

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

Catalog No. NR-646

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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*

Organism: *Francisella tularensis* subsp. *holarctica*

Subspecies: *holarctica* (Type B)

Strain: CDC Live Vaccine Strain (LVS)

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 0.5X 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. Note: The storage temperature indicated on the vial for Lot 4249830 is incorrect.** For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

Growth Conditions:

Media:

Brain Heart Infusion broth or Tryptic Soy broth
Cystine Heart agar with 5% defibrinated rabbit blood

Incubation:

Temperature: 37°C

Atmosphere: Aerobic with 5% CO₂

Propagation:

1. Keep 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 24 to 48 hours.

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. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmb15/index.htm.

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

Disclaimers:

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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.

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