Claims

1. A nucleic acid molecule encoding a first polypeptide comprising the amino acid sequence set forth in SEQ ID NO: 20.

2. A nucleic acid molecule according to claim 1, wherein the first polypeptide further comprises at least one epitope of a human papillomavirus (HPV) E2 protein.

3. A nucleic acid molecule according to claim 2, wherein the first polypeptide comprises HPV18 E2 protein that has a deletion or mutation in its DNA binding domain and/or a mutation in its transactivation domain.

4. A nucleic acid molecule according to claim 3, wherein the first polypeptide comprises the amino acid sequence of SEQ ID NO: 22.

5. A nucleic acid molecule according to any one of the preceding claims, comprising SEQ ID NO: 21.

6. A nucleic acid molecule according to any one of the preceding claims, comprising SEQ ID NO: 23.

7. A vector comprising a nucleic acid molecule according to any one of the preceding claims, wherein a sequence encoding the first polypeptide is operably linked to a promoter.

8. A vector according to claim 7, wherein the vector is a recombinant adenovirus.

9. A vector according to claim 7 or 8, wherein the promoter is operably coupled to a repressor operator sequence, to which a repressor protein can bind in order to repress expression of the promoter in the presence of said repressor protein.

10. A vector according to any one of claims 7-9, further comprising nucleic acid encoding a second polypeptide operably linked to a promoter, wherein the second polypeptide comprises the amino acid sequence set forth in SEQ ID NO: 1.

11. A vector according to claim 10, wherein the second polypeptide comprises the amino acid sequence set forth in SEQ ID NO: 3 or SEQ ID NO: 5.

12. A vector according to claim 11, wherein the first polypeptide comprises the amino acid sequence of SEQ ID NO: 22, and the second polypeptide comprises the amino acid sequence of SEQ ID NO: 3.

13. A vaccine composition comprising a vector according to any one of claims 7-12, and a pharmaceutically acceptable excipient.

14. A vaccine composition comprising:
(a) a first vector according to any one of claims 7-9;
(b) a second vector comprising nucleic acid encoding a second polypeptide operably linked to a promoter, wherein the second polypeptide comprises the amino acid sequence set forth in SEQ ID NO: 1; and
(c) a pharmaceutically acceptable excipient.

15. A vaccine composition according to claim 14, wherein the second polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 3 or SEQ ID NO: 5.

16. A vaccine composition according to claim 15, wherein the first polypeptide as encoded on the first vector comprises the amino acid sequence of SEQ ID NO: 22, and the second polypeptide as encoded on the second vector comprises the amino acid sequence of SEQ ID NO: 3.

17. A kit of parts comprising:
(a) a first vaccine composition comprising a vector according to any one of claims 7-9, and a pharmaceutically acceptable excipient; and
(b) a second vaccine composition comprising a vector comprising nucleic acid encoding a second polypeptide operably linked to a promoter, wherein the second polypeptide comprises the amino acid sequence set forth in SEQ ID NO: 1.

18. The kit of parts of claim 17, wherein the second polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 3 or SEQ ID NO: 5.

19. A kit of parts according to claim 18, wherein the first polypeptide as encoded in the first vaccine composition comprises the amino acid sequence of SEQ ID NO: 22, and the second polypeptide as encoded in the second vaccine composition comprises the amino acid sequence of SEQ ID NO: 3.

20. A polypeptide comprising SEQ ID NO: 20.

21. A polypeptide according to claim 20, comprising SEQ ID NO: 22.