Francisella tularensis subsp. *holarctica*, CDC Live Vaccine Strain

Catalog No. NR-646

This reagent is the tangible property of the U.S. Government.

For research use only. Not for use in humans.

Contributor:

Martin E. Schriefer, Ph.D., Chief, Diagnostic and Reference Laboratory, Bacterial Zoonoses Branch, Division of Vector-Borne Infectious Diseases, National Center for Infectious Disease, Centers for Disease Control and Prevention, Fort Collins, Colorado, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Francisellaceae, Francisella*
Species: *Francisella tularensis* subsp. *holarctica*
Subspecies: CDC Live Vaccine Strain (LVS)
Strain: *holarctica* (Type B)
Original Source: A single colony isolate of *Francisella tularensis (F. tularensis)* subsp. *holarctica*, CDC LVS was deposited to BEI Resources from the CDC Reference Collection as a Live Vaccine Strain. The CDC LVS is reported to be derived from a Russian water rat isolate obtained in the 1950s.[1]
Comments: There is no documentation to indicate that this strain is the Live Vaccine Strain that was produced by the National Drug Company.

Francisella tularensis (F. tularensis) is one of the most infectious bacterial pathogens known and is the causative agent of the febrile zoonotic disease tularemia. The environmental reservoir of the bacterium is unknown, although most human cases result from the bite of a blood-feeding arthropod vector.

F. tularensis subsp. *holarctica* is a small, non-motile, aerobic, pleomorphic, gram-negative coccobacillus which displays a moderate degree of human virulence. Very little is known about the virulence mechanisms of *F. tularensis*, but growth in macrophages is central to the bacterium's ability to cause disease.[2]

NR-646 has been confirmed as subsp. *holarctica* (Type B) by PCR amplification of a subspecies-specific sequence of approximately 1250 base pairs from extracted DNA.[3]

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Tryptic Soy broth supplemented with 10% glycerol.

Packaging/Storage:

NR-646 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.

Growth Conditions:

Media:
Brain Heart Infusion broth or Tryptic Soy broth
Cysteine Heart agar with 5% defibrinated rabbit blood
Incubation:
Temperature: 37°C
Atmosphere: Aerobic with 5% CO_2
Propagation:

1. Keep the vial frozen until ready for use; thaw slowly.
2. Transfer the entire thawed aliquot into a single tube of broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate the tube, slant, and/or plate at 37°C for 1 to 2 days.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Francisella tularensis* subsp. *holarctica*, CDC Live Vaccine Strain, NR-646."

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/bmbl5/index.htm.

This publication indicates that vaccination for *Francisella tularensis* is available and should be considered for personnel working with infectious materials.

Disclaimers:

You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants 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, use, and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure the authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers, and contributors to BEI Resources are

not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products, or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before the first commercial sale.

References:

1. Schriefer, M. E., Personal Communication.
2. Oyston, P. C. F. and J. E. Quarry. "Tularemia Vaccine: Past, Present and Future." Antonie van Leeuwenhoek 87 (2005): 277-281. PubMed: 15928980.
3. Petersen, J. M., et al. "Laboratory Analysis of Tularemia in Wild-Trapped, Commercially Traded Prairie Dogs, Texas, 2002." Emerg. Infect. Dis. 10 (2004): 419-425. PubMed: 15109407.
4. Eigelsbach, H. T. and C. M. Downs. "Prophylactic Effectiveness of Live and Killed Tularemia Vaccines. I. Production of Vaccine and Evaluation in the White Mouse and Guinea Pig." J. Immunol. 87 (1961): 415-425. PubMed: 13889609.
5. Tigertt, W. D. "Soviet Viable Pasteurella tularensis Vaccines. A Review of Selected Articles." Bacteriol. Rev. 26 (1962): 354-373. PubMed: 13985026.

ATCC® is a trademark of the American Type Culture Collection.

Support Provided by NIAID

BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898