CLAIMS

1. A vaccine combination for inducing an immune response against a human immunodeficiency virus (HIV) in a subject, comprising:

(i) a first composition comprising an immunogenically effective amount of one or more adenovirus 26 (rAd26) vectors encoding one or more HIV antigenic polypeptides having the amino acid sequences of SEQ ID NO: 1, SEQ ID NO: 3 and SEQ ID NO: 4 and a pharmaceutically acceptable carrier;

(ii) a second composition comprising an immunogenically effective amount of an isolated HIV envelope polypeptide comprising the amino acid sequence of SEQ ID NO: 5 or SEQ ID NO: 6, and a pharmaceutically acceptable carrier; and

(iii) an immunogenically effective amount of one or more additional rAd26 vectors encoding HIV antigenic polypeptides having the amino acid sequences of SEQ ID NO: 1, SEQ ID NO: 3 and SEQ ID NO: 4,

wherein the first composition is for priming immunization and the second composition is for boosting immunization, and the immunogenically effective amount of the one or more additional rAd26 vectors is present in the second composition or in a third composition to be administered together with the second composition for boosting immunization.

2. The vaccine combination according to claim1, wherein the immunogenically effective amount of the one or more additional rAd26 vectors is present in the third composition.

3. The vaccine combination according to claim 1, wherein the second composition further comprises an adjuvant.

4. The vaccine combination according to claim 3, wherein the adjuvant is aluminum phosphate.

5. The vaccine combination for use according to claim 1, wherein the isolated HIV envelope polypeptide comprises the amino acid sequence of SEQ ID NO: 5.

6. The vaccine combination according to any one of claims 1 to 5 for use in generating a protective immune response against HIV infection.

7. A kit comprising the vaccine combination of claim 1.

8. Use of a vaccine combination in the preparation of a medicament for inducing an immune response against a human immunodeficiency virus (HIV) in a subject in need thereof, the vaccine combination comprising:

(i) a first composition comprising an immunogenically effective amount of one or more adenovirus 26 (rAd26) vectors encoding HIV antigenic polypeptides having the amino acid sequences of SEQ ID NO: 1, SEQ ID NO: 3, and SEQ ID NO: 4, and a pharmaceutically acceptable carrier;

(ii) a second composition comprising an immunogenically effective amount of an isolated HIV envelope polypeptide of SEQ ID NO: 5 or SEQ ID NO: 6 and a pharmaceutically acceptable carrier; and

(iii) an immunogenically effective amount of one or more additional rAd26 vectors encoding HIV antigenic polypeptides having the amino acid sequences of SEQ ID NO: 1, SEQ ID NO: 3, and SEQ ID NO: 4,

wherein the first composition is for priming immunization and the second composition is for boosting immunization, and the immunogenically effective amount of the one or more additional rAd26 vectors is present in the second composition or in a third composition and is to be administered together with the second composition for the boosting immunization.

9. The use according to claim 8, wherein the immunogenically effective amount of the one or more additional rAd26 vectors is present in the third composition.

10. Use of a vaccine combination in the preparation of a medicament for inducing an immune response against a human immunodeficiency virus (HIV) in a subject in need thereof, the vaccine combination comprising:

(i) a primer vaccine comprising a first composition comprising an immunogenically effective amount of one or more adenovirus 26 (rAd26) vectors encoding HIV antigenic polypeptides having the amino acid sequences of SEQ ID NO: 1, SEQ ID NO: 3, and SEQ ID NO: 4, and a pharmaceutically acceptable carrier; and

(ii) a booster vaccine comprising a second composition comprising an immunogenically effective amount of an isolated HIV envelope polypeptide of SEQ ID NO: 5 or SEQ ID NO: 6 and a pharmaceutically acceptable carrier, and a third composition comprising an immunogenically effective amount of one or more additional rAd26 vectors encoding HIV antigenic polypeptides having the amino acid sequences of SEQ ID NO: 1, SEQ ID NO: 3, and SEQ ID NO: 4, and a pharmaceutically acceptable carrier;

wherein the isolated HIV envelope polypeptide and the one or more additional rAd26 vectors are present in separate compositions; and wherein the booster vaccine is to be administered after the primer vaccine has been administered.

11. The use according to claim 10, wherein the isolated HIV envelope polypeptide comprises the amino acid sequence of SEQ ID NO: 5.

12. The use according claim 10 or 11, wherein the primer vaccine is to be re-administered at about 10-14 weeks after the primer vaccine has been initially administered, the booster vaccine is to be first administered at about 22-26 weeks after the primer vaccine had been initially administered, and the booster vaccine is to be re-administered to the subject.

13. The use according to claim 9, wherein the first and third compositions are identical.

14. The use according to any one of claims 10 to 12, wherein the primer vaccine and the third composition comprising the one or more additional rAd26 vectors are identical.

15. The use according to any one of claims 8 or 9, wherein the second composition further comprises an adjuvant.

16. The use according to any one of claims 10-14 , wherein the second composition comprising the immunogenically effective amount of the isolated HIV envelope polypeptide in the booster vaccine further comprises an adjuvant.

17. The use according to any one of claims 8-16, wherein each composition or vaccine is administered by intramuscular injection.

18. The use according to any one of claims 8-17, wherein each of the rAd26 vectors is replication deficient.