Claims

1. A recombinant modified vaccinia virus Ankara (MVA) encoding at least one antigen or antigenic epitope, wherein expression of said antigen or antigenic epitope is regulated by a transcriptional control element comprising an early/late promoter driving expression of said antigen or antigenic epitope, and wherein the early/late promoter comprises at least one copy of a late promoter element and at least five copies of an early promoter element, wherein the recombinant MVA expresses in HeLa cells a level of the encoded antigen in the presence of 40 µg/ml AraC that is at least 50% of the level of the encoded antigen in the absence of AraC.

2. The MVA according to claim 1, wherein the MVA has the capability of reproductive replication in vitro in chicken embryo fibroblasts (CEF) cells, but no capability of reproductive replication in the human keratinocyte cell line HaCaT, the human embryo kidney cell line 293, the human bone osteosarcoma cell line 143B, and in the human cervix adenocarcinoma cell line HeLa.

3. The MVA according to claim 2, wherein the MVA is MVA-BN as deposited at the ECACC under number V00083008.

4. The MVA according to claim 1, wherein the early promoter element is sequence optimized.

5. The MVA according to claim 1, wherein the early/late promoter comprises a cowpox ATI late promoter element.

6. The MVA according to claim 1, wherein the early/late promoter comprises at least five copies of a p7.5 early promoter element.

7. The MVA according to claim 5, wherein the early/late promoter comprises at least five copies of a p7.5 early promoter element.

8. The MVA according to claim 1, wherein the early/late promoter comprises the nucleotide sequence of SEQ ID NO:1.

9. A composition comprising the MVA of claim 8 and a pharmaceutically acceptable carrier, diluent, adjuvant, or additive.

10. The MVA of claim 8 for use in therapy.

11. The MVA of claim 8 for use as a medicament.

12. Use of the MVA of claim 8 in the manufacture of a medicament for inducing a T cell response in a host to at least one antigen or antigenic epitope.

13. The use of claim 12, wherein said T cell response is a CD8 T cell response.

14. The use of claim 12, wherein the medicament is to be administered with homologous prime/boost administrations of MVA.

15. The use of claim 14, wherein the medicament is to be administered in at least three administrations.

16. The use of claim 14, wherein the medicament is to be administered in at least four administrations.

17. A kit comprising at least two vials/containers, each comprising the MVA of claim 8, wherein the first vial/container is for a first or priming inoculation and the second vial/container is for a further or boosting inoculation.

18. The MVA according to claim 1, wherein the recombinant MVA expresses in HeLa cells a level of the encoded antigen in the presence of 40 µg/ml AraC that is at least 75% of the level of the encoded antigen in the absence of AraC.

19. The MVA according to claim 1, wherein the recombinant MVA expresses in HeLa cells a level of the encoded antigen in the presence of 40 µg/ml AraC that is higher than the level of the encoded antigen in the absence of AraC.