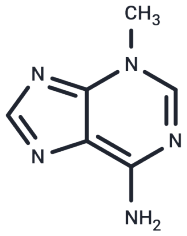
Data Sheet (Cat.No.T1879)

TargetMol

3-Methyladenine

Chemical Properties



CAS No. :	5142-23-4
Formula:	C6H7N5
Molecular Weight:	149.15
Appearance:	no data available
Storage:	store at low temperature,keep away from direct sunlight,keep away from moisture Powder: -20°C for 3 years

Biological Description

Description	3-Methyladenine (3-MA) is a PI3K inhibitor that selectively inhibits class IB PI3Kγ (IC50 = 60 μM) and class III VPS34 (IC50 = 25 μM). 3-Methyladenine inhibits autophagy.
Targets(IC50)	Mitophagy,Endogenous Metabolite,Autophagy,PI3K
In vitro	**METHODS**: Human cervical cancer cells HeLa were treated with 3-Methyladenine (2.5-10 mM) for 48 h. Cell growth inhibition was detected by Trypan blue dye exclusion assay. **RESULTS**: 3-Methyladenine decreased HeLa cell viability in a time- and dose-dependent manner. [1] **METHODS**: Adipocytes 3T3-L1 were treated with 3-Methyladenine (5 mM) for 4 h in the absence of serum, and the expression levels of target proteins were detected by Western Blot. **RESULTS**: 3-Methyladenine significantly decreased the intracellular level of LC3-II, a marker of autophagy, and increased the expression of p62, indicating that 3-Methyladenine was effective in inhibiting autophagy. [2] **METHODS**: Mouse melanoma cells B16 were treated with 2DG (5 mM), rotenone (1 μM) and 3-Methyladenine (1.2-5 mM) for 24 h. Cytotoxicity was detected by LDH release assay. **RESULTS**: 3-Methyladenine dose-dependently reduced the up-regulation of LDH release induced by 2DG/rotenone. 3-Methyladenine protected tumor cells from inhibition of glycolysis and mitochondrial respiration. [3]
In vivo	**METHODS**: To investigate the effects of 3-Methyladenine on atherosclerosis, 3-Methyladenine (30 mg/kg) was injected intraperitoneally into HFD-fed ApoE-/- mice twice weekly for eight weeks. **RESULTS**: In mice fed a high-fat diet, 3-Methyladenine treatment significantly reduced the size of atherosclerotic plaques and increased the stability of the lesions. 3-Methyladenine has multiple atheroprotective effects on atherosclerosis, including modulation of macrophage autophagy and foam cell formation as well as alteration of the immune microenvironment. [4] **METHODS**: To investigate the regulatory role of autophagy, a single dose of 3-Methyladenine (15 mg/kg) was administered intraperitoneally to LPS-induced endotoxic shock in C57/BL6 mice. **RESULTS**: Animals treated with LPS in combination with 3-Methyladenine showed

	increased survival and decreased serum inflammatory mediators TNF-α and IL-6 after endotoxemia. [5]
Cell Research	Cells were seeded in an 8-well coverglass-bottomed chamber for 24 hours (6×10^3 cells per well). Images were acquired automatically at multiple locations on the coverglass using a Nikon TE2000E inverted microscope fitted with a 20× Nikon Plan Apo objective, a linearly-encoded stage, and a Hamamatsu Orca-ER CCD camera. A mercury-arc lamp with two neutral density filters (for a total 128-fold reduction in intensity) was used for fluorescence illumination. The microscope was controlled using NIS-Elements Advanced Research software and housed in a custom-designed 37°C chamber with a secondary internal chamber that delivered humidified 5% CO2. Fluorescence and differential interference contrast images were obtained every 10 min for a period of 48 hours. To analyze live cell imaging movies, the time-lapse records of live cell imaging experiments were exported as an image series and analyzed manually using NIS-Elements Advanced Research software. The criteria for analyses were described previously, and lagging chromosomes in prometaphase were defined as the red fluorescence-positive materials that lingered outside the roughly formed metaphase plate for more than 3 frames (30 min) [2].
Animal Research	All rats were fasted for 12 h with free access to water prior to operation. After anesthesia by intraperitoneal (i.p.) injection of 2% sodium pentobarbital (0.25 mL/100 g), they were laid and fixed on the table, routinely shaven, disinfected, and draped. The rat SAP model was induced by 0.1 mL/min speed uniformly retrograde infusion of a freshly prepared 3.5% sodium taurocholate solution (0.1 mL/100 g) into the biliopancreatic duct after laparotomy. Equivalent volume of normal saline solution was substituted for 3.5% sodium taurocholate solution in the sham-operation (SO) control group. The incision was closed with a continuous 3-0-silk suture, and 2 mL/100 g of saline was injected into the back subcutaneously to compensate for the fluid loss. 180 rats were randomly divided into four groups: (1) Acanthopanax treatment group (Aca group, n = 45) where the rats were injected with 0.2% Acanthopanax injection at a dose of 3.5 mg/100 g 3 h after successful modeling via the vena caudalis once, knowing that this dosage was effective as proven in our previous experiment; (2) 3-Methyladenine treatment group (3-methyladenine group, n = 45) where the rats were injected with 100 nmol/μL 3-methyladenine solution at a dose of 1.5 mg/100 g 3 h after successful modeling via the intraperitoneal route once, knowing that this dosage was effective as proven in the literature [6]; (3) SAP model group (SAP group, n = 45) where these rats received an equivalent volume of the normal saline instead of Acanthopanax injection 3 h after successful modeling via the vena caudalis once; (4) SO group (control, n = 45) where these rats received an equivalent volume of the normal saline instead of Acanthopanax injection 3 h after successful sham-operation via the vena caudalis once. The 45 animals in each of the four groups were equally randomized into 3, 12, and 24 h subgroups for postoperative observations [4].

Solubility Information

Solubility	DMSO: 13.75 mg/mL (92.19 mM),Heating is recommended.(The compound is unstable in solution, please use soon.) Ethanol: 4 mg/mL (26.82 mM),Sonication is recommended. H2O: 3 mg/mL (20.11 mM),Sonication and heating are recommended. (The compound is unstable in solution, please use soon.) (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	6.7047 mL	33.5233 mL	67.0466 mL
5 mM	1.3409 mL	6.7047 mL	13.4093 mL
10 mM	0.6705 mL	3.3523 mL	6.7047 mL
50 mM	0.1341 mL	0.6705 mL	1.3409 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.

Reference

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