bei RESOURCES

SUPPORTING INFECTIOUS DISEASE RESEARCH

Mycobacterium tuberculosis, Strain CDC1551, Transposon Mutant Knock-Out Pool 7

Catalog No. NR-15779

For research use only. Not for human use.

Contributor:
W. R. Bishai, Professor and Co-Director of the Center for Tuberculosis Research, Department of Medicine, Johns Hopkins School of Medicine, Baltimore MD

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 7 is reported to be a mixture of 21 genetically defined *M. tuberculosis* transposon mutants described in Table 1. Some of the transposon mutants in knock-out pool 7 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-15779 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 7, NR-15779."

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:
You are authorized to use this product for research use only. It is not intended for human use.

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government make any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI

Biodefense and Emerging Infections Research Resources Repository   E-mail: contact@beiresources.org
www.beiresources.org   Tel: 800-359-7370
                                                                                                        Fax: 703-365-2898

Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:
This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a license is required. U.S. Government contractors may need a license before first commercial sale.

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.

ATCC® is a trademark of the American Type Culture Collection.

Table 1. Transposon Mutant Members of Knock-Out Pool 7

Description of Transposon Knock-Out Mutant	Strain CDC1551 Gene	Strain H37Rv Gene[1]	BEI Resources Product Number[2]
POSSIBLE CONSERVED MEMBRANE PROTEIN	MT0425	Rv0412c	NR-17909
POSSIBLE AMIDOHYDROLASE	MT0498	Rv0480c	NR-17920
PPE FAMILY PROTEIN	MT3247	Rv3159c	NR-17923
HYPOTHETICAL PROTEIN	MT2934	Rv*	NA
CRISPR-ASSOCIATED PROTEIN (TM1807 FAMILY)	MT2886	Rv2819c	NR-15022
HYPOTHETICAL PROTEIN	MT1783	Rv1741	NR-15027
PROBABLE MYCOBACTIN UTILIZATION PROTEIN	MT2963	Rv2895c	NR-15031
PROBABLE CONSERVED INTEGRAL MEMBRANE PROTEIN	MT2040	Rv1986	NR-15035
PROBABLE ATP-DEPENDENT DNA HELICASE	MT3295	Rv3201c	NR-14986
PE-PGRS FAMILY PROTEIN	MT1004	Rv0977	NA
POSSIBLE GLYCOSYL TRANSFERASE	MT3034	Rv2958c	NR-15457
PROBABLE MEMBRANE PROTEIN	MT3972	Rv3857c	NR-15714
PROBABLE TRANSCRIPTIONAL REGULATORY PROTEIN (POSSIBLY ARSR-FAMILY)	MT0605	Rv0576	NA
HYPOTHETICAL PROTEIN	MT2876	Rv2809	NR-15458
CONSERVED HYPOTHETICAL PROTEIN	MT0282	Rv0269c	NR-17584
PROBABLE MEMBRANE PROTEIN	MT2673	Rv2597	NA
CONSERVED HYPOTHETICAL PROTEIN	MT0688	Rv0659c	NR-18144
CONSERVED HYPOTHETICAL PROTEIN	MT0996	Rv0968	NR-15658
CONSERVED HYPOTHETICAL PROTEIN	MT3982	Rv3869	NR-14790
CONSERVED HYPOTHETICAL PROTEIN	MT2444	Rv2375	NR-15716

[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