CLAIMS

1. A recombinant vaccination vector expressing

   (a) an envelope protein (HBs-antigen) from hepatitis B virus serotype adw, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and

   (b) a core protein (HBc-antigen) from hepatitis B virus serotype ayw, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw;

   and at least one of the following:

   (c) an immunogenic envelope protein (HBs-antigen) from hepatitis B virus having at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1; and/or

   (d) an immunogenic core protein (HBc-antigen) from hepatitis B virus having at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 2; and/or

   (e) an immunogenic RT domain of a polymerase from hepatitis B virus having at least 90 % sequence identity to the amino acid sequence set forth in SEQ ID NO: 3.

2. The recombinant vaccination vector of claim 1,

   (I) wherein the HBs-antigen in (c) and/or the HBc-antigen in (d) is/are from hepatitis B virus genotype C;

   (II) wherein the immunogenic HBs-antigen in (c) has at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 4 and/or the immunogenic HBc-antigen in (d) has at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 5 and/or the immunogenic RT domain of a polymerase in (e) has at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 6;

   (III) wherein the core protein from hepatitis B virus serotype ayw in (b) is a C-terminally truncated core protein comprising or consisting of amino acids 1-149

of the HBc-antigen from hepatitis B virus genotype D serotype ayw;

(IV) further expressing

(f) a CD70, wherein the CD70 is preferably a human CD70 or wherein the CD70 preferably has at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 26;

(V) wherein the recombinant vaccination vector is a virus, a virus like particle or a bacterium; or

(VI) wherein the recombinant vector is an attenuated *Salmonella* strain, a CMV-, a VSV-based vector, an Adenoviral vector or a Measles vector.

3. The recombinant vaccination vector of claim 1 or 2, wherein the recombinant vaccination vector is a MVA virus,

(I) wherein preferably at least one, preferably at least two, preferably at least three, preferably at least four, preferably five nucleic acid sequence(s) encoding for (a), (b), (c), (d), and/or (e) is/are preferably comprised in one expression cassette, wherein die expression cassette preferably encodes for an amino acid sequence set forth in SEQ ID NO: 7;

(II) wherein at least one of the nucleic acids encoding for (a), (b), (c), (d), and/or (e) is/are preferably under control of a poxviral promoter, wherein the poxviral promoter is preferably P7.5 or PH5, wherein die expression cassette preferably encodes for an amino acid sequence set forth in SEQ ID NO: 7; or

(III) wherein a nucleic acid sequence encoding at least one of (a), (b), (c), (d), and/or (e) is preferably inserted into deletion I (del I), deletion II (del II), deletion III (del III), deletion IV (del IV), deletion V (del V), or deletion VI (del VI), preferably deletion III (del III) of the MVA genome.

4. A MVA virus expressing

(a) an envelope protein (HBs-antigen) from hepatitis B virus serotype adw, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein;

and a MVA virus expressing

(b) a core protein (HBc-antigen) from hepatitis B virus serotype ayw, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw;

for use in a vaccination method against hepatitis B, wherein the method comprises:

(i) administering to a subject

(a') an envelope protein from hepatitis B virus serotype adw, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and/or

(b') a core protein (HBc-antigen) from hepatitis B virus serotype ayw, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw; and

(ii) administering the MVA virus expressing (a) and the MVA virus expressing (b) to the subject.

5. The MVA virus for use of claim 4, wherein the MVA virus expressing (a) and/or the MVA virus expressing (b) further expresses a CD70.

6. A MVA virus expressing

(a) an envelope protein (HBs-antigen) from hepatitis B virus serotype adw, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and

(b) a core protein (HBc-antigen) from hepatitis B virus serotype ayw, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw;

for use in a vaccination method against hepatitis B, wherein the method comprises:

(i) administering a subject

(a') an envelope protein from hepatitis B virus serotype adw, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and/or

(b') a core protein (HBc-antigen) from hepatitis B virus serotype ayw, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw; and

(ii) administering the MVA virus to the subject.

7. The MVA virus for use of claim 6, wherein the MVA virus further expresses a CD70.

8. A recombinant vaccination vector according to claim 3 for use in therapy or vaccination.

9. The recombinant vaccination vector for use according to claim 8 wherein the use is a vaccination method against hepatitis B, wherein the use comprises
   (i) administering to a subject
      (a') an envelope protein from hepatitis B virus serotype adw, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and/or
      (b') a core protein (HBc-antigen) from hepatitis B virus serotype ayw, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw; and
   (ii) administering the MVA virus to the subject.

