

WHAT IS CLAIMED IS:

1. A recombinant adenoviral vector characterized in that an E4 gene is inserted in an E1 gene-deleted region of an E1/E3/E4-deleted adenovirus,

wherein the deleted E4 gene is E4orf6 (E4 open reading frame 6) gene or a region of the E4orf6 gene, or the deleted E4 gene is all of E4orf6, E4orf6/7 and E4orf4 genes, and the deleted E4 gene is a nucleotide sequence of 10 to 1,500 bp in length, and

wherein the E4 gene inserted in the E1 gene deleted region is an E4orf6 gene, and the E4orf6 gene is expressed in a forward direction.

2. The recombinant adenoviral vector according to claim 1, wherein the adenovirus is Ad2, Ad4, Ad5, Ad11, Ad26, Ad35, Ad5/35, ChAd68, FAd9 or PAd3.

3. The recombinant adenoviral vector of claim 1, wherein the E4orf6 gene is characterized in that the kozak sequence has been removed therefrom.

4. The recombinant adenoviral vector according to claim 1, wherein the vector is characterized in that a sequence encoding an antigen protein is inserted in the E1 gene-deleted region.

5. The recombinant adenoviral vector according to claim 4, wherein the sequence encoding the antigen protein is inserted at the 5' position of the E4orf6 gene.

6. The recombinant adenoviral vector according to claim 1, wherein the E4 gene inserted in the E1 gene-deleted region is

expressed by a promoter selected from the group consisting of EF-1a, mPGK, RSV, CMV, -0.25 kb of E4orf6, -0.5 kb of E4orf6, and -1.0 kb of E4orf6.

7. The recombinant adenoviral vector according to claim 4, wherein the sequence encoding the antigen protein is expressed by a cytomegalovirus (CMV) promoter.

8. A vaccine for use in preventing coronavirus infection in which a sequence encoding a coronavirus spike protein is inserted into the vector of claim 1.

9. The vaccine for use in preventing coronavirus infection according to claim 8, wherein the coronavirus is SARS-CoV, Mers-CoV or SARS-CoV-2.

10. The vaccine for preventing coronavirus infection according to claim 8, wherein the spike protein is a recombinant spike protein in which a cleavage recognition sequence between S1 and S2 genes of the spike protein is removed and a linker sequence is introduced therein.

11. The vaccine for preventing coronavirus infection according to claim 10, wherein the linker is composed of (GGGS) n .

12. The vaccine for preventing coronavirus infection according to claim 11, wherein the n is an integer of 1 to 5.