CLAIMS

What is claimed is:

1. A pharmaceutical unit dosage composition comprising i) an attenuated chikungunya virus; and ii) one or more pharmaceutically acceptable excipients, characterized in that said pharmaceutical composition is able to induce a sustained protective immune response against a chikungunya virus in a human after a single dosage, wherein said unit dosage composition comprises about 10^3 to 5 x 10^4 $TCID_{50}$/dose, preferably about 10^3 to 2 x 10^4 $TCID_{50}$/dose.

2. The pharmaceutical composition according to claim 1, wherein said attenuated chikungunya virus comprises an RNA genome corresponding to the DNA sequence as defined by SEQ ID NO: 1 (CHIKV-Δ5nsP3) and/or one or more variants thereof, wherein said variant has a nucleic acid sequence that is at least 99% identical to SEQ ID NO: 1 and has the entire 60 amino acid deletion in nsP3 as in SEQ ID NO: 1.

3. The pharmaceutical composition of claim 1 or 2, wherein said dosage is about 5 x 10^3 $TCID_{50}$/dose.

4. The pharmaceutical composition according to claim 2 or 3, wherein said attenuated chikungunya virus variant expresses an E2 protein with at least one mutation compared with the wild-type E2 protein as defined by SEQ ID NO: 2, particularly an E2 protein as defined by any of SEQ ID Nos: 3-7.

5. The pharmaceutical composition of any one of claims 2 to 4, wherein said attenuated chikungunya virus variant expresses an E2 protein with an E168K mutation as defined by SEQ ID NO: 3.

6. A pharmaceutical composition for use as a one-shot vaccine for the prevention or treatment of chikungunya virus infection, wherein the composition comprises or consists of i) CHIKV-Δ5nsP3 which expresses an E2 protein as defined by SEQ ID NO: 2, a CHIKV-Δ5nsP3 which expresses an E2 protein as defined by SEQ ID NO: 3 or a mixture thereof; and ii) one or more pharmaceutically acceptable excipients, wherein said composition is administered to a subject at a dose of about 10^3 to 5 x 10^4 $TCID_{50}$/dose, preferably about 10^3 to 2 x 10^4 $TCID_{50}$/dose.

7. The pharmaceutical composition of any one of claims 1 to 6, wherein said composition is a liquid frozen composition.

8. The pharmaceutical composition of any one of claims 1 to 6, wherein said composition is a lyophilized composition.

9. The pharmaceutical composition of any one of claims 1 to 8, wherein the pharmaceutically acceptable excipients essentially consist of sucrose, potassium phosphate and sodium citrate and, optionally, magnesium chloride, D-sorbitol, L-methionine and recombinant human serum albumin rHSA.

10. The pharmaceutical composition according to any one of claims 1 to 9, wherein said pharmaceutically acceptable excipients essentially consist of about 5% (w/v) sucrose, about 10 mM potassium phosphate, about 25 mM sodium citrate and about 0.01% (w/v) recombinant human serum albumin (rHSA).

11. The pharmaceutical composition according to any one of claims 1 to 9, wherein said pharmaceutically acceptable excipients essentially consist of about 5% (w/v) sucrose; about 5 mM potassium phosphate; about 25 mM sodium citrate; about 5 mM $MgCl_2$; about 0.5 % (w/v) D-sorbitol; about 10 mM L-methionine; and about 0.01% (w/v) recombinant human serum albumin(rHSA).

12. The pharmaceutical composition of any one of claims 1 to 11, wherein said composition is able to increase serum antibody titers to said virus in a human by at least 1 log relative to a control within about 14 days from primary immunization.

13. The pharmaceutical composition of any one of claims 1 to 11, wherein said composition is able to increase serum antibody titers to said virus in a human by at least 1 log relative to a control within about 7 days from primary immunization.

14. The pharmaceutical composition of any one of claims 1 to 13, wherein said composition is able to stimulate seroconversion in at least 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, up to 100% of vaccinated subjects within 7 days of vaccination, wherein seroconversion is defined as reaching a neutralizing CHIKV antibody titer of at least 10, preferably at least 20.

15. The pharmaceutical composition of any one of claims 1 to 13, wherein said composition is able to stimulate seroconversion in at least 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, up to 100% of vaccinated subjects within 14 days of vaccination, wherein seroconversion is defined as reaching a neutralizing CHIKV antibody titer of at least 10, preferably at least 20.

16. The pharmaceutical composition of any one of claims 1 to 15, wherein the protective immune response lasts for at least 6 months.

17. The pharmaceutical composition of any one of claims 1 to 15, wherein the protective immune response lasts for at least 12 months.

18. The pharmaceutical composition of any one of claims 1 to 15, wherein the protective immune response lasts for at least 24 months.

19. The pharmaceutical composition of any one of claims 1 to 15, wherein the protective immune response confers life-long protection against CHIK virus disease.

20. The pharmaceutical composition of any one of claims 1 to 19, for use in a method of treating or preventing a Chikungunya virus infection.