

Elamipretide

Chemical Properties

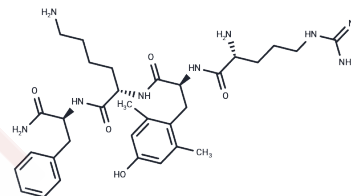
CAS No. : 736992-21-5

Formula: C32H49N9O5

Molecular Weight: 639.79

Storage: Store at low temperature, Keep away from moisture
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	Elamipretide (MTP-131) is a mitochondria-targeted antioxidant tetrapeptide (D-Arg-dimethylTyr-Lys-Phe-NH ₂) that reduces toxic reactive oxygen species (ROS) production and stabilizes cardiolipin, with blood-brain-barrier permeability. It is a potential therapeutic agent in the rare disease of Barnes syndrome.
Targets(IC50)	Others, Mitochondrial Metabolism
In vitro	<p>METHODS: Rat insulinoma cells, INS1, were treated with Elamipretide (1-10 μM) for 20 h. Cellular mitochondria were detected by Immunofluorescence.</p> <p>RESULTS: Elamipretide prevented mitochondrial breaks induced by nutrient overload, and at the same time had no effect on the mitochondrial morphology of healthy INS1 cells. [1]</p> <p>METHODS: Immortalized human trabecular meshwork cells iHTM and glaucomatous human trabecular cell line GTM3 cells were pretreated with Elamipretide (0.01-1 μM) for 1 h, followed by incubation with H₂O₂ (200 μM) for 24 h, and LDH release was detected by calorimetric assay.</p> <p>RESULTS: Incubation with H₂O₂ resulted in a significant increase in LDH release in iHTM and GTM3 cells, and pretreatment with MTP-131 dose-dependently inhibited LDH release. [2]</p>
In vivo	<p>METHODS: To investigate the effects on cognitive sequelae of inflammation and oxidative stress, Elamipretide (5 mg/kg) was administered intraperitoneally to LPS-injected C57BL/6 mice once daily for three days.</p> <p>RESULTS: LPS-induced memory impairment could be attenuated by the mitochondria-targeted antioxidant Elamipretide. [3]</p> <p>METHODS: To test the phenotypic effects on aging in mice, Elamipretide (3 mg/kg) was injected subcutaneously into C57BL/6 mice five times a week for ten months.</p> <p>RESULTS: Elamipretide enhanced healthy aging and cardiac function in both male and female mice, although the specific effects on function varied by sex. In females, the treatment improved cognition and maintained body composition, while in males, rotisserie performance was preserved. [4]</p>

Solubility Information

A DRUG SCREENING EXPERT

Solubility	H2O: 100 mg/mL (156.3 mM),Sonication is recommended. DMSO: 50 mg/mL (78.15 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	5% DMSO+95% Saline: 1.45 mg/mL (2.27 mM),Solution. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.563 mL	7.8151 mL	15.6301 mL
5 mM	0.3126 mL	1.563 mL	3.126 mL
10 mM	0.1563 mL	0.7815 mL	1.563 mL
50 mM	0.0313 mL	0.1563 mL	0.3126 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

- Petcherski A, et al. Elamipretide Promotes Mitophagosome Formation and Prevents Its Reduction Induced by Nutrient Excess in INS1 β -cells. *J Mol Biol.* 2018 Dec 7;430(24):4823-4833.
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