

PRODUCT INFORMATION



Mithramycin A

Item No. 11434

CAS Registry No.: 18378-89-7

Formal Name: (1S)-5-deoxy-1-C-[[[2S,3S)-7-[[[2,6-dideoxy-3-O-(2,6-dideoxy-β-D-arabino-hexopyranosyl)-β-D-arabino-hexopyranosyl]oxy]-3-[[O-2,6-dideoxy-3-C-methyl-β-D-ribo-hexopyranosyl-(1→3)-O-2,6-dideoxy-β-D-lyxo-hexopyranosyl-(1→3)-2,6-dideoxy-β-D-arabino-hexopyranosyl]oxy]-1,2,3,4-tetrahydro-5,10-dihydroxy-6-methyl-4-oxo-2-anthracenyl]-1-O-methyl-D-threo-2-pentulose

Synonyms: A 2371, Antibiotic LA 7017, Aureolic Acid, NSC 24559, PA 144, Plicamycin

MF: C₅₂H₇₆O₂₄

FW: 1,085.2

Purity: ≥98%

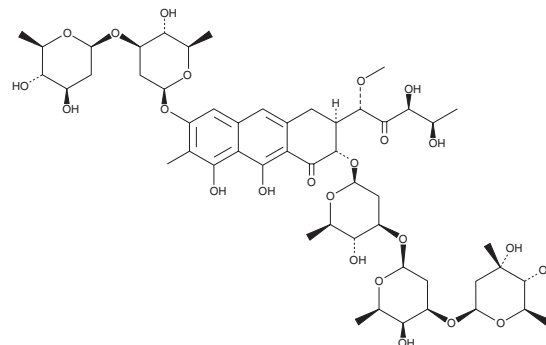
UV/Vis.: λ_{max}: 229, 279, 318, 331, 414 nm

Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥4 years

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.



Laboratory Procedures

Mithramycin A is supplied as a crystalline solid. A stock solution may be made by dissolving the mithramycin A in the solvent of choice, which should be purged with an inert gas. Mithramycin A is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of mithramycin A in ethanol is approximately 10 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of mithramycin A can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of mithramycin A in PBS (pH 7.2) is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Mithramycin A is a DNA-binding, anti-tumor and neuroprotective antibiotic originally isolated from *S. grieseus* that has long been used as a chemotherapeutic agent. It mediates its protective function, in part, by regulating acetylation of histones or transcription factors and, thereby, chromatin accessibility to transcriptional machinery. As a selective Sp1 inhibitor, mithramycin A binds to GC rich DNA sequences, displacing Sp1 transcription factor binding to oncogene promoters, which inhibits their expression.^{1,2} Mithramycin A (at 10-200 nM) can sensitize tumor cells to TRAIL-induced apoptosis and has been used to selectively target tumor cells in many different cancer models.³⁻⁵

References

1. Sleiman, S.F., Berlin, J., Basso, M., et al. *Pharmaceuticals* **4**, 1183-1195 (2011).
2. Sleiman, S.F., Langley, B.C., Basso, M., et al. *J. Neurosci.* **31(18)**, 6858-6870 (2011).
3. Lee, T.-J., Jung, E.M., Lee, J.T., et al. *Mol. Cancer Ther.* **5**, 2737-2746 (2006).
4. Jia, Z., Gao, Y., Wang, L., et al. *Cancer Res.* **70**, 1111-1119 (2010).
5. Duverger, V., Murphy, A.-M., Sheehan, D., et al. *Br. J. Cancer* **90**, 2025-2031 (2004).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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