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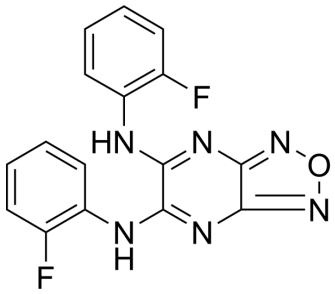
BAM 15

Cat. No.:	HY-110284
CAS No.:	210302-17-3
Molecular Formula:	$C_{16}H_{10}F_2N_6O$
Molecular Weight:	340.29
Target:	Mitochondrial Metabolism; Oxidative Phosphorylation
Pathway:	Metabolic Enzyme/Protease; Others
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 1 year -20°C 6 months



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (146.93 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9387 mL	14.6933 mL	29.3867 mL
	5 mM	0.5877 mL	2.9387 mL	5.8773 mL
	10 mM	0.2939 mL	1.4693 mL	2.9387 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

BAM 15 is a mitochondrial protonophore uncoupler. BAM 15 is an oxidative phosphorylation (OXPHOS) uncoupler[1].

In Vitro

BAM 15 is able to increase O_2 consumption across a broad dosing range without increasing ROS. BAM 15 and FCCP are structurally unrelated and it is observed that low doses of BAM 15 from 100 nM to 1 μM increase cellular O_2 consumption rate (OCR) to a similar degree as FCCP, but higher concentrations from 1 μM to 50 μM reveal that BAM 15 is able to maintain uncoupled respiration at a high rate in a range of cell lines. BAM 15 is fully capable of increasing mitochondrial respiration in the presence of oligomycin and does so across a broader concentration range than FCCP in both myoblasts and hepatocytes. BAM 15 induces mitochondrial swelling, demonstrating that BAM 15 is a protonophore. BAM15-treated cells are more viable than FCCP-treated cells when administered across a broad dosing range up to 50 μM[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Compare to vehicle-treated mice, animals that receive BAM 15 are protected from kidney injury as indicated by lower

	plasma creatinine levels at 24 and 48 h post-ischemia, reduced tubular necrosis, less depletion of brush border villi, less obstruction of proximal tubules, and less immune cell infiltration[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [1]	Electron flow assays are performed. Briefly, 5 μg of mitochondrial protein in MAS is loaded into a 24-well tissue culture plate and centrifuged at 2000×g for 15 min at 4°C. Prior to the assay, mitochondria are incubated at 37°C for 10 mins in MAS containing 10 mM pyruvate, 2 mM malate, and 5 μM BAM 15 or FCCP. Rotenone (2 μM), succinate (10 mM), antimycin A (4 μM), and N,N,N′,N′-tetramethyl-p-phenylenediamine (TMPD, 100 μM) plus ascorbate (10 mM) are added sequentially as indicated in the figure. N=3 wells/plate of a representative of 3 plates[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Cell Assay [1]	L6 cells are incubated with the fluorescent indicator of mitochondrial membrane potential tetramethylrhodamine (TMRM, 125 nM) or DMSO (1%) control for 30 min. The cells are then centrifuged for 5 min at 700×g and resuspended in unbuffered DMEM at a concentration of 1×10^5 cells/mL. The cells are then treated with BAM 15 or DMSO (0.1%) for 10 min prior to flow cytometric analysis[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Male mice (8-week old, C57BL/6) are used. Mice are i.p. injected with BAM 15 at 1 or 5 mg/kg, 1 h before kidney IR. Vehicle mice are also injected with the same solution BAM 15 is prepared with (3% DMSO in 50% PEG400)[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Int J Biol Macromol. 2022 Jun 28;S0141-8130(22)01380-0.
- Biochem Pharmacol. 2022 Feb 19;198:114948.

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REFERENCES

[1]. Kenwood BM, et al. Identification of a novel mitochondrial uncoupler that does not depolarize the plasma membrane. Mol Metab. 2013 Nov 28;3(2):114-23.

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