



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Dengue NS1 Protein
Catalog Number: vRP-1862
Manufacturer: LD Biopharma, Inc.

Introduction

Dengue virus (DENV) is a member of the *Flavivirus* genus of the *Flaviviridae* family. The *Flavivirus* genus includes other important human pathogens such as yellow fever (YFV), West Nile (WNV), Japanese encephalitis (JEV), and tick borne encephalitis (TBEV). Flaviviruses are enveloped viruses with a single stranded, \approx 11 kb, positive-sense RNA genome, which encodes a single long open reading frame (ORF). The virus enters the host cell by receptor mediated endocytosis. Upon internalization and acidification of the endosome, fusion of viral and vesicular membranes allows release of the genomic RNA into the cytoplasm, which serves as mRNA. Translation of the single ORF at the rough ER produces a large polyprotein that is cleaved co- and posttranslationally into the mature proteins. The N-terminal of the polyprotein encodes the three structural proteins (C-prM-E), followed by at least seven non-structural (NS) proteins (*NS1-NS2A-NS2B-NS3-NS4A-NS4B-NS5*). Viral NS1 is a glycosylated 48-kD protein that plays a role in both viral replication and immune evasion. Secreted soluble DENV NS1 is found in patient serum during acute illness and is used as a diagnostic indicator of acute DENV infection. High levels of sNS1 are associated with increased disease severity,

Full-length Dengue virus NS1 encoding gene was constructed with codon optimization and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein is expressed in *E.coli* as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: Dengue Virus NS1
Accession Number: Q99D35 (Uniprot)
Species: Dengue Virus
Size: 20 μ g / Vial



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Composition: 0.2 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Sucrose.

Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Lindenbach BD, et al. *Flaviviridae: The viruses and their replication*; Fields Virology. Vol.1 pp: 1101–1152. (2007)

Kassim FM. et al., *Use of dengue NS1 antigen for early diagnosis of dengue virus infection*. Southeast Asian J Trop Med Public Health. May;42(3):562-9. (2011)

P. Robert Beatty, et al., *Dengue virus NS1 triggers endothelial permeability and vascular leak that is prevented by NS1 vaccination* *Dengue virus NS1 triggers endothelial permeability and vascular leak that is prevented by NS1 vaccination*. Science Translation Medicine. Vol 7. Issue 304. (2015).

M. Flamand, F. et al., *Dengue virus type 1 nonstructural glycoprotein NS1 is secreted from mammalian cells as a soluble hexamer in a glycosylation-dependent fashion*. J. Virol. 73, 6104–6110 (1999).

Applications

May be used for specific antibody production or diagnostic applications.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHHENLYFQGGFDMGCVINWKGKELKCGSGIFVTNEVHTWTEQYKFQ
ADSPKRLATAIAGAWENGVCGIRSTTRMENLLWKQIANELNYILWENNIKLTVVVGDI TGVLEQ
GKRTLTPQPMELKYSWKTWGKAKIVTAETQNSSFIIDGPSTPECPSASRAWNVWEVEDYGFVGF
TTNIWLKLRVYVYTLCDHRLMSAAVKDERAVHADMGYWIESQKNGSWKLEKASLIEVKTCTWPK
SHTLWSNGVLESDMIIPKSLAGPISQHNHRPGYHTQTAGPWHLGKLELDFNYCEGTTVVISENC
GTRGPSLRTTTTVSGKLIHEWCCRSTLPLRLRYMGEDGCWYGMEIRPINEKEENMVKSLASA