Claims

1. A vaccine against respiratory syncytial virus (RSV), comprising a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein or fragment thereof.

2. A vaccine according to claim 1, wherein the recombinant adenovirus comprises nucleic acid encoding RSV F protein that comprises the amino acid sequence of SEQ ID NO: 1.

3. A vaccine according to any one of the preceding claims, wherein the nucleic acid encoding RSV F protein is codon optimized for expression in human cells.

4. A vaccine according to any one of the preceding claims, wherein the nucleic acid encoding RSV F protein comprises the nucleic acid sequence of SEQ ID NO: 2.

5. A vaccine according to any one of the preceding claims, wherein the recombinant human adenovirus has a deletion in the E1 region, a deletion in the E3 region, or a deletion in both the E1 and the E3 region of the adenoviral genome.

6. A vaccine according to any one of the preceding claims, wherein the recombinant adenovirus has a genome comprising at its 5' terminal ends the sequence CTATCTAT.

7. A method for vaccinating a subject against RSV, the method comprising administering to the subject a vaccine according to any one of the preceding claims.

8. A method according to claim 7, wherein the vaccine is administered intramuscularly.

9. A method according to claim 7 or 8, wherein a vaccine according to any one of claims 1-6 is administered to the subject more than once.

10. A method according to any one of claims 7-9, further comprising administering to the subject a vaccine comprising a recombinant human adenovirus of serotype 26 that comprises nucleic acid encoding a RSV F protein or fragment thereof.

11. A method according to claim 7 or 8, consisting of a single administration of the vaccine to the subject.

12. A method according to any one of claims 7-11, further comprising administering RSV F protein to the subject.

13. A method for reducing infection and/or replication of RSV in a subject, comprising administering to the subject by intramuscular injection of a composition comprising a recombinant human adenovirus of serotype 35 comprising nucleic acid encoding a RSV F protein or fragment thereof.

14. An isolated host cell comprising a recombinant human adenovirus of serotype 35 comprising nucleic acid encoding a RSV F protein or fragment thereof.

15. A method for making a vaccine against respiratory syncytial virus (RSV), comprising providing a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein or fragment thereof, propagating said recombinant adenovirus in a culture of host cells, isolating and purifying the recombinant adenovirus, and formulating the recombinant adenovirus in a pharmaceutically acceptable composition.

16. An isolated recombinant nucleic acid that forms the genome of a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein or fragment thereof.

Claims

1. A vaccine against respiratory syncytial virus (RSV), comprising a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein.

2. A vaccine according to claim 1, wherein the recombinant adenovirus comprises nucleic acid encoding RSV F protein that comprises the amino acid sequence of SEQ ID NO: 1.

3. A vaccine according to any one of the preceding claims, wherein the nucleic acid encoding RSV F protein is codon optimized for expression in human cells.

4. A vaccine according to any one of the preceding claims, wherein the nucleic acid encoding RSV F protein comprises the nucleic acid sequence of SEQ ID NO: 2.

5. A vaccine according to any one of the preceding claims, wherein the recombinant human adenovirus has a deletion in the E1 region, a deletion in the E3 region, or a deletion in both the E1 and the E3 region of the adenoviral genome.

6. A vaccine according to any one of the preceding claims, wherein the recombinant adenovirus has a genome comprising at its 5' terminal ends the sequence CTATCTAT.

7. A method for vaccinating a subject against RSV, the method comprising administering to the subject a vaccine according to any one of the preceding claims.

8. A method according to claim 7, wherein the vaccine is administered intramuscularly.

9. A method according to claim 7 or 8, wherein a vaccine according to any one of claims 1-6 is administered to the subject more than once.

10. A method according to any one of claims 7-9, further comprising administering to the subject a vaccine comprising a recombinant human adenovirus of serotype 26 that comprises nucleic acid encoding a RSV F protein.

11. A method according to claim 7 or 8, consisting of a single administration of the vaccine to the subject.

12. A method according to any one of claims 7-11, further comprising administering RSV F protein to the subject.

13. A method for reducing infection and/or replication of RSV in a subject, comprising administering to the subject by intramuscular injection of a composition comprising a recombinant human adenovirus of serotype 35 comprising nucleic acid encoding a RSV F protein.

14. An isolated host cell comprising a recombinant human adenovirus of serotype 35 comprising nucleic acid encoding a RSV F protein.

15. A method for making a vaccine against respiratory syncytial virus (RSV), comprising providing a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein, propagating said recombinant adenovirus in a culture of host cells, isolating and purifying the recombinant adenovirus, and formulating the recombinant adenovirus in a pharmaceutically acceptable composition.

16. An isolated recombinant nucleic acid that forms the genome of a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein.

Claims

1. A vaccine against respiratory syncytial virus (RSV), comprising a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein.

2. A vaccine according to claim 1, wherein the recombinant adenovirus comprises nucleic acid encoding RSV F protein that comprises the amino acid sequence of SEQ ID NO: 1.

3. A vaccine according to any one of the preceding claims, wherein the nucleic acid encoding RSV F protein is codon optimized for expression in human cells.

4. A vaccine according to any one of the preceding claims, wherein the nucleic acid encoding RSV F protein comprises the nucleic acid sequence of SEQ ID NO: 2.

5. A vaccine according to any one of the preceding claims, wherein the recombinant human adenovirus has a deletion in the E1 region, a deletion in the E3 region, or a deletion in both the E1 and the E3 region of the adenoviral genome.

6. A vaccine according to any one of the preceding claims, wherein the recombinant adenovirus has a genome comprising at its 5' terminal ends the sequence CTATCTAT.

7. An isolated host cell comprising a recombinant human adenovirus of serotype 35 comprising nucleic acid encoding a RSV F protein.

8. A method for making a vaccine against respiratory syncytial virus (RSV), comprising providing a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein, propagating said recombinant adenovirus in a culture of host cells, isolating and purifying the recombinant adenovirus, and formulating the recombinant adenovirus in a pharmaceutically acceptable composition.

9. An isolated recombinant nucleic acid that forms the genome of a recombinant human adenovirus of serotype 35 that comprises nucleic acid encoding a RSV F protein.