CLAIMS:

1. An antigenic composition comprising a conformational antigen all or part of which comprises a biologically active conformation, which antigen is modified by a lipophilic or hydrophobic moiety that facilitates insertion into the lipid bilayer of a liposome carrier/adjuvant and presented in a highly repetitive array on the surface of a liposome, for the treatment of a disease, condition or disorder in a patient in need of a T-cell independent immune response.

2. The antigenic composition of claim 1 for use in an animal or a human.

3. The antigenic composition of claims 1 or 2, wherein said composition is effective as an immune stimulant.

4. The antigenic composition of any one of claims 1 to 3, wherein said patient is a immune tolerant patient.

5. The antigenic composition of any one of claims 1 to 3, wherein said patient is an immunocompromised patient.

6. The antigenic composition of claim 5, wherein said patient has an immune system that has been impaired by age, disease such as HIV_1 or cancer, or by treatment such as, for example, treatment against inflammatory diseases including, but not limited to, Rheumatoid Arthritis, Psoriasis, Systemic Lupus Erythrematosis, Wegener's Granulamatosis, etc.

7. The antigenic composition of any one of claims 1 to 3, wherein said patient is suffering from an autoimmune disease.

8. The antigenic composition of any one of claims 1 to 3, wherein said patient is a T-cel l activated patient. θ. The antigenic composition of any of the preceding claims, wherein said patient suffers from a T-cell deficiency.

10. The antigenic composition of claim 9, wherein said patients are depleted of CD4 T-cells.

11. The antigenic composition of claim 10, wherein said patients show reduced expression of CD14 and/or the CD40L on CD4 T-cells.

12. The antigenic composition of any one of claims 9 to 11 , wherein said T- cell deficiency is caused by age, immunosuppression or disease.

13. The antigenic composition of claim 12, wherein said disease is HIV, cancer or other malignancies.

14. The antigenic composition according to any of the preceding claims, wherein the antigen does not contain T-cell epitopes.

15. The antigenic composition according to any of the preceding claims, wherein the antigen is a conformational antigen all or part of which comprises a beta-sheet conformation.

16. The antigenic composition according to any of the preceding claims, wherein the antigen is a peptide antigen, which is modified by a lipophilic or hydrophobic moiety that facilitates insertion into the lipid bilayer of a liposome carrier/adjuvant.

17. The antigenic composition according to claim 16, wherein the dimension of the lipophilic or hydrophobic moiety in combination with the overall net charge of the antigenic peptide and of the carrier/adjuvant to which the peptide becomes attached to, incorporated or reconstituted in is such that the antigenic peptide is exposed, stabilized and presented in a highly biologically active conformation, which allows the immune system of the target organism to freely interact with the antigenic determinants contained in the antigenic construct in its exposed, stabilized and highly biologically active conformation, which leads to a strong immune response.

18. The antigenic composition according to any one of claims 16 to 17 wherein the lipophilic or hydrophobic moiety is a fatty acid, a triglycerides, diglyceride, steroid, sphingolipid, glycolipid or a phospholipid.

19. The antigenic composition according to claim 18, wherein the lipophilic or hydrophobic moiety is a fatty acid, particularly a fatty acid with a carbon back bone of at least 10 carbon atoms.

20. The antigenic composition according to claim 19 wherein the hydrophobic moiety is palmitic acid.

21. The antigenic composition according to claim 20, wherein the peptide antigen comprises two palmitic acid moieties.

22. The antigenic composition according to claim 20, wherein the peptide antigen comprises four palmitic acid moieties.

23. The antigenic composition according to any of the preceding claims, wherein the liposome preparation contains an adjuvant, particularly lipid A, particularly detoxified lipid A, such as monophosphoryl or diphosphoryl lipid A or alum.

24. The antigenic composition according to any one of claims 14 to 24, wherein said antigenic peptide is a peptide derived from a amyloid protein or amyloid-like protein such as, for example prion protein, tau protein, alpha-synuclein, huntingtin.

25. The antigenic composition according to claim 24, wherein the antigenic construct is an Aβ antigenic construct comprising a repetitive Aβ peptide fragment derived from the N-terminus of the Aβ peptide.

26. The antigenic composition according to claim 25, wherein the N-terminus of the Aβ peptide comprises

a. Aβ 1-30;

b. Aβ 1-20;

c. Aβ 1-16;

27. The antigenic composition according to claim 25, wherein the Aβ peptide fragment comprises between

a. 4 and 20 amino acids;

b. 5 and 16 amino acids;

c. 6 and 12 amino acids;

d. 4 and 8 amino acids.

