CLAIMS

1. A recombinant vector comprising a polynucleotide selected from the group consisting of:

(a) a polynucleotide which encodes a polypeptide having the amino acid sequence according to SEQ ID NO: 1,

(b) a polynucleotide which encodes a functional derivative of a polypeptide having the amino acid sequence according to SEQ ID NO: 1, wherein the functional derivative has an amino acid sequence which is at least 80% identical over its entire length to the amino acid sequence of SEQ ID NO: 1, and

(c) a polynucleotide which encodes a polypeptide having the amino acid sequence according to SEQ ID NO: 3,

wherein the recombinant vector comprises a nucleic acid sequence encoding a heterologous protein, wherein the nucleic acid sequence is operatively linked to one or more sequences which direct expression of said heterologous protein in a host cell, wherein the heterologous protein is selected from the fusion protein (F), the attachment protein (G), the matrix protein (M2) and the nucleoprotein (N) of respiratory syncytial virus (RSV).

2. A recombinant adenovirus comprising at least one polynucleotide or polypeptide selected from the group consisting of:

(a) a polynucleotide which encodes a polypeptide having the amino acid sequence according to SEQ ID NO: 1,

(b) a polynucleotide which encodes a functional derivative of a polypeptide having the amino acid sequence according to SEQ ID NO: 1, wherein the functional derivative has an amino acid sequence which is at least 80% identical over its entire length to the amino acid sequence of SEQ ID NO: 1,

(c) a polynucleotide which encodes a polypeptide having the amino acid sequence according to SEQ ID NO: 3,

(d) a polypeptide having the amino acid sequence according to SEQ ID NO: 1,

(e) a functional derivative of a polypeptide having the amino acid sequence according to SEQ ID NO: 1, wherein the functional derivative has an amino acid sequence which is at least 80% identical over its entire length to the amino acid sequence of SEQ ID NO: 1, and

(f) a polypeptide having the amino acid sequence according to SEQ ID NO: 3,

wherein the recombinant adenovirus comprises a nucleic acid sequence encoding a heterologous protein, wherein the nucleic acid sequence is operatively linked to one or more sequences which direct expression of said heterologous protein in a host cell, wherein the heterologous protein is an antigenic protein or fragment thereof derived from a virus and is selected from the fusion protein (F), the attachment protein (G), the matrix protein (M2) and the nucleoprotein (N) of respiratory syncytial virus (RSV).

3. A composition comprising at least one of the following:
(g) a recombinant vector according to claim 1, and
(h) a recombinant adenovirus according to claim 2;
and a pharmaceutically acceptable excipient.

4. The recombinant vector according to claim 1, wherein the polynucleotide encodes a polypeptide having the amino acid sequence according to SEQ ID NO: 1.

5. The recombinant vector according to claim 4, wherein the polynucleotide has a sequence according to SEQ ID NO: 2.

6. The recombinant vector according to any one of claims 1, 4 and 5, wherein the polynucleotide comprises at least one of the following:
(a) an adenoviral 5'-end, preferably an adenoviral 5' inverted terminal repeat;
(b) an adenoviral EIA region, or a fragment thereof selected from among the E1A_280R and E1A_243R regions;
(c) an adenoviral EIB or IX region, or a fragment thereof selected from among the group consisting of the E1B_19K, E1B_55K or IX regions;
(d) an adenoviral E2b region; or a fragment thereof selected from among the group consisting of the E2B_pTP, E2B_Polymerase and E2B_IVa2 regions;
(e) an adenoviral L1 region, or a fragment thereof, said fragment encoding an adenoviral protein selected from the group consisting of the L1_13.6k protein, L1_52k and L1_IIIa protein;
(f) an adenoviral L2 region, or a fragment thereof, said fragment encoding an adenoviral protein selected from the group consisting of the L2_penton protein, L2_pVII, L2_V, and L2_pX protein;
(g) an adenoviral L3 region, or a fragment thereof, said fragment encoding an adenoviral protein selected from the group consisting of the L3_pVI protein, L3_hexon protein and L3_protease;
(h) an adenoviral E2A region;
(i) an adenoviral L4 region, or a fragment thereof said fragment encoding an adenoviral protein selected from the group consisting of the L4_100k protein, the L4_33k protein and protein L4_VIII;
(j) an adenoviral E3 region, or a fragment thereof selected from the group consisting of E3 ORF1, E3 ORF2, E3 ORF3, E3 ORF4, E3 ORF5, E3 ORF6, E3 ORF7, E3 ORF8, and E3 ORF9;
(k) an adenoviral L5 region, or a fragment thereof said fragment encoding the L5_fiber fiber protein;
(1) an adenoviral E4 region, or a fragment thereof selected from the group consisting of E4 ORF7, E4 ORF6, E4 ORF4, E4 ORF3, E4 ORF2, and E4 ORF1;
(m) an adenoviral 3'-end, preferably an adenoviral 3' inverted terminal repeat; and/or

