

-continued

Thr Lys Asp Ser Phe Gln Ser Phe Asn Val Thr Glu Pro His Ile Ser
 930 935 940
 Thr Ser Ala Leu Glu Trp Ile Asp Pro Asp Ser Ser Leu Arg Asp His
 945 950 955 960
 Ile Asn Val Ile Val Ser Arg Asp Leu Ser Phe Arg Asp Leu Ser Glu
 965 970 975
 Thr Pro Cys Gln Ile Asp Leu Ala Thr Ala Ser Ile Asp Gly Ala Trp
 980 985 990
 Gly Ser Gly Val Gly Phe Asn Leu Val Cys Thr Val Ser Leu Thr Glu
 995 1000 1005
 Cys Ser Ala Phe Leu Thr Ser Ile Lys Ala Cys Asp Ala Ala Met Cys
 1010 1015 1020
 Tyr Gly Ser Thr Thr Ala Asn Leu Val Arg Gly Gln Asn Thr Ile His
 1025 1030 1035 1040
 Ile Val Gly Lys Gly Gly His Ser Gly Ser Lys Phe Met Cys Cys His
 1045 1050 1055
 Asp Thr Lys Cys Ser Ser Thr Gly Leu Val Ala Ala Ala Pro His Leu
 1060 1065 1070
 Asp Arg Val Thr Gly Tyr Asn Gln Ala Asp Ser Asp Lys Ile Phe Asp
 1075 1080 1085
 Asp Gly Ala Pro Glu Cys Gly Met Leu Cys Trp Phe Lys Lys Ser Gly
 1090 1095 1100
 Glu Trp Ile Leu Gly Val Leu Asn Gly Asn Trp Met Val Val Ala Val
 1105 1110 1115 1120
 Leu Val Val Leu Leu Ile Leu Ser Ile Leu Leu Phe Thr Leu Cys Cys
 1125 1130 1135
 Pro Arg Arg Pro Ser Tyr Arg Lys Glu His Lys Pro
 1140 1145

What is claimed is:

1. An isolated nucleic acid sequence comprising SEQ ID NO:1.
2. A recombinant DNA construct comprising:
 - (i) a vector, and
 - (ii) the DNA fragment comprising the nucleic acid sequence set forth in SEQ ID NO:1, operably linked to a promoter sequence.
3. The recombinant DNA construct of claim 2 wherein said construct is pWRG/PUU-M(s2).
4. The recombinant DNA construct of claim 2, which further comprises a promoter functional in a mammal.
5. The recombinant DNA construct of claim 2, wherein the vector is an expression vector.
6. The recombinant DNA construct of claim 5, wherein the vector is an adenovirus or alphavirus replicon or vesicular stomatitis virus.
7. A vaccine against infection with Puumala virus, said vaccine comprising a composition comprising inert particles and a nucleic acid coated onto the inert particles producing nucleic acid coated particles, said nucleic acid comprising a promoter operative in the cells of a mammal and SEQ ID NO:1.
8. The vaccine of claim 7, wherein the nucleic acid is pWRG/PUU-M(s2).
9. The vaccine of claim 7, wherein the inert particle is selected from the group consisting of gold particles, silver

particles, platinum particles, tungsten particles, polystyrene particles, polypropylene particles, and polycarbonate particles.

10. The vaccine of claim 7, which is effective against the strains of Puumala virus selected from the group consisting of the strains Sotkamo, K27 and P360.

11. A method for inducing a protective immune response against Puumala virus infection in a mammal, comprising the step of accelerating into epidermal cells of the mammal in vivo a composition comprising inert particles and a nucleic acid coated onto the inert particles producing nucleic acid coated particles, said nucleic acid comprising a promoter operative in the cells of a mammal and SEQ ID NO:1, such that said nucleic acid is expressed.

12. The method of claim 11, wherein the nucleic acid is pWRG/PUU-M(s2).

13. The method of claim 11, wherein the inert particle is selected from the group consisting of gold particles, silver particles, platinum particles, tungsten particles, polystyrene particles, polypropylene particles, and polycarbonate particles.

14. A DNA cassette comprising SEQ NO:1 linked to a promoter operable in a eukaryotic expression system.

15. The DNA cassette of claim 14, wherein the sequence is SEQ ID NO:3 from the Not1 cloning site to the BamHI/BglIII site of pWRG7077.

* * * * *