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Product Information

Bovine Serum Albumin
protease, essentially free

Catalog Number **A3858**
Store at 2-8 °C

Molecular Weight: 66,430 Daltons (calculated)[1]
CAS Number: 9048-46-8
Synonyms: BSA, albumin from bovine serum, bovine plasma albumin
Purification: heat-shock fractionation
Origin: New Zealand

Product Description

Albumins are a group of acidic proteins which occur plentifully in the body fluids and tissues of mammals and in some plant seeds. Unlike globulins, albumins have comparatively low molecular weights, are soluble in water, are easily crystallized, and contain an excess of acidic amino acids. Serum and plasma albumin is carbohydrate-free and comprises 55-62% of the protein present.[2]

Bovine serum albumin (BSA) is a single polypeptide chain consisting of 583 amino acid residues, without carbohydrates. At pH 5-7, BSA contains 17 intrachain disulfide bridges and 1 sulfhydryl group.[1,3]

Albumin binds water, Ca^{2+}, Na^{+}, and K^{+}. Because of a hydrophobic cleft, albumin binds fatty acids, bilirubin, hormones and drugs. The main biological function of albumin is to regulate the colloidal osmotic pressure of blood.[2] Bovine and human albumins contain 16% nitrogen and are often used as standards in protein calibration studies. Albumin is used to solubilize lipids, and is also used as a blocking agent in Western blotting or ELISA applications.

While we have not performed application testing on this product, several publications cite this particular BSA product for use in applications such as a blocking agent buffer component in ELISA,[4] immunoblotting,[5,6] and microscopy.[7]

Preparation Instructions

This product is tested for solubility at 40 mg/mL in water.

Storage/Stability

Albumins are readily soluble in water and can only be precipitated by high concentrations of neutral salts such as ammonium sulfate. The solution stability of BSA is very good, especially if the solutions are stored as frozen aliquots. In fact, albumins are frequently used as stabilizers for other solubilized proteins (e.g. labile enzymes). However, albumin is readily coagulated by heat.[8] When heated to 50 °C or above, albumin quite rapidly forms hydrophobic aggregates which do not revert to monomers upon cooling. At somewhat lower temperatures, aggregation is also expected to occur, but at relatively slower rates.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

References

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5. Wolley, M.J. *et al*., *J. Am. Soc. Nephrol*., **28(1)**, 56-63 (2017).
6. Qian, X.-J. *et al*., *Acta Pharmacol. Sin.*, **40(5)**, 648-657 (2019).
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