

**Product Name:** Nonactin

**Catalog No.:** 2505

**Batch No.:** 1

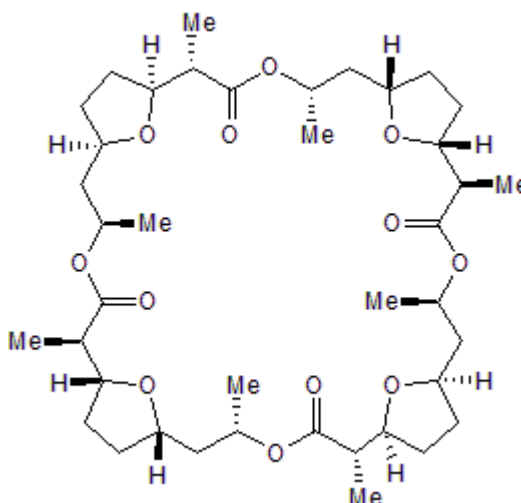
CAS Number: 6833-84-7

EC Number: 229-911-3

IUPAC Name: (1*R*,2*R*,5*R*,7*R*,10*S*,11*S*,14*S*,16*S*,19*R*,20*R*,23*R*,25*R*,28*S*,29*S*,32*S*,34*S*)-2,5,11,14,20,23,29,32-Octamethyl-4,13,22,31,37,38,39,40-octaoxapentacyclo[32.2.1.17,10.116,19.125,28]tetracontane-3,12,21,30-tetrone

## 1. PHYSICAL AND CHEMICAL PROPERTIES

<b>Batch Molecular Formula:</b>	C <sub>40</sub> H <sub>64</sub> O <sub>12</sub>
<b>Batch Molecular Weight:</b>	736.94
<b>Physical Appearance:</b>	White crystalline solid
<b>Solubility:</b>	ethanol to 10 mM
<b>Storage:</b>	Desiccate at -20°C
<b>Batch Molecular Structure:</b>	



## 2. ANALYTICAL DATA

<b>Melting Point:</b>	Between 145 - 146°C
<b><sup>1</sup>H NMR:</b>	Consistent with structure
<b>Mass Spectrum:</b>	Consistent with structure

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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IUPAC 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[32.2.1.17,10.116,19.125,28]tetracontane-3,12,21,30-tetrone

**Description:**

Monovalent cation ionophore that displays selectivity for K<sup>+</sup> and NH<sub>4</sub><sup>+</sup> (K<sup>+</sup> = NH<sub>4</sub><sup>+</sup> > Na<sup>+</sup> > Mg<sup>2+</sup> > Li<sup>+</sup> >> Ca<sup>2+</sup> for nonactin-EVA sensor). Induces cation transport across artificial membranes. Also inhibits P-glycoprotein-mediated efflux of chemotherapeutic agents in multiple-drug resistant cancer cells. Antibiotic.

**Physical and Chemical Properties:**

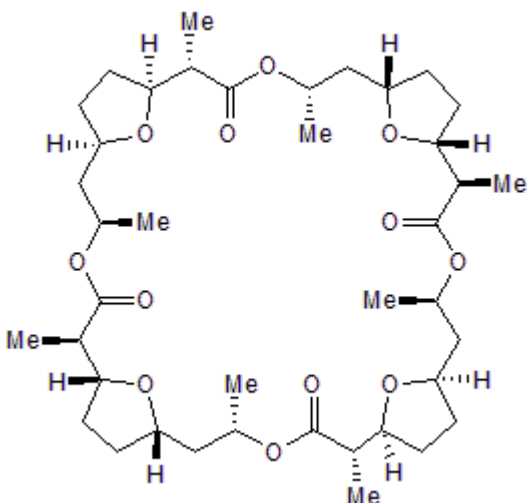
Batch Molecular Formula: C<sub>40</sub>H<sub>64</sub>O<sub>12</sub>

Batch Molecular Weight: 736.94

Physical Appearance: White crystalline solid

**Minimum Purity:** >93%

**Batch Molecular Structure:**



**References:**

**Borrel et al** (1994) Mobile ionophores are a novel class of P-glycoprotein inhibitors. The effects of ionophores on 4'O-tetrahydropyranlyl-adriamycin incorporation in K562 drug-resistant cells. *Eur.J.Biochem.* **223** 125. PMID: 7518390.

**Woo et al** (1999) Nonactin biosynthesis: the product of nonS catalyzes the formation of the furan ring of nonactic acid. *Antimicrob.Agents Chemother.* **43** 1662. PMID: 10390219.

**Garcia et al** (2003) Determination of potassium ions in pharmaceutical samples by FIA using a potentiometric electrode based on ionophore nonactin occluded in EVA membrane. *J.Pharm.Biomed.Anal.* **31** 11. PMID: 12560044.

**Storage:** Desiccate at -20°C

**Solubility & Usage Info:**

ethanol to 10 mM

This compound contains up to 7% of Monactin (calculated by <sup>1</sup>H NMR).

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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