~~wherein the hCMV immunogenic composition is administered at a dose of 25 µg - 300 µg mRNA, and~~

~~wherein the proportion of human subjects with ≥ 2-fold increase in anti-gB binding antibody (Ab) over baseline is at least 50%, at least 60%, at least 70% at least 80%, or at least 90% at one time point after administration of the hCMV immunogenic composition.~~

~~66. The hCMV immunogenic composition of any one of claims 1-43, wherein the geometric mean ratio (GMR) of neutralizing antibodies against epithelial cell infection measured in a human subject is about 8-14 at one time point after administration of the hCMV immunogenic composition.~~

~~67. The hCMV immunogenic composition of any one of claims 1-43 or 66, wherein the geometric mean ratio (GMR) of anti-pentamer binding antibody (bAb) in a human subject is about 6-10 at one time point after administration of the hCMV immunogenic composition.~~

~~68. The hCMV immunogenic composition of any one of claims 1-43 or 66-67, wherein the geometric mean ratio (GMR) of neutralizing antibodies against fibroblast infection in a human subject is about 2 at one time point after administration of the hCMV immunogenic composition.~~

~~69. The hCMV immunogenic composition of any one of claims 1-43 or 66-68, wherein the geometric mean ratio (GMR) of anti-gB binding antibody (Ab) in a human subject is about 2 at one time point after administration of the hCMV immunogenic composition.~~