Certificate of Analysis for NR-4684

Yersinia pestis, Strain KIM Derivative 22 (D22)

Catalog No. NR-4684

Product Description: *Yersinia pestis* (*Y. pestis*) is an aerobic, non-spore-forming, Gram-negative rod-shaped bacterium. *Y. pestis*, strain KIM(D22) is an avirulent derivative that contains the pMT1 plasmid as well as the unstable chromosomal *pgm* locus, but lacks the pCD1 and pPCP1 plasmids that are essential for virulence.

Lot[1]: 58268394 **Manufacturing Date: 23JUL2008**

TEST	SPECIFICATIONS	RESULTS
Phenotypic Analysis		
Cellular morphology	Gram-negative rods	Gram-negative rods
Colony morphology[2]	Report results	Circular, convex, entire and opaque (Figure 1)
Congo red (CR) agar[3,4]	Red colonies (Crb^+)	Red colonies (Crb^+)
Biochemical Analyses		
Analytical profile index (API 20 E®)	Consistent with *Y. pestis*	Consistent with *Y. pestis*
Nitrate reduction	Negative	Negative
Fermentation of glycerol	Positive	Positive
Urease	Negative	Negative
Genotypic Analysis		
Sequencing of 16S ribosomal RNA gene (~ 1460 bp)	Consistent with *Y. pestis* Identical to GenBank: AE009952	Consistent with *Y. pestis*[5] Identical to GenBank: AE009952
PCR Assay of Extracted DNA		
Y. pestis specific sequence (YPO0396)[6]	~ 800 bp amplicon	~ 800 bp amplicon
16S ribosomal RNA gene	~ 1500 bp amplicon	~ 1500 bp amplicon
Presence of virulence-associated plasmids		
pMT1 (pFra; 100 kb plasmid)	~ 1200 bp amplicon	~ 1200 bp amplicon
pCD1 (pYV; 70 kb plasmid)	None detected	None detected
pPCP1 (pPla; 9.5 kb plasmid)	None detected	None detected
Viability (post-freeze)[2]	Growth on agar	Growth on agar

[1] *Y. pestis*, strain KIM(D22) was deposited by Professor Robert R. Brubaker of the Department of Microbiology and Molecular Genetics at Michigan State University, East Lansing, Michigan. NR-4684 was prepared by broth (Tryptic Soy Broth; BD 211768) culture of the deposited material for 48 hours at 28°C and aerobic atmosphere.

[2] 48 hours at 28°C and aerobic atmosphere on Tryptic Soy Agar (BD 236950)

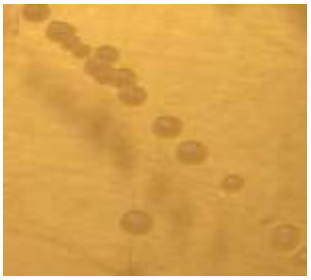
[3] 7 days at 28°C and aerobic atmosphere on CR agar

[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] Also consistent with other *Yersinia* species

[6] Sequence locus tag YPO0396 codes for an uncharacterized protein that is highly conserved in *Y. pestis*

Figure 1



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Certificate of Analysis for NR-4684

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