

Western Equine Encephalitis Virus, IMP 181

Catalog No. NR-49784

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Contributor:

World Reference Center for Emerging Viruses and Arboviruses, University of Texas Medical Branch, Galveston, Texas, USA

Manufacturer:

BEI Resources

Product Description:

Virus Classification: *Togaviridae, Alphavirus*

Species: Western equine encephalitis virus

Strain/Isolate: IMP 181 (also referred to as Imperial)

Comments: Western equine encephalitis virus (WEEV), IMP 181 was isolated in Vero cells from a pool of *Culex tarsalis* (*C. tarsalis*) mosquitoes collected in Imperial County, California, USA in 2005.^{1,2} The complete genome sequence of WEEV, IMP 181 (Imperial) is available (GenBank: [GQ287641](https://www.ncbi.nlm.nih.gov/nuccore/GQ287641)).¹

WEEV is a mosquito-borne alphavirus that causes potentially fatal infections in horses and humans.^{3,4} Survivors of western equine encephalitis (WEE) often suffer permanent neurological sequelae. WEEV circulates enzootically among passerine birds and is transmitted primarily by *C. tarsalis*, with mammals participating in a secondary cycle. Humans and horses do not appear to be amplifying hosts.

WEEV is the descendent of an ancient recombination event between Sindbis virus-like and eastern equine encephalitis virus-like progenitors.^{5,6} There were widespread outbreaks of WEE in western North America in the 1930s through 1950s, but the incidence of the disease has decreased dramatically in recent decades. This reduction in disease incidence has been accompanied by a decline in the frequency of virus detection in mosquito surveillance programs.⁷

Material Provided:

Each vial contains approximately 1 mL of cell lysate and supernatant from *Cercopithecus aethiops* kidney epithelial cells (Vero; ATCC® CCL-81™) infected with WEEV, IMP 181.

Packaging/Storage:

NR-49784 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.

Citation:

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH as part of the WRCEVA program: Western Equine Encephalitis Virus, IMP 181, NR-49784.”

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.

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References:

1. Logue, C. H., et al. “Virulence Variation among Isolates

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2. Bergren, N. A., et al. "Western Equine Encephalitis Virus: Evolutionary Analysis of a Declining Alphavirus Based on Complete Genome Sequences." J. Virol. 88 (2014): 9260-9267. PubMed: 24899192.
 3. Whitley, R. J. and J. W. Gnann. "Viral Encephalitis: Familiar Infections and Emerging Pathogens." Lancet 359 (2002): 507-513. PubMed: 11853816.
 4. Centers for Disease Control and Prevention. "Arboviral Disease – United States, 1994." MMWR Morb. Mortal. Wkly. Rep. 44 (1995): 641-644. PubMed: 7643850.
 5. Hahn, C. S., et al. "Western Equine Encephalitis Virus is a Recombinant Virus." Proc. Soc. Natl. Acad. Sci. USA 85 (1988): 5997-6001. PubMed: 3413072.
 6. Weaver, S. C., et al. "Recombinational History and Molecular Evolution of Western Equine Encephalomyelitis Complex Alphaviruses." J. Virol. 71 (1997): 613-623. PubMed: 8985391.
 7. Zhang, M., et al. "Variation in Western Equine Encephalomyelitis Viral Strain Growth in Mammalian, Avian, and Mosquito Cells Fails to Explain Temporal Changes in Enzootic and Epidemic Activity in California." Vector-Borne Zoonotic Dis. 11 (2011): 269-275. PubMed: 21395409.

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