CLAIMS

What we claim is:

1. A composition or vaccine comprising (i) a recombinant APMV viral vector and (ii) a pharmaceutically or veterinarily acceptable carrier.
2. The composition or vaccine of claim 1, wherein the APMV is APMV-8, APMV-2, APMV-4 or APMV-6.
3. The composition or vaccine of claim 1 or 2, wherein the APMV viral vector comprises a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1 or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1.
4. The composition or vaccine of any one of claims 1-3, wherein the APMV viral vector further comprises an isolated polynucleotide encoding an antigen, and wherein the polynucleotide is inserted in a nonessential region of the APMV genome.
5. The composition or vaccine of claim 3, wherein the nonessential region is selected from the regions consisting of untranslated region located upstream of the NP open reading frame, intergenic regions between two open reading frames of the APMV genome, and untranslated region located downstream of the L open reading frame.
6. A method for producing recombinant APMV viral vector, wherein the method comprises the introduction into the APMV genome an isolated polynucleotide in a nonessential region of the APMV genome.
7. The method of claim 6, wherein the APMV is APMV-8, APMV-2, APMV-4 or APMV-6.
8. The method of claim 6 or 7, wherein the APMV comprises a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1 or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1.
9. The method of any one of claims 6-8, wherein the nonessential region is selected from the regions consisting of untranslated region located upstream of the NP open

reading frame, intergenic regions between two open reading frames of the APMV genome, and untranslated region located downstream of the L open reading frame.

10. The method of any one of claims 6-9, wherein the method comprises the steps of:
    a) preparing expression plasmids expressing NP, P and L genes;
    b) preparing a transcription plasmid comprising an isolated polynucleotide in a nonessential region of the full length APMV genome;
    c) transfection of the expression plasmids and transcription plasmid into a host cell;
    d) rescuing/recovering the infectious APMV virus from the host cell.
11. The method of any one of claims 6-9, wherein the method comprises the steps of:
    a) preparing expression plasmids expressing NP, P and L genes;
    b) preparing a transcription plasmid comprising an isolated polynucleotide in a nonessential region of the full length APMV genome;
    c) preparing an expression plasmid expressing T7 polymerase
    d) transfection of the expression plasmids and transcription plasmid into a host cell;
    e) rescuing/recovering the infectious APMV virus from the host cell.
12. A method for inducing an immunological response in an animal to an antigen comprising inoculating the animal with a composition or vaccine comprising a recombinant APMV viral vector, wherein the recombinant APMV viral vector comprises and expresses the antigen of a pathogen for said animal.
13. The method of claim 12, wherein the immunological response in an animal to the antigen is induced in a prime-boost regime.
14. The method of claim 12, wherein the animal is avian, equine, canine, feline, porcine, bovine, ovine, or human.
15. An unmodified or modified APMV virus comprising a polynucleotide selected from the group consisting of:

a) a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1 or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1;

b) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:3, a polynucleotide

having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:2, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:2;

c) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:5, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:4, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:4;

d) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:7, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:6, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:6;

e) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:9, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:8, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:8;

f) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:11, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:10, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:10; and

g) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:13, a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide

having the sequence as set forth in SEQ ID NO:14, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:12, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:12.

16. The modified APMV virus of claim 15 further comprising an isolated polynucleotide inserted in a nonessential region of APMV genome.

17. An isolated polynucleotide selected from the group consisting of:

a) a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1 or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:1;

b) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:3, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:2, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:2;

c) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:5, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:4, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:4;

d) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:7, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:6, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:6;

e) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:9, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:8, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:8;

f) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:11, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:10, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:10; and

g) a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:13, a polynucleotide having at least 90% sequence identity to a polynucleotide encoding a polypeptide having the sequence as set forth in SEQ ID NO:14, a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:12, or a polynucleotide complementary to a polynucleotide having at least 90% sequence identity to a polynucleotide having the sequence as set forth in SEQ ID NO:12.

CLAIMS

1. An invention not claimed in any divisional application.