Product Data Sheet

Product Name: Dapansutrile
Cat. No.: GC34555

Chemical Properties

Cas. No.	54863-37-5		
SMILES	N#CCCS(=O)(C)=O		
Formula	$C_4H_7NO_2S$	M.Wt	133.17
Solubility	DMSO : ≥ 125 mg/mL (938.65 mM)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Dapansutrile		

Protocol

Cell experiment [1]:

Cell lines	Chondrocytes
Preparation Method	Chondrocytes (5×10^3 cells/well) were seeded into 96-well plates, and then treated with different concentrations of Dapansutrile (0, 1, 2, 5, and 10μM) for 24h. The medium was replaced with fresh medium containing 10% CCK-8 solution, and then the cells were incubated at 37℃ for 3h. Optical density (OD) was determined at a wavelength of 450nm.
Reaction Conditions	0-10μM; 24h

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Applications	Low-dose Dapanshulide had no significant cytotoxicity to rat chondrocytes.

Animal experiment [2]:

Animal models	db/db mouse model
Preparation Method	Using a db/db mouse model whose fasting blood glucose levels were measured ≥ 11.1mM twice (approximately 12h apart). The model mice were divided into two groups: the model group (treated with an intraperitoneal injection of physiological saline) and the Dapansutrile group, which received a daily intraperitoneal injection of Dapansutrile at a dose of 200mg/kg (dissolved in physiological saline)
Dosage form	200mg/kg; ip; 8 weeks
Applications	Dapansutrile treatment can alleviate dyslipidemia and hepatic lipid metabolism and function in db/db.

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References:
[1]. Tang L, Sim I, Moqbel S A A, et al. Dapansutrile ameliorated chondrocyte inflammation and osteoarthritis through suppression of MAPK signaling pathway[J]. Human & Experimental Toxicology, 2022, 41: 09603271221145401.
[2]. Wu Y, Zhou J. Dapansutrile Regulates Mitochondrial Oxidative Stress and Reduces Hepatic Lipid Accumulation in Diabetic Mice[J]. Current Issues in Molecular Biology, 2025, 47(3): 148.

Background

Dapansutrile is an oral, small-molecule, selective NLRP3 inflammasome inhibitor [1]. Dapansutrile blocks the assembly and activation of NLRP3, Dapansutrile inhibits downstream caspase-1 activation and the maturation and release of IL-1β and IL-18, alleviating the inflammatory response [2-3]. Dapansutrile is primarily used to treat gouty arthritis [4].

In chondrocytes, Low-dose Dapansutrile (0-10μM; 24h) had no significant cytotoxicity to rat chondrocytes [5]. In BV2 cells, Dapansutrile (100μM; 24h) inhibits cell proliferation [6].

In db/db mouse model, Dapansutrile (200mg/kg; ip; 8 weeks) treatment can alleviate dyslipidemia and hepatic lipid metabolism and function [7]. In acute myocardial infarction mouse model, Dapansutrile (6-600mg/kg; ip; single injection) treatment reduced infarct size in a dose-dependent manner [8].

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References:
[1]. Sánchez-Fernández A, Skouras D B, Dinarello C A, et al. OLT1177 (Dapansutrile), a selective NLRP3 inflammasome inhibitor, ameliorates experimental autoimmune encephalomyelitis pathogenesis[J]. Frontiers in immunology, 2019, 10: 2578.
[2]. Toldo S, Mauro A G, Cutter Z, et al. The NLRP3 inflammasome inhibitor, OLT1177 (dapansutrile), reduces infarct size and preserves contractile function after ischemia reperfusion injury in the mouse[J]. Journal of Cardiovascular Pharmacology, 2019, 73(4): 215-222.
[3]. Elsayed M S, Abu-Elsaad N M, Nader M A. The NLRP3 inhibitor dapansutrile attenuates folic acid induced nephrotoxicity via inhibiting inflammasome/caspase-1/IL axis and regulating autophagy/proliferation[J]. Life sciences, 2021, 285: 119974.
[4]. Klück V, Tim L, Janssen M, et al. Dapansutrile, an oral selective NLRP3 inflammasome inhibitor, for treatment of gout flares: an open-label, dose-adaptive, proof-of-concept, phase 2a trial[J]. The Lancet Rheumatology, 2020, 2(5): e270-e280.
[5]. Tang L, Sim I, Moqbel S A A, et al. Dapansutrile ameliorated chondrocyte inflammation and osteoarthritis through suppression of MAPK signaling pathway[J]. Human & Experimental Toxicology, 2022, 41: 09603271221145401.
[6]. Wu P, Tang X, Cui K, et al. OLT1177 (Dapansutrile) Attenuates Retinal Neovascularization by Inhibiting NLRP3 Inflammasome Activation[J]. Investigative Ophthalmology & Visual Science, 2022, 63(7): 1759–F0219-1759–F0219.
[7]. Wu Y, Zhou J. Dapansutrile Regulates Mitochondrial Oxidative Stress and Reduces Hepatic Lipid Accumulation in Diabetic Mice[J]. Current Issues in Molecular Biology, 2025, 47(3): 148.
[8]. Toldo S, Mauro A G, Cutter Z, et al. The NLRP3 inflammasome inhibitor, OLT1177 (dapansutrile), reduces infarct size and preserves contractile function after ischemia reperfusion injury in the mouse[J]. Journal of Cardiovascular Pharmacology, 2019, 73(4): 215-222.

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