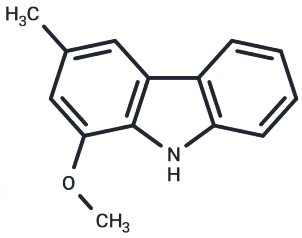
Data Sheet (Cat.No.T124835)

TargetMol

Murrayafoline A

Chemical Properties



CAS No. : 4532-33-6

Formula: C14H13NO

Molecular Weight: 211.26

Storage: 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	Murrayafoline A is a natural carbazole alkaloid found primarily in plants of the genera Murraya and Glycosmis. Murrayafoline A directly targets Specific Protein 1 (Sp1), thereby inhibiting the NF-κB and MAPK signaling pathways. Murrayafoline A attenuates the Wnt/β-catenin pathway by promoting the degradation of intracellular β-catenin. Murrayafoline A induces G0/G1 phase arrest in platelet-derived growth factor (PDGF)-stimulated vascular smooth muscle cells. Murrayafoline A enhances contractility and L-type calcium currents in rat ventricular myocytes by activating protein kinase C. Murrayafoline A inhibits LPS-induced neuroinflammation in vivo. Murrayafoline A can be used in research on inflammation, vascular complications, and colorectal cancer.
Targets(IC50)	NF-κB,p38 MAPK
In vitro	Methods: BV-2 cells were treated with Murrayafoline A (20 μM) and LPS (1 μg/mL) for 24 hours. TNF-α and IL-6 levels in the cell culture supernatant were measured by ELISA, and IL-1β and iNOS mRNA expression levels were assessed by qPCR. Results: Murrayafoline A significantly inhibited LPS-induced TNF-α and IL-6 release, and significantly suppressed LPS-induced upregulation of IL-1β and iNOS mRNA. [1] Methods: Rat aortic VSMCs were pretreated with Murrayafoline A (1, 3, 5 μM) for 24 h, followed by treatment with PDGF-BB (50 ng/mL) for 24 h. Cells were stained with PI, analyzed by flow cytometry (FACS Calibur) using ModFit LT for cell cycle analysis, and Western blot was performed to detect the expression of cyclin D1, cyclin E, CDK2, CDK4, and PCNA. Results: Murrayafoline A significantly inhibited PDGF-BB-stimulated vascular smooth muscle cell proliferation and DNA synthesis, induced G0/G1 phase arrest, and simultaneously suppressed the expression of cyclin D1, cyclin E, CDK2, CDK4, and PCNA. [2] Methods: HEK293 reporter cells (TOPFlash) were treated with Murrayafoline A (2.5, 5, 10, 20 μM) and Wnt3a-CM for 15 hours. Cytoplasmic β-catenin protein levels were assessed by Western blot, and β-catenin mRNA expression was detected by semi-quantitative RT-PCR. Results: Murrayafoline A concentration-dependently reduced the Wnt3a-CM-induced increase in cytoplasmic β-catenin levels but had no effect on β-catenin mRNA levels. [3] Methods: Murrayafoline A (25 μM) was added to rat ventricular myocytes, and membrane potential changes were continuously recorded using the patch-clamp technique. Results: Murrayafoline A increased cell shortening in rat ventricular myocytes, enhanced

In vitro	L-type Ca^{2+} currents, and promoted PKC phosphorylation. [4] Methods: Murrayafoline A (0.01-40 μg/mL) was added to human hepatocellular carcinoma cells (HepG2) and treated for 24, 48, 72, and 96 hours; cell viability was assessed using the MTT assay. Results: Murrayafoline A effectively killed hepatocellular carcinoma cells, with an IC_{50} of approximately 7 μM.[5]
In vivo	Methods: To investigate the effects of Murrayafoline A on LPS-induced neuronal damage, BALB/c mice were administered Murrayafoline A (25 mg/kg) intraperitoneally once daily for 3 consecutive days. Two hours after the final dose, LPS (5 mg/kg) was administered intraperitoneally, and the mice were euthanized 6 hours later. Results: Murrayafoline A inhibited LPS-induced microglial activation, increased the number of Nissl bodies, and attenuated LPS-induced neuronal damage. [1]

Solubility Information

Solubility	DMSO: 80.00 mg/mL (378.68 mM),Sonication is recommended. H2O: 0.08 mg/mL (0.38 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.7335 mL	23.6675 mL	47.335 mL
5 mM	0.9467 mL	4.7335 mL	9.467 mL
10 mM	0.4734 mL	2.3668 mL	4.7335 mL
50 mM	0.0947 mL	0.4734 mL	0.9467 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

Li CH, et al. Natural carbazole alkaloid murrayafoline A displays potent anti-neuroinflammatory effect by directly targeting transcription factor Sp1 in LPS-induced microglial cells. Bioorg Chem. 2022;129:106178.
Han JH,et al. Murrayafoline A Induces a G0/G1-Phase Arrest in Platelet-Derived Growth Factor-Stimulated Vascular Smooth Muscle Cells. Korean J Physiol Pharmacol. 2015;19(5):421-426.
Choi H, et al. Murrayafoline A attenuates the Wnt/beta-catenin pathway by promoting the degradation of intracellular beta-catenin proteins. Biochem Biophys Res Commun. 2010;391(1):915-920.
Chidipi B, et al. Enhancement of contraction and L-type Ca(2+) current by murrayafoline-A via protein kinase C in rat ventricular myocytes. Eur J Pharmacol. 2016;784:33-41.
Dinh CT, et al. Synthesis of glycyrrhetinic acid-modified liposomes to deliver Murrayafoline A for treatment of hepatocellular carcinoma. J Mater Sci Mater Med. 2022;33(10):72. Published 2022 Oct 4.

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