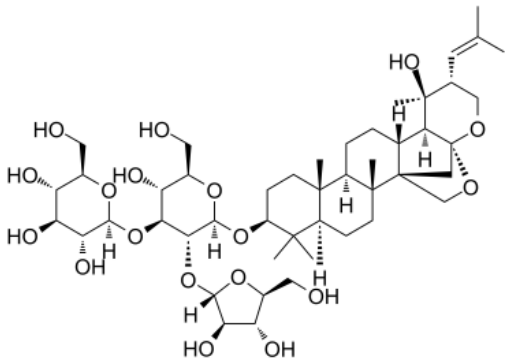
Product Data Sheet

Product Name: Bacopaside II
Cat. No.: GC35458

Chemical Properties

Cas. No.	382146-66-9		
Formula	$C_{47}H_{76}O_{18}$	M.Wt	929.1
Solubility	Soluble in Methanol ; DMSO:30mg/ml	Storage	Store at -20°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 HT-29, SW480, SW620, and HCT116 (human colon cancer cell lines)

Product Data Sheet

Preparation Method	Cells were maintained in DMEM supplemented with 10% heat-inactivated fetal bovine serum (FBS), 200U/mL penicillin, 200μg/mL streptomycin at 37°C, 5% CO_2. Cells were treated with Bacopaside II dissolved in a 2% methanol vehicle at concentrations of 15-30μM for 24-72 hours.
Reaction Conditions	15-30μM; 24-72 hours
Applications	Bacopaside II significantly inhibited adherent colon cancer cell growth, with IC_{50} values ranging from 14.5μM (HCT116) to 18.4μM (HT-29). Treatment induced G0/G1 cell cycle arrest in HT-29 cells (20μM) and G2/M arrest in SW480, SW620, and HCT116 cells. Bacopaside II significantly induced apoptosis.

Animal experiment [2]:

Animal models	ICR mice
Preparation Method	Mice were orally administered Bacopaside II (50mg/kg) suspended in 0.3% carboxymethylcellulose sodium (CMCNa) once daily for five consecutive days. Memory impairment was induced by intraperitoneal injection of Scopolamine (1mg/kg) 30 minutes before behavioral tests. The forced swimming test and tail suspension test were conducted 1 hour after the final administration on the fifth day.
Dosage form	50mg/kg; p.o.

Caution: Product has not been fully validated for medical applications. For research use only.
Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Applications	Bacopaside II administration significantly reduced immobility time by 55% in the forced swimming test and by 38% in the tail suspension test.

References:
[1] Smith E, Palethorpe HM, Tomita Y, et al. The Purified Extract from the Medicinal Plant Bacopa monnieri, Bacopaside II, Inhibits Growth of Colon Cancer Cells In Vitro by Inducing Cell Cycle Arrest and Apoptosis. Cells. 2018 Jul 21;7(7):81.
[2] Zhou Y, Shen YH, Zhang C, et al. Triterpene saponins from Bacopa monnieri and their antidepressant effects in two mice models. J Nat Prod. 2007 Apr;70(4):652-5.

Background

Bacopaside II is a steroidal saponin extracted from the medicinal plant *Bacopa monnieriwith* multiple biological activities[1]. Bacopaside II can induce cell cycle arrest and apoptosis in cancer cells [2]. Bacopaside II reduces hydrogen peroxide-induced intracellular reactive oxygen species (ROS) production and inhibits endothelial cell migration and tube formation[3]. Bacopaside II also exhibits potential for the treatment of Alzheimer's disease[4].

In vitro, treatment of triple-negative breast cancer cell lines HCC1143 and MDA-MB-231 with Bacopaside II (15–30μM) significantly induced apoptosis and necroptosis-like cell death. Combined treatment of MDA-MB-231 cells with Bacopaside II (10μM) and doxorubicin (100nM) for 72 hours demonstrated a synergistic growth inhibitory effect[5]. Treatment of colon cancer cell lines HT-29, SW480, SW620, and HCT116 with Bacopaside II (15–30μM) for 24–72 hours significantly inhibited cell growth, induced cell cycle arrest and apoptosis, and caused prominent intracellular vacuolization and autophagy-like morphological changes[6].

In vivo, oral administration of Bacopaside II (50mg/kg) for five consecutive days to ICR mice exhibited antidepressant effects, significantly reducing immobility time by 55% in the forced swimming test and by 38% in the tail suspension test[7]. Oral pre-treatment of ICR mice with Bacopaside II (50mg/kg) one hour before intraperitoneal injection of scopolamine (1mg/kg) to induce memory impairment showed that Bacopaside II ameliorated scopolamine-induced memory

impairment[8].

References:

[1] Chakravarty AK, Sarkar T, Masuda K, et al. Bacopaside I and II: two pseudojujubogenin glycosides from Bacopa monniera. Phytochemistry. 2001 Oct;58(4):553-6.
[2] De Ieso ML, Pei JV, Nourmohammadi S, et al. Combined pharmacological administration of AQP1 ion channel blocker AqB011 and water channel blocker Bacopaside II amplifies inhibition of colon cancer cell migration. Sci Rep. 2019 Sep 2;9(1):12635.
[3] Palethorpe HM, Tomita Y, Smith E, et al. The Aquaporin 1 Inhibitor Bacopaside II Reduces Endothelial Cell Migration and Tubulogenesis and Induces Apoptosis. Int J Mol Sci. 2018 Feb 26;19(3):653.
[4] Anwar S, Mohammad T, Azhar MK, et al. Investigating MARK4 inhibitory potential of Bacopaside II: Targeting Alzheimer's disease. Int J Biol Macromol. 2023 Aug 1;245:125364.
[5] Rad SK, Yeo KKL, Li R, et al. Enhancement of Doxorubicin Efficacy by Bacopaside II in Triple-Negative Breast Cancer Cells. Biomolecules. 2025 Jan 3;15(1):55.
[6] Smith E, Palethorpe HM, Tomita Y, et al. The Purified Extract from the Medicinal Plant Bacopa monnieri, Bacopaside II, Inhibits Growth of Colon Cancer Cells In Vitro by Inducing Cell Cycle Arrest and Apoptosis. Cells. 2018 Jul 21;7(7):81.
[7] Zhou Y, Shen YH, Zhang C, et al. Triterpene saponins from Bacopa monnieri and their antidepressant effects in two mice models. J Nat Prod. 2007 Apr;70(4):652-5.
[8] Zhou Y, Peng L, Zhang WD, et al. Effect of triterpenoid saponins from Bacopa monniera on scopolamine-induced memory impairment in mice. Planta Med. 2009 May;75(6):568-74.

Caution: Product has not been fully validated for medical applications. For research use only.
Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA