

Claims

1. A composition comprising a virus-like particle displaying an antigenic component, wherein said composition comprises:

i) an antigenic component comprising a first peptide tag, and

5 ii) a moiety comprising a second peptide tag,

wherein the antigenic component and the moiety are linked via an isopeptide bond between said first and second peptide tags, wherein the moiety multimerises to form said virus-like particle, wherein the antigenic component is a protein over 50 kDa, wherein the moiety is a surface antigen of the hepatitis B virus (HBsAg), and wherein the first and second peptide tags are a

10 SpyTag/SpyCatcher pair.

2. The composition as claimed in claim 1 wherein the antigenic component is a protein over 60 kDa, 70 kDa, 80 kDa, 90 kDa, 100 kDa, 110 kDa, 120 kDa, 130 kDa, 140 kDa, 150 kDa, 160 kDa, 170 kDa, 180 kDa, 190 kDa, 200 kDa, 300 kDa or 400 kDa.

3. The composition as claimed in claim 1 or claim 2 wherein the antigenic component is a monomer or multimer, optionally wherein the multimer is a trimer, tetramer, pentamer, hexamer, septamer, octamer, nonamer or decamer.

4. The composition as claimed in claim 3 wherein the multimer is a viral multimer.

5. The composition as claimed in any preceding claim wherein the antigenic component comprises an immunogenic component of an HCMV pentamer, wherein the immunogenic component of an HCMV pentamer comprises one or more of the gH, gL, pUL128, pUL130 or pUL131 subunits.

6. The composition as claimed in claim 5 wherein the immunogenic component of an HCMV pentamer comprises each of the gH, gL, pUL128, pUL130 or pUL131 subunits.

7. The composition as claimed in claim 5 or claim 6 wherein the immunogenic component of an HCMV pentamer comprises a gH subunit with a truncated transmembrane domain.

8. The composition as claimed in any one of claim 5 to claim 7, wherein the first peptide tag is attached to the gH subunit.

9. The composition as claimed in any one of claim 1 to claim 4 wherein the antigenic component comprises an immunogenic component of an RSV-F protein, wherein the immunogenic component of an RSV-F protein is a pre-fusion F protein.

10. The composition as claimed in claim 9 wherein the first peptide tag is attached to the C-terminus of the pre-fusion F protein.

11. The composition as claimed in any preceding claim wherein the first peptide tag is a SpyTag.

12. The composition as claimed in any preceding claim wherein the second peptide tag is a SpyCatcher.

13. The composition as claimed in any preceding claim wherein the composition is an immunogenic or vaccine composition.

14. A vaccine comprising a composition as claimed in any one of claim 1 to claim 13 for use in the prophylaxis and/or treatment of a disease.

5 15. A method of producing a composition in accordance with any one of claim 1 to claim 13, or a vaccine comprising a composition in accordance with claim 14, said method comprising:

- introducing a first nucleic acid which encodes a first genetic fusion of a first protein to a first peptide tag into a first host cell;
- incubating said first host cell under conditions for expressing said first genetic fusion;
- 10 - introducing a second nucleic acid which encodes a second genetic fusion of a second protein to a second peptide tag into a second host cell;
- incubating said second host cell under conditions for expressing said second genetic fusion;
- optionally purifying the expressed components;
- 15 - incubating the expressed components under conditions for formation of an isopeptide bond between the first peptide tag and the second peptide tag; and purifying the resultant composition

wherein the first protein comprises an antigenic component over 50 kDa and the second protein comprises a moiety, wherein the moiety is a surface antigen of the hepatitis B virus (HBsAg), and wherein the first and second peptide tags are a SpyTag/SpyCatcher pair.