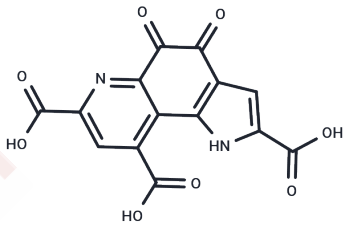
Data Sheet (Cat.No.T5692)

TargetMol

Pyrroloquinoline quinone

Chemical Properties



CAS No. : 72909-34-3

Formula: C14H6N2O8

Molecular Weight: 330.21

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	Pyrroloquinoline quinone (PQQ), as a well-known redox enzyme cofactor, PQQ can protect NS/PCs against glutamate toxicity associated with ROS-mediated mitochondrial pathway,
Targets(IC50)	Endogenous Metabolite
In vitro	Pyrroloquinoline quinone(PQQ) pretreatment showed its significant effect on protecting NS/PCs against glutamate-induced apoptosis/necrosis.?PQQ neuroprotection was associated with the decrease of intracellular reactive oxygen species (ROS) production, the increase of glutathione (GSH) levels, and the decrease of caspase-3 activity.?In addition, pretreatment with PQQ also significantly enhanced the activities of superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPx) in the NS/PCs exposed to glutamate[1].
In vivo	Pyrroloquinoline quinone(PQQ), a natural anti-oxidant present in a wide variety of human foods, exerted potent anti-fibrotic and ROS-scavenging activity in Balb/C mouse models of liver fibrosis. The antioxidant activity of PQQ was involved in the modulation of multiple steps during liver fibrogenesis, including chronic liver injury, hepatic inflammation, as well as activation of hepatic stellate cells and production of extracellular matrix. PQQ also suppressed the up-regulation of RACK1 in activated HSCs in vivo and in vitro. PQQ suppresses oxidative stress and liver fibrogenesis in mice[2].
Animal Research	Healthy male Balb/C mice of 4-6 week were used to induce liver fibrosis and isolate primary HSCs.?The animals were obtained from SLAC Laboratory Animal Corp in SPF microbiological status.?All mice were maintained at 25°C with a 12 h dark/light cycle and completely randomly grouped.?For thioacetamide (TAA)-induced liver fibrosis, which has been shown to be closely resemble the panlobular and parenchymal fibrosis that is found in most human chronic liver disease , TAA was given by intraperitoneal injection ?at 200 mg/kg body weight 3 times each week for 8 weeks.?For bile duct ligation (BDL)-induced liver fibrosis, BDL was performed according to previous report , and mice were sacrificed 2 weeks later.?Administration of PQQ started on the second day when TAA was firstly given or BDL was performed, and PQQ was given at the dose of 0.3 mg/kg or 1 mg/kg by gastrogavage administration daily before mice were sacrificed.?Silymarin (150 mg/kg) was used as the positive control by gastrogavage administration daily.?Total number of 405 mice were used.?Mice were sacrificed by cervical dislocation under anesthesia[2].

Solubility Information

Solubility	DMSO: 1.52 mg/mL (4.6 mM),Sonication is recommended. H2O: 0.2 mg/mL (0.61 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.0284 mL	15.1419 mL	30.2838 mL
5 mM	0.6057 mL	3.0284 mL	6.0568 mL
10 mM	0.3028 mL	1.5142 mL	3.0284 mL
50 mM	0.0606 mL	0.3028 mL	0.6057 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

Guan S , Xu J , Guo Y , et al. Pyrroloquinoline quinone against glutamate-induced neurotoxicity in cultured neural stem and progenitor cells[J]. International Journal of Developmental Neuroscience, 2015, 42:37-45.
Dongwei J , Fangfang D , Peike P , et al. Pyrroloquinoline-Quinone Suppresses Liver Fibrogenesis in Mice[J]. PLOS ONE, 2015, 10(3):e0121939-.
Saihara K, Kamikubo R, Ikemoto K,et al.Pyrroloquinoline Quinone, a Redox-Active o-Quinone, Stimulates Mitochondrial Biogenesis by Activating the SIRT1/PGC-1α Signaling Pathway[J].Biochemistry. 2017 Dec 19;56(50): 6615-6625.