(n) an adenoviral VAI or VAII RNA region, preferably an adenoviral VAI or VAII RNA region from an adenovirus other than ChAd155, more preferably from Ad5.

7. The recombinant vector according to any one of claims 1 and 4-6, wherein the polynucleotide comprises or consists of a polynucleotide which is identical over its entire length to a reference sequence that consists essentially of SEQ ID NO: 7, 8 or 9.

8. The recombinant adenovirus according to claim 2 wherein the nucleic acid sequence encoding a heterologous protein encodes an RSV FΔTM antigen, an RSV M2-1 antigen and an N antigen.

9. The recombinant adenovirus according to claim 2 or claim 8 wherein the nucleic acid sequence encoding a heterologous protein encodes a sequence according to SEQ ID NO: 37.

10. The recombinant adenovirus according to any one of claims 2, 8 and 9, wherein the recombinant adenovirus is replication-incompetent.

11. The recombinant adenovirus according to any one of claims 2 and 8 to 10, wherein the adenovirus is capable of infecting a mammalian cell.

12. The composition according to claim 3, comprising an adjuvant selected from the list consisting of: inorganic adjuvants (e.g. inorganic metal salts such as aluminium phosphate or aluminium hydroxide), organic adjuvants (e.g. saponins, such as QS21, or squalene), oil-based adjuvants (e.g. Freund's complete adjuvant and Freund's incomplete adjuvant), cytokines (e.g. IL-1β, IL-2, IL-7, IL-12, IL-18, GM-CFS, and INF-γ) particulate adjuvants (e.g. immuno-stimulatory complexes (ISCOMS), liposomes, or biodegradable microspheres), virosomes, bacterial adjuvants (e.g. monophosphoryl lipid A, such as 3-de-O-acylated monophosphoryl lipid A (3D-MPL), or muramyl peptides), synthetic adjuvants (e.g. non-ionic block copolymers, muramyl peptide analogues, or synthetic lipid A), synthetic polynucleotides adjuvants (e.g polyarginine or polylysine) and immunostimulatory oligonucleotides containing unmethylated CpG dinucleotides ("CpG").

13. The composition according to claim 12, wherein the adjuvant is a 3D-MPL and/or QS21.

14. The recombinant vector according to any one of claims 1 and 4-7, wherein the nucleic acid sequence encoding a heterologous protein encodes an RSV FΔTM antigen, an RSV M2-1 antigen and an N antigen.

15. The recombinant vector according to claim 14 wherein the nucleic acid sequence encoding a heterologous protein encodes a sequence according to SEQ ID NO: 37.

16. A recombinant vector, recombinant adenovirus or composition according to any preceding claim, for use as a medicament.

17. The recombinant vector, recombinant adenovirus or composition for use according to claim 16, for use in the treatment or prophylaxis of respiratory syncytial virus (RSV) infection.

18. A recombinant vector, recombinant adenovirus or composition for use according to claim 17, for use as a vaccine.

19. The use of a recombinant vector, recombinant adenovirus or composition according to any one of claims 1 to 15 in the manufacture of a medicament for the therapy or prophylaxis of a disease caused by RSV infection.

20. Use of a recombinant vector, recombinant adenovirus or composition according to any one of claims 1 to 15 in the manufacture of a medicament for inducing an immune response directed against respiratory syncytial virus (RSV) in a subject.

21. An isolated polynucleotide comprising or consisting of the sequence according to SEQ ID NO: 11.

22. A recombinant vector, recombinant adenovirus or composition according to any one of claims 1 to 15 for use in inducing an immune response directed against respiratory syncytial virus (RSV) in a subject.