28. The antigenic composition according to claim 25, wherein said Aβ peptide fragment is

a. $A\beta_{1-15;}$

b. $A\beta_{1-16;}$

c. $A\beta_{1-5.}$

29. The antigenic composition according to any of the preceding claims, wherein the antigenic construct comprises an antigenic peptide, which is a phospho-peptide mimicking a major pathological phospho-epitope of protein tau.

30. The antigenic composition of claim 29, wherein said tau protein is a human protein.

31. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 2 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 2, wherein the amino acid residue corresponding to amino acid residue 18 (P-Tyr_{18}) of SEQ ID NO: 2 is phosphorylated (T1).

32. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 3 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 3, wherein at least one, particularly at least 2 of amino acid residues corresponding to amino acid residues 212 (P-Thr_{212}) and 214 (P-Ser_{214}) of SEQ ID NO: 3 are phosphorylated.

33. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 4 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 4, wherein at least one, particularly at least 2 of amino acid residues corresponding to amino acid residues 202 (P-Ser_{202}) and 205 (P-Thr_{205}) of SEQ ID NO: 4 are phosphorylated.

34. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 5 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 5, wherein at least one, but especially all of amino acid residues corresponding to amino acid residues 396 (P-Ser_{396}) and 404 (P-Ser_{404}) of SEQ ID NO: 5 are phosphorylated.

35. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 6 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 6, wherein at least one, but especially all of amino acid residues corresponding to amino acid residues 404 (P-Ser_{404}) and 409 (P-Ser_{409}) of SEQ ID NO: 6 are phosphorylated.

36. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 7 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 7, wherein at least one, particularly at least 2, particularly a least 3, but especially all of amino acid residues corresponding to amino

acid residues 202 ($P\text{-}Ser_{202}$), 205 ($P\text{-}Thr_{205}$), 212 ($P\text{-}Thr_{212}$), and 214 ($P\text{-}Ser_{214}$) of SEQ ID NO: 7 are phosphorylated.

37. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence of SEQ ID NO: 2.

38. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence of SEQ ID NO: 3.

39. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence of SEQ ID NO: 4.

40. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence of SEQ ID NO: 5.

41. The antigenic composition of claim 30 wherein said tau protein has an amino acid sequence of SEQ ID NO: 6.

42. The antigenic composition of claim 30, wherein said tau protein has an amino acid sequence of SEQ ID NO: 7.

43. The antigenic composition of any of claims 24 - 28, wherein said patient is suffering from a disease or disorder which is caused by or associated with amyloid or amyloid-like proteins.

44. The antigenic composition of any of claims 29 - 42, wherein said patient is suffering from a disease or disorder which is caused by or associated with tau or tau-like proteins.

45. The antigenic composition according to claim 43, wherein the amyloid-associated disease or disorder is characterized by a loss of cognitive memory capacity in an individual, particularly animal or human.

46. The antigenic composition of claim 45, wherein said disease is a disease or disorder form the amyloidosis group.

47. The antigenic composition of claim 46, wherein said disease s a neurological disorder.

48. The antigenic composition of claim 47, wherein said disease is a disease or disorder selected from the group consisting of Alzheimer's Disease (AD), mild cognitive impairment (MCI), Lewy body dementia, Down's syndrome, hereditary cerebral hemorrhage with amyloidosis (Dutch type); the Guam Parkinson-Dementia complex; progressive supranuclear palsy, multiple sclerosis; Creutzfeldt-Jakob disease, Parkinson's disease, HIV-related dementia, ALS (amyotropic lateral sclerosis), Adult Onset

Diabetes, senile cardiac amyloidosis, endocrine tumors, stroke, traumatic brain injury, macular degeneration and glaucoma.

49. The antigenic composition of claim 48, wherein said disease is Alzheimer's disease.

50. The antigenic composition according to claim 44, wherein the tau-associated disease or disorder is a neurodegenerative disorder.

51. The antigenic composition of claim 50, wherein said neurodegenerative disease or disorder is caused by or associated with the formation of neurofibrillary lesions.

