

Recombinant Powassan Virus NS1 Protein, His-tagged

Cat. No. POW-541 **Lot. No.** (See product label)

SPECIFICATION

Product Overview

Powassan virus NS1 protein 1 (Non-Structural protein 1) has been manufactured in response to the unmet need for highly purified, concentrated protein for use in serological based diagnostic assays. Powassan virus NS1 protein is engineered in human cells using state-of-the-art expression and purification techniques.

Tag His

Background

Powassan virus (POWV) is a positive-sense single-stranded RNA virus that belongs to the genus *Flavivirus*, a member of the *Flaviviridae* family of viruses. It is an arthropod-borne virus that is transmitted by infected ticks to small/medium sized mammals, which act as reservoirs for the virus. Different tick species transmit POWV including hard ticks, of the family *Ixodidae*, and the tick species varies according to the geographical region. POWV can also be transmitted to humans, which are incidental, dead-end, hosts for the virus (Hernance ME, et al).

POWV is classified as a member of the tick-borne encephalitis sero-complex of flaviviruses. Two genotypes, or lineages, of POWV have been identified in Russia and the Western hemisphere. POWV is assigned to lineage I and Deer tick virus (DTV) to lineage II. Serologically the two viruses are indistinguishable but have some phylogenetic differences. Both lineages have been linked to human disease. Cases of POWV infection caused by POWV lineage II (DTV) are reported to be increasing in North America. The virus is transmitted by the tick *Ixodes scapularis*, which is also the vector for Lyme disease. The expanding distribution of *Ixodes scapularis* and the high seroprevalence of DTV in small mammals, in endemic regions, suggests that POWV may pose an increasing health threat. First recognised as a human pathogen

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in 1958, POWV is the cause of a rare neuroinvasive disease.

In humans, the incubation period can vary between 1 – 5 weeks. In many cases, individuals remain asymptomatic or may present with a febrile illness with mild fever, sore throat, headache, drowsiness and disorientation. Some patients develop neurological complications, which include encephalitis, aseptic meningitis and meningoencephalitis. Reports suggest that 10% of POWV cases are fatal and 50% of survivors develop long-term neurological problems, which include acute headaches, muscle wasting and memory problems (CDC). Currently, there is no antiviral therapy for the treatment of symptomatic cases of POWV, and no licensed prophylactic vaccine to prevent POWV infection. Diagnosis of POWV in humans is achieved using clinical criteria and serological methods to measure Powassan specific IgM levels of infected patients.

Purity	>95% pure (Specification: >=95% by SDS-PAGE)
Sequence Strain	Strain: LB (NCBI accession number NP 620099.1), AA776-1128.
Formulation	20mM TRIS pH8.0, 145mM NaCl
Stability	At +4 centigrade: 1 week. At -80 centigrade: 1 year.
Freezing	Can be frozen, but avoid multiple freeze/thaw cycles.
Storage	Short Term Storage: +2 centigrade to +8 centigrade Long Term Storage: -80 centigrade
Concentration	0.72 mg/mL (Specification: 0.4-1.0 mg/mL by BCA assay)
Notes	This product is intended for research and manufacturing uses only. It is not a

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diagnostic device. The user assumes all responsibility for care, custody and control of the material, including its disposal, in accordance with all regulations.

Type	Recombinant
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ClassID 1	Infectious Disease
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GENE INFORMATION

Synonyms	Powassan Virus NS1
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