

WHAT IS CLAIMED IS:

1. A method for producing an antibody that specifically binds to a protein comprising:
 - (a) producing a plurality of extracellular vesicles (EVs) comprising a heterologous protein by (i) expressing the heterologous protein in a cell exposed to a vesicle factor, (ii) culturing the cell in a medium and (iii) isolating the plurality of EVs comprising the heterologous protein from the medium, wherein the vesicle factor is selected from the group consisting of Acyl.Hrs, ARRDC1, ARF6 and a combination thereof;
 - (b) immunizing an animal by administering the plurality of EVs to the animal; and
 - (c) isolating an antibody that binds to the heterologous protein from the animal.
2. The method of claim 1, wherein the cell is a non-adherent cell.
3. The method of claim 1, wherein the vesicle factor is selected from the group consisting of Acyl.Hrs, ARRDC1, ARF6 and a combination thereof.
4. The method of any one of claims 1-3, wherein the heterologous protein is a membrane protein.
5. The method of claim 4, wherein the membrane protein is a single-pass membrane protein.
6. The method of claim 4, wherein the membrane protein is a multi-pass membrane protein.
7. The method of any one of claims 4-6, wherein the membrane protein is a member of a protein complex.
8. The method of claim 4, wherein the membrane protein is not a transmembrane protein but is a protein that is part of a complex with a transmembrane protein.
9. The method of any one of claims 2-8, wherein the non-adherent cell is a 293S cell or an Expi293FTM cell.
10. The method of any one of claims 1-9, wherein the EVs are isolated from the medium by ultracentrifugation.
11. The method of any one of claims 1-10, wherein the plurality of EVs is administered to the animal on week 0, week 2 and week 4.

12. The method of any one of claims 1-11, further comprising administering an adjuvant to the animal concurrently with the EVs.
13. The method of claim 12, wherein the adjuvant is a Ribi adjuvant.
14. The method of any one of claims 1-13, further comprising administering a boost to the animal to enhance an immune response in the animal to the protein.
15. The method of claim 14, wherein the boost comprises the protein, a polynucleotide encoding the protein or a combination thereof.
16. The method of claim 15, wherein the boost comprises the protein.
17. The method of claim 15, wherein the boost comprises a polynucleotide encoding the protein.
18. The method of any one of claims 1-17, wherein the antibody is a monoclonal antibody.
19. The method of any one of claims 1-18, wherein the antibody is a human, humanized or chimeric antibody.
20. An isolated antibody or an antigen-binding portion thereof produced by the method of any one of claims 1-19.
21. An isolated nucleic acid encoding the antibody or antigen-binding portion thereof of claim 20.
22. A host cell comprising the nucleic acid of claim 21.
23. A method of producing an antibody or antigen-binding portion thereof comprising culturing the host cell of claim 22 under conditions suitable for expression of the antibody.
24. The method of claim 23, further comprising recovering the antibody from the host cell.
25. A pharmaceutical composition comprising the isolated antibody or antigen-binding portion thereof of claim 20 and a pharmaceutically acceptable carrier.
26. The pharmaceutical composition of claim 25, further comprising an additional therapeutic agent.
27. The isolated antibody or antigen-binding portion thereof of claim 20 for use as a medicament.

28. The isolated antibody or antigen-binding portion thereof of claim 20 for use in treating a disease.
29. Use of the isolated antibody or antigen-binding portion thereof of claim 20 in the manufacture of a medicament.
30. Use of the isolated antibody or antigen-binding portion thereof of claim 20 in the manufacture of a medicament for treating an individual having a disease.
31. The use of claim 30, wherein the medicament is to be administered with an additional therapeutic agent.
32. The pharmaceutical composition of claim 25 or 26 for use in treating an individual having a disease.
33. A method for producing a plurality of extracellular vesicles (EVs) displaying a protein, comprising:
- (a) expressing a heterologous protein in a cell;
 - (b) culturing the cell in a medium; and
 - (c) isolating the plurality of EVs comprising the heterologous protein from the medium, wherein the cell is exposed to a vesicle factor selected from the group consisting of Acyl.Hrs, ARRDC1, ARF6 and a combination thereof.
34. The method of claim 33, wherein the heterologous protein is a membrane protein.
35. The method of claim 34, wherein the membrane protein is a single-pass membrane protein.
36. The method of claim 34, wherein the membrane protein is a multi-pass membrane protein.
37. The method of any one of claims 34-36, wherein the membrane protein is a member of a protein complex.
38. The method of any one of claims 33-37, wherein the cell is a non-adherent cell which is a 293S cell or an Expi293FTM cell.
39. The method of any one of claims 33-38, wherein the plurality of EVs are isolated from the medium by ultracentrifugation.