Claims

1. A method for determining efficacy of a vaccine, comprising determining the Th17 immune response in a vaccinated subject, wherein a detectable Th17 immune response is indicative for protetective immunity in said subject.

2. The method of claim 1, wherein the vaccine is a live vaccine, particularly a mycobacterial live vaccine.

3. The method of claim 2, wherein the vaccine is a recombinant Mycobacterium which comprises a recombinant nucleic acid molecule encoding a fusion polypeptide comprising (a) a domain capable of eliciting an immune response and (b) a phagolysosomal escape domain.

4. The method of claim 3, wherein the Mycobacterium is urease-deficient.

5. The method of claim 4, wherein the Mycobacterium is rBCGΔUreC :: Hly^+ :: Hyg^+.

6. The method of claim 1, wherein the vaccine is a subunit vaccine.

7. The method of any one of claims 1-6, wherein the vaccine is a vaccine against mycobacterial infections, particularly pulmonary mycobacterial infections, more particularly tuberculosis.

8. The method of any one of claims 1-7, wherein determining the Th17 immune response comprises subjecting a sample comprising immune cells from said vaccinated subject to a restimulation with an immunogen corresponding to the immunogen in said vaccine and determining the presence and/or amount of Th17 immune response associated cells and/or in said sample.

9. The method of any one of claims 1-7, wherein determining the Th17 immune response comprises determining IL17, e.g. by immunological methods.

10. The method of any one of claims 1-9, wherein the subject is a mammal, e.g. a human.

11. The method of any one of claims 1-10, wherein the Th17 immune response is determined 20-50 days after vaccination.

12. A reagent kit for determining efficacy of a vaccine, comprising (a) a reagent for restimulating immune cells from a previously vaccinated subject, and (b) a reagent for detecting a Th17 immune response.

13. Use of the reagent kit of claim 12 in the method of any one of claims 1-11.

CLAIMS:

1. Use of (a) a reagent for restimulating immune cells from a previously vaccinated subject, and (b) a reagent for detecting a Th17 immune response in manufacture of a reagent kit for determining efficacy of a vaccine, wherein the determining efficacy of a vaccine comprises determining the Th17 immune response in a vaccinated subject, wherein a detectable Th17 immune response is indicative for protective immunity in said subject.

2. The use of claim 1, wherein the vaccine is a live vaccine, particularly a mycobacterial live vaccine.

3. The use of claim 2, wherein the vaccine is a recombinant Mycobacterium which comprises a recombinant nucleic acid molecule encoding a fusion polypeptide comprising (a) a domain capable of eliciting an immune response and (b) a phagolysosomal escape domain.

4. The use of claim 3, wherein the Mycobacterium is urease-deficient.

5. The use of claim 4, wherein the Mycobacterium is rBCGΔUreC :: Hly^+ :: Hyg^+.

6. The use of claim 5 , wherein the vaccine is a subunit vaccine.

7. The use of any one of claims 1-6, wherein the vaccine is a vaccine against mycobacterial infections, particularly pulmonary mycobacterial infections, more particularly tuberculosis.

8. The use of any one of claims 1-7, wherein the reagent for restimulating immune cells from a previously vaccinated subject is a mycobacterial antigen.

9 . The use of any one of claims 1-8 , wherein determining the Th17 immune response comprises subjecting a sample comprising immune cells from said vaccinated subject to a restimulation with an immunogen corresponding to the immunogen in said vaccine and determining the presence and/or amount of Th17 immune response associated cells and/or in said sample.

10. The use of any one of claims 1-9, wherein the reagent for detecting a Th17 immune response is an immunological detection reagent specific for a cell-surface marker and/or a cytokine present in and/or secreted by a cell associated with the Th17 response.

11. The use of claim 10, wherein the immunological detection reagent carries a labelling group.

12 . The use of any one of claims 1-11 , wherein determining the Th17 immune response comprises determining IL17, e.g. by immunological methods.

13 . The use of any one of claims 1-12 , wherein the subject is a mammal, e.g. a human.

14 . The use of any one of claims 1-13 , wherein the Th17 immune response is determined 20-50 days after vaccination.

15 . A reagent kit for determining efficacy of a vaccine, comprising (a) a reagent

for restimulating immune cells from a previously vaccinated subject, and (b) a reagent for detecting a Th17 immune response.

16. The reagent kit of claim 15, wherein the vaccine is a live vaccine, particularly a mycobacterial live vaccine.

17. The reagent kit of claim 16, wherein the vaccine is a recombinant Mycobacterium which comprises a recombinant nucleic acid molecule encoding a fusion polypeptide comprising
a. a domain capable of eliciting an immune response and
b. a phagolysosomal escape domain.

18. The reagent kit of claim 17, wherein the Mycobacterium is urease-deficient.

19. The reagent kit of claim 18, wherein the Mycobacterium is rBCGΔUreC :: Hly^+ :: Hyg^+.

20. The reagent kit of claim 15, wherein the vaccine is a subunit vaccine.

21. The reagent kit of any one of claims 15-20, wherein the vaccine is a vaccine against mycobacterial infections, particularly pulmonary mycobacterial infections, more particularly tuberculosis.

22. The reagent kit of any one of claims 15-21, wherein the reagent for restimulating immune cells from a previously vaccinated subject is a mycobacterial antigen.

23. The reagent kit of anyone of claims 15-22, wherein the reagent for detecting a Th17 immune response is an immunological detection reagent specific for a cell-surface marker and/or a cytokine present in and/or secreted by a cell associated with the Th17 response.

24. The reagent kit of claim 23, wherein the cytokine is IL-17.

25. The reagent kit of claim 23, wherein the immunological detection reagent carries a labelling group.