
Product Data Sheet

Product Name: Trypsin inhibitor(soybean) (≥ 4000 BAEE Units/mg)

Cat. No.: GC19839

Chemical Properties

Cas. No. 9035-81-8

Formula M.Wt ~22000

Solubility H₂O : 50 mg/mL (ultrasonic and warming and heat to 60°C) Storage Store at 2-8°C, protect from light

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure **Protocol**

Cell experiment

[1]:

Cell lines MCF-7□HepG2 cells

Preparation method Different concentrations of the Trypsin inhibitor(soybean) (0-25μM) in 100μL complete RPMI medium was incubated with MCF-7 and HepG2 cells in a 96-well plate for 72 hours prior to incubation with MTT for 4 hours.

Reaction Conditions 0-25μM; 72 h

Caution: Product has not been fully validated for medical applications. For research use only.

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Applications	Trypsin inhibitor(soybean) inhibited proliferation of MCF-7 cells and HepG2 cells with IC ₅₀ values of 45.7 μ M and 23.7 μ M, respectively.
Animal experiment [2]:	
Animal models	KM male mice
Preparation method	Mice were divided into three groups randomly: the control group, Group Trypsin inhibitor (soybean) (control diet containing 2.0mg/g Trypsin inhibitor (soybean)), Group Trypsin inhibitor (soybean)+VC (Trypsin inhibitor (soybean) diet supplemented with 1500 mg/kg VC). A total of five intergroup parallels were set up for each group for the weekly sacrifice of animals. All the mice were sacrificed after a 5-week feeding.
Dosage form	2.0mg/g; p.o.
Applications	Based on tissue section analysis, Trypsin inhibitor (soybean) causes irreversible damage to the pancreas. MDA in pancreatic mitochondria increased significantly in the experimental group and reached the maximum value (15.7 nmol/mg prot) in the third week.

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Planta medica,
2009, 75(05):
550-556.

[2] Gu C, Yang Q,
Li S, et al. Effects
of Soybean
Trypsin Inhibitor
on Pancreatic
Oxidative
Damage of Mice
at Different
Growth
Periods[J]. Foods,
2023, 12(8):
1691.

Background

Trypsin inhibitor(soybean) is a trypsin inhibitor with an IC_{50} of $19 \mu M$. It can also inhibit chymotrypsin with an IC_{50} of $14.3 \mu M$ ^[1]. Trypsin inhibitor (soybean) has strong binding force with trypsin and blocks its active site, $K_i=1 \cdot 10^{-5} nM$ ^[2]. Trypsin inhibitor (soybean) can be added to cell culture medium to terminate trypsin digestion of cells ^[3]. Trypsin inhibitor (soybean) inhibits trypsin at a 1:1 molar ratio.

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In vitro, Trypsin inhibitor (soybean) (0-25 μ M) treated MCF-7 and HepG2 cells for 72 hours, and both inhibited cell proliferation, with IC₅₀ values of 45.7 μ M and 23.7 μ M respectively [1]. Trypsin inhibitor (soybean) (10 μ g/mL) treated HEK and A549 cells for 24 hours, which produced significant cytotoxic effects, was more toxic to A549 cells, and increased the activity of reactive oxygen species scavenging enzymes [4].

In vivo, Trypsin inhibitor (soybean) (2.0mg/g) was orally fed to KM mice for 5 weeks, which significantly increased pancreatic mitochondrial MDA content and reduced SOD and GSH-Px levels [5].

References:

- [1] Ye X, Ng T B. A trypsin-chymotrypsin inhibitor with antiproliferative activity from small glossy black soybeans[J]. *Planta medica*, 2009, 75(05): 550-556.
- [2] Blow D M, Janin J, Sweet R M. Mode of action of soybean trypsin inhibitor (Kunitz) as a model for specific protein-protein interactions[J]. *Nature*, 1974, 249(5452): 54-57.
- [3] Stevenson N L, Bergen D J M, Lu Y, et al. Giantin is required for intracellular N-terminal processing of type I procollagen[J]. *Journal of Cell Biology*, 2021, 220(6): e202005166.
- [4] Shamsi T N, Parveen R, Fatima S. Trypsin inhibitors demonstrate antioxidant activities, inhibit A549 cell proliferation, and increase activities of reactive oxygen species scavenging enzymes[J]. *Indian Journal of Pharmacology*, 2017, 49(2): 155-160.
- [5] Gu C, Yang Q, Li S, et al. Effects of Soybean Trypsin Inhibitor on Pancreatic Oxidative Damage of Mice at Different Growth Periods[J]. *Foods*, 2023, 12(8): 1691.

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