

### ***Francisella tularensis* subsp. *novicida*, Strain NZ304-2**

#### **Catalog No. NR-584**

#### **For research use only. Not for human use.**

#### **Contributor:**

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#### **Product Description:**

Bacteria Classification: *Francisellaceae*, *Francisella*

Species: *Francisella tularensis* subsp. *novicida*

Strain: NZ304-2

Comments: *Francisella tularensis* subsp. *novicida*, strain NZ304-2 is a transposon mutant of the wild-type strain U112, in which the *pdpA* gene region has been replaced with a TnMax2 transposon.<sup>1</sup> This *pdpA* mutant is avirulent in mice and unable to grow in macrophages.<sup>1</sup>

*Francisella tularensis* subsp. *novicida*, strain NZ304-2 is excluded from Select Agent status. Please see <http://www.cdc.gov/od/sap/sap/exclusion.htm#background>.

*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 natural reservoir of the bacterium is thought to be rodents, although most human cases result from the bite of a blood-feeding arthropod vector.<sup>2</sup>

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

#### **Material Provided:**

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

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

#### **Packaging/Storage:**

NR-584 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:

Tryptic Soy Agar or Broth with 0.1% cysteine

Cystine Heart Agar with 5% defibrinated rabbit blood

##### Incubation:

Temperature: 37°C

Atmosphere: Aerobic with 5% CO<sub>2</sub>

##### 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 NZ304-2, NR-584."

##### **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](http://www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm).

##### **Disclaimers:**

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### References:

1. Nano, F. E., et al. "A *Francisella tularensis* Pathogenicity Island Required for Intramacrophage Growth." J. Bacteriol. 186 (2004): 6430-6436. PubMed: 15375123.
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. Allen. "*Francisella tularensis*: Taxonomy, Genetics, and Immunopathogenesis of a Potential Agent of Biowarfare." Annu. Rev. Microbiol. 60 (2006): 167-185. PubMed: 16704343.

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