



Product Information

Galanthamine hydrobromide from *Lycoris sp.*

Product Number **G 1660**
Storage Temperature -20 °C

Product Description

Molecular Formula: $C_{17}H_{21}NO_3 \cdot HBr$
Molecular Weight: 368.3
CAS Number: 1953-04-4
Synonyms: galantamine, lycoremine, 4a,5,9,10,11,12-hexahydro-3-methoxy-11-methyl-6H-benzofuro[3a,3,2-ef]benzazepin-6-ol¹

Galanthamine is an alkaloid which occurs naturally in various plant species of *Galanthus* and *Narcissus*, including the Caucasian snowdrop, *Galanthus woronowii* (*Amaryllidaceae*), and *Narcissus confusus*.² It is a reversible inhibitor of cholinesterase activity and has been used in studies of nicotinic receptors.^{1,3,4}

The use of galanthamine as a potentiating ligand of various human neuronal nicotinic receptors in studies of HEK-293 cells has been described.⁵ Galanthamine has been shown to increase the production of tau protein in SH-SY5Y cells.⁶ In a study of transgenic anti-nerve growth factor (AD11) mice as a model for Alzheimer's disease, galanthamine was demonstrated to mitigate the progressive neurodegenerative phenotype of these mice.⁷

Several publications have reported the syntheses of (-)-galanthamine and of racemic galanthamine.^{8,9,10} An analytical method for galanthamine and other acetylcholinesterase inhibitors that combines, HPLC, on-line coupled UV, MS, and biochemical detection has been published.¹¹

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Storage/Stability

This product is soluble in water (20 mg/ml) and in DMSO (10 mg/ml), each yielding a clear, colorless solution.

References

1. The Merck Index, 12th ed., Entry# 4357.
2. Lopez, S., et al., Solid-phase extraction and reversed-phase high-performance liquid chromatography of the five major alkaloids in *Narcissus confusus*. *Phytochem. Anal.*, **13(6)**, 311-315 (2002).
3. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, England: 1996), p. 1421.
4. Pereira, E. F., et al., Unconventional ligands and modulators of nicotinic receptors. *J. Neurobiol.*, **53(4)**, 479-500 (2002).
5. Samochocki, M., et al., Galantamine is an allosterically potentiating ligand of neuronal nicotinic but not of muscarinic acetylcholine receptors. *J. Pharmacol. Exp. Ther.*, **305(3)**, 1024-1036 (2003).
6. Hellstrom-Lindahl, E., et al., Increased levels of tau protein in SH-SY5Y cells after treatment with cholinesterase inhibitors and nicotinic agonists. *J. Neurochem.*, **74(2)**, 777-784 (2000).
7. Capsoni, S., et al., Nerve growth factor and galantamine ameliorate early signs of neurodegeneration in anti-nerve growth factor mice. *Proc. Natl. Acad. Sci. USA*, **99(19)**, 12432-12437 (2002).
8. Trost, B. M. and Tang, W., An efficient enantioselective synthesis of (-)-galanthamine. *Angew. Chem. Int. Ed. Engl.*, **41(15)**, 2795-2797 (2002).

9. Guillou, C., et al., An efficient total synthesis of (+/-)-galanthamine. *Angew. Chem. Int. Ed. Engl.*, **40(24)**, 4745-4746 (2001).
10. Node, M., et al., An efficient synthesis of (+/-)-narwedine and (+/-)-galanthamine by an improved phenolic oxidative coupling. *Angew. Chem. Int. Ed. Engl.*, **40(16)**, 3060-3062 (2001).
11. Ingkaninan, K., et al., High-performance liquid chromatography with on-line coupled UV, mass spectrometric and biochemical detection for identification of acetylcholinesterase inhibitors from natural products. *J. Chromatogr. A*, **872(1-2)**, 61-73 (2000).

GCY/RXR 10/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.