

**Enterovirus Species D Type 68,  
USA/WI/2009-23230**

**Catalog No. NR-51995**

**For research use only. Not for use in humans.**

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

Virus Classification: *Picornaviridae, Enterovirus*

Species: Enterovirus D

Type: D68

Strain/Isolate: USA/WI/2009-23230

Original Source: Enterovirus species D type 68 (EV-D68), USA/WI/2009-23230 was isolated in 2009 from a respiratory sample from a human subject in Wisconsin, USA.<sup>1</sup> The subject was not suffering from acute flaccid myelitis (AFM).<sup>1</sup>

Comments: The complete genome of EV-D68, USA/WI/2009-23230 has been sequenced (GenBank: [MN240506](#)).

Enteroviruses are small non-enveloped viruses whose genome consists of a single strand of positive-sense RNA.<sup>2</sup> EV-D68 was first identified in California in 1962 from cases of bronchiolitis and pneumonia and was rarely reported in the United States. Clusters of severe respiratory disease were reported to the Centers for Disease Control and Prevention beginning in August 2014.<sup>2</sup> EV-D68 was identified from a high percentage of initial cases, and severe EV-D68 infections became widespread across the United States in August and September.<sup>2</sup> These outbreaks were associated temporally with an increase in polio-like neurological disorder known as acute flaccid myelitis (AFM), with symptoms like dysnesia and muscle weakness, occurring predominantly in children.<sup>3,4</sup> Information regarding causation between EV-D68 and AFM is still limited; however, rapidly accumulating clinical, immunological and epidemiological evidence points to EV-D68 as a major causative agent of AFM.<sup>3,4</sup>

**Material Provided:**

Each vial contains approximately 1 mL of cell lysate and supernatant from rhabdomyosarcoma cells infected with EV-D68, USA/WI/2009-23230.

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

**Packaging/Storage:**

NR-51995 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: Rhabdomyosarcoma cells (RD; ATCC® CCL-136™)

Growth Medium: Dulbecco's Modified Eagle's Medium modified to contain 4 mM L-glutamine, 4500 mg per L glucose, 1 mM sodium pyruvate and 1500 mg per L of sodium bicarbonate supplemented with 2% fetal bovine serum, or equivalent

Infection: Cells should be approximately 80 to 90% confluent

Incubation: 2 to 6 days at 33°C and 5% CO<sub>2</sub>

Cytopathic Effect: Cell rounding and sloughing

**Citation:**

Acknowledgment for publications should read "The following reagent was contributed by Division of Viral Diseases, Centers for Disease Control and Prevention for distribution through BEI Resources, NIAID, NIH: Enterovirus Species D Type 68, USA/WI/2009-23230, NR-51995."

**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. 6th ed. Washington, DC: U.S. Government Printing Office, 2020; see [www.cdc.gov/biosafety/publications/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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**References:**

1. Nix, W. A., Personal Communication.
2. Brown, B. A., et al. "Seven Strains of Enterovirus D68 Detected in the United States During the 2014 Severe Respiratory Disease Outbreak." Genome Announc. 2 (2014): e01201-14. PubMed: 25414503.
3. Hixon, A. M., et al. "Understanding Enterovirus D68-Induced Neurologic Disease: A Basic Science Review." Viruses 11 (2019): 821. PubMed: 31487952.
4. Sun, J., X. Y. Hu and X. F. Yu. "Current Understanding of Human Enterovirus D68." Viruses 11 (2019): 490. PubMed: 31146373.

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