

Yersinia pestis, Strain A12 Derivative 6 (D6)

Catalog No. NR-4689

Product Description: *Yersinia pestis* (*Y. pestis*) is an aerobic, non-spore-forming, Gram-negative rod-shaped bacterium. *Y. pestis*, strain A12(D6) is an avirulent derivative that lacks two of the three plasmids found in typical *Y. pestis* strains, the pCD1 plasmid that is essential for virulence and the pPCP1 plasmid, as well as the chromosomal virulence-associated locus *pgm*. Strain A12(D6) contains the pMT1 plasmid.

Lot¹: 58098884

Manufacturing Date: 07MAR2008

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis Cellular morphology Colony morphology ² Congo red (CR) agar ³ Biochemical Analyses Analytical profile index (API 20 E®) Nitrate reduction ⁴ Fermentation of glycerol Urease	Gram-negative rod Report results No red colonies Consistent with <i>Y. pestis</i> Positive Negative Negative	Gram-negative rod Circular, convex, entire, opaque (Figure 1) No red colonies Consistent with <i>Y. pestis</i> Negative Negative Negative
Genotypic Analysis Sequencing of 16S ribosomal RNA gene (~ 1430 bp)	Consistent with <i>Y. pestis</i>	Consistent with <i>Y. pestis</i> ⁵
PCR Assay of Extracted DNA 16S ribosomal RNA gene Presence of virulence-associated plasmids pMT1 (pFra; 110 kb plasmid) pCD1 (pYV; 70 kb plasmid) pPCP1 (pPla; 9.5 kb plasmid)	~ 1500 bp amplicon ~ 1200 bp amplicon None detected None detected	~ 1500 bp amplicon ~ 1200 bp amplicon None detected None detected
Viability (post-freeze)²	Growth on agar	Growth on agar

¹*Y. pestis*, strain A12(D6) was deposited by Professor Robert R. Brubaker of the Department of Microbiology and Molecular Genetics at Michigan State University, East Lansing, Michigan. NR-4689 was prepared by broth (Tryptic Soy Broth; BD 211768) culture of the deposited material.

²48 hours at 28°C and aerobic atmosphere on Tryptic Soy Agar.

³7 days at 28°C and aerobic atmosphere on CR agar.

⁴NR-4689 was deposited as biovar Orientalis which is published as positive for nitrate reduction and negative for glycerol fermentation (Zhou, D., et al. "Genetics of Metabolic Variations Between *Yersinia pestis* Biovars and the Proposal of a New Biovar, *Microtus*." *J. Bacteriol.* 186 (2004): 5147-5152. PubMed: 15262951). Our nitrate reduction assay was performed twice and the results were negative on both occasions. There are currently no biovars associated with negative nitrate reduction and negative glycerol fermentation.

⁵Also consistent with other *Yersinia* species.

Figure 1



Date: 31 JUL 2008

Signature: Signature on File

Title: Technical Manager, BEI Authentication or designee

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