Product Information Sheet for NR-15791

Mycobacterium tuberculosis, Strain CDC1551, Transposon Mutant Knock-Out Pool 19

Catalog No. NR-15791

For research use only. Not for human use.

Contributor:
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Product Description:
Bacteria Classification: *Mycobacteriaceae; Mycobacterium*
Species: *Mycobacterium tuberculosis*
Strain: CDC1551 (also referred to as CSU93 or Oshkosh)
Original Source: *Mycobacterium tuberculosis* (*M. tuberculosis*), strain CDC1551 is a clinical isolate that exhibited high levels of infectivity and virulence during a tuberculosis outbreak that occurred in rural Kentucky and Tennessee from 1994 to 1996.[1] In 2002, TARGET (Tuberculosis Animal Research and Gene Evaluation Taskforce) was formed to enable the modeling of human tuberculosis in multiple animal species using defined protocols and testing defined mutants of *M. tuberculosis*. In addition to animal modeling activities, a library of intragenic transposon mutants has been created and characterized.[2]
Comments: There are 20 transposon mutant knock-out pools available from BEI Resources (NR-15773 to NR-15792) that are companion products to the DeADMAn DNA Microarray (available from BEI Resources as NR-18958). The DeADMAn DNA Microarray is used for identification of genes essential for the survival of a stress condition in an *in vivo* model system infection.[3]

M. tuberculosis, strain CDC1551 transposon mutant knock-out pool 19 is reported to be a mixture of 20 genetically defined *M. tuberculosis* transposon mutants described in Table 1. Some of the transposon mutants in knock-out pool 19 are available individually as indicated in Table 1.

Material Provided:
Each vial contains approximately 1 mL of bacterial culture in Middlebrook 7H9 broth with OADC enrichment containing 100 µg/mL cycloheximide and 20 µg/mL kanamycin.

Packaging/Storage:
NR-15791 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.

Growth Conditions:
Media:
Middlebrook 7H9 Broth with OADC enrichment containing 100 µg/mL cycloheximide and 20 µg/mL kanamycin
Middlebrook 7H10 Agar with OADC enrichment 100 µg/mL cycloheximide and 20 µg/mL kanamycin
Incubation:
Temperature: 37°C
Atmosphere: Aerobic
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 37°C for 2 to 4 weeks.

Citation:
Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: *Mycobacterium tuberculosis*, Strain CDC1551, Transposon Mutant Knock-Out Pool 19, NR-15791."

Biosafety Level: 3
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.

Disclaimers:
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References:

1. Valway, S. E., et al. "An Outbreak Involving Extensive Transmission of a Virulent Strain of *Mycobacterium tuberculosis*." N. Engl. J. Med. 338 (1998): 633-639. PubMed: 9486991.
2. Lamichhane, G., et al. "A Postgenomic Method for Predicting Essential Genes at Subsaturation Levels of Mutagenesis: Application to *Mycobacterium tuberculosis*." Proc. Natl. Acad. Sci. U. S. A. 100 (2003): 7213-7218. PubMed: 12775759.
3. Lamichhane, G., S. Tyagi and W. R. Bishai. "Designer Arrays for Defined Mutant Analysis to Detect Genes Essential for Survival of *Mycobacterium tuberculosis* in Mouse Lungs." Infect. Immun. 73 (2005): 2533-2540. PubMed: 15784600.
4. Cole, S. T., et al. "Deciphering the Biology of *Mycobacterium tuberculosis* from the Complete Genome Sequence." Nature 393 (1998): 537-544. PubMed: 9634230. Erratum in: Nature 396 (1998): 190-198.

Support Provided by NIAID

Table 1. Transposon Mutant Members of Knock-Out Pool 19

Description of Transposon Knock-Out Mutant	Strain CDC1551 Gene	Strain H37Rv Gene[1]	BEI Resources Product Number[2]
CONSERVED HYPOTHETICAL PROTEIN. POSSIBLE TRIACYLGLYCEROL SYNTHASE (DIACYLGLYCEROL ACYLTRANSFERASE).	MT0919	Rv0895	NR-15070
PPE-FAMILY PROTEIN	MT3231	Rv3144c	NA
PROBABLE DRUGS-TRANSPORT TRANSMEMBRANE ATP-BINDING PROTEIN ABC TRANSPORTER	MT1311	Rv1273c	NA
PROBABLE Mce FAMILY VIRULENCE FACTOR	MT0182	Rv0173	NR-15459
CONSERVED HYPOTHETICAL PROTEIN	MT2104	Rv2044c	NR-18236
CONSERVED HYPOTHETICAL PROTEIN	MT0135	Rv0127	NA
PPE FAMILY PROTEIN	MT0269	Rv0256c	NR-15106
PPE FAMILY PROTEIN [PPE]	MT1431	Rv1387	NR-18772
CONSERVED HYPOTHETICAL PROTEIN	MT1711	Rv1673c	NA
PROBABLE CONSERVED LIPOPROTEIN LPQN	MT0611	Rv0583c	NA
CONSERVED HYPOTHETICAL PROTEIN WITH PIN DOMAIN	MT3516	Rv3408	NA
CONSERVED HYPOTHETICAL INTEGRAL MEMBRANE PROTEIN YRBE2B	MT0617	Rv0588	NA
POSSIBLE OXIDOREDUCTASE	MT0967	Rv0940c	NA
HYPOTHETICAL PROTEIN	MT0086	Rv0079	NR-14730
TRANSCRIPTIONAL REGULATOR TetR FAMILY	MT3938	Rv3830c	NR-13626
CONSERVED HYPOTHETICAL PROTEIN	MT1087	Rv1057	NA
HYPOTHETICAL INVASION PROTEIN	MT1525	Rv1478	NR-17881
CONSERVED HYPOTHETICAL PROTEIN	MT3862	Rv3755c	NA
PROBABLE OXIDOREDUCTASE (ALPHA SUBUNIT)	MT2530	Rv2455c	NR-15708
PROBABLE CONSERVED TRANSMEMBRANE PROTEIN	MT1025.3	Rv0996	NA

[1]Rv* – In some cases there is no *M. tuberculosis*, strain H37Rv homologue to the *M. tuberculosis*, strain CDC1551 gene
[2]NA – Individual transposon mutant not available from BEI Resources but may be available from TARGET