**Product Information Sheet for NR-56771**

**Francisella tularensis subsp. tularensis**, Strain SCHU S4 ΔclpB/ΔwbtC

**Catalog No. NR-56771**

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**For research use only. Not for use in humans.**

**Contributor:**
National Institutes of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH)

**Manufacturer:**
BEI Resources

**Product Description:**

**Bacteria Classification:** Franciscellaceae, Francisella  
**Species:** Francisella tularensis subsp. tularensis  
**Biotype/Biovar:** Type A  
**Strain:** SCHU S4 ΔclpB/ΔwbtC

**Original Source:** Francisella tularensis (F. tularensis) subsp. tularensis, strain SCHU S4 ΔclpB/ΔwbtC is a double-deletion mutant of genes clpB, encoding a heat shock gene, and wbtC, encoding a UDP-glucose 4-epimerase, from F. tularensis subsp. tularensis, strain SCHU S4. Strain SCHU S4 is a clone of highly virulent strain SCHU, which was isolated in 1941 from a human case of tularemia in Ohio, USA.

**Comments:** Francisella tularensis subsp. tularensis, strain SCHU S4 ΔclpB/ΔwbtC was generated using a suicide plasmid-based allelic exchange method targeting the clpB and wbtC genes. Verification of the ΔclpB mutation by whole genome sequencing (WGS) analysis and demonstration of significant attenuation in culture confirms that NR-56770 conforms to the criteria listed for exclusion of Francisella tularensis subsp. tularensis, strain SCHU S4 ΔclpB from the requirements of 42 CFR part 73, i.e., the Select Agent guidelines, and is suitable for use in BSL2 laboratories. The complete genome of F. tularensis subsp. tularensis, strain SCHU S4 has been sequenced (GenBank: AJ749949.2).

**F. tularensis subsp. tularensis** is a small, non-motile, aerobic, pleomorphic, Gram-negative coccobacillus which displays the highest degree of human virulence among F. tularensis subspecies. The pathogenicity of Francisella is attributed to the Francisella Pathogenicity Island (FPI), a gene cluster encoding a type VI secretion system (T6SS) consisting of 17 proteins involved in the modulation of host-bacterial or bacterial-bacterial interactions. Deletion of clpB, located in the FPI gene cluster, has demonstrated compromised intracellular replication, attenuated virulence and impaired handling of stress stimuli in mutant strains compared to wild-type strains. wbtC possesses putative nicotinamide adenine dinucleotide (NAD)-binding domains important for dehydratase activities of F. tularensis, strain SCHU S4. Deletion of wbtC in strain SCHU S4 resulted in a highly attenuated mutant producing a long chain O-polysaccharide with altered chemical and electrophoretic characteristics.

**Material Provided:**

Each vial contains approximately 0.5 mL of bacterial culture in Mueller-Hinton broth supplemented with 10% glycerol.

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

**Packaging/Storage:**

NR-56771 was packaged aseptically in 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:**

Mueller Hinton broth or Cystine Heart broth with 5% defibrinated rabbit blood or equivalent

Chocolate agar with IsoVitaleX™ Enrichment (BD BBL™ B11875) or Cystine Heart agar with 5% defibrinated rabbit blood or equivalent

**Incubation:**

Temperature: 37°C

Atmosphere: Aerobic

**Propagation:**

1. Keep vial frozen until ready for use, then thaw.
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 3 days.

**Citation:**

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: Francisella tularensis subsp. tularensis, Strain SCHU S4 ΔclpB/ΔwbtC, NR-56771.”

**Biosafety Level:** 2


**Disclaimers:**

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References:

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