

Datasheet Cat. No. P1577

Recombinant Beta-lactamase TEM-1

Information

Gene ID	
Accession #	
Alternate Names	
Source	Escherichia coli.
M.Wt	Approximately 28.9 kDa, a single non-glycosylated polypeptide chain containing 264 amino acids.
AA Sequence	MHPETLVKVK DAEDQLGARV GYIELDLNSG KILESFRPEE RFPMMSTFKV LLCGAVLSRV DAGQEQLGRR IHYSQNDLVE YSPVTEKHLT DGMTVRELCS AAITMSDNTA ANLLLTTIGG PKELTAFLHN MGDHVTRLDR WEPELNEAIP NDERDTTMPA AMATTLRKLL TGELLTLASR QQLIDWMEAD KVAGPLLRSA LPAGWFIADK SGAGERGSRG IIAALGPDGK PSRIVVIYTT GSQATMDERN RQIAEIGASL IKHW
Appearance	Sterile Filtered White lyophilized (freeze-dried) powder.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles - 12 months from date of receipt, -20 to -70 °C as supplied - 1 month, 2 to 8 °C under sterile conditions after reconstitution - 3 months, -20 to -70 °C under sterile conditions after reconstitution
Formulation	Lyophilized from a 0.2 µm filtered concentrated solution in 100 mM Tris, pH 7.0.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1 % BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at \leq -20 °C. Further dilutions should be made in appropriate buffered solutions.
Biological Activity	Fully biologically active when compared to standard. One unit of enzyme activity is defined as the amount of enzyme which will hydrolyze 1.0 μ mol of benzyl penicillin in presence of EDTA at pH 7.0 and at 25 °C.
Shipping Condition	Gel pack.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

Components and Storage

Components	1mg	5mg	10mg	100mg
Recombinant Beta-lactamase TEM-1	1mg	5mg	10mg	100mg

Use a manual defrost freezer and avoid repeated freeze-thaw cycles

- 12 months from date of receipt, -20 to -70 °C as supplied
- 1 month, 2 to 8 °C under sterile conditions after reconstitution
- 3 months, -20 to -70 °C under sterile conditions after reconstitution

Quality Control Output Purity > 95 % by SDS-PAGE. Endotoxin Output

Description

Beta-lactamases are enzymes produced by some bacteria and are responsible for their resistance to betalactam antibiotics like penicillins, cephamycins, and carbapenems. The lactamase enzyme breaks the β-lactam ring open and deactivates the molecule's antibacterial properties because of a common element in these antibiotics molecular structure: a four-atom ring known as a beta-lactam. TEM-1 is the most commonlyencountered beta-lactamase in gram-negative bacteria. Up to 90 % of ampicillin resistance in E. coli is due to the production of TEM-1. Also responsible for the ampicillin and penicillin resistance that is seen in H. influenzae and N. gonorrhoeae in increasing numbers. Based upon different combinations of changes, currently 140 TEM-type enzymes have been described. Recombinant beta-lactamase TEM-1 contains 264 amino acids residues.

Reference

- 1. Bush K, Jacoby GA, Medeiros AA. 1995. Antimicrob Agents Chemother. 39:1211-33
- 2. Ambler RP. 1980. Philos Trans R Soc Lond B Biol Sci. 289:321-31
- 3. Leinberger DM, Grimm V, Rubtsova M, et al. 2010. J Clin Microbiol. 48:460-71.

