Data Sheet (Cat.No.T0693)

TargetMol

Niflumic acid

Chemical Properties

CAS No. : 4394-00-7

Formula: C13H9F3N2O2

Molecular Weight: 282.218

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	Niflumic acid (Nifluril) is a Ca2+-activated Cl- channel blocker and an analgesic and anti-inflammatory agent used in the therapy of rheumatoid arthritis.
Targets(IC50)	Chloride channel,COX,Monocarboxylate transporter,Phospholipase,UGT
In vivo	Niflumic acid suppresses calcium-activated currents on the basolateral membrane of rat pancreatic exocrine cells with an IC50 of 50 μM. It dose-dependently and reversibly activates the calcium-activated potassium (KCa) channels. Niflumic acid induces a spontaneous transient concentration-dependent inhibition of inward currents (STIC, calcium-activated chloride currents) amplitude. It inhibits calcium-activated chloride channels with a Ki of 17 mM. Additionally, Niflumic acid suppresses ICl(Ca) under the permeabilizing effect of Ca2+ on oocytes through Ca2+ ionophore A23187, suggesting the inhibition of ICl(Ca) results from direct interaction with Cl- channels, not by disruption of Ca2+ entry through voltage-dependent Ca2+ channels. Niflumic acid attenuates norepinephrine and caffeine-induced inward currents (IO(Ca)) with an IC50 of 6.6 μM, which is less effective than that on spontaneous currents. It exhibits a voltage-dependent inhibition of the amplitude of spontaneous transient currents (STIC), with IC50 values of 1.1 μM at +50 mV and 2.3 μM at -50 mV. Furthermore, Niflumic acid reduces airway hyperresponsiveness and eosinophilic infiltration, as well as inhibits IL-13 induced goblet cell hyperplasia. Following the IL-13 challenge, Niflumic acid hampers the overexpression of the MUC5AC gene (a marker of goblet cell proliferation) and levels of chemokines in bronchoalveolar lavage fluid. It also represses the activation of JAK/STAT6, AK2, and the expression of chemokines in epithelial cells.

Solubility Information

Solubility	DMSO: 250.00 mg/mL (885.84 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: < 10 mg/mL (35.43 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 10.00 mg/mL (35.43 mM),Solution. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one.*

In vivo Formulation	*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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.5433 mL	17.7167 mL	35.4333 mL
5 mM	0.7087 mL	3.5433 mL	7.0867 mL
10 mM	0.3543 mL	1.7717 mL	3.5433 mL
50 mM	0.0709 mL	0.3543 mL	0.7087 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

White MM, et al. Mol Pharmacol, 1990, 37(5), 720-724.
Kuang Y, Chai Y, Xu L, et al. Glabrone as a specific UGT1A9 probe substrate and its application in discovering the inhibitor glycycoumarin. European Journal of Pharmaceutical Sciences. 2021: 105786.
Goelein H, et al. FEBS Lett, 1990, 268(1), 79-82.
Ottolia M, et al. Biophys J, 1994, 67(6), 2272-2279.
Hogg RC, et al. Br J Pharmacol, 1994, 112(3), 977-984.
Kuang Y, Chai Y, Xu L, et al. Glabrone as a specific UGT1A9 probe substrate and its application in discovering the inhibitor glycycoumarin[J]. European Journal of Pharmaceutical Sciences. 2021: 105786.