

Product Data Sheet

Product Name: (-)-Apomorphine (hydrochloride hydrate)

Cat. No.: GC26151

Chemical Properties

Cas. No. 58117-94-5

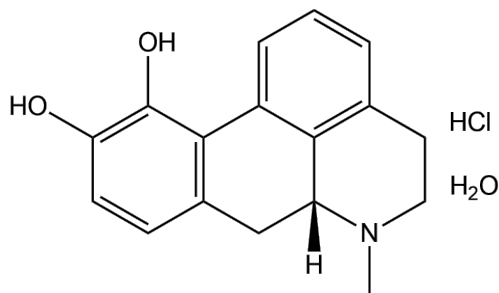
Formula $C_{17}H_{17}NO_2 \cdot HCl [XH_2O]$ M.Wt 303.8

Solubility DMF: 20 mg/ml; DMF:PBS (pH 7.2) (1:1): 0.5 mg/ml; DMSO: 15 mg/ml; Ethanol: 1 mg/ml
Storage Store at -20°C

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 Chondrocytes

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

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Preparation Method Chondrocytes with or without co-cultured retinal pigment epithelium (RPE) cells were treated with $2 \times 10^{-5}M$ (-)-Apomorphine (hydrochloride hydrate) for 3 days. Then the number of chondrocytes was then counted using a Coulter counter to calculate the proliferation rate.

Reaction Conditions $2 \times 10^{-5}M$, 3d

Applications (-)-Apomorphine (hydrochloride hydrate) treatment dramatically reduced the growth-stimulatory effect of RPE cells on the scleral chondrocytes.

Animal experiment [2]:

Animal models Sprague-Dawley rats

Preparation Method Rats were treated with Chlorpromazine (CPZ), followed by an intraperitoneal injection of (-)-Apomorphine (hydrochloride hydrate) 1 hour later. Then rats were sacrificed and their blood was collected from individual rats, allowed to clot over ice, then serum was removed and assayed for prolactin (PRL) by a double antibody radioimmunoassay.

Dosage form 20mg/kg, 1h, i.p.

Applications (-)-Apomorphine (hydrochloride hydrate) treatment significantly lowered the elevated levels of prolactin (PRL) produced by Chlorpromazine (CPZ) pretreatment of diestrous rats.

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References:

- [1]. Seko Y, Tanaka Y, Tokoro T. Apomorphine inhibits the growth-stimulating effect of retinal pigment epithelium on scleral cells in vitro. Cell Biochem Funct. 1997 Sep;15(3):191-6. doi: 10.1002/(SICI)1099-0844(199709)15:3<191::AID-CBF738>3.0.CO;2-2. PMID: 9377797.
- [2]. Smalstig EB, Sawyer BD, Clemens JA. Inhibition of rat prolactin release by apomorphine in vivo and in vitro. Endocrinology. 1974 Jul;95(1):123-9. doi: 10.1210/endo-95-1-123. PMID: 4857693.

Background

(-)-Apomorphine (hydrochloride hydrate) acts as a potent dopamine receptor agonist with a broad spectrum on all D1- and D2-like receptors (D1, D2S, D2L, D3, D4, D5) [1]. (-)-Apomorphine (hydrochloride hydrate) is extremely lipophilic and can cross the blood–brain barrier freely [2]. (-)-Apomorphine (hydrochloride hydrate) is the oldest dopaminergic drug available for Parkinson's disease [3][4]. (-)-Apomorphine (hydrochloride hydrate) is a highly potent antioxidant and free radical scavenger with a neuroprotective effect [5].

(-)-Apomorphine (hydrochloride hydrate) at concentrations of higher than 2×10^{-5} M treatment dramatically reduced the growth-stimulatory effect of retinal pigment epithelium (RPE) cells on the scleral chondrocytes [6]. (-)-Apomorphine (hydrochloride hydrate) exhibits potent relaxant effects on rat corpus cavernosum tissues in vitro, particularly on phenylephrine-induced contractions, without altering cyclic nucleotides [7].

(-)-Apomorphine (hydrochloride hydrate) induced erections in awake rats, peaking at 300 nmol/kg, but had no effect on basal or nerve-stimulated cavernous pressure in anesthetized rats [7]. (-)-Apomorphine (hydrochloride hydrate) (20 mg/kg, i.p) administration to rats with normal 4-day estrous cycles reduced serum prolactin levels during diestrus and prevented the proestrous rise in serum prolactin [8].

References:

- [1]. Auffret M, Drapier S, Vérin M. Pharmacological Insights into the Use of Apomorphine in Parkinson's Disease: Clinical Relevance. Clin Drug Investig. 2018 Apr;38(4):287-312. doi: 10.1007/s40261-018-0619-3. PMID: 29327219.

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- [2]. Corboy DL, Wagner ML, Sage JI. Apomorphine for motor fluctuations and freezing in Parkinson's disease. *Ann Pharmacother*. 1995 Mar;29(3):282-8. doi: 10.1177/106002809502900310. PMID: 7606075.
- [3]. Boyle A, Ondo W. Role of apomorphine in the treatment of Parkinson's disease. *CNS Drugs*. 2015 Feb;29(2):83-9. doi: 10.1007/s40263-014-0221-z. PMID: 25676564.
- [4]. Unti E, Ceravolo R, Bonuccelli U. Apomorphine hydrochloride for the treatment of Parkinson's disease. *Expert Rev Neurother*. 2015;15(7):723-32. doi: 10.1586/14737175.2015.1051468. Epub 2015 Jun 2. PMID: 26037961.
- [5]. Grünblatt E, Mandel S, Gassen M, et al. Potent neuroprotective and antioxidant activity of apomorphine in MPTP and 6-hydroxydopamine induced neurotoxicity. *J Neural Transm Suppl*. 1999;55:57-70. doi: 10.1007/978-3-7091-6369-6_6. PMID: 10335493.
- [6]. Seko Y, Tanaka Y, Tokoro T. Apomorphine inhibits the growth-stimulating effect of retinal pigment epithelium on scleral cells in vitro. *Cell Biochem Funct*. 1997 Sep;15(3):191-6. doi: 10.1002/(SICI)1099-0844(199709)15:3<191::AID-CBF738>3.0.CO;2-2. PMID: 9377797.
- [7]. Matsumoto K, Yoshida M, Andersson KE, Hedlund P. Effects in vitro and in vivo by apomorphine in the rat corpus cavernosum. *Br J Pharmacol*. 2005 Sep;146(2):259-67. doi: 10.1038/sj.bjp.0706317. PMID: 16025145; PMCID: PMC1576267.
- [8]. Smalstig EB, Sawyer BD, Clemens JA. Inhibition of rat prolactin release by apomorphine in vivo and in vitro. *Endocrinology*. 1974 Jul;95(1):123-9. doi: 10.1210/endo-95-1-123. PMID: 4857693.

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