

Porcine Respiratory Coronavirus, ISU-1

Catalog No. NR-43286

Derived from BEI Resources NR-448

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

Virus Classification: *Coronaviridae*, *Orthocoronavirinae*, *Alphacoronavirus*

Species: Porcine Respiratory Coronavirus (PRCV)

Strain/Isolate: ISU-1

Original Source: PRCV, ISU-1 was isolated by Howard Hill in Indiana in 1990 from a nasal swab of a pig with mild or subclinical respiratory infection. It was passaged eight times in swine testicular (ST) cells and plaque purified twice.¹ At least seven additional passages and a third round of plaque purification were performed prior to deposit at BEI Resources.²

Comments: PRCV was first isolated from pigs in Belgium that were seropositive for porcine transmissible gastroenteritis virus (TGEV) despite lacking any history of clinical TGE, and was subsequently also isolated from pig herds in the United States.^{1,3,4,5} PRCV is not an officially recognized *alphacoronavirus* species. It is actually a naturally occurring deletion mutant of TGEV (now known as alphacoronavirus 1), with altered respiratory tropism and reduced virulence.^{6,7} The complete genome of the ISU-1 strain has been sequenced (GenBank: [DQ811787](https://www.ncbi.nlm.nih.gov/nuccore/DQ811787)).

NR-43286 was derived from BEI Resources NR-448 by removal of contaminating gram-negative bacteria and mycoplasma. This process required six additional passages in ST cells (ATCC[®] CRL-1746[™]). NR-448 is no longer available.

Material Provided:

Each vial contains approximately 1 mL of clarified cell lysate and supernatant from *Sus scrofa* testicular fibroblasts infected with porcine respiratory coronavirus, ISU-1.

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

Packaging/Storage:

NR-43286 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: *Sus scrofa* testicular fibroblasts (ST cells; ATCC[®] CRL-1746[™])

Growth Medium: Eagle's Minimum Essential Medium (ATCC[®] 30-2003[™]) supplemented with non-essential amino acids (NEAA; Gibco 11140-050), or equivalents

Infection: Cells should be 85% to 100% confluent

Incubation: 2 to 7 days at 37°C and 5% CO₂

Cytopathic Effect: Cell rounding and sloughing

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Porcine Respiratory Coronavirus, ISU-1, NR-43286."

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.

Disclaimers:

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References:

1. Hill, H., et al. "Porcine Respiratory Coronavirus Isolated from Two U.S. Swine Herds." Proc. 21st Ann. Meet. Am. Assoc. Swine Pract. Ed. T.A. Neuzil. American Association of Swine Practitioners, Des Moines, Iowa, 1990. 333-335.
2. Saif, L. J., Personal Communication.
3. Pensaert, M., P. Callebaut and J. Vergote. "Isolation of a Porcine Respiratory, Non-Enteric Coronavirus Related to Transmissible Gastroenteritis." Vet. Q. 8 (1986): 257-261. PubMed: 3018993.
4. Wesley, R. D., et al. "Evidence for a Porcine Respiratory Coronavirus, Antigenically Similar to Transmissible Gastroenteritis Virus, in the United States." J. Vet. Diagn. Invest. 2 (1990): 312-317. PubMed: 1965638.
5. Vaughan, E. M., P. G. Halbur and P. S. Paul. "Three New Isolates of Porcine Respiratory Coronavirus with Various Pathogenicities and Spike (S) Gene Deletions." J. Clin. Microbiol. 32 (1994): 1809-1812. PubMed: 7929779.
6. ICTV Taxonomy History for Alphacoronavirus 1
7. Zhang, X., et al. "Complete Genomic Sequences, a Key Residue in the Spike Protein and Deletions in Nonstructural Protein 3b of US Strains of the Virulent and Attenuated Coronaviruses, Transmissible Gastroenteritis Virus and Porcine Respiratory Coronavirus." Virology 358 (2007): 424-435. PubMed: 17023013.

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