

***Klebsiella pneumoniae*, Strain MRSN 681054**

**Catalog No. NR-55589**

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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 681054

Original Source: *Klebsiella pneumoniae* (*K. pneumoniae*), strain MRSN 681054 was isolated in 2015 from a urine sample in Asia as part of a global surveillance program.<sup>1</sup>

Comments: *K. pneumoniae*, strain MRSN 681054 was deposited as part of the MRSN *Klebsiella pneumoniae* Diversity Panel available from BEI Resources as NR-55604. NR-55589 was deposited as multi-locus sequence type (MLST) ST 340, K-locus type (KL) 15, O-locus type (OL) O4, VIR score 1 and yersiniabactin gene allele (*ybt*) *ybt* 9; ICEKp3. MRSN 681054 was deposited as an extensively drug-resistant (XDR) strain, sensitive to amikacin and tigecycline, intermediately resistant to tobramycin and resistant to ampicillin/sulbactam, aztreonam, ceftazidime, ceftazidime/avibactam, ceftolozane/tazobactam, ceftriaxone, ciprofloxacin, ertapenem, gentamicin, imipenem, levofloxacin, meropenem, piperacillin/tazobactam, tetracycline and trimethoprim/sulfamethoxazole. Strain MRSN 681054 is reported to have five aminoglycoside transferase genes [*aac*(6)-Ib-cr5, *aac*(3)-IIe, *aadA2*, *aph*(3)-Ib and *aph*(6)-Id; conferring resistance to various aminoglycosides], five beta-lactamase genes (*bla*<sub>CTX-M-15</sub>, *bla*<sub>NDM-7</sub>, *bla*<sub>OXA-1</sub>, *bla*<sub>SHV-11</sub> and *bla*<sub>TEM-1</sub>; conferring resistance to beta-lactams), one chloramphenicol acetyltransferase gene (*catB3*; conferring resistance to chloramphenicol), one fosfomycin resistance gene (*fosA*\_gen; conferring resistance to fosfomycin), one macrolide-lincosamide-streptogramin B resistance gene [*erm*(42); conferring resistance to macrolides, lincosamides and streptogramins B antibiotics], one quinolone resistance gene (*qnrB1*; conferring resistance to quinolones), two sulfonamide resistance genes (*sul1* and *sul2*; conferring resistance to sulfonamides), one tetracycline resistance gene [*tet*(A); conferring resistance to tetracycline] and two dihydrofolate reductase genes (*dfrA12* and *dfrA14*; conferring resistance to trimethoprim).<sup>1</sup> The complete genome of *K. pneumoniae*, strain MRSN 681054 has been sequenced (GenBank: [JAGYBW000000000](https://www.ncbi.nlm.nih.gov/nuccore/JAGYBW000000000)).

*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.<sup>2,3,4</sup>

**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-55589 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 681054, NR-55589. 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](https://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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