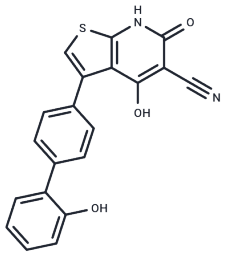
Data Sheet (Cat.No.T2468)

TargetMol

A-769662

Chemical Properties



CAS No. : 844499-71-4

Formula: C20H12N2O3S

Molecular Weight: 360.39

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	A-769662 is an effective, reversible AMPK activator(EC50=0.8 μM).
Targets(IC50)	AMPK,Fatty Acid Synthase
In vitro	In ob/ob mice, A-769662 (30 mg/kg, b.i.d.) effectively reduces the hepatic expression of PEPCK, G6Pase, and FAS, decreases plasma glucose levels, and lowers triglyceride levels in both plasma and liver, thereby mitigating weight gain.
In vivo	A-769662 activates AMPK, purified from various tissues and species, in a dose-dependent manner, demonstrated across purified rat liver (EC50=0.8 μM), rat heart (EC50=2.2 mM), rat muscle (EC50=1.9 mM), and human embryonic kidney cells (HEKs) (EC50=1.1 mM). In hepatocytes, A-769662 enhances ACC phosphorylation and inhibits fatty acid synthesis, with IC50 values of 3.2 μM in primary rat hepatocytes and 3.6 μM in mouse hepatocytes. The activation of AMPK by A-769662 involves preventing the dephosphorylation at Thr-172 and structural modulation. Furthermore, A-769662 inhibits the in vitro activity of the purified 26S proteasome, as well as cell proliferation and DNA synthesis.
Kinase Assay	96-well AMPK assay: AMPK activity is measured by monitoring phosphorylation of the SAMS peptide substrate (20 mM in standard assays and 100 mM in additivity assays) following a previously described protocol (Anderson et al., 2004). To determine whether A-769662-induced AMPK activation occurs in a reversible manner, AMP or A-769662 are preincubated with rat liver AMPK for 10 minutes at 20 times standard assay concentrations prior to dilution and measurement of AMPK activity.
Cell Research	Cell viability of MEF cells treated or not with A-769662 is performed as follows: cells are harvested by trypsinization and incubated with 0.5 mg/mL RNase and 50 μg/mL propidium iodine at room temperature in the dark; cell viability is analyzed by flow cytometry using a FACScanto flow cytometer, using an excitation laser at 488 nm and a propidium iodine fluorescence detection at 600 nm. To determine the proportion of cells in each phase of the cell cycle, cells are harvested by trypsinization, collected by centrifugation, washed in PBS and fixed overnight in 80% ethanol at -20 °C. Subsequently, these fixed cells are centrifuged to remove the fixative and incubated for 20 minutes in the dark at room temperature in PBS containing 0.5 mg/mL RNase and 50 μg/mL propidium iodine. Flow cytometry analysis is performed as above. The proportion of cells in G1, S, and G2 is determined using the MODFIT program. Cell culture

Cell Research	pictures are taken at the indicated times using a camera coupled to an inverted microscope with a 20 × objective. (Only for Reference)

Solubility Information

Solubility	Ethanol: 3.61 mg/mL (10.02 mM),Sonication is recommended. DMSO: 51 mg/mL (141.51 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4.5 mg/mL (12.49 mM),Solution. *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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.7748 mL	13.8739 mL	27.7477 mL
5 mM	0.555 mL	2.7748 mL	5.5495 mL
10 mM	0.2775 mL	1.3874 mL	2.7748 mL
50 mM	0.0555 mL	0.2775 mL	0.555 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

Cool B, et al, Cell Metab, 2006, 3(6), 403-416.
Lu X Y, Shi X J, Hu A, et al. Feeding induces cholesterol biosynthesis via the mTORC1-USP20-HMGCR axis. Nature. 2020, 588(7838): 479-484.
Sanders MJ, J Biol Chem, 2007, 282(45), 32539-32548.
Moreno D, et al, FEBS Lett, 2008, 583(17), 2650-2654.
Pevton KJ, et al, J Pharmacol Exp Ther, 2012, Jun 13.
Lu X Y, Shi X J, Hu A, et al. Feeding induces cholesterol biosynthesis via the mTORC1-USP20-HMGCR axis[J]. Nature. 2020, 588(7838): 479-484.