

## Product Specification Sheet

**Product Name:** 3-MA

**Catalog Number:** C0362

**Technical information:**

Chemical Formula: C<sub>6</sub>H<sub>7</sub>N<sub>5</sub>

CAS #: 5142-23-4

Molecular Weight: 149.15

Purity: > 98%

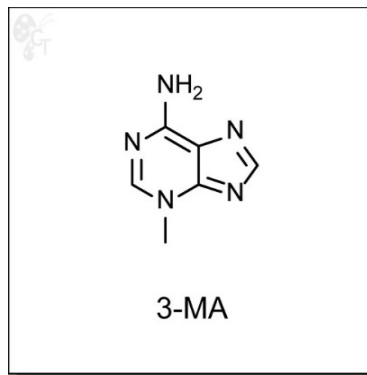
Appearance: White

Solubility: Soluble in DMSO up to 22 mM

Chemical Name: 3-methyladenine

Storage: Store solid powder at 4°C desiccated; Store DMSO solution at -20°C.

Shelf Life: In the unopened package, powder is stable for 1 year and DMSO solution is stable for 6 months under proper storage condition.



- Handling:**
- To make 10 mM stock solution, add 0.67mL of DMSO for each mg of 3-MA
  - For DMSO solution, briefly spin the vial at 500 rpm in a 50 mL conical tube to ensure maximum sample recovery.

**Biological Activity:** 3-methyladenine (3MA) is a specific inhibitor of autophagy with activity against Vps34 and PI3K $\alpha$  at IC<sub>50</sub> values of 25 and 60  $\mu$ M, respectively. [1] At concentrations of 5 mM, 3-methyladenine inhibits protein degradation in isolated rat hepatocytes by about 60% without any adverse effects on exogenous protein, protein synthesis, or intracellular ATP levels. [2]

3-methyladenine was shown in time-dependent studies to inhibit class I and class III PI3K in different manners when compared to wortmannin. [3] In an inflammation model setting, 3-methyladenine was found to enhance LPS-induced NF- $\kappa$ B activation and production of TNF- $\alpha$ , iNOS, COX-2, IL-1 $\beta$ , and IL-12. Through the inhibition of Akt by way of class I PI3K interference, 3-methyladenine can positively regulate p38, JNK, and p65, while negatively regulate TBK1 and IFN regulatory factor 3. [4]

- Reference:**
1. Miller et al., Finding a fitting shoe for Cinderella: searching for an autophagy inhibitor. *Autophagy*, 2010, 6(6), 805-807. Pubmed ID: 20574157
  2. Seglen et al., 3-Methyladenine: specific inhibitor of autophagic/lysosomal protein degradation in isolated rat hepatocytes. *Proc. Natl. Acad. Sci.* 1982, 79(6), 1889-1892. Pubmed ID: 6952238
  3. Wu et al., Dual role of 3-methyladenine in modulation of autophagy via different temporal patterns of inhibition on class I and III phosphoinositide 3-kinase. *J. Biol. Chem.* 2010, 285(14), 10850-10861. Pubmed ID: 20123989
  4. Lin et al., Regulation of inflammatory response by 3-methyladenine involves the coordinative actions on Akt and glycogen synthase kinase 3 $\beta$  rather than autophagy. *J. Immunol.* 2012, 189, 4154-4164. Pubmed ID: 22972931

For Technical Support: [technical@cellagentech.com](mailto:technical@cellagentech.com)

*For research use only, not for clinical or diagnostic use.*