Product Data Sheet

Product Name: Fluvoxamine
Cat. No.: GC13092

Chemical Properties

Cas. No.	54739-18-3		
Chemical Name	2-[(E)-[5-methoxy-1-[4-(trifluoromethyl)phenyl]pentylidene]amino]oxyethanamine		
SMILES	COCCCCC(=NOCCN)C1=CC=C(C=C1)C(F)(F)F		
Formula	$C_{15}H_{21}F_3N_2O_2$	M.Wt	318.33
Solubility	≥ 15.92mg/mL in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	Fluvoxamine		

Protocol

Cell experiment [1]:

Cell lines	A172, U87-MG, U251-MG cells
Preparation Method	A172, U87-MG, and U251-MG cells were serum-starved for 24h, treated with Fluvoxamine (0, 25, or 50μM), and processed for wound-healing assay.
Reaction Conditions	0, 25, 50μM; 24h

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Applications	Fluvoxamine effectively inhibited the migration of three different human GBM cell lines (A172, U87-MG, and U251-MG) in a dose-dependent manner.
Animal experiment [2]:	
Animal models	Wistar rats
Preparation Method	Groups of rats fasted for 24h received Fluvoxamine (25, 50, 100 and 200mg/kg), ranitidine (50mg/kg) or distilled water by oral gavage. Indomethacin (25mg/kg) was orally administered to the rats as an ulcerative agent. Six hours after ulcer induction, the stomachs of the rats were excised and an ulcer index determined. Separate groups of rats were treated with the same doses of Fluvoxamine and ranitidine, but not with indomethacin, to test effects of these drugs alone on biochemical parameters. The stomachs were evaluated biochemically to determine oxidant and antioxidant parameters.
Dosage form	25, 50, 100, 200mg/kg; p.o.
Applications	The 25, 50, 100 and 200mg/kg doses of Fluvoxamine exerted antiulcer effects of 48.5, 67.5, 82.1 and 96.1%, respectively, compared to the control rat group.

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References:
[1] Hayashi K, Michiue H, Yamada H, et al. Fluvoxamine, an anti-depressant, inhibits human glioblastoma invasion by disrupting actin polymerization[J]. Scientific reports, 2016, 6(1): 23372.
[2]Dursun H, Bilici M, Albayrak F, et al. Antiulcer activity of fluvoxamine in rats and its effect on oxidant and antioxidant parameters in stomach tissue[J]. BMC gastroenterology, 2009, 9(1): 36.

Background

Fluvoxamine is a selective serotonin (5-HT) reuptake inhibitor (SSRI) with antidepressant activity[1, 2]. Fluvoxamine is a σ1 receptor agonist and increases the extracellular levels of monoamines in the prefrontal cortex[3]. Fluvoxamine activates 5-HT3 and sigma-1 receptors in the prefrontal cortex of C57BL/6 mice subjected to chronic stress, thereby promoting glutamate release[4].

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In vitro, Fluvoxamine (0-50μM) treatment of three different human glioblastoma cell lines (A172, U87-MG, and U251-MG) significantly inhibited cell migration in a dose-dependent manner, and also inhibited U87-MG cell invasion[5].

In vivo, oral administration of Fluvoxamine (25, 50, 100, 200mg/kg) to rats with gastric ulcers significantly reduced ulceration and increased the levels of antioxidant markers (total glutathione and nitric oxide) in the gastric tissue[6]. Intraperitoneal injection of Fluvoxamine (20mg/kg) in rats with cerebral ischemia significantly improved motor function, reduced infarct volume, and ameliorated neurological deficits[7].

References:
[1] Koek W, Sandoval T L, Daws L C. Effects of the antidepressants desipramine and fluvoxamine on latency to immobility and duration of immobility in the forced swim test in adult male C57BL/6J mice[J]. Behavioural pharmacology, 2018, 29(5): 453-456.
[2] Westenberg H G M, Sandner C. Tolerability and safety of fluvoxamine and other antidepressants[J]. International Journal of Clinical Practice, 2006, 60(4): 482-491.
[3] Ago Y, Yano K, Hiramatsu N, et al. Fluvoxamine enhances prefrontal dopaminergic neurotransmission in adrenalectomized/castrated mice via both 5-HT reuptake inhibition and σ1 receptor activation[J]. Psychopharmacology, 2011, 217(3): 377-386.
[4] Fu Y, Yu S, Guo X, et al. Fluvoxamine increased glutamate release by activating both 5-HT3 and sigma-1 receptors in prelimbic cortex of chronic restraint stress C57BL/6 mice[J]. Biochimica et Biophysica Acta (BBA)-Molecular Cell Research, 2012, 1823(4): 826-837.
[5] Hayashi K, Michiue H, Yamada H, et al. Fluvoxamine, an anti-depressant, inhibits human glioblastoma invasion by disrupting actin polymerization[J]. Scientific reports, 2016, 6(1): 23372.
[6] Dursun H, Bilici M, Albayrak F, et al. Antiulcer activity of fluvoxamine in rats and its effect on oxidant and antioxidant parameters in stomach tissue[J]. BMC gastroenterology, 2009, 9(1): 36.
[7] Sato S, Kawamata T, Kobayashi T, et al. Antidepressant fluvoxamine reduces cerebral infarct volume and ameliorates sensorimotor dysfunction in experimental stroke[J]. Neuroreport, 2014, 25(10): 731-736.

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