Product Information Sheet for NR-55546

Klebsiella pneumoniae, Strain MRSN 368001

Catalog No. NR-55546

This reagent is the tangible property of the U.S. Government.

For research use only. Not for use in humans.

Contributor:

Multidrug-Resistant Organism Repository and Surveillance Network (MRSN), Bacterial Disease Branch, Walter Reed Army Institute of Research, Silver Spring, Maryland, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Enterobacteriaceae*, *Klebsiella*
Species: *Klebsiella pneumoniae*
Strain: MRSN 368001
Original Source: *Klebsiella pneumoniae (K. pneumoniae)*, strain MRSN 368001 was isolated in 2015 from a human wound sample in Africa as part of a global surveillance program.[1]
Comments: *K. pneumoniae*, strain MRSN 368001 was deposited as part of the MRSN *Klebsiella pneumoniae* Diversity Panel available from BEI Resources as NR-55604. NR-55546 was deposited as multi-locus sequence type (MLST) ST 14, K-locus type (KL) 2, O-locus type (OL) O1v1, VIR score 0. In addition, strain MRSN 368001 has a glycine-aspartic acid (GD) insertion in the B-strand loop of the OmpK36 protein (OmpK36GD). MRSN 368001 was deposited as an extensively drug-resistant strain (XDR), sensitive to tetracycline and tigecycline and resistant to amikacin, ampicillin/sulbactam, aztreonam, cefepime, ceftazidime, ceftriaxone, ceftazidime/avibactam, ceftolozane/tazobactam, ciprofloxacin, ertapenem, meropenem, gentamicin, imipenem, levofloxacin, piperacillin/tazobactam, tobramycin and trimethoprim/sulfamethoxazole. Strain MRSN 368001 is reported to have three aminoglycoside 3'-phosphotransferase genes [*aac*(6')-Ib-cr5, *aad*A2 and *aph*(3')-VI; conferring resistance to various aminoglycosides], one 16S rRNA methyltransferase gene (*arm*A; conferring resistance to aminoglycoside antibiotics), four beta-lactamase genes ($bla_{CTX-M-15}$, bla_{SHV-28}, bla_{NDM-1} and bla_{OXA-1}; conferring resistance to beta-lactams), two chloramphenicol acetyltransferase genes (*cat*A1 and *cat*B3; conferring resistance to chloramphenicol), one fosfomycin resistance gene (*fos*A_*gen*; conferring resistance to fosfomycin), one macrolide phosphotransferase gene [*mph*(E); conferring resistance to macrolides], one quinolone resistance gene (*qnr*B1; conferring resistance to quinolones), one ABC-F subfamily protein gene [*msr*(E); conferring resistance to erythromycin and streptogramin B antibiotics], one sulfonamide resistance gene (*sul*1; conferring resistance to sulfonamides) and two dihydrofolate reductase genes (*dfr*A1 and *dfr*A12; conferring resistance to trimethoprim).[1] The complete genome of *K. pneumoniae*, strain MRSN 368001 has been sequenced (GenBank: JAGYDN000000000).

K. pneumoniae is a Gram-negative enterobacterium that is a major cause of nosocomial infections of the urinary and respiratory tracts. Due to the extensive spread of antibiotic-resistant strains, especially of extended-spectrum β-lactamase (ESBL)-producing strains, there has been renewed interest in *Klebsiella* infections.[2,3,4]

Material Provided:

Each vial contains approximately 0.5 mL of bacterial culture in Tryptic Soy broth supplemented with 10% glycerol.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

Packaging/Storage:

NR-55546 was packaged aseptically in 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:
Nutrient broth or Tryptic Soy broth or equivalent
Nutrient agar or Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood or equivalent
Incubation:
Temperature: 37°C
Atmosphere: Aerobic
Propagation:

1. Keep vial frozen until ready for use, then thaw.
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 tube, slant and/or plate at 37°C for 1 day.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Klebsiella pneumoniae*, Strain MRSN 368001, NR-55546. This strain is part of the *Klebsiella pneumoniae* Diversity Panel provided by the Multidrug-Resistant Organism Repository and Surveillance Network (MRSN) at the Walter Reed Army Institute of Research (WRAIR)."

Biosafety Level: 2

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. 6th ed. Washington, DC: U.S. Government Printing Office, 2020; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

BEI Resources
www.beiresources.org
E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

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 makes 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 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. McGann, P., Personal Communication.
2. Lascols, C., et al. "Increasing Prevalence and Dissemination of NDM-1 Metallo-β-Lactamase in India: Data from the SMART Study (2009)." J. Antimicrob. Chemother. 66 (2011): 1992-1997. PubMed: 21676902.
3. Ramirez, M. S., et al. "Multidrug-Resistant (MDR) *Klebsiella pneumoniae* Clinical Isolates: A Zone of High Heterogeneity (HHZ) as a Tool for Epidemiological Studies." Clin. Microbiol. Infect. 18 (2012): E254-E258. PubMed: 22551038.
4. Podschun, R. and U. Ullmann. "*Klebsiella* spp. as Nosocomial Pathogens: Epidemiology, Taxonomy, Typing Methods, and Pathogenicity Factors." Clin. Microbiol. Rev. 11 (1998): 589-603. PubMed: 9767057.

Support Provided by NIAID

BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898