52. The antigenic composition according to claim 51, wherein neurodegenerative disease or disorder is a tauopathy.

53. The antigenic composition of claim 52, wherein said neurodegenerative disease or disorder is one selected from the group consisting of Alzheimer's disease, Creutzfeldt-Jakob disease, Dementia pugilistica, Down's Syndrome, Gerstmann-Sträussler-Scheinker disease, inclusion-body myositis, and prion protein cerebral amyloid angiopathy, traumatic brain injury, amyotrophic lateral sclerosis/parkinsonism-dementia complex of Guam, Non-Guamanian motor neuron disease with neurofibrillary tangles, argyrophilic grain dementia, corticobasal degeneration, diffuse neurofibrillary tangles with calcification, frontotemporal dementia with parkinsonism linked to chromosome 17, Hallevorden-Spatz disease, multiple system atrophy, Niemann-Pick disease, type C, Pick's disease, progressive subcortical gliosis, progressive supranuclear palsy, Subacute sclerosing panencephalitis, Tangle only dementia, Postencephalitic Parkinsonism, Myotonic dystrophy.

54. The antigenic composition of claim 53, wherein said neurodegenerative disorder is Alzheimer's disease.

55. The antigenic composition of any of the preceding claims, wherein the individual, particularly animal or human does not show any adverse inflammatory effect.

56. A method of using an antigenic composition comprising a modified antigen according to any of the preceding claims for the preparation of a medicament for use in the treatment of a disease, condition or disorder in an immune tolerant patient, particularly an animal or a human, to

overcome or reduce immune tolerance in said patient, wherein said antigen is presented in a highly repetitive array on the surface of a liposome.

57. A method of using an antigenic composition comprising a modified antigen according to any of the preceding claims for the preparation of a medicament for use in the treatment of a disease, condition or disorder in a T-cell activated patient, particularly an animal or a human, to avoid an overstimulation of the T-cell response in said patient, wherein said antigen is presented in a highly repetitive array on the surface of a liposome.

58. Use of an antigenic composition comprising a modified antigen according to any of the preceding claims in the manufacture of a medicament for overcoming or reducing an immune tolerance in a patient upon treatment of a disease, condition or disorder in said patient, wherein said antigen is presented in a highly repetitive array on the surface of a liposome.

59. Use of an antigenic composition comprising a modified antigen according to any of the preceding claims in the manufacture of a medicament for avoidance of overstimulation of the T-cell response in a patient upon treatment of a disease, condition or disorder in said patient, wherein said antigen is presented in a highly repetitive array on the surface of a liposome.

60. The use of claims 58 or 59 further comprising the step of determining the immune response in said individual by measuring the antibody concentration of IgG and/or IgM.

61. Use of an antigenic composition comprising a modified antigen according to any of the preceding claims in the manufacture of a medicament for inducing a T-cell independent immune response in an immune tolerant patient who suffers from a T-cell deficiency upon treatment of a disease, condition or disorder in said patient, wherein said antigen is presented in a highly repetitive array on the surface of a liposome.

62. Use of an antigenic composition comprising a modified antigen according to any of the preceding claims in the manufacture of a medicament for inducing a T-cell independent immune response in a T-cell activated patient upon treatment of a disease, condition or disorder in said patient, wherein said antigen is presented in a highly repetitive array on the surface of a liposome.

CLAIMS:

1. Use of an antigenic composition comprising a conformational antigen all or part of which comprises a biologically active conformation, which antigen is modified by a lipophilic or hydrophobic moiety that facilitates insertion into the lipid bilayer of a liposome carrier/adjuvant and presented in a highly repetitive array on the surface of a liposome, in the manufacture of a medicament for inducing a T-cell independent immune response in a population of patients suffering from T-cell deficiency, wherein the antigenic composition comprising modified antigen is to be administered to the patient in need thereof, and wherein the modified antigen is a peptide fragment derived from an amyloid protein or amyloid-like protein.

2. The use of claim 1, wherein the patient is an animal or a human.

3. The use of claims 1 or 2, wherein said composition is effective as an immune stimulant.

4. The use of any one of claims 1 to 3, wherein said patient is an immune tolerant patient.

5. The use of any one of claims 1 to 3, wherein said patient is an immunocompromised patient.

6. The use of claim 5, wherein said patient has an immune system that has been impaired by age, disease such as HIV or cancer, or by treatment such as, for example, treatment against inflammatory diseases including, but not limited to, Rheumatoid Arthritis, Psoriasis, Systemic Lupus Erythrematosis, Wegener's Granulamatosis, etc.

