Francisella tularensis subsp. *holarctica*, Strain 15 (Gaisky Live Vaccine Strain)

Catalog No. NR-14

(Derived from ATCC® 29684™)

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Contributor:

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Product Description:

Bacteria Classification: *Francisellaceae, Francisella*
Organism: *Francisella tularensis* subsp. *holarctica*
Biotype/Biovar: Type B
Strain: 15 (Gaisky Live Vaccine Strain)
Original Source: *Francisella tularensis* (*F. tularensis*) subsp. *holarctica,* strain 15 was isolated from a water vole (*Arvicola terrestris*) by Gaisky in Russia (1936), where it was used as a live vaccine. Strain 15 was transferred from the Institute of Epidemiology and Microbiology (Gamaleia Institute) to the U. S. Army Medical Research Institute for Infectious Diseases (USAMRIID) in 1956.[1-3]
Comments: *F. tularensis* subsp. *holarctica*, strain 15 was deposited to the ATCC® in 1977 by J. Frederick Bell of the U.S. Public Health Service, National Institute of Allergy and Infectious Diseases, Rocky Mountain Laboratory in Montana. At the time of deposition this strain was known to produce two colony types (grey/black and blue variants) on blood agar plates and was considered a very attenuated strain of *F. tularensis* subsp. *holarctica. F. tularensis* subsp. *holarctica*, Live Vaccine Strain (LVS) was produced from five passages of the blue colony variant in mice[4] and is available as BEI Resources NR-646.

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.[5]

NR-14 has been confirmed as subsp. *holarctica* (Type B) by PCR amplification of a subspecies-specific sequence of approximately 1250 bps from extracted DNA.[6]

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-14 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:

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% CO_2
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 tubes and plate at 37°C for 24 to 48 hours.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Francisella tularensis* subsp. *holarctica*, Strain 15 (Gaisky Live Vaccine Strain), NR-14."

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, 2007; see www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm.
This publication indicates that vaccination for *Francisella tularensis* is available and should be considered for personnel working with infectious materials.

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References:

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2. Oyston, P. C. F. and J. E. Quarry. "Tularemia Vaccine: Past, Present and Future." Antonie van Leeuwenhock 87 (2005): 277-281. PubMed: 15928980.
3. Tigertt, W. D. "Soviet Viable *Pasteurella tularensis* Vaccines. A Review of Selected Articles." Bacteriol. Rev. 26 (1962): 354-373. PubMed: 13985026.
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. Larsson, P., et al. "The Complete Genome Sequence of *Francisella tularensis*, the Causative Agent of Tularemia." Nature Genet. 37 (2005): 153-159. PubMed: 15640799.
6. 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.

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