

**Enterovirus Species D Type 68,  
US/KY/14-18953 (produced in serum-free  
A549 cells)**

**Catalog No. NR-52014**

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**For research use only. Not for human use.**

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

Virus Classification: *Picornaviridae, Enterovirus*

Species: Enterovirus D

Type: D68

Strain/Isolate: US/KY/14-18953

Original Source: Enterovirus species D type 68 (EV-D68), US/KY/14-18953 was isolated in August 2014 from a nasopharyngeal swab taken from a human in Kentucky, USA.<sup>1,2</sup>

Comments: NR-52014 is a preparation of cell lysate and supernatant from serum-free-adapted human lung carcinoma cells (A549; BEI Resources NR-52268) infected with EV-D68, US/KY/14-18953 under serum-free conditions. The complete genome of EV-D68, US/KY/14-18953 has been sequenced (GenBank: [KM851231](https://www.ncbi.nlm.nih.gov/nuccore/KM851231)).

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 dysneuria 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 0.5 mL of cell lysate and supernatant from serum-free-adapted A549 cells infected with EV-D68, US/KY/14-18953.

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

**Packaging/Storage:**

NR-52014 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: Human lung carcinoma cells adapted to serum-free media (A549; BEI Resources NR-52268)

Growth Medium: PC-1™ Serum-Free Media (Lonza™ 344018) supplemented with 2% PC-1™ Supplement A (Lonza™ 344022) and 4 mM L-glutamine (ATCC® 30-2214™)

Infection: Cells should be 80% to 95% 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 obtained through BEI Resources, NIAID, NIH: Enterovirus Species D Type 68, US/KY/14-18953 (produced in serum-free A549 cells), NR-52014.”

**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/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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**References:**

1. Oberste, M. S., 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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