Product Information Sheet for NR-51181

Powassan Virus, LB

Catalog No. NR-51181

For research use only. Not for human use.

Contributor:
Brandy Russell, Centers for Disease Control and Prevention, Division of Vector Borne Diseases, Fort Collins, Colorado, USA

Manufacturer:
BEI Resources

Product Description:
Virus Classification: *Flaviviridae, Flavivirus*
Species: Powassan Virus
Strain/Isolate: LB
Original Source: Powassan virus (POWV), LB was isolated from the brain of a child who died of encephalitis in September 1958 in Ontario, Canada.[1,2]
Comments: The complete genome of POWV, LB has been sequenced (GenBank: L06436).[3]

POWV is the sole recognized North American member of the tick-borne encephalitis serological complex of the flaviviruses.[4] It is transmitted to small- and medium-sized mammals by *Ixodes scapularis*, *Ixodes cookei* and several other *Ixodes* tick species.[5,6] POWV infects humans during spillover transmission from the natural transmission cycles causing a rare but severe neuroinvasive disease, with 50% of survivors displaying long-term neurological sequelae. Genomic sequencing demonstrates that POWV consists of two distinct genetic lineages which may be defined by geographical and host associations.[5,6] Lineage I, which is the POWV prototype lineage, is maintained predominantly by *Ixodes cookei* and shows a high level of conservation in nucleotide and amino acid sequences over time. Lineage II, which consists of deer tick virus (DTV), is maintained by *Ixodes scapularis*.[5,6] Serological studies support a close relationship between POWV and DTV, with cross-neutralization studies showing that they are indistinguishable serologically.[4]

Material Provided:
Each vial contains approximately 1 mL of cell lysate and supernatant from *Cercopithecus aethiops* kidney epithelial cells infected with POWV, LB.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

Packaging/Storage:
NR-51181 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

Growth Conditions:
Host: *Cercopithecus aethiops* kidney epithelial cells (Vero; ATCC® CCL-81™)
Growth Medium: Eagle's Minimum Essential Medium containing Earle's Balanced Salt Solution, non-essential amino acids, 2 mM L-glutamine, 1 mM sodium pyruvate and 1.5 g/L of sodium bicarbonate supplemented with 2% fetal bovine serum, or equivalent
Infection: Cells should be 60% to 70% confluent
Incubation: 6 to 10 days at 37°C and 5% CO_2
Cytopathic Effect: Cell rounding and sloughing

Citation:
Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Powassan Virus, LB, NR-51181."

Biosafety Level: 3
Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

Disclaimers:
You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:
This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its

BEI Resources
www.beiresources.org
E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

References:

1. Russell, B., Personal Communication.
2. McLean, D. M and W. L. Donohue. "Powassan Virus: Isolation of Virus from a Fatal Case of Encephalitis." Can. Med. Assoc. J. 80 (1959): 708-711. PubMed: 13652010.
3. Mandl, C. W., et al. "Complete Genomic Sequence of Powassan Virus: Evaluation of Genetic Elements in Tick-Borne Versus Mosquito-Borne Flaviviruses" Virology 194 (1993): 173-184. PubMed: 8097605.
4. Ebel, G. D. "Update on Powassan Virus: Emergence of a North American Tick-Borne Flavivirus." Annu. Rev. Entomol. 55 (2010): 95-110. PubMed: 19961325.
5. Hermance, M. E. and S. Thangamani. "Powassan Virus: An Emerging Arbovirus of Public Health Concern in North America." Vector Borne Zoonotic Dis. 17 (2017): 453-462. PubMed: 28498740.
6. Ebel, G. D., A. Spielman and S. R. Telford 3rd. "Phylogeny of North American Powassan Virus." J. Gen. Virol. 82 (2001): 1657-1665. PubMed: 11413377.

Support Provided by NIAID

BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898