

Zika Virus, BeH819015, Recombinant Infectious Clone

Catalog No. NR-51129

For research use only. Not for human use.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Virus Classification: *Flaviviridae*, *Flavivirus*

Species: Zika virus

Strain/Isolate: BeH819015 recombinant infectious clone (also known as BR15^{MC})¹

Comments: NR-51129 is a molecular clone of Zika virus (ZIKV), BeH819015.^{1,2} An infectious clone was assembled from four synthetic overlapping fragments corresponding to the full-length genomic RNA using the reverse genetic method designated ISA (Infectious-Subgenomic-Amplicons). The 5'-untranslated region (5'-UTR) is derived from clone MR766^{MC} and the 3'-untranslated region (3'-UTR) from a contemporaneous clinical isolate of ZIKV. ZIKV, BeH819015 was isolated from the blood of a human in Belém, Pará State, Brazil on July 23, 2015.¹ The complete genomic sequence of ZIKV, BeH819015 has been determined (GenBank: KU365778).

ZIKV is a member of the Spondweni serocomplex of mosquito-borne flaviviruses. ZIKV is vectored primarily by *Aedes* spp., but has also been isolated from *Anopheles*, *Eretmapodites*, and *Mansonia* mosquitoes.⁴ Phylogenetic analyses indicated that there are two major lineages of ZIKV, African and Asian.⁵ A third lineage circulating in West Africa was recently described.⁶

The first human infections with ZIKV were reported in Nigeria in 1954.⁷ Only sporadic infections were seen until 2007, when a large outbreak occurred in Yap State, Federated States of Micronesia.⁸ There was another large outbreak in French Polynesia in 2013, concomitant with a Dengue fever epidemic,^{9,10} and the virus has subsequently spread throughout the South Pacific.¹¹⁻¹⁴ Autochthonous transmission of ZIKV in Brazil was reported early in 2015,^{15,16} and has since been reported in countries throughout Central America and the Caribbean. It seems likely that the Asian lineage of ZIKV was introduced into Brazil by travelers from one or more Pacific Island countries.¹⁷ The outbreak in the Americas has become the most widespread in history. An estimated 80% of human ZIKV infections are asymptomatic, and symptomatic disease is generally mild and characterized

by fever, maculopapular rash, arthralgia, and nonpurulent conjunctivitis. However, ZIKV infections were confirmed in infants with microcephaly,¹⁹ outbreaks in Brazil and elsewhere have been accompanied by a marked increase in the number of children born with microcephaly,¹⁹ and sufficient evidence has since accumulated to infer a causative relationship between prenatal ZIKV infection and microcephaly and other severe brain anomalies.²⁰ The full teratogenic potential of ZIKV, the absolute and relative risks among infants exposed to ZIKV *in utero*, and factors that may modify these risks remain to be determined.

Material Provided:

Each vial contains approximately 1 mL of cell lysate and supernatant from *Cercopithecus aethiops* kidney epithelial cells (Vero 76, clone E6; ATCC® CRL-1586™) infected with ZIKV, BeH819015, Recombinant infectious clone.

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

Packaging/Storage:

NR-51129 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 76, clone E6; ATCC® CRL-1586™)

Growth Medium: Eagle's Minimum Essential Medium containing Earle's Balanced Salt Solution, non-essential amino acids, 2 mM L-glutamine and 1 mM sodium pyruvate supplemented with 2% fetal bovine serum, or equivalent

Infection: Cells should be 60% to 80% confluent; thaw virus rapidly in a 37°C water bath; adsorb diluted virus to cells for one hour at 37°C.

Incubation: 5 to 8 days at 37°C and 5% CO₂

Cytopathic Effect: Cell rounding and detachment

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Zika Virus, BeH819015, Recombinant Infectious Clone, NR-51129."

Biosafety Level: 2

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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