

## Product Information

## Bovine Serum Albumin

**A3608**

Store at 2-8 °C

Molecular Weight: 66,430 Daltons (calculated)<sup>1</sup>

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.<sup>2</sup>

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.<sup>1,3</sup>

Albumin binds water, Ca<sup>2+</sup>, Na<sup>+</sup>, and K<sup>+</sup>. 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.<sup>2</sup> 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 use of this particular BSA product in various applications, including:

- Fluorescently-linked immunosorbent assay (FLISA)<sup>4</sup>
- ELISA<sup>5</sup>
- As an antibody diluent in cell sorting studies<sup>6</sup>

### 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 (for example, labile enzymes). However, albumin is readily coagulated by heat.<sup>7</sup> 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

1. Hirayama, K. *et al.*, *Biochem. Biophys. Res. Comm.*, **173(2)**, 639-646 (1990).
2. Scott, T. and Eagleson, M., *Concise Encyclopedia: Biochemistry*, 2nd ed.. Walter de Gruyter (New York), pp. 19-20 (1988).
3. *The Plasma Proteins: Structure, Function and Genetic Control*, 2nd ed. (Frank W. Putnam, ed.). Academic Press (New York), Vol. 1, pp. 141, 147 (1975).
4. Hoy, C.F.O. *et al.*, *Sens. Biosensing Res.*, **26**, 100304 (2019).
5. Zhang, X. *et al.*, *J. Immunol.*, **205(7)**, 1743-1751 (2020).
6. Jaber, E. *et al.*, *EBioMedicine*, **57**, 102868 (2020).
7. Lewis, R.J., Sr., *Hawley's Condensed Chemical Dictionary*, 12th ed.. Van Nostrand Reinhold Co. (New York), p. 30 (1993).

## Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

## Technical Assistance

Visit the tech service page at [SigmaAldrich.com/techservice](https://SigmaAldrich.com/techservice).

## Standard Warranty

The applicable warranty for the products listed in this publication may be found at [SigmaAldrich.com/terms](https://SigmaAldrich.com/terms).

## Contact Information

For the location of the office nearest you, go to [SigmaAldrich.com/offices](https://SigmaAldrich.com/offices).

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

MilliporeSigma, and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.  
© 2021 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

A3608pis Rev 05/21

**MILLIPORE  
SIGMA**