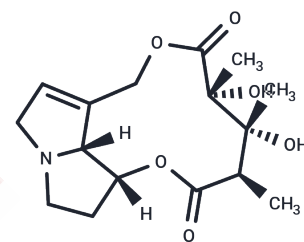


Monocrotaline

Chemical Properties

CAS No. :	315-22-0
Formula:	C ₁₆ H ₂₃ N ₁ O ₆
Molecular Weight:	325.36
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	Monocrotaline is an 11-membered macrocyclic pyrrolizidine alkaloid extracted from the seeds of Crotalaria plants. It inhibits organic cation transporters OCT-1 and OCT-2, with IC ₅₀ values of 36.8 μM and 1.8 mM, respectively. Monocrotaline exhibits antitumor activity and shows certain cytotoxicity against liver cancer cells such as HepG2. It is also commonly used to induce pulmonary arterial hypertension models in rodents.
Targets(IC ₅₀)	TGF-beta/Smad
In vitro	METHODS: Monocrotaline (Crotaline) (1, 5, 25, 75, 150 and 300 μM) was used to treat HepG2 clone9 cells and transcriptomic studies were conducted; Monocrotaline (75, 150, 300μM) was used to treat HepG2 clone9 cells and cell cycle analysis was conducted. RESULTS The signaling pathways responsible for DNA damage repair and cell cycle regulation were only significant at the extremely toxic concentration of 300 μM; the S phase fraction of HepG2 clone9 cells increased, and the G2/M phase also increased significantly. [5]
In vivo	Induced pulmonary hypertension (PH) model: Disease introduction: Pulmonary hypertension (PH) is a life-threatening disease characterized by endothelial damage, vascular smooth muscle cell proliferation and hypercontraction leading to increased pulmonary artery pressure. If left untreated, the disease will eventually lead to right ventricular (RV) failure and death. Disease modeling: I. Induced chronic progressive PH 1. Animal model: rats 2. Administration method/dose/time (frequency): single subcutaneous injection/60 mg/kg/28 days 3. Signs of successful modeling: RV systolic pressure continued to increase significantly; the expression of IL-1β, IL6, TNF-α and MCP-1 in rats was increased; collagen and total collagen fibers in the pulmonary artery increased. [3] II. Induced PH 1. Animal model: mice 2. Dosage/dose/time (frequency): intraperitoneal injection/80 mg/kg/once every 20 days (three times) 3. Signs of successful modeling: increased right ventricular pressure and RVH in mice;

A DRUG SCREENING EXPERT

In vivo	strong infiltration of macrophages in the mouse lungs, loss of normal alveolar structure in many areas; upregulation of Notch3 and ICAM1 mRNA expression; downregulation of Id1 and BMP2 mRNA expression, and significant upregulation of CTGF and Col 3 mRNA. [4]
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Solubility Information

Solubility	DMSO: 55 mg/mL (169.04 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	20% HP- β -CD in Saline: 10 mg/mL (30.74 mM), Solution. <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	3.0735 mL	15.3676 mL	30.7352 mL
5 mM	0.6147 mL	3.0735 mL	6.147 mL
10 mM	0.3074 mL	1.5368 mL	3.0735 mL
50 mM	0.0615 mL	0.3074 mL	0.6147 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

- Gomez-Arroyo JG, et al. The monocrotaline model of pulmonary hypertension in perspective. *Am J Physiol Lung Cell Mol Physiol*. 2012 Feb 15;302(4):L363-9.
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- Kusuma SS, et al. Antineoplastic activity of monocrotaline against hepatocellular carcinoma. *Anticancer Agents Med Chem*. 2014;14(9):1237-48.
- Dumitrascu R, et al. Terguride ameliorates monocrotaline-induced pulmonary hypertension in rats. *Eur Respir J*. 2011 May;37(5):1104-18.
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