

***Klebsiella pneumoniae*, Strain MRSN 515432**

Catalog No. NR-55564

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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 515432

Original Source: *Klebsiella pneumoniae* (*K. pneumoniae*), strain MRSN 515432 was isolated in 2014 from an unknown human sample in the Middle East as part of a global surveillance program.¹

Comments: *K. pneumoniae*, strain MRSN 515432 was deposited as part of the MRSN *Klebsiella pneumoniae* Diversity Panel available from BEI Resources as NR-55604. NR-55564 was deposited as multi-locus sequence type (MLST) ST 1399, K-locus type (KL) 43, O-locus type (OL) O2v1, VIR score 4, yersiniabactin gene allele (*ybt*) *ybt* 14; ICEKp5, aerobactin gene allele (*iuc*) and regulator of capsular polysaccharide allele (*rmpA2*). In addition, strain MRSN 515432 has a 59% truncation of the OmpK35 protein, which can cause a reduction in susceptibility to beta-lactamases. MRSN 515432 was deposited as a multidrug-resistant strain (MDR), sensitive to amikacin, ceftazidime/avibactam, ertapenem, imipenem, meropenem, tetracycline and tigecycline and resistant to ampicillin/sulbactam, aztreonam, cefepime, ceftazidime, ceftolozane/tazobactam, ceftriaxone, ciprofloxacin, gentamicin, levofloxacin, piperacillin/tazobactam, tobramycin and trimethoprim/sulfamethoxazole. Strain MRSN 515432 is reported to have four aminoglycoside transferase genes [*aac*(6)-Ib-AKT, *ant*(2)-Ia, *aph*(3)-Ib and *aph*(6)-Id; conferring resistance to various aminoglycosides], three beta-lactamase genes (*bla*_{CTX-M-15}, *bla*_{SHV-12} and *bla*_{TEM-1}; conferring resistance to beta-lactams), one chloramphenicol exporter gene (*cmiA5*; conferring resistance to chloramphenicol), one fosfomycin resistance gene (*fosA_gen*; conferring resistance to fosfomycin), one quinolone resistance gene (*qnrS1*; conferring resistance to quinolones), two sulfonamide resistance genes (*sul1* and *sul2*; conferring resistance to sulfonamides) and one dihydrofolate reductase gene (*dfrA7*; conferring resistance to trimethoprim).¹ The complete genome of *K. pneumoniae*, strain MRSN 515432 has been sequenced (GenBank: [JAGYCV000000000](https://www.ncbi.nlm.nih.gov/nuccore/JAGYCV000000000)).

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 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-55564 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 515432, NR-55564. 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/bmb15/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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