ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Bovine Serum Albumin (BSA), Purified, antigen grade

½ Cat. # BSA16-N-100 Purified Bovine serum albumin (BSA), antigen grade, protease free **SIZE**: 100 mg

Albumin (Latin: albus, white) refers generally to any protein with water solubility and heat sensitive or heat coagulation (protein denaturation). Substances containing albumin, such as egg white, are called albuminoids. The most well-known type of albumin is the serum albumin in the blood. Serum albumin is the most abundant blood plasma protein and is produced in the liver and forms a large proportion of all plasma protein. In human, albumin may represent up to 50-60% plasma proteins. All other proteins present in blood plasma are referred to collectively as globulins. Low albumin (hypoalbuminaemia) may be caused by liver disease, nephrotic syndrome, burns, protein-losing enteropathy, malabsorption, malnutrition, late pregnancy, artefact, posture, genetic variations and malignancy. High albumin may be either caused by dehydration or other factors.

Albumin is negatively charged. The glomerular basement membrane is also negatively charged; this prevents the filtration of albumin in the urine. In nephrotic syndrome, this property is lost, and there is more albumin loss in the urine. Nephrotic syndrome patients are given albumin to replace the lost albumin. Human serum albumin (HSA) is widely used to stabilize blood volume. HAS is typically obtained from donors. However, there is concern about the transmission of many diseases such as HIV & Hepatitis. The use of recombinant HAS (rHSA) can be produced in vitro (E. coli or mammalian cells) and therefore has no diseases concerns. rHSA is identical to the natural blood. Recombinant Human HSA produced in mammalians is a single, glycosylated, polypeptide chain containing 585 amino acids and having a molecular mass of 66441 Dalton.

Albumin is also used as carrier protein for conjugating haptens (peptides, drugs, hormones, proteins etc) to make antibodies. It is also used as a model antigen along with ovalbumin, DNP, KLH etc. Albumin is commonly used as a carrier protein additives, buffer additives, or a general purpose blocking agent in ELISA, Western, and IHC applications.

Model Antigen or Control Antigen

Antibodies are produced to a foreign antigen (protein, peptide, small molecule, bacteria or viruses etc). Most large proteins are able to produce antibodies in a foreign host but small molecules (Haptens) such as small chemicals or drugs or antibiotics or peptides must be coupled to a large carrier protein (BSA, Ovalbumin, thyroglobulin, toxoids etc) to make antibodies. The presence of antibody enhancers (adjuvants) often boost the antibody response by attracting the antibody producing cells. Traditionally, oil-based adjuvants, with or without killed bacterium (e.g., complete and incomplete Freund's), are used for animal studies. Recently, non-Freund's type adjuvants such as Titermax have been used to avoid the usage of Freund's adjuvant or use in vaccines where traditional adjuvant cannot be used.

Model antigens have typically been used to study the immune status of immune compromised animals or to compare the effect of added substances (adjuvant). A variety of model antigens can be used: Proteins (medium size such ovalbumin (45 kda) or BSA (65 kda), Thyroglobulin & KLH (>100 Kda-million Kda), Peptides (10-100 amino acid), haptens (DNP), bacterial protein (HbSAg), Toxoid (Cholera or Diphtheria), Viral recombinant proteins (HIV or H1N1 or H5N1, influenza) are used to study the immune responses. The advantage of using these model antigens is that they are available in purified form and there antibodies and ELISA kits are also available.

Model antigen doses, routes of immunization, frequency of injection, immunization period, animal selection, and the use of adjuvant must be selected based upon experimental protocol.

Source of Antigen

BSA is purified from bovine serum using proprietary methods using USFDA certified animal facilities. ADI's BSA has been treated and purified to remove any proteases that may cleave some protease sensitive proteins during ELISA or Western.

Form

BSA (protease-free Biochemical analyses)

Protein	100%
Moisture	0.60%
Ash	0.90%
pH	6.80
Protease	not detected
heavy metals	<0.025 ppm (very low)
Bovine IgG	not detected
Bluetongue virus	not detected
Vesicular Stomatitis virus	not detected

Purified protein is supplied as lyophilized powder. It can be dissolved on appropriate buffers (PBS, TBS, at 1-10% w/v). Sodium azide or merthiolate can be added if desired to prevent bacterial growth in BSA-Stock solutions. Store solutions at 4oC for short term and -20oC in suitable size aliquots.

Recommended Usage

Some of the common application for HSA include:

Peptide or Drug conjugate or carrier protein; Protein or Vaccine formulation, Protein Therapeutics, Cell Storage or Cryopreservation, cell cultures, Infertility treatments, coating for medical drugs or devices, Drug delivery and ELISA, Western or standards.
Coating protein for ELISA, Western blot control, or as model antigen.

*This product is for In vitro research use only.

Related material available from ADI

Catalog#	ProdDescription
ALB11-A	Anti-Mouse albumin IgG aff pure
ALB11-BTN	Anti-Mouse albumin IgG-FITC Conjugate
ALB11-FITC	Anti-Mouse albumin IgG-FITC Conjugate
ALB12-N-1	Purified Mouse serum albumin protein (>96% pure)
ALBC15-N-1	Chicken Serum Albumin protein purified
ALBC15-S	Anti-Chicken Serum Albumin protein antiserum
ALBH13-A	Anti-Human albumin IgG aff pure
ALBH13-FITC	Anti-Human albumin IgG-FITC Conjugate
ALBH16-R-10	Anti-Human albumin IgG aff pure
ALBR12-A	Anti-rat albumin IgG aff pure
ALBR12-BTN	Anti-rat albumin IgG, biotinylated
ALBR12-N-1	Purified rat albumin protein (>98% pure)
1190	**Human Serum Albumin ELISA Kit, 96 tests,**
1200	**Human Albumin ELISA Kit, 96 tests, Quantitative**

BSA16-N-100 150323A

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com