Compositions and Methods for Inducing an Immune Response

CLAIMS

1. A composition for inducing a T cell mediated immune response for the treatment or prevention of prostate cancer comprising a modified Vaccinia virus Ankara (MVA) vector expressing the 5T4 antigen polypeptide under control of a poxvirus F11 promoter.

2. The composition according to claim 1, wherein the poxvirus F11 promoter is the endogenous MVA F11 promoter.

3. The composition according to claim 1 or claim 2, wherein the vector expresses a polypeptide having the amino acid sequence of SEQ ID NO:1.

4. The composition according to claim 1 or claim 2, wherein the vector expresses a polypeptide encoded by a polynucleotide having the nucleic acid sequence of SEQ ID NO:2.

5. The composition according to any previous claim further comprising an adjuvant.

6. A composition according to any previous claim for use in the induction of a T cell-mediated immune response against the 5T4 antigen polypeptide.

7. A composition for use according to claim 6, wherein the T cell-mediated immune response comprises a CD8+ T cell response.

8. A composition according to any one of claims 1 to 6 for use in the treatment or prevention of prostate cancer.

9. A method for inducing a T cell mediated immune response against the 5T4 antigen polypeptide in a subject, said method comprising administering to said subject a composition according to any one of claims 1 to 6.

10. A method according to claim 9, wherein the composition is administered in a dose of between 1 x 10^6 and 5 x 10^8 plaque forming units (pfu).

11. A method according to claim 10, wherein the composition is administered in a dose of 1 x 10^7 pfu.

12. A method according to any one of claims 9 to 11, wherein the T cell-mediated immune response comprises a $CD8^+$ T cell response.

13. A method according to any one of claims 9 to 12, wherein said administration is carried out as part of a prime-boost vaccination protocol.

14. A method according to claim 13, wherein said administration is provided as the boost to a previous prime vaccination.

15. A method according to claim 14, wherein the previous prime vaccination is provided by administering an adenovirus expressing the 5T4 antigen polypeptide.

16. A method according to claim 15, wherein the adenovirus is ChAdOx1.

17. A method according to claim 15 or claim 16, wherein the adenovirus is administered in a dose of between 1 x 10^8 and 1 x 10^{12} virus particles (VP).

18. A method according to claim 17, wherein the adenovirus is administered in a dose of between 1 x 10^9 and 1 x 10^{11} VP.

19. A method according to claim 18, wherein the adenovirus is administered in a dose of 1 x 10^{10} VP.

20. A method for inducing a T cell mediated immune response for the treatment or prevention of prostate cancer in a subject, said method comprising administering to said subject a composition according to any one of claims 1 to 6.

21. A method according to claim 20, wherein the composition is administered in a dose of between 1 x 10^{6} and 5 x 10^{8} plaque forming units (pfu).

22. A method according to claim 21, wherein the composition is administered in a dose of 1 x 10^{7} pfu.

23. A method according to any one of claims 20 to 22, wherein the T cell-mediated immune response comprises a $CD8^{+}$ T cell response.

24. A method according to any one of claims 20 to 23, wherein said administration is carried out as part of a prime-boost vaccination protocol.

25. A method according to claim 24, wherein said administration is provided as the boost to a previous prime vaccination.

26. A method according to claim 25, wherein the previous prime vaccination is provided by administering an adenovirus expressing the 5T4 antigen polypeptide.

27. A method according to claim 26, wherein the adenovirus is ChAdOx1.

28. A method according to claim 26 or claim 27, wherein the adenovirus is administered in a dose of between 1 x 10^{8} and 1 x 10^{12} VP.

29. A method according to claim 28, wherein the adenovirus is administered in a dose of between 1 x 10^9 and 1 x 10^{11} VP.

30. A method according to claim 29, wherein the adenovirus is administered in a dose of 1 x 10^{10} VP.

31. A method according to any one of claims 20 to 30 further comprising the step of administering an immune checkpoint inhibitor compound.

32. A method according to claim 31, wherein the immune checkpoint inhibitor compound is an anti-PD1 monoclonal antibody.

CLAIMS

1. A composition for inducing a T cell mediated immune response for the treatment or prevention of prostate cancer comprising a modified Vaccinia virus Ankara (MVA) vector expressing the 5T4 antigen polypeptide under control of a poxvirus F11 promoter.

2. A composition according to Claim 1, in which the poxvirus F11 promoter is the endogenous MVA F11 promoter.

3. A composition according to Claim 1 or 2, in which the vector expresses a polypeptide having the amino acid sequence of SEQ ID NO:1.

4. A composition according to Claim 1 or 2, in which the vector expresses a polypeptide encoded by a polynucleotide having the nucleic acid sequence of SEQ ID NO:2.

5. A composition according to any preceding claim, further comprising an adjuvant.

6. A composition according to any preceding claim for use in the induction of a T cell-mediated immune response against the 5T4 antigen polypeptide.

7. A composition for use according to Claim 6, in which the T cell-mediated immune response comprises a CD8+ T cell response.

8. A composition according to any of Claims 1 to 6 for use in the treatment or prevention of prostate cancer.

9. Use of a composition according to any of Claims 1 to 5 in the preparation of a medicament for inducing a T cell mediated immune response against the 5T4 antigen polypeptide in a subject.

10. Use of a composition according to any of Claims 1 to 5 in the preparation of a medicament for the treatment or prevention of prostate cancer in a subject.

11. Use according to Claim 9 or 10, in which the composition is to be administered to the subject in a dose of between 1×10^6 and 5×10^8 plaque forming units (pfu).

12. Use according to Claim 9, 10 or 11, in which the T cell-mediated immune response comprises a $CD8^+$ T cell response.

13. Use according to any of Claims 9 to 12, in which the administration is to be carried out as part of a prime-boost vaccination protocol, in which the administration is to be provided as the boost to a previous prime vaccination, and in which the previous prime vaccination is to be provided by administering an adenovirus expressing the 5T4 antigen polypeptide.

14. Use according to Claim 13, in which the adenovirus is to be administered in a dose of between 1 x 10^8 and 1 x 10^{12} VP.

15. Use according to any of Claims 9 to 14, in which an immune checkpoint inhibitor compound is to be further administered to the subject, in which the immune checkpoint inhibitor compound is an anti-PD1 monoclonal antibody.