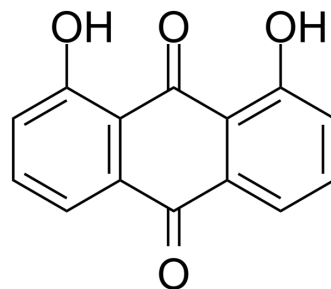


Danthron

Cat. No.:	HY-B0923		
CAS No.:	117-10-2		
Molecular Formula:	C ₁₄ H ₈ O ₄		
Molecular Weight:	240.21		
Target:	AMPK; Autophagy; Bacterial; Virus Protease		
Pathway:	Epigenetics; PI3K/Akt/mTOR; Autophagy; Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 42 mg/mL (174.85 mM)

* "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	4.1630 mL	20.8151 mL	41.6302 mL
	5 mM	0.8326 mL	4.1630 mL	8.3260 mL
	10 mM	0.4163 mL	2.0815 mL	4.1630 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Danthron is a natural product extracted from the traditional Chinese medicine rhubarb. Danthron functions in regulating glucose and lipid metabolism by activating AMPK.

IC₅₀ & Target

AMPK

In Vitro

Danthron (0.1, 1, and 10 μM) dose-dependently promotes the phosphorylation of AMPK and acetyl-CoA carboxylase (ACC) in both HepG2 and C2C12 cells. Meanwhile, Danthron treatment significantly reduces the lipid synthesis related sterol regulatory element-binding protein 1c (SREBP1c) and fatty acid synthetase (FAS) gene expressions, and the total cholesterol (TC) and triglyceride (TG) levels. In addition, Danthron treatment efficiently increases glucose consumption. Danthron effectively reduces intracellular lipid contents and enhances glucose consumption in vitro via activation of AMPK signaling pathway. 10 μM Danthron/24 h is safe for HepG2 cells. With 80% confluence, HepG2 cells are incubated with Danthron (0.1-10 μM) in FBS-Free media for 8 h. Subsequently, cells are harvested for Western blot assay. Danthron increases the p-AMPK protein in a dose-dependent manner, and no changes in t-AMPK protein are observed^[1]. Danthron inhibits 9-cis retinoic acid (9cRA)-induced retinoic X receptor α (RXRα) transactivation by IC₅₀ at 0.11 μM. To further clarify the stoichiometric ratio of

Danthron binding to RXR α -ligand-binding domain (LBD), isothermal titration calorimetry (ITC) experiment is performed. The K_D value of Danthron binds to RXR α -LBD by ITC experiment is determined at 7.5 μ M^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Danthron functions as an insulin sensitizer in vivo. Danthron improves insulin sensitivity in diet-induced obese (DIO) mice. The insulin tolerance test result shows that Danthron (5 mg/kg) treated diet-induced obesity mice exhibit lower glucose levels after insulin challenge, compared with the control vehicle-treated group^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[1]

HepG2 cells are transfected with pGL3-ABCA1 promoter-luc or pGL3-ABCG1 promoter-luc and pRL-SV40 plasmids. At 6 h post-transfection, the cells are incubated with Danthron (0-20 μ M), TO90 (2 μ M) or DMSO for 24 h. Luciferase activity is measured using the Dual Luciferase Reporter Assay kit^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Administration ^[2]

Mice^[2]
C57/BL6 male mice are fed with a high fat diet for 3 months and treated with Danthron (5 mg/kg) or vehicle orally for 8 weeks. The animals are then fasted for 6 h and then given intraperitoneal injection of insulin at 1.5 units/kg. Blood samples are analyzed at 15, 30, 45, 60, 90, and 120 min using Accu-Chek active blood sugar test meter.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Biomed Pharmacother. 2021 May;137:111344.

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REFERENCES

- [1]. Zhou R, et al. Danthron activates AMP-activated protein kinase and regulates lipid and glucose metabolism in vitro. Acta Pharmacol Sin. 2013 Aug;34(8):1061-9.
- [2]. Zhang H, et al. Danthron functions as a retinoic X receptor antagonist by stabilizing tetramers of the receptor. J Biol Chem. 2011 Jan 21;286(3):1868-75.

Caution: Product has not been fully validated for medical applications. For research use only.

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