

Yersinia pestis*, Strain A1122*Catalog No. NR-636**

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Centers for Disease Control and Prevention, Division of Vector-Borne Infectious Diseases, Fort Collins, Colorado

Product Description:

Bacteria Classification: *Enterobacteriaceae*, *Yersinia*

Agent: *Yersinia pestis*

Biotype/Biovar: Orientalis

Strain: A1122

Original Source:¹ Isolated from a California ground squirrel (*Spermophilus beecheyi*) in California, U.S.A., 1939

Yersinia pestis (*Y. pestis*) is the etiologic agent of bubonic, septicemic and pneumonic plague. Three biovars have been associated with the three historically recognized pandemics of *Y. pestis*. Rodents are the main reservoir, but humans and other animals can also serve as hosts.

Y. pestis is an aerobic, non-spore-forming, gram-negative, rod-shaped bacterium. Virulence-associated genes are located on the chromosome and on three plasmids found in typical virulent *Y. pestis* strains: 1) pMT1 (pFra; ~ 110kb), which encodes a murine toxin and capsular protein with anti-phagocytic activities, 2) pCD1 (pYV; ~ 70 kb), which encodes a type III secretion system and is essential for virulence and 3) pPCP1 (pPla; ~ 9.5 kb monomer or ~ 19 kb dimer), which encodes a protease that facilitates the initial dissemination of the bacteria to the lymph nodes.² Virulence factors on the chromosome are located in an unstable locus, *pgm*.³

Y. pestis A1122 contains the 110 kb and the 19 kb plasmids, but lacks the 70 kb plasmid that is essential for virulence as well as the unstable *pgm* locus.⁴⁻⁶

The presence of the 110 kb and 19 kb plasmids in NR-636 has been confirmed by PCR amplification of plasmid-specific sequences from extracted DNA.

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in 0.5X Tryptic Soy Broth supplemented with 10% glycerol. Information on the passage history of NR-636 is described on the Certificate of Analysis for each lot.

Packaging/Storage:

NR-636 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 4431717 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

Tryptic Soy Agar or Sheep Blood Agar

Incubation:

Temperature:⁷ 28°C or 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 tubes and plate at 28°C or 37°C for 24–48 hours.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Yersinia pestis*, Strain A1122, NR-636."

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. 4th ed. Washington, DC: U.S. Government Printing Office, 1999. HHS Publication No. (CDC) 93-8395. This text is available online at www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm.

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References:

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