CLAIMS:

1. A composition comprising:

liposomes;

an antigen that comprises a B cell epitope and is capable of inducing a humoral immune response;

a carrier comprising a continuous phase of a hydrophobic substance; and

an adjuvant that activates or increases the activity of toll-like receptor 2 (TLR2) .

2. The composition of claim 1, wherein the adjuvant activates or increases the activity of TLR2 by a TLR2 dimer of TLR1/2 or TLR2/6.

3. The composition of claim 2, wherein the adjuvant is a lipid-based adjuvant.

4. The composition of any one of claims 1 to 3, wherein the adjuvant is a compound comprising at least one natural, synthetic or semi-synthetic lipid moiety, lipid component, or analog or derivative thereof.

5. The composition of claim 4, wherein the adjuvant comprises a lipoamino acid, a lipoglycan, a lipopolysaccharide, a lipoteichoic acid or a cell-wall component of a Gram-positive or Gram-negative bacteria, Rhodopseudomonas viridis or mycoplasma.

6. The composition of any one of claims 1 to 3, wherein the adjuvant is dipalmitoyl-S-glyceryl (PAM_2)-Cys-SKKKK, tripalmitoyl-S-glyceryl (PAM_3)-Cys-SKKKK, β-irradiated PAM_3-Cys-SKKKK, *R*-PAM_3-Cys-SKKKK, *S*-PAM_3-Cys-SKKKK, PAM_3-Cys-SKKKK-Biotin-aminocaproic acid (Aca)-Aca, PAM_3-Cys-SKKKK-Fluorescein-Aca-Aca, PAM_3-Cys-SKKKK-Rhodamine-Aca-Aca, PAM_3-Cys-SKKKK-FLAG-tag, PAM_3-Cys-SSNAKIDQLSSDVQT, PAM_3-Cys-SSNKSTTGSGETTTA, PAM_3-Cys-SSTKPVSQDTSPKPA, PAM_3-Cys-SSGSKPSGGPLPDAK, PAM_3-Cys-SSGNKSAPSSSASSS, PAM_3-Cys-GSHQMKSEGHANMQL, PAM_3-Cys-SSSNNDAAGNGAAQT, PAM_3-Cys-KQNVSSLDEKNSVSV, PAM_3-Cys-NNSGKDGNTSANSAD, PAM_3-Cys-NNGGPELKSDEVAKS, PAM_3-Cys-SQEPAAPAAEATPAG, PAM_3-Cys-SSSKSSDSSAPKAYG, PAM_3-Cys-AQEKEAKSELDYDQT, PAM_2-Cys-SKKKK (mixture of RR and RS stereoisomers), *R*-PAM_2-Cys-SKKKK (RR stereoisomer), *S*-PAM_2-Cys-SKKKK (RS stereoisomer), palmitoyl-S-glyceryl (PAM)-Cys-PAM-SKKKK, PAM_2-Cys-SKKKK-

Biotin-Aca-Aca-NH_2, PAM_2-Cys-SKKKK-Fluorescein-Aca-Aca-NH_2, PAM_2-Cys-SKKKK-Rhodamine-Aca-Aca-NH_2, PAM_2-Cys-SKKKK-FLAG-tag, PAM-dihydroxypropylcystein (Dhc)-SKKKK, PAM-CSKKKK, PAM-Dhc-GDPKHPKSF, PAM-CGDPKHPKSF, PAM_2-CGDPKHPKSF (FSL-1), FSL-1-Ala, macrophage activating lipopeptide-2 (MALP-2), lipoarabinomannan from M. smegmatis (LAM-MS), lipomannan from M. smegmatis (LM-MS), lipopolysaccharide from P. gingivalis (LPS-PG), lipoteichoic acid from B. subtilis (LTA-BS) or S. aureus (LTA-SA), or derivatives or analogs thereof, or is a heat-killed bacteria that comprises the cell-wall component of a Gram-positive or Gram-negative bacteria.

7. The composition of any one of claims 1 to 6, wherein the adjuvant is a palmitic acid adjuvant.

8. The composition of any one of claims 1 to 7, wherein the adjuvant comprises dipalmitoyl-S-glyceryl-cysteine (PAM_2-Cys) or tripalmitoyl-S-glyceryl-cysteine (PAM_3-Cys).

9. The composition of any one of claims 1 to 8, wherein the adjuvant is dipalmitoyl-S-glyceryl (PAM_2)-Cys-SKKKK or tripalmitoyl-S-glyceryl (PAM_3)-Cys-SKKKK.

10. The composition of any one of claims 1 to 9, wherein the antigen is a polypeptide or a carbohydrate.

11. The composition of any one of claims 1 to 10, wherein the antigen comprises a plurality of B cell epitopes.

12. The composition of any one of claims 1 to 10, wherein the B cell epitope is derived from a virus or bacteria.

13. The composition of claim 12, wherein the virus or bacteria is influenza virus, Bordetella pertussis, or Bacillus anthracis.

