

Product Data Sheet

Product Name: Ropinirole HCl

Cat. No.: GC11462

Chemical Properties

Cas. No. 91374-20-8

Chemical Name 4-[2-(dipropylamino)ethyl]-1,3-dihydroindol-2-one;hydrochloride

SMILES CCCN(CCC)CCC1=C2CC(=O)NC2=CC=C1.Cl

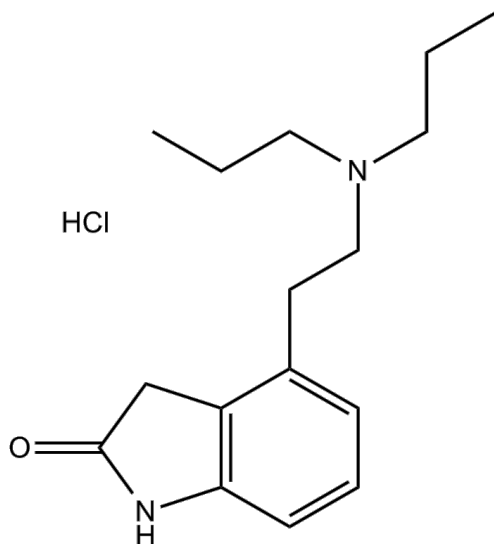
Formula $C_{16}H_{24}N_2O \cdot HCl$ M.Wt 296.84

Solubility $\geq 14.95\text{mg/mL}$ in Water 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]:

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Cell lines	HEK293 cells (human embryonic kidney cell line)
Preparation Method	HEK293 cells were exposed to Ropinirole HCl-loaded colloidal dispersions (P407, P407/Tw80, P407/Tw80/M β CD, P407/Tw80/HP β CD) at concentrations of 25, 50, 100, 200, 300, 400, 500 μ g/mL for 2h. Cell viability was then measured by MTT assay.
Reaction Conditions	25-500 μ g/mL; 2h
Applications	Ropinirole HCl-loaded colloidal dispersions decreased cell viability of HEK293 cell lines.
Animal experiment [2]:	
Animal models	male Laca mice
Preparation Method	Male Laca mice were intraperitoneally administered Ropinirole HCl at 1, 3, or 10mg/kg. After 30 minutes, mice were subjected to forced swim test (FST) or tail-suspension test (TST) for recording immobility period over 6 minutes; separate groups were used for locomotor activity measurement via actophotometer for 5 minutes, or sacrificed for whole brain neurotransmitter (dopamine and serotonin) estimation by HPLC with ECD. In interaction studies, various antagonists were administered intraperitoneally 15 minutes before Ropinirole HCl.
Dosage form	1, 3, or 10mg/kg; i.p.; single injection

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Applications	Ropinirole HCl decreased immobility period in forced swim test and tail-suspension test.
References:[1] Saitani E-M, Pippa N, Perinelli D R, et al. Fabricating polymer/surfactant/cyclodextrin hybrid particles for possible nose-to-brain delivery of ropinirole hydrochloride: in vitro and ex vivo evaluation. Int J Mol Sci. 2024 Jan 18;25(2):1162.[2] Dhir A, Kulkarni S K, et al. Involvement of dopamine(DA)/serotonin(5-HT)/sigma(σ) receptor modulation in mediating the antidepressant action of ropinirole hydrochloride, a D2/D3 dopamine receptor agonist. Brain Res Bull. 2007;74(1):58-65.	

Background

Ropinirole HCl is a non-ergoline dopamine receptor ($D_2/D_3/D_4$) agonist ($pEC_{50}=7.4, 8.4, 6.8$). Ropinirole HCl activates postsynaptic D2-like receptors in the striatum and stimulates D3 receptors to compensate for insufficient dopaminergic transmission. Ropinirole HCl inhibits prolactin secretion. Ropinirole HCl is commonly used in research on Parkinson's disease and restless legs syndrome^[1-4].

