Data Sheet (Cat.No.T4411)

TargetMol

DAMGO TFA (78123-71-4(Free base))

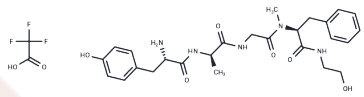
Chemical Properties

CAS No. :

Formula: C28H36F3N5O8

Molecular Weight: 627.6

Storage: Pure form: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.



Biological Description

Description	DAMGO TFA (78123-71-4(Free base)) is a potent and selective agonist of the Mu-opioid receptor and an analgesic that stimulates calcium-activated adenylate cyclase-associated cAMP production and induces TGF-beta1 expression at the protein and mRNA levels.
Targets(IC50)	Opioid Receptor
In vitro	**METHODS**: HEK293 cells were transfected with the MOR-FLAG plasmid, and after morphine treatment (10 μM) for 6 days, the cells were treated with 1 μM DAMGO, and the localization of MOR was detected by immunofluorescence analysis after 30 and 60 min. **RESULTS** In HEK293 cells, DAMGO treatment stimulated MOR internalization after 30 min and stimulated MOR recycling to the membrane after 1 hr. Morphine does not cause significant MOR internalization or down-regulation and readily induces tolerance; DAMGO counteracts this effect by enhancing endocytosis of the receptor, thereby reversing morphine-induced antinociceptive tolerance and restoring its analgesic efficacy. [1] **METHODS**: Whole cell digests prepared from TF-1 cells in the absence or presence of two different concentrations of DAMGO (1 and 10 μM) were analyzed in westernblot experiments to investigate the effect of MOR-1 signaling on CXCR4 expression. **RESULTS** Pretreatment with DAMGO (1 and 10 μM) for 24 h resulted in a change in the
In vivo	**METHODS**: Male Sprague-Dawley rats (200-250 g) were injected with DAMGO by intrathecal administration of morphine (15 μg/10 μl twice a day for 6 days) on day 6 as a sedative, and tail-flick and paw withdrawal assays were performed 24, 48, and 72 hours later. **RESULTS** Tolerance to morphine developed after 5 days of treatment; however, intravenous DAMGO restored sensitivity to morphine and potentiated morphine-induced acute antinociception after 24, 48 and 72 hours. [1] **METHODS**: We studied the antinociceptive effects of DAMGO in naïve and morphine-tolerant mice by subcutaneously injecting male NMRI mice with 200 μmol/kg morphine twice daily for three days. **RESULTS** After treatment with intravenous morphine, the mice were approximately four times more tolerant to intravenous DAMGO, i.e., the ED_{50} value of DAMGO was four times higher than that of naive mice. [3]

Solubility Information

Solubility	H2O: 110 mg/mL (175.27 mM),Sonication is recommended. DMSO: 55 mg/mL (87.64 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.5934 mL	7.9669 mL	15.9337 mL
5 mM	0.3187 mL	1.5934 mL	3.1867 mL
10 mM	0.1593 mL	0.7967 mL	1.5934 mL
50 mM	0.0319 mL	0.1593 mL	0.3187 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

Ma X, et al. DAMGO-induced μ opioid receptor internalization and recycling restore morphine sensitivity in tolerant rat. Eur J Pharmacol. 2020 Jul 5;878:173118.
Strazza M, et al. Effect of μ-opioid agonist DAMGO on surface CXCR4 and HIV-1 replication in TF-1 human bone marrow progenitor cells. BMC Res Notes. 2014 Oct 23;7:752.
Szentirmay AK, et al. Spinal interaction between the highly selective μ agonist DAMGO and several δ opioid receptor ligands in naive and morphine-tolerant mice. Brain Res Bull. 2013 Jan;90:66-71.
Rubovitch V,etal.The mu opioid agonist DAMGO stimulates cAMP production in SK-N-SH cells through a PLC-PKC-Ca++ pathway.Brain Res Mol Brain Res. 2003 Feb 20;110(2):261-6.
Happel C,etal.DAMGO-induced expression of chemokines and chemokine receptors: the role of TGF-beta1.J Leukoc Biol. 2008 Apr;83(4):956-63.

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