Product Datasheet

Technical Data

Formula	$C_{10}H_5F_3N_4O$					
Molecular Weight	254.17	**CAS No.**	370-86-5			
Solubility (25°C)*	In vitro	DMSO	51 mg/mL (200.65 mM)			
		Ethanol	51 mg/mL (200.65 mM)			
		Water	Insoluble			
	In vivo (Add solvents to the product individually and in order)	Oral Administration	Homogeneous suspension	CMC-NA	≥5mg/ml	Taking the 1 mL working solution as an example, add 5 mg of this product to 1 ml of CMC-Na solution, mix evenly to obtain a homogeneous suspension with a final concentration of 5 mg/ml.
		Injection	Clear solution	5%DMSO [1] → 40%PEG300 [2] → 5%Tween80 [3] → 50%ddH2O Validated by Capsid Bio labs. Should you need adjustments to this formulation, contact our sales team for custom testing.	1.300mg/ml (5.11mM)	Taking the 1 mL working solution as an example, add 50 μL of 26 mg/ml clarified DMSO stock solution to 400 μL of PEG300, mix evenly to clarify it; add 50 μL of Tween80 to the above system, mix evenly to clarify; then continue to add 500 μL of ddH2O to adjust the volume to 1 mL. The mixed solution should be used immediately for optimal results.
			Clear solution	5% DMSO [1] → 95% Corn oil Validated by Capsid Bio labs. Should you need adjustments to this formulation, contact our sales team for custom testing.	0.300mg/ml (1.18mM)	Taking the 1 mL working solution as an example, add 50 μL of 6 mg/ml clear DMSO stock solution to 950 μL of corn oil and mix evenly. The mixed solution should be used immediately for optimal results.

* <1 mg/ml means slightly soluble or insoluble.
* Please note that Capsid Bio tests the solubility of all compounds in-house, and the actual solubility may differ slightly from published values. This is normal and is due to slight batch-to-batch variations.
* Room temperature shipping (Stability testing shows this product can be shipped at 2-8°C for storage purposes.)

Preparing Stock Solutions

Concentration \ Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.9344 mL	19.6719 mL	39.3437 mL
5 mM	0.7869 mL	3.9344 mL	7.8687 mL
10 mM	0.3934 mL	1.9672 mL	3.9344 mL
50 mM	0.0787 mL	0.3934 mL	0.7869 mL

Biological Activity

Description	FCCP (Trifluoromethoxy carbonylcyanide phenylhydrazone, Carbonyl cyanide 4-(trifluoromethoxy)phenylhydrazone) is a potent **uncoupler of oxidative phosphorylation** in mitochondria that disrupts ATP synthesis by transporting protons across cell membranes.
Targets	OXPHOS [2] ; ATP synthase [2]
In vitro	FCCP treatment induces a very rapid 2-fold increase in intracellular Ca2+ concentration that is accompanied by a strong protein synthesis rate inhibition. The translation inhibition correlates with an increased phosphorylation of the α subunit of eIF2 (eIF2α) and a 1.7-fold increase in the double-stranded RNA-dependent protein kinase activity[1]. This compound also mildly decreases ATP and reactive oxygen species levels. It increases the expression of mitochondrial genes such as Tfam and COXIV while inducing morphological features of quiescent mouse HSCs and abrogating TGF-β signal transduction[2].
In vivo	FCCP significantly reduces mitochondrial membrane potential and ATP production in 8-cell mouse embryos and the number of inner cell mass cells within blastocysts with unchanged blastocyst development. This perturbed embryonic mitochondrial function is concomitant with reduced birth weight in female offspring following embryo transfer, which persists until weaning. Although this compound-treated males also exhibits reduced glucose tolerance as female, but their insulin sensitivity and adiposity gain between 4 and 14 weeks is unchanged. Reducing mitochondrial function and, thus, decreasing ATP output in the precompacting embryo can influence offspring phenotype[3].

Protocol (from reference)

Cell Assay:[1]

- **Cell lines**
  PC12 cells
- **Concentrations**
  30 μM
- **Incubation Time**
  30 min, 1h, 2h
- **Method**
  Protein synthesis rate is assayed in 24-mm diameter multi-well dishes with fresh medium containing 0.175 Ci/mmol of [3H]methionine (200 μM), for 30 min at 37°C. PC12 cells are treated with this compound for different period of times.

Animal Study:[4]

- **Animal Models**
  Female C57BL/6 mice
- **Dosages**
  1 mg/kg

- **Administration**
  i.p.

References

https://pubmed.ncbi.nlm.nih.gov/11248255/ https://pubmed.ncbi.nlm.nih.gov/22686625/ https://pubmed.ncbi.nlm.nih.gov/25715796/

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RETURN POLICY

Capsid Bio's Unconditional Return Policy ensures a smooth online shopping experience for our customers. If you are in any way unsatisfied with your purchase, you may return any item(s) within 7 days of receiving it. In the event of product quality issues, either protocol related or product related problems, you may return any item(s) within 365 days from the original purchase date. Please follow the instructions below when returning products.

SHIPPING & STORAGE

Capsid Bio products are transported at room temperature. If you receive the product at room temperature, please rest assured, the Capsid Bio Quality Inspection Department has conducted experiments to verify that the normal temperature placement of one month will not affect the biological activity of powder products. After collecting, please store the product according to the requirements described in the datasheet. Most Capsid Bio products are stable under the recommended conditions.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

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