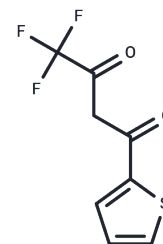


2-Thenoyltrifluoroacetone

Chemical Properties

CAS No. :	326-91-0
Formula:	C ₈ H ₅ F ₃ O ₂ S
Molecular Weight:	222.18
Storage:	Keep away from direct sunlight, Keep away from moisture Powder: -20°C for 3 years In solvent: -80°C for 1 year <small>Actual storage temperature shall be subject to the COA.</small>



Biological Description

Description	2-Thenoyltrifluoroacetone (TFA) is a specific inhibitor of mitochondrial respiratory chain complex II (SQR/SDH) with an IC ₅₀ value of 51.5 μM. 2-Thenoyltrifluoroacetone can complex with various metal ions and exhibits cytotoxic and antitumor activity. It possesses anti-Myco bacterium tuberculosis activity and can inhibit the growth of Myco bacterium tuberculosis. 2-Thenoyltrifluoroacetone can be used in mechanistic studies of diseases associated with mitochondrial dysfunction.
Targets(IC50)	Mitochondrial Metabolism
In vitro	<p>Methods: RTH-149 rainbow trout liver cell lines stably transfected with KFERQ-PA-mCherry1 were treated with 10 μM 2-Thenoyltrifluoroacetone and 25 mM high glucose for 16 hours, and CMA puncta were counted using fluorescence microscopy.</p> <p>Results: Treatment with 2-thenoil-trifluoroacetone blocked the activity of complex II of the mitochondrial electron transport chain and prevented high-glucose-induced CMA puncta formation. [1]</p> <p>Methods: TET21N, SK-N-BE(2), SH-SY5Y neuroblastoma cells, and U1810 lung cancer cells were treated with 100 μM 2-thienoyltrifluoroacetone and 5 μg/mL cisplatin for 24 hours, and Western blot analysis was performed to detect the levels of cleaved caspase-3 and cleaved PARP.</p> <p>Results: Under normoxic conditions, 2-Thenoyltrifluoroacetone significantly enhanced cisplatin-induced apoptosis, with a significant increase in the expression of caspase-3 and cleaved PARP. [2]</p> <p>Methods: PC12 rat pheochromocytoma cells were treated with 10 μM 2-Thenoyltrifluoroacetone and 1 μM rotenone for 24 hours, and intracellular H₂O₂ levels were detected using H₂DCFDA fluorescence staining.</p> <p>Results: 2-Thienoyltrifluoroacetone significantly reduced the H₂O₂ production induced by rotenone. [3]</p>

Solubility Information

Solubility	DMSO: 80 mg/mL (360.07 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.5009 mL	22.5043 mL	45.0086 mL
5 mM	0.9002 mL	4.5009 mL	9.0017 mL
10 mM	0.4501 mL	2.2504 mL	4.5009 mL
50 mM	0.090 mL	0.4501 mL	0.9002 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

Vélez EJ, Schnebert S, Goguet M, et al. Chaperone-mediated autophagy protects against hyperglycemic stress. *Autophagy*. 2024;20(4):752-768.

Abdrakhmanov A, Yapryntseva MA, Kaminsky VO, Zhivotovsky B, Gogvadze V. Receptor-Mediated Mitophagy Rescues Cancer Cells under Hypoxic Conditions. *Cancers (Basel)*. 2021;13(16):4027. Published 2021 Aug 10.

Liu C, Ye Y, Zhou Q, et al. Crosstalk between Ca²⁺ signaling and mitochondrial H₂O₂ is required for rotenone inhibition of mTOR signaling pathway leading to neuronal apoptosis. *Oncotarget*. 2016;7(7):7534-7549.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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