CLAIMS

1. A cancer vaccine comprising a nucleic acid encoding MAGED4B protein or a variant thereof.

2. The cancer vaccine according to claim 1 wherein said MAGED4B protein has at least 85% sequence identity to the sequence as set forth in any one of sequence ID No. 3, 31, 41, 42 or 43 or is an immunologically active truncated version thereof, optionally as set forth in any one of SEQ ID No. 35 to SEQ ID No. 37.

3. The cancer vaccine according to claim 1 or claim 2 wherein said truncated version involves the removal of at least a portion of one or both of the MAGE homology domains.

4. The cancer vaccine according to any preceding claim wherein the nucleic acid sequence has at least 85% sequence identity to the sequence set forth in any one of SEQ ID No. 7, SEQ ID No. 16, SEQ ID No. 17, SEQ ID No. 24, SEQ ID No. 25 or SEQ ID No. 26.

5. The cancer vaccine according to any preceding claim further comprising a helper motif, optionally wherein said helper motif encodes a protein which stimulates an immunological response.

6. The cancer vaccine as described in claim 5 wherein said helper motif encodes an immunological fragment of a protein, optionally a helper epitope.

7. The cancer vaccine of claim 5 or claim 6 wherein the helper motif is an immunogenic fragment of tetanus toxin, optionally the p30 MHCII epitope of tetanus toxin.

8. The cancer vaccine of claim 7 wherein the helper motif is DOM.

9. The cancer vaccine according to any preceding claim wherein said vaccine further comprises a nucleic acid encoding a FJX1 protein or a variant thereof.

10. The cancer vaccine of claim 9 wherein said FJX1 protein has at least 85% identity to a sequence as set forth in SEQ ID No. 4 or SEQ ID No. 33, or a truncated version thereof, and is optionally encoded by a nucleic acid that has at least 85% identity to a nucleic acid sequence as described in SEQ ID No. 8, SEQ ID No. 20 or SEQ ID No. 21.

11. The cancer vaccine of claim 9 or claim 10 wherein said MAGED4B and FJX1 are encoded by the same nucleic acid as a fusion protein, optionally wherein said fusion protein further comprises an immunological fragment of a protein.

12. The cancer vaccine of claim 11 wherein the fusion protein includes one or more linker proteins between MAGED4B and/or FJX1 and/or the immunological fragment of a protein.

13. The cancer vaccine of any preceding claim wherein at least one nucleic acid encodes a signal peptide.

14. The cancer vaccine as claimed in any preceding claim wherein said nucleic acid is DNA.

15. The cancer vaccine of claim 14 wherein said DNA is a plasmid, a closed linear DNA, a minicircle DNA or a single stranded circular DNA.

16. The cancer vaccine of claim 14 or 15 in which the nucleic acid further comprises a promoter operably linked to the coding sequences, optionally further comprising a polyadenylation signal downstream of the encoding sequences.

17. The cancer vaccine of any one of claims 1 to 13 wherein said nucleic acid is RNA, optionally messenger RNA or self-amplifying RNA

18. A cancer vaccine as claimed in any one of claims 1 to 17 for use in medicine, optionally for use in treating or preventing cancer.

19. A cancer vaccine as claimed in any one of claims 1 to 17 for use in revealing a tumour to the immune system.

20. A cancer vaccine as claims in any one of claims 1 to 17 for use in sensitising a tumour to an anticancer agent, optionally an immune checkpoint inhibitor.

21. The cancer vaccine as for use as claimed in claim 18, 19 or 20 wherein said vaccine is for use in combination with an anti-cancer agent, optionally an immune checkpoint inhibitor.

22. A method of treating a patient in need thereof comprising administering a cancer vaccine of any one of claims 1 to 17 to a human or animal subject.

23. A method of sensitising a tumour to infiltration by $CD8^+$ T cells comprising administering a vaccine of any one of claims 1 to 17 to a human or animal subject.

24. The method of claim 22 or claim 23 wherein said method further comprises the use of an anti-cancer agent, optionally an immune checkpoint inhibitor.

25. The use of claim 20 or 21 or the method of claim 24 wherein said checkpoint inhibitor is agent capable of blocking the action of PD-1, PD-L1, PD-L2 or CTLA-4, optionally wherein said agent is an antibody or aptamer.

26. The cancer vaccine , use or method according to any preceding claim wherein said cancer is any one or more of head and neck cancer, oral cancer, oropharyngeal cancer, nasopharyngeal cancer, lung cancer, breast cancer, oesophageal cancer, stomach cancer, liver cancer, colon cancer, kidney cancer, cholangiocarcinoma, cutaneous melanoma, rectal

cancer, thyroid cancer, bladder urothelial carcinoma, renal cancer and stomach adenocarcinoma.

27. A method of selecting a cancer for treatment with the vaccine of the invention, said method comprising determining whether a cancer is associated with the expression of MAGED4B alone, or in combination with FJX1.

28. A method of increasing the efficacy of immune checkpoint blockade in a patient in need thereof, comprising administering a cancer vaccine of any one of claims 1 to 17 to a human or animal subject.