

Product Information Sheet for NR-49094

***Burkholderia pseudomallei*, Strain Bp82 (Δ purM)**

Catalog No. NR-49094

For research use only. Not for human use.

Contributor:

Herbert P. Schweizer, Professor, Department of Microbiology, Immunology and Pathology, Colorado State University, Fort Collins, Colorado, USA

Manufacturer:

BEI Resources

Product Description:

Bacteria Classification: *Burkholderiaceae*, *Burkholderia*

Species: *Burkholderia pseudomallei* (formerly *Pseudomonas pseudomallei*)¹

Strain: Bp82

Original Source: *Burkholderia pseudomallei* (*B. pseudomallei*), strain Bp82 is an attenuated strain of *B. pseudomallei*, strain 1026b.² Strain Bp82 was attenuated via a partial deletion of the *purM* gene, resulting in adenine and thiamine auxotrophy.

Comment: *B. pseudomallei*, strain Bp82 is an adenine auxotroph that was engineered through deletion of a portion of the *purM* gene, which encodes phosphoribosyl formylglycinamide cycloligase. The product of the reaction catalyzed by this enzyme, aminoimidazole ribotide, is a precursor of *de novo* adenine and thiamine biosynthesis. The partial deletion of the *purM* gene was confirmed through PCR and sequencing. Strain Bp82 was tested and found to be avirulent in mouse and hamster models.² The parent strain, 1026b, was originally isolated in 1993 from a blood culture of a female rice farmer with diabetes mellitus at Sappasithprasong hospital in Ubon, Ratchathani, Thailand,² and is available from BEI Resources as NR-4074. The complete genome sequence of *B. pseudomallei*, strain 1026b has been determined by two sequencing centers (GenBank: [CP002833.1](#), [CP002834.1](#) and [CP004379.1](#), [CP004380.1](#)).

B. pseudomallei are motile, aerobic, Gram-negative coccobacilli. Virulence factors that may play a role in their pathogenesis include a type III secretion system, capsular polysaccharide, lipopolysaccharide and flagellin proteins.³

B. pseudomallei are the causative agent of melioidosis, a severe infectious disease that is endemic in areas of Southeast Asia and northern Australia. Humans and animals typically become infected through contact with soil and surface water since *B. pseudomallei* are a naturally occurring saprophyte in endemic locations. Melioidosis is a risk to travelers to tropical areas, especially if they have impaired immunity due to diabetes, renal disease or alcoholism.³

B. pseudomallei are characteristically resistant to a variety of hostile conditions including nutrient deficiency, temperature extremes and exposure to many antibiotics (penicillin, ampicillin, first and second generation cephalosporins, gentamicin, tobramycin and streptomycin).^{3,4}

Material Provided:

Each vial contains approximately 0.7 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-49094 was packaged aseptically, in screw-capped plastic cryovials. The product is provided frozen and should be stored at -80°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:

Note: *B. pseudomallei*, strain Bp82 is an adenine/thiamine auxotroph. For optimal growth 40 µg/mL adenine and 0.0005% thiamine can be added to the media. Slow growth was still observed without the addition of adenine and thiamine.²

Tryptic Soy broth or equivalent

Tryptic Soy agar or Tryptic Soy agar with 5% defibrinated sheep blood or equivalent

Incubation:

Temperature: 30°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use; thaw slowly.
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 30°C for 1 to 3 days.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Burkholderia pseudomallei*, Strain Bp82 (Δ purM), NR-49094."

Biosafety Level: 3

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/bmbl5/index.htm.

BEI Resources

www.beiresources.org

E-mail: contact@beiresources.org

Tel: 800-359-7370

Fax: 703-365-2898

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References:

1. Yabuuchi, E., et al. "Proposal of *Burkholderia* gen. nov. and Transfer of Seven Species of the Genus *Pseudomonas* Homology Group II to the New Genus, with the Wild Type Species *Burkholderia cepacia* (Palleroni and Holmes 1981) comb. nov." Microbiol. Immunol. 36 (1992): 1251-1275. PubMed: 1283774.
2. Propst, K. L., et al. "A *Burkholderia pseudomallei* Δ purM Mutant is Avirulent in Immunocompetent and Immunodeficient Animals: Candidate Strain for Exclusion from Select-Agent Lists." Infect. Immun. 78 (2010): 3136-3143. PubMed: 20404077.
3. Cheng, A. C. and B. J. Currie. "Meloidosis: Epidemiology, Pathophysiology, and Management." Clin. Microbiol. Rev. 18 (2005): 383-416. PubMed: 15831829.
4. Wiersinga, W. J., et al. "Meloidosis: Insights into the Pathogenicity of *Burkholderia pseudomallei*." Nat. Rev. Microbiol. 4 (2006): 272-282. PubMed: 16541135.

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