



Technical Data Sheet

GENERAL INFORMATION

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|--------------------|--|
| PRODUCT | Recombinant Bovine Albumin, expressed in yeast. Lyophilized. Molecular Biology Grade. |
| Cat. No. | MT10K-L1RBSAHA |
| QUANTITY | 10 mg |
| DESCRIPTION | <p>Recombinant Bovine Serum Albumin (rBSA), a non-animal albumin equivalent to the common Bovine Serum Albumin (BSA), is heterologously expressed in yeast cells. Similar to BSA, it has demonstrated efficacy in preventing enzyme adhesion to reaction tubes and pipette surfaces, while also stabilizing certain proteins during incubation, especially relevant for overnight reactions. Its versatility extends to various applications in molecular biology research such as enzymatic assays and nucleic acid manipulation, where its far more consistency than its bovine analogous enhances experimental outcomes.</p> <p>This is an animal-free molecular biology grade product, supplied as a freeze-dried product.</p> |

PRODUCTS PROVIDED

| <u>Component</u> | | <u>Amount</u> |
|------------------|---|---------------|
| 10K-L1RBSAHA | Recombinant Bovine Albumin. Molecular Biology Grade. Lyophilized. | 1 vial |

DELIVERY CONDITIONS

10K-L1RBSAHA 10 mg of freeze-dried rBSA (solid powder).

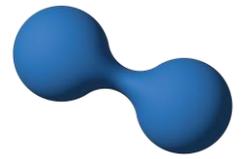
SHIPPING CONDITIONS This protein is shipped and can be stored at room temperature for 24 months.

SUGGESTED RECONSTITUTION BUFFER 20 mM Tris pH 7.5, 100 mM KCl, 0.1 mM EDTA. If necessary, buffer can also contain 30% glycerol.

RECONSTITUTION INSTRUCTIONS

1. Add 500 µL of the suggested Reconstitution Buffer to reconstitute the protein at 20 mg/mL.
2. Gently pipette up and down to dissolve the solid powder.
3. Place on ice and aliquot into smaller volumes to avoid multiple freeze/thaw cycles.
4. Store from -20 °C to -80 °C.





STORAGE CONDITIONS

This lyophilized product can be handled and stored at Room Temperature for at least 24 months. After reconstitution, the shelf life is 12 months if stored from -20 °C to -80 °C. Short-term storage at 4 °C is possible. To avoid multiple freeze/thaw cycles, store in multiple aliquots.

QUALITY CONTROL

To perform quality control of the protein, it is first resuspended in the suggested reconstitution buffer, which also serves as a negative control in the quality control process.

PROTEIN CONCENTRATION

Concentration of rBSA is determined by UV absorption at 280 nm using the extinction coefficient of 42925 and the molecular weight of 67205 daltons.

PROTEIN PURITY

Purity is determined by the ratio of absorbance at 260 and 280 nm and by SDS-PAGE. A 260/280 ratio below 1.7 is accepted and indicates low DNA contamination compared to the protein concentration. SDS-PAGE allows verification of protein band purity, with a purity level of >90% being acceptable.

NON-SPECIFIC DNase ACTIVITY

DNase activity of rBSA is assessed in the presence of calf thymus DNA. For this purpose, 20 µg of rBSA is incubated with 50 µg/mL calf thymus DNA at 25 °C, and the release of DNA is monitored at 260 nm. One Unit of activity is defined as an increase in absorbance at 260 nm of 0.001 per minute at 25 °C on the assay conditions. An activity lower than 2 U is accepted.

EXONUCLEASE AND ENDONUCLEASE ACTIVITY

A 50 µL reaction containing 0.5 µg of pUC18 or 0.5 µg of pUC18-HindIII and 50 µg of rBSA is incubated at 37 °C for 16 hours, and DNA degradation is determined by agarose gel electrophoresis. It is considered acceptable when no DNA degradation is detected for both exonuclease and endonuclease activities.

RNase ACTIVITY

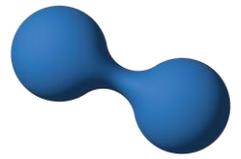
A 50 µL reaction containing 0.5 µg of RNA and 50 µg of rBSA is incubated at 37 °C for 4 hours, and RNA degradation is determined by agarose gel electrophoresis. It is considered acceptable when no RNA degradation is detected.

E. coli DNA CONTAMINATION

20 µg of rBSA is screened for the presence of the specific gene *ybbW* from *Escherichia coli*.¹ A C_q value higher than 35 is accepted.

¹Walker, David I., *et al.* "A highly specific *Escherichia coli* qPCR and its comparison with existing methods for environmental waters." *Water research* 126 (2017): 101-110.





HUMAN DNA CONTAMINATION

20 µg of rBSA is screened for the presence of the human mitochondrial 16S rRNA. A C_q value higher than 35 is accepted.

FUNCTIONAL TESTING

rBSA EFFECT ON DIGESTION ENZYMES

Verification of Levprot's rBSA effect on DNA digestion using restriction enzymes is tested using several plasmids and enzymes. For this purpose, a commercial buffer is used as a control, while a buffer containing rBSA is examined. Three different plasmids and their respective restriction enzymes are used. Enzymes are incubated overnight at 37 °C. After digestion, results are verified on an agarose gel. As shown in the Figure, the buffer containing rBSA has a positive effect on the stability of restrictions enzymes when incubated overnight. Additionally, adhesion of the enzyme to pipette surfaces and reaction tubes is prevented, as evidenced by the successful digestion. As demonstrated in the DNase activity assay and confirmed in this assay, this rBSA does not exhibit DNase activity, as the bands are well-defined, and no DNA smear is detected.

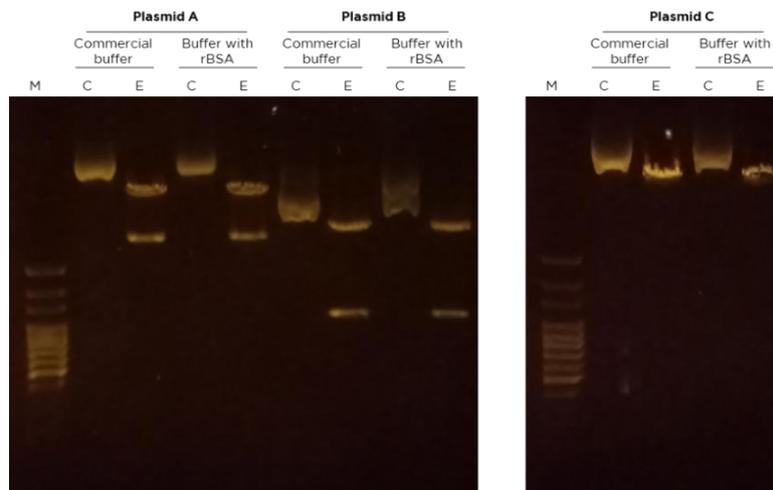


Figure: Three different restriction enzymes are used to digest three different plasmids. Plasmids A and B contain two restriction sites, while plasmid C contains a single restriction site. "C" indicates undigested control and "E" indicates digestion with the enzyme. "M" indicates the DNA marker.





TECHNICAL SUPPORT

If you have any questions, feel free to contact us at
support@levprot.com

Consult the Safety Data Sheet for information regarding hazards and safe handling practises.

THIS PRODUCT IS INTENDED FOR RESEARCH USE ONLY.

DATE 06/05/2025

REV. TDS_MT10K-L1RBSAHA rev.05

