
Recombinant Proteins for Chikungunya Fever (CHIKF)

rp141892

Chikungunya Fever (CHIKF) is an acute infectious disease caused by Chikungunya virus (CHIKV) and transmitted via *Aedes* mosquitoes. Clinically, it is characterized by sudden onset of high fever and severe arthralgia, with some patients experiencing long-term joint sequelae that significantly affect quality of life. Currently, no widely available vaccines or specific antiviral drugs exist, making CHIKF a global public health concern.

Recent advances in recombinant protein technology have provided critical tools for CHIKV basic research, vaccine development, antiviral drug screening, and diagnostic reagent development. Among these, the CHIKV E2 protein, a key factor in viral entry into host cells, has become a major focus of research and application.

1. CHIKV Structure and E2 Protein Function

CHIKV belongs to the *Togaviridae* family, *Alphavirus* genus, with a single-stranded positive-sense RNA genome encoding three structural proteins (C, E1, E2) and four non-structural proteins (nsP1–nsP4).

- ❖ The E2 protein is a viral envelope glycoprotein located on the virus surface, forming spikes together with E1 protein to mediate binding to host cell receptors and internalization.
- ❖ E2 interacts with the receptor MXRA8, playing a crucial role during viral entry. Blocking the E2–MXRA8 interaction significantly reduces viral infection.
- ❖ In vaccine and antibody development, E2 serves as the primary source of neutralizing epitopes, making it a critical target for immunogenicity.

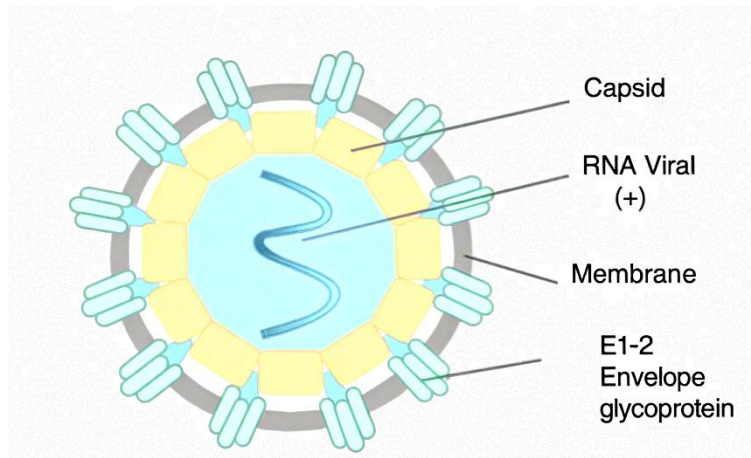


Figure 1. Structure of Chikungunya virus (CHIKV)

2. Epidemiology and Public Health Challenges of CHIKF

Since its first identification in Tanzania in 1952, CHIKV has spread to 119 countries and regions worldwide, with over 500,000 cases reported annually, mainly in tropical and subtropical regions of Africa, Asia, and the Americas.

- ❖ Domestic situation: In China, Guangdong Province has reported several thousand autochthonous cases, and imported cases have been reported in Hong Kong, indicating a potential risk of local outbreaks.
- ❖ Transmission: The virus is primarily transmitted via a “human–mosquito–human” cycle. During the acute phase, patients develop high-titer viremia, which can be transmitted to mosquitoes for further spread.
- ❖ Control challenges: Due to the lack of specific antiviral drugs and widely used vaccines, control relies mainly on supportive treatment and vector control measures.

3. Research and Application Value of Recombinant E2 Protein

1)Vaccine Development

Recombinant E2 protein can serve as a candidate antigen for subunit vaccines, inducing specific neutralizing antibodies. It has demonstrated good immunogenicity in preclinical studies, either as part of virus-like particle (VLP) vaccines or in combination with E1 protein.

2)Antiviral Drug Screening

E2 plays a critical role in viral binding to host receptors. Recombinant E2 protein can be used for screening small-molecule inhibitors or monoclonal antibodies, evaluating their ability to block the E2–MXRA8 interaction.

3)Diagnostic Reagent Development

Serological testing is essential for CHIKV diagnosis. Recombinant E2 protein, as a highly specific antigen, can be applied in ELISA, IFA, or immunochromatographic assays to detect IgM and IgG antibodies in patient serum, enabling rapid diagnosis and epidemiological investigation.

4. Aladdin Product Description

Item	Description
Catalog Number	rp141892
Product Name	Recombinant Chikungunya virus (CHIKV) E2 Protein
Aliases	Chikungunya Antigen; Recombinant Chikungunya Virus E2 Protein
English Aliases	CHIKV E2 Protein; Chikungunya E2; Spike Glycoprotein E2, etc.
Source	Recombinant protein expressed in HEK293 cells
Species	Chikungunya virus
Amino Acid Range	326–666 aa
Protein Tag	C-His
Purity	≥95% (SDS-PAGE)
Endotoxin Level	<0.1 EU/μg
Molecular Weight	39.2 kDa (predicted), ~40 kDa (SDS-PAGE)
Physical Form	Lyophilized
Storage Buffer	PBS (pH 7.4), 0.22 μm filtered
Reconstitution	Dissolve in sterile water to 0.1–0.5 mg/mL; avoid vigorous shaking
Stability & Storage	Long-term: -20°C to -80°C (up to 1 year); After reconstitution: aliquot and store at -20°C for 3 months or 2–8°C for 1 week
Shipping Conditions	Dry ice