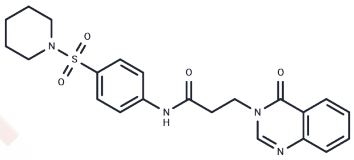
Data Sheet (Cat.No.T203129)

TargetMol

IRF1-IN-1

Chemical Properties



CAS No. : 701225-07-2

Formula: C22H24N4O4S

Molecular Weight: 440.52

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	IRF1-IN-1 (Compound I-2) is an IRF1 inhibitor that reduces IRF1 recruitment to the Caspase 1 promoter, inhibiting the cleavage of Caspase 1, GSDMD, IL-1, and PARP1, thereby protecting against skin inflammatory damage.
Targets(IC50)	Caspase,Pyroptosis,IFNAR,IL Receptor,Interleukin,PARP
In vitro	**Method**: Various cell models (HELF, HaCaT, WS1, and K150) were treated with IRF1-IN-1 at concentrations ranging from 20 to 50 μM. The effects were evaluated under conditions such as irradiation (20 Gy), NSP-10 plasmid transfection, or SARS-CoV-2 pseudovirus infection to assess IRF1 activity, cell death-related signaling, and mitochondrial function. **Result**: IRF1-IN-1 inhibited IRF1-mediated transcriptional regulation of downstream genes (e.g., CASP1), reduced IRF1 activation induced by NSP-10 or viral infection, alleviated radiation-induced cell death, maintained mitochondrial activity and ROS levels, and significantly suppressed the cleavage of Caspase 1, GSDMD, IL-1, and PARP1, demonstrating a strong cytoprotective effect. [1]
In vivo	**Method**: A radiogenic skin injury mouse model was established using whole-body irradiation with a 6-MeV electron beam at a dose of 35 Gy and a dose rate of 1000 cGy/min. Mice were anesthetized prior to irradiation with an intraperitoneal injection of pentobarbital sodium (1%, 30 mg/kg). IRF1-IN-1 was administered subcutaneously at a dose of 100 μg/day, once every other day as a pretreatment before irradiation. **Result**: IRF1-IN-1 significantly reduced acute skin inflammatory manifestations such as erythema and exudation, and accelerated the healing process. It also exhibited protective effects on the function and structural integrity of radiation-induced lesions in the claws. [1]

Solubility Information

Solubility	DMSO: 80 mg/mL (181.6 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: 5 mg/mL (11.35 mM),Sonication is recommended. *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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.270 mL	11.3502 mL	22.7004 mL
5 mM	0.454 mL	2.270 mL	4.5401 mL
10 mM	0.227 mL	1.135 mL	2.270 mL
50 mM	0.0454 mL	0.227 mL	0.454 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

Geng, et al. Chaperone- and PTM-mediated activation of IRF1 tames radiation-induced cell death and the inflammatory response. Cell Mol Immunol. 2024 Aug;21(8):856-872.