

PRODUCT INFORMATION



Nonactin, Monactin, and Dinactin Mixture

Item No. 19468

CAS Registry No.: 6833-84-7

Formal Name: (1R,2R,5R,7R,10S,11S,14S,16S,19R,20R,23R,25R,28S,29S,32S,34S)-2,5,11,14,20,23,29,32-octamethyl-4,13,22,31,37,38,39,40-octaoxapentacyclo[32.2.1.1^{7,10}.1^{16,19}.1^{25,28}]tetracontane-3,12,21,30-tetrone

MF: C₄₀H₆₄O₁₂ (for Nonactin)

FW: 736.9 (for Nonactin)

Purity: ≥95% (mixture of homologues)

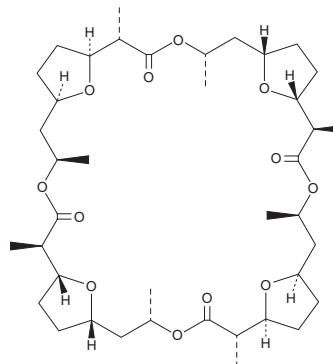
Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥2 years

Item Origin: Bacterium/*Streptomyces griseus*

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



Laboratory Procedures

Nonactin, monactin, and dinactin mixture is supplied as a crystalline solid. A stock solution may be made by dissolving the nonactin, monactin, and dinactin mixture in the solvent of choice, which should be purged with an inert gas. Nonactin, monactin, and dinactin mixture is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of nonactin, monactin, and dinactin mixture in these solvents is approximately 1, 0.25, and 10 mg/ml, respectively.

Nonactin, monactin, and dinactin mixture is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, nonactin, monactin, and dinactin mixture should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Nonactin, monactin, and dinactin mixture has a solubility of approximately 0.33 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Nonactin, monactin, and dinactin mixture is a macrotetralide antibiotic.¹ This product is a mixture of the macrotetralide antibiotic homologs nonactin, monactin (Item No. 25742), and dinactin (Item No. 20752) that all act as ionophores for monovalent cations.²⁻⁷ Nonactin is a mitochondrial membrane uncoupler and an inhibitor of adenine nucleotide translocase (ANT; IC₅₀s = 4.4, 3.3, 4.7, and 3.3 μM for recombinant human ANT1-4, respectively).^{8,9} It selectively induces apoptosis in cancer cells and induces tumor regression in mouse xenograft models expressing mutant β-catenin over cancer cells and xenografts expressing wild-type β-catenin.⁸ Monactin induces swelling of rat liver mitochondria in medium containing either potassium or sodium, stimulates respiration, and uncouples oxidative phosphorylation.¹⁰ It also inhibits Wnt signaling via inhibition of TCF-β-catenin transcriptional activity.¹¹ Dinactin inhibits T cell proliferation and cytokine production *in vitro* and reduces pulmonary eosinophilia in antigen-challenged mice.¹²

References

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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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