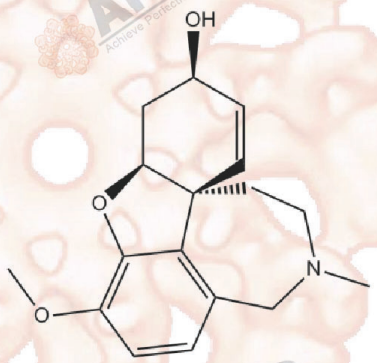
Product Data Sheet

Galanthamine

Cat. No.:	A3423
CAS No.:	357-70-0
Formula:	C17H21NO3
M.Wt:	287.35
Synonyms:	
Target:	Neuroscience
Pathway:	AChR
Storage:	Store at -20°C



Solvent & Solubility

In Vitro

⩾14.37 mg/mL in DMSO; ⩾14.43 mg/mL in H2O with gentle warming; ⩾45 mg/mL in EtOH with gentle warming

Preparing Stock Solutions

Mass / Solvent / Concentration	1mg	5mg	10mg
1 mM	3.4801 mL	17.4004 mL	34.8008 mL
5 mM	0.6960 mL	3.4801 mL	6.9602 mL
10 mM	0.3480 mL	1.7400 mL	3.4801 mL

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

Biological Activity

Shortsummary	Acetylcholinesterase inhibitor
IC_{50} & Target	0.35 μM (AChE)

In Vitro

Cell Viability Assay

Cell Line:	Post-mortem human brain frontal cortex and hippocampus region, M10 cells, Rat pheochromocytoma (PC12) cells
Preparation method:	Soluble in DMSO. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

	Reacting conditions:	0.35 μM
	Applications:	Galanthamine inhibited the activity of acetylcholinesterase with the IC50 of 14 nM and 15 nM on AChE in post-mortem human brain frontal cortex and the hippocampus region. Red-cell cholinesterase activity in blood samples from the neurosurgery patients was 10 times more strongly inhibited by Galanthamine in brain tissue samples. Galanthamine (1 μM) activated single channels in outside-out patches excised from dexamethasone mouse fibroblasts (M10 cells). Galanthamine acts as noncompetitive nicotinic receptor agonists' on clonal rat pheochromocytoma (PC12) cells. Galanthamine (50 μM) activated single-channel currents in outside-out patches excised from clonal PC12 cells.
In Vivo	**Animal experiment**	
	Animal models:	Male ddY mice
	Dosage form:	Intraperitoneal injection, 0.3-3 mg/kg
	Applications:	Acute administration of Galantamine (0.3-3 mg/kg, i.p.) increased IGF2 mRNA levels in time- and dose-dependent manner. Galantamine (3 mg/kg, i.p.) increased fibroblast growth factor 2 mRNA levels and decreased brain-derived neurotrophic factor mRNA levels in the hippocampus. Galantamine increased hippocampal IGF2 protein.
	Other notes:	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Product Citations

1. Ameen D, Michniak-Kohn B. "Development and in vitro evaluation of pressure sensitive adhesive patch for the transdermal delivery of galantamine: Effect of penetration enhancers and crystallization inhibition." Eur J Pharm Biopharm. 2019 Jun;139:262-271.PMID:30981946

2. Liu Y, Zhang Y, et al. "Galantamine improves cognition, hippocampal inflammation, and synaptic plasticity impairments induced by lipopolysaccharide in mice." J Neuroinflammation. 2018 Apr 18;15(1):112.PMID:29669582

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References

[1]. Thomsen T, Kaden B, Fischer J P, et al. Inhibition of acetylcholinesterase activity in human brain tissue and erythrocytes by galanthamine, physostigmine and tacrine[J]. Clinical Chemistry and Laboratory Medicine, 1991, 29(8): 487-492.

[2]. Pereira E F, Alkondon M, Reinhardt S, et al. Physostigmine and galanthamine: probes for a novel binding site on the alpha 4 beta 2 subtype of neuronal nicotinic acetylcholine receptors stably expressed in fibroblast cells[J]. Journal of Pharmacology and Experimental Therapeutics, 1994, 270(2): 768-778.

[3]. Storch A, Schrattenholz A, Cooper J C, et al. Physostigmine, galanthamine and codeine act as 'noncompetitive nicotinic receptor agonists' on clonal rat pheochromocytoma cells[J]. European Journal of Pharmacology: Molecular Pharmacology, 1995, 290(3): 207-219.
[4]. Kita Y, Ago Y, Takano E, et al. Galantamine increases hippocampal insulin-like growth factor 2 expression via α7 nicotinic acetylcholine receptors in mice[J]. Psychopharmacology, 2013, 225(3): 543-551.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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