7. The use of any one of claims 1 to 3, wherein said patient is suffering from an autoimmune disease.

8. The use of any one of claims 1 to 7, wherein said patients are depleted of CD4 T-cells.

9. The use of claim 8, wherein said patients show reduced expression of CD14 and/or the CD40L on CD4 T-cells.

10. The use of any one of claims 1 to 9, wherein said T- cell deficiency is caused by age, immunosuppression or disease.

11. The use of claim 10, wherein said disease is HIV, cancer or other malignancies.

12. The use according to any one of claims 1-11, wherein the antigen does not contain T-cell epitopes.

13. The use according to any of one of claims 1-12, wherein the antigen is a conformational antigen all or part of which comprises a beta-sheet conformation.

14. The use according to any one of claims 1 to 13 wherein the lipophilic or hydrophobic moiety is a fatty acid, a triglycerides, diglyceride, steroid, sphingolipid, glycolipid or a phospholipid.

15. The use according to claim 14, wherein the lipophilic or hydrophobic moiety is a fatty acid, particularly a fatty acid with a carbon back bone of at least 10 carbon atoms.

16. The use according to claim 15 wherein the hydrophobic moiety is palmitic acid.

17. The use according to claim 16, wherein the peptide antigen comprises two palmitic acid moieties.

18. The use according to claim 16, wherein the peptide antigen comprises four palmitic acid moieties.

19. The use according to any one of claims 1-18, wherein the liposome preparation contains an adjuvant, particularly lipid A, particularly detoxified lipid A, such as monophosphoryl or diphosphoryl lipid A or alum.

20. The use according to any one of claims 12 to 19, wherein said amyloid protein or amyloid-like protein is selected from the group consisting of prion protein, tau protein, alpha-synuclein, and huntingtin.

21. The use according to claim 20, wherein the antigen is an Aβ antigen comprising a repetitive Aβ peptide fragment derived from the N-terminus of the Aβ peptide.

22. The use according to claim 21, wherein the N-terminus of the Aβ peptide comprises Aβ 1-30; Aβ 1-20; Aβ 1-16., Aβ 1-15, or Aβ 1-5.

23. The use according to claim 21, wherein the Aβ peptide fragment comprises between 4 and 20 amino acids; 5 and 16 amino acids; 6 and 12 amino acids; or 4 and 8 amino acids.

24. The use according to any one of claims 1-20, wherein the antigen comprises an antigenic peptide, which is a phospho-peptide mimicking a major pathological phospho-epitope of protein tau.

25. The use of claim 24, wherein said tau protein is a human protein.

26. The use of claim 25, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 2 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 2, wherein the amino acid residue corresponding to amino acid residue 18 (P-Tyr_{18}) of SEQ ID NO: 2 is phosphorylated (T1).

27. The use of claim 25, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 3 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 3, wherein at least one, particularly at least 2 of amino acid residues corresponding to amino acid residues 212 (P-Thr_{212}) and 214 (P-Ser_{214}) of SEQ ID NO: 3 are phosphorylated.

28. The use of claim 25, wherein said tau protein has an amino acid sequence Identity to SEQ ID NO: 4 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 4, wherein at least one, particularly at least 2 of amino acid residues corresponding to amino acid residues 202 (P-Ser_{202}) and 205 (P-Thr_{205}) of SEQ ID NO: 4 are phosphorylated.

29. The use of claim 25, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 5 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 5, wherein at least one, but especially all of amino acid residues corresponding to amino acid residues 396 (P-Ser_{396}) and 404 (P-Ser_{404}) of SEQ ID NO: 5 are phosphorylated.

30. The use of claim 25, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 6 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 6, wherein at least one, but especially all of amino acid residues corresponding to amino acid residues 404 (P-$Ser_{4}o_{4}$) and 409 (P-Ser_{409}) of SEQ ID NO: 6 are phosphorylated.

31. The use of claim 25, wherein said tau protein has an amino acid sequence identity to SEQ ID NO: 7 of at least 95%, and has substantially the same immunogenic activity as said antigenic peptide of SEQ ID NO: 7, wherein at least one, particularly at least 2, particularly a least 3, but especially all of amino acid

residues corresponding to amino acid residues 202 (P-Ser_{202}), 205 (P-Thr_{205}), 212 (P-Thr_{212}), and 214 (P- Ser_{214}) of SEQ ID NO: 7 are phosphorylated.

