CLAIMS

1. A virus particle comprising a lymphocytic choriomeningitis virus (LCMV) S segment and an LCMV L segment, wherein the S segment comprises an open reading frame encoding a glycoprotein having at least 97% sequence identity to SEQ ID NO: 4, and wherein the L segment comprises an open reading frame encoding an L protein having at least 90% sequence identity to SEQ ID NO: 40, wherein the glycoprotein comprises at least one mutated amino acid residue in comparison with the glycoprotein sequence set forth in SEQ ID NO: 4.

2. The virus particle of claim 1, wherein the glycoprotein comprises at least one mutated amino acid residue at position 181 and/or 185 in comparison with the glycoprotein sequence set forth in SEQ ID NO: 4, or wherein the glycoprotein comprises at least one mutation selected from Arg 185 → Trp and Ile 181 → Met in comparison with the glycoprotein sequence set forth in SEQ ID NO: 4.

3. A virus particle comprising a lymphocytic choriomeningitis virus (LCMV) S segment and an LCMV L segment, wherein the S segment comprises an open reading frame encoding a glycoprotein having at least 97% sequence identity to SEQ ID NO: 4, and wherein the L segment comprises an open reading frame encoding an L protein having at least 90% sequence identity to SEQ ID NO: 40, wherein the L protein comprises at position 1079 corresponding to the linear polypeptide sequence of SEQ ID NO: 40 an amino acid residue other than Lys.

4. The virus particle of claim 3, wherein the L protein comprises at position 1079 corresponding to the linear polypeptide sequence of SEQ ID NO: 40 a non-basic amino acid residue, preferably a neutral hydrophilic amino acid residue, preferably an Asn or Gln, preferably a Gln.

5. The virus particle of any one of the preceding claims, wherein the S segment is derived from LCMV strain WE or a variant thereof and wherein the L segment is derived from LCMV strain Clone13 or a variant thereof.

6. The virus particle of any one of the preceding claims, wherein the S segment comprises an open reading frame encoding a nucleoprotein having at least 97% sequence identity to SEQ ID NO: 6.

7. The virus particle of any one of the preceding claims, wherein the L segment comprises an open reading frame encoding a Z protein having at least 90% sequence identity to SEQ ID NO: 38.

8. A virus particle comprising a lymphocytic choriomeningitis virus (LCMV) S segment and an LCMV L segment, wherein the S segment comprises an open reading frame encoding a glycoprotein having at least 97% sequence identity to SEQ ID NO: 4 and an open reading frame encoding a nucleoprotein having at least 97% sequence identity to SEQ ID NO: 6, and wherein the L segment comprises an open reading frame encoding an L protein having at least 90% sequence identity to SEQ ID NO: 40 and an open reading frame encoding a Z protein having at least 90% sequence identity to SEQ ID NO: 38.

9. The virus particle of any one of the preceding claims, wherein the virus particle is less pathogenic in a mouse compared to LCMV strain WE.

10. The virus particle of any one of the preceding claims, wherein the virus particle shows increased replication in tumor cells compared to LCMV strain WE.

11. The virus particle of any one of the preceding claims, wherein the virus particle shows reduced replication in a healthy organ compared to LCMV strain WE and/or a virus particle comprising the same S segment as the virus particle and an L segment as shown in SEQ ID NO: 2.

12. The virus particle of any one of the preceding claims, wherein the S segment comprises a sequence that has at least about 86%, at least about 87%, at least about 88%, at least about 89%, at least about 90%, at least about 91%, at least about 92%, at least about 93%, at least about 94%, at least about 95%, at least about 96%, at least about 97%, at least about 98% at least about 99%, at least about 99.1%, at least about 99.2%, at least about 99.3%, at least about 99.4%, at least about 99.5%, at least about 99.6%, at least

about 99.7% sequence identity, at least about 99.7%, at least about 99.8%, or at least about 99.9% sequence identity, or is identical, to a sequence set forth in SEQ ID NO: 1 or 11.

13. The virus particle of any one of the preceding claims, wherein the L segment comprises a sequence that has at least about 83%, at least about 84%, at least about 85%, at least about 86%, at least about 87%, at least about 88%, at least about 89%, at least about 90%, at least about 91%, at least about 92%, at least about 93%, at least about 94%, at least about 95%, at least about 96%, at least about 97%, at least about 98% at least about 99%, at least about 99.1%, at least about 99.2%, at least about 99.3%, at least about 99.4%, at least about 99.5%, at least about 99.6%, at least about 99.7% sequence identity, at least about 99.7%, at least about 99.8%, or at least about 99.9% sequence identity, or is identical, to a sequence set forth in SEQ ID NO: 21 or 31.

14. The virus particle of any one of the preceding claims, wherein the virus particle has a bi-segmented genome.

15. The virus particle of any one of the preceding claims, wherein the virus particle is an arenavirus particle.

16. A host cell comprising an LCMV S segment and an LCMV L segment as defined in any one of the preceding claims.

17. A host cell comprising cDNA of

    (a) an ORF encoding a glycoprotein as defined in any one of claims 1-15, an ORF encoding an L protein as defined in any one of claims 1-15, an ORF encoding a nucleoprotein as defined in any one of claims 1-15, and an ORF encoding a Z protein as defined in any one of claims 1-15; and/or
    (b) an LCMV S segment and an LCMV L segment as defined in any one of claims 1-15.

18. A method of producing a virus particle of any one of claims 1-15 comprising cultivating the host cell of claim 16 or 17 under conditions suitable for virus particle formation.

19. A pharmaceutical composition comprising a virus particle of any one of claims 1-15.

20. A use of a virus particle of any one of claims 1-15 in the manufacture of a medicament, wherein the medicament is preferably for the treatment of cancer.