



LD Biopharma, Inc.
9924 Mesa Rim Road Suite B
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<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant West Nile Viral NS1 Protein
Catalog Number: vRP-1866
Manufacturer: LD Biopharma, Inc.

Introduction

West Nile (WNV) is a member of the *Flavivirus* genus of the *Flaviviridae* family. The *Flavivirus* genus includes other important human pathogens such as yellow fever (YFV), Dengue virus (DENV), Japanese encephalitis (JEV), and tick borne encephalitis (TBEV). Flaviviruses are enveloped viruses with a single stranded, <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 WNV NS1 is found in patient serum during acute illness and is used as a diagnostic indicator of acute WNV infection. High levels of sNS1 are associated with increased disease severity.

Full-length West Nile virus NS1 (351aa) 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: West Nile Virus: NS1
Accession Number: P06935 (Uniprot)
Species: West Nile Virus
Size: 50 µg / Vial
Composition: 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.



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Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 7 days.

Key References

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

Akey DL, et al. *Structure-guide insights on the role of NS1 in flavivirus infection*; Bioassays. May: 37 (5): 489-494. (2015)

Young LB, et al. *Last 20aa of the West Nile virus NS1 protein are responsible for its retention in cell and the formation of unique heat-stable dimers*; J gen Virol. May: 96(pt5): 1042-1054. (2015)

Chao DY, et al. *Nonstructural protein 1 specific immunoglobulin M and G antibody capture enzyme-linked immunosorbent assays in diagnosis of flaviviral infection in humans*; J Clin Microbiol. Feb: 53(2): 557-566. (2015)

Applications

May be used for specific antibody production or diagnostic applications.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGFDTGCAIDIGRQELRCGSGVFIHNDVEAWMDRYKFY
PETPQGLAKIIQKAHAEGVCGLRSVSRLEHQMW EAIKDELNTLLKENGVDLSVVVEKQNGMYKA
APKRLAATTEKLEMGWKAWGKSIIFAPELANNTFVIDGPETE ECPTANRAWNSMEVEDFGFGLT
STRMFLRIRETNTTECDSKIIGTAVKNNMAVHSDLSYWIESGLNDTWKLERAVLGEVKSTWPE
THTLWGDGVLES DLIIPITLAGPRSNHNRPPGYKTQNQGPWDEGRVEIDFDYCPGTTVTI SDSC
EHRGPAARTTTESGKLITDWCCR SCTLPLRFQTENGCWYGMEIRPTRHDEKTLVQSRVNA