

Serotonin

Chemical Properties

CAS No. : 50-67-9

Formula: C₁₀H₁₂N₂O

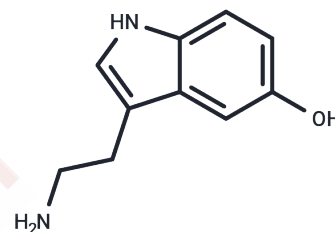
Molecular Weight: 176.22

Storage:

Store at low temperature, Keep away from moisture,
Keep away from direct sunlight

Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	Serotonin (5-hydroxytryptamine) is a monoamine neurotransmitter in the CNS and an endogenous 5-HT receptor agonist. Serotonin regulates the nervous system, digestive system and cardiovascular system.
Targets(IC50)	5-HT Receptor, Endogenous Metabolite, Transferase
In vitro	METHODS: Mouse B16 melanoma cells were treated with Serotonin for 2 days to detect the anti-melanin production activity. RESULTS: Serotonin is slightly active or inactive in the inhibitory medium dimming, with IC ₅₀ > 30 μM. [1]
In vivo	METHODS: To study the pain hypersensitivity of Serotonin, Serotonin (10 μM; 20 μl was intradermal injected into mice, and the mice were tested at 15, 30, 45, 60, 90, 120, 180 and 240 minutes. RESULTS: Compared with the control group receiving saline treatment, Serotonin produced a strong hypersensitivity reaction (p < 0.001). [2] METHODS: To study the role of IL-13-mediated 5-HT signaling in the pathogenesis of colitis, Serotonin (100 mg/kg) was subcutaneously injected into male IL-13-deficient mice 3 days before induction of DSS colitis, twice a day for 8 consecutive days. RESULTS: After inducing DSS colitis, the content of 5-HT in the colon of IL-13-/- mice that received Serotonin increased significantly. [3]

Solubility Information

Solubility	DMSO: 255 mg/mL (1447.05 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 3.3 mg/mL (18.73 mM), Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.6747 mL	28.3736 mL	56.7472 mL
5 mM	1.1349 mL	5.6747 mL	11.3494 mL
10 mM	0.5675 mL	2.8374 mL	5.6747 mL
50 mM	0.1135 mL	0.5675 mL	1.1349 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Yamazaki Y, et al. N-[(Dihydroxyphenyl)acyl]serotonins as potent inhibitors of tyrosinase from mouse and human melanoma cells. *Bioorg Med Chem Lett*. 2009 Aug 1;19(15):4178-82.

Huang S, Xu P, Shen D D, et al. GPCRs steer Gi and Gs selectivity via TM5-TM6 switches as revealed by structures of serotonin receptors. *Molecular Cell*. 2022

Wei F, Liu H, Zhang W, et al. Drug inhibition and substrate transport mechanisms of human VMAT2. *Nature Communications*. 2025, 16(1): 323.

Tsao D, et al. Serotonin-induced hypersensitivity via inhibition of catechol O-methyltransferase activity. *Mol Pain*. 2012 Apr 13;8:25.

Shajib MS, et al. Interleukin 13 and serotonin: linking the immune and endocrine systems in murine models of intestinal inflammation. *PLoS One*. 2013 Aug 28;8(8):e72774.

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