14. The composition of claim 12 or 13, wherein the B cell epitope is an epitope of a hemagglutinin protein of H5N1 influenza virus, an epitope of pertussis toxoid protein, or an epitope of an anthrax recombinant protective antigen.

15. The composition of any one of claims 1 to 11, wherein the antigen is: an antigen associated with an infectious disease; a membrane surface-bound cancer antigen; a toxin; an

allergen; or an antigen associated with a disease where it is desirable to sequester the antigen in circulation.

16. The composition of claim 15, wherein the allergen is pollen.

17. The composition of claim 15, wherein the antigen associated with a disease where it is desirable to sequester the antigen in circulation is an antigen of an amyloid protein.

18. The composition of any one of claims 1 to 17, wherein the antigen is encapsulated in the liposomes or both the antigen and the adjuvant are encapsulated in the liposomes.

19. The composition of any one of claims 1 to 18, wherein the composition is capable of inducing a humoral immune response with a single dose.

20. Use of the composition of any one of claims 1 to 19 in the manufacture of a medicament for the treatment or prevention of a disease or disorder ameliorated by a humoral immune response.

21. Use of the composition of any one of claims 1 to 19 in the manufacture of a medicament for the treatment or prevention of: an infectious disease; a cancer involving a membrane surface-bound cancer antigen; or a disease or disorder where it is desirable to sequester antigen in circulation.

22. The use of claim 21, wherein the disease or disorder where it is desirable to sequester antigen in circulation is Alzheimer's disease.

23. Use of the composition of any one of claims 1 to 19 in the manufacture of a medicament for neutralizing a toxin, virus, bacterium or allergen, with an antibody.

CLAIMS:

1. A water-free composition comprising an adjuvant that activates or increases the activity of toll-like receptor 2 (TLR2) and lyophilized liposomes with an encapsulated antigen, reconstituted in a carrier comprising a continuous phase of a hydrophobic substance,

wherein the antigen comprises a B cell epitope and is capable of inducing a humoral immune response;

and wherein the adjuvant comprises dipalmitoyl-S-glyceryl-cysteine (PAM_2Cys) or tripalmitoyl-S-glyceryl-cysteine (PAM_3Cys).

2. The composition of claim 1, wherein the adjuvant activates or increases the activity of TLR2 by a TLR2 dimer of TLR1/2 or TLR2/6.

3. The composition of claim 1 or 2, wherein the adjuvant is dipalmitoyl-S-glyceryl (PAM_2)-Cys-SKKKK.

4. The composition of claim 1 or 2, wherein the adjuvant is tripalmitoyl-S-glyceryl (PAM_3)-Cys-SKKKK.

5. The composition of any one of claims 1 to 4, wherein the antigen is a polypeptide or a carbohydrate.

6. The composition of any one of claims 1 to 5, wherein the antigen comprises a plurality of B cell epitopes.

7. The composition of any one of claims 1 to 6, wherein the B cell epitope is derived from a virus or bacteria.

8. The composition of claim 7, wherein the virus or bacteria is influenza virus, Bordetella pertussis, or Bacillus anthracis.

9. The composition of claim 7 or 8, wherein the B cell epitope is an epitope of a hemagglutinin protein of H5N1 influenza virus, an epitope of pertussis toxoid protein, or an epitope of an anthrax recombinant protective antigen.

10. The composition of any one of claims 1 to 6, wherein the antigen is: an antigen associated with an infectious disease; a membrane surface-bound cancer antigen; a toxin; an allergen; or an antigen associated with a disease where it is desirable to sequester the antigen in circulation.

11. The composition of claim 10, wherein the allergen is pollen.

12. The composition of claim 10, wherein the antigen associated with a disease where it is desirable to sequester the antigen in circulation is an antigen of an amyloid protein.

13. The composition of any one of claims 1 to 12, wherein both the antigen and the adjuvant are encapsulated in the lyophilized liposomes reconstituted in the carrier comprising a continuous phase of a hydrophobic substance.

14. The composition of any one of claims 1 to 13, wherein the antigen is not coupled covalently or non-covalently to the adjuvant.

15. The composition of any one of claims 1 to 14, wherein the hydrophobic substance is mineral oil.

16. The composition of any one of claims 1 to 15, wherein the composition is capable of inducing a humoral immune response with a single dose.

17. Use of the composition of any one of claims 1 to 16 in the manufacture of a medicament for use in the treatment or prevention of a disease or disorder ameliorated by a humoral immune response.

18. Use of the composition of any one of claims 1 to 16 in the manufacture of a medicament for use in the treatment or prevention of: an infectious disease; a cancer involving a membrane surface-bound cancer antigen; or a disease or disorder where it is desirable to sequester antigen in circulation.

19. The use of claim 18, wherein the disease or disorder where it is desirable to sequester antigen in circulation is Alzheimer's disease.

20. Use of the composition of any one of claims 1 to 16 in the manufacture of a medicament for use in neutralizing a toxin, virus, bacterium or allergen, with an antibody.