

Technical Data Sheet

GENERAL INFORMATION

PRODUCT	Recombinant Bovine Albumin, expressed in yeast. Molecular Biology Grade.
Cat. No.	MT10K-S1RBSAHA
QUANTITY	10 mg
DESCRIPTION	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. This is an animal-free molecular biology grade product.

PRODUCTS PROVIDED

<u>Component</u>		<u>Amount</u>
10K-S1RBSAHA	Recombinant Bovine Albumin. Molecular Biology Grade.	1 vial x 500 µL

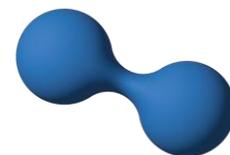
DELIVERY CONDITIONS

10K-S1RBSAHA	10 mg of rBSA at 20 mg/mL in 20 mM Tris pH 7.5, 100 mM KCl, 0.1 mM EDTA, 30% glycerol.
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SHIPPING CONDITIONS	This product requires cold shipment conditions. Store the protein from -20 °C to -80 °C upon arrival.
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STORAGE CONDITIONS	Store at a temperature range from -20 °C to -80 °C for medium and long term. Storage at 4 °C is possible for short term. Avoid multiple freeze/thaw cycles by storing multiple aliquots.
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QUALITY CONTROL

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

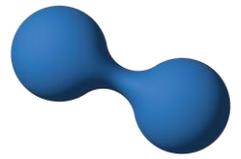
20 µg of rBSA is screened for the presence of the specific gene *ybbW* from *Escherichia coli*.¹ A C_q value higher than 35 is accepted.

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.

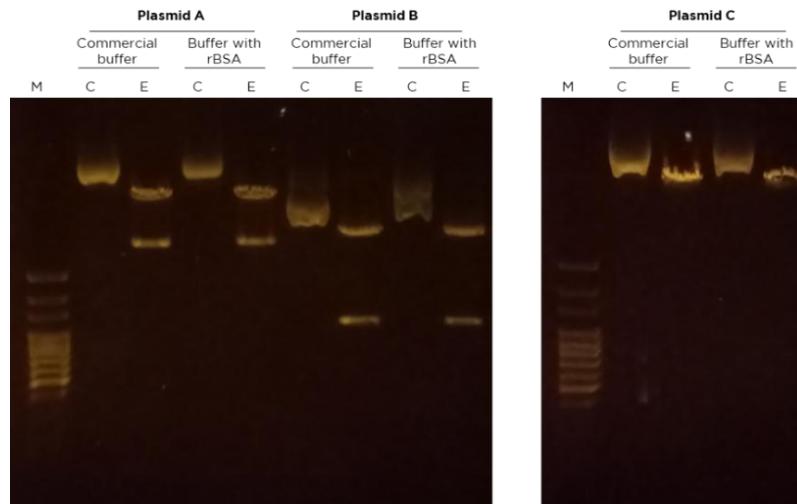


Figure: Three different restriction enzymes are used to digest three different plasmids. Plasmids A and B contain two restriction sites, while plasmid C contains a single restriction site. "C" indicates the undigested control and "E" indicates digestion with the enzyme. "M" indicates the DNA marker.

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-S1RBSAHA rev.03

