Product Information Sheet for NR-642

Yersinia pestis, Strain KIM10+

Catalog No. NR-642

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Contributor:

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: Medievalis
Strain: KIM10+
Original Source: Derived from the KIM strain[1] of *Yersinia pestis*

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 *Y. pestis* strains, including the highly virulent KIM strain.

Y. pestis KIM10+ is an irreversibly attenuated strain that was derived from the KIM strain.[1] KIM10+ lacks the pCD1 plasmid that is essential for virulence as well as the pPCP1 plasmid. It contains the pMT1 plasmid and the chromosomal virulence-associated locus *pgm*.[1]

The complete sequence of the chromosome (4,600,755 bp; GenBank: NC_004088) and pMT1 (100,990 bp; GenBank: NC_004838) from *Y. pestis* strain KIM10+ have been determined.[2,3]

The presence of pMT1 in NR-642 has been confirmed by gel electrophoresis of 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-642 is described on the Certificate of Analysis for each lot.

Packaging/Storage:

NR-642 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 4464642 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:[4] 28°C or 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 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 KIM10+, NR-642."

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:

1. Deng, W., et al. "Genome Sequence of *Yersinia pestis* KIM." J. Bacteriol. 184 (2002): 4601–4611. PubMed: 12142430. GenBank: NC_004088.
2. Lindler, L. E., et al. "Complete DNA Sequence and Detailed Analysis of the *Yersinia pestis* KIM5 Plasmid Encoding Murine Toxin and Capsular Antigen." Infect. Immun. 66 (1998): 5731–5742. PubMed: 9826348. GenBank: NC_004838.
3. Hare, J. M. and K. A. McDonough. "High-Frequency RecA-Dependent and -Independent Mechanisms of Congo Red Binding Mutations in *Yersinia pestis*." J. Bacteriol. 181 (1999): 4896–4904. PubMed: 10438760.
4. Chu, M. C., Laboratory Manual of Plague Diagnostic Tests. Centers for Disease Control and Prevention, Atlanta, 2000.

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