

# GMP Recombinant Human Serum Albumin

## Background

Human serum albumin (HSA) is a 66.4 kDa multi-domain globular protein rich in cysteine, leucine, glutamine, and lysine with some methionine, glycine, isoleucine, and one tryptophan (1). Its structural stability and biological activity are made possible by 17 disulfide bridges established by 34 cysteine residues (with one free cysteine) (2). It is abundantly available in human plasma (50–60%) and plays an important role in buffering pH, maintaining oncotic pressure (1). The three structurally similar globular domains (I-III with subdomains) contain binding sites for various drugs including warfarin (4), hemin (5), fatty acid (6) along with metals, bilirubin, and more (7). For cell culture applications, HSA plays a pivotal role in stabilizing cytokines (8), reducing oxidative stress with antioxidant activities (9), and significantly enhancing cell expansion in media development for serum free growth conditions (10).

## REFERENCES

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## Description

<b>Source</b>	<i>P. pastoris</i> -derived human serum albumin protein. Produced using non-animal reagents in an animal-free laboratory. Manufactured and tested under cGMP guidelines.
<b>Predicted Molecular Mass</b>	66.4 kDa

## Specifications

<b>Appearance</b>	Clear to light yellow/yellowish green solution
<b>Concentration</b>	220 mg/mL ± 10%
<b>pH</b>	6.4-7.4
<b>Identity and Molecular Weight</b>	66.4 kDa ± 3.3 kDa by SEC-MALS
<b>Albumin Purity</b>	≥ 98.0% by SEC-MALS
<b>Albumin Monomer Purity</b>	≥ 90.0% by SEC-MALS
<b>Activity</b>	Supports NK Expansion from human PBMC
<b>Endotoxin</b>	< 1.0 EU/mg by the LAL method
<b>Mycoplasma</b>	Negative
<b>Sterility</b>	No growth, tested per USP<71> and Ph. Eur. 2.6.1

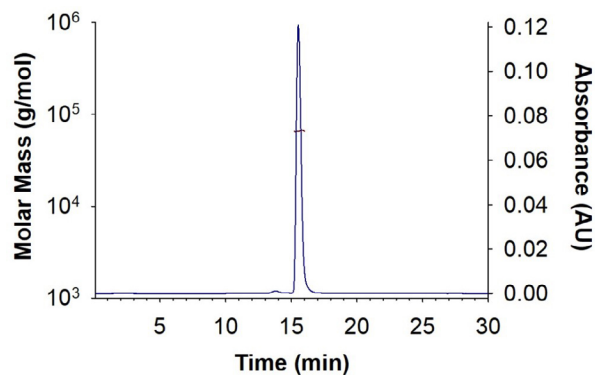
## Preparation & Storage

<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	Store at 2-8 °C. Refer to lot specific COA for the Use by Date.

## Data

FIGURE // 01

GMP Recombinant Human Serum Albumin (Catalog # HSA01-GMP) has a molecular weight (MW) of 64.9 kDa as analyzed by SEC-MALS.



SEC-MALS Data	Result
Retention Time	15.0-16.7
MW-Predicted (monomer)	66.4 kDa
MW-MALS	64.9 kDa
Polydispersity	1.005
System Suitability: BSA Monomer $66.4 \pm 3.32$ kDa	Pass

FIGURE // 02

Addition of GMP Recombinant Human Serum Albumin (Catalog # HSA01-GMP) to a commercially available NK medium supported the expansion of primary human PBMC derived NK cell compared to minimal expansion with supplier P or no HSA added.