10. The MVA virus or recombinant vaccination vector for use according to any one of claims 4 to 9,
   (I) wherein the vaccination method is a method for therapeutic vaccination;
   (II) wherein (i) of the vaccination method is a priming step and (ii) of the vaccination method is a boosting step;
   (III) wherein the envelope protein and/or the core protein in (i) is co-administered with at least one adjuvant, wherein the adjuvant is preferably selected from the group consisting of poly[di(sodium carboxylatoethylphenoxy)]phosphazene (PCEP), an immune stimulatory oligonucleotide, a toll like receptor (TLR) agonist, a saponin or combinations thereof, wherein the TLR agonist is preferably a TLR 3 agonist, a TLR 4 agonist, a TLR 7 agonist, a TLR 8 agonist, or a TLR 9 agonist, and wherein the immune stimulatory oligonucleotide is preferably poly I/C, CpG, a RIG-I ligand, a STING ligand, cyclic di-AMP, cyclic di-CMP, cyclic di-GMP, a TLR 7 agonist, a TLR 8 agonist, CTA1DD, or dmLT, wherein the adjuvant is preferably PCEP and/or a CpG adjuvant or wherein the adjuvant is preferably cyclic di-AMP;
   (IV) wherein (i) is conducted at least about 1 day before conducting (ii), preferably at least about 5 days, preferably at least about 1 week, preferably about 1 week to

about 8 weeks, preferably about 2 weeks to about 5 weeks, preferably about 3 weeks to about 4 weeks; or

(V) wherein the vaccination method further comprises after (i) and prior to (ii):

(i') administering to a subject

(a') an envelope protein from hepatitis B virus genotype A, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and/or

(b') a core protein (HBc-antigen) from hepatitis B virus genotype D, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw,

wherein (i') is preferably a boosting step, wherein (i) is preferably conducted at least about 1 day before conducting (i'), preferably at least about 5 days, preferably at least about 1 week, preferably about 1 week to about 8 weeks, preferably about 2 weeks to about 5 weeks, preferably about 3 weeks to about 4 weeks, and wherein (i') is preferably conducted at least about 1 day before conducting (ii), preferably at least about 5 days, preferably at least about 1 week, preferably about 1 week to about 8 weeks, preferably about 2 weeks to about 5 weeks, preferably about 3 weeks to about 4 weeks; or

11. The MVA virus for use of any one of claims 4 to 10, wherein administration is by a parenteral or mucosal route,

(I) wherein administration is preferably intramuscular, and wherein step (i) and/or (i') comprises administration of an adjuvant, wherein the adjuvant comprises cyclic di-AMP; or

(II) wherein administration is preferably subcutaneous or intramuscular, and wherein step (i) and/or (i') comprises administration of an adjuvant, wherein the adjuvant comprises poly I/C or RIG-I-ligand.

12. A vaccine or a pharmaceutical composition comprising the recombinant vaccination vector or the MVA virus of any one of claims 1 to 3.

13. The vaccine of claim 12, wherein the recombinant vaccination vector is a recombinant vaccination vector of claim 3 or a recombinant vaccination vector of claim 1 that is an

attenuated *Salmonella* strain, or wherein the vaccine is a parenteral or mucosal vaccine.

14. A kit comprising:
    (i) a protein composition comprising:
        (a) an envelope protein from hepatitis B virus genotype A, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and/or
        (b) a core protein (HBc-antigen) from hepatitis B virus genotype D, wherein the core protein is preferably from hepatitis B virus genotype D serotype ayw;
    (ii) a vaccine of any one of claims 12 or 13.

15. The kit of claim 14,
    (I) wherein the protein composition is suitable for parenteral administration, wherein the composition preferably comprises at least one adjuvant that is PCEP and/or a CpG adjuvant;
    (II) wherein the protein composition is suitable for mucosal administration, wherein the composition preferably comprises an adjuvant selected from the group consisting of CTA1DD, dmLT, PCEP, poly I/C, RIG-I-ligand, c-di-AMP, c-di-CMP and c-diGMP or combinations thereof;
    (III) wherein the protein composition is suitable for intramuscular administration, wherein the composition preferably comprises at least one adjuvant that is cyclic di-AMP; or
    (IV) wherein the protein composition is suitable for subcutaneous or intramuscular administration, wherein the composition preferably comprises at least one adjuvant that is poly I/C.

16. An expression cassette comprising nucleic acids encoding:
    (a) an envelope protein (HBs-antigen) from hepatitis B virus serotype adw, wherein the envelope protein is preferably a small or large envelope protein from hepatitis B virus genotype A serotype adw, wherein the small or large envelope protein is preferably a small envelope protein; and
    (b) a core protein (HBc-antigen) from hepatitis B virus serotype ayw, wherein the

core protein is preferably from hepatitis B virus genotype D serotype ayw;

and at least one of the following:

(c) an immunogenic envelope protein (HBs-antigen) from hepatitis B virus having at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1; and/or

(d) an immunogenic core protein (HBc-antigen) from hepatitis B virus having at least 90% sequence identity to the amino acid sequence set forth in SEQ ID NO: 2; and/or

(e) an immunogenic RT domain of a polymerase from hepatitis B virus having at least 90 % sequence identity to the amino acid sequence set forth in SEQ ID NO: 3.