# Recombinant Beta-lactamase TEM-1 (rTEM-1)

## PrimeGene Technical Data Sheet

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| **Catalog Number:** | 4A1-05 |
| **Source:** | *Escherichia coli.* |
| **Molecular Weight:** | Approximately 28.9 kDa, a single non-glycosylated polypeptide chain containing 264 amino acids. |
| **Quantity:** | 1mg |
| **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 |
| **Purity:** | > 95 % by SDS-PAGE. |
| **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 μmol of benzyl penicillin in presence of EDTA at pH 7.0 and at 25 °C. |
| **Physical Appearance:** | Sterile Filtered White lyophilized (freeze-dried) powder. |
| **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 ≤ -20 °C. Further dilutions should be made in appropriate buffered solutions. |
| **Shipping:** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage:** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 3 months, -20 to -70 °C under sterile conditions after reconstitution. |
| **Usage:** | This material is offered by Shanghai PrimeGene Bio-Tech for research, laboratory or further evaluation purposes. **NOT FOR HUMAN USE**. |

### *Recombinant Beta-lactamase TEM-1*

Beta-lactamases are enzymes produced by some bacteria and are responsible for their resistance to beta-lactam 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 commonly-encountered 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.



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