In one example, the present disclosure refers to a pharmaceutical composition comprising (i) CHIKV-Δ5nsP3 particles expressing an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2; (ii) CHIKV-Δ5nsP3 particles expressing an E2 structural protein having at least one mutation compared with the amino acid sequence of SEQ ID NO: 2; and (iii) optionally a pharmaceutically acceptable excipient.

In one aspect, the present disclosure refers to a pharmaceutical composition for use as a vaccine comprising an effective amount of (i) CHIKV-Δ5nsP3 particles; and (ii) optionally a pharmaceutically acceptable excipient; wherein at least 30% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2; and wherein 10-50% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the mutation E168K in the amino acid sequence of SEQ ID NO: 2.

In another aspect, the present disclosure refers to a pharmaceutical composition comprising an effective amount of (i) CHIKV-Δ5nsP3 particles; and (ii) optionally a pharmaceutically acceptable excipient; wherein at least 30% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2; and wherein 10-50% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the mutation E168K in the amino acid sequence of SEQ ID NO: 2, for use in the treatment or prevention of a Chikungunya virus infection.

In another aspect, the present disclosure refers to use of a pharmaceutical composition comprising an effective amount of (i) CHIKV-Δ5nsP3 particles; and (ii) optionally a pharmaceutically acceptable excipient; wherein at least 30% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2; and wherein 10-50% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the mutation E168K in the amino acid sequence of SEQ ID NO: 2,, in the manufacture of a medicament for treating or preventing a Chikungunya virus infection.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings are not intended to be drawn to scale. The Figures are illustrative only and are not required for enablement of the disclosure. For purposes of clarity, not every component may be labeled in every drawing. In the drawings:

CLAIMS

1. A pharmaceutical composition for use as a vaccine comprising an effective amount of (i) CHIKV-Δ5nsP3 particles; and (ii) optionally a pharmaceutically acceptable excipient; wherein at least 30% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2; and wherein 10-50% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the mutation E168K in the amino acid sequence of SEQ ID NO: 2.

2. The pharmaceutical composition for use according to claim 1, wherein at least 50%, at least 75% or at least 90% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2.

3. The pharmaceutical composition for use according to claim 1 or 2, wherein less than 50% or less than 25% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having one or more mutations with respect to the amino acid sequence of SEQ ID NO: 2.

4. The pharmaceutical composition for use according to any one of claims 1 to 3, wherein less than 25% or less than 10% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the mutation G55R in the amino acid sequence of SEQ ID NO: 2.

5. The pharmaceutical composition for use according to claim 1, wherein 10-30% or 10-20% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the E168K mutation in the amino acid sequence of SEQ ID NO: 2.

6. The pharmaceutical composition for use according to any one of claims 1 to 5, wherein said CHIKV-Δ5nsP3 in (i) is defined by the polynucleotide sequence of SEQ ID NO: 1.

7. The pharmaceutical composition for use according to any one of claims 1 to 6, wherein said pharmaceutical composition comprises an effective amount of CHIKV-Δ5nsP3 particles which express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2, wherein said effective amount is defined as at least 10^2, at least 10^3, at least 10^4, at least 10^5, at least 10^6, preferably at least 10^3 CHIKV-Δ5nsP3 particles which express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2.

8. The pharmaceutical composition for use according to any one of claims 1 to 7, wherein said pharmaceutical composition is provided in a lyophilized form.

9. A pharmaceutical composition comprising an effective amount of (i) CHIKV-Δ5nsP3 particles; and (ii) optionally a pharmaceutically acceptable excipient; wherein at least 30% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2; and wherein 10-50% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the mutation E168K in the amino acid sequence of SEQ ID NO: 2, for use in the treatment or prevention of a Chikungunya virus infection.

10. Use of a pharmaceutical composition comprising an effective amount of (i) CHIKV-Δ5nsP3 particles; and (ii) optionally a pharmaceutically acceptable excipient; wherein at least 30% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein as defined by the amino acid sequence of SEQ ID NO: 2; and wherein 10-50% of the CHIKV-Δ5nsP3 particles present in the composition express an E2 structural protein having the mutation E168K in the amino acid sequence of SEQ ID NO: 2, in the manufacture of a medicament for treating or preventing a Chikungunya virus infection.