CLAIMS

1. A pharmaceutical composition comprising:
   (a) one or a plurality of isolated proteins comprising a plurality of epitopes, wherein the plurality of epitopes are derived from two or more different CMV antigens;
   (b) a CMV envelope protein, or a fragment, variant or derivative thereof; and
   (c) a TLR9 agonist.

2. The pharmaceutical composition of Claim 1, wherein the composition is capable of inducing or eliciting a humoral immune response and a cell-mediated immune response, such as a cytotoxic T-lymphocyte immune response, upon administration to a subject.

3. The pharmaceutical composition of Claim 1, wherein the one or plurality of isolated proteins is or comprises a polytope protein comprising two or more of the plurality of epitopes from the two or more different CMV antigens.

4. The pharmaceutical composition of Claim 3, wherein the polytope protein comprises an intervening amino acid sequence between at least two of said epitopes, wherein the intervening amino acid sequence comprises a proteasome liberation amino acid sequence.

5. The pharmaceutical composition of Claim 4, wherein the proteasome liberation amino acids or amino acid sequences comprise AD, K and/or R.

6. The pharmaceutical composition of any one of the preceding claims, wherein the epitopes are restricted by HLA class I specificities HLA-A1, -A2, -A3, -A11, -A23, -A24, -A26, -A29, - A30, -B7, -B8, -B18, -B27, - B35, -B38, -B40, -B41, -B44, -B51, -B57, -B58 and/or -CW6.

7. The pharmaceutical composition of any one of the preceding claims, wherein the epitopes are derived from pp50, pp65, pp150, DNAse and/or IE-l.

8. The pharmaceutical composition of Claim 7, wherein the epitopes have an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOS: 1-20, Table 1, a fragment, variant or derivative thereof and any combination thereof.

9. The pharmaceutical composition of Claim 8, wherein the one or plurality of isolated proteins comprise each of the epitope amino acid sequences set forth in SEQ ID NOS: 1-20.

10. The pharmaceutical composition of any one of the preceding claims, wherein the one or plurality of isolated proteins comprise an amino acid sequence set forth in SEQ ID NO:21 or a fragment, variant or derivative thereof.

11. The pharmaceutical composition of any one of the preceding claims, wherein the one or plurality of isolated proteins comprise twenty (20) or less epitopes.

12. The pharmaceutical composition of any one of the preceding claims, wherein the CMV envelope protein is or comprises CMV glycoprotein B, or a fragment, variant or derivative thereof.

13. The pharmaceutical composition of any one of the preceding claims, wherein the TLR9 agonist is or comprises CpG ODN1018 and/or CpG ODN2006.

14. A vaccine that comprises the pharmaceutical composition of any one of the preceding claims for eliciting a protective immune response against CMV.

15. A pharmaceutical composition comprising:
    (a) one or a plurality of isolated proteins comprising a plurality of epitopes, wherein the plurality of epitopes are derived from two or more different CMV antigens;
    (b) a CMV envelope protein, or a fragment, variant or derivative thereof; and
    (c) a TLR9 agonist;

for use in preventing or treating a CMV infection in a subject.

16. An isolated protein comprising each of the epitope amino acid sequences set forth in SEQ ID NOS: 1-20, or fragments, variants or derivatives thereof.

17. The isolated protein of Claim 16, wherein the isolated protein comprises the amino acid sequence set forth in SEQ ID NO:21 or a fragment, variant or derivative thereof.

18. An isolated nucleic acid encoding the isolated protein of Claim 16 or Claim 17.

19. The use of the pharmaceutical composition of any one of the preceding claims for the manufacture of a medicament for the therapeutic treatment or prevention of CMV infection.