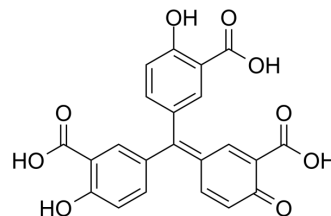


Aurintricarboxylic acid

Cat. No.:	HY-122575
CAS No.:	4431-00-9
Molecular Formula:	C ₂₂ H ₁₄ O ₉
Molecular Weight:	422.34
Target:	P2X Receptor; Influenza Virus; Topoisomerase; MicroRNA; Apoptosis
Pathway:	Membrane Transporter/Ion Channel; Anti-infection; Cell Cycle/DNA Damage; Epigenetics; Apoptosis
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 : 125 mg/mL (295.97 mM; Need ultrasonic)
 NH₄OH : 10 mg/mL (23.68 mM; Need ultrasonic)
 H₂O : < 0.1 mg/mL (ultrasonic) (insoluble)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.3678 mL	11.8388 mL	23.6776 mL
	5 mM	0.4736 mL	2.3678 mL	4.7355 mL
	10 mM	0.2368 mL	1.1839 mL	2.3678 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (4.92 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.08 mg/mL (4.92 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Aurintricarboxylic acid is a nanomolar-potency, allosteric antagonist with selectivity towards αβ-methylene-ATP-sensitive P2X1Rs and P2X3Rs, with IC₅₀s of 8.6 nM and 72.9 nM for rP2X1R and rP2X3R, respectively^[1]. Aurintricarboxylic acid is a potent anti-influenza agent by directly inhibiting the neuraminidase^[2]. Aurintricarboxylic acid is an inhibitor of topoisomerase II and apoptosis^[3]. Aurintricarboxylic acid is a selective inhibitor of the TWEAK-Fn14 signaling pathway^[4]. Aurintricarboxylic acid also acts as a cystathionine-lyase (CSE) inhibitor with an IC₅₀ of 0.6 μM^[5]. Aurintricarboxylic acid is a modifier of miRNAs that regulate miRNA function, with an IC₅₀ of 0.47 μM^[6].

IC₅₀ & Target	Topoisomerase II	rP2X1R 8.6 nM (IC ₅₀)	rP2X3R 72.9 nM (IC ₅₀)	Apoptosis
	miRNA 0.47 μM (IC ₅₀)			
In Vitro	Aurintricarboxylic acid weakly inhibits P2X2/3Rs, P2X2Rs, P2X4Rs or P2X7Rs ^[1] .			
	Aurintricarboxylic acid inhibits ATP-induced currents in a concentration dependent manner ^[1] .			
	Aurintricarboxylic acid can inhibit the severe acute respiratory syndrome-associated coronavirus (SARS-CoV) and vaccinia virus ^[2] .			
	Aurintricarboxylic acid inhibits replication of influenza A and B viruses by inhibition of neuraminidase activities ^[2] .			
	Aurintricarboxylic acid inhibits TWEAK-Fn14-mediated NF-κB activation ^[4] .			
	Aurintricarboxylic acid (10 μM; 0.5-2 hours) suppresses TWEAK-Fn14-mediated NF-κB, Akt, and Src phosphorylation in GBM cells ^[4] .			
	Aurintricarboxylic acid represses TWEAK-stimulated glioma cell migration and invasion without causing cell cytotoxicity ^[4] .			
	Aurintricarboxylic acid (Compound 8) cannot regulate loading of endogenous let-7 onto AGO2 inside cultured cells, whereas can inhibit RISC loading of exogenous siRNA ^[6] .			
	MCE has not independently confirmed the accuracy of these methods. They are for reference only.			
	Western Blot Analysis ^[4]			
	Cell Line:	T98G, A172, GBM44 glioma cells		
	Concentration:	10 μM		
	Incubation Time:	0.5 hour, 1 hour, 2 hours		
	Result:	Abrogated TWEAK activation of downstream signals including phosphorylation of the NF-κB family member p65, Akt, and Src in all three GBM cell lines.		

CUSTOMER VALIDATION

- Cell Death Discov. 2022 Jul 19;8(1):328.

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REFERENCES

- [1]. Obrecht AS, et al. Identification of aurintricarboxylic acid as a potent allosteric antagonist of P2X1 and P2X3 receptors. *Neuropharmacology*. 2019 Nov 1;158:107749.
- [2]. Hashem AM, et al. Aurintricarboxylic acid is a potent inhibitor of influenza A and B virus neuraminidases. *PLoS One*. 2009 Dec 17;4(12):e8350.
- [3]. Benchokroun Y, et al. Aurintricarboxylic acid, a putative inhibitor of apoptosis, is a potent inhibitor of DNA topoisomerase II in vitro and in Chinese hamster fibrosarcoma cells. *Biochem Pharmacol*. 1995 Jan 31;49(3):305-13.
- [4]. Alison Roos, et al. Identification of aurintricarboxylic acid as a selective inhibitor of the TWEAK-Fn14 signaling pathway in glioblastoma cells. *Oncotarget*. 2017 Feb 14; 8(7): 12234–12246.
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- [6]. Rengen Fan, et al. Small molecules with big roles in microRNA chemical biology and microRNA-targeted therapeutics. *RNA Biol*. 2019 Jun; 16(6): 707-718.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA