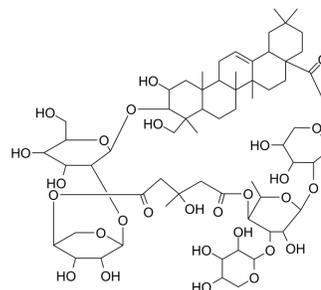


## Tubeimoside I

<b>Cat. No.:</b>	HY-N0890		
<b>CAS No.:</b>	102040-03-9		
<b>Molecular Formula:</b>	C <sub>63</sub> H <sub>98</sub> O <sub>29</sub>		
<b>Molecular Weight:</b>	1319.44		
<b>Target:</b>	Apoptosis		
<b>Pathway:</b>	Apoptosis		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 100 mg/mL (75.79 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	0.7579 mL	3.7895 mL	7.5790 mL
	5 mM	0.1516 mL	0.7579 mL	1.5158 mL
	10 mM	0.0758 mL	0.3789 mL	0.7579 mL

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (1.89 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (1.89 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (1.89 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Tubeimoside I (Lobatoside-H) is an extract from Chinese herbal medicine *Bolbostemma paniculatum* (MAXIM.) FRANQUET (Cucurbitaceae) has been shown as a potent anti-tumor agent for a variety of human cancers. IC<sub>50</sub> value: Target: Anticancer natural compound in vitro: TBMS I inhibited the proliferation of both HepG2 and L-02 cells in a dose- and time-dependent manner, but HepG2 cells appeared more sensitive to the agent. When exposed to TBMS I for 24, 48 and 72 h, IC<sub>50</sub> for HepG2 cells versus L-02 cells were 15.5 vs. 23.1, 11.7 vs. 16.2, 9.2 vs. 13.1 (μM, p<0.01), respectively. TBMS I induced cell shrinkage, nuclear condensation and fragmentation, cell cycle arrest at the G<sub>2</sub>/M phase, mitochondrial membrane disruption, release of cytochrome c from the mitochondria, activation of caspase 3 and 9, and shifting Bax/Bcl-2 ratio from being anti-apoptotic

to pro-apoptotic, all indicative of initiation and progression of apoptosis involving mitochondrial dysfunction [1]. TBMS1-induced molecular events were related to mitochondria-induced intrinsic apoptosis and P21-cyclin B1/cdc2 complex-related G2/M cell cycle arrest [2]. TBMS1 combined with CDDP promoted cell apoptosis, decreased proliferation activity and increased cytosolic Ca<sup>2+</sup> levels. Bcl-2 protein expression was down-regulated but Bax was up-regulated. Moreover, GST- $\pi$  mRNA and protein expression were decreased. TBMS1 reduced the resistance of the cells to CDDP-induced cytotoxicity [4]. Treatment with TBMS1 resulted in dose- and time-dependent inhibition of proliferation, led to arrest in phase G2/M of the cell cycle and increased the levels of intracellular Ca<sup>2+</sup>. Furthermore, TBMS1 up-regulated the levels of the glucose-regulated protein 78/immunoglobulin heavy chain binding protein (GRP78/Bip), C/EBP homologous protein (CHOP), Bax, and cleaved caspase-3 and down-regulated the levels of Bcl-2 [5]. *in vivo*: TBMS1 significantly inhibited the production of the pro-inflammatory cytokines, TNF- $\alpha$ , IL-6 and IL-1 $\beta$  *in vitro* and *in vivo*. Pretreatment with TBMS1 markedly attenuated the development of pulmonary edema, histological severities and inflammatory cells infiltration in mice with ALI [3].

## CUSTOMER VALIDATION

- Pharmacol Res. 2020 May;155:104751.
- Oxid Med Cell Longev. 2023 Jan 14;2023:9966355.

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## REFERENCES

- [1]. Wang Y, et al. Natural plant extract tubeimoside I promotes apoptosis-mediated cell death in cultured human hepatoma (HepG2) cells. *Biol Pharm Bull.* 2011;34(6):831-8.
- [2]. Xu Y, et al. Intrinsic apoptotic pathway and G2/M cell cycle arrest involved in tubeimoside I-induced EC109 cell death. *Chin J Cancer Res.* 2013 Jun;25(3):312-21.
- [3]. Wu Q, et al. Tubeimoside-1 attenuates LPS-induced inflammation in RAW 264.7 macrophages and mouse models. *Immunopharmacol Immunotoxicol.* 2013 Aug;35(4):514-23.
- [4]. Liu HZ, et al. Tubeimoside I sensitizes cisplatin in cisplatin-resistant human ovarian cancer cells (A2780/DDP) through down-regulation of ERK and up-regulation of p38 signaling pathways. *Mol Med Rep.* 2011 Sep-Oct;4(5):985-92.
- [5]. Chen WJ, et al. Tubeimoside-1 induces G2/M phase arrest and apoptosis in SKOV-3 cells through increase of intracellular Ca<sup>2+</sup> and caspase-dependent signaling pathways. *Int J Oncol.* 2012 Feb;40(2):535-43.

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

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