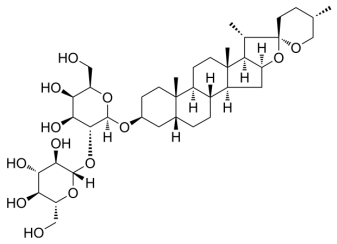
Timosaponin AIII

Cat. No.:	HY-N0810
CAS No.:	41059-79-4
Molecular Formula:	$C_{39}H_{64}O_{13}$
Molecular Weight:	740.92
Target:	Cholinesterase (ChE)
Pathway:	Neuronal Signaling
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (168.71 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3497 mL	6.7484 mL	13.4967 mL
	5 mM	0.2699 mL	1.3497 mL	2.6993 mL
	10 mM	0.1350 mL	0.6748 mL	1.3497 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (2.81 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (2.81 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Timosaponin AIII could inhibit acetylcholinesterase (AChE) activity, with an IC_{50} of 35.4 μM.
IC_{50} & Target	AChE
In Vitro	Timosaponin AIII could inhibit acetylcholinesterase (AChE) activity, with an IC_{50} of 35.4 μM[1]. Timosaponin AIII is identified as a major selective cytotoxic activity in BN108, and its selective cytotoxic activity involves inhibition of mTOR, induction of ER stress and protective autophagy[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Of the tested steroidal saponins, Timosaponin AIII (TA3) most potently improves memory deficits. Timosaponin AIII

increases the scopolamine-induced reduction in step-through latency by 17% (10 mg/kg), 28% (20 mg/kg), and 43% (40 mg/kg). During the acquisition trial, no differences in latent time are observed. Timosaponin AIII (20, 40 mg/kg, p.o.) potently inhibits this reduction of acetylcholine in scopolamine-treated mouse brain. The inhibitory effect of Timosaponin AIII is comparable to that of tacrine, which is used as a positive control[1].

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PROTOCOL

Animal Administration [1]

Mice[1]

Male ICR mice weighing 28-30 g are used. For the acquisition trial, mice are initially placed in the illuminated compartment and the door between the two compartments is opened 10 s later. Each group contains ten mice. One hour or 5 h before the acquisition trial, mice receive each test agent (e.g., Timosaponin AIII 10, 20 or 40 mg/kg, p.o.). One hour before the acquisition trial, mice receive tacrine (10 mg/kg, p.o.) as a positive control. Memory impairment is induced by scopolamine treatment (1 mg/kg, i.p.) 0.5 h or 4.5 h after the administration of test agents, tacrine, or 10% Tween 80 solution. Control animals are administered 10% Tween 80 solution alone. Twenty-four hours after the acquisition trial, the mice are again placed in the illuminated compartment for retention trials. The time taken for a mouse to enter the dark compartment after the door opened is measured as the latency time in both acquisition and retention trials, with a maximum of 300 s[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Lee B, et al. Timosaponin AIII, a saponin isolated from Anemarrhena asphodeloides, ameliorates learning and memory deficits in mice. Pharmacol Biochem Behav. 2009 Aug;93(2):121-7.

[2]. King FW, et al. Timosaponin AIII is preferentially cytotoxic to tumor cells through inhibition of mTOR and induction of ER stress. PLoS One. 2009 Sep 30;4(9):e7283.

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