32. The use of claim 25, wherein said tau protein has an amino acid sequence of SEQ ID NO: 2.

33. The use of claim 25, wherein said tau protein has an amino acid sequence of SEQ ID NO: 3.

34. The use of claim 25, wherein said tau protein has an amino acid sequence of SEQ ID NO: 4.

35. The use of claim 25, wherein said tau protein has an amino acid sequence of SEQ ID NO: 5.

36. The use of claim 25 wherein said tau protein has an amino acid sequence of SEQ ID NO: 6.

37. The use of claim 25, wherein said tau protein has an amino acid sequence of SEQ ID NO: 7.

38. The use of any of claims 20 - 23, wherein said patient is suffering from a disease or disorder which is caused by or associated with amyloid or amyloid-like proteins.

39. The use according to claim 38, wherein the amyloid- associated disease or disorder is characterized by a loss of cognitive memory capacity in an individual, particularly animal or human.

40. The use of claim 39, wherein said disease is a disease or disorder from the amyloidosis group.

41. The use of claim 40, wherein said disease is a neurological disorder.

42. The use of claim 41, wherein said disease is a disease or disorder selected from the group consisting of Alzheimer's Disease (AD), mild cognitive impairment (MCI), Lewy body dementia, Down's syndrome, hereditary cerebral hemorrhage with amyloidosis (Dutch type); the Guam Parkinson-Dementia complex; progressive supranuclear palsy, multiple sclerosis; Creutzfeld Jacob disease, Parkinson's disease, HIV- related dementia, ALS (amyotropic lateral sclerosis), senile cardiac amyloidosis; endocrine tumors, stroke, and glaucoma.

43. The use of claim 42, wherein said disease is Alzheimer's disease.

44. The use of any of claims 24 - 37, wherein said patient is suffering from a disease or disorder which is caused by or associated with tau or tau-like proteins.

45. The use according to claim 44, wherein the tau- associated disease or disorder is a neurodegenerative disorder.

46. The use of claim 45, wherein said neurodegenerative disease or disorder is caused by or associated with the formation of neurofibrillary lesions.

47. The use according to claim 46, wherein neurodegenerative disease or disorder is a tauopathy.

48. The use of claim 47, wherein said neurodegenerative disease or disorder is one selected from the group consisting of Alzheimer's disease, Creuzfeld-Jakob disease, Dementia pugilistica, Down's Syndrome, Gerstmann-Straussler-Scheinker disease, inclusion- body myositis, and prion protein cerebral amyloid angiopathy, amyotrophic lateral sclerosis/parkinsonism-dementia complex of Guam, Non-Guamanian motor neuron disease with neurofibrillary tangles, argyrophilic grain dementia, corticobasal degeneration, diffuse neurofibrillary tangles with calcification, frontotemporal dementia with parkinsonism linked to chromosome 17, Hallevorden-Spatz disease, multiple system atrophy, Niemann-Pick disease, type C, Pick's disease, progressive subcortical gliosis, progressive supranuclear palsy, Subacute sclerosing panencephalitis, Tangle only dementia, Postencephalitic Parkinsonism, Myotonic dystrophy.

49. The use of claim 48, wherein said neurodegenerative disorder is Alzheimer's disease.

50. The use of any of the preceding claims, wherein the individual, particularly animal or human does not show any adverse inflammatory effect.

51. A method of using an antigenic composition comprising a conformational antigen all or part of which comprises a biologically active conformation, which antigen is modified by a lipophilic or hydrophobic moiety that facilitates insertion into the lipid bilayer of a liposome carrier/adjuvant and presented in a highly repetitive array on the surface of a liposome for the preparation of a medicament for use in inducing a T-cell independent immune response in a population of patients suffering from T-cell deficiency, wherein said antigenic composition comprising the modified antigen is to

be administered to the patient in need thereof, and wherein the modified antigen is a peptide fragment derived from an amyloid protein or amyloid-like protein.

52. Use of an antigenic composition comprising a conformational antigen all or part of which comprises a biologically active conformation, which antigen is modified by a lipophilic or hydrophobic moiety that facilitates insertion into the lipid bilayer of a liposome carrier/adjuvant and presented in a highly repetitive array on the surface of a liposome in the manufacture of a medicament for inducing a T-cell independent immune response in a population of patients suffering from T-cell deficiency, wherein the antigenic composition comprising the modified antigen is to be administered to the patient in need thereof, and wherein the modified antigen is a peptide fragment derived from an amyloid protein or amyloid-like protein..

53. The use of claim 52 further comprising the step of determining the immune response in said individual by measuring the antibody concentration of IgG and/or IgM.