CLAIMS

We claim:

1. The use of a recombinant modified Vaccinia Ankara (MVA) virus for the manufacture of a medicament for inducing a robust CD8 T cell response against a neoantigen in a human;

wherein the recombinant MVA comprises a Pr13.5 promoter operably linked to a nucleotide sequence encoding the neoantigen,

wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 95% identity with SEQ ID NO:1.

2. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 98% identity with SEQ ID NO:1.

3. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having 100% identity with SEQ ID NO:1.

4. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

5. The use of claim 2, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

6. The use of claim 3, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

7. The use of claim 1, wherein the Pr13.5 promoter comprises at

least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 98% identity with SEQ ID NO:1.

8. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

9. The use of claim 2, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

10. The use of claim 3, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

11. The use of claim 1, wherein the Pr13.5 promoter comprises 2 copies a nucleotide sequence of at least 40 nucleotides that has 100% identity with SEQ ID NO:1.

12. The use of claim 1, wherein the Pr13.5 promoter comprises SEQ ID NO:2.

13. A recombinant modified Vaccinia Ankara (MVA) virus comprising a Pr13.5 promoter operably linked to a nucleotide sequence encoding a neoantigen,

wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 95% identity with SEQ ID NO:1.

14. The recombinant MVA of claim 13, wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 98% identity with SEQ ID NO:1.

15. The recombinant MVA of claim 13, wherein the Pr13.5 promoter

comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having 100% identity with SEQ ID NO:1.

16. The recombinant MVA of claim 13, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

17. The recombinant MVA of claim 14, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

18. The recombinant MVA of claim 15, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

19. The recombinant MVA of claim 13, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 98% identity with SEQ ID NO:1.

20. The recombinant MVA of claim 13, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

21. The recombinant MVA of claim 14, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

22. The recombinant MVA of claim 15, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

23. The recombinant MVA of claim 13, wherein the Pr13.5 promoter comprises 2 copies a nucleotide sequence of at least 40 nucleotides that has

100% identity with SEQ ID NO:1.

24. The recombinant MVA of claim 13, wherein the Pr13.5 promoter comprises SEQ ID NO:2.

25. A recombinant poxvirus comprising a Pr13.5 promoter operably linked to a nucleotide sequence encoding a neoantigen,

wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 95% identity with SEQ ID NO:1.

CLAIMS

We claim:

1. The use of a recombinant modified Vaccinia Ankara (MVA) virus for the manufacture of a medicament for inducing a robust CD8 T cell response against a neoantigen in a human;

wherein the recombinant MVA comprises a Pr13.5 promoter operably linked to a nucleotide sequence encoding the neoantigen,

wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 95% identity with SEQ ID NO:1 and

wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

2. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 98% identity with SEQ ID NO:1.

3. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having 100% identity with SEQ ID NO:1.

4. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 98% identity with SEQ ID NO:1.

5. The use of claim 1, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

6. The use of claim 1, wherein the Pr13.5 promoter comprises SEQ ID NO:2.

7. A recombinant modified Vaccinia Ankara (MVA) virus comprising a Pr13.5 promoter operably linked to a nucleotide sequence encoding a neoantigen,

wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 95% identity with SEQ ID NO:1 and wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 95% identity with SEQ ID NO:1.

8. The recombinant MVA of claim 7, wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having at least 98% identity with SEQ ID NO:1.

9. The recombinant MVA of claim 7, wherein the Pr13.5 promoter comprises at least 1 copy of a nucleic acid sequence of at least 40 bases having 100% identity with SEQ ID NO:1.

10. The recombinant MVA of claim 7, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has at least 98% identity with SEQ ID NO:1.

11. The recombinant MVA of claim 7, wherein the Pr13.5 promoter comprises at least 1 copy of a second nucleotide sequence of at least 31 nucleotides that has 100% identity with SEQ ID NO:1.

12. The recombinant MVA of claim 7, wherein the Pr13.5 promoter comprises SEQ ID NO:2.