Product Information Sheet for NR-4718

Genomic DNA from *Yersinia pestis*, Strain Kimberley Derivative 12 (D12)

Catalog No. NR-4718

For research use only. Not for human use.

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Product Description:
Genomic DNA was isolated from a preparation of *Yersinia pestis* (*Y. pestis*), strain Kimberley derivative 12 (D12).

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: 1) pMT1 (pFra; ~ 100 kb), 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), which encodes a protease that facilitates the initial dissemination of the bacteria to the lymph nodes.[1] Virulence factors on the chromosome are located in an unstable locus, pgm.[2]

Y. pestis, strain Kimberley(D12) is an avirulent derivative of the Kimberley strain, which originated in Japan.[3] *Y. pestis*, strain Kimberley(D12) contains the pMT1 and pPCP1 plasmids as well as the unstable chromosomal *pgm* locus, but lacks the pCD1 plasmid that is essential for virulence.[4]

The presence of the pMT1 and pPCP1 plasmids in NR-4718 has been confirmed by PCR amplification of a virulence marker on each plasmid. NR-4718 has been qualified for PCR applications by amplification of approximately 1500 bp of the 16S ribosomal RNA gene as well as virulence marker sequences of approximately 1200 and 400 bp.

Material Provided:
Each vial contains approximately 4 to 6 µg of bacterial genomic DNA in TE buffer (10 mM Tris-HCl, 1 mM EDTA, pH ~ 7.4). The concentration is shown on the Certificate of Analysis. The vial should be centrifuged prior to opening.

Packaging/Storage:
NR-4718 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen on dry ice and should be stored at -20°C or colder immediately upon arrival. Freeze-thaw cycles should be minimized.

Citation:
Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: Genomic DNA from *Yersinia pestis*, Strain Kimberley Derivative 12 (D12), NR-4718."

Biosafety Level: 1
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, 2007; see www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm.

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References:

1. Parkhill, J., et al. "Genome Sequence of *Yersinia pestis*, the Causative Agent of Plague." Nature 413 (2001): 523-527. PubMed: 11586360.
2. Hare, J. M. and K. A. McDonough. "High-Frequency RecA-Dependent and -Independent Mechanisms of

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Congo Red Binding Mutations in *Yersinia pestis*." J. Bacteriol. 181 (1999): 4896-4904. PubMed: 10438760.
3. Lucier, T. S. and R. R. Brubaker. "Determination of Genome Size, Macrorestriction Pattern Polymorphism, and Nonpigmentation-Specific Deletion in *Yersinia pestis* by Pulsed-Field Gel Electrophoresis." J. Bacteriol. 174 (1992): 2078-2086. PubMed: 1551830.
4. Robert R. Brubaker, personal communication.
5. Brubaker, R. R. "How the Structural Gene Products of *Yersinia pestis* Relate to Virulence." Future Microbiol. 2 (2007): 377-385. PubMed: 17683274.

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