

Product Data Sheet

Product Name: Agomelatine

Cat. No.: GC17981

Chemical Properties

Cas. No. 138112-76-2

Chemical Name N-[2-(7-methoxynaphthalen-1-yl)ethyl]acetamide

SMILES CC(=O)NCCC1=CC=CC2=C1C=C(C=C2)OC

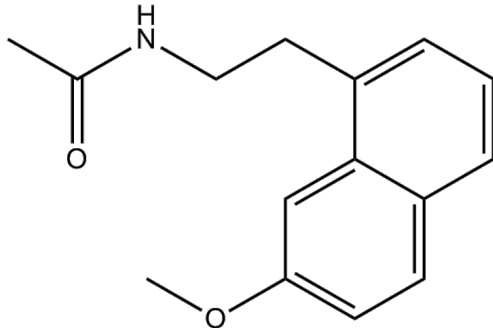
Formula C₁₅H₁₇NO₂ M.Wt 243.3

Solubility ≥ 12.2mg/mL in DMSO 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 HUVEC cells

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

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Preparation method	HUVECs were exposed to Ang II (1 μ M) with or without Agomelatine (10, 20 μ M) for 24 h.
Reaction Conditions	10, 20 μ M; 24 h
Applications	Introduction of 10 and 20 μ M Agomelatine prevented the increase in AT1R expression induced by exposure to Ang II, with the higher dose having a more robust inhibitory effect.
Animal experiment [2]:	
Animal models	LPS-induced rat model of depression
Preparation method	Agomelatine was dissolved in 1% hydroxyethyl cellulose (HEC) solution. In all experiments, agomelatine (40mg/kg) was administered via an i.p. injection at 60 min prior to daily LPS procedures.
Dosage form	40mg/kg; i.p.
Applications	Agomelatine can reverse LPS-induced depression-like behavior in rats and reduce the neuroinflammatory response in the DG area of the brain.

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References:

[1] Hong N, Ye Z, Lin Y, et al. Agomelatine prevents angiotensin II-induced endothelial and mononuclear cell adhesion[J]. Aging (albany NY), 2021, 13(14): 18515.

[2] Lan T, Wu Y, Zhang Y, et al. Agomelatine rescues lipopolysaccharide-induced neural injury and depression-like behaviors via suppression of the Gαi-2-PKA-ASK1 signaling pathway[J]. Journal of neuroinflammation, 2022, 19(1): 117.

Background

Agomelatine is a melatonin (MT) receptor agonist with K_i values of 0.1 nM and 0.12 nM for MT1 and MT2, respectively^[1]. Agomelatine is also a 5-hydroxytryptamine (5-HT) receptor antagonist with K_i values of 631 nM and 660 nM for 5-HT2C and 5-HT2B respectively^[2]. Agomelatine can regulate circadian rhythm and enhance mood, and is used in research on major depressive disorder (MDD) [3].

In vitro, Agomelatine (10, 20 μ M) treated endothelial cells and monocytes for 24 h, dose-dependently inhibited the angiotensin II-induced increase in the expression of AT₁R, VCAM-1 and ICAM-1 and reduced cell adhesion^[4]. Agomelatine (8, 16 μ M) treated hippocampal neuron HT22 cells for 24 hours, inhibited the neurotoxicity caused by cisplatin injury, and attenuated oxidative stress and inflammatory response^[5].

In vivo, Agomelatine (40mg/kg) was treated by intraperitoneal injection in rats with LPS-induced depression and significantly improved the rats' anxiety and depression-like behaviors, reducing neuroinflammation and neuronal damage^[6]. Agomelatine (25, 50 or 75 mg/kg; ip) has antioxidant activity in a mouse seizure model^[7].

References:

[1] Dridi D, Zouiten A, Mansour H B. Depression: chronophysiology and chronotherapy[J]. Biological rhythm research, 2014, 45(1): 77-91.

[2] Millan M J, Gobert A, Lejeune F, et al. The novel melatonin agonist agomelatine (S20098) is an antagonist at 5-hydroxytryptamine_{2C} receptors, blockade of which enhances the activity of

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frontocortical dopaminergic and adrenergic pathways[J]. Journal of Pharmacology and Experimental Therapeutics, 2003, 306(3): 954-964.

[3] Smeraldi E, Delmonte D. Agomelatine in depression[J]. Expert opinion on drug safety, 2013, 12(6): 873-880.

[4] Hong N, Ye Z, Lin Y, et al. Agomelatine prevents angiotensin II-induced endothelial and mononuclear cell adhesion[J]. Aging (albany NY), 2021, 13(14): 18515.

[5] Cankara F N, Günaydın C, Çelik Z B, et al. Agomelatine confers neuroprotection against cisplatin-induced hippocampal neurotoxicity[J]. Metabolic brain disease, 2021, 36(2): 339-349.

[6] Lan T, Wu Y, Zhang Y, et al. Agomelatine rescues lipopolysaccharide-induced neural injury and depression-like behaviors via suppression of the Gαi-2-PKA-ASK1 signaling pathway[J]. Journal of neuroinflammation, 2022, 19(1): 117.

[7] Aguiar C C T, Almeida A B, Araújo P V P, et al. Effects of agomelatine on oxidative stress in the brain of mice after chemically induced seizures[J]. Cellular and molecular neurobiology, 2013, 33: 825-835.

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