**Zika Virus, PRVABC59_Bc, Barcoded**

**Catalog No. NR-51174**

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:** PRVABC59_Bc barcoded (also known as ZIKV-BC-1.0)\(^1\)-\(^3\)

**Comments:** NR-51174 was constructed by introducing a genetic barcode consisting of 8 consecutive degenerate codons into a region of non-structural protein 2a (NS2a; nucleotide position 4008-4031) of the Zika virus (ZIKV), strain PRVABC59.\(^1\)-\(^3\) Following bacteria-free cloning and rolling circle amplification (RCA), linearized and purified RCA products were used for production of “synthetic swarm” virus via transfection. This synthetic swarm consists of viruses that are genetically identical except for the degenerate nucleotides in NS2a region with ~64,000 theoretical combinations, all encoding for the same amino acid sequence.\(^1\)-\(^3\) Zika virus (ZIKV), PRVABC59 was isolated from the blood of a human in Puerto Rico in December 2015.\(^4\) The complete genomic sequence of ZIKV, PRVABC59 has been determined (GenBank: KU501215).\(^4\)

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, Eretrmapodites, and Mansonia mosquitoes.\(^5\) Phylogenetic analyses indicated that there are two major lineages of ZIKV, African and Asian.\(^6\) A third lineage circulating in West Africa was recently described.\(^7\)

The first human infections with ZIKV were reported in Nigeria in 1954.\(^8\) Only sporadic infections were seen until 2007, when a large outbreak occurred in Yap State, Federated States of Micronesia.\(^9\) There was another large outbreak in French Polynesia in 2013, concomitant with a Dengue fever epidemic,\(^10\),\(^11\) and the virus has subsequently spread throughout the South Pacific,\(^12\)-\(^15\) Autochthonous transmission of ZIKV in Brazil was reported early in 2015,\(^16\),\(^17\) and has since been reported in countries throughout Central America and the Caribbean.\(^13\) It seems likely that the Asian lineage of ZIKV was introduced into Brazil by travelers from one or more Pacific Island countries.\(^18\) 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,\(^20\) and sufficient evidence has since accumulated to infer a causative relationship between prenatal ZIKV infection and microcephaly and other severe brain anomalies.\(^21\) 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 human embryonic kidney cells (293T; ATCC® CRL-3216™) infected with ZIKV, PRVABC59_Bc, barcoded.

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

**Packaging/Storage:**
NR-51174 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 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% CO\(_2\)

**Cytotoxic Effect:** Cell rounding and detachment

**Citation:**
Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIH: Zika Virus, PRVABC59_Bc, Barcoded, NR-51174.”

**Biosafety Level:** 2

Product Information Sheet for NR-51174

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References:
19. CDC. “CDC Health Advisory: Recognizing, Managing, and Reporting Zika Virus Infections in Travelers Returning from Central America, South America, the Caribbean and Mexico.” Atlanta, Georgia: US Department of Health and Human Services, CDC. 2016. https://emergency.cdc.gov/han/han00385.asp.

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