

# Product Information Sheet for NR-639

## *Yersinia pestis*, Strain Harbin 35

Catalog No. NR-639

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

### Contributor:

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

### Manufacturer:

BEI Resources

### Product Description:

**Bacteria Classification:** *Enterobacteriaceae*, *Yersinia*

**Species:** *Yersinia pestis*

**Biovar:** Medievalis

**Strain:** Harbin 35

**Original Source:**<sup>1</sup> *Yersinia pestis* (*Y. pestis*), strain Harbin 35 is a human isolate obtained from Manchuria (northeast Asia) in 1940.

**Comments:** *Y. pestis*, strain Harbin 35 contains all three virulence plasmids, but lacks the *pgm* locus<sup>2</sup> and is avirulent in mice.

*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.<sup>3</sup>

*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.<sup>3</sup> Virulence factors on the chromosome are located in an unstable locus, *pgm*.<sup>4</sup>

The presence of the three plasmids and the absence of the *pgm* locus in NR-639 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 Tryptic Soy broth supplemented with 10% glycerol. Information on the passage history of NR-639 is described on the Certificate of Analysis for each lot.

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

### Packaging/Storage:

NR-639 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. **Note:** The storage temperature indicated on the vial for Lot 4464629 is incorrect.

### Growth Conditions:

#### Media:

Tryptic Soy broth or equivalent

Tryptic Soy agar or equivalent

#### Incubation:

Temperature<sup>5</sup>: 28°C or 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 tube, slant and/or plate at 28°C or 37°C for 24 to 48 hours.

### Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Yersinia pestis*, Strain Harbin 35, NR-639."

### 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, 2009; see [www.cdc.gov/biosafety/publications/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

### Disclaimers:

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#### References:

1. Radnedge, L., P. G. Agron, P. L. Worsham, and G. L. Andersen. "Genome Plasticity in *Yersinia pestis*." Microbiology 148 (2002): 1687–1698. PubMed: 12055289.
2. Hinchcliffe, S. J., et al. "Application of DNA Microarrays to Study the Evolutionary Genomics of *Yersinia pestis* and *Yersinia pseudotuberculosis*." Genome Res. 13 (2003): 2018–2029. PubMed: 12952873.
3. Parkhill, J., et al. "Genome Sequence of *Yersinia pestis*, the Causative Agent of Plague." Nature 413 (2001): 523–527. PubMed: 11586360.
4. 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.
5. Chu, M. C. Laboratory Manual of Plague Diagnostic Tests Centers for Disease Control and Prevention, Atlanta, Georgia, USA, 2000.

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