3-Methyladenine

Autophagy Inhibitor; PI3K inhibitor
Catalog code: inh-3ma-2
https://www.invivogen.com/3-methyladenine

For research use only
Version 23D21-MM

PRODUCT INFORMATION
Contents
- 2 x 50 mg of 3-Methyladenine

Storage and stability:
- 3-Methyladenine is shipped at room temperature. Upon receipt, store at 15-25 °C (room temperature).
- Upon resuspension in DMSO, prepare aliquots of 3-Methyladenine and store at -20 °C. 3-Methyladenine resuspended in DMSO is stable for 3 months when properly stored. Avoid repeated freeze-thaw cycles.

Quality control:
- ≥90% (UHPLC).
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION
3-Methyladenine (also known as 3-MA) is an inhibitor of phosphatidylinositol 3-kinases (PI3K). PI3K plays an important role in many biological processes, including controlling the activation of mTOR, a key regulator of autophagy. 3-MA inhibits autophagy by blocking autophagosome formation via the inhibition of class III PI3K

3-Methyladenine plays a dual role in autophagy. Prolonged treatment with 3-Methyladenine promotes autophagy under nutrient-rich conditions, whereas 3-Methyladenine inhibits starvation-induced autophagy
2. These results are attributed to differential effects on class I versus class III PI3K.

In addition to its role in autophagy, 3-Methyladenine has been implicated in cancer therapy
3. It has been revealed that 3-Methyladenine suppresses the invasion of highly metastatic cancer cells through the inhibition of class I and II PI3K
4. Further studies demonstrated that 3-Methyladenine can induce caspase-dependent cell death that is independent of autophagy inhibition
5.

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CHEMICAL PROPERTIES
CAS number: 5142-23-4
Formula: C6H7N5
Molecular weight: 149.2 g/mol
Solubility: 7.5 mg/ml (50 mM) in DMSO heated for 5 minutes at 55°C
Structure:

METHODS
Preparation of stock solution at 7.5 mg/ml (50 mM)
1. Weigh 5 mg of 3-Methyladenine.
2. Add 670 µl of DMSO.
3. Heat to 55°C for 5 minutes.
4. Once 3-Methyladenine has been dissolved in DMSO, it can be used immediately or stored at -20°C for 3 months.
5. Prepare further dilutions using sterile culture medium. We do not recommend storing the aqueous solution for more than one day.

PROTOCOLS
For reference only; as described in the indicated publications.
Cell Culture Assay
- Cell type: Mouse embryonic fibroblasts (MEFs)
- Working concentration: 5 mM
- Pre-incubation time: 1-9 hours
- Method: Confocal microscopy observation of LC3 autophagy

Animal Study
- Animal model: Adult male Sprague–Dawley rats
- Dose: 400 nM
- Administration: Intracerebral ventricular
- Solubility: 30% propylene glycol, 5% Tween 80, 65% D5W, 30 mg/ml

RELATED PRODUCTS

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