Data Sheet (Cat.No.TP2587)

TargetMol

Human serum albumin

Chemical Properties

CAS No. : 70024-90-7

Formula:

Molecular Weight:

Storage: Keep away from direct sunlight,Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Human Serum Albumin (HSA) is the most abundant protein in human plasma, is produced in the liver and is water soluble, with a molecular weight of 66.5 kDa. HSA inhibits Alzheimer's disease by selectively binding to cross-structured A oligomers. HSA is a key endogenous inhibitor of amyloid-β (Aβ) aggregation. HSA is used as a carrier protein in cell culture for the transport of fatty acids, steroids, and thyroid hormones and to regulate osmolality of the blood, and is also used in drug delivery studies, immunoassays, and cell freezing. cell freezing.
Targets(IC50)	Beta Amyloid,NF-κB,NO Synthase
In vitro	Human serum albumin (HSA) at a concentration of 5 μM for 0-90 minutes can bind with Glycerol monolaurate (GML), with a dissociation constant (K d) of 1.4 μM, and it serves to protect T cell function by preventing GML from inhibiting human T cells. HSA at concentrations of 0.01, 0.05, and 0.1 μM over 0-24 hours can mitigate the GML-induced phosphorylation of AKT at threonine 308 and serine 473, as well as the formation of LAT, PLC-γ1, and AKT microclusters, while restoring the production of IFN-γ, IL-2, IL-10, and TNF-α in GML-treated cells. Western Blot analysis in activated peripheral blood T cells at a 0.05 μM concentration with incubation times of 0, 2, 5, and 15 minutes showed that it affected GML's ability to inhibit AKT phosphorylation. RT-PCR studies, using activated peripheral blood T cells with concentrations of 0.1, 0.05, and 0.005 μM over 24 hours, demonstrated the restoration of IFN-γ, IL-2, IL-10, and TNF-α production in GML-treated cells.
In vivo	In a study on male Swiss mouse models, Human serum albumin administered intravenously at a dose of 10 ml/kg once at 1 hour and once at 5 hours effectively mitigated the oxidative stress and nitric oxide overproduction induced by lipopolysaccharide (LPS, 50 mg/kg via intraperitoneal injection). The treatment successfully inhibited iNOS expression and formation of peroxynitrite (ONOO–), reduced the upregulation of NF-κB, and prevented the decline in vascular response to phenylephrine, muscle tone, and endothelial function caused by endotoxin.

Solubility Information

Solubility	H2O: 125 mg/mL (< 1 mg/ml refers to the product slightly soluble or insoluble)

Reference

Arques S. Human serum albumin in cardiovascular diseases. Eur J Intern Med. 2018 Jun;52:8-12.
Fanali G, et al. Human serum albumin: from bench to bedside. Mol Aspects Med. 2012 Jun;33(3):209-90.
Zhang MS, et al. Human Serum Albumin (HSA) Suppresses the Effects of Glycerol Monolaurate (GML) on Human T Cell Activation and Function. PLoS One. 2016;11(10):e0165083. Published 2016 Oct 20.
Meziani F, et al. Human serum albumin improves arterial dysfunction during early resuscitation in mouse endotoxic model via reduced oxidative and nitrosative stresses. Am J Pathol. 2007;171(6):1753-1761.