Strain: NADL
Classification: Flaviviridae, Pestivirus
Common Name: Bovine viral diarrhea virus 1
Original Source: Spleen of a naturally occurring fatal case of BVD in the closed herd at National Animal Disease Laboratory, Iowa, 1962
Depositor: AL Fernelius

Refer to the Certificate of Analysis for batch-specific test results.

Propagation

Propagation Host:
primary bovine embryonic kidney cells; BT cells (ATCC CRL-1390)

Effect on Host:
Yes, in vitro effects: Cytopathic effects (Rapid and marked), destroying entire cell layer in 4 to 6 days CPE, rounding and sloughing

Medium:
Virus growth medium: DMEM (ATCC 30-2002) + 10% Horse serum (ATCC 30-2040)

Growth Conditions
Duration: 2-6 days

BVD viruses cross-fluoresce and have a common soluble antigen with hog cholera viruses. The buoyant density of BVD viruses is 1.15 g/mL and the size of the virion is thought to be 80-100 millimicrons. This preparation may be readily adapted to growth in PK-15 cells (ATCC CCL-33) (Malmquist, W.A. et al., American Journal of Veterinary Research 26: 1316, 1965). ATCC VR-1422 is a variant of this strain that is amenable to being grown at higher titers. VR-534 is a recognized reference strain by the Western Hemisphere Committee on Non-primate Animal Virus Characterization (WHO).

References and other information relating to this product are available online at www.atcc.org.

Key Abbreviations
BEK, bovine embryonic kidney cells
BT, bovine turbinate cells
CO₂ (CO2), carbon dioxide
CPE, cytopathic effect
DMEM, Dulbecco's Modified Eagle's Medium
HS, horse serum
PK-15, porcine kidney cells, clone 15
Pr, primary
TCID₅₀ (TCID[50]), The Tissue Culture Infectious Dose
50% endpoint is the 50% infectious endpoint in cell culture. The TCID₅₀ is the dilution of virus that under the conditions of the assay can be expected to infect 50% of the culture vessels inoculated, just as a Lethal Dose 50% (LD₅₀) is expected to kill half of the animals exposed. A reciprocal of the dilution required to yield the TCID₅₀ provides a measure of the titer (or infectivity) of a virus preparation.

USDA, United States Department of Agriculture
Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the current publication of the *Biosafety in Microbiological and Biomedical Laboratories* from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes for Health.

**ATCC Warranty**

The viability of ATCC® products is warranted for 30 days from the date of shipment, and is valid only if the product is stored and cultured according to the information included on this product information sheet. ATCC lists the media formulation that has been found to be effective for this strain. While other, unspecified media may also produce satisfactory results, a change in media or the absence of an additive from the ATCC recommended media may affect recovery, growth and/or function of this strain. If an alternative medium formulation is used, the ATCC warranty for viability is no longer valid.

**Disclaimers**

This product is intended for laboratory research purposes only. It is not intended for use in humans. While ATCC uses reasonable efforts to include accurate and up-to-date information on this product sheet, ATCC makes no warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. ATCC does not warrant that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, and use. ATCC is not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of strains on deposit, ATCC is not liable for damages arising from the misidentification or misrepresentation of cultures.

Please see the enclosed Material Transfer Agreement (MTA) for further details regarding the use of this product. The MTA is also available on our Web site at [www.atcc.org](http://www.atcc.org).

Additional information on this culture is available on the ATCC web site at [www.atcc.org](http://www.atcc.org).

© ATCC 2018. All rights reserved. ATCC is a registered trademark of the American Type Culture Collection. [08/17]