In vitro, treatment of SH-SY5Y cells with 10 μ M Ropinirole HCl for 2h altered the gene expression profile and upregulated the expression of genes including PIK3C2B and EPS15^[5]. Treatment of HEK293 cells with Ropinirole HCl-loaded P407/Tw80/M β CD and P407/Tw80/HP β CD hybrid systems at 25-500 μ g/mL for 2h reduced the viability of HEK293 cells^[6]. Treatment of HEK293 cells with 20-100 μ M Ropinirole HCl for 24h increased LC3-II expression levels in HEK293 cells^[7].

In vivo, a single intraperitoneal injection of 1mg/kg Ropinirole HCl promoted sevoflurane anesthesia emergence in mice with vIPAGGABA-VTA induction^[8]. A single intracerebral injection of Ropinirole HCl (200nL; 1 μ M) into the dopamine D2-like receptor-containing brain region from the substantia nigra reticulata projection to the subthalamic nucleus elevated the contralateral mechanical pain threshold in neuropathic pain mice. A single intracerebral injection of Ropinirole HCl (0.3 μ g; 200nL) into the subthalamic nucleus elevated the contralateral mechanical pain threshold and elevated bilateral thermal pain thresholds in 6-hydroxydopamine Parkinson's disease mice^[9]. A single intraperitoneal injection of 1-10mg/kg Ropinirole HCl reduced immobility time in the forced swim test

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

and tail suspension test in Laca mice^[10].

References:

- [1] Eden R J, Costall B, Domeney A M, et al. Preclinical pharmacology of ropinirole (SK&F 101468-A) a novel dopamine D2 agonist. *Pharmacol Biochem Behav.* 1991;38(1):147-154.
- [2] Iida M, Miyazaki I, Tanaka K, et al. Dopamine D2 receptor-mediated antioxidant and neuroprotective effects of ropinirole, a dopamine agonist. *Brain Res.* 1999 May 8;838(1-2):51-59.
- [3] Pardeshi C V, Belgamwar V S, Tekade A R, et al. Novel surface modified polymer-lipid hybrid nanoparticles as intranasal carriers for ropinirole hydrochloride: in vitro, ex vivo and in vivo pharmacodynamic evaluation. *J Mater Sci: Mater Med.* 2013;24(7):2101-2115.
- [4] Saitani E-M, Papakyriakopoulou P, Damalas D, et al. Pharmacokinetic evaluation of intranasal ropinirole delivery using hybrid polymer/surfactant/ β CD systems in C57BL/6J mice. *Int J Pharm.* 2026;697:126855.
- [5] Zhu MZ, Le WD, Jin G, et al. Ropinirole alters gene expression profiles in SH-SY5Y cells: a whole genome microarray study. *Braz J Med Biol Res.* 2016 Feb;49(2):e4857.
- [6] Saitani, E.-M.; Pippa, N.; Perinelli, D.R., et al. Fabricating Polymer/Surfactant/Cyclodextrin Hybrid Particles for Possible Nose-to-Brain Delivery of Ropinirole Hydrochloride: In Vitro and Ex Vivo Evaluation. *Int. J. Mol. Sci.* 2024, 25, 1162.
- [7] Li N, Rao L, Zhao X, et al. Chlorpromazine affects autophagy in association with altered Rag GTPase-mTORC1-TFEB signaling. *Front Cell Dev Biol.* 2023 Sep 8;11:1266198.
- [8] Zhong C-C, Xu Z, Gan J, et al. Acute Ongoing Nociception Delays Recovery of Consciousness from Sevoflurane Anesthesia via a Midbrain Circuit. *J Neurosci.* 2024 Aug 21;44(34):e0740242024.
- [9] Ji Y, Li S, Zhang J, et al. Nigra-Subthalamic Dopaminergic Circuitry Modulates and Represents Distinct Pain Modality in Physiological and Pain States in Mice. *Adv Sci (Weinh).* 2026;13:e19913.
- [10] Dhir A, Kulkarni S K, et al. Involvement of dopamine(DA)/serotonin(5-HT)/sigma(σ) receptor modulation in mediating the antidepressant action of ropinirole hydrochloride, a D2/D3 dopamine receptor agonist. *Brain Res Bull.* 2007;74(1):58-65.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA