Klebsiella pneumoniae, Strain MRSN 607210

Catalog No. NR-55581

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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 607210
Original Source: *Klebsiella pneumoniae (K. pneumoniae)*, strain MRSN 607210 was isolated in 2018 from a human urine sample in North America as part of a global surveillance program.[1]
Comments: *K. pneumoniae*, strain MRSN 607210 was deposited as part of the MRSN *Klebsiella pneumoniae* Diversity Panel available from BEI Resources as NR-55604. NR-55581 was deposited as multi-locus sequence type (MLST) ST 231, K-locus type (KL) 51, O-locus type (OL) O1v2, and VIR score 0. MRSN 607210 was deposited as a multidrug-resistant strain (MDR), sensitive to ceftazidime/avibactam, ertapenem, imipenem, meropenem, tetracycline, tigecycline and trimethoprim/sulfamethoxazole, intermediately resistant to piperacillin/tazobactam and resistant to amikacin, ampicillin/sulbactam, aztreonam, cefepime, ceftazidime, ceftolozane/tazobactam, ceftriaxone, ciprofloxacin, gentamicin, levofloxacin and tobramycin. Strain MRSN 607210 is reported to have two aminoglycoside transferase genes [*aph*(3')-Ia and *aad*A1; conferring resistance to various aminoglycosides], one 16S rRNA methyltransferase gene (*arm*A; conferring resistance to aminoglycoside antibiotics), three beta-lactamase genes ($bla_{CTX\text{-}M\text{-}15}$, $bla_{OXA\text{-}10}$ and $bla_{SHV\text{-}187}$; conferring resistance to beta-lactams), one chloramphenicol exporter gene (*cml*A5; conferring resistance to chloramphenicol), one fosfomycin resistance gene (*fos*A_*gen*; conferring resistance to fosfomycin), two macrolide phosphotransferase genes [*mph*(A) and *mph*(E); conferring resistance to macrolides], one rifampin ADP-ribosyltransferase gene (*arr*-2; conferring resistance to rifampin) and one ABC-F subfamily gene [*msr*(E); conferring resistance to erythromycin and streptogramin B antibiotics].[1] The complete genome of *K. pneumoniae*, strain MRSN 607210 has been sequenced (GenBank: JAGYCE000000000).

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-55581 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 607210, NR-55581. 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.

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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.

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