

***Francisella tularensis* subsp. *novicida*,
Strain Δ IgIC**

Catalog No. NR-9711

For research use only. Not for human use.

Contributor:

Francis E. Nano, Ph.D., Department of Biochemistry and Microbiology, University of Victoria, Victoria, British Columbia, Canada

Product Description:

Bacteria Classification: *Francisellaceae*, *Francisella*

Species: *Francisella tularensis* subsp. *novicida*

Strain: Δ IgIC (Note: The strain designation, Ig1C-1, on the vial for lot 58627619 is incorrect.)

Original Source: *Francisella tularensis* (*F. tularensis*) subsp. *novicida*, strain Δ IgIC is a transposon mutant of the wild-type strain U112, in which the *igIC* gene region has been replaced with a mini-Tn5 insert, rendering it resistant to kanamycin.¹

Francisella tularensis subsp. *novicida*, strain Δ IgIC is excluded from Select Agent status. Please see <http://www.cdc.gov/od/sap/sap/exclusiozn.htm#background>.

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.²

F. tularensis subsp. *novicida* is a Gram-negative, facultative bacterium, which grows predominantly in macrophages when living in mammalian hosts.³ It is commonly used for studying *F. tularensis* pathogenesis since it is highly virulent in mice but has minor effects on humans.²

The subspecies designation of NR-9711 has been confirmed by PCR amplification of an approximately 3300 base pair subspecies specific sequence (RD-1; Region of Difference-1)⁴ from extracted DNA.

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X Brain Heart Infusion Broth supplemented with 10% glycerol.

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

Packaging/Storage:

NR-9711 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:

Brain Heart Infusion or Tryptic Soy Broth with 0.1% cysteine
Tryptic Soy Agar with 0.1% cysteine, Cystine Heart Agar with 5% defibrinated rabbit blood or Chocolate Agar (GC Agar)

Incubation:

Temperature: 37°C

Atmosphere: Aerobic

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. *novicida*, Strain Δ IgIC, NR-9711."

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/bmb15/bmb15toc.htm.

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 make 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 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 first commercial sale.

References:

1. Larson, C. L., W. Wicht, and W. L. Jellison. "A New Organism Resembling *P. tularensis* Isolated from Water." Public Health Rep. 70 (1955): 253-258. PubMed: 14357545.
2. de Bruin, O. M., J. S. Ludu, and F. E. Nano. "The *Francisella* Pathogenicity Island Protein IglA Localizes to the Bacterial Cytoplasm and Is Needed for Intracellular Growth." BMC Microbiol. 7 (2007): 1-10. PubMed: 17233889.
3. McLendon, M. K., M. A. Apicella, and L.-A. H. Allen. "*Francisella tularensis*: Taxonomy, Genetics, and Immunopathogenesis of a Potential Agent of Biowarfare." Annu. Rev. Microbiol. 60 (2006): 167-185. PubMed: 16704343.
4. Broekhuijsen, M., et al. "Genome-Wide DNA Microarray Analysis of *Francisella tularensis* Strains Demonstrates Extensive Genetic Conservation within the Species but Identifies Regions that are Unique to the Highly Virulent *F. tularensis* subsp. *tularensis*." J. Clin. Microbiol. 41 (2003): 2924-2931. PubMed: 12843022.
5. Nano, F. E. et al. "A *Francisella tularensis* Pathogenicity Island Required for Intramacrophage Growth." J. Bacteriol. 186 (2004): 6430-6436. PubMed: 15375123.

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

