

***Escherichia coli* – *Staphylococcus aureus*  
Shuttle Vector pCN56, Recombinant in  
*Escherichia coli***

**Catalog No. NR-46156**

**For research use only. Not for human use.**

**Contributor:**

Richard P. Novick, M.D., Departments of Microbiology, Medicine and Molecular Pathogenesis, New York University School of Medicine, New York, New York, USA

**Manufacturer:**

BEI Resources

**Product Description:**

NR-46156 is a culture of *Escherichia coli* (*E. coli*) DH5 $\alpha$  (RN9621, NRS621) containing the *E. coli*-staphylococcal shuttle vector pCN56. Vector pCN56 contains the *E. coli* ColE1 replication origin, the high-copy-number *Staphylococcus aureus* (*S. aureus*) pT181 *cop-623-repC* replicon, the GFP reporter gene *gfpmut2* and the *blaZ* transcriptional terminator. Vector pCN56 was deposited as resistant to ampicillin and erythromycin in *E. coli* and resistant to erythromycin in *S. aureus*.<sup>1</sup>

The complete sequence and vector map of pCN56 have been determined and are available on the Certificate of Analysis for lot 63381375. The BEI Resources vector sequence was deposited into GenBank as NR-46156 (GenBank: KR781471).

Vector pCN56 is a member of a series of novel shuttle vectors that were developed using PCR-designed cassettes to allow for easy exchange of vector components. The base shuttle vectors are comprised of (i) a staphylococcal replicon (pT181-based low-copy number, high-copy-number or thermosensitive replicons or pI258-based low-copy-number theta replicon), (ii) a staphylococcal selectable marker (erythromycin, tetracycline, chloramphenicol, kanamycin or spectinomycin resistance), (iii) an *E. coli* ColE1-based replicon, (iv) an *E. coli* selectable marker (ampicillin resistance) and (v) a pUC19-derived expanded multiple cloning site (MCS). Additionally, some of the vectors may contain a staphylococcal  $\phi$ 11 phage fragment, staphylococcal pathogenicity island SaPI1 fragment, an inducible or constitutive promoter, and reporter genes.<sup>1</sup>

**Material Provided:**

Each vial of NR-46156 contains approximately 0.5 mL of bacterial culture in Luria-Bertani (LB) broth containing 100  $\mu$ g/mL ampicillin supplemented with 10% glycerol.

**Packaging/Storage:**

NR-46156 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:

LB broth containing 100  $\mu$ g/mL ampicillin

LB agar containing 100  $\mu$ g/mL ampicillin

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 18 to 24 hours.

**Citation:**

Acknowledgment for publications should read “The following reagent was provided by the Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA) for distribution by BEI Resources, NIAID, NIH: *Escherichia coli* – *Staphylococcus aureus* Shuttle Vector pCN56, Recombinant in *Escherichia coli*, NR-46156.”

**Biosafety Level: 1**

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, 2009; see [www.cdc.gov/biosafety/publications/bmbli5/index.htm](http://www.cdc.gov/biosafety/publications/bmbli5/index.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](http://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. Charpentier E., et al. "Novel Cassette-Based Shuttle Vector System for Gram-Positive Bacteria." Appl. Environ. Microbiol. 70 (2004): 6076-6085. PubMed: 